Creating reports with the Interactive Report Facility ............................................. 2775
Using Statistics traces to get system overview information .......................... 2783
Using an Accounting report to analyze resource activities .......................... 2788
Using Statistics and Accounting reports to identify exceptions .................... 2794
Using SQL Activity reports to monitor SQL performance ............................ 2803
Using Explain reports to monitor access paths ............................................. 2810
Locking Activity reports and traces ............................................................. 2822
I/O Activity reports .................................................................................. 2826
Utility Activity reports ............................................................................... 2829
Record Trace reports .................................................................................. 2833
Housekeeping reports ............................................................................... 2840
General Accounting information ............................................................... 2865
Creating effective Accounting reports ....................................................... 2877
General Statistics information ...................................................................... 2912
Exception processing .................................................................................. 2928
Reporting distributed data ........................................................................ 2935
Reporting data sharing information ............................................................. 2938
Streamlining OMEGAMON XE for DB2 PE processing ............................... 2942
Customizing OMEGAMON XE for DB2 PE functions ................................. 2949
The Performance Database and the Performance Warehouse ....................... 2972
Generating input data for spreadsheets ....................................................... 2985
Further reference information .................................................................... 2994
Report reference ........................................................................................ 3004
OMEGAMON for Db2 PE Logs ..................................................................... 3005
Accounting Report Set ............................................................................... 3017
Explain Report ........................................................................................... 3410
I/O activity report set ................................................................................ 3423
Locking Report Set ...................................................................................... 3448
Record Trace Report Set ............................................................................. 3510
SQL Activity Report Set .............................................................................. 4205
Statistics report set ..................................................................................... 4267
System parameters report set ..................................................................... 4490
Utility Activity Report Set ........................................................................... 4620
Additional Record Information .................................................................... 4643

Chapter 7. Commands ............................................................. 4651
Operator commands .................................................................................... 4651
  Started-task commands ........................................................................... 4651
  Additional OMEGAMON Collector subtask commands .......................... 4652
Report commands ...................................................................................... 4665
OMEGAMON for Db2 PE identifiers ........................................................... 4665
The OMEGAMON for Db2 PE command stream ....................................... 4673
Output from OMEGAMON for Db2 PE reports ......................................... 4674
DD statements .......................................................................................... 4676
OMEGAMON for Db2 PE commands ......................................................... 4686
Auxiliary commands ................................................................................. 4780
Troubleshooting commands ....................................................................... 4802
OMEGAMON for Db2 PE subcommand options ......................................... 4806

Chapter 8. Reference information ...................................................... 4833
What's new in previous editions ................................................................. 4833
Using GROUP to improve Save data set performance ............................... 4841
Comparing original authorization IDs with primary authorization IDs ...... 4842
Fields affected by roll-up during distributed and parallel tasks .................. 4844
Using ACCOUNTING REDUCE subcommand options to balance performance and data set space 4844
Accessibility ............................................................................................... 4846

Chapter 9. Messages ................................................................. 4849
Introduction to OMEGAMON XE for DB2 PE messages ........................... 4850
  The layout of message descriptions ......................................................... 4850
  The structure of message numbers ......................................................... 4850
  When you contact IBM support ............................................................... 4852
BPOK - Buffer Pool Analyzer messages ..................................................... 4852
DGOK - Workstation client messages .......................................................... 4856
DGOP - Performance Warehouse messages .............................................. 4870
FPEA - Accounting report set messages .................................................... 4878
FPEB - User-Tailored Reporting messages .................................................. 4882
FPEC - Background Control messages ....................................................... 4885
FPEE - Exception Processing messages ....................................................... 4913
FPEF - Interactive Report Facility messages ................................................ 4916
FPEI - I/O Activity report set messages ........................................................ 4929
FPEJ - Installation and Configuration messages .......................................... 4931
FPEL - Locking report set messages ............................................................. 4933
FPEM - Online Monitor messages ............................................................... 4934
FREN - Record Trace messages ................................................................. 4978
FREP - Spreadsheet Input Data Generator ................................................. 4978
FREQ - Buffer Pool Analyzer messages ..................................................... 4981
FPER - SQL Activity report set messages .................................................... 4982
FPEX - Statistics report set messages .......................................................... 4982
FPET - Utility Activity report set messages .................................................. 4984
FPEU - Utility Services messages ............................................................... 4985
FPEV - Data Server messages ................................................................. 4989
FPEW - System Parameters report set messages ....................................... 5041
FPEX - Audit report set messages ............................................................... 5042
FPEY - Explain report set messages ............................................................ 5042
FPEZ - Migrate/Convert function messages ............................................... 5052
KDP - Tivoli Enterprise Monitoring Agent (TEMA) for DB2 messages ....... 5053
KO2D - D5API Collection for TEP and Enhanced 3270UI .......................... 5062
KO2E - Object Analysis messages ............................................................ 5063
KO2H - Near-Term History Data Collector messages ................................. 5068
KO2I - D5API Framework messages ........................................................... 5075
KO2M - ISPF messages ............................................................................. 5087
KO2O - VTAM Display Logic messages ....................................................... 5088
KOZR - Capture Server messages .............................................................. 5132
KOZS - Storage Manager messages ........................................................... 5140
KOZX - Cross-Memory Module messages .................................................. 5143
KOZZ - OMEGAMON PE Subsystem messages .......................................... 5144

Chapter 10. Troubleshooting and support ............................................. 5181
Troubleshooting during installation ............................................................ 5181
Error in RKLVLOG indicating that the connection failed ........................................ 5181
Troubleshooting commands .................................................... 5181
  DUMP command .......................................................... 5182
  TAPECOPY command ..................................................... 5183
Creating a diagnostic report .................................................. 5186
Responding to dialog boxes .................................................... 5187
Troubleshooting for Performance Expert Client ......................... 5187
Troubleshooting for Performance Warehouse ............................ 5187
  Solving code-page problems when accessing Performance Warehouse ........... 5188
  Restarting the OMEGAMON Collector ..................................... 5188
  Running a CONVERT step with an incorrect data set ....................... 5188
Troubleshooting for Buffer Pool Analyzer ................................ 5188
  Problems with a collect task ........................................... 5188
  Problems with batch jobs .............................................. 5189
  Missing information in reports or bpd files ............................ 5189
  Problems with client functions ....................................... 5189
  Hard disk drive space management ..................................... 5190
Troubleshooting empty reports .............................................. 5191
Notices ........................................................................... 5195
Index ............................................................................... 5201
About this information

IBM® OMEGAMON for DB2® Performance Expert on z/OS (also referred to as Db2 Performance Expert) is a query analysis tool that you can use to fine-tune complicated queries so that they run as efficiently as possible.

These topics provide instructions for installing, configuring, and using Db2 Performance Expert and are designed to help database administrators, system programmers, application programmers, and system operators perform these tasks:

- Plan for the installation of Db2 Performance Expert
- Install and operate Db2 Performance Expert
- Customize your Db2 Performance Expert environment
- Diagnose and recover from Db2 Performance Expert problems
- Design and write applications for Db2 Performance Expert
- Use Db2 Performance Expert with other DB2 products

Tip: To find the most current version of this information, always use IBM Knowledge Center, which is updated more frequently than PDF books.
Chapter 1. Db2 Performance Expert overview

Db2 Performance Expert is a performance analysis, monitoring, and tuning tool for Db2 on z/OS® environments.

This product is part of the integrated and complete cross zSeries monitoring solution of the IBM OMEGAMON family that monitors all Db2 subsystems on z/OS and other resources, such as IMS™, MVS™, or CICS®. Db2 Performance Expert simplifies and supports system and application performance monitoring, reporting, trend analysis, charge back usage, and buffer pool analysis. If problems are encountered you are notified and advised how to continue.

What's new in Db2 Performance Expert

This section describes recent technical changes to Db2 Performance Expert.

New and changed information is marked like this paragraph, with a vertical bar to the left of a change. Editorial changes that have no technical significance are not marked.

Older changes and enhancements are described in “What's new in previous editions” on page 4833.

Links to additional documents

Table 1. Links to additional Db2 Performance Expert documents.

<table>
<thead>
<tr>
<th>Document</th>
<th>Document number</th>
<th>Link</th>
</tr>
</thead>
</table>
Table 1. Links to additional Db2 Performance Expert documents (continued).

**Important:** These following table provides links to the PDF versions of subsets of the Db2 Performance Expert documentation. PDF versions of documentation are not updated as frequently as the content in the IBM Knowledge Center. Refer to the IBM Knowledge Center for the latest documentation updates.

<table>
<thead>
<tr>
<th>Document</th>
<th>Document number</th>
<th>Link</th>
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</table>

**New and changed functions**

This topic summarizes the recent enhancements and changes in Db2 Performance Expert.

**General documentation updates - June 18, 2019**

<table>
<thead>
<tr>
<th>Description</th>
<th>Related APARs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Added SERVER ENCRYPT COMP and SECURE CONNECTION flags to the record trace IFCID 319 Audit Security Record. For more information, see “IFCID 319 - Audit Security Record” on page 4136</td>
<td>PH09361</td>
</tr>
<tr>
<td>You can now review buffer pool information (such as getpages and buffer pool hit ratios), to evaluate how well a thread is performing and to determine if excessive I/O is being consumed for a thread. For more information, see “Accessing information about buffer pool performance” on page 1761.</td>
<td>PH03718</td>
</tr>
<tr>
<td>General edits and updates</td>
<td>–</td>
</tr>
<tr>
<td>Restructured the lists of previous changes to Db2 Performance Expert. For more information, see “What’s new in previous editions” on page 4833</td>
<td>–</td>
</tr>
</tbody>
</table>
**Description**  
Added list of links to additional documents (PDFs). For more information, see “What's new in Db2 Performance Expert” on page 1

<table>
<thead>
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<th>Description</th>
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### New and updated messages

<table>
<thead>
<tr>
<th>Description</th>
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</thead>
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<tr>
<td>“DGOK3613” on page 4864</td>
<td>PH04689</td>
</tr>
<tr>
<td>“FPEV0573I” on page 5018</td>
<td>PH11516</td>
</tr>
<tr>
<td>“DGOK3663” on page 4866</td>
<td>P99189</td>
</tr>
<tr>
<td>“FPEV0043I” on page 4992</td>
<td>--</td>
</tr>
<tr>
<td>“FPEV0505W” on page 5014</td>
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</tr>
</tbody>
</table>

### Function overview

OMEGAMON® for DB2 PE has three main functions: analyzing a current problem, collecting historical data, and tuning buffer pools.

This product offers several components to help you achieve these goals. The sections below introduce you to the main components used for each goal. For a description of each OMEGAMON for DB2 PE component and for an overview of the relationships between the components, see “Components of OMEGAMON XE for DB2 PE” on page 5.

#### Analyzing a current problem

You can use OMEGAMON for DB2 PE to analyze current application and system problems. For example, an employee has complained that the system is running slow this morning. You can use one of the following components to analyze and identify bottlenecks and other performance problems:

**Classic Interface**

A VTAM® interface for OMEGAMON for DB2 PE with conventional menus and panels. Like Performance Expert Client, Classic Interface shows you all of the information necessary to analyze a problem using a fast and reliable VTAM interface. You can monitor and solve a DB2 problem even if the whole LPAR is impacted and a logon to TSO is no longer possible. It includes a realtime and a near-term history monitoring component to give you a comprehensive view of your DB2 subsystem.

**OMEGAMON enhanced 3270 user interface**

An enhanced 3270 user interface for OMEGAMON for DB2 PE with predefined workspaces that enable you to quickly and easily diagnose problems with monitored resources and take action to correct them. You can customize the workspaces to suit your requirements, even design and create your own workspaces and navigation.

**Tivoli® Enterprise Portal**

A Java-based interface for OMEGAMON for DB2 PE that is flexible and customizable. You can install Tivoli Enterprise Portal on the local machine or you can access it through a web browser. Tivoli Enterprise Portal provides information similar to that provided by Performance Expert Client and Classic Interface.
Interface. When installed in conjunction with the appropriate OMEGAMON products, Tivoli Enterprise Portal can also monitor other products and display the information in the same user interface.

**Performance Expert Client**
A graphical user interface for OMEGAMON for DB2 PE that runs on the Windows operating system. Performance Expert Client provides all of the functions that are necessary to analyze the system or to analyze a specific application. It shows you all the details about the activity on the DB2 subsystem, plus information about resource utilization and processing times. It also automatically informs you about problems or resource constraints such as deadlock, timeout, or CF structure resize.

**Collecting and evaluating historical data**
You can also use OMEGAMON for DB2 PE to collect and evaluate historical data for different tasks. Historical data is useful for tuning, for problem analysis, for trend analysis, and for capacity planning. For example, you can use historical data to predict resource usage for trend analysis and capacity planning. Historical data also allows you to analyze a problem over a long period of time. This is helpful when current data is not sufficient to analyze the problem, for example when you want to check the size of a DB2 resource, such as an EDM pool, for cursor tables or package tables. You can also use historical data to establish a baseline performance record that can be used to detect deviations. For example, you could collect Accounting data for several months and then compare the current CPU usage time of a static SQL package to the average CPU usage time stored in the history. If the current time is well above the average time, then you know that you need to investigate the change. You can use the following components to store and evaluate historical data:

**Performance Database**
A set of tables that can be filled with DB2 performance information collected via SMF or via a batch job using the FPEZCRD program. You can then retrieve, aggregate, or filter the information using SQL. To load the collected DB2 information into the performance database, functions of the reporter component (batch engine) have to be used.

**Performance Warehouse**
An automated version of Performance Database. The database is maintained and controlled by the OMEGAMON Collector and you can use a GUI to define the ETL process and to evaluate the information in the tables.

**Reporter**
Generates reports that reflect the activity on different levels, for example, subsystem, application, SQL statements, locking, and utility. The Reporter does not store the information in a database. This component helps you identify related problems and charges back the DB2 usage to your users. You can use a command language to filter, sort, and aggregate the reported information.

**Spreadsheet Input-Data Generator**
Creates a comma-separated value (CSV) data set using DB2 trace data processed and formatted by the Reporter and field selection lists. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables.
Tuning buffer pools

OMEGAMON for DB2 PE can also be used to tune buffer pools. If you want to find the optimal use of buffer pool resources and to simulate the effects of possible changes, you can use the following component:

Buffer Pool Analyzer
A suite of tools that can be used to monitor, analyze, and tune buffer pools.

Components of OMEGAMON XE for DB2 PE

OMEGAMON XE for DB2 PE is made up of several components, some required and some optional.

Before you can install the product, you must decide which components are necessary for your environment. This section demonstrates the relationships between the components of the products and also gives you a brief introduction to each component.

Relationships between components
The components of OMEGAMON for DB2 PE work in combination with each other to help you monitor, analyze, and tune your DB2 performance. You need to understand how the components work together in order to decide which components you want to install.

The following graphic demonstrates the relationship between the components of OMEGAMON for DB2 PE.
The following table shows which prerequisite components and optional subcomponents are associated with each main component of OMEGAMON for DB2 PE.

Figure 1. Overview of OMEGAMON for DB2 PE components

The following table shows which prerequisite components and optional subcomponents are associated with each main component of OMEGAMON for DB2 PE.
Table 2. Main Components, prerequisite components, and optional subcomponents for OMEGAMON for DB2 PE

<table>
<thead>
<tr>
<th>Main components</th>
<th>Prerequisite components</th>
<th>Optional subcomponents</th>
</tr>
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</table>
| Classic Interface | • OMEGAMON Collector | • Application Trace Facility  
 • IBM DB2 SQL Performance Analyzer  
 • Near-Term History  
 • Object Analysis  
 • Performance Expert Agent for DB2 Connect™ Monitoring  
 • Periodic Exception Processing |
| Enhanced 3270 user interface | • OMEGAMON Collector  
 • Tivoli Enterprise Monitoring Server  
 • Tivoli Enterprise Monitoring Agent | • None |
| Buffer Pool Analyzer | • At least one ISPF Monitoring Dialog  
 • Performance Expert Client | • None |
| Performance Database | • Reporter | • None |
| Performance Warehouse | • OMEGAMON Collector  
 • Reporter  
 • Performance Expert Client | • None |
| Tivoli Enterprise Portal | • OMEGAMON Collector  
 • Tivoli Enterprise Monitoring Server  
 • Tivoli Enterprise Monitoring Agent  
 • Tivoli Enterprise Portal Server | • Tivoli Data Warehouse (TDW)  
 • IBM Eclipse Help Server  
 • Performance Expert Agent for DB2 Connect Monitoring  
 • Periodic Exception Processing |
| Performance Expert Client | • OMEGAMON Collector | • Snapshot History  
 • Periodic Exception Processing  
 • DB2 Event Exception Processing  
 • Performance Expert Agent for DB2 Connect Monitoring  
 • Performance Warehouse  
 • Buffer Pool Analyzer |
| Reporter | • None | • None |
| Web Console for SQL monitoring | • InfoSphere® Optim™ Performance Manager Repository Server and Repository DB  
 • OMEGAMON Collector | • Extended Insight (end-to-end SQL Monitoring)  
 • Stored Procedure Monitoring  
 • SQL Dashboard for static and dynamic SQL monitoring |

**Main components**

The components in this section are the main OMEGAMON XE for DB2 PE components.

**Buffer Pool Analyzer**

Buffer Pool Analyzer for z/OS helps database administrators manage buffer pools more efficiently by providing information about current buffer pool behavior and by using simulation to anticipate future behavior.
You can use Buffer Pool Analyzer to analyze the performance data from DB2 for z/OS systems, to simulate changes in the buffer pool settings, to move DB2 objects to a different buffer pool, or to generate reports. The product provides the following functions:

- Comprehensive reporting of the buffer pool activity, including:
  - Ordering by various identifiers (for example, buffer pool, plan, object, primary authorization ID)
  - Sorting by, for example, getpage, sequential prefetch, and synchronous read
  - Filtering capability
  - Loading into DB2 tables

- Simulation of buffer pool usage for:
  - Optimizing the usage of available buffer pool memory
  - Adjusting buffer pool thresholds by grouping objects with like characteristics in the same buffer pools.

For installation instructions, see [Buffer Pool Analyzer Configuration Guide](#).

**OMEGAMON Classic Interface**

The OMEGAMON Classic Interface is a user interface on the host that provides real-time information about a DB2 subsystem.

It is a Virtual Telecommunications Access Method (VTAM) application. It is part of the OMEGAMON Collector. You can use the OMEGAMON Classic Interface to:

- Review the current DB2 activity, such as threads or statistics
- View enclave information from the Work Load Manager (WLM)
- Monitor activity on DB2 gateways using DB2 Connect, and receive enhanced information about DBAs connected by a DB2 gateway.
- Observe counter thresholds
- Review information about terminated DB2 threads using the Near-Term History function
- Analyze objects and drill down into object allocation and usage of thread activities, as well as volume allocation and activities
- Receive detailed runtime performance information at the thread, unit of work, program, and SQL statement level using Application Trace Facility

OMEGAMON Classic Interface includes a real-time and a near-term history monitoring component to give you a comprehensive view of your DB2 subsystem:

**Realtime component**

The realtime component consists of a realtime monitor that you can use to monitor DB2.

It provides a classic user interface, with conventional menus and panels to facilitate navigation through the product. Through these menus and panels you can access the most current DB2 performance data, like thread use, locking conflicts, SQL calls, and so on. They also enable you to start and view an application trace to obtain realtime information about application flow and resource consumption.

**Near-term history component**

The near-term history component consists of the Near-Term History Data Collector, which gathers statistical and accounting information (including distributed database information), DSNZPARM information, and limited
performance information from a DB2 subsystem and stores it in VSAM data sets or sequential files, as the activities occur.

Use the near-term history panels to view statistics and thread information that was gathered a few minutes or a few hours ago and to view the current Near-Term History Data Collector specifications.

For more information on how to use OMEGAMON Classic Interface refer to Monitoring Performance from the OMEGAMON Classic Interface.

**OMEGAMON enhanced 3270 user interface**
The OMEGAMON enhanced 3270 user interface is a user interface on the host that provides predefined workspaces that enable you to quickly and easily diagnose and solve problems.

The OMEGAMON enhanced 3270 user interface is the latest generation of 3270 user interfaces for the OMEGAMON family of monitoring products. The OMEGAMON enhanced 3270 user interface is developed upon the common OMNIMON base component and provides DB2 Data Sharing Group reporting. The OMEGAMON enhanced 3270 user interface component enables you to monitor the performance of your z/OS systems, applications, and devices in your environment and helps you to identify and troubleshoot problems with those monitored resources. OMEGAMON enhanced 3270 user interface offers the following features:

- Plex-wide as well as single system views of data
- Autodiscovery of and autoconnection to data sources
- Dynamic behavior and operation
- User-customizable workspaces
- Fastpath navigation
- Lateral and vertical scrolling
- Sorting by column

For installation and configuration instructions, see the IBM® OMEGAMON and Tivoli Management Services on z/OS shared documentation.

**Performance Expert Client**
The Performance Expert Client is a graphical user interface that supports online monitoring and reporting, Performance Warehouse management, and buffer pool analysis on the workstation.

The following list shows what the client comprises when you install the different products:

- If you install OMEGAMON XE for DB2 PE, the client consists of online monitoring, Performance Warehouse with extended Rules-of-Thumb, and buffer pool analysis.
- If you install OMEGAMON XE for DB2 PM, the client consists of online monitoring and Performance Warehouse with limited Rules-of-Thumb.

**Online monitoring and reporting**
The PE Client online monitor function allows you to identify bottlenecks, applications that are performing poorly, and areas for tuning improvements. You can review all of the defaults of the current activity at the system and application levels. Snapshot History, an optional subcomponent, allows you to look at historical data. This helps you compare information at various timestamps and to
analyze problems that occurred in the past. In addition to these monitoring capabilities, the tool can inform you of specific DB2 situations, such as deadlocks, timeouts, lock escalations, and CF structure rebuilds. Another function called threshold exception processing checks the system or application information for threshold violations. This can help you detect increased usage or unusual usage patterns. The product then uses exits to automatically record this information even if you are not logged on to the Performance Expert Client. The exit writes the information to a system log where it can be picked up by system automation or where it can invoke a batch job that initiates further processing.

**Performance Warehouse management**

The Performance Warehouse GUI allows you to control the Performance Warehouse database. You can use it to perform tasks such as defining the Extract-Transfer-Load (ETL) process for collecting and loading data or for creating reports from the collected data. For more information about this component, see “Performance Warehouse” on page 11.

**Buffer pool analysis**

The buffer pool analysis GUI lets you control the Buffer Pool Analyzer. You can use it to simulate buffer pool changes so that you can optimize buffer pool memory. For more information about this component, see “Buffer Pool Analyzer” on page 7.

For installation and configuration instructions, see “Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support” on page 373 and “Installing and configuring Performance Expert Client” on page 436.

**Performance Database**

The Performance Database is a DB2 database, which can hold aggregated DB2 activity information spanning a long period of time. This long-term history can help you with performance tuning activities, with trend analysis, and with capacity planning.

You can store performance data from the following data groups:

- Accounting
- Audit
- Locking
- Record traces (IFCID 22, 63, 96, 125, 172, 196, 316, 365 and 401)
- Statistics and System parameters

You must build, load and maintain the DB2 tables for the Performance Database manually. This allows for greater flexibility. To help you get started, sample library &rhilev.&rete.RKO2SAMP (where &rhilev.&rete is the runtime high-level qualifier) is included in the product. The library contains the following items:

- The definitions of the Data Definition Language (DDL)
- The definitions of the Data Manipulation Language (DML)
- The DB2 LOAD Statements

You must also prepare the performance data with the Reporter functions before you can load it into the Performance Database. The Reporter component provides the data either in timestamp sequence (FILE format) or as reduced data (aggregated data or summary data, called SAVE format).
For installation and configuration instructions, see “Adding a Performance Database” on page 398.

Performance Warehouse
The Performance Warehouse is a fully automated Performance Database that consists of DB2 tables to save Accounting and Statistics performance counters and internal control tables.

You can perform tasks such as defining the ETL process for collecting and loading data into the database and creating reports from the collected data. You can perform such tasks immediately or you can schedule them to happen automatically after a certain event. For example, you can schedule a task so that reports of the activity are automatically created each morning.

You can use this feature with a database that is created for each monitored DB2 subsystem or with one database for all DB2 subsystems, including subsystems in other LPARs or on different sysplexes. The Performance Warehouse database is automatically maintained by the OMEGAMON Collector. In other words, mandatory changes to the structure of the Performance Warehouse database are automatically performed by the OMEGAMON Collector.

You can evaluate the performance information in the Performance Warehouse databases using a built-in query tool, an external SQL query interface, or Rules-of-Thumb analysis tool. With Rules-of-Thumb you can analyze historical data, identify bottlenecks, resource constraints, and predict trends.

Predefined Rules-of-Thumb are included with the Performance Warehouse, but you can also create your own.

For installation and configuration instructions, see “Enabling Performance Warehouse” on page 395.

Tivoli Enterprise Portal (TEP)
Tivoli Enterprise Portal is a Java-based browser user interface for viewing and monitoring your enterprise.

The Tivoli Enterprise Portal is a user interface on the workstation that offers a single point of view for online monitoring and analysis. You can view information about all the resources in your IT environment. For example, you can view information about your operating systems, hardware such as routers, applications such as WebSphere®, IMS, and CICS, and custom applications. It can run as a browser applet or as a Java™ application. OMEGAMON XE for DB2 PE gathers data from remote agents residing on the managed systems of your DB2 network and stores this data in system elements called attributes.

The monitoring data is received via the Tivoli Enterprise Portal Server (TEPS) and the Tivoli Enterprise Monitoring Server from the Tivoli Enterprise Monitoring Agents (TEMA). Information is then displayed in named workspaces.

The Tivoli Enterprise Portal is a customizable interface. For example, you can:
- Configure the workspaces and attributes according to your requirements. The Tivoli Enterprise Portal comes with a set of predefined workspaces for each item in the navigation tree, but you can edit any of them to suit your needs.
- Filter the information presented in a workspace by moving from the top-level workspace to lower-level workspaces.
Note: A workspace is not refreshed automatically, however, you can choose to automate the refresh of a workspace at specified intervals.

The Tivoli Enterprise Portal allows you to view a wealth of information, including the following:

- Detailed thread activity information about your DB2 threads, including Workload Manager information
- The interaction of a DB2 system with MVS, CICS, IMS, z/OS, and other systems, databases and applications within a single interface from any location
- Database lock activities and detailed lock conflict information about your database locks
- Information about DB2 resources such as buffer pools, EDM pools, group buffer pools, and dynamic statement caches
- Enhanced information for database access threads (DBATs) at DB2 Connect gateways
- DB2 log manager active logging and archiving activities
- Distributed Database Facility statistics, including send and receive counts
- Detailed information about threads and thread exceptions connected to DB2
- Information about the performance of volumes that contain DB2 objects so that you can monitor the DASD performance by volume (Group Object Analysis (GOA) Volume workspace group)
- Information about a data sharing group and its coupling facility structures
- Active utility jobs
- DB2 Connect gateway activities

You can use the Tivoli Enterprise Portal to perform the following analysis activities:

- Detecting I/O related bottlenecks such as heavily used volumes
- Analyzing system-wide or application-specific resource usage to tune DB2 resources or to identify applications that are performing poorly
- Using historical information in the short-term history to detect and analyze problems in the past
- Using situations to automatically inform you about problems. You can use predefined situations or you can create your own situations
- Automating problem resolution by taking automatic action when certain events are detected. For example, you can run an MVS job, send a message to a system automation tool, or cancel a thread
- Managing problems detected by your team by using a built-in trouble ticket system or by forwarding the alert to an external event console

For installation and configuration instructions, see “Installing and configuring Tivoli Enterprise Portal” on page 851.

Prerequisite components

The components described in this section are required for one or more of the main components.

ISPF Monitoring Dialogs

The ISPF Monitoring Dialogs are a user interface on the host that provide access to the main functions or components of OMEGAMON XE for DB2 PE when running under TSO/ISPF.
You can:
- Create and run reporting commands using the Interactive Report Facility (IRF).
  Here you select the report specification and input data. You create and run reporting commands to generate batch reports.
- View online DB2 activity using the OMEGAMON Classic Interface for real-time monitoring as described in "OMEGAMON Classic Interface" on page 8.
  From ISPF Monitoring Dialogs, you can access this application through TSO.
- Customize report and trace layouts using the User-Tailored Reporting function (UTR).
  You can customize batch report and trace layouts according to your requirements using User-Tailored Reporting (UTR). This function gives you full control over the volume, contents, and layout of your traces and reports.

OMEGAMON Collector
The OMEGAMON Collector is the central access point for the clients that request to retrieve performance data. It collects history data, exception processing data, trace data, and snapshot data and controls and submits jobs to generate reports and load data into the Performance Warehouse.

The OMEGAMON Collector started task is started with the parameters retrieved from the RKD2PAR library. You can use the MVS operator commands to make changes to the configuration that are effective immediately. For example, you can start or stop specific functions or you can stop the OMEGAMON Collector.

The OMEGAMON Collector hosts the following components:
- OMEGAMON Classic Interface
- OMEGAMON enhanced 3270 user interface
- Tivoli Enterprise Portal
- Performance Expert Client
- Performance Warehouse

It also provides the following services to the components:
- Periodic and event exception processing
- Event Collection Manager to analyze object and volume data

Note: You must run this service in a separate address space if you have more than one OMEGAMON Collector or more than one LPAR.
- Near-Term History
- Application Trace Facility
- Snapshot History

Performance Expert Client as a prerequisite component
Performance Expert Client supports online monitoring and reporting, Performance Warehouse management, and buffer pool analysis on the workstation.

The Performance Expert Client is a prerequisite component for the Performance Warehouse and for the Buffer Pool Analyzer because it provides the user interfaces, or clients, for these components. For more information, see "Performance Warehouse" on page 11 and "Buffer Pool Analyzer" on page 7.

The Performance Expert Client is also a main component. See "Performance Expert Client" on page 9 for more information.
**Reporter**
The Reporter generates predefined reports to help you collect and analyze historical performance data. It also enables you to prepare performance data before you load it into the Performance Warehouse or into the Performance Database.

The Reporter comes with the following predefined reports:
- Accounting
- Statistics
- System Parameters
- Utility
- Locking, Audit
- I/O Activity
- Record Trace
- SQL Activity

You can also use a report language to filter, sort, and group the data in the reports according to your preferences. For example, you can include or exclude specific data, sort or summarize by various options, and enable or disable reporting about specific performance data. You can use the User-Tailored Reporting (UTR) function to even further customize the reports.

You can use the Reporter to generate reports in the following ways:
- by submitting a batch job.
- by using the Interactive Report Facility (IRF). You can define the report commands and input data through ISPF panels. You can also submit the reports to run in the background.
- by using the Performance Warehouse Client. You can specify the report commands and input data through a graphical user interface. You can also submit the jobs immediately or schedule them to run later. This only applies to ACCOUNTING and STATISTICS reports.

When you want to load data into the Performance Warehouse or the Performance Database, you can use the command language in the Reporter to indicate which data should be prepared and to indicate how the data should be summarized. You can process the data in the following ways:
- by submitting a batch job.
- by using the Performance Warehouse Client to either submit the job immediately or to schedule the job to run later.

You can use one of the following methods to collect the data that the Reporter uses:
- A batch job. In this case, you use the FPEZCRD program to collect performance data from a DB2 subsystem.
- The Performance Warehouse Client. In this case, you can use a graphical user interface to configure the job and to either submit it or to schedule it to run later.
- The Collect Report Data function in the ISPF Monitoring Dialogs. In this case, you can use ISPF panels to configure the job and to submit it.
- SMF or GTF data sets.
- Sequential data sets generated by Near-Term History Data Collector configured to store trace data to VSAM data sets and sequential data sets (VSAMSEQ).
The Reporter is added when you download the program files from SMP/E. You do not need to perform any additional installation or configuration activities.

**Tivoli Enterprise Monitoring Agent (TEMA)**

A Tivoli Enterprise Monitoring Agent retrieves performance information from the OMEGAMON Collector for the Tivoli Enterprise Monitoring Server.

A Tivoli Enterprise Monitoring Agent is called by a Tivoli Enterprise Monitoring Server to retrieve data from a monitored resource. These agents then test attribute values against a threshold and report these results to the monitoring servers. The Tivoli Enterprise Portal displays an alert icon when a threshold is exceeded or a value is matched. These tests are called situations.

For installation and configuration instructions, see [“Enabling Tivoli Enterprise Monitoring Agent” on page 375](#).

**Tivoli Enterprise Monitoring Server (TEMS)**

The Tivoli Enterprise Monitoring Server collects and prepares performance information for the Tivoli Enterprise Server.

The Tivoli Enterprise Monitoring Server retrieves information from all of the connected Tivoli Enterprise Monitoring Agents and checks the information for situations. It also keeps a short history that you can view in the Tivoli Enterprise Portal. The history shows you how information has changed over time and allows you to perform actions such as running a batch job on the host when the Tivoli Enterprise Monitoring Server detects a situation.

For installation and configuration instructions, see [“Configuring Tivoli Enterprise Monitoring Server” on page 375](#).

**Tivoli Enterprise Portal Server (TEPS)**

Tivoli Enterprise Portal Server, a gateway between the Hub TEMS and the Tivoli Enterprise Portal, stores user data, workspaces, and queries.

The Tivoli Enterprise Portal uses the Tivoli Enterprise Portal Server to visualize the collected performance information. The Tivoli Enterprise Portal Server works as an application server allowing the Tivoli Enterprise Portal to store configuration data and meta information.

For installation and configuration instructions, see [“Installing and configuring Tivoli Enterprise Portal” on page 851](#).

**Optional subcomponents**

The components described in this section are optional subcomponents that can be used with the main components.

**Application Trace Facility (ATF)**

Application Trace Facility (ATF) traces the execution of a DB2 thread so that you can improve application flow and resource consumption.

The Application Trace Facility collects information about the DB2 thread and shows you the performed operations in a report. It traces the following DB2 thread operations:

- Executed SQL statements.
- Performed sorts.
• Pageset access and scan information.
• Obtained locks.
• Application times, such as in-DB2 Time and in-DB2 CPU Time.

It can be invoked from the Classic Interface: The Application Trace Facility Menu panel provides access to panels from which you can start an application trace, store trace data, review the data collected by an application trace, stop an application trace, and release the storage data set. You can specify the criteria for the application to be traced and to store the trace output. Trace output can have the following formats:

**In memory trace**

Trace data is stored in the virtual storage of the OMEGAMON for Db2 PE address space. It is limited to the total amount of storage that is available. The storage is owned by the VTAM session that started the trace. The trace starts as soon as you are completing the start request. If the VTAM session terminates while the trace is running, the trace is terminated and the trace output is lost. When the trace is completed, the data is only available to the VTAM session that started the trace. If the VTAM session terminates, or if you request another in memory application trace, the trace is discarded.

To control the TRACE request, select option B - VIEW TRACE. To terminate the trace or to view the trace contents, select option C - Stop Trace.

**VSAM Dataset Trace**

The trace is written to a VSAM dataset. It is limited by the size of the dataset. You can define whether the trace is to run immediately or to be deferred (scheduled) for execution at a later time. If the trace is started or scheduled, the VTAM session that requests the trace does not need to stay active for the trace to complete successfully. Information about the trace is maintained for the duration of the OMEGAMON for Db2 PE address space, unless it is manually deleted. You can view the trace data from any VTAM session.

To control the trace, select option H - QUEUED Traces and select the appropriate element.

The data that is collected by the Application Trace Facility is stored in a VSAM file or resident in memory. If the data is not stored in a VSAM file, it is only available for the current OMEGAMON for Db2 PE session.

Stopping trace collection does not delete trace information collected. It simply stops the active trace request. All data collected before trace termination is still available for viewing.

All Application Trace Facility (ATF) panels show the current state of an application trace, including a possible trace data set full condition, as ABENDED, ACTIVE, INACTIVE, or DSN FULL. A state of INIT-XXX might be shown briefly during early stages of initialization.

For installation and configuration instructions, see “Enabling Application Trace Facility” on page 398.
**DB2 Event Exception Processing**

DB2 Event Exception Processing alerts you when specific system events occur. These events include deadlocks, timeouts, locks, escalations, and starts and stops of a coupling facility structure rebuild. This component is also sometimes called DB2 Event Observation.

You can use the Performance Expert Client to see the events and the details of the events.

For installation and configuration instructions, see “Enabling DB2 Event Exception Processing” on page 324.

**Explain**

Explain functions provide an easy-to-read representation of access plan information for your SQL queries and statements. You can use this information to decide how to tune your queries.

The built-in explain functions are Easy Explain and the EXPLAIN report. You can use them as follows:

- You can use the Easy Explain function to view the information while browsing or editing a data set containing SQL statements.
- You can generate an EXPLAIN report that shows access plan information for all of the SQL statements found in the collected performance information.

The following explain functions are optional. They provide access plan information for an individual SQL statement.

- **IBM DB2 SQL Performance Analyzer.** You can use this function through the Classic Interface.
- **Query Workload Tuner.** You can use this function through the Performance Expert Client.

For installation and configuration instructions, see “Enabling DB2 EXPLAIN” on page 392.

**IBM DB2 SQL Performance Analyzer (SQL PA):**

IBM DB2 SQL Performance Analyzer provides resource usage information and costs associated with SQL queries without having to run them in DB2. This analysis helps you tune your queries to achieve maximum performance.

SQL PA calculates the cost of queries before you start them, so that you can tune them before implementation. With SQL PA, you find out how long queries will take before you run them, before resources are consumed, and before the query is terminated by a governor. You are able to determine the cost of running a query under the attach facilities of IMS, CICS, and batch, as well as TSO, SPUFI, and QMF™. The cost estimate is given in familiar units: CPU time, I/O count, and elapsed time, and, in even simpler terms, as QUNITS (a single number representing the overall cost). The monetary cost of each query is also presented.

**Note:** With SQL PA, OMEGAMON XE for DB2 PE enables the user to analyze SQL statements that are displayed in certain VTAM panels. SQL PA analyzes former and current SQL queries and report the results. The results from SQL PA are SQL Enhanced Explain reports, SQL Query Limits reports, and SQL Trace information.
The output provided by SQL PA reports is based on SQL PA configuration parameters specified in PARMGEN. During the customization the affected DB2 subsystems and Performance Warehouse options to be used by SQL PA are determined.

When an SQL performance analysis is requested, the OMEGAMON Collector silently submits a batch job that captures the analysis data and puts it into appropriate Performance Warehouse tables, from where it is retrieved and reassembled and presented as an SQL PA report.

SQL PA reports might be long. If you cannot page down to the end of a report, the "logical rows" session parameter value might be too low. Log on again, with the session parameter set to a higher value. You can set this parameter either on the OMEGAMON XE for DB2 PE Classic Interface panel or as a logon command parameter, for example logon applid(ipobd2c) data(lrows=9999).

**IBM Eclipse Help Server**
This feature allows you to use the online help in the Tivoli Enterprise Portal.

For installation and configuration instructions, see "Installing and configuring Tivoli Enterprise Portal" on page 851.

**Near-Term History Data Collector**
Near-Term History captures and stores recent DB2 instrumentation data so that you can review thread performance after the threads have ended.

Data captured includes all statistics and accounting records written by DB2. Near-Term History might also collect certain performance data at the thread level, such as dynamic SQL or sorting, locking, and scanning information.

Many events are too short lived to be viewed in real time. Near-term history collection identifies threads that have experienced problems in the past few hours. These threads can then be examined in more detail to help identify the cause of the problem. Some of the types of thread problems that can be identified in this way are:

- Excessive CPU or elapsed time
- Threads that have had timeouts or deadlocks
- Threads committing too infrequently
- Threads that have aborted
- Threads with excessive lock waiting time
- Threads with excessive DB2 wait time for I/O

You can also use the filter options to identify these types of problem threads more quickly.

For installation and configuration instructions, see "Enabling Near-Term History" on page 389.

**Object Analysis**
The Object Analysis function reveals the affect of an application on overall disk access. This can help you balance the load and determine where DB2 data sets should be placed to evenly spread I/O over available disks.

Object Analysis helps you analyze DB2 object allocations, linear VSAM data set extend activity, I/O activity at the DASD volume level, and object activity from a
DB2 perspective. Often the first indicator of a DB2 performance problem is the I/O activity being performed on a particular DASD volume or a DB2 table space or index space. Object Analysis enables you to isolate this activity at a granular level. This can often lead to an understanding of a specific workload or external event that might be contributing to an I/O related DB2 problem.

You can use Object Analysis through the Classic Interface or the Tivoli Enterprise Portal.

For installation and configuration instructions, see “Enabling Object Volume Analysis” on page 387.

Performance Expert Agent for DB2 Connect Monitoring
The Performance Expert Agent for DB2 Connect Monitoring monitors connections of remote applications within the Distributed Relational Database Architecture™ (DRDA) of DB2 that are connected through DB2. It is installed on the DB2 Connect Server gateway and provides DB2 Connect data for the OMEGAMON Collector.

When Performance Expert Agent for DB2 Connect Monitoring is installed on a DB2 Connect gateway, it collects connection-related data, such as the connection status of a remote application. It also collects statistics about DB2 Connect activities. The collected snapshot data is then stored periodically and can be examined using the user interfaces.

DB2 administrators can use the collected data, for example, to find out whether the connection of the remote application is working. They can also use this data to identify network problems between DB2 Connect and the DB2 server.

For installation and configuration instructions, see “Installing and configuring Performance Expert Agent for DB2 Connect Monitoring” on page 406.

Periodic Exception Processing
Periodic Exception Processing is an OMEGAMON feature that analyzes system metrics and compares them against predefined thresholds, user-defined thresholds, and application metrics.

When a threshold is exceeded, an exception event is shown. This event is commonly called an exception. This function is available in Performance Expert Client.

You can start Periodic Exception Processing manually after you start Performance Expert Client. In this case, you can define a set of thresholds for each user ID. Alternatively you can configure Periodic Exception Processing to automatically start one user's threshold definitions when the server starts. In this case, the threshold definitions are already started when the user logs on to the client.

For installation and configuration instructions, see “Enabling Periodic Exception Processing” on page 388.

Snapshot History
Snapshot history data is useful, for example, if you want to examine activities leading to, and following, an exception without recreating the situation.

The data is periodically stored by the OMEGAMON Collector in a wrap-around-managed snapshot history data set. You can define how often the
snapshots are stored and how many snapshots are stored. When the defined maximum number of snapshots is exceeded, the oldest snapshot is deleted and the newest snapshot is added.

You can view this information through the history mode in the Performance Expert Client. This mode allows you to display recently stored snapshots at a specified point-in-time. You can then scroll forward and backward through the history of snapshot data to get a better understanding of what happened and to identify what caused the problem (for example, detected situations, bottlenecks, deadlocks, timeouts).

For installation and configuration instructions, see “Enabling Snapshot History” on page 391.

**Tivoli Data Warehouse (TDW)**

You can use the Tivoli Data Warehouse to store collected performance information for a long time. This is helpful when you want to compare DB2 activity that occurred in the past or when you want to review trends.

Other Tivoli products also use this information. For example, IBM Tivoli Performance Analyzer uses this information to predict trends and IBM Tivoli Usage and Accounts Manager uses it to charge back the usage of a system.

For installation and configuration instructions, see “Adding Tivoli Data Warehouse” on page 851.

**InfoSphere Optim Performance Manager**

InfoSphere Optim Performance Manager is a performance analysis and tuning tool for managing DB2 systems by using a web interface. The new web interface, which is provided by InfoSphere Optim Performance Manager, provides system health overviews and a guided workflow to problematic areas with detailed displays.

The InfoSphere Optim Performance Manager end-to-end SQL or stored procedure monitoring dashboard displays end-to-end data about the entire database application system, which includes clients, application servers, data servers, and the network. With this optional end-to-end SQL or stored procedure monitoring feature, you can monitor and analyze the performance of the entire database application system. If you install the optional plug-in for Tivoli Enterprise Portal (TEP) you can get extended operating system performance data and view this data on the System dashboard. You can also run end-to-end SQL or stored procedure monitoring from within the TEP console.

For installation and configuration instructions, see “Installing and configuring end-to-end SQL or stored procedure monitoring” on page 851.

**User interfaces**

OMEGAMON XE for DB2 PE provides user interfaces for DB2 performance analysis on the host and on the workstation.

**User interfaces on the host**

OMEGAMON XE for DB2 PE provides user interfaces for DB2 performance analysis on the host.

To monitor and analyze DB2 performance on the host you can use the Classic Interface for real-time monitoring or you can use ISPF Monitoring Dialogs. See the following sections for more information:
User interfaces on the workstation

OMEGAMON XE for DB2 PE provides graphical user interfaces for DB2 performance analysis on the workstation.

You can use the Tivoli Enterprise Portal, Performance Expert Client, or InfoSphere Optim Performance Manager. See the following sections for more information:

- “Tivoli Enterprise Portal (TEP)” on page 11
- “Performance Expert Client” on page 9
- “InfoSphere Optim Performance Manager” on page 20

Conventions used in the OMEGAMON documentation

This information uses several conventions for special terms and actions, and operating system-dependent commands and paths.

Panels and figures

The panels and figures in this document are representations. Actual product panels might differ.

Symbols

The following symbols might appear in command syntax:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Usage</th>
</tr>
</thead>
</table>
| | The or symbol is used to denote a choice. You can use the argument on the left or the argument on the right. For example: YES | NO
| In this example, you can specify YES or NO. |
| ( ) | Denotes optional arguments. Arguments that are not enclosed in square brackets are required. For example: APPDESTR DEST (ALIDEST) |
| In this example, DEST is a required argument and ALIDEST is optional. |
| { } | Some documents use braces to denote mandatory arguments, or to group arguments for clarity. For example: COMPARE {workload} - REPORT={SUMMARY | HISTOGRAM} |
| In this example, the workload variable is mandatory. The REPORT keyword must be specified with a value of SUMMARY or HISTOGRAM. |
| _ | Default values are underscored. For example: COPY infile outfile - [COMPRESS={YES | NO}] |
| In this example, the COMPRESS keyword is optional. If specified, the only valid values are YES or NO. If omitted, the default is YES. |
Notation conventions

The following conventions are used when referring to high-level qualifiers:

*hilev*  A high-level qualifier. The high-level qualifier is the first prefix or set of prefixes in the data set name. Site-specific high-level qualifiers are shown in italics.

For example:
- *thilev* refers to the high-level qualifier for your target data set.
- *rhilev* refers to the high-level qualifier for your runtime data set.
  For members in target libraries, the high-level qualifier is *thilev* rather than *rhilev*.
- *shilev* refers to the SMP/E library high-level qualifier.

Typeface conventions

This information uses the following typeface conventions:

**Bold**
- Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes, multicolumn lists, containers, menu choices, menu names, tabs, property sheets), labels (such as *Note:*)
- Keywords and parameters in text

**Italic**
- Words defined in text
- Emphasis of words (for example: Use the word *that* to introduce a restrictive clause.)
- New terms in text (except in a definition list)

**Monospaced**
- Examples and code examples
- File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
- Message text and prompts addressed to the user
- Text that the user must type
- Values for arguments or command options

**Significant elements**

**Recommendation**
- Provides guidance when more than one option is available.

**Related reading**
- Refers you to other publications that contain relevant information.

**Requirement**
- Identifies a condition that must be met to ensure that the product is functional.

**Restriction**
- Identifies a restriction or limitation with this product or an associated procedure.
Terminology used

IBM OMEGAMON for Db2 Performance Monitor on z/OS can be considered as a functional subset of IBM OMEGAMON for Db2 Performance Expert on z/OS. Therefore the abbreviation OMEGAMON for Db2 PE or DB2 PE is used for both products. If a distinction is required, OMEGAMON for Db2 PM or DB2 PM is used explicitly.

The following table shows the products that are described in this publication and the short names with which they are referred to throughout this publication:

<table>
<thead>
<tr>
<th>Product name</th>
<th>Short name</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM OMEGAMON for Db2 Performance Expert on z/OS</td>
<td>OMEGAMON for Db2 PE or DB2 PE</td>
</tr>
<tr>
<td>IBM OMEGAMON for Db2 Performance Monitor on z/OS</td>
<td>OMEGAMON for Db2 PM or DB2 PM</td>
</tr>
<tr>
<td>Buffer Pool Analyzer for z/OS or a particular subsystem</td>
<td>Buffer Pool Analyzer</td>
</tr>
<tr>
<td>IBM Db2 database for z/OS</td>
<td>Db2</td>
</tr>
</tbody>
</table>

- Performance Expert Client and Workstation Online Monitor designate the client component of DB2 PE.
  Prior to Version 5.4.0 the client component of DB2 PE also designated the end-user interface of Performance Expert for Multiplatforms, Performance Expert for Workgroups, and DB2 PE.
- OMEGAMON Collector designates the server component of DB2 PE.

How to read syntax diagrams

The rules in this section apply to the syntax diagrams that are used in this publication.

Arrow symbols

Read the syntax diagrams from left to right, from top to bottom, following the path of the line.

- Two right arrows followed by a line indicate the beginning of a statement.
- One right arrow at the end of a line indicates that the statement syntax is continued on the next line.
- One right arrow followed by a line indicates that a statement is continued from the previous line.
- A line followed by a right arrow and a left error indicates the end of a statement.

Conventions

- SQL commands appear in uppercase.
- Variables appear in italics (for example, column-name). They represent user-defined parameters or suboptions.
- When entering commands, separate parameters and keywords by at least one blank if there is no intervening punctuation.
• Enter punctuation marks (slashes, commas, periods, parentheses, quotation marks, equal signs) and numbers exactly as given.
• Footnotes are shown by a number in parentheses, for example, (1).

**Required items**
Required items appear on the horizontal line (the main path).

**Optional items**
Optional items appear below the main path.

If an optional item appears above the main path, that item has no effect on the execution of the statement and is used only for readability.

**Multiple required or optional items**
If you can choose from two or more items, they appear vertically in a stack. If you must choose one of the items, one item of the stack appears on the stack main path.

If choosing one of the items is optional, the entire stack appears below the main path.

**Repeatable items**
An arrow returning to the left above the main line indicates that an item can be repeated.

If the repeat arrow contains a comma, you must separate repeated items with a comma.
If the repeat arrow contains a number in parenthesis, the number represents the maximum number of times that the item can be repeated.

A repeat arrow above a stack indicates that you can specify more than one of the choices in the stack.

**Default keywords**

IBM-supplied default keywords appear above the main path, and the remaining choices are shown below the main path. In the parameter list following the syntax diagram, the default choices are underlined.

---

**Where to find information**

You can access the documentation in several ways.

The documentation for this product is provided in PDF and in HTML format at the following websites:

- [OMEGAMON for Db2 Performance Expert on z/OS](#)
- [OMEGAMON for Db2 Performance Monitor on z/OS](#)

**Ordering publications**

You can order many IBM publications such as product manuals or IBM Redbooks® online at the [IBM Publications Center](#) website.

You can also order by telephone by calling one of the following numbers:

- In the United States: 800-879-2755
- In Canada: 800-426-4968

In other countries, contact your software account representative to order Tivoli publications.

**Accessing terminology online**

The [IBM Terminology](#) website consolidates the terminology from IBM product libraries in one convenient location.

**Service updates and support information**

You can access support information for IBM OMEGAMON for Db2 Performance Expert on z/OS and IBM OMEGAMON for Db2 Performance Monitor on z/OS on the Support home website, or you can use the IBM Support Assistant.
Support home

On the Support home website, you can find service updates and support information including software fix packs, PTFs, Frequently Asked Questions (FAQs), technical notes, troubleshooting information, and downloads.

Accessibility features

Accessibility features help people with a physical disability, such as restricted mobility or limited vision, or with other special needs, to use software products successfully. This Knowledge Center is developed to comply with the accessibility requirements of software products according to Section 508 of the Rehabilitation Act of the United States.

The accessibility features in this Knowledge Center enable users to do the following tasks:

- Use assistive technologies, such as screen-reader software and digital speech synthesizer, to hear what is displayed on the screen. In this Knowledge Center, all information is provided in HTML format. Consult the product documentation of the assistive technology for details on using assistive technologies with HTML-based information.
- Operate specific or equivalent features using only the keyboard.
- Magnify what is displayed on the screen.

In addition, all images are provided with alternative text so that users with vision impairments can understand the contents of the images.

Navigating the interface by using the keyboard

Standard shortcut and accelerator keys are used by the product and are documented by the operating system. Refer to the documentation provided by your operating system for more information.

Magnifying what is displayed on the screen

You can enlarge information in the product windows using facilities provided by the operating systems on which the product is run. For example, in a Microsoft Windows environment, you can lower the resolution of the screen to enlarge the font sizes of the text on the screen. Refer to the documentation provided by your operating system for more information.

How to send your comments

Your feedback is important in helping to provide the most accurate and high-quality information.

If you have any comments about this information or any other documentation, you can complete and submit the Reader Comment Form.
Chapter 2. Planning

Before you set up your system, plan what you need to configure and make sure that all the prerequisites are met.

“Planning the configuration”
“Worksheet for planning your configuration” on page 63

Planning the configuration

This information describes how to plan the configuration.

Gathering information

You will need a lot of information about your environment, your configuration, and your users while you configure the product. To simplify the configuration process, gather this information before you begin.

Deciding on your setup

Decide on your setup before you start the configuration.

About this task

The following planning activities help you gather the information required for your configuration:

Procedure

1. Decide what types of runtime environments you need for your configuration. See [IBM® OMEGAMON and Tivoli Management Services on z/OS shared documentation] for more information.
2. If you are installing OMEGAMON for DB2 PE in a data sharing environment, consider the applicable product restrictions. See “Special considerations for a data sharing environment” on page 33 for more information.
3. Grant all of the necessary authorizations. See “Prerequisites” on page 28 for more information.
4. If you are installing OMEGAMON for DB2 PE in a multihost environment, plan the VTPOOL sharing configuration. See “VTPOOL sharing in a multihost environment” on page 34 for more information.
5. Decide which security functions you will implement. See “Security” on page 37 for more information.
6. Decide which optional features and functions you want enable. See “Cost of optional features” for more information.
7. Complete the “Worksheet for planning your configuration” on page 63. This worksheet helps you understand what key parameters and values are required to configure the product and gives you the opportunity to plan the values that you will use during the configuration process.

Cost of optional features

Be aware of the fact that each optional feature or function that you add causes additional resource and CPU costs.
For best results, consider for each function whether it is really needed. If it is, decide whether you want to run it all the time or if you would rather save CPU costs and turn the feature on only when needed.

Following are additional tips for deciding which optional features and functions to add:

- Monitor traces for real-time are typically inexpensive. This includes Statistics and Accounting class (1) traces.
- Accounting trace class (3) and especially class (2) on the plan level as well as the equivalent classes (7 and 8) on the package level will generate additional overhead within the DB2 engine.
- SQL related traces (Dynamic SQL, NegSQL, sort, scan, and locking) can be very expensive. These traces should be used cautiously and only for a short period of time. For example, they are used as an option in Near-Term History.
- Object Analysis can be very expensive. Consider using the online function to switch this function on and off dynamically if you need it.
- For further information on resource and CPU consumption, see APAR 'II14438: Known issues causing high CPU utilization in OMEGAMON DB2 and performance tuning tips COMPID 5655OPE00' on the z/OS Communications Server.

Prerequisites

Before configuring the product, you must know what is required for the configuration process, such as hardware or software requirements, or access rights that you need for the configuration.

Hardware requirements

The product can be deployed on any zSeries system that is capable of running z/OS, version 1 release 8, or later.

Software requirements

For a detailed list of the software requirements, refer to the Announcement Letter.

OMEGAMON for DB2 PE installation

OMEGAMON for DB2 PE must be installed through SMP/E.

SMP/E is the basic tool for installing and maintaining software in z/OS systems and subsystems.

Related reading:

- The SMP/E installation of OMEGAMON for DB2 PE is described in the Program Directory for IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS.
- The SMP/E installation of OMEGAMON for DB2 PM is described in the Program Directory for IBM Tivoli OMEGAMON XE for DB2 Performance Monitor on z/OS.

Authorization requirements

To set up the product and certain DB2 privileges, such as data set privileges, access privileges are required. You find these in the two tables below. Furthermore, several user IDs are required for the configuration. You must create the following new user IDs or assign existing user IDs to the tasks:
• DB2PM as user ID or group ID for the OMEGAMON Collector (For details, see “Setting up security for the OMEGAMON Collector address spaces” on page 311.)

• A user ID for the DB2 Connect Monitoring Agent (in case you want to use the function DB2 Connect Monitoring)

During the configuration process, the PARMGEN generates jobs that contain all the statements that grant the required DB2 privileges. After successful configuration, you find these jobs in your /&rhilev./&rte.RD2SAM library.

The following table lists the DB2 privileges you must grant to the different users and the respective grant jobs that must be submitted.

<table>
<thead>
<tr>
<th>Users</th>
<th>DB2 privileges/grant jobs</th>
</tr>
</thead>
</table>
| End users of Performance Expert Client (including Performance Warehouse Client) or ISPF Monitoring Dialogs | OMGP<ssid>  
  Note: This job contains the following privileges:  
  • EXECUTE on PLAN KO2PLAN  
  • MONITOR1  
  • MONITOR2  
  • DISPLAY  
  • TRACE  
  If you want to allow certain users to execute CANCEL THREAD in Thread Activity, then you have to grant those privileges additionally (for example SYSOPR). |
| User ID of DB2 Connect Monitoring Agent                              | PWGA<ssid>                                                   |
| End users of the EXPLAIN function                                    | EXGP<ssid>                                                   |
| End users of the Performance Warehouse                               | PWG2<ssid>                                                   |
| User that does the product setup                                    | • SYSADM (to submit GRANT jobs)  
  • SYSCNTRL (to submit BIND jobs)                                    |
| OMEGAMON Collector user ID (DB2PM)                                   | • OMGR<ssid>                                                 
  • OMGP<ssid>  
  Note: This job contains the following privileges:  
  – EXECUTE on PLAN KO2PLAN  
  – MONITOR1  
  – MONITOR2  
  – DISPLAY  
  – TRACE  
  • If Performance Warehouse is enabled:  
    PWG1<ssid>                                                             |
| End users of Classic Interface                                       | No additional DB2 privileges needed.                         |
Table 4. DB2 privileges (continued)

<table>
<thead>
<tr>
<th>Users</th>
<th>DB2 privileges/grant jobs</th>
</tr>
</thead>
</table>
| End users of DB2 z/OS subsystem/data sharing group in the InfoSphere Optim Performance Manager Web Console | To configure InfoSphere Optim Performance Manager:  
- Privileges described in row ‘End users of Performance Expert Client (including Performance Warehouse Client) or ISPF Monitoring Dialogs’.  
- The privilege to connect to the DB2 z/OS subsystem/data sharing group.  
- The necessary privileges to perform CREATE/DROP/ALTER on function or procedure, that is GRANT CREATEIN,DROPIN,ALTERIN ON SCHEMA OPM.  
- The system privilege GRANT BINDADD is also required, as well as the privileges to issue GRANT EXECUTE on all functions and stored procedures on schema OPM.  
- JDBC stored procedures that allow getMetaData() method call have to be installed and configured.

To view static SQL statement text:  
- The SELECT privilege on tables SYSIBM.SYSCOLUMNS, SYSIBM.SYSPACKSTMT, SYSIBM.SYSROUTINES, and SYSIBM.SYSPARMS.  

**Note:** In order to speed up performance of the static SQL statement text retrieval, create the following indices:  
- SYSIBM.SYSPACKSTMT (SECTNOI ASC, NAME ASC, CONTOKEN ASC, COLLID ASC, SEQNO ASC) for DB2 10 and DB2 11  
- SYSIBM.SYSPACKSTMT (STMT_ID ASC) for DB2 10 and DB2 11

**Note:** <ssid> denotes the DB2 subsystem ID.

The following table lists the required authorizations on the data sets.

Table 5. Authorizations on data sets

<table>
<thead>
<tr>
<th>Users</th>
<th>Authorizations on data sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>End users of ISPF Online Monitoring or Buffer Pool Analyzer</td>
<td></td>
</tr>
</tbody>
</table>
- **READ** on &rhilev.&rte.RKANCHT  
- **READ** on &rhilev.&rte.RKANCLI  
- **READ** on &rhilev.&rte.RKANISP  
- **READ** and **EXECUTE** on &rhilev. &rte.RKANMOD  
- **READ** on &rhilev.&rte.RKANENU  
- **READ** on &rhilev.&rte.RKANSAMV  
- **READ** on &rhilev.&rte.RKD2SAM  
- **READ** on &rhilev.&rte.RKANSAS |
<table>
<thead>
<tr>
<th>Users</th>
<th>Authorizations on data sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>User who does the product setup</td>
<td>• <strong>UPDATE</strong> on system VTAMLST</td>
</tr>
<tr>
<td></td>
<td>• <strong>UPDATE</strong> on system PROCLIB</td>
</tr>
<tr>
<td></td>
<td>• <strong>ALTER</strong> on the high-level qualifier of your RTE(s) (<strong>&amp;rhilev.&amp;rte</strong>)</td>
</tr>
<tr>
<td></td>
<td>• <strong>EXECUTE</strong> on the high-level qualifier of PARMGEN (<strong>&amp;shilev</strong>)</td>
</tr>
<tr>
<td></td>
<td>• <strong>READ</strong> on the SMP/E target high-level qualifier of your SMP/E installation (<strong>&amp;thilev</strong>)</td>
</tr>
<tr>
<td>OMEGAMON Collector user ID (DB2PM)</td>
<td>• <strong>ALTER</strong> on the high-level qualifiers that you want the OMEGAMON Collector to use</td>
</tr>
<tr>
<td></td>
<td>for work data set allocation. You can specify a high-level qualifier for VSAM data sets and</td>
</tr>
<tr>
<td></td>
<td>one for non-VSAM data sets.</td>
</tr>
</tbody>
</table>

Table 5. Authorizations on data sets (continued)
Table 5. Authorizations on data sets (continued)

<table>
<thead>
<tr>
<th>Users</th>
<th>Authorizations on data sets</th>
</tr>
</thead>
</table>
| OMEGAMON Collector started task | • **READ** on MVSADMIN.WLM.POLICY RACF® facility class profile.  
• If PE Client is enabled: OMVS access in RACF (for details, see "Setting up TCP/IP services for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring" on page 311).  
• For information about configuring RRSAF, see "Setting up RRSAF" on page 314.  
• If the ability to dynamically add to link pack area is restricted, the OMEGAMON Collector started task (ompestc_uid) needs update authority to the facility:  
  – PERMIT CSVDYLP.AADD.KO2ZINIB CLASS(FACILITY) ID(ompestc_uid) ACCESS(UPDATE)  
  – PERMIT CSVDYLP.ADEL.KO2ZINIB CLASS(FACILITY) ID(ompestc_uid) ACCESS(UPDATE)  
  – PERMIT CSVDYLP.AADD.DGOVRM01 CLASS(FACILITY) ID(ompestc_uid) ACCESS(UPDATE)  
  – PERMIT CSVDYLP.ADEL.DGOVRM01 CLASS(FACILITY) ID(ompestc_uid) ACCESS(UPDATE)  
• If the specific facility needs to be defined:  
  – RDEFINE FACILITY CSVDYLP.AADD.KO2ZINIB UACC(NONE)  
  – RDEFINE FACILITY CSVDYLP.ADEL.KO2ZINIB UACC(NONE)  
  – RDEFINE FACILITY CSVDYLP.AADD.DGOVRM01 UACC(NONE)  
  – RDEFINE FACILITY CSVDYLP.ADEL.DGOVRM01 UACC(NONE) |

The following tables lists the required APF authorizations.
### Table 6. APF authorizations

<table>
<thead>
<tr>
<th>Users</th>
<th>APF authorizations</th>
</tr>
</thead>
</table>
| Tivoli Enterprise Monitoring Agent user ID | APF authorizations on the libraries in the steplib of the Tivoli Enterprise Monitoring Agent  
**Note:** For detailed information, see Configuring Tivoli Enterprise Monitoring Server on z/OS in the Tivoli Monitoring in the IBM Knowledge Center. Search for APF-authorize the runtime load libraries. |
| OMEGAMON Collector user ID (DB2PM) | APF authorizations on the libraries in the steplib of the OMEGAMON Collector.  
Depending on the type of runtime environment that you are using, add the following runtime load libraries to your list of APF-authorized libraries:  
**FULL RTE**  
- &rilev.&rte.RKANMODU  
- &rilev.&rte.RKANMOD  
- &rilev.&rte.RKANMODL  
**BASE SHARING RTE**  
- &rilev.&rte.RKANMODU  
- &rilev2.&rte.RKANMOD  
- &rilev2.&rte.RKANMODL  
  where &rilev2 is the high-level qualifier of the BASE runtime environment.  
**SMP/E SHARING RTE**  
- &rilev.&rte.RKANMODU  
- &rilev.&rte.RKANMOD  
- &thilev.TKNANMOD  
- &thilev.TKNANMODL |

### Special considerations for a data sharing environment

If you are installing or configuring OMEGAMON for DB2 PE in a data sharing environment, you might need to alter your configuration of certain components.

**Performance Expert Agent for DB2 Connect Monitoring**

The following configuration scenarios are possible with Performance Expert Agent for DB2 Connect Monitoring in a data-sharing environment:

- **Monitor one member of a data sharing group.** This configuration is sufficient in most data sharing environments, even when the members reside on different LPARS in a sysplex environment.

- **Monitor two or more members of a data sharing group.** To enable DB2 Connect Monitoring, you have to enable Snapshot History and activate the collection of DB2 Connect Monitoring data. You can enable that for two or more members of a data sharing group. However, consider the following effects:
DB2 Connect Monitoring data is collected and stored for only one member of the data sharing group. Monitoring is started first for this DB2 subsystem.

The user interfaces must connect to the member for which DB2 Connect Monitoring data is collected and stored. Otherwise, they cannot display DB2 Connect Monitoring data.

If the monitoring for the DB2 subsystem, for which the DB2 Connect Monitoring data was collected, is stopped, and you have enabled DB2 Connect Monitoring for two or more members of a data sharing group, then data collection for another member takes over. Ensure to reconnect the user interface to this member to display DB2 Connect Monitoring data.

**Performance Warehouse**

In a data-sharing environment, you can enable Performance Warehouse for only one member of a data sharing group.

**VTPOOL sharing in a multihost environment**

Virtual terminal pool (VTPOOL) defines the virtual terminal pool from which the virtual terminal manager VTM1 uses a virtual terminal for each OMEGAMON for DB2 PE session. Usually, each installation of VTM1 includes a VTPOOL definition. You can, however, also share a VTPOOL definition among several VTM1 installations.

**Requirement:** To provide support for OMEGAMON for DB2 PE sessions under more than one TSO or ISPF, you must install VTM1 in every VTAM domain that controls a TSO.

**Sample network**

For the VTPOOL sharing procedure that is described in this topic, it is assumed that the network looks like this:
In this example, there are two VTAM domains:
- Host Subarea A (HSAA)
- Host Subarea B (HSAB)

Host Subarea A runs OMEGAMON for DB2 PE and TSO (TSOA). Host Subarea B runs TSO (TSOB).

Assumptions are that:
- Users of OMEGAMON for DB2 PE who use ISPF or TSO mode must use the local TSO.
- A pool of ten virtual terminals is required for each host subarea.

This means that:
- Users whose terminals are controlled by VTAM domain HSAA must log on to TSOA.
- Users whose terminals are controlled by VTAM domain HSAB must log on to TSOB.

To share the VTPOOL definition, you must:
1. Define the VTPOOL to VMT1.
2. Define the VTPOOL to each VTAM.
3. Provide access to VTPOOL.

**Define the VTPOOL to VMT1**

To define the VTPOOL of ten virtual terminals to VTM1, use this `$VTAPPL` statement:

```
$VTAPPL APPL#=10,VTAPPL=OBVTM1
```
Define the VTPOOL to each VTAM

To define the virtual terminals to each VTAM domain, define the local name and the network name separately.

Both names are defined in the VTAM APPL definition statement:
- The ACBNAME keyword defines the local name.
- The name field defines the network name.

In the following sample VTAM APPL definition statements, the HSAA network names are different from the HSAB network names. The local names for each virtual terminal are identical in both host subareas.

This example shows HSAA VTAM definition statements for Host Subarea A that correspond to the $VTAPPL definition statement.

```
HSAAVTM1 VBUILD TYPE=APPL
HSAAVT01 APPL ACBNAME=OBVTM101,EAS=1
HSAAVT02 APPL ACBNAME=OBVTM102,EAS=1
HSAAVT03 APPL ACBNAME=OBVTM103,EAS=1
HSAAVT04 APPL ACBNAME=OBVTM104,EAS=1
HSAAVT05 APPL ACBNAME=OBVTM105,EAS=1
HSAAVT06 APPL ACBNAME=OBVTM106,EAS=1
HSAAVT07 APPL ACBNAME=OBVTM107,EAS=1
HSAAVT08 APPL ACBNAME=OBVTM108,EAS=1
HSAAVT09 APPL ACBNAME=OBVTM109,EAS=1
HSAAVT10 APPL ACBNAME=OBVTM110,EAS=1
```

This example shows HSAB VTAM definition statements for Host Subarea B that correspond to the $VTAPPL definition statement.

```
HSABVTM1 VBUILD TYPE=APPL
HSABVT01 APPL ACBNAME=OBVTM101,EAS=1
HSABVT02 APPL ACBNAME=OBVTM102,EAS=1
HSABVT03 APPL ACBNAME=OBVTM103,EAS=1
HSABVT04 APPL ACBNAME=OBVTM104,EAS=1
HSABVT05 APPL ACBNAME=OBVTM105,EAS=1
HSABVT06 APPL ACBNAME=OBVTM106,EAS=1
HSABVT07 APPL ACBNAME=OBVTM107,EAS=1
HSABVT08 APPL ACBNAME=OBVTM108,EAS=1
HSABVT09 APPL ACBNAME=OBVTM109,EAS=1
HSABVT10 APPL ACBNAME=OBVTM110,EAS=1
```

Provide access to VTPOOL

To provide access to VTPOOL, you must:

1. Assemble and link-edit the VTPOOL definition statements to produce the module `shilev.TKANSAM(KOBVTPL).`
   VTM1 uses this module at runtime to select a virtual terminal prior to starting a OMEGAMON for DB2 PE session.
2. Store the VTM1 execution-time modules including the link-edited module `shilev.TKANSAM(KOBVTPL)` in a library on DASD that is shared by TSOA and TSOb users.
   If this is not possible, you must use separate libraries with identical modules for both host subareas. You can, however, still perform VTPOOL maintenance from a single master library.
Modify VTPOOL definitions for TSO/ISPF mode

If you use TSO or ISPF mode and if your runtime environment does not share libraries with other runtime environments or with SMP/E, perform these steps:

1. Define your virtual terminals and LOGMODE names to the VTM1 program by updating RKANSAM data set member KOBVTPL.
2. Assemble and link the KOBVTPL source by using the JCL in RKANSAM data set member KOBVTPLX.
   The resulting load module KOBVTPL is stored in the RKANMOD data set.
3. Update the following member and controls accordingly if you modified the terminal names or the number of terminals:
   • VTAM node list member KOBVT1AP in the RKANSAM data set
   • VTAMLIST controls

Security

Plan your security strategy before you begin your configuration. You might need user IDs or special privileges during the configuration process. You might also want to consider optional security features before you begin to configure the product.

Contents of the security file listing

The security update program creates a list of the control statement modifications. By using the LIST control statement, you can produce an additional listing that contains all security information. It is called security file listing.

The security file listing consists of these parts:
• Header
• Control Statement Edit Listing
• Security File Listing
• Security Update Program Trace

Header

The header of the security file listing contains this information:
• The name of the data set where the load module resides
• The module name of the security table
• The OMEGAMON for DB2 PE version number in the format XnnnCOM, where nnn denotes the version number. For example, X540COM denotes OMEGAMON for DB2 PE V5.4.0.
• Messages indicating successful completion of the job or errors, such as a failure to open the SYSLIB data set or to read the security table.

This example shows a typical header:
Control Statement Edit Listing

The control statement edit listing contains a list of the control statements that have been edited. The list shows the previous contents and the new contents. It does not show previous passwords.

If the **UPDATE** control statement is specified as UPDATE=YES, date and time of the previous update is reported.

This example shows a typical control statement edit listing:

```
*** CONTROL STATEMENT EDIT ***

AUTHLIB=&rhilev.&rte.RKO2PROC,VOL=NOVOLUME
PREVIOUS CONTENTS =
NEW CONTENTS = &rhilev.&rte.RKO2PROC NOVOLUME

* CHANGE THE PASSWORD FOR LEVEL 3 COMMAND ACCESS
PASSWORD=IBM3,LEVEL=3
PREVIOUS CONTENTS = ******** NEW CONTENTS = IBM3

* DISPLAY SECURITY INFORMATION FOR THE PEEK COMMAND
COMMAND=PEEK
PREVIOUS CONTENTS = 3 B NEW CONTENTS = 3 B

* DISPLAY SECURITY INFORMATION FOR MINOR JOBS
MINOR=JOBS
PREVIOUS CONTENTS = OEW NEW CONTENTS = OEW

* PROTECT MZAP COMMAND
COMMAND=MZAP,LEVEL=3
PREVIOUS CONTENTS = 0 NEW CONTENTS = 3

* DISASTER CONS COMMAND
COMMAND=CONS,LEVEL=DISABLE,AUDIT=BOTH
PREVIOUS CONTENTS = 0 NEW CONTENTS = * B

*** END OF CONTROL STATEMENT INPUT ***
```

The codes for the previous and new contents of commands are positional. This list shows the valid positions:

1. The first position shows the number of the internal security level. If the command is not enabled, it shows an asterisk (*).
2. The second position shows the external security option.
   - **E** Use external security for this command.
   - **blank** A blank denotes no external security.
3. The third position shows the auditing option.
Audit this command by using WTO.
Audit this command by using SMF.
Audit this command by using WTO and SMF.

A blank denotes no auditing.

Security File Listing

If you specify LIST=YES anywhere in the input stream, the security update program generates this information:

- A complete listing of the security information
- The name of the authorized screen library and its volume serial number
- The name of the external security user exit module
- The SMF record number
- All commands and their security information

This example shows a typical security file listing:

```
OBSECUP 1.2-- SECURITY UPDATE PROGRAM--(c) IBM CORPORATION-- mm/dd/yy 16:41
   * * * SECURITY FILE LISTING * * *
   AUTHLIB=&rhitlev.&rte.RKO2PROC VOLUME=NOVOLUME
   LEVEL1=******* LEVEL2=******* LEVEL3=*******
   SMFNUM=233
   MODULE=MYSECURE
   COMMAND=/A 0 TYPE=S (ALIAS)
   COMMAND=/ABORT 0 TYPE=S
   COMMAND=/AUP 0 TYPE=S
   COMMAND=.AUP 0 TYPE= I
   COMMAND=.DSA 0 TYPE= I
   COMMAND=.SCC 0 TYPE= I
   COMMAND=OCMD 3EB TYPE= I

   SECURITY TABLE LAST UPDATED ON mm/dd/yy 06:00:10
```

The commands are succeeded by the security level. An asterisk (*) indicates that a command is not enabled. Minor commands are listed below their corresponding major commands.

The **TYPE** field shows the following kinds of Classic Interface commands:

C Major
I Immediate
S Slash (INFO-line)

Security Update Program Trace

The last part of the listing shows if an update has successfully completed.

This example shows a typical security update program trace:
Optional external security features
You can setup your user exit routine to use one of the following external security features.

The exit routine concepts are described in "Exit routine concepts" on page 49.

You can also use the control options that are supplied with the security package, such as SHIFT validation and SOURCE validation. To use them, specify the commands EXTERNAL=YES and implement the option as the security package directs.

Customization of error messages
To suit your individual requirements, you can create customized error messages if one of these conditions occur:
- The authority of the user is insufficient.
- The user enters a wrong user ID.
- The user enters a wrong password.

The customized error messages can be up to 120 bytes long, except for INFO-line messages. INFO-line messages, for example, /PWD relogon messages, can be up to 60 bytes long.

Members KO2RACFX and KOACF2X in the &rhilev.&rte.RKD2SAM data set contain sample exit routines.

Password update
You can give the user the ability of interactive communication when logging on to external security.

For example, if a user logs on by using an expired password, the security exit can prompt the user for a new password and update the security database.

Restriction: This option is not available when relogging on by using the /PWD command.

Audit suppression
You can suppress WTO or SMF auditing. To indicate suppression of WTO or SMF, your exit routine might set a flag in $UCHECK at initialization or relogon.

Audit supplement
In addition to the WTO and SMF audits that are available with the Classic Interface, you can use the audit features of the external security package to supplement command tracking. The RACF Report Writer and ACF2 ACFRPT
utility programs are examples of this supplemental audit capability.

**Locking feature**

The feature can prevent users from changing their internal security level by using the `/PWD` command. Their level of authority is set only once and only at logon. It can be set to one of four levels (level 0, 1, 2, or 3).

**Restrictions:**
- Because the feature locks the internal security level of a user, it affects only those commands that are marked as EXTERNAL=NO.
- The locking feature disables the `/PWD` command only for supplying internal passwords. The user can still use the `/PWD` command to relogon to an external user ID.
- You must define the security level of a user in ACF2 or RACF as an INITIAL\(n\) resource, where \(n\) is a number from 0 to 3.
- You must assign corresponding values to commands in the security update program by using the **LEVEL** keyword of the **COMMAND** control statement.
- The routine starts checking INITIAL\(n\) resources at the highest level. If you define users of INITIAL2, INITIAL3, and PERMIT to INITIAL3, the users are locked to level 3.
- Users who have INITIAL authority without an attached value from 0 to 3 are allowed to change their internal security level by using the `/PWD` command.

**User validation through RACF**

To validate a user, the user exit routine checks the RACF resource class that is defined by the ICHERCDE macro.

The resources that allow the startup of the Classic Interface include INITIAL, INITIAL0, INITIAL1, and INITIAL3.

This example shows these resources:

```
<Allows /PWD to work>
RDEFINE cccccccc INITIAL UACC(READ)
  <Defines security level 0 as unaccessible>
RDEFINE cccccccc INITIAL0 UACC(NONE)
  <Defines security level 1 as unaccessible>
RDEFINE cccccccc INITIAL1 UACC(NONE)
  <Defines security level 2 as unaccessible>
RDEFINE cccccccc INITIAL2 UACC(NONE)
  <Defines security level 3 as unaccessible>
RDEFINE cccccccc INITIAL3 UACC(NONE)
  <Locks USER02 to level 2 power>
PERMIT INITIAL2 CLASS(classname) ID(USER02) ACC(READ)
```

where `classname` is the resource class name that you define when you modify RACF security rules as described in “Modifying RACF security rules” on page 47.

**User validation through ACF2**

To validate a user, the user exit routine checks the ACF2 resource class.
The resources that allow the startup of the Classic Interface include INITIAL, INITIAL0, INITIAL1, and INITIAL3.

To allow users to change their authorization level with the `/PWD` command, use INITIAL.

This example shows sample definitions:

```plaintext
<Allows /PWD to work for USER01>
ACFNRULE KEY(INITIAL) TYPE(cls) ADD(uid(**************USER01) ALLOW)

<Locks USER02 to security level 0 commands>
ACFNRULE KEY(INITIAL0) TYPE(cls) ADD(uid(**************USER02) ALLOW)

<Locks USER03 to security level 1 commands>
ACFNRULE KEY(INITIAL1) TYPE(cls) ADD(uid(**************USER03) ALLOW)

<Locks USER04 to security level 2 commands>
ACFNRULE KEY(INITIAL2) TYPE(cls) ADD(uid(**************USER04) ALLOW)

<Locks USER05 to security level 3 commands>
ACFNRULE KEY(INITIAL3) TYPE(cls) ADD(uid(**************USER05) ALLOW)
```

where `cls` is the generalized resource class name that you define when you modify RACF security rules as described in “Modifying RACF security rules” on page 47.

**Customized security for the Classic Interface**

You can set up an interface between the Classic Interface and an external security package, such as RACF or ACF2. The product has no security feature set up as the default.

Whether you use internal security, external security, or a combination of the two, you can customize the Classic Interface security table to the needs of your installation.

**Terminology for security procedures:**

The following terms are used in the descriptions of the customization procedures for security:

**Update Program**
The KOBSUPDT member of `&rhilev.&rte`.RKANMOD is a utility program that performs the update to the security table of the Classic Interface.

**Control Statements**
The KO2SUPDI member of `&rhilev.&rte`.RKD2SAM contains control statements that you can edit to change the defaults for internal security or to specify external security. KO2SUPDI provides the input for the update program.

**JCL**
The KO2SUPD member of `&rhilev.&rte`.RKD2SAM contains the JCL to run the security update program.

**Exit Routine**
At start time, the Classic Interface accesses the security exit routine of the user that provides the interface to the external security package. The name of this routine must be specified by the administrator.
Internal versus external security:

When you start the Classic Interface, it checks if an exit routine for an external security package is installed.

You can use external security alone, internal security alone, or external security on some commands and internal on others.

Important: The use of the term *authorized* implies APF authorization.

- If the exit routine exists, it gets control for the commands that are marked for external security. It determines authorization through the external security package. If external security allows the command, the Classic Interface does not check internal security.
- If external security is not used for the command, internal security takes effect. The Classic Interface includes specific authorized commands. They require an internal security password for execution.

Authorized commands and their authorization level:

The Classic Interface includes specific authorized commands for which you can use internal security. Authorized commands have a security level of 3.

All Classic Interface commands (major, minor, immediate, and INFO-line) have a security level of 0, 1, 2, or 3. Level 3 provides the highest degree of protection. A setting of 0 means that any user can access the command.

All commands have a default security level of 0 except for authorized commands. By default, authorized commands have a security level of 3.

You must run the security update to prevent that specific commands that can potentially damage your system are available to all users.

The KO2SUPDI member in &rhilev.&erte.RKD2SAM contains instructions and the control statements for updating the authorization level of authorized commands as needed.

For the procedure to update the security level of Classic Interface commands, refer to "External security concepts" on page 44.

The following commands are the authorized commands for this product:

<table>
<thead>
<tr>
<th>CONS</th>
<th>DCMD</th>
<th>DCNS</th>
<th>DSA</th>
<th>MCHN</th>
<th>MLST</th>
<th>MSCN</th>
</tr>
</thead>
<tbody>
<tr>
<td>MZAP</td>
<td>OCMD</td>
<td>OSPC</td>
<td>PEEK</td>
<td>SCHN</td>
<td>SLST</td>
<td>SSCN</td>
</tr>
<tr>
<td>SZAP</td>
<td>TCMO</td>
<td>XMCH</td>
<td>XMLS</td>
<td>XMSC</td>
<td>XMZP</td>
<td></td>
</tr>
</tbody>
</table>

These commands are described in Monitoring Performance from the OMEGAMON Classic Interface

Important: The PEEK major command has the minor commands AMAP, DDNS, JOBS, MODS, STEP, SUBP, and TCBS. These minor commands also have default security level of 3.

The authorized commands require an internal password for execution. How to use these passwords is described in "Using passwords for authorized commands" on page 44.
Using passwords for authorized commands:

Each security level can have its own password.

About this task

The level 3 password accesses all levels. The level 2 password accesses levels 2, 1, and 0. The level 1 password accesses only levels 1 and 0. Level 0 commands execute without a password.

If you enter a command that requires higher authority than yours, the following message is displayed:

080921 Security check failed (Internal)

To get access to the authorized commands, use the /PWD command in the following way:

Procedure

1. Enter /PWD on the INFO-line.
   The Classic Interface shows the password prompt.
   
   _  
   <<== Please enter password

2. Enter your password on the INFO-line.
   The password does not display as you type it.
   The message PASSWORD ACCEPTED is displayed.
3. Press Enter again to get access to all authorized commands that are associated with that password and to lower command levels.

What to do next

To reset the security level to 0 after you complete the authorized functions, do one of the following:
- Press the PA1 or the ATTN key.
- Enter /PWD on the INFO-line and press Enter twice without entering a password.
  The Classic Interface shows:
  
  __________________________ Password level reset

Access to the authorized commands is restricted until you enter the password again.

If you use the Classic Interface with an external security package, you can prevent the use of the /PWD command. For details about this feature, see “Locking feature” on page 41.

External security concepts:

The Classic Interface supports external security for all modes of operation.

You can use external security for the logon and for commands. When using external security, you can log on to the Classic Interface only if you are allowed to access the INITIAL resource name.
You can use a resource name of INITIAL0, INITIAL1, INITIAL2, or INITIAL3 to allow logon to the Classic Interface and set the internal security level to 0, 1, 2, or 3, respectively.

When you issue a command, the Classic Interface performs an external security check to see if the following conditions are met:

- The name of the user exit module is specified in the security table.
- An external security exit routine is located and loaded.
- External security is specified for the issued command in the security table by using the COMMAND control statement with the EXTERNAL=YES keyword setting.
- For VTAM mode, the library that contains the KOBVTAM load module is APF-authorized.

If any commands are specified for external security checking and if an exit routine is not found, the Classic Interface recognizes a possible security exposure and disables those commands with an internal security level of 0 for the session. Commands with a level of 1, 2, or 3 run only after you enter the internal password. For more information about authorized commands and using passwords, see the following:

- "Authorized commands and their authorization level" on page 43
- "Using passwords for authorized commands" on page 44

Using the VTAM, TSO, or ISPF mode logon panel:

You can log on through the VTAM, TSO, or ISPF mode panel using the KOBVTAM logon panel.

About this task

Advantages of using the KOBVTAM logon panel are:

- The exit routine can cause the Classic Interface to stop an unauthorized logon.
- The exit routine makes all security checks based on the user logon ID and not on the authority for the Classic Interface address space.

Note: If you are in an active VTAM session and you want to change the external security level of authorization, you can use the relogon feature as described in "Logging on again to an active session."

To logon to the Classic Interface through the VTAM, TSO, or ISPF mode panel, perform the following step:

Procedure

Log on to VTAM. The logon panel for the Classic Interface VTAM application program (KOBVTAM) is displayed.

Logging on again to an active session:

You can use the relogon feature to logon to an active VTAM session without logging out first.
About this task

The relogon feature is a function of the /PWD command. You can use this feature to perform the following tasks:

- Enter your user ID and password for the external security package from an active Classic Interface session.
- Change the security level without having to close a current VTAM session.

When you work with the relogon feature, consider these issues:

- Do not mark the /PWD command as EXTERNAL=YES in the security table.
- In your user exit, you can determine the default action if the supplied user ID or logon password is not valid.
  
  For example, you can specify that all Classic Interface commands that are marked as EXTERNAL=YES are not enabled. You can also specify that the session reverts to the previous user ID. The available options are explained in the sample exit routines.
- If you use the relogon feature and your password has expired, you cannot enter a new one by using the /PWD command.

To use the relogon feature, perform the following step:

Procedure

Enter /PWD and your user ID on the INFO-line as seen in the following example:

/PWD user01_____O2INIT01 DED O2 V600.4P $DB2 mm/dd/yy 17:03:37

You are now logged on again to the active session using external security.

Implementing external security:

You must implement an external security package before the exit routine can refer to it for authorization. If external security is not implemented, internal security takes effect.

About this task

To implement external security, perform the following steps:

Procedure

1. Modify the rules in the external security package to interface with the Classic Interface as described in “Modifying RACF security rules” on page 47.
2. Customize the sample exit routine that is provided on the Classic Interface tape according to the procedure described in “Exit routine concepts” on page 49. For a description of options that you can use, refer to “Optional external security features” on page 40.
3. Assemble and link-edit the routine.
4. Modify and update the security table to specify the commands that are to be checked by RACF or ACF2 and the name of the module that contains the exit routine. Note that no default is supplied for the module name. Follow the steps in “Updating the security table” on page 60.
5. Ensure that your security package has authorized the started-task identifier for OMEGAMON for DB2 PE.
During configuration, OMEGAMON for DB2 PE generates the security jobs KO2ACF2A, KO2RACFA, and KO2SUPD. These jobs create exit programs for external security packages. The members are in &rhilev.&rte.RKD2SAM.

Modifying RACF security rules:

You must modify the RACF security rules to interface with the Classic Interface.

About this task

To modify RACF security rules, do the following:

Procedure

1. Update the resource class description table to define a class name, for example, O2IBM, by using the ICHERCDE macro call.

   **Requirement:** This must be the same name that you use when you define the resource class in the security exit routine.

   You should define the ICHERCDE macro as follows:

   ```
   ICHERCDE
       CLASS=classnme,
       ID=nnn,
       MAXLNTH=8,
       FIRST=ALPHANUM,
       OTHER=ANY,
       POSIT=nnn,
       DFTUACC=NONE
   ```

   where `classnme` and `nnn` are determined by your installation. Additional operands for this macro might also be required at your installation.

2. Define a resource profile for logging on to the Classic Interface by using the TSO RDEFINE command with a resource of INITIAL.

   The following example shows a definition that allows all users to sign on to the Classic Interface and use the /PWD command for internal security. It allows access to all commands that are marked EXTERNAL=NO.

   ```
   RDEFINE classnme INITIAL UACC(READ)
   ```

   where `classnme` is the name that is assigned in the previous step.

   This definition is the minimum required for logon. If you want to restrict the use of the /PWD command, refer to “Optional external security features” on page 40.

3. Define resource profiles for the commands that you want to protect by using external security. The commands are marked EXTERNAL=YES.

   a. Use the TSO RDEFINE to specify the Classic Interface command as the resource.

   ```
   Ensure that you define UACC(NONE) so that only specific users can execute the command.
   ```

   b. Use the PERMIT command to define the users who can access the resource, that is the users who can execute the command.

   c. Give the defined users READ access

   The following example shows how to authorize a user to run the PEEK command with RACF:

   ```
   RDEFINE classnme PEEK UACC(NONE)
   PERMIT PEEK CLASS(classnme) ID(USER01) ACCESS(READ)
   ```
4. Include the RACF macro libraries SYS1.MACLIB and SYS1.AMODGEN, and the macro library &thilev.TKANMAC in the assembly of the security exit routine.

What to do next

Important: When you authorize commands, the Classic Interface modifies the command name. For example, it makes the following replacements:

- It replaces the slash of the INFO-line commands with a dollar sign. For example, /cccc becomes $cccc and /LOGOUT is defined to RACF as $LOGOUT in CLASS(cccccc).
- It replaces the period of the immediate commands with @. For example, .cccc becomes @cccc.

Modifying ACF2 security rules:

You must modify the ACF2 security rules to interface with the Classic Interface.

About this task

To modify ACF2 security rules, do the following:

Procedure

1. If you run the Classic Interface in VTAM mode, define the name of its started task to ACF2.
   The started task name that you use for the Classic Interface in VTAM mode should have the MUSASS attribute assigned. This allows ACF2 to check the individual user authorization rather than using the address space ID of the Classic Interface. If STC(NO) is specified, you must run the Classic Interface in batch mode with a job name that has the MUSASS attribute.

2. To set up a resource class for ACF2, define a generalized resource class name, for example, O2S.
   Requirement: It must be the same name that you use when you define the resource class in the security exit routine.
   For generalized resources, the name consists of three characters but gets the letter R as prefix within the security exit.
   This allows the Classic Interface to make security checks.

3. Define an ACF2 rule for resource INITIAL.
   This allows VTAM users to log on to the Classic Interface as in the following example:
   
   **ACFNRULE KEY(INITIAL) TYPE(O2S) ADD(UID(*************uid) ALLOW)**
   
   Requirement: O2S must be identical to the resource class name that you define in the security exit routine.

   *uid is a user ID or a user ID mask. If you want to restrict the use of the /PWD command, refer to "Optional external security features" on page 40.

4. Define resource rules for the command that you want to protect by using the KEY operand of the ACF2 rule compiler.
   This authorizes a user to execute the PEEK command with ACF2 as in the following example:
   
   **ACFNRULE KEY(PEEK) TYPE(O2S) ADD(UID(*************USER01) ALLOW)**
   
   For information about the format of the string, ask your security administrator.
5. Include the ACF2 macro library and the IBM macro library &thilev.TKANMAC in the assembly of the security exit routine.

What to do next

Important: When you authorize commands, the Classic Interface modifies the command name. For example, it makes the following replacements:

- It replaces the slash of the INFO-line commands with a dollar sign. For example, /cccc becomes $cccc and /LOGOUT is defined to ACF2 as $LOGOUT in CLASS(ccccc).
- It replaces the period of the immediate commands with @. For example, .cccc becomes @cccc.

Modifying CA-TOP SECRET security rules:

You must modify the CA-TOP SECRET security rules to interface with the Classic Interface.

About this task

To modify CA-TOP SECRET security rules, do the following:

Procedure

1. Define the users who can access the resource by using the TSS PERMIT command.
2. Run the Classic Interface command.

Example

The following example shows how to authorize a user to execute the PEEK command with CA-TOP SECRET.

TSS PERMIT(userid) cccccccc(PEEK)

where cccccccc is the resource class name.

Exit routine concepts:

The exit routine provides an interface between the Classic Interface and the security product.

Concepts for exit routines are:

- You can specify any unique name for your exit routine.
  The name must be identical to the name in the control statements that update the security table. For more information, refer to the MODULE= control statement in "MODULE control statement" on page 57.
- You can share the exit routine between systems.
- You must define a resource class in the exit routine.
  The name of this resource class must be identical to the generalized resource class name that you define when you modify RACF or ACF2 rules.
- You can use the same exit routine to define security for several Classic Interfaces.
You must then use the same name on the **MODULE**= control statement for each Classic Interface.

You can use the value of the **B#DPRFX** field in the **$BIA** data area as part of a resource name that you want to use for the Classic Interface that is currently in use.

The **&rhilev.&rte.RKD2SAM** data set contains the following sample members:

- Members **KO2ACF2X** and **KO2RACFX** that contain models for ACF2 and RACF routines.

  Many configurations use these models without modification. They are, however, documented with comments so that you can modify them because security procedures are configuration-dependent.

  You can also use these models if you have a security system other than RACF or ACF2. In this case, use the sample RACF or ACF2 exits as guides to see the following:
  - Which information is passed to the exit routine
  - Which information is returned to the Classic Interface

- Members **KO2ACF2A** and **K02RACFA** that contain sample JCL to help you assemble and link-edit your routine.

External security features are described in "Optional external security features" on page 40.

**Calling conventions of the Classic Interface:**

The Classic Interface uses a single control block **$UCHECK** to pass information to the exit routine. The exit routine uses **$UCHECK** to pass information back to the Classic Interface.

The **$UCHECK** control block is mapped by the **$UCHECK** macro. The macro is defined in member **KOBGMAC** of **&rhilev.TKANMAC**.

The Classic Interface maintains the control block for the entire duration of the session.

**Restriction:** The **$UCHECK** work area for the configuration is limited to 512 bytes. If your installation requires a larger work area, perform these steps:

1. Perform a **GETMAIN** for the additional storage required.
2. Place the pointer to this **GETMAIN** area in **$UCHECK**.

**Note:** Do not try to enlarge the work area in another way because this causes an overlay of essential control blocks for the Classic Interface. Results are then unpredictable.

If you modify the RACF RACROUTE macro, you must perform a **GETMAIN** for at least 512 bytes for use as the **WORKA** parameter.

The Classic Interface calls the user exit module with these conventions:

**Register 1**
Address of parameter list

**Register 13**
Address of a standard save area
Register 14
Return address

Register 15
Entry point address (in)

Register 15
Return code (out)

Word 1
Address of control block

Calling flow between Classic Interface and user security exit:

Calling flow between the Classic Interface and your user security exit routine takes place at initialization, during command verification, at relogon, and at termination.

Calling flow at initialization

At initialization, the Classic Interface passes control to your user exit routine. The initialization call is indicated by an I in the U#CHTYP field. This indicates that the Classic Interface requires a logon validation.

This list shows the conditions that apply to the calling flow at initialization:

- If the user ID field length is nonzero, the user ID and password information are available.
- If additional information or some form of retry is required, the routine can request a reshown of the screen. It can also reset any field lengths to indicate that no data, such as user ID, password, group, or new password, is available.

To perform a reshown in VTAM mode, perform these steps:
1. Set a message of up to 120 bytes length in the U#CHMSG field.
2. Set the U@CHRSHO bit in the U#CHRESP field.
3. Return to the caller.

The message appears below the panel. Appropriate fields, such as original user ID and password, are filled in, unless overridden (length = 0).

- After validation is complete, a return code of 0 from the user exit indicates that the user is allowed to log on.
  Any other return code stops the session.
- After successful logon, the validation routine can perform resource validation. Optionally, it assigns a command security level (0, 1, 2, or 3) to the user. The default level is 0.

Place the appropriate number into the U#CHAUT4 field. To force the user to use only this level, you must also set the U@CH1LOK bit in the U#CHAUT1 field.

Calling flow during command verification

During command verification, the Classic Interface places a C in the U#CHTYP field. At this point, the user authorization can be checked.

If a command is allowed, the user can use this account on subsequent tries until security is reset with the /PWD command.

If a command is not allowed, the user cannot use this account on subsequent tries until security is reset with the /PWD command.
Each time the user attempts to use the command, the user exit is notified. Also, an audit record can be written, and a customized error message can be issued.

Return codes from the exit routine can be:

**RC = 0**
Indicates that the command is allowed.
For RACF and ACF.

**RC = 4**
Indicates that the command is unknown.
The Classic Interface allows the command to execute. For information about how to define a command to RACF, refer to “Modifying RACF security rules” on page 47.
For RACF only.

**RC = 8**
Indicates that the command is known to the security package and that access is denied.
For RACF and ACF.

*Important:* When you authorize commands, the Classic Interface modifies the command name. For example, it makes the following replacements:

- It replaces the slash of the INFO-line commands with a dollar sign. For example, `/cccc` becomes `$cccc`.
- It replaces the period of the immediate commands with @. For example, `.cccc` becomes `@cccc`.

**Calling flow at relogon**

At relogon, the Classic Interface places an `R` in the `U#CHTYP` field to indicate a logon validation.

The processing is identical to the one for initialization, except that users might not enter a new password or group because the Classic Interface does not display the logon panel.

**Calling flow at termination**

At termination, the Classic Interface passes a `T` to the user exit routine.

You can then do any termination cleanup required, such as freeing user control blocks, or perform a FREEMAIN for any GETMAIN areas.

**Security control statements:**

The security table consists of specific control statements and control keywords. You can edit these statements to update the security table for internal and external security.

**Overview**

This table provides a summary of available security control statements and their descriptions in alphabetical order.
For more information about the control statements and keywords, refer to the individual description of each statement.

Table 7. Security control statements

<table>
<thead>
<tr>
<th>Control statement</th>
<th>Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTHLIB</td>
<td>Specifies an authorized screen space (PROC) library for initialization that bypasses the security check.</td>
<td>“AUTHLIB control statement” on page 54</td>
</tr>
<tr>
<td>COMMAND</td>
<td>Sets the internal security levels of commands, marks them for external security, and requests an audit.</td>
<td>“COMMAND control statement” on page 55</td>
</tr>
<tr>
<td>LIST</td>
<td>Specifies whether a listing of the current security settings is to be produced on this run.</td>
<td>“LIST control statement” on page 56</td>
</tr>
<tr>
<td>MINOR</td>
<td>Specifies the security options for minor commands.</td>
<td>“MINOR control statement” on page 57</td>
</tr>
<tr>
<td>MODULE</td>
<td>Specifies the name of the module that contains the user external security exit routine.</td>
<td>“MODULE control statement” on page 57</td>
</tr>
<tr>
<td>PASSWORD</td>
<td>Specifies the internal passwords.</td>
<td>“PASSWORD control statement” on page 58</td>
</tr>
<tr>
<td>RESET</td>
<td>Clears current settings.</td>
<td>“RESET control statement” on page 59</td>
</tr>
<tr>
<td>SMFNUM</td>
<td>Specifies the record ID number for SMF audit requests.</td>
<td>“SMFNUM control statement” on page 60</td>
</tr>
<tr>
<td>UPDATE</td>
<td>Specifies whether updating is to be performed on this run.</td>
<td>“UPDATE control statement” on page 60</td>
</tr>
</tbody>
</table>

Format rules for control statements

These format rules apply to all control statements.

- Control statements can begin anywhere in the input record but cannot extend beyond column 72.
- Statements can be in any order in the input stream. The update program processes the statements as it encounters them, with the exception of the LIST and UPDATE statements. These statements take effect after all other input is processed.
- All information for a particular control statement must fit in a single line.
- All input must be in uppercase letters.
- Statements must be in this format:

CONTROLSTATEMENT=cccccc,KEYWORD1=cccccc,KEYWORD2=cccccc,

Note: Blanks are not allowed because the update program treats data that follows a blank as a comment. The data prints on the edit listing but is ignored for processing purposes.
- To insert comment lines anywhere in the input stream, place an asterisk (*) in the first column of the input record.
- If the update program identifies statements as incorrect, correct the statements and resubmit them.
To correct the setting, specify a new one instead of deleting or replacing part of the old one, especially when changing a command from EXTERNAL=YES to EXTERNAL=NO.

- The Classic Interface does not recognize changes of control statements until the update job completes successfully and until a new Classic Interface session is started.
  
  Usually, the control statement edit listing indicates successful completion of the update.

**AUTHLIB control statement:**

This control statement specifies the data set name of an authorized screen space (PROC) library. The library contains commands that should be invoked without security checks at the Classic Interface initialization.

**Purpose**

It lets you execute protected commands as part of the initialization screen without entering a password.

**Recommendation:** You should restrict WRITE access to the AUTHLIB data set because security checking for screens from this data set is bypassed.

Concatenate the data set that contains the authorized screens in your O2PROC DD statement. Note that the data set that contains the authorized screen libraries is not an APF-authorized data set.

Security checking resumes if one of these conditions occurs:

- The Classic Interface fetches a screen from an unauthorized library
- A screen is loaded into memory
- A user enters any keystroke including a cursor movement

**Important:** If you create an authorized screen library and if you use the Classic Interface menu system, checking security causes initialization to fail if one of these conditions occurs:

- The Classic Interface fetches a screen that contains an authorized command. Therefore, the .FGO and .VAR commands should be unprotected.
- The Classic Interface fetches a screen space that is loaded into memory. Screen @ZCRNDF loads screen spaces into memory.

**Format**

The format of the AUTHLIB control statement is:

```
AUTHLIB=dsname,VOL={volume|NOVOLUME}
```

where *dsname* denotes the name of the authorized screen library that you have created.

**Keyword**

**VOL**

Always required.
Specifies the volume serial where the specified data set resides and serves as an additional security measure.

You can specify a volume serial number even if the data set is cataloged.

If you do not want the additional volume serial number checking to be performed, specify NOVOLUME.

**COMMAND control statement:**

This control statement protects the name of a major, immediate, or INFO-line command of the Classic Interface. Minor commands are protected at the major command level unless the MINOR control statement is specified.

**Purpose**

When you update an INFO-line command, you must use the actual command name and not its alias. The Classic Interface automatically assigns the same protection attributes to all aliases of the command.

The Classic Interface does not check for multiple COMMAND control statements for the same command in the same run. It processes the last COMMAND control statements for the command.

**Format**

The format of the COMMAND control statement is:

```
COMMAND= {cccc | .ccc | /cccccc}
[,LEVEL={0 | 1 | 2 | 3 | DISABLE}]
[,EXTERNAL={YES | NO}]
[,AUDIT={WTO | SMF | BOTH | NONE}]
```

where `cccc`, `.ccc`, or `/cccccc` is the name of the Classic Interface command that should be audited.

To have the control statement edit listing show the current security settings for a command, enter a COMMAND=`cccc`, `.ccc`, or `/cccccc` control statement without additional operands.

**Keywords**

**LEVEL**

Specifies the internal security level to be associated with this command.

- **Level 0**
  Allows the command to execute without an internal security check.

- **Levels 1, 2, and 3**
  Specify that the command executes only if you have previously entered the corresponding password for that level or for a higher level by using the /PWD INFO-line command.

**DISABLE**

Specifies that the Classic Interface should never execute the command. You can audit attempts to execute the command for the session, but you cannot specify internal or external security.

**EXTERNAL**

Specifies if an external security package checks this command.
YES  The external security package checks the command unless you specify
LEVEL=D\text{DISABLE}.

If no exit routine is available, the Classic Interface disables the
command for the session if the command security level is 0.

If the command security level is 1, 2, or 3, internal security is used by
default.

NO  The external security package does not check the command.

If you change EXTERNAL=\text{YES} to EXTERNAL=\text{NO}, you must run the
security update program before the change comes into effect.

\textbf{AUDIT}

Specifies if the Classic Interface audits the command when a user invokes it.

If you specify an audit for a disabled command, you are notified of attempts to
execute it.

Possible values are:

- \textbf{NONE}  Specifies that commands are not audited. This is the default setting.
- \textbf{WTO}   Produces a one-line message on the master console.
- \textbf{SMF}   Specifies that the Classic Interface writes an SMF record.
  The SMF record must be specified in the \texttt{SMNUM} control statement.
  If the SMF audit cannot be performed, the Classic Interface uses a
  WTO audit by default.
- \textbf{BOTH}  Specifies that the Classic Interface issues a WTO message to a console
  and writes an SMF record.

\textit{LIST control statement:}

This control statement specifies if the update program produces a security file
listing.

\textbf{Purpose}

A security file listing is a complete record of the security table.

It shows:
- The name of the authorized screen library
- Its volume serial number
- The name of the user exit module
- All command names along with their corresponding security information

You can specify only one \textbf{LIST} control statement per run.

\textbf{Format}

The format of the \textbf{LIST} control statement is:

\texttt{LIST=\{YES\mid NO\}}
Keywords

YES
Generates the security file listing independent of edits to the control statements when submitted as the only control statement in the command stream.

NO  This is the default setting. Generates a listing that shows what the control statements and security information would look like if the update had taken place.

For detailed information about the contents of a security file listing, refer to “Contents of the security file listing” on page 37.

MINOR control statement:

This control statement specifies the name of a Classic Interface minor command that should be protected.

Purpose

The Classic Interface protects the minor commands independently of the major commands. Therefore, any changes to minor commands apply to all minor commands with the same name and attributes, regardless of their major commands.

Access to a minor command requires access to the appropriate major command. If you do not specify an EXTERNAL keyword, the associated major controls access this minor command.

A minor command in a run is not checked for multiple MINOR control statements. The last MINOR control statement for the minor command takes effect.

Format

The format of the MINOR control statement is:

```
MINOR=cccc
[,,LEVEL={1|2|3|DISABLE}]
[,,EXTERNAL={YES|NO}]
[,,AUDIT={WTO|SMF|BOTH|NONE}]
```

Keywords

cccc denotes the name of the minor command that should be protected.

For an explanation of the keywords LEVEL, EXTERNAL, and AUDIT, refer to “COMMAND control statement” on page 55.

MODULE control statement:

This control statement specifies the name of the module that contains your external security exit routine.

Purpose

You must specify this control statement to use external security.
The name of the module must be identical to the name of the load module that you specify in KO2ACF2A or KO2RACFA.

**Format**

The format of the `MODULE` control statement is:

```plaintext
MODULE=cccccccc
```

where `cccccccc` denotes the name of the module that contains your external security exit routine.

**Usage notes**

- No default value exists.
- To remove control from external security:
  1. Delete the value of `MODULE=`
  2. Run the security update job.
  3. Restart the Classic Interface.

**PASSWORD control statement:**

This control statement specifies that the password for each internal security level must be used with the `/PWD` command.

**Purpose**

If you enter a valid password for a security level, the Classic Interface allows access to commands that have the same security level, and to commands that have a lower security level.

**Requirements:**

- The password must be one to eight characters long.
- Use a separate `PASSWORD` control statement for each security level.
- Use unique passwords for each security level.
  - If you assign the same password to more than one security level, the Classic Interface matches it at the lowest level and denies access to commands at higher levels.

The Classic Interface checks the password for a match in this order:

1. Level 1
2. Level 2
3. Level 3

**Format**

The format of the `PASSWORD` control statement is:

```plaintext
PASSWORD=password,LEVEL={1|2|3}
```

where `password` denotes the unique password for this level.
Keywords

LEVEL
  Always required.
  Specifies the security level that is associated with this password.
  Levels 1, 2, and 3 specify that the command executes only if you have
  previously entered the corresponding password for that level or for a higher
  level through the /PWD INFO-line command.

RESET control statement:

This control statement clears the current settings of the other control statements.

Purpose

Reset control statements remain unprotected unless you specify new settings with
the appropriate control statements and rerun the update program.

You can use the RESET control statement only once per run.

Format

The format of the RESET control statement is:

```
RESET=cccccccc
```

where cccccccc denotes one of the keywords.

Keywords

ALL | YES
  Clears settings for all control statements and all keywords in the security table
  for the Classic Interface.

AUTHLIB
  Clears the name and volume serial number of the authorized library.

INFO
  Clears settings for all INFO-line commands on the COMMAND control statement.
  For example, if you do not want to use the default security levels for
  INFO-line commands and if you want to start again, enter RESET=INFO. This
  resets all LEVEL settings to security level 0 and clears any existing EXTERNAL
  and AUDIT settings for the INFO-line commands.

MAJOR
  Clears settings for all major and immediate commands on the COMMAND control
  statement.
  For example, if you do not want to use the default security levels for major
  and immediate commands and if you want to start again, enter
  RESET=MAJOR. This resets all LEVEL settings to security level 0 and clears
  any existing EXTERNAL and AUDIT settings for major and immediate
  commands.

MINOR
  Clears settings for all minor commands.
**MODULE**
Clears the name of your exit routine module.

**PASSWORD**
Clears the internal passwords.

**SLASH**
Clears the record number for SMF audits.

**SMFNUM control statement:**
This control statement specifies the ID number of the SMF record.

**Purpose**
The Classic Interface uses this SMF record for its audit.

The record ID number must be a unique number from 128 to 255 that you do not use for other applications.

A default value does not exist.

**Format**
The format of the **SMFNUM** control statement is:

```
SMFNUM=nnn
```

where *nnn* denotes the SMF record ID number.

**UPDATE control statement:**
This control statement specifies if the Classic Interface updates the control statements during a run.

**Purpose**
The default is **UPDATE=YES**.

You can use the **UPDATE** control statement only once per run.

**Format**
The format of the **UPDATE** control statement is:

```
UPDATE={YES|NO}
```

**Updating the security table:**
You can update the security table for internal and external security.

**About this task**
To update the security table, perform these steps:
Procedure

1. Edit the control statements in the KO2SUPDI member of &rhilev.&rte.RKD2SAM.

   To edit the setting, specify a new one instead of blanking out the old one, especially when changing a command from EXTERNAL=YES to EXTERNAL=NO.

   If you implement external security, perform these steps:
   a. Enter the MODULE control statement.
      It denotes the load module that contains the exit routine.
   b. Indicate which commands should use external security by using the EXTERNAL=YES setting on the COMMAND control statements.

   To remove control from external security, perform these steps:
   a. Blank out the keyword of the MODULE control statement.
   b. Change commands that are marked with EXTERNAL=YES to EXTERNAL=NO.

      Otherwise, you cannot execute commands that are marked with an internal security level of 0.

2. Submit the job by using the KO2SUPD member of &rhilev.&rte.RKD2SAM.

   KO2SUPD contains the JCL to run KOBSUPDT, which is the security update utility program. KOBSUPDT performs the updates to the security table. It generates a list of the edits and, if requested, a complete list of security information.

   Successful completion of the job produces the message 0B9147 LOAD MODULE TEXT SUCCESSFULLY UPDATED

   If the update program flags statements as incorrect, correct the statements and resubmit them.

3. Stop all Classic Interface sessions in an address space.

   You must do this before the changed security table comes into effect because it is part of a reentrant load module. For example, if five Classic Interface sessions are active, you must stop them all before new Classic Interface sessions can use the updated security table.

4. Start a new Classic Interface session.

Results

The changes to the security table come into effect.

Examples

This example shows the provided sample JCL that you can modify according to the needs of your system.

It resides in the data set &rhilev.&rte.RKD2SAM(KOBSUPD), where &rhilev.&rte is the high-level qualifier of your runtime environment.

```plaintext
//SECURITY JOB
//STEPS EXEC PGM=KOBSUPDT,PARM=KO20CMDB
//STEP1 LIB DD DSN=&rhilev.&rte.RKANMOD,DISP=SHR
//SYSLIB DD DSN=&rhilev.&rte.RKANMOD,DISP=SHR
//SYSPRINT DD SYSOUT=*   //SYSIN DD DSN=&rhilev.&rte.RKD2SAM(KO2SUPDI),DISP=SHR
```
where:

**PARM=**  
Identifies the load module that contains the security table of the Classic Interface.

**STEPLIB**  
Specifies the name of the load library where KOBSUPDT resides.

**SYSLIB**  
Specifies the name of the library where KO2OCMDB resides.

**SYSPRINT**  
Specifies the print output for the reports that the security program produces.

**SYSIN**  
Specifies the name of the data set that contains the control statements.

This example shows the control statements that are used to update the security table.

Member O2SUPDI in the &rhlce.&rtc.RKD2SAM data set contains these control statements:

```
COMMAND=PEEK,LEVEL=1
COMMAND=.DSA,LEVEL=3,EXTERNAL=YES,AUDIT=WTO
COMMAND=MLST,EXTERNAL=YES
COMMAND=XMZP,LEVEL=DISABLE,AUDIT=BOTH
COMMAND=XMLS,LEVEL=2
MINOR=JOBS,LEVEL=2
COMMAND=/SAVE,LEVEL=1,AUDIT=NONE
MODULE=MYSECURE
SMFNUM=233
LIST=YES
UPDATE=NO
```

The command control statements in this example result in these settings for the commands of the Classic Interface:

**PEEK**  
A user who has specified the internal security level 1 password or higher can execute PEEK and its minor commands. The Classic Interface does not perform external security checking.

**.DSA**  
The Classic Interface performs external security checking and writes a message on the master console when .DSA is invoked. If external security is unavailable, only a user who specifies the internal security level 3 password can execute .DSA.

**MLST**  
The Classic Interface performs external security checking but no auditing.

**XMZP**  
The command cannot be executed. The Classic Interface writes a message on the master console and writes an SMF record when XMZP is issued. There is no external security checking.

**XMLS**  
A user who has specified either the level 2 or level 3 internal security password can execute XMLS.

**JOBS**  
This is a minor command of the **PEEK** command. In the example, the **PEEK** is specified as a level 1 authorized command. The LEVEL=2 setting on the **JOBS** command specifies that only level 2 or 3 users can access it.

**/SAVE**  
A user who has specified the level 1 password, the level 2 password, or the level 3 password can execute the **/SAVE** command. It is not audited.
The remaining command control statements in this example result in these settings:

**MODULE**
- MYSECURE is the name of the module that contains the security exit routine.

**SMFNUM**
- The SMF ID is set to 233.

**LIST**
- YES indicates that the Classic Interface produces a listing.

**UPDATE**
- NO indicates that the Classic Interface does not update the security table.
  This is a trial run.

### Worksheet for planning your configuration

The following worksheet describes key parameters for configuring OMEGAMON XE for DB2 PE.

#### Purpose

Use this worksheet in the following ways:

- To understand what key parameters and values are required to configure the product
- To record the values that you have provided for the configuration in the value field of the following tables.

The worksheet is not intended to be a complete list of all configuration parameters. It includes only the key parameters that you must determine before you configure the product.

**Tip:** Complete as much of this worksheet as you can before you begin installing the product. You might need to interact with several different roles to gather the information necessary to properly configure the product. Ensure that you have the necessary authorizations on the data sets as listed in "Prerequisites" on page 28.

#### User interfaces

Mark the user interfaces that you intend to use.

<table>
<thead>
<tr>
<th>User interfaces of OMEGAMON for DB2 PE</th>
<th>Use (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3270 user interfaces on the host</td>
<td></td>
</tr>
<tr>
<td>Classic Interface</td>
<td></td>
</tr>
<tr>
<td>ISPF Online Monitoring</td>
<td></td>
</tr>
<tr>
<td>Enhanced 3270 user interface</td>
<td></td>
</tr>
<tr>
<td>User interfaces on the workstation</td>
<td></td>
</tr>
<tr>
<td>Performance Expert Client</td>
<td></td>
</tr>
<tr>
<td>Tivoli Enterprise Portal</td>
<td></td>
</tr>
</tbody>
</table>
Data set naming conventions

Table 9. High-level qualifiers of the different data sets

<table>
<thead>
<tr>
<th>High-level qualifier</th>
<th>Description</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-level qualifier of Configuration Tool working libraries</td>
<td>Used for the Configuration Tool work libraries (for example, INSTLIB and INSTJOBS).</td>
<td></td>
</tr>
<tr>
<td>High-level qualifier for the SMP/E target libraries (ërthlev)</td>
<td>The name of the target libraries of your SMP/E installation of the product.</td>
<td></td>
</tr>
<tr>
<td>High-level qualifier for VSAM and non-VSAM runtime libraries</td>
<td>Used for allocating the runtime libraries. One set of runtime libraries contains the executable code (base libraries). A second set of libraries contains the configuration members that are unique for a particular LPAR. The runtime libraries are referenced by started tasks running on a z/OS image. You can specify two different high-level qualifiers for VSAM and non-VSAM data sets with a maximum length of 26 characters.</td>
<td></td>
</tr>
<tr>
<td>High-level qualifier for work data sets allocated by the OMEGAMON Collector</td>
<td>Used by the OMEGAMON Collector for the allocation of additional work data sets (for example for Event Exception Processing or Performance Warehouse). This high-level qualifier is also used to allocate operational data sets, for example for Near-Term History data collection. You can specify two different high-level qualifiers for VSAM and non-VSAM data sets with a maximum length of 18 characters.</td>
<td></td>
</tr>
</tbody>
</table>

Runtime environment variables

For a complete list of runtime environment parameters, refer to the IBM® OMEGAMON and Tivoli Management Services on z/OS shared documentation.

The following table lists the key variables that you specify for the runtime environment. The other values that you specify for the runtime environment are used to generate default values for the configuration of the product. You can overwrite the values during the configuration of your runtime environments.

Table 10. Variables required to configure a runtime environment

<table>
<thead>
<tr>
<th>Runtime environment variable</th>
<th>Description</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the runtime environment (mid-level qualifier)</td>
<td>Specify a name for your runtime environment. The runtime libraries that are allocated for this setup will use this name as mid-level qualifier in the data set names. If you enable system variable support, use the name of the LPAR that you run your initial tests on before rolling out the product(s) to other LPARs.</td>
<td></td>
</tr>
</tbody>
</table>
| Type of runtime environment                                      | Select the type of runtime environment that you want to use:  
  • FULL  
  • SHARING SMP/E  
  • SHARING BASE  
  • BASE                                                                                                                                                      |            |
| Started task prefix for OMEGAMON address spaces                  | Specify a 4-character prefix according to the naming conventions on your system. It will be used to generate default values for the started tasks.                                                            |            |
### Table 10. Variables required to configure a runtime environment (continued)

<table>
<thead>
<tr>
<th>Runtime environment variable</th>
<th>Description</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>JCL suffix for jobs generated by the Configuration Tool</td>
<td>Specify a 4-character suffix. It will be used as part of the names of the configuration jobs, which are generated in the course of the configuration and stored in the &amp;shilev;INSTJOBS work library. Ensure that you use a unique suffix for each runtime environment so that you can identify the configuration jobs that belong to one runtime environment in &amp;shilev;INSTJOBS.</td>
<td></td>
</tr>
<tr>
<td>Tivoli Enterprise Monitoring Server</td>
<td>You need Tivoli Enterprise Monitoring Server only if you want to use the Tivoli Enterprise Portal. If you want to configure a Tivoli Enterprise Monitoring Server in this runtime environment, specify Y. Your Tivoli Enterprise Monitoring Server can be configured in a different runtime environment on this LPAR, on a different LPAR or on one of the supported workstation platforms. For more information, see the <a href="https://www.ibm.com/support/knowledgecenter/SSEPEK_7.1.0/com.ibm.zos.r7.1/mtz/mtz_tivoli_comparing_types.htm">Tivoli Monitoring in the IBM Knowledge Center</a>.</td>
<td></td>
</tr>
<tr>
<td>System variable support</td>
<td>Specify whether you want to enable system variable support. If system variable support is enabled, the Configuration Tool allows z/OS system symbols as part of the VTAM applid names. Type readme sys on the command line for detailed information.</td>
<td></td>
</tr>
<tr>
<td>Fold password to upper case</td>
<td>Specify whether you want to enable mixed case password support. If you specify N, the passwords entered by the user will not be folded to upper case any more.</td>
<td></td>
</tr>
<tr>
<td>Network ID</td>
<td>Specify the network ID used for VTAM communication.</td>
<td></td>
</tr>
<tr>
<td>VTAM applid prefix</td>
<td>A four character prefix that is used for generating the VTAM applids.</td>
<td></td>
</tr>
</tbody>
</table>

### Basic configuration variables

### Table 11. Variables required for the basic configuration

<table>
<thead>
<tr>
<th>Basic configuration variable</th>
<th>Description</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMEGAMON Collector started task</td>
<td>Started task name for the OMEGAMON Collector.</td>
<td></td>
</tr>
<tr>
<td>DB2 load library</td>
<td>The name of the data set in which the DB2 load modules reside. Specify one DB2 load library for each DB2 subsystem version that you want to monitor.</td>
<td></td>
</tr>
<tr>
<td>DB2 run library</td>
<td>The name of the data set in which the DB2 RUNLIB load modules reside. Specify one DB2 run library for each DB2 subsystem version that you want to monitor. This library should contain the modules DSNTIAD and DSNTIAUL to be used to run in batch. The run library is used to generate GRANT and BIND jobs that prepare the DB2 subsystems for monitoring.</td>
<td></td>
</tr>
<tr>
<td>DB2 exit library</td>
<td>The name of the data set in which the DB2 exit load modules reside that should be used by the OMEGAMON Collector. This parameter is only needed if you want to use a DB2 authorization exit.</td>
<td></td>
</tr>
</tbody>
</table>
### Table 11. Variables required for the basic configuration (continued)

<table>
<thead>
<tr>
<th>Basic configuration variable</th>
<th>Description</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMEGAMON Collector plan/package owner</td>
<td>The OMEGAMON Collector plan/package owner is the USERID/GROUPID that will be granted the authority to administrate the OMEGAMON Collector, for example to rebind the DB2 packages of the OMEGAMON Collector.</td>
<td></td>
</tr>
</tbody>
</table>

### DB2 subsystem variables

You need to specify the information listed in the following table for each DB2 subsystem that you configure.

### Table 12. Variables required for each DB2 subsystem

<table>
<thead>
<tr>
<th>DB2 ID</th>
<th>DB2 version (for example, 101, 111, 121)</th>
<th>MONITOR (Y or N)</th>
<th>TCP/IP port number (only if Performance Expert Client is used)</th>
<th>z/OS system ID (SMFID) that the DB2 runs on</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Performance Warehouse and Performance Expert Agent for DB2 Connect Monitoring variables

### Table 13. Variables required to configure Performance Warehouse and Performance Expert Agent for DB2 Connect Monitoring

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Warehouse started job name</td>
<td>The name of the Performance Warehouse started job.</td>
<td></td>
</tr>
<tr>
<td>DB2 load library</td>
<td>The name of the data set, in which the DB2 load modules reside that should be used by the Performance Warehouse job.</td>
<td></td>
</tr>
<tr>
<td>DB2 exit library</td>
<td>The name of the data set, in which the DB2 exit load modules reside that should be used by the Performance Warehouse job.</td>
<td></td>
</tr>
<tr>
<td>4 KB buffer pool</td>
<td>Buffer Pool with 4 KB page size for Performance Warehouse table spaces.</td>
<td></td>
</tr>
<tr>
<td>32 KB buffer pool</td>
<td>Buffer Pool with 32 KB page size for Performance Warehouse table spaces.</td>
<td></td>
</tr>
<tr>
<td>DB2 storage group(s) for Performance Warehouse table spaces</td>
<td>The storage group(s) that should be used for the Performance Warehouse table spaces.</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 3. Installing and configuring

PARMGEN

PARMGEN was designed to deliver a more intuitive method for configuration. It replaces the former Configuration Tool (also known as ICAT).

With PARMGEN, the configuration of all available products follows exactly the same procedure:
1. Basic setup of an RTE.
2. Choosing the products and components to configure.
3. Preparing the environment.
4. Configuring all products and components.
5. Finishing with the deployment.

The differences in product configuration are mainly in the PARMGEN parameter profile. This is the reason why this documentation only covers OMEGAMON for DB2 PE topics. General information on how to use PARMGEN, migration from older versions, or from the Configuration Tool can be found in the following sources:

- PARMGEN Alternative Configuration for IBM OMEGAMON and other Tivoli Management Services technote
- The PARMGEN configuration method
- Common PARMGEN - Implementation scenarios
- Common parameters

In the Configuration Tool, the configuration of parameters and values was done in a product-specific user interface. In PARMGEN, all product-specific parameters are stored in one PARMGEN profile. Parameters are grouped into sections, and each section contains the parameters for only one product or component. Additionally, all parameters start with Kpp where pp is the product identifier. The components that make up OMEGAMON for DB2 PE are the following:

- D2 - OMEGAMON for DB2 PE/OMEGAMON for DB2 PM
- D5 - OMEGAMON XE for DB2 on z/OS Agent

For a comprehensive reference of the PARMGEN parameters for this product, see the Parameter Reference. This reference can be used to look up specific parameters to get the following information:

- Parameter description
- Required or optional parameter for running the OMEGAMON for DB2 PE server
- Default value
- Minimum value (if the parameter type is numeric)
- Maximum value (if the parameter type is numeric)
- Permissible values (if the parameter type is list)
- Locations where the parameter is stored (the configuration member and the data set it is generated to)
  - Parameter name (the line that is written to the configuration member to store the value)
• Panels in the Configuration Tool, which is especially helpful when you are moving from the Configuration Tool to PARMGEN. You can look up the following information:
  – Panel name
  – Panel ID
  – Panel field
  – Default value
  – Minimum value (if the parameter type is numeric)
  – Maximum value (if the parameter type is numeric)
  – Permissible values (if the parameter type is list)
• Batch parameter name (the name of the parameter when using batch installation)
• PARMGEN name (the name of the parameter in PARMGEN)
• PARMGEN classification

A list of all available parameters is available in the [Parameter Reference](#).

**Monitoring profiles and DB2 subsystems**

Monitoring profiles specify which monitoring functionality is to be used for the different DB2 subsystems. Each DB2 subsystem is associated with a monitoring profile.

OMEGamon for DB2 PE offers many functions that can be configured for each DB2 subsystem. In most cases however, the monitoring requirements for the different DB2 subsystems are not completely unique, which means that you can reuse one configuration for several DB2 subsystems. For example, in a development environment you might want to collect very detailed performance data to perform a sophisticated analysis, while in a production environment this level of detail is not needed and causes unnecessary overhead. So you would use one set of configuration values for the DB2 subsystems that are used for development and another set of configuration values for DB2 subsystems in production.

A monitoring profile is such a set of configuration values. It is independent of the DB2 subsystem. Each DB2 subsystem is associated with a monitoring profile to determine the monitoring functionality. Several DB2 subsystems can be associated with the same profile, independent of the LPAR they reside on. As a result, profiles are reusable for many different DB2 subsystems that have similar monitoring requirements across different LPARs, and you can do changes to monitoring profiles rather than re-configuring every single DB2 subsystem.

**Note:** The monitoring profile refers to the DB2 monitoring function parameters. This is not to be confused with the PARMGEN user profile that holds all product and component parameters.

In PARMGEN, DB2 subsystems and monitoring profiles can be distinguished by their parameter name, as follows:
• **KD2_DBnn** - Parameters for the DB2 subsystem configuration
• **KD2_PFnn** - Parameters for the monitoring profiles
nn is used to distinguish between different DB2 subsystem configurations and monitoring profiles. The first profile uses 01, the second 02, and so on. It is required to put all KD2_DBnn / KD2_PFnn parameters between starting and ending identifiers, as in the following examples:

```
KD2_DB   START
KD2_DB01...
...
KD2_DB02...
...
KD2_DBnn...
...
KD2_DB   END

KD2_PF   START
KD2_PF01...
...
KD2_PF02...
...
KD2_PFnn...
...
KD2_PF   END
```

### Basic product parameters

This section lists the basic parameters of OMEGAMON for Db2 PE.

The basic setup of OMEGAMON for Db2 PE covers the configuration of the OMEGAMON Collector, the configuration of the user interfaces, and the configuration of the monitoring functions that are enabled globally for all DB2 subsystems.

This section contains a number of parameters to configure the server and the user interfaces. The following table distinguishes between the server-related parameters and the user interface parameters. This information will help you to know which parameters need to be configured in order to use a specific user interface.
<table>
<thead>
<tr>
<th>Component</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global control and OMEGAMON Collector information parameters</td>
<td>“GBL_DB2_KD2_CLASSIC_STC” on page 71</td>
</tr>
<tr>
<td></td>
<td>“GBL_DSN_DB2_DSNEXIT” on page 72</td>
</tr>
<tr>
<td></td>
<td>“GBL_DSN_DB2_LOADLIB_V10” on page 72</td>
</tr>
<tr>
<td></td>
<td>“GBL_DSN_DB2_LOADLIB_V11” on page 73</td>
</tr>
<tr>
<td></td>
<td>“GBL_DSN_DB2_LOADLIB_V12” on page 74</td>
</tr>
<tr>
<td></td>
<td>“GBL_DSN_DB2_RUNLIB_V10” on page 75</td>
</tr>
<tr>
<td></td>
<td>“GBL_DSN_DB2_RUNLIB_V11” on page 76</td>
</tr>
<tr>
<td></td>
<td>“GBL_DSN_DB2_RUNLIB_V12” on page 77</td>
</tr>
<tr>
<td></td>
<td>“KD2_CLASSIC_DB2PM_PLANPKG_OWNER” on page 79</td>
</tr>
<tr>
<td></td>
<td>“KD2_CLASSIC_MVS_SYSID” on page 82</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_CCPC_TIMER” on page 88</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_CCPC_TRACE” on page 89</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_CHECKSYS” on page 90</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_DB2_EXIT” on page 93</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_DB2_USER” on page 94</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_DSHLQ” on page 95</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_MGMTCLAS” on page 105</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_RUNALLOC” on page 107</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_SHARED_PROFILE_LIB” on page 107</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_STOCLAS” on page 108</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_SUB_D2PADASI” on page 109</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_SUB_D2PAGRPN” on page 110</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_SUB_D2PARCVT” on page 111</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_SUB_D2PASST” on page 112</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_SUB_D2PATSEC” on page 112</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_SUB_D2PAXCFI” on page 113</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_SYSAFF” on page 114</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_TRACE_LEVEL” on page 118</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_UNIT” on page 119</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_USE_MODEL” on page 120</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_VOLUME” on page 121</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_VSAM_DSHLQ” on page 122</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_VSAM_MGMTCLAS” on page 123</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_VSAM_STOCLAS” on page 124</td>
</tr>
<tr>
<td></td>
<td>“KD2_OMPE_VSAM_VOLUME” on page 125</td>
</tr>
</tbody>
</table>
Table 14. Overview: Components and corresponding parameter names (continued)

<table>
<thead>
<tr>
<th>Component</th>
<th>Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event exception processing</td>
<td>&quot;KD2_OMPE_AUTH_FAIL&quot; on page 86</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_CF_REBUILT&quot; on page 90</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_DB2_EVENT&quot; on page 92</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_DEADLOCK&quot; on page 94</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_DSN_EXTENT&quot; on page 96</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_EDMP_FULL&quot; on page 99</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_EXTENT_THOLD&quot; on page 97</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_GLOBAL_TRACE&quot; on page 100</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_LOCSPACE&quot; on page 103</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_THREAD_COMMIT&quot; on page 117</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_TIMEOUT&quot; on page 117</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_URI&quot; on page 120</td>
</tr>
<tr>
<td>CPU parallelism</td>
<td>&quot;KD2_OMPE_CPU_PARALLEL&quot; on page 91</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_DSP_SIZE&quot; on page 97</td>
</tr>
<tr>
<td>Classic interface</td>
<td>&quot;KD2_CLASSIC_DB2ID_DEFAULT&quot; on page 78</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_CLASSIC_LROWS&quot; on page 81</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_CLASSIC_U_MAX&quot; on page 83</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_CLASSIC_USER_PROFILE&quot; on page 84</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_CLASSIC_VTAM_APPL_LOGON&quot; on page 85</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_CLASSIC_VTAM_NODE&quot; on page 86</td>
</tr>
<tr>
<td>ISPF monitoring dialogs</td>
<td>&quot;KD2_OMPE_ISPF_LANGUAGE&quot; on page 103</td>
</tr>
<tr>
<td>Performance Expert Client and end-to-end SQL monitoring</td>
<td>&quot;KD2_OMPE_E2E_MON_SPIRIT&quot; on page 98</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_MAX_SESSIONS&quot; on page 104</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_PE_SUPPORT&quot; on page 106</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_TCPIP_ADDRESS&quot; on page 115</td>
</tr>
<tr>
<td></td>
<td>&quot;KD2_OMPE_TCPIP_NAME&quot; on page 116</td>
</tr>
</tbody>
</table>

**GBL_DB2_KD2_CLASSIC_STC**

OMEGAMON Collector started task

**Description**

The name of the OMEGAMON Collector started task. This name should conform to any security facility in place in your installation.

**Required or optional**

Required

**Default value**

%RTE_STC_PREFIX%D2

**Location where the parameter value is stored**

This value is not stored in a configuration member.

**In the Configuration Tool (ICAT)**

**Panel name**

OMEGAMON Collector Information

**Panel ID**

KD261PN
Panel field
  Started task

Default value
  &RTESTCP.O2

Batch parameter name
  KD2_CLA_STC

PARMGEN name
  GBL_DB2_KD2_CLASSIC_STC

PARMGEN classification
  CLA

**GBL_DSN_DB2_DSNEXIT**

DB2 exit library

**Description**

The name of the dataset in which the DB2 exit load modules reside that should be used by the OMEGAMON Collector.

**Required or optional**

Optional

Default value
  DSN.V9R1M0.DSNEXIT

**Location where the parameter value is stored**

In the &O2CINAME member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**

```
  // DD DISP=SHR,DSN=<value>
```

**In the Configuration Tool (ICAT)**

Panel name
  DB2 Libraries

Panel ID
  KD261P0

Panel field
  Specify a DB2 exit library

Default value
  None

Batch parameter name
  KD2_OMPE_DB2EXIT

PARMGEN name
  GBL_DSN_DB2_DSNEXIT

PARMGEN classification
  DB2

**GBL_DSN_DB2_LOADLIB_V10**

Load library for DB2 Version 10

**Description**

The name of the dataset in which the DB2 load modules reside. Specify one DB2 load library for each DB2 subsystem version that you want to monitor.
**Required or optional**  
Optional  

**Default value**  
DSN.VAR1M0.SDSNLOAD

**Locations where the parameter value is stored**

**Location 1**  
In the &O2CINAME member of the rhilev.midlev.rtename.RKD2PAR library  
**Output line**  
```
// DD DISP=SHR,DSN=<value>
```

**Location 2**  
In the &O2CINAME member of the rhilev.midlev.rtename.RKD2PAR library  
**Output line**  
```
<value> +
```

**Location 3**  
In the CRTDB2M member of the rhilev.midlev.rtename.RKD2PRF library  
**Output line**  
```
<value> +
```

**In the Configuration Tool (ICAT)**

**Panel name**  
DB2 Libraries  

**Panel ID**  
KD261P0  

**Panel field**  
DB2 Version 10  

**Default value**  
None  

**Batch parameter name**  
KD2_OMPE_DB2LOADLIB_V10  

**PARMGEN name**  
GBL_DSN_DB2_LOADLIB_V10  

**PARMGEN classification**  
DB2  

**GBL_DSN_DB2_LOADLIB_V11**  
Load library for DB2 Version 11  

**Description**  
The name of the dataset in which the DB2 load modules reside. Specify one DB2 load library for each DB2 subsystem version that you want to monitor.  

**Required or optional**  
Optional  

**Default value**  
None
Locations where the parameter value is stored

Location 1
In the &O2CINAME member of the rhilev.midlev.rtename.RKD2PAR library

Output line
   // DD DISP=SHR,DSN=<value>

Location 2
In the &O2CINAME member of the rhilev.midlev.rtename.RKD2PAR library

Output line
   <value> +

Location 3
In the CRTDB2M member of the rhilev.midlev.rtename.RKD2PRF library

Output line
   <value> +

In the Configuration Tool (ICAT)

Panel name
   DB2 Libraries

Panel ID
   KD261P0

Panel field
   DB2 Version 11

Default value
   None

Batch parameter name
   KD2_OMPE_DB2LOADLIB_V11

PARMGEN name
   GBL_DSN_DB2_LOADLIB_V11

PARMGEN classification
   DB2

**GBL_DSN_DB2_LOADLIB_V12**
Load library for DB2 Version 12

Description
   The name of the dataset in which the DB2 load modules reside. Specify one DB2 load library for each DB2 subsystem version that you want to monitor.

Required or optional
   Optional

Default value
   None

Locations where the parameter value is stored

Location 1
In the &O2CINAME member of the rhilev.midlev.rtename.RKD2PAR library
Output line
   //      DD DISP=SHR,DSN=<value>

Location 2
  In the &O2CINAME member of the rhilev.midlev.rtename.RKD2PAR
  library

Output line
   <value> +

Location 3
  In the CRTDB2M member of the rhilev.midlev.rtename.RKD2PRF
  library

Output line
   <value> +

In the Configuration Tool (ICAT)
  Panel name
    DB2 Libraries
  Panel ID
    KD261P0
  Panel field
    DB2 Version 12
  Default value
    None

Batch parameter name
    KD2_OMPE_DB2LOADLIB_V12

PARMGEN name
    GBL_DSN_DB2_LOADLIB_V12

PARMGEN classification
    DB2

**GBL_DSN_DB2_RUNLIB_V10**
Run library for DB2 Version 10

Description
   The name of the dataset in which the DB2 RUNLIB load modules reside.
   Specify one DB2 run library for each DB2 subsystem version that you want
   to monitor.

   This library should contain the modules DSNTIAD and DSNTIAUL to be
   used to run in batch. The run library is used to generate GRANT and
   BIND jobs that prepare the DB2 subsystems for monitoring. See Complete
   the configuration for details.

Required or optional
   Optional

Default value
   DSN.VAR1M0.RUNLIB

Locations where the parameter value is stored
   Location 1
     In the &O2CINAME member of the rhilev.midlev.rtename.RKD2PAR
     library
In the CR TDB2M member of the rhilev.midlev.rtename.RKD2PRF library

Output line

<value> +

Location 2
In the CRTDB2M member of the rhilev.midlev.rtename.RKD2PRF library

In the Configuration Tool (ICAT)

Panel name
DB2 Libraries

Panel ID
KD261P0

Panel field
DB2 Version 10

Default value
None

Batch parameter name
KD2_OMPE_DB2RUNLIB_V10

PARMGEN name
GBL_DSN_DB2_RUNLIB_V10

PARMGEN classification
DB2

GBL_DSN_DB2_RUNLIB_V11
Run library for DB2 Version 11

Description
The name of the dataset in which the DB2 RUNLIB load modules reside. Specify one DB2 run library for each DB2 subsystem version that you want to monitor.

This library should contain the modules DSNTIAD and DSNTIAUL to be used to run in batch. The run library is used to generate GRANT and BIND jobs that prepare the DB2 subsystems for monitoring. See Complete the configuration for details.

Required or optional
Optional

Default value
None

Locations where the parameter value is stored

Location 1
In the &O2CINAME member of the rhilev.midlev.rtename.RKD2PAR library

Output line

<value> +

Location 2
In the CRTDB2M member of the rhilev.midlev.rtename.RKD2PRF library
In the Configuration Tool (ICAT)

Panel name
DB2 Libraries

Panel ID
KD261P0

Panel field
DB2 Version 11

Default value
None

Batch parameter name
KD2_OMPE_DB2RUNLIB_V11

PARMGEN name
GBL_DSN_DB2_RUNLIB_V11

PARMGEN classification
DB2

**GBL_DSN_DB2_RUNLIB_V12**
Run library for DB2 Version 12

**Description**
The name of the dataset in which the DB2 RUNLIB load modules reside. Specify one DB2 run library for each DB2 subsystem version that you want to monitor.

This library should contain the modules DSNTIAD and DSNTIAUL to be used to run in batch. The run library is used to generate GRANT and BIND jobs that prepare the DB2 subsystems for monitoring. See Complete the configuration for details.

**Required or optional**
Optional

**Default value**
None

**Locations where the parameter value is stored**

Location 1
In the &O2CINAME member of the rhilev.midlev.rtename.RKD2PAR library

Output line
<value> +

Location 2
In the CRTDB2M member of the rhilev.midlev.rtename.RKD2PRF library

Output line
<value> +

In the Configuration Tool (ICAT)

Panel name
DB2 Libraries
Panel ID
    KD261P0

Panel field
    DB2 Version 12

Default value
    None

Batch parameter name
    KD2_OMPE_DB2RUNLIB_V12

PARMGEN name
    GBL_DSN_DB2_RUNLIB_V12

PARMGEN classification
    DB2

**KD2_CLASSIC_DB2ID_DEFAULT**
Default DB2 ID

**Description**
Specify the default DB2 subsystem ID for real-time VTAM mode connection. When you log on to Classic Interface, this is the default DB2 subsystem to be monitored.

With datasharing group support, a new value for the default DB2 ID was introduced NONE. If you specify NONE and log on to Classic Interface, you are routed to the ZRLOG panel that lists all DB2 subsystems with status information and allows you to select the DB2 subsystems that you want to monitor. NONE is used as the default value.

**Required or optional**
Required

**Default value**
NONE

**Locations where the parameter value is stored**

**Location 1**
In the KD2COLLP member of the rhilev.midlev.rtemnam.RKD2PAR library

**Output line**
    DEFAULT_DB2_SUBSYSTEM(<value>)

**Location 2**
In the RVTMssid member of the rhilev.midlev.rtemnam.RKD2PAR library

**Output line**
    DB2=<value>, !X

**Location 3**
In the &O2CINAME member of the rhilev.midlev.rtemnam.RKD2PAR library

**Output line**
    EXEC RVTM<value>

**In the Configuration Tool (ICAT)**

**Panel name**
    Classic Interface Information
Panel ID
KD261PO

Panel field
Default DB2 ID for real-time VTAM mode

Default value
NONE

Batch parameter name
KD2_CLA_DB2ID_DFLT

PARMGEN name
KD2_CLASSIC_DB2ID_DEFAULT

PARMGEN classification
CLA

KD2_CLASSIC_DB2PM_PLANPKG_OWNER
OMEGAMON Collector plan/package owner

Description
The OMEGAMON Collector plan/package owner is the USERID/GROUPID that will be granted the authority to administrate the OMEGAMON Collector, for example to rebind the DB2 packages. This USERID/GROUPID is specified as the OWNER of the OMEGAMON Collector's plan and packages when the plan and the packages are bound.

Required or optional
Required

Default value
DB2PM

Locations where the parameter value is stored

Location 1
In the CRTDB2 member of the rhilev.midlev.rtename.RKD2SAM library

Output line
<value> +

Location 2
In the CRTDB2M member of the rhilev.midlev.rtename.RKD2PRF library

Output line
<value> +

Location 3
In the CRTDB2M member of the rhilev.midlev.rtename.RKD2PRF library

Output line
<value> +

Location 4
In the OMGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSINDEXES TO <value> ;
Location 5
In the OMGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSPACKSTM TO <value>;

Location 6
In the OMGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSTABLES TO <value>;

Location 7
In the OMGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSSTMT TO <value>;

Location 8
In the OMGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSPLAN TO <value>;

Location 9
In the OMGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSUSERAUTH TO <value>;

Location 10
In the OMGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT PACKADM ON COLLECTION KO2OM510 TO <value>;

Location 11
In the OMGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSTABLEOSPACE TO <value>;

Location 12
In the OMGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSSYNONYMS TO <value>;

Location 13
In the OMGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT BINDADD TO <value>;

80 IBM Db2 Performance Expert on z/OS
Location 14
In the OMGRssid member of the rhi:le:v.mtdlev.rite:ma:RKD2SAM library

**Output line**
```
GRANT SELECT ON SYSIBM.SYSDBRM TO <value>;
```

Location 15
In the OMGRssid member of the rhi:le:v.mtdlev.rite:ma:RKD2SAM library

**Output line**
```
GRANT SELECT ON SYSIBM.SYSPACKAGE TO <value>;
```

Location 16
In the OMGRssid member of the rhi:le:v.mtdlev.rite:ma:RKD2SAM library

**Output line**
```
GRANT SELECT ON SYSIBM.SYSDATABASE TO <value>;
```

Location 17
In the OMGRssid member of the rhi:le:v.mtdlev.rite:ma:RKD2SAM library

**Output line**
```
GRANT SELECT ON SYSIBM.SYSSTRINGS TO <value>;
```

In the Configuration Tool (ICAT)

**Panel name**
Global Control Parameters

**Panel ID**
KD261PI

**Panel field**
OMEGAMON Collector plan/package owner

**Default value**
DB2PM

**Batch parameter name**
KD2_CLA_SEC_AUTH_CLAS

**PARMGEN name**
KD2_CLASSIC_DB2PM_PLANPKG_OWNER

**PARMGEN classification**
CLA

**KD2_CLASSIC_LROWS**
Number of logical rows

**Description**
LROWS specifies the number of logical rows that are available for the output area on the Classic Interface. The number of logical rows should always be set to a number greater than the number of rows to be displayed on the terminal. The default for LROWS is 255.

Increasing the number of logical rows results in higher storage consumption.
Default value
255

Minimum
99

Maximum
9999

Location where the parameter value is stored
In the RVTM ssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
LROWS=<value>, !X

In the Configuration Tool (ICAT)

Panel name
Classic Interface Information

Panel ID
KD261PO

Panel field
Number of logical rows (LROWS)

Default value
255

Minimum
99

Maximum
9999

Batch parameter name
KD2_CLA_LROWS

PARMGEN name
KD2_CLASSIC_LROWS

PARMGEN classification
CLA

KD2_CLASSIC_MVS_SYSID
z/OS system ID

Description
The name of the z/OS system that the DB2 subsystem runs on. The z/OS system name that you specify here is used to replace the %SY% variable in data set names. If you specify a data set name for a monitoring profile, for example the name of a Near-Term History VSAM log data set, you can use %SY% as a variable for the z/OS system name. If you enable 'Add JES2 JOBPARM SYSAFF to jobs' (KD2_OMPE_SYSAFF), the z/OS system name is used to generate the SYSAFF parameter in the jobcards of the BIND and GRANT jobs generated for the different DB2 subsystems.

Required or optional
Required

Default value
PARMGEN provided SMFID symbol

Locations where the parameter value is stored
In the CR TDB2 member of the rhilev.midlev.rename.RKD2SAM library

Output line
/*JOBPARM SYSAFF=<value>

Location 2
In the CR TDB2M member of the rhilev.midlev.rename.RKD2PRF library

Output line
/*JOBPARM SYSAFF=<value>

Location 3
In the DB2PROF member of the rhilev.midlev.rename.RKD2PRF library

Output line
DB2_SYSID=<value>

In the Configuration Tool (ICAT)
Panel name
Global Control Parameters

Panel ID
KD261PI

Panel field
z/OS system ID (SMFID)

Default value
SYSA

Batch parameter name
KD2_CLA_MVS_SYSID

PARMGEN name
KD2_CLASSIC_MVS_SYSID

PARMGEN classification
CLA

KD2_CLASSIC_UMAX
Maximum number of users

Description
UMAX specifies the maximum number of concurrent sessions the collector can support. The default is 99.

Make sure that you specify enough sessions to support all menusystem and OMEGAVIEW sessions for multiple DB2 subsystems.

Required or optional
Required

Default value
99

Minimum
1

Maximum
99
Location where the parameter value is stored
In the RVTMssid member of the rhilev.midlev.rintame.RKD2PAR library

Output line
UMAX=<value>, !X

In the Configuration Tool (ICAT)

Panel name
Classic Interface Information

Panel ID
KD261PO

Panel field
Maximum number of users (UMAX)

Default value
99

Minimum
1

Maximum
99

Batch parameter name
KD2_CLA_UMAX

PARMGEN name
KD2_CLASSIC_UMAX

PARMGEN classification
CLA

**KD2_CLASSIC_USER_PROFILE**

Profile ID

Description
USER specifies the 2-character profile ID that is to be used for the Classic Interface session. A default profile with the profile ID #P is provided by IBM.

In the profile the configuration options for the ClassicInterface session are specified. You can create a customized profile. To create a new profile, log on to the Classic Interface, modify the selected profile options and save the adjusted profile specifying a 2-character profile ID. If the profile you specified for USER does not exist, the Classic Interface uses the default profile /C for the logon. So you can specify a profile ID for USER now and create the new profile at the first logon to Classic Interface.

Required or optional
Required

Default value
#P

Location where the parameter value is stored
In the RVTMssid member of the rhilev.midlev.rintame.RKD2PAR library

Output line
USER=<value>, !X

In the Configuration Tool (ICAT)
Panel name
Classic Interface Information

Panel ID
KD261PO

Panel field
Profile ID (USER)

Default value
#P

Batch parameter name
KD2_CLA_USER

PARMGEN name
KD2_CLASSIC_USER_PROFILE

PARMGEN classification
CLA

KD2_CLASSIC_VTAM_APPL_LOGON
Classic VTAM logon applid

Description
This specifies a 1-to-8 character name, that will define OBVTAM as an application to VTAM.

Required or optional
Required

Default value
%RTE_VTAM_APPLID_PREFIX%D2C

Location where the parameter value is stored
In the &RTENAME member of the rhilev.midlev.rtename.RKANPARU library

Output line
KD2_CLA_VTM_APPL_LOGON!<value>

In the Configuration Tool (ICAT)

Panel name
Classic Interface Information

Panel ID
KD261PO

Panel field
Classic logon

Default value
None

Batch parameter name
KD2_CLA_VTM_APPL_LOGON

PARMGEN name
KD2_CLASSIC_VTAM_APPL_LOGON

PARMGEN classification
CLA
**KD2_CLASSIC_VTAM_NODE**

Classic VTAM major node

**Description**

This specifies the OBVTAM application major node name.

This name is used as the member name to create the OBVTAM VTAM definition in the RKD2SAM library. This member must be moved to SYS1.VTAMLST.

**Required or optional**

Required

**Default value**

%RTE_VTAM_APPLID_PREFIX%D2N2

**Location where the parameter value is stored**

This value is not stored in a configuration member.

**In the Configuration Tool (ICAT)**

- **Panel name**
  Classic Interface Information
- **Panel ID**
  KD261PO
- **Panel field**
  Major node
- **Default value**
  None

**Batch parameter name**

KD2_CLA_VTM_NODE

**PARMGEN name**

KD2_CLASSIC_VTAM_NODE

**PARMGEN classification**

CLA

**KD2_OMPE_AUTH_FAIL**

Authorization failure

**Description**

Used to specify whether authorization fail events data collection is started.

**Required or optional**

Optional (Required in case KD2_OMPE_DB2_EVENT is set to Y)

**Default value**

N

**Permissible values**

Y, N

**Location where the parameter value is stored**

In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**

EVENTAUTHFAIL=<value>

**In the Configuration Tool (ICAT)**
Panel name
DB2 Event Exception Processing

Panel ID
KD261PG

Panel field
Authorization failure

Default value
Y

Permissible values
Y, N

Batch parameter name
KD2_OMPE_AUTH_FAIL

PARMGEN name
KD2_OMPE_AUTH_FAIL

PARMGEN classification
OMPE

**KD2_OMPE_AUTODETECT**
Enable autom. DB2 subsystem detection

**Description**
This feature is part of the OMEGAMON Collector PESERVER subtask. If activated, all active DB2 subsystems in the LPAR are detected automatically, regardless of whether the DB2 subsystem has been explicitly configured during the configuration process or not. You can activate or deactivate this feature:

| Y | Automatic detection is activated. Detection of all active DB2 subsystems starts automatically. |
| N | Automatic detection is deactivated. Only the DB2 subsystems that are explicitly configured are monitored. |

If a DB2 subsystem has been detected automatically but has not been configured so far, monitoring is not possible because required bind and grant jobs have not been submitted. Error messages are written to the job log. To enable monitoring the subsystem must be configured as usually with PARMGEN to create the required jobs. The configuration steps of Complete the Configuration must be executed.

**Required or optional**
Required

**Default value**
N

**Permissible values**
Y, N

**Location where the parameter value is stored**
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
AUTODETECT=<value>

In the Configuration Tool (ICAT)
Panel name
OMEGAMON Collector Information

Panel ID
KD261PN

Panel field
Automatic DB2 subsystem monitoring

Default value
Y

Permissible values
Y, N

Batch parameter name
KD2_OMPE_AUTODETECT

PARMGEN name
KD2_OMPE_AUTODETECT

PARMGEN classification
OMPE

**KD2_OMPE_CCPC_TIMER**
TEMA connection timeout interval

**Description**

This timeout interval is used to control the amount of time that a TEMA connect or TEMA collect call remains pending while collecting the data from a target DB2 subsystem is not completed. The TEMA is notified when the call exceeds the specified timeout interval. Specify a value in the range of 0010-0300. 0010 represents ten seconds and 0300 represents three minutes.

**Required or optional**
Required

Default value
0030

Minimum
0010

Maximum
0300

Locations where the parameter value is stored

**Location 1**
In the OMPECCPC member of the `rhilev.midlev.rtename.RKD2PAR` library

**Output line**
```
START
COMMCOLL,PARM=(TRACE=YES,STIMER=00<value>.00,SLX=REUSE)
```

**Location 2**
In the OMPECCPC member of the `rhilev.midlev.rtename.RKD2PAR` library

**Output line**
```
START
COMMCOLL,PARM=(TRACE=NO,STIMER=00<value>.00,SLX=REUSE)
```
In the Configuration Tool (ICAT)

Panel name
OMEGAMON Collector Information

Panel ID
KD261PN

Panel field
TEMA connection timeout interval

Default value
0030

Minimum
0010

Maximum
0300

Batch parameter name
KD2_OMPE_CCPC_TIMER

PARMGEN name
KD2_OMPE_CCPC_TIMER

PARMGEN classification
OMPE

**KD2_OMPE_CCPC_TRACE**

TEMA connection trace

**Description**

Enables tracing of the status of OMEGAMON XE for DB2 Agent (TEMA) connect, collect, and disconnect calls. Specify one of the following values:

- **Y** Trace messages are written to the joblog of the OMEGAMON Collector.
- **N** No trace messages on the TEMA connection status are written to the OMEGAMON Collector joblog.

**Required or optional**

Required

Default value
N

Permissible values
Y, N

**Location where the parameter value is stored**

This value is not stored in a configuration member.

In the Configuration Tool (ICAT)

Panel name
OMEGAMON Collector Information

Panel ID
KD261PN

Panel field
TEMA connection trace
Default value
N
Permissible values
Y, N

Batch parameter name
KD2_OMPE_CCPC_TRACE

PARMGEN name
KD2_OMPE_CCPC_TRACE

PARMGEN classification
OMPE

**KD2_OMPE_CF_REBUILT**
CF rebuilt

**Description**
Used to specify whether coupling facility rebuild data collection is started.

**Required or optional**
Optional (Required in case KD2_OMPE_DB2_EVENT is set to Y)

**Default value**
N

**Permissible values**
Y, N

**Location where the parameter value is stored**
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
EVENTCFREBUILD=<value>

**In the Configuration Tool (ICAT)**

**Panel name**
DB2 Event Exception Processing

**Panel ID**
KD261PG

**Panel field**
CF rebuilt

**Default value**
Y

**Permissible values**
Y, N

**Batch parameter name**
KD2_OMPE_CF_REBUILT

**PARMGEN name**
KD2_OMPE_CF_REBUILT

**PARMGEN classification**
OMPE

**KD2_OMPE_CHECKSYS**
Use this RTE as a model

**Description**
Specify whether you want to use this RTE as a model for several LPARs:

Y You can specify DB2 subsystems in this RTE that run on different LPARs. Specify the respective z/OS system ID (SMFID) for each DB2 subsystem. When you later submit the 'Create DB2 runtime members' job, this configuration job checks on which LPAR it is executed and only generates the runtime members for the configured DB2 subsystems that run on this LPAR.

N You configure only DB2 subsystems in this RTE that run on one LPAR. You don't have to specify a z/OS system ID (SMFID) for each DB2 subsystem.

Required or optional
Required

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the CRTDB2M member of the rhilev.midlev.rurename.RKD2PRF library

Output line
<value> +

In the Configuration Tool (ICAT)

Panel name
Global Control Parameters

Panel ID
KD261PI

Panel field
Use this RTE as a model

Default value
N

Permissible values
Y, N

Batch parameter name
KD2_OMPE_CHECKSYS

PARMGEN name
KD2_OMPE_CHECKSYS

PARMGEN classification
OMPE

**KD2_OMPE_CPU_PARALLEL**
Enable CPU Parallelism

**Description**

Used to enable or disable the collection of query CPU parallelism data. Specify one of the following values:

Y Query CP parallelism data is to be collected.

N Query CP parallelism data is not to be collected.
Required or optional
Required

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
COLLECTCPUPARALLEL=<value>

In the Configuration Tool (ICAT)

Panel name
CPU Parallelism

Panel ID
KD261PF

Panel field
Enable CPU Parallelism data collection

Default value
N

Permissible values
Y, N

Batch parameter name
KD2_OMPE_CPU_PARALLEL

PARMGEN name
KD2_OMPE_CPU_PARALLEL

PARMGEN classification
OMPE

**KD2_OMPE_DB2_EVENT**
Enable Event Exception Processing

Description
Used to specify whether DB2 event data is to be collected. Specify one of the following values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>DB2 event data is collected.</td>
</tr>
<tr>
<td>N</td>
<td>DB2 event data is not collected.</td>
</tr>
</tbody>
</table>

Required or optional
Required

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
EVENTOBSERVATION=<value>
In the Configuration Tool (ICAT)

Panel name
DB2 Event Exception Processing

Panel ID
KD261PG

Panel field
Enable DB2 event exception processing

Default value
N

Permissible values
Y, N

Batch parameter name
KD2_OMPE_DB2_EVENT

PARMGEN name
KD2_OMPE_DB2_EVENT

PARMGEN classification
DB2

**KD2_OMPE_DB2_EXIT**
Use DB2 authorization exit

Description
This specifies whether the DB2 authorization exit is called.

Required or optional
Required

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
USEDB2AUTHEXIT=<value>

In the Configuration Tool (ICAT)

Panel name
OMEGAMON Collector Information

Panel ID
KD261PN

Panel field
Use DB2 authorization exit

Default value
N

Permissible values
Y, N

Batch parameter name
KD2_OMPE_DB2_EXIT
PARMGEN name
  KD2_OMPE_DB2_EXIT

PARMGEN classification
  DB2

**KD2_OMPE_DB2_USER**
Enable OMEGAMON Collector user exit

**Description**

Used to specify whether the user exit routine DGOVUUAE provided by OMEGAMON XE for DB2 PE shall be used. Specify one of the following values:

- **Y**  The user-modifiable exit routine DGOVUUAE is called.
- **N**  The user-modifiable exit is not called.

**Required or optional**
  Required

**Default value**
  N

**Permissible values**
  Y, N

**Location where the parameter value is stored**
  In the OMPEMSTR member of the `rhilev.midlev.rintame.RKD2PAR` library

**Output line**
  `USEUSERAUTHEXIT=<value>`

**In the Configuration Tool (ICAT)**

**Panel name**
  OMEGAMON Collector Information

**Panel ID**
  KD261PN

**Panel field**
  Enable OMEGAMON Collector user exit

**Default value**
  N

**Permissible values**
  Y, N

**Batch parameter name**
  KD2_OMPE_DB2_USER

PARMGEN name
  KD2_OMPE_DB2_USER

PARMGEN classification
  DB2

**KD2_OMPE_DEADLOCK**
Deadlock

**Description**

Used to specify whether deadlock events data collection is started.
Required or optional
Optional (Required in case KD2_OMPE_DB2_EVENT is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
EVENTDEADLOCK=<value>

In the Configuration Tool (ICAT)

Panel name
DB2 Event Exception Processing

Panel ID
KD261PG

Panel field
Deadlock

Default value
Y

Permissible values
Y, N

Batch parameter name
KD2_OMPE_DEADLOCK

PARMGEN name
KD2_OMPE_DEADLOCK

PARMGEN classification
OMPE

KD2_OMPE_DSHLQ
HLQ for OM Collector datasets

Description
This parameter specifies the high-level qualifier for the data sets that are allocated by the OMEGAMON Collector.

The default value is generated from the high-level qualifier and the mid-level qualifier that you specified for your RTE.

Required or optional
Required

Default value
%RTE_HILEV%.%RTE_NAME%

Locations where the parameter value is stored

Location 1
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
VDATASERVERHLQ=<value>V
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
   DATASERVERHLQ=<value>

Location 3
In the OMDDssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
   DEFINE CLUSTER(NAME(<value>V..%DB%.HISTORY) -

Location 4
In the OMDDssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
   DELETE (<value>V..%DB%.HISTORY) CLUSTER

In the Configuration Tool (ICAT)

Panel name
   OMEGAMON Collector Information

Panel ID
   KD261PN

Panel field
   High-level Qualifier

Default value
   None

Batch parameter name
   KD2_OMPE_DSHLQ

PARMGEN name
   KD2_OMPE_DSHLQ

PARMGEN classification
   OMPE

**KD2_OMPE_DSN_EXTENT**
Data set extent

Description
   Used to specify whether data set extension events data collection is started.

Required or optional
   Optional (Required in case KD2_OMPE_DB2_EVENT is set to Y)

Default value
   N

Permissible values
   Y, N

Location where the parameter value is stored
   In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
   EVENTDSEXTENT=<value>

In the Configuration Tool (ICAT)
Panel name
DB2 Event Exception Processing

Panel ID
KD261PG

Panel field
Data set extent

Default value
Y

Permissible values
Y, N

Batch parameter name
KD2_OMPE_DSN_EXTENT

PARMGEN name
KD2_OMPE_DSN_EXTENT

PARMGEN classification
OMPE

KD2_OMPE_DSP_SIZE
Data Space size

Description
Used to specify the size of the CCP data space. The value is the data space size in megabytes. This data space is needed when query CP parallelism is active. The default is 20.

Required or optional
Optional (Required in case KD2_OMPE_CPU_PARALLEL is set to Y)

Default value
20

Minimum
5

Maximum
50

Location where the parameter value is stored
In the OMPESMSTR member of the rhilev.midlev.xrename.RKD2PAR library

Output line
CCPDATASPACE_SIZE=<value>

In the Configuration Tool (ICAT)

Panel name
CPU Parallelism

Panel ID
KD261PF

Panel field
Data space size

Default value
20

Minimum
5
Maximum
50

Batch parameter name
KD2_OMPE_DSP_SIZE

PARMGEN name
KD2_OMPE_DSP_SIZE

PARMGEN classification
OMPE

**KD2_OMPE_E2E_MON_SPRT**
Enable end-to-end SQL monitoring support

**Description**
Used to specify whether the end-to-end SQL monitoring support is to be configured. Specify one of the following values:
- Y  The end-to-end SQL monitoring support is enabled
- N  The end-to-end SQL monitoring support is disabled

**Required or optional**
Required

**Default value**
N

**Permissible values**
Y, N

**Location where the parameter value is stored**
In the OMPEMSTR member of the `rhllev.midlev.rtename.RKD2PAR` library

**Output line**
TCP1P=<value>

In the Configuration Tool (ICAT)

**Panel name**
Workstation Interface Support

**Panel ID**
KD261PC

**Panel field**
Enable end-to-end SQL monitoring support

**Default value**
N

**Permissible values**
Y, N

**Batch parameter name**
KD2_OMPE_E2E_MON_SPRT

**PARMGEN name**
KD2_OMPE_E2E_MON_SPRT

**PARMGEN classification**
OMPE
**KD2_OMPE_EDMP_FULL**

EDM pool full

**Description**

Used to specify whether EDM events data collection is started.

**Required or optional**

Optional (Required in case KD2_OMPE_DB2_EVENT is set to Y)

**Default value**

N

**Permissible values**

Y, N

**Location where the parameter value is stored**

In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**

EVENTEDMP0OL=<value>

**In the Configuration Tool (ICAT)**

**Panel name**

DB2 Event Exception Processing

**Panel ID**

KD261PG

**Panel field**

EDM pool full

**Default value**

Y

**Permissible values**

Y, N

**Batch parameter name**

KD2_OMPE_EDMP_FULL

**PARMGEN name**

KD2_OMPE_EDMP_FULL

**PARMGEN classification**

OMPE

**KD2_OMPE_EXTENT_THOLD**

Data set extent threshold

**Description**

Used to specify the number of extensions that must be exceeded before an extent threshold exception is reported.

**Required or optional**

Optional (Required in case KD2_OMPE_DB2_EVENT is set to Y)

**Default value**

200

**Minimum**

1

**Maximum**

200
Location where the parameter value is stored
   In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
   EVENTDSEXTENTQUAL=<value>

In the Configuration Tool (ICAT)

Panel name
   DB2 Event Exception Processing

Panel ID
   KD261PG

Panel field
   Data set extent threshold

Default value
   200

Minimum
   1

Maximum
   200

Batch parameter name
   KD2_OMPE_EXTENT_THOLD

PARMGEN name
   KD2_OMPE_EXTENT_THOLD

PARMGEN classification
   OMPE

**KD2_OMPE_GLOBAL_TRACE**
Global trace started

Description
   Used to specify whether all entered DB2 commands collection is started.

Required or optional
   Optional (Required in case KD2_OMPE_DB2_EVENT is set to Y)

Default value
   N

Permissible values
   Y, N

Location where the parameter value is stored
   In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
   EVENTGLBLTRACE=<value>

In the Configuration Tool (ICAT)

Panel name
   DB2 Event Exception Processing

Panel ID
   KD261PG

Panel field
   Global trace started
Default value

Y

Permissible values

Y, N

**Batch parameter name**
KD2_OMPE_GLOBAL_TRACE

**PARMGEN name**
KD2_OMPE_GLOBAL_TRACE

**PARMGEN classification**
OMPE

**KD2_OMPE_GRANT_AGUSER**
User ID/group ID for PWGA grant job

**Description**
Set the user for the RACF userid/groupid in PWGAssid grant job in xKD2SAM DB2 job.

**Required or optional**
Required

**Default value**
%aguser%

**Location where the parameter value is stored**
In the PWGAssid member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**
\(<value>\);

**In the Configuration Tool (ICAT)**
This value cannot be updated using the Configuration Tool.

**Batch parameter name**
KD2_OMPE_GRANT_AGUSER

**PARMGEN name**
KD2_OMPE_GRANT_AGUSER

**PARMGEN classification**
OMPE

**KD2_OMPE_GRANT_EXUSER**
User ID/group ID for EXGP grant job

**Description**
Set the user for the RACF userid/groupid in EXGPssid grant job in xKD2SAM DB2 job.

**Required or optional**
Required

**Default value**
%exuser%

**Location where the parameter value is stored**
In the EXGPssid member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**
\(<value>\);
KD2_OMPE_GRANT_EXUSER

In the Configuration Tool (ICAT)
   This value cannot be updated using the Configuration Tool.

Batch parameter name
   KD2_OMPE_GRANT_EXUSER

PARMGEN name
   KD2_OMPE_GRANT_EXUSER

PARMGEN classification
   OMPE

KD2_OMPE_GRANT_PEUSER
User ID/group ID for OMGP grant job

Description
   Set the user for the RACF userid/groupid in OMGPssid grant job in xKD2SAM DB2 job.

Required or optional
   Required

Default value
   %peuser%

Location where the parameter value is stored
   In the OMGPssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
   <value>;

KD2_OMPE_GRANT_PWUSER
User ID/group ID for PWG2 grant job

Description
   Set the user for the RACF userid/groupid in PWG2ssid grant job in xKD2SAM DB2 job.

Required or optional
   Required

Default value
   %pwuser%

Location where the parameter value is stored
   In the PWG2ssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
   <value>;

In the Configuration Tool (ICAT)
   This value cannot be updated using the Configuration Tool.
Batch parameter name
KD2_OMPE_GRANT_PWUSER

PARMGEN name
KD2_OMPE_GRANT_PWUSER

PARMGEN classification
OMPE

**KD2_OMPE_ISPF_LANGUAGE**
ISPF language information

**Description**
Used to specify the ISPF language. The default is ENU.

**Required or optional**
Required

**Default value**
ENU

**Permissible values**
ENU

**Location where the parameter value is stored**
In the FPEJINIT member of the rhilev.midlev.rlename.RKD2SAM library

**Output line**
language = "<value>";

In the Configuration Tool (ICAT)

**Panel name**
ISPF Monitoring Dialogs

**Panel ID**
KD261PH

**Panel field**
ISPF language

**Default value**
ENU

**Permissible values**
ENU

Batch parameter name
KD2_OMPE_ISPF_LANG

PARMGEN name
KD2_OMPE_ISPF_LANGUAGE

PARMGEN classification
OMPE

**KD2_OMPE_LOGSPACE**
Logspace shortage

**Description**
Used to specify whether log space shortage events data collection is started.

**Required or optional**
Optional (Required in case KD2_OMPE_DB2_EVENT is set to Y)
**KD2_OMPE_LOGSPACE**

Default value  
N  

Permissible values  
Y, N  

Location where the parameter value is stored  
In the OMPEMSTR member of the `rhilev.midlev.rename.RKD2PAR` library

Output line  
EVENTLOGSPACE=<value>

In the Configuration Tool (ICAT)

Panel name  
DB2 Event Exception Processing

Panel ID  
KD261PG

Panel field  
Logspace shortage

Default value  
Y  

Permissible values  
Y, N

Batch parameter name  
KD2_OMPE_LOGSPACE

PARMGEN name  
KD2_OMPE_LOGSPACE

PARMGEN classification  
OMPE

**KD2_OMPE_MAX_SESSIONS**

Maximum number of sessions

Description  
Used to define the limit of simultaneous PE Client sessions. The specified value is an integer in the range from 0 to 500.

Required or optional  
Optional (Required in case KD2_OMPE_PE_SUPPORT is set to Y)

Default value  
99

Minimum  
10

Maximum  
500

Location where the parameter value is stored  
In the OMPEMSTR member of the `rhilev.midlev.rename.RKD2PAR` library

Output line  
MAXSESSION=<value>

In the Configuration Tool (ICAT)
Panel name
Workstation Interface Support

Panel ID
KD261PC

Panel field
Maximum number of sessions

Default value
99

Minimum
10

Maximum
500

Batch parameter name
KD2_OMPE_MAX_SESSIONS

PARMGEN name
KD2_OMPE_MAX_SESSIONS

PARMGEN classification
OMPE

KD2_OMPE_MGMTCLAS
Management Class for non-VSAM

Description
Used to specify a management class used for the allocation of all non-VSAM data sets created by the OMEGAMON Collector.

Required or optional
Optional

Default value
%RTE_SMS_MGMTCLAS%

Locations where the parameter value is stored

Location 1
In the OMPEMSTR member of the rhilev.midlev.rtemame.RKD2PAR library

Output line
VDATASERVERMGMTCLAS='<value>'

Location 2
In the OMPEMSTR member of the rhilev.midlev.rtemame.RKD2PAR library

Output line
DATASERVERMGMTCLAS='<value>'

In the Configuration Tool (ICAT)

Panel name
OMEGAMON Collector Information

Panel ID
KD261PN

Panel field
Mgmtclas
**KD2_OMPE_MGMTCLAS**

Default value

&RTESMGRT

**Batch parameter name**

KD2_OMPE_MGMTCLAS

**PARMGEN name**

KD2_OMPE_MGMTCLAS

**PARMGEN classification**

OMPE

**KD2_OMPE_PE_SUPPORT**

Enable PE Client support

**Description**

Used to specify whether the Performance Expert Client support is to be configured. Specify one of the following values:

- **Y**: The Performance Expert Client support is enabled
- **N**: The Performance Expert Client support is disabled.

**Required or optional**

Required

**Default value**

N

**Permissible values**

Y, N

**Location where the parameter value is stored**

In the OMPMEMSTR member of the rilev.midlev.rtename.RKD2PAR library

**Output line**

TCP1P=<value>

**In the Configuration Tool (ICAT)**

**Panel name**

Workstation Interface Support

**Panel ID**

KD261PC

**Panel field**

Enable Performance Expert Client support

**Default value**

N

**Permissible values**

Y, N

**Batch parameter name**

KD2_OMPE_PE_SUPPORT

**PARMGEN name**

KD2_OMPE_PE_SUPPORT

**PARMGEN classification**

OMPE
**KD2_OMPE_RUNALLOC**

Automatic submit of allocation job

**Description**

Specify whether the 'Create DB2 related runtime members' job should trigger that the 'Allocate runtime datasets' job is submitted. The data set allocation job takes care of allocating all operational data sets required for the enabled functions, for example to collect data for Near-Term History. This job does not overwrite existing operational data sets.

**Required or optional**  
Required

**Default value**  
Y

**Permissible values**  
Y, N

**Locations where the parameter value is stored**

**Location 1**  
In the CRTDB2 member of the rhilev.midlev.rtename.RKD2SAM library

- **Output line**
  
  &lt;value&gt; +

**Location 2**  
In the CRTDB2M member of the rhilev.midlev.rtename.RKD2PRF library

- **Output line**
  
  &lt;value&gt; +

**In the Configuration Tool (ICAT)**

**Panel name**  
Global Control Parameters

**Panel ID**  
KD261PI

**Panel field**  
Automatic submit of runtime dataset allocation job

**Default value**  
N

**Permissible values**  
Y, N

**Batch parameter name**  
KD2_OMPE_RUNALLOC

**PARMGEN name**  
KD2_OMPE_RUNALLOC

**PARMGEN classification**  
OMPE

**KD2_OMPE_SHARED_PROFILE_LIB**  
HLQ for the shared profile library

**Description**
Specify the high-level qualifier of the RTE that you decided to use as the model for this RTE consisting of the High-level qualifier and the name of the model RTE. This parameter is only used if you set 'Use model definitions in this RTE' to Y. In this case all runtime members needed for this RTE are created on the basis of the profile library RKD2PRF library of the model RTE. For this RKD2PRF library you specify the high-level qualifier here.

**Required or optional**
- Optional (Required in case KD2_OMPE_USE_MODEL is set to Y)

**Default value**
- None

**Location where the parameter value is stored**
- In the CRTDB2 member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**
- `<value> +`

**In the Configuration Tool (ICAT)**

- **Panel name**
  - Global Control Parameters

- **Panel ID**
  - KD261PI

- **Panel field**
  - HLQ of the shared profile library

- **Default value**
  - None

**Batch parameter name**
- KD2_OMPE_SHRD_PRFLIB

**PARMGEN name**
- KD2_OMPE_SHARED_PROFILE_LIB

**PARMGEN classification**
- OMPE

### KD2_OMPE_STOCLAS

**Description**

Used to specify a storage class used for the allocation of all non-VSAM data sets created by the OMEGAMON Collector.

**Required or optional**

- Optional

**Default value**

- `%RTE_SMS_STORCLAS%`

**Locations where the parameter value is stored**

**Location 1**

- In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**

- `VDATASERVERSTORCLAS='<value>\'`
Location 2
In the OMPEMSTR member of the rhilev.midlev.rtemas.RKD2PAR library

Output line
DATASERVERSTORCLAS='<value>'

In the Configuration Tool (ICAT)
Panel name
OMEGAMON Collector Information
Panel ID
KD261PN
Panel field
Storclas
Default value
&RTESCLOR
Batch parameter name
KD2_OMPE_STOCLAS

PARMGEN name
KD2_OMPE_STOCLAS

PARMGEN classification
OMPE

KD2_OMPE_SUB_D2PADASP
OMPE/XCF Data Space Size DSPSIZE

Description
Defines the size in megabytes of the OMPE/XCF member data space. The data space is used by the OMPE/XCF component to hold the response data received from other members of the same LPAR or remote LPAR. Specify a size in multiples of 128M for up to a maximum of 2048M.

Required or optional
Required
Default value
128
Minimum
128
Maximum
2048

Location where the parameter value is stored
In the OMPE00 member of the rhilev.midlev.rtemas.RKD2PAR library

Output line
DSPSIZE=<value>.M

In the Configuration Tool (ICAT)
Panel name
OMEGAMON Collector Subsystem Information
Panel ID
KD261PA
OMPE/XCF Data Space Size

Default value
128

Minimum
128

Maximum
2048

Batch parameter name
KD2_OMPE_SUB_D2PAGRPN

PARMGEND name
KD2_OMPE_SUB_D2PAGRPN

PARMGEND classification
DB2

OMPE/XCF Group name XCFGROUP

Description
Defines the default cross-coupling facility XCF group name. This group name is used by the OMPE subsystem to initialize the OMPE/XCF environment used by the OMPE Collector subsystem. You can specify any name in the range of 1 to 8 characters. The specified name must conform to XCF group naming standards.

When the XCF group name has a prefix of OMPE it is internally changed to OMPE. To prevent the rename, specify a different 4 to 5-character prefix. For example: OMEGAXCF for all OMPE Collectors that communicate via the XCF gateway with one another.

Required or optional
Required

Default value
OMPEXCF

Location where the parameter value is stored
In the OMPE00 member of the rhilev.midlev.rteme.RKD2PAR library

Output line
XCFGROUP=<value>

In the Configuration Tool (ICAT)

Panel name
OMEGAMON Collector Subsystem Information

Panel ID
KD261PA

Panel field
OMPE/XCF Group name

Default value
OMPEXCF

Batch parameter name
KD2_OMPE_SUB_D2PAGRPN
PARMGEN name
KD2_OMPE_SUB_D2PAGRPN

PARMGEN classification
DB2

**KD2_OMPE_SUB_D2PARCVT**
OMPE/XCF Receive Tasks XCFTASKS

**Description**
Defines the number of XCF receive tasks that are to be attached as subtasks of the OMPE/XCF component task. These tasks are used by the OMPE/XCF component to process data receive requests from other members of the specified OMPE/XCF group. You can specify a number in the range of 02 to 16.

**Required or optional**
Required

**Default value**
6

**Minimum**
2

**Maximum**
16

**Location where the parameter value is stored**
In the OMPE00 member of the `rhilev.midlev.rtename.RKD2PAR` library

**Output line**
```
XCFTASKS=<value>
```

**In the Configuration Tool (ICAT)**

**Panel name**
OMEGAMON Collector Subsystem Information

**Panel ID**
KD261PA

**Panel field**
OMPE/XCF Data Space Size

**Default value**
6

**Minimum**
2

**Maximum**
16

**Batch parameter name**
KD2_OMPE_SUB_D2PARCVT
**Description**

Defines the subsystem interface SSI loop detection timer in seconds. You can specify a timer in the range of 1 to 99 seconds. This timer value is used by the OMPE subsystem timer services component to measure the elapsed time an SSI function routine EOT, EOM, CMD, WTO executes. When the specified timer value is exceeded, the SSI broadcast function is abnormally terminated.

**Required or optional**

Required

**Default value**

30

**Minimum**

1

**Maximum**

99

**Location where the parameter value is stored**

In the OMPE00 member of the rhilev:midlev:rtename.RKD2PAR library

**Output line**

SSITIMER=<value>

**In the Configuration Tool (ICAT)**

**Panel name**

OMEGAMON Collector Subsystem Information

**Panel ID**

KD261PA

**Panel field**

SSI timer value

**Default value**

30

**Minimum**

1

**Maximum**

99

**Batch parameter name**

KD2_OMPE_SUB_D2PASSIT

**PARMGEN name**

KD2_OMPE_SUB_D2PASSIT

**PARMGEN classification**

DB2

**KD2_OMPE_SUB_D2PATSEC**

OMPE TCMD Security Option

**Description**
Defines whether DB2 CANCEL THREAD command issued under user or task authority. If TCMDSECU=STC the CANCEL THREAD command will use the OMEGAMON started task authorization to issue the CANCEL command.

If TCMDSECU=USER the signed on user's authorization will be used.

Note: If the Classic security exit is not in use then the OMEGAMON started task authorization will always be used.

Required or optional
Required

Default value
STC

Permissible values
STC, USER

Location where the parameter value is stored
In the OMPEOPTS member of the rhilev.midlev.rtename.RKD2PAR library

Output line
TCMDSECU=<value>

In the Configuration Tool (ICAT)

Panel name
OMEGAMON Collector Subsystem Information

Panel ID
KD261PA

Panel field
OMPE TCMD Security Option

Default value
STC

Permissible values
STC, USER

Batch parameter name
KD2_OMPE_SUB_D2PATSEC

PARMGEN name
KD2_OMPE_SUB_D2PATSEC

PARMGEN classification
DB2

KD2_OMPE_SUB_D2PAXCFT
OMPE/XCF Timer Value XCFTIMER

Description
Defines the OMPE/XCF component SEND service request execution timer in seconds. You can specify a timer in the range of 01 to 99 seconds. This timer value is used by the OMPE/XCF component to measure the elapsed time a SEND service request executes. When the specified timer value is exceeded, the SEND service request is abnormally terminated.

Required or optional
Required
KD2_OMPE_SUB_D2PAXCFT

Default value
30

Minimum
1

Maximum
99

Location where the parameter value is stored
In the OMPE00 member of the rhilev.midlev.rtename.RKD2PAR library

Output line
XCFTIMER=<value>

In the Configuration Tool (ICAT)

Panel name
OMEGAMON Collector Subsystem Information

Panel ID
KD261PA

Panel field
OMPE/XCF Timer value

Default value
30

Minimum
1

Maximum
99

Batch parameter name
KD2_OMPE.SUB_D2PAXCFT

PARMGEN name
KD2_OMPE_SUB_D2PAXCFT

PARMGEN classification
DB2

KD2_OMPE_SYSAFF
Add JES2 JOBPARM SYSAFF to job

Description
Specify whether you want to have the JES2 JOBPARM SYSAFF added to the generated DB2 related jobs. These jobs perform BIND or GRANT SQL statements on a specific DB2 subsystem and therefore have to be executed on the z/OS system where the respective DB2 subsystem runs on. This can be useful, for example if you want to install OMEGamon XE for DB2 PE on several LPARs with shared DASD. See the Configuration and Customization Guide for details on different rollout scenarios. Furthermore if you set 'Use as model RTE for several LPARs' to 'Y' then the SYSAFF JOBPARM is also added to the 'Create DB2 related runtime members DB2 related' job.

Required or optional
Required

Default value
N
Permissible values
Y, N

Locations where the parameter value is stored

Location 1
In the CRTDB2 member of the rhilev.midlev.rtename.RKD2SAM library
Output line
<value> +

Location 2
In the CRTDB2M member of the rhilev.midlev.rtename.RKD2PRF library
Output line
<value> +

In the Configuration Tool (ICAT)

Panel name
Global Control Parameters

Panel ID
KD261PI

Panel field
Add JES2 JOBPARM sysaff to jobs

Default value
N

Permissible values
Y, N

Batch parameter name
KD2_OMPE_SYSAFF

PARMGEN name
KD2_OMPE_SYSAFF

PARMGEN classification
OMPE

KD2_OMPE_TCPPIP_ADDRESS
IP address

Description
Used to specify the IP address for OMEGAMON XE for DB2 PE to accept incoming requests. An IP host can have several IP addresses. In IP terms, such a host is called a multi homed host. To accept incoming requests on all available network interfaces, you must set this value to zeros 0.0.0.0.

Required or optional
Optional (Required in case KD2_OMPE_E2E_MON_SPR, KD2_OMPE_PE_SUPPORT is set to Y)

Default value
0.0.0.0

Location where the parameter value is stored
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library
KD2_OMPE_TCPPNAME

Output line
IPADDRESS=<value>

In the Configuration Tool (ICAT)
Panel name
Workstation Interface Support
Panel ID
KD261PC
Panel field
IP address
Default value
0.0.0.0
Batch parameter name
KD2_OMPE_TCPPNAME
PARMGEN name
KD2_OMPE_TCPPNAME
PARMGEN classification
TCP

KD2_OMPE_TCPPNAME
TCP/IP name
Description
Used to specify the name of the TCP/IP address space you want to connect to. The specified value must be one to eight characters.
Required or optional
Optional (Required in case KD2_OMPE_E2E_MON_Sprt;KD2_OMPE_PE_SUPPORT is set to Y)
Default value
TCPIP
Location where the parameter value is stored
In the OMPESSTR member of the rhlev.midlev.rtename.RKD2PAR library
Output line
TCPNAME=<value>

In the Configuration Tool (ICAT)
Panel name
Workstation Interface Support
Panel ID
KD261PC
Panel field
TCP/IP name
Default value
TCPIP
Batch parameter name
KD2_OMPE_TCPPNAME
PARMGEN name
KD2_OMPE_TCPPNAME
PARMGEN classification
   TCP

KD2_OMPE_THREAD_COMMIT
Thread commit indoubt

Description
   Used to specify whether Thread commit indoubt events data collection is started.

Required or optional
   Optional (Required in case KD2_OMPE_DB2_EVENT is set to Y)

Default value
   N

Permissible values
   Y, N

Location where the parameter value is stored
   In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
   EVENTDDF=<value>

In the Configuration Tool (ICAT)
   Panel name
      DB2 Event Exception Processing
   Panel ID
      KD261PG
   Panel field
      Thread commit indoubt
   Default value
      Y
   Permissible values
      Y, N

Batch parameter name
   KD2_OMPE_THREAD_COMMIT

PARMGEN name
   KD2_OMPE_THREAD_COMMIT

PARMGEN classification
   OMPE

KD2_OMPE_TIMEOUT
Timeout

Description
   Used to specify whether timeout events data collection is started.

Required or optional
   Optional (Required in case KD2_OMPE_DB2_EVENT is set to Y)

Default value
   N

Permissible values
   Y, N
**KD2_OMPE_TIMEOUT**

Location where the parameter value is stored
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
EVENTTIMEOUT=<value>

In the Configuration Tool (ICAT)

Panel name
DB2 Event Exception Processing

Panel ID
KD261PG

Panel field
Timeout

Default value
Y

Permissible values
Y, N

Batch parameter name
KD2_OMPE_TIMEOUT

PARMGEN name
KD2_OMPE_TIMEOUT

PARMGEN classification
OMPE

**KD2_OMPE_TRACE_LEVEL**
OMEGAMON Collector trace level

Description
Used to specify trace level for the OMEGAMON XE for DB2 PE internal traces. Specify an integer value in the range from 0 to 127. Trace level 0 means internal tracing is not performed.

Required or optional
Required

Default value
0

Minimum
0

Maximum
8191

Location where the parameter value is stored
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
TRACELEVEL=<value>

In the Configuration Tool (ICAT)

Panel name
OMEGAMON Collector Information

Panel ID
KD261PN
Panel field
OMEGAMON Collector trace level

Default value
0

Minimum
0

Maximum
8191

Batch parameter name
KD2_OMPE_TRACE_LEVEL

PARMGEN name
KD2_OMPE_TRACE_LEVEL

PARMGEN classification
OMPE

**KD2_OMPE_UNIT**
Unit for non-VSAM

Description
Used to specify the storage device that is to be used for all non-VSAM data sets created by the OMEGAMON Collector. This parameter is ignored, if OMEGAMON XE for DB2 PE runs on a system managed by SMS.

Since SMS can be implemented in different ways, the Configuration tool does not attempt to validate these parameters. The dataset allocation jobs will use all parameters that you enter.

Required or optional
Optional

Default value
%RTE_SMS_UNIT%

Location where the parameter value is stored
In the OMPEMSTR member of the rhilev,midlev,rtename.RKD2PAR library

Output line
DATASERVERUNIT='<value>'

In the Configuration Tool (ICAT)

Panel name
OMEGAMON Collector Information

Panel ID
KD261PN

Panel field
Unit

Default value
&RTEU

Batch parameter name
KD2_OMPE_UNIT

PARMGEN name
KD2_OMPE_UNIT
KD2_OMPE_UNIT

PARMGEN classification
OMPE

KD2_OMPE UR
Unit of recovery problem

Description
Used to specify whether unit of recovery events data is started.

Required or optional
Optional (Required in case KD2_OMPE_DB2_EVENT is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
EVENTURPROBLEM=<value>

In the Configuration Tool (ICAT)

Panel name
DB2 Event Exception Processing

Panel ID
KD261PG

Panel field
Unit of recovery problem

Default value
Y

Permissible values
Y, N

Batch parameter name
KD2_OMPE_UR

PARMGEN name
KD2_OMPE_UR

PARMGEN classification
OMPE

KD2_OMPE_USE_MODEL
Use model definitions in this RTE

Description
Specify whether you want to use the DB2 subsystem definitions that are configured in a model RTE 'Use this RTE as a as a model' is set to Y different from this RTE. In the model RTE all the DB2 subsystems are configured that you want to monitor with the OMEGAMON Collector running from this RTE. All the configuration information that you need for the DB2 subsystem related runtime members is created in the profile library RKD2PRF of the model RTE. By submitting the job CRTDB2 in rhilev.midlev.rtename.RKD2SAM all runtime members needed for this RTE
KD2_OMPE_USE_MODEL

are created on the basis of the RKD2PRF library of the model RTE. The
CRTDB2 job is generated by the 'Create runtime members OMEGAMON
Collector/UI' job.

Required or optional
  Required

Default value
  N

Permissible values
  Y, N

Location where the parameter value is stored
  This value is not stored in a configuration member.

In the Configuration Tool (ICAT)

  Panel name
    Global Control Parameters

  Panel ID
    KD261PI

  Panel field
    Use model definitions in this RTE

  Default value
    N

  Permissible values
    Y, N

Batch parameter name
  KD2_OMPE_USE_MODEL

PARMGEN name
  KD2_OMPE_USE_MODEL

PARMGEN classification
  OMPE

KD2_OMPE_VOLUME
  Volser for non-VSAM

Description
  Used to specify a volume serial number that is used for all non-VSAM
data sets created by the OMEGAMON Collector. This parameter is ignored,
if OMEGAMON XE for DB2 PE runs on a system managed by SMS.

Since SMS can be implemented in different ways, the Configuration tool
does not attempt to validate these parameters. The dataset allocation jobs
will use all parameters that you enter.

Required or optional
  Optional

Default value
  %RTE_SMS_VOLUME%

Locations where the parameter value is stored

Location 1
  In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR
library
KD2_OMPE_VOLUME

Output line
VDATASERVERVOLUME='<value>'

Location 2
In the OMPEMSTR member of the rhilev.midlev.rtemain.RKD2PAR library

Output line
DATASERVERVOLUME='<value>'

In the Configuration Tool (ICAT)
Panel name
OMEGAMON Collector Information

Panel ID
KD261PN

Panel field
Volser

Default value
&RTEV

Batch parameter name
KD2_OMPE_VOLUME

PARMGEN name
KD2_OMPE_VOLUME

PARMGEN classification
OMPE

KD2_OMPE_VSAM_DSHLQ
Use the KD2_OMPE_VSAM_DSHLQ parameter to specify the high-level qualifier for the VSAM data sets that the thread history collector allocates.

Description
This parameter specifies the high-level qualifier for the VSAM data sets allocated by the OMEGAMON Collector.

The default value is generated from the high-level qualifier and the mid-level qualifier that you specified for your RTE.

This parameter is also the basis of the THRDDATASET() parameter in the RKD2PAR(COPT&dbid) for the Enhanced 3270UI thread history VSAM data sets.

Required or optional
Required

Default value
%RTE_VSAM_HILEV%.%RTE_NAME%

Locations where the parameter value is stored
Location 1
In the OMPEMSTR member of the %RTE_HILEV%.%RTE_NAME %.RKD2PAR library

Output line
VDATASERVERHLQ=<value>
KD2_OMPE_VSAM_DSHLQ

Location 2
In the OMDDssid member of the %RTE_HILEV%.%RTE_NAME%RDK2SAM library

Output line
DEFINE CLUSTER(NAME(<value>..<DB%.HISTORY) -

Location 3
In the OMDDssid member of the %RTE_HILEV%.%RTE_NAME%RDK2SAM library

Output line
DELETE (<value>..<DB%.HISTORY) CLUSTER

PARMGEN name
KD2_OMPE_VSAM_DSHLQ

PARMGEN classification
OMPE

KD2_OMPE_VSAM_MGMTCLAS
Management Class for VSAM

Description
Used to specify a management class used for the allocation of all VSAM data sets created by the OMEGAMON Collector.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_MGMTCLAS%

Location where the parameter value is stored
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
VDATASERVERMGMTCLAS='<value>'

In the Configuration Tool (ICAT)

Panel name
OMEGAMON Collector Information

Panel ID
KD261PN

Panel field
Mgmtclas

Default value
&RTESVMGT

Batch parameter name
KD2_OMPE_VSAM_MGMTCLAS

PARMGEN name
KD2_OMPE_VSAM_MGMTCLAS

PARMGEN classification
OMPE
KD2_OMPE_VSAM_STOCLAS

KD2_OMPE_VSAM_STOCLAS
Storage Class for VSAM

Description
Used to specify a storage class used for the allocation of all VSAM data sets created by the OMEGAMON Collector.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_STORCLAS%

Location where the parameter value is stored
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
VDATASERVERSTORCLAS='<value>'

In the Configuration Tool (ICAT)
Panel name
OMEGAMON Collector Information

Panel ID
KD261PN

Panel field
Storclas

Default value
&RTEVSTOR

Batch parameter name
KD2_OMPE_VSAM_STOCLAS

PARMGEN name
KD2_OMPE_VSAM_STOCLAS

PARMGEN classification
OMPE

KD2_OMPE_VSAM_VOLUME
Volume for VSAM working data sets

Description
Used to specify a volume serial number that is used for all VSAM data sets created by the OMEGAMON Collector. This parameter is ignored, if OMEGAMON XE for DB2 PE runs on a system managed by SMS. Since SMS can be implemented in different ways, the Configuration tool does not attempt to validate these parameters. The dataset allocation jobs will use all parameters that you enter.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_VOLUME%

Location where the parameter value is stored
In the OMPEMSTR member of the rhilev.midlev.rtename.RKD2PAR library

Output line
VDATASERVERVOLUME='<value>'
In the Configuration Tool (ICAT)

Panel name
OMEGAMON Collector Information

Panel ID
KD261PN

Panel field
Volser

Default value
&RTEEVV

Batch parameter name
KD2_OMPE_VSAM_VOLUME

PARMGEN name
KD2_OMPE_VSAM_VOLUME

PARMGEN classification
OMPE

KD2_PFnn_HIS_VSAM_MCLAS1
Management class for VSAM dataset 1

Description
If the VSAM datasets are SMS-managed, then specify the SMS Management class to be used on the allocation. If your installation does not use the SMS MGMTCLAS parameter, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_MGMTCLAS%

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
MGMTCLAS(<value>)

Location 2
In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
MGMTCLAS(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
Mgmtclas

Default value
&RTESVMGT
Batch parameter name
KD2_PF_HIS_VSAM_MCLAS1

PARMGEN name
KD2_PFnn_HIS_VSAM_MCLAS1

PARMGEN classification
NTH

**KD2_PFnn_HIS_VSAM_SCLAS1**
Storage class for VSAM dataset 1

Description
If the VSAM datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_STORCLAS%

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
STORCLAS(<value>)

Location 2
In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
STORCLAS(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
Storclas

Default value
&RTEVSTOR

Batch parameter name
KD2_PF_HIS_VSAM_SCLAS1

PARMGEN name
KD2_PFnn_HIS_VSAM_SCLAS1

PARMGEN classification
NTH
KD2_PFnn_HIS_LOG1

VSAM log dataset 1

Description

Specify a name for the VSAM log dataset to be created. Specify at least two datasets to allow for log switching. The Near-Term History Data Collector will automatically switch to a free log dataset when the current dataset is full. Near-Term History VSAM dataset names must be unique for each DB2 subsystem.

Required or optional

Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value

%RTE_VSAM_HILEV%.%RTE_NAME%.%DB%.RKD2VS01

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line

ENTRIES('<value>') -

Location 2
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line

(NAME(value) -

Location 3
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line

<value>

Location 4
In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line

DEFINE CLUSTER( NAME(value) -

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
VSAM log data set name

Default value
None

Batch parameter name
KD2_PF_HIS_LOG1

PARMGEN name
KD2_PFnn_HIS_LOG1
KD2_PF_HIS_LOG1

PARMGEN classification
NTH

KD2_PFnn_HIS_VSAM_VOLUME1
Volser for VSAM dataset 1

Description
Specify the volume serial numbers for the allocation of the VSAM datasets. If VSAM datasets are not to be SMS-managed, then this is a required entry. If your installation does not use the volume serial number, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_VOLUME%

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
VOLUME(<value>)

Location 2
In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
VOLUME(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
Volser

Default value
&RTEVV

Batch parameter name
KD2_PF_HIS_VSAM_VOL1

PARMGEN name
KD2_PFnn_HIS_VSAM_VOLUME1

PARMGEN classification
NTH

KD2_PFnn_HIS_WHEN_AUTHID
Selection criteria AUTHID

Description
Specifies selection criteria based on AUTHID. For example, if AUTH1 and AUTH2 were specified for AUTHID, only data for threads with the specified authorization identifiers would be collected.
To specify selection criteria, you can use the wildcard character *, which is for one or more characters, the suffix only, and the ?, which is for a single character.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**
None

**Location where the parameter value is stored**
In the COPTssid member of the rhilev.midlev.rrename.RKD2PAR library

**Output line**
`AUTH(<value>)`

**In the Configuration Tool (ICAT)**

- **Panel name**: Near-Term History
- **Panel ID**: KD261P8
- **Panel field**: AUTHID
- **Default value**: None

**Batch parameter name**
KD2_PF_HIS_WHEN_AUTHID

**PARMGEN name**
KD2_PFnn_HIS_WHEN_AUTHID

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_BUFSIZE**
Data collection buffer size

**Description**
Specifies the parameter that controls the size of the buffer, which is used to hold IFI records until they can be written out to the log dataset by the Near-Term History Data Collector. This value is specified in kilobytes.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**
1024

**Minimum**
50

**Maximum**
9999

**Location where the parameter value is stored**
In the COPTssid member of the rhilev.midlev.rrename.RKD2PAR library

**Output line**
`BUFSIZE(<value>)`

**In the Configuration Tool (ICAT)**
Panel name
Near-Term History

Panel ID
KD261P8

Panel field
Buffer size

Default value
1024

Minimum
50

Maximum
9999

Batch parameter name
KD2_PF_HIS_BUFSIZE

PARMGEN name
KD2_PFnn_HIS_BUFSIZE

PARMGEN classification
NTH

**KD2_PFnn_HIS_WHEN_CONNID**

Selection criteria CONNID

Description
Specifies selection criteria based on CONNID. For example, if CON01 and CON02 were specified for CONNID, only data for threads that use the specified connections would be collected.

To specify selection criteria, you can use the wildcard character *, which is for one or more characters, the suffix only, and the ?, which is for a single character.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
None

Location where the parameter value is stored
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
CONN(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P8

Panel field
CONNID

Default value
None
Batch parameter name
KD2_PF_HIS_WHEN_CONNID

PARMGEN name
KD2_PFnn_HIS_WHEN_CONNID

PARMGEN classification
NTH

**KD2_PFnn_HIS_WHEN_CORRID**
Selection criteria CORRID

**Description**
Specifies selection criteria based on CORRID. For example, if STC01 and STC02 were specified for CORRID, only data for threads with the specified correlation identifiers would be collected. To specify selection criteria, you can use the wildcard character *, which is for one or more characters, the suffix only, and the ?, which is for a single character.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**
None

**Location where the parameter value is stored**
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
CORR(<value>)

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261P8

**Panel field**
CORRID

**Default value**
None

Batch parameter name
KD2_PF_HIS_WHEN_CORRID

PARMGEN name
KD2_PFnn_HIS_WHEN_CORRID

PARMGEN classification
NTH

**KD2_PFnn_HIS_COLL_INTV**
Collection interval

**Description**
Specifies the time interval for statistics data collection. This interval also applies to thread data collection if grouping is selected. The default interval is the same as the RMF interval if RMF is active, or 15 minutes if RMF is not active.
KD2_PF_HIS_LOG1

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
15

Location where the parameter value is stored
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
INTERVAL(<value>)

In the Configuration Tool (ICAT)
Panel name
Near-Term History

Panel ID
KD261P8

Panel field
Collection interval

Default value
15

Batch parameter name
KD2_PF_HIS_COLL_INTV

PARMGEN name
KD2_PFnn_HIS_COLL_INTV

PARMGEN classification
NTH

KD2_PFnn_HIS_SUBINT
Collection sub-interval

Description
Specifies the number of minutes or seconds to be used as the smallest time grouping for display of historical thread accounting data. The sub-interval should be specified as a period of time for convenient display of the threads executed. The more threads are executed per minute the smaller the sub-interval that you may want to specify.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
5

Minimum
1

Maximum
60

Locations where the parameter value is stored
Location 1
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
NTAINTERVAL(<value>.S)
Location 2
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
NTAINTERVAL(<value>)

In the Configuration Tool (ICAT)
Panel name
Near-Term History
Panel ID
KD261P8
Panel field
Collection sub-interval
Default value
5
Minimum
1
Maximum
60

Batch parameter name
KD2_PF_HIS_SUBINT

PARMGEN name
KD2_PFnn_HIS_SUBINT

PARMGEN classification
NTH

KD2_PFnn_HIS_SUBINT_UNIT
Collection sub-interval time unit

Description
Specifies the collection sub-interval time unit to be used to display the historical thread accounting data. Specify M for minutes or S for seconds.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
M

Permissible values
M, S

Location where the parameter value is stored
This value is not stored in a configuration member.

In the Configuration Tool (ICAT)
Panel name
Near-Term History
Panel ID
KD261P8
Panel field
Collection sub-interval unit
**KD2_PF_HIS_LOG1**

**Default value**

M

**Permissible values**

M, S

**Batch parameter name**

KD2_PF_HIS_SUBINT_UNIT

**PARMGEN name**

KD2_PFnn_HIS_SUBINT_UNIT

**PARMGEN classification**

NTH

**KD2_PFnn_HIS_IFIREAD**

IFI trace read frequency

**Description**

Specifies the IFI trace record read time in "mmssth" format where "mmssth" is minutes, seconds, tenths and hundredths of seconds. This parameter controls the frequency with which the Near-Term History Data Collector reads the new IFI trace records into the collection buffer.

You can increase the frequency by decreasing the interval, however, CPU utilization will increase. The default is 010000 which is 1 minute.

**Required or optional**

Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**

010000

**Minimum**

000100

**Maximum**

010000

**Location where the parameter value is stored**

In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**

IFIREADTIME(<value>)

**In the Configuration Tool (ICAT)**

**Panel name**

Near-Term History

**Panel ID**

KD261P8

**Panel field**

IFI read frequency

**Default value**

010000

**Minimum**

000100

**Maximum**

010000
Batch parameter name
KD2_PF_HIS_IFIREAD

PARMGEN name
KD2_PFn_HIS_IFIREAD

PARMGEN classification
NTH

**KD2_PFn_HIS_WHEN_ORIG**
Selection criteria ORIGAUTHID

**Description**
Specifies selection criteria based on ORIGAUTHID. To specify selection criteria, you can use the wildcard character *, which is for one or more characters, the suffix only, and the ?, which is for a single character.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**
None

**Location where the parameter value is stored**
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
ORIGAUTH(<value>)

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261P8

**Panel field**
ORIGAUTHID

**Default value**
None

Batch parameter name
KD2_PF_HIS_WHEN_ORIG

PARMGEN name
KD2_PFn_HIS_WHEN_ORIG

PARMGEN classification
NTH

**KD2_PFn_HIS_WHEN_PLAN**
Selection criteria PLANNAME

**Description**
Specifies selection criteria based on PLANNAME. For example, if CICSPR01 and CICSPR02 were specified for PLANNAME, only data for threads with the specified plannames would be collected.

To specify selection criteria, you can use the wildcard character *, which is for one or more characters, the suffix only, and the ?, which is for a single character.
KD2_PF_HIS_IFIREAD

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**
None

**Location where the parameter value is stored**
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
PLAN(<value>)

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261P8

**Panel field**
PLANNAME

**Default value**
None

**Batch parameter name**
KD2_PF_HIS_WHEN_PLAN

**PARMGEN name**
KD2_PFnn_HIS_WHEN_PLAN

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_SUSPCOLL**
Suspend data collection

**Description**
Specifies the option that controls memory usage by the Near-Term History Data Collector during times when no VSAM dataset is available. A VSAM file is considered unavailable from the time all allocated file space is used until the end of a successful flush job execution. The 'Y' option causes the collector to discard the collected trace data until a VSAM file becomes available for use. The 'N' option causes the Near-Term History Data Collector to accumulate trace data to memory until a VSAM file becomes available for use.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**
Y

**Permissible values**
Y, N

**Location where the parameter value is stored**
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
SUSPCOLL(<value>Y)

**In the Configuration Tool (ICAT)**
Panel name
Near-Term History

Panel ID
KD261P8

Panel field
Suspend data collection

Default value
Y

Permissible values
Y, N

Batch parameter name
KD2_PF_HIS_SUSPCOLL

PARMGEN name
KD2_PFnn_HIS_SUSPCOLL

PARMGEN classification
NTH

KD2_PFnn_HIS_POSTPCT
Threshold for historical collection

Description
Specifies the option to tune the Near-Term History Data Collector if you often see the DSNW133I messages issued by DB2. This value is used to compute a “high water mark” or threshold for historical collection. This threshold is a percentage of the total number of bytes in the IFI buffer. When this threshold is exceeded, DB2 will post the Near-Term History Data Collector to drain the buffer. The Near-Term History Data Collector will allow any percentage value from 1-99. Start from the default value of 70 and test small increments up or down.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
70

Minimum
1

Maximum
99

Location where the parameter value is stored
In the COPTssid member of the rhilev.midlev.ritename.RKD2PAR library

Output line
POSTPCT(<value>)

In the Configuration Tool (ICAT)
Panel name
Near-Term History

Panel ID
KD261P8

Panel field
Threshold
**KD2_PF_HIS_POSTPCT**

- **Default value**: 70
- **Minimum**: 1
- **Maximum**: 99

**Batch parameter name**
KD2_PF_HIS_POSTPCT

**PARMGEN name**
KD2_PFnn_HIS_POSTPCT

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_NEQSQL**

**Negative SQL option**

**Description**
Specifies whether or not the number of SQL calls executed by a thread which resulted in a negative return code is collected. If Y is entered, the collector activates IFCIDs 58,59,60,61,62,64,65 and 66 to the DB2 START TRACE PERFORMANCE command.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to Y)

- **Default value**: N
- **Permissible values**: Y, N

**Location where the parameter value is stored**
In the COPTssid member of the rhilev.midlev.rlname.RKD2PAR library

**Output line**
NEGSQL(<value>Y)

**In the Configuration Tool (ICAT)**

- **Panel name**: Near-Term History
- **Panel ID**: KD261PB
- **Panel field**: Negative SQL
- **Default value**: N
- **Permissible values**: Y, N

**Batch parameter name**
KD2_PF_HIS_NEQSQL

**PARMGEN name**
KD2_PFnn_HIS_NEQSQL
PARMGEN classification
NTH

**KD2_PFnn_HIS_DB2_STAT**
Collect statistics data

**Description**
This specifies whether to collect statistics information IFCIDs 1 and 2.
If Y is entered, statistics information is recorded once for each collection interval.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**
Y

**Permissible values**
Y, N

**Location where the parameter value is stored**
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
STATISTICS(<value>Y)

In the Configuration Tool (ICAT)

**Panel name**
Near-Term History

**Panel ID**
KD261PB

**Panel field**
Statistics

**Default value**
Y

**Permissible values**
Y, N

**Batch parameter name**
KD2_PF_HIS_DB2_STAT

**PARMGEN name**
KD2_PFnn_HIS_DB2_STAT

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_START**
Start Near-Term History

**Description**
Controls whether Near-Term History is to be configured and automatically started at Server startup.

Y Configure and autostart Near-Term History.

C Configure, but do not autostart Near-Term History. All required configuration members are generated and datasets are allocated.
Near-Term History can be started via operator commands later. See Configuration and Customization Guide.

Near-Term History is not configured and as result cannot be started via operator command.

Required or optional
Required

Default value
N

Permissible values
Y, N, C

Location where the parameter value is stored
This value is not stored in a configuration member.

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PX

Panel field
Start Near-Term History

Default value
N

Permissible values
Y, N, C

Batch parameter name
KD2_PF_HIS_START

PARMGEN name
KD2_PFnn_HIS_START

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_UNIT1
Unit for sequential dataset 1

Description
Specify the unit name for the allocation of the historical sequential datasets. If the historical sequential datasets are not SMS-managed then this is a required entry. If your installation does not use the unit name, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_UNIT%

Location where the parameter value is stored
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
UNIT(<value>) +
Panel name
Near-Term History
Panel ID
KD261PZ1
Panel field
Unit
Default value
&RTEU

Batch parameter name
KD2_PF_HIS_SEQ_UNIT1

PARMGEN name
KD2_PFnn_HIS_SEQ_UNIT1

PARMGEN classification
NTH

**KD2_PFnn_HIS_DYN_MCLAS**
Management class DYNAMIC

**Description**

If the historical sequential datasets are SMS-managed, then specify the SMS management class to be used on the allocation. If your installation does not use the SMS MGMTCLAS parameter, you can leave this field blank.

**Required or optional**
Optional

**Default value**

%RTE_SMS_VSAM_MGMTCLAS%

**Location where the parameter value is stored**
In the COPTssid member of the rhilev.midlev.ritename.RKD2PAR library

**Output line**

MGMTCLAS(<value>)

**In the Configuration Tool (ICAT)**

Panel name
Near-Term History
Panel ID
KD261PZ2
Panel field
Mgmtclas
Default value
&RTE_SVMGT

Batch parameter name
KD2_PF_HIS_DYN_MCLAS

PARMGEN name
KD2_PFnn_HIS_DYN_MCLAS

PARMGEN classification
NTH
**KD2_PFnn_HIS_DYN_SCLAS**

**Description**
If the historical sequential datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.

**Required or optional**
Optional

**Default value**
%RTE_SMS_VSAM_STORCLAS%

**Location where the parameter value is stored**
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library.

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD26IPZ2

**Panel field**
Storclas

**Default value**
&RTEVSTOR

**Batch parameter name**
KD2_PF_HIS_DYN_SCLAS

**PARMGEN name**
KD2_PFnn_HIS_DYN_SCLAS

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_DYN_UNIT**
Unit DYNAMIC

**Description**
Specify the unit name for the allocation of the historical sequential datasets. If the historical sequential datasets are not SMS-managed then this is a required entry. If your installation does not use the unit name, you can leave this field blank.

**Required or optional**
Optional

**Default value**
%RTE_SMS_UNIT%

**Location where the parameter value is stored**
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library.

**Output line**
UNIT(<value>)
In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ2

Panel field
Unit

Default value
&RTEU

Batch parameter name
KD2_PF_HIS_DYN_UNIT

PARMGEN name
KD2_PFnn_HIS_DYN_UNIT

PARMGEN classification
NTH

**KD2_PFnn_HIS_DYN_VOLUME**
Volser DYNAMIC

Description
Specify the volume serial numbers for the allocation of the historical sequential datasets. If the historical sequential datasets are not to be SMS-managed, then this is a required entry. If your installation does not use the volume serial number, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_VOLUME%

Location where the parameter value is stored
In the COPTissid member of the rhilev.midlevr.sename.RKD2PAR library

Output line
VOLSER(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ2

Panel field
Volser

Default value
&RTEVV

Batch parameter name
KD2_PF_HIS_DYN_VOL

PARMGEN name
KD2_PFnn_HIS_DYN_VOLUME

PARMGEN classification
NTH
**Dataset name GDG**

**Description**
Specify the name for the base dataset of the Generation Data Group GDG. For the GDG type, the dataset name can have a maximum of 35 characters. And the storage mechanism is GDG.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to G)

**Default value**
None

**Locations where the parameter value is stored**

**Location 1**
In the ALLOCDS member of the rhilev.midlev.rtnname.RKD2SAM library

Output line

\[\text{NAME ('<value>') -}\]

**Location 2**
In the ALLOCDS member of the rhilev.midlev.rtnname.RKD2SAM library

Output line

\[\text{ENTRIES(''<value>'') -}\]

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261PZ3

**Panel field**
Dataset name

**Default value**
None

**Batch parameter name**
KD2_PF_HIS_GDG_DSNAME

**PARMGEN name**
KD2_PFnn_HIS_GDG_DSNAME

**PARMGEN classification**
NTH

**Management class GDG**

**Description**
If the historical sequential datasets are SMS-managed, then specify the SMS management class to be used on the allocation. If your installation does not use the SMS MGMTCLAS parameter, you can leave this field blank.

**Required or optional**
Optional
Default value
%RTE_SMS_VSAM_MGMTCLAS%

Location where the parameter value is stored
In the COPTssid member of the *rhilev.midlev.rtename.RKD2PAR* library

Output line
MGMTCLAS(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ3

Panel field
Mgmtclas

Default value
&RTESVMGT

Batch parameter name
KD2_PF_HIS_GDG_MCLAS

PARMGEN name
KD2_PFnn_HIS_GDG_MCLAS

PARMGEN classification
NTH

**KD2_PFnn_HIS_GDG_SCLAS**
Storage class GDG

Description
If the historical sequential datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_STORCLAS%

Location where the parameter value is stored
In the COPTssid member of the *rhilev.midlev.rtename.RKD2PAR* library

Output line
STORCLAS(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ3

Panel field
Storclas

Default value
&RTEVSTOR
**Batch parameter name**

KD2_PF_HIS_GDG_SCLAS

**PARMGEN name**

KD2_PFnn_HIS_GDG_SCLAS

**PARMGEN classification**

NTH

**KD2_PFnn_HIS_GDG_UNIT**

Unit GDG

**Description**

Specify the unit name for the allocation of the historical sequential datasets. If the historical sequential datasets are not SMS-managed then this is a required entry. If your installation does not use the unit name, you can leave this field blank.

**Required or optional**

Optional

**Default value**

%RTE_SMS_UNIT%

**Locations where the parameter value is stored**

**Location 1**

In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line

UNIT(<value>)

**Location 2**

In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line

UNIT(<value>)

**In the Configuration Tool (ICAT)**

**Panel name**

Near-Term History

**Panel ID**

KD261PZ3

**Panel field**

Unit

**Default value**

&RTEU

**Batch parameter name**

KD2_PF_HIS_GDG_UNIT

**PARMGEN name**

KD2_PFnn_HIS_GDG_UNIT

**PARMGEN classification**

NTH
KD2_PFnn_HIS_GDG_VOLUME
Volser GDG

Description
Specify the volume serial numbers for the allocation of the historical sequential datasets. If the historical sequential datasets are not to be SMS-managed, then this is a required entry. If your installation does not use the volume serial number, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_VOLUME%

Location where the parameter value is stored
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
VOLUME(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ3

Panel field
Volser

Default value
&RTEVV

Batch parameter name
KD2_PF_HIS_GDG_VOL

PARMGEN name
KD2_PFnn_HIS_GDG_VOLUME

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_ARC_GDGLIM
GDG Limit for the archive dataset

Description
Specify the number of GDG generations to be used for this GDG. You can specify 1 to 255.

This field is only applicable if you specified GDG as the storage mechanism to be used for archiving.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to S and KD2_PF_HIS_SEQ_ARC_TYP is set to GDG)

Default value
7

Minimum
1
**KD2_PF_HIS_SEQ_ARC_GDGLIM**

Maximum

255

**Location where the parameter value is stored**

In the ALLOCDS member of the rhilev.midlev.ritename.RKD2SAM library

**Output line**

`LIMIT(<value>)`

**In the Configuration Tool (ICAT)**

**Panel name**

Near-Term History

**Panel ID**

KD261PZA

**Panel field**

Limit for GDG data sets

**Default value**

7

**Minimum**

1

**Maximum**

255

**Batch parameter name**

KD2_PF_HIS_SEQ_ARC_GDGLIM

**PARMGEN name**

KD2_PFnn_HIS_SEQ_ARC_GDGLIM

**PARMGEN classification**

NTH

**KD2_PFnn_SQLID**

SQLID

**Description**

Customize a different SQLID if other than the default USER in the following xKD2SAM DB2 Grant jobs:

- EXGPssid
- EXGRssid
- OMPGssid: Grant DB2 privileges to each user ID that will work with the OMEGAMON Server
- OMRGssid: Grant DB2 privileges on the DB2 subsystem to the OMEGAMON Collector plan/package owner that are necessary to administer the collector

**Required or optional**

Required

**Default value**

USER

**Locations where the parameter value is stored**
Location 1
In the EXGPssid member of the rhilev.midlev.rtsname.RKD2SAM library

Output line
SET CURRENT SQLID = '<value>';

Location 2
In the EXGRssid member of the rhilev.midlev.rtsname.RKD2SAM library

Output line
SET CURRENT SQLID = '<value>';

Location 3
In the OMGPssid member of the rhilev.midlev.rtsname.RKD2SAM library

Output line
SET CURRENT SQLID = '<value>';

Location 4
In the OMGGRssid member of the rhilev.midlev.rtsname.RKD2SAM library

Output line
SET CURRENT SQLID = '<value>';

In the Configuration Tool (ICAT)
This value cannot be updated using the Configuration Tool.

Batch parameter name
KD2_PF_SQLID

PARMGEN name
KD2_PFnn_SQLID

PARMGEN classification
OMPE

**KD2_PLAN_NAME_OVERRIDE**
Customize DB2 plan names

Description
Customize a different DB2 plan name if you want to override the internal DB2 plan name PLAN(DSNTIAvv) in the following Bind/Grant-type xKD2SAM DB2 jobs: (where vv = 1:2 digits of ssid)

- EXCQssid
- EXCTssid
- EXCVssid
- EXC0ssid
- EXC1ssid
- EXC2ssid
- EXC3ssid
- EXC8ssid
- EXDVssid
- EXGPssid
KD2_PF_HIS_SEQ_ARC_GDGLIM

- EXGRssid
- OMGPssid
- OMGRssid
- PWGAssid
- PWG1ssid
- PWG2ssid

Required or optional
Required

Default value
None

Locations where the parameter value is stored

Location 1
In the EXCQssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 2
In the EXCTssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 3
In the EXCVssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 4
In the EXC0ssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 5
In the EXC1ssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 6
In the EXC2ssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 7
In the EXC3ssid member of the rhilev.midlev.rtename.RKD2SAM library

IBM Db2 Performance Expert on z/OS
Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 8
In the EXC8ssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 9
In the EXDVssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 10
In the EXGPssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 11
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 12
In the OMGPssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 13
In the OMGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 14
In the PWGAssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 15
In the PWG1ssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -

Location 16
In the PWG2ssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
RUN PROGRAM(<value>) PLAN(%KD2_I_DB2_PLAN%) -
In the Configuration Tool (ICAT)
This value cannot be updated using the Configuration Tool.

Batch parameter name
KD2_PLAN_NAME_OVERRIDE

PARMGEN name
KD2_PLAN_NAME_OVERRIDE

PARMGEN classification
OMPE

Profile parameters
This section lists the profile parameters.

Monitoring profiles specify which monitoring functionality is to be used for the different DB2 subsystems. Each DB2 subsystem is associated with a monitoring profile.

OMEGAMON for Db2 PE offers many functions that can be configured for each DB2 subsystem. In most cases, however, the monitoring requirements for the different DB2 subsystems are not completely unique, which means that you can reuse one configuration for several DB2 subsystems. For example, in a development environment you might want to collect very detailed performance data to perform a sophisticated analysis, while in a production environment, this level of detail is not needed and causes unnecessary overhead. So you would use one set of configuration values for the DB2 subsystems that are used for development and another set of configuration values for DB2 subsystems in production.

A monitoring profile is such a set of configuration values. It is independent of the DB2 subsystem. Each DB2 subsystem is associated with a monitoring profile to determine the monitoring functionality. Several DB2 subsystems can be associated with the same profile, independent of the LPAR they reside on. As a result, profiles are reusable for many different DB2 subsystems that have similar monitoring requirements across different LPARs, and you can do changes to monitoring profiles rather than reconfiguring every single DB2 subsystem.

As the runtime members for a DB2 subsystem depend on the configuration values of the monitoring profile as well as the configuration values of the DB2 subsystem itself, the creation of the runtime members requires two steps. The first step creates the profile members, where all values that are specific to the DB2 subsystem are substituted by variables, and writes them to &rhilev.&rte.RKD2PRF. The second step replaces these variables with the actual configuration values of the DB2 subsystem and writes the members to &rhilev.&rte.RKD2SAM and &rhilev.&rte.RKD2PAR.

How to create DB2 profiles in PARMGEN user profiles
This section explains how to create DB2 profiles in PARMGEN user profiles.

DB2 profiles are configured along all other configuration parameters in the PARMGEN user profile. They are identified by KD2_PFxx where xx is the number that distinguishes different DB2 profiles. For example, KD2_PF01 refers to the first DB2 profile and KD2_PF02 refers to the second DB2 profile. You can create up to 99 DB2 profiles.

The section that holds DB2 profiles is structured as follows:
where \( xx \) and \( yy \) are the numbers of those two DB2 profiles. The parameter \( KD2_PFxx_PROFID \) contains the ID that is used to assign a DB2 subsystem configuration with a DB2 profile. You can choose your ID as you like but it is recommended to include the number that identifies the DB2 profile in the ID in order to easily identify the relationship between DB2 subsystems and DB2 profiles.

In order to assign a DB2 profile to a DB2 subsystem configuration, use the parameter \( KD2_DBzz_DB2_PROFID \). For example, to assign the DB2 profile \( P0xx \) to a DB2 subsystem configuration set, use the following parameter:

\[
KD2_DBzz_DB2_PROFID P0xx
\]

**Object/Volume analysis**

This section lists the parameters for object or volume analysis.

Object analysis provides information about DB2 object allocations, object activities, volume activities, and data set extend activities.

You can start object analysis in one of the following ways:

- Manually, using the START OBJECT ANALYSIS COLLECTORS panel.

  **Note:** If there are significant levels of I/O activity on monitored DASD volumes in your environment, you can start this function manually to measure specific workloads or help manage isolated performance situations.

- Automatically, when the OMEGAMON for Db2 PE server is activated.

  **Note:** It is recommended that you do not automatically start object analysis in the AUTOSTART configuration.

By default, the Object Analysis function is shipped with a security level of 3, and requires that you enter a level 3 password to successfully complete the startup. If you want to use external security, you must have the appropriate resource class definition attached to your OMEGAMON for Db2 PE logon identifier.

**Note:** To start Object Analysis, you must first start OMEGAMON for Db2 PE Event Collection Manager (EVENTMGR).

OMEGAMON for Db2 PE provides object analysis data only for active DB2 objects.

Object analysis can only be performed on a single DB2 subsystem, no matter whether the subsystem is a member of a data sharing group or not.
KD2_PFnn_OA_ECM:

Start Event collection manager

**Description**

The Event collection manager ECM provides an environment that is required for Object/Volume Analysis Collectors. The ECM does not cause much overhead. If you start the ECM at OMEGAMON Collector startup, then you can start Object/Volume Analysis from the Classic Interface later.

**Required or optional**

Required

**Default value**

N

**Permissible values**

Y, N

**Location where the parameter value is stored**

This value is not stored in a configuration member.

**In the Configuration Tool (ICAT)**

- **Panel name**
  
  Object and Volume Analysis

- **Panel ID**
  
  KD261PM

- **Panel field**
  
  Start the Event Collection Manager

- **Default value**
  
  N

- **Permissible values**
  
  Y, N

**Batch parameter name**

KD2_PF_OA_ECM

**PARMGEN name**

KD2_PFnn_OA_ECM

**PARMGEN classification**

OBJ_ANAL

KD2_PFnn_OA_INTV:

Object analysis collection info

**Description**

This specifies the time interval in minutes for the object analysis and the volume analysis collectors. The interval may be from 1 to 1440 minutes.

**Required or optional**

Optional (Required in case KD2_PF_OA_START is set to Y)

**Default value**

15

**Minimum**

1
Maximum
1440

Location where the parameter value is stored
In the OMOAssid member of the rhilev.midlev.rtename.RKD2PRF library

Output line
F EVENTMGR,START DB2=%DB%,INTERVAL=<value>,THREAD=&THREAD

In the Configuration Tool (ICAT)

Panel name
Object and Volume Analysis

Panel ID
KD261PM

Panel field
Object analysis collection interval

Default value
15

Minimum
1

Maximum
1440

Batch parameter name
KD2_PF_OA_INTV

PARMGEN name
KD2_PFnn_OA_INTV

PARMGEN classification
OBJ_ANAL

KD2_PFnn_OA_START:

Start Object Analysis

Description
Specify Y if you want to start Object/Volume Analysis for DB2 subsystems associated with this profile at startup of the OMEGAMON Collector.

Note that Object/Volume Analysis causes considerable overhead. Object/Volume Analysis can be started as needed via operator commands later. See Configuration and Customization Guide for details.

Required or optional
Optional (Required in case KD2_PF_OA_ECM is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the OMOAssid member of the rhilev.midlev.rtename.RKD2PRF library

Output line
STARTOA=<value>

In the Configuration Tool (ICAT)
**KD2_PF_HIS_SEQ_ARC_GDGLIM**

**Panel name**  
Object and Volume Analysis

**Panel ID**  
KD261PM

**Panel field**  
Start Object/Volume Analysis

**Default value**  
N

**Permissible values**  
Y, N

**Batch parameter name**  
KD2_PF_OA_START

**PARMGEN name**  
KD2_PFnn_OA_START

**PARMGEN classification**  
OBJ_ANAL

**KD2_PFnn_OA_THREAD:**

DB2 objects thread info

**Description**  
This indicates whether thread information will be collected during object analysis.

**Required or optional**  
Optional (Required in case KD2_PF_OA_START is set to Y)

**Default value**  
N

**Permissible values**  
Y, N

**Location where the parameter value is stored**  
In the OMOAssid member of the rhilev.midlev.rtename.RKD2PRF library

**Output line**  
F EVENTMGR,START DB2=%DB%,INTERVAL=&O2EINT,THREAD=<value>

**In the Configuration Tool (ICAT)**

**Panel name**  
Object and Volume Analysis

**Panel ID**  
KD261PM

**Panel field**  
Thread information on DB2 objects

**Default value**  
Y

**Permissible values**  
Y, N

**Batch parameter name**  
KD2_PF_OA_THRD
The Event Collection Manager must be active before Object/Volume Analysis can be started for a DB2 subsystem. The wait interval specifies the number of seconds that have to pass after ECM startup before the startup commands for Object/Volume Analysis are issued.

ECM is started implicitly when you configure Object Analysis to be auto-started at Common collector startup. If you specified a wait interval greater than 0 in several monitoring profiles that are used the maximum wait interval specified is used.

**Required or optional**
Optional (Required in case KD2_PF_OA_ECM is set to Y)

**Default value**
5

**Minimum**
0

**Maximum**
99

**Location where the parameter value is stored**
In the OMOAssid member of the rhlee.midlev.rtename.RKD2PRF library

**Output line**
WAIT=<value>

**In the Configuration Tool (ICAT)**

**Panel name**
Object and Volume Analysis

**Panel ID**
KD261PM

**Panel field**
Wait interval

**Default value**
5

**Minimum**
0

**Maximum**
99

**Batch parameter name**
KD2_PF_OA_WAIT

**PARMGEN name**
KD2_PFnn_OA_THREAD

**PARMGEN classification**
OBJ_ANAL

**KD2_PFnn_OA_WAIT:**

Wait interval

**Description**

The Event Collection Manager must be active before Object/Volume Analysis can be started for a DB2 subsystem. The wait interval specifies the number of seconds that have to pass after ECM startup before the startup commands for Object/Volume Analysis are issued.

ECM is started implicitly when you configure Object Analysis to be auto-started at Common collector startup. If you specified a wait interval greater than 0 in several monitoring profiles that are used the maximum wait interval specified is used.

**Required or optional**
Optional (Required in case KD2_PF_OA_ECM is set to Y)

**Default value**
5

**Minimum**
0

**Maximum**
99

**Location where the parameter value is stored**
In the OMOAssid member of the rhlee.midlev.rtename.RKD2PRF library

**Output line**
WAIT=<value>

**In the Configuration Tool (ICAT)**

**Panel name**
Object and Volume Analysis

**Panel ID**
KD261PM

**Panel field**
Wait interval

**Default value**
5

**Minimum**
0

**Maximum**
99

**Batch parameter name**
KD2_PF_OA_WAIT

**PARMGEN name**
KD2_PFnn_OA_WAIT
Periodic Exception Processing
This section lists the parameters for periodic exception processing.

Periodic Exception Processing analyzes system metrics and compares them against predefined thresholds, user-defined thresholds, and application metrics.

When a threshold is exceeded, a periodic exception is shown. This event is commonly called an exception. This function is available in Performance Expert Client.

You can start periodic exception processing in one of the following ways:
- Manually, after you start Performance Expert Client. In this case, you can define a set of thresholds for each user ID.
- Automatically, to start one user’s threshold definitions when the server starts. In this case, the threshold definitions are already started when the user logs on to the client.

**KD2_PFnn_AEXCP_D2PYACT:**

Enable Automatic Exception Processing

**Description**
Used to enable or disable Automatic Exception Processing.

**Required or optional**
Required

**Default value**
N

**Permissible values**
Y, N

**Location where the parameter value is stored**
This value is not stored in a configuration member.

**In the Configuration Tool (ICAT)**

**Panel name**
Periodic Exception Processing

**Panel ID**
KD261PY

**Panel field**
Enable Periodic Exception Processing

**Default value**
N

**Permissible values**
Y, N

**Batch parameter name**
KD2_PF_AEXCP_D2PYACT

**PARMGEN name**
KD2_PFnn_AEXCP_D2PYACT
**PARMGEN classification**

EXCP

**KD2_PFnn_AEXCP_D2TPFDSN:**

Exception file dataset name

**Description**

Used to specify the name of the DPMOUT output data set. Specify a fully qualified file data set name.

**Required or optional**

Optional (Required in case KD2_PF_AEXCP_D2TPFFLG is set to Y)

**Default value**

None

**Locations where the parameter value is stored**

<table>
<thead>
<tr>
<th>Location 1</th>
<th>In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output line</td>
<td>AUTOEXCPFILENAME=&lt;value&gt;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location 2</th>
<th>In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output line</td>
<td>ENTRIES(''&lt;value&gt;'')</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location 3</th>
<th>In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output line</td>
<td>DSNAME(''&lt;value&gt;'')</td>
</tr>
</tbody>
</table>

**In the Configuration Tool (ICAT)**

**Panel name**

Periodic Exception Processing

**Panel ID**

KD261PY

**Panel field**

Exception file data set name

**Default value**

None

**Batch parameter name**

KD2_PF_AEXCP_D2TPFDSN

**PARMGEN name**

KD2_PFnn_AEXCP_D2TPFDSN

**PARMGEN classification**

EXCP
**KD2_PFnn_AEXCP_D2TPFDSP:**

Disposition for Exception file dataset

**Description**

Used to specify the disposition of the DPMOUT file data set. Valid values are MOD or OLD.

**Required or optional**

Optional (Required in case KD2_PF_AEXCP_D2TPFFLG is set to Y)

**Default value**

MOD

**Permissible values**

MOD, OLD

**Locations where the parameter value is stored**

**Location 1**

In the OMPEssid member of the rhl.ev.midlev.rtename.RKD2PAR library

**Output line**

AUTOEXCPFILEDISP=<value>

**Location 2**

In the ALLOCDS member of the rhl.ev.midlev.rtename.RKD2SAM library

**Output line**

<value> CATALOG -

**In the Configuration Tool (ICAT)**

**Panel name**

Periodic Exception Processing

**Panel ID**

KD261PY

**Panel field**

Exception file data set DISP

**Default value**

MOD

**Permissible values**

MOD, OLD

**Batch parameter name**

KD2_PF_AEXCP_D2TPFDSP

**PARMGEN name**

KD2_PFnn_AEXCP_D2TPFDSP

**PARMGEN classification**

EXCP

**KD2_PFnn_AEXCP_D2TPFFLG:**

Exception file

**Description**
Used to activate export of the performance data at time of exception to the exception file.

**Required or optional**
Optional (Required in case KD2_PF_AEXCP_D2PYACT is set to Y)

**Default value**
N

**Permissible values**
Y, N

**Location where the parameter value is stored**
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
AUTOEXCPFILE=<value>

**In the Configuration Tool (ICAT)**

**Panel name**
Periodic Exception Processing

**Panel ID**
KD261PY

**Panel field**
Exception file

**Default value**
N

**Permissible values**
Y, N

**Batch parameter name**
KD2_PF_AEXCP_D2TPFFLG

**PARMGEN name**
KD2_PFnn_AEXCP_D2TPFFLG

**PARMGEN classification**
EXCP

**KD2_PFnn_AEXCP_D2TPINTV:**

**Periodic interval**

**Description**
Used to specify the time period between exception checks in seconds. Specify an integer value in the range from 1 to 7200.

**Required or optional**
Optional (Required in case KD2_PF_AEXCP_D2PYACT is set to Y)

**Default value**
100

**Minimum**
1

**Maximum**
7200

**Location where the parameter value is stored**
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library
Output line
AUTOEXCPPERIOD=<value>

In the Configuration Tool (ICAT)

Panel name
Periodic Exception Processing

Panel ID
KD261PY

Panel field
Periodic interval

Default value
100

Minimum
1

Maximum
7200

Batch parameter name
KD2_PF_AEXCP_D2TPINTV

PARMGEN name
KD2_PFnn_AEXCP_D2TPINTV

PARMGEN classification
EXCP

KD2_PFnn_AEXCP_D2TPLDSN:

Exception log dataset name

Description
Used to specify the name of the exception log data set. Specify a fully qualified data set name.

Required or optional
Optional (Required in case KD2_PF_AEXCP_D2TPLFLG is set to Y)

Default value
None

Locations where the parameter value is stored

Location 1
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
AUTOEXCPLOGNAME=<value>

Location 2
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
DSNAME('<value>') -

Location 3
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library
In the Configuration Tool (ICAT)

**Panel name**  
Periodic Exception Processing

**Panel ID**  
KD261PY

**Panel field**  
Exception log data set name

**Default value**  
None

**Batch parameter name**  
KD2_PF_AEXCP_D2TPLDSN

**PARMGEN name**  
KD2_PFnn_AEXCP_D2TPLDSN

**PARMGEN classification**  
EXCP

**KD2_PFnn_AEXCP_D2TPLDSP:**

**Disposition for Exception log dataset**

**Description**  
Used to specify the disposition of the exception log data set. Valid values are MOD or OLD.

**Required or optional**  
Optional (Required in case KD2_PF_AEXCP_D2TPLFLG is set to Y)

**Default value**  
MOD

**Permissible values**  
MOD, OLD

**Locations where the parameter value is stored**

**Location 1**  
In the OMPEssid member of the *rhilev.midlev.rtename.RKD2PAR* library

**Output line**  
AUTOEXCPLOGDISP=<value>

**Location 2**  
In the ALLOCDS member of the *rhilev.midlev.rtename.RKD2SAM* library

**Output line**  
<value> CATALOG -

**In the Configuration Tool (ICAT)**

**Panel name**  
Periodic Exception Processing

**Panel ID**  
KD261PY
Panel field
Exception log data set DISP

Default value
MOD

Permissible values
MOD, OLD

Batch parameter name
KD2_PF_AEXCP_D2TPLDSP

PARMGEN name
KD2_PFnn_AEXCP_D2TPLDSP

PARMGEN classification
EXCP

KD2_PFnn_AEXCP_D2TPLFLG:

Description
Used to activate export of the exception data to the exception log.

Required or optional
Optional (Required in case KD2_PF_AEXCP_D2PYACT is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the OMPESsid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
AUTOEXCPL0G=<value>

In the Configuration Tool (ICAT)

Panel name
Periodic Exception Processing

Panel ID
KD261PY

Panel field
Exception log

Default value
N

Permissible values
Y, N

Batch parameter name
KD2_PF_AEXCP_D2TPLFLG

PARMGEN name
KD2_PFnn_AEXCP_D2TPLFLG

PARMGEN classification
EXCP
Threshold data set name

**Description**

The Exception Threshold data set contains the exception thresholds for the Statistics and Accounting exception reports and traces. When exception processing is active, the instrumentation data is checked against these thresholds.

You can either use an existing threshold data set or let ICAT generate a new threshold data set. Specify a fully qualified data set name without quotes. If the specified threshold data set does not exist, ICAT generates an empty sequential data set using the following attributes:

- **RECFM**: VB
- **LRECL**: 255
- **BLKSIZE**: 6233

You need to specify thresholds in the specified data set. If the threshold data set is empty, Automatic Exception Processing is not started and the following message is written to the message log:

```
FPEV0263E D823 AUTOMATIC EXCP NOT STARTED - NO VALID THRESHOLD
```

To specify thresholds:

Use the thresholds in the supplied sample Threshold data set DGOETV41 in RKO2DATA or in case of an SMP/E Sharing RTE: TKO2DATA. The sample contains a selection of exception fields with predefined threshold values and can be used to get started with exception reporting. To use the sample threshold data set as input for Automatic Exception Processing, copy the contents of DGOETV41 to the threshold data set generated by ICAT.

Note: The sample Exception Threshold data set member DGOETV41 has a different record length. As a result, when you copy member DGOETV41 to your newly allocated data set, you see a warning that records are truncated. You can ignore this warning.

Refer to the Reporting User's Guide 'Specifying exceptions using the Exception Threshold data set editor' and 'Exception Threshold data set' for additional information.

**Required or optional**

Optional (Required in case KD2_PF_AEXCP_D2PYACT is set to Y)

**Default value**

```
%RTE_HILEV%.%RTE_NAME%.RKD2THRS
```

**Locations where the parameter value is stored**

**Location 1**

In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library
**Output line**

\`AUTOEXCPTHNAME=<value>`

**Location 2**

In the ALLOCDS member of the `rhilev.midlev rtename.RKD2SAM` library

**Output line**

\`DSNAME('<value>')` -

**Location 3**

In the ALLOCDS member of the `rhilev.midlev rtename.RKD2SAM` library

**Output line**

\`ENTRIES('<value>')` -

**In the Configuration Tool (ICAT)**

**Panel name**

Periodic Exception Processing

**Panel ID**

KD261PY

**Panel field**

Threshold data set name

**Default value**

None

**Batch parameter name**

KD2_PF_AEXCP_D2TPTDSN

**PARMGEN name**

KD2_PFnn_AEXCP_D2TPTDSN

**PARMGEN classification**

EXCP

**KD2_PFnn_AEXCP_D2TPTFMC:**

Management Class of Exception datasets

**Description**

Used to specify the SMS management class for the Excp processing datasets that are to be allocated.

**Required or optional**

Optional

**Default value**

\`%RTE_SMS_VSAM_MGMTCLAS%`

**Location where the parameter value is stored**

In the ALLOCDS member of the `rhilev.midlev rtename.RKD2SAM` library

**Output line**

\`MGMTCLAS(<value>)` -

**In the Configuration Tool (ICAT)**

**Panel name**

Periodic Exception Processing
Panel ID
KD261PY

Panel field
MGMTCLAS

Default value
None

Batch parameter name
KD2_PF_AEXCP_D2TPTFMC

PARMGEN name
KD2_PFnn_AEXCP_D2TPTFMC

PARMGEN classification
EXCP

KD2_PFnn_AEXCP_D2TPTFSC:

Description
Used to specify the SMS storage class for the Excp processing datasets that are to be allocated.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_STORCLAS%

Location where the parameter value is stored
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
STORCLAS(<value>) -

In the Configuration Tool (ICAT)

Panel name
Periodic Exception Processing

Panel ID
KD261PY

Panel field
STORCLAS

Default value
None

Batch parameter name
KD2_PF_AEXCP_D2TPTFSC

PARMGEN name
KD2_PFnn_AEXCP_D2TPTFSC

PARMGEN classification
EXCP
KD2_PFnn_AEXCP_D2TPUID:

User ID

Description
Used to specify the user ID of the OMEGAMON XE for DB2 PE user for whom you want to start Automatic Exception Processing. The user ID can be up to 8 characters long. The default user ID is the OMEGAMON XE for DB2 PE user ID.

Required or optional
Optional (Required in case KD2_PF_AEXCP_D2PYACT is set to Y)

Default value
None

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
AUTOEXCPUSER=<value>

In the Configuration Tool (ICAT)

Panel name
Periodic Exception Processing

Panel ID
KD261PY

Panel field
Threshold user ID

Default value
None

Batch parameter name
KD2_PF_AEXCP_D2TPUID

PARMGEN name
KD2_PFnn_AEXCP_D2TPUID

PARMGEN classification
EXCP

KD2_PFnn_AEXCP_D2TPUXIT:

Use user exit

Description
Used to specify whether the user exit for Automatic Exception Processing is activated. The default is N.

Required or optional
Optional (Required in case KD2_PF_AEXCP_D2PYACT is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library
Output line
AUTOEXCPEXIT=<value>

In the Configuration Tool (ICAT)
Panel name
    Periodic Exception Processing
Panel ID
    KD261PY
Panel field
    User exception exit
Default value
    N
Permissible values
    Y, N

Batch parameter name
    KD2_PF_AEXCP_D2TPUXIT

PARMGEN name
    KD2_PFnn_AEXCP_D2TPUXIT

PARMGEN classification
    EXCP

KD2_PFnn_AEXCP_D2TPVL:
Volser of Exception datasets

Description
    Used to specify the volser for the Automatic Excp processing datasets that are to be allocated.

Required or optional
    Optional

Default value
    %RTE_SMS_VSAM_VOLUME%

Location where the parameter value is stored
    In the ALLOCDS member of the rhilev.rillev.ritename.RKD2SAM library

Output line
    VOL(<value>) -

In the Configuration Tool (ICAT)
Panel name
    Periodic Exception Processing
Panel ID
    KD261PY
Panel field
    Volser
Default value
    None

Batch parameter name
    KD2_PF_AEXCP_D2TPVL
**Parameter Reference - thread history**

This section lists the parameters added or updated for thread history. This includes several parameters introduced to support thread history in the Enhanced 3270 user interface.

**Note:** You can start thread history collection by default when you start OMEGAMON for Db2 PE, or you can use operator commands to start and stop thread history collection.

There are several new parameters introduced to support the Enhanced 3270UI thread history:
- KD2_PFnn_THRDHIS_LOG_NUM
- KD2_PFnn_THRDHIS_DYN_SQL
- KD2_PFnn_THRDHIS_LOCK_CNTN
- KD2_PFnn_THRDHIS_LOCK_SUSP
- KD2_PFnn_THRDHIS_SCAN_SUMM
- KD2_PFnn_THRDHIS_SORT_SUMM

**Note:** These parameters can be configured in PARMGEN, but they are not yet implemented for use with thread history in the Enhanced 3270UI.

**Change to KD2_PFnn_HIS_STORE parameter**

The following field has the same default value but now has additional options that support thread history:

KD2_PFnn_HIS_STORE now allows values with the THVSAM option (VSAMTHVSAM, VSAMSEQTHVSAM, SEQTHVSAM, THVSAM). This option activates Enhanced 3270UI thread history collection.

The following sections detail the parameters that have been updated to facilitate thread history in the Enhanced 3270UI.

**KD2_OMPE_VSAM_DSHLQ:**

Use the KD2_OMPE_VSAM_DSHLQ parameter to specify the high-level qualifier for the VSAM data sets that the thread history collector allocates.

**Description**

This parameter specifies the high-level qualifier for the VSAM data sets allocated by the OMEGAMON Collector.

The default value is generated from the high-level qualifier and the mid-level qualifier that you specified for your RTE.

This parameter is also the basis of the THRDDATASET() parameter in the RKD2PAR(COPT&dbid) for the Enhanced 3270UI thread history VSAM data sets.

**Required or optional**

Required
Default value

%RTE_VSAM_HILEV%.%RTE_NAME%

Locations where the parameter value is stored

Location 1
In the OMPEMSTR member of the %RTE_HILEV%.%RTE_NAME
%.RKD2PAR library

Output line
VDATASERVERHLQ=<value>

Location 2
In the OMDDssid member of the %RTE_HILEV%.%RTE_NAME
%.RKD2SAM library

Output line
DEFINE CLUSTER(NAME(<value>..%DB%.HISTORY) -

Location 3
In the OMDDssid member of the %RTE_HILEV%.%RTE_NAME
%.RKD2SAM library

Output line
DELETE (<value>..%DB%.HISTORY) CLUSTER

PARMGEN name
KD2_OMPE_VSAM_DSHLQ

PARMGEN classification
OMPE

KD2_PFnn_HIS_ACCTG_CLAS:

Use the KD2_PFnn_HIS_ACCTG_CLAS parameter to specify one or more types of accounting data to collect.

Description
Specifies the type of accounting data to collect.
Class 1 IFCID 3 no In-DB2 or I/O and lock wait times.
Class 2 IFCID 3 In-DB2 time.
Class 3 IFCID 3 I/O and lock wait times.
Class 7 IFCID 3,239 Package/DBRM In-DB2 time.
Class 8 IFCID 3,239 Package/DBRM I/O and lock wait times.
Class 10 IFCID 239 Package detail
Class 11 IFCID 3,200 No package info. For DB2 v11 and above only.
Enter a list of the accounting classes that you want to collect data from. For example "1 2 3"

NOTE: In order to reduce the number of IFCIDs collected and not collect the IFCID 239, class 11 should be requested without classes 7, 8 and 10. Class 11 supported in DB2 v11 and above.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)
Default value
1

Location where the parameter value is stored
In the COPTssid member of the %RTE_HILEV%-%RTE_NAME%.RKD2PAR library

Output line
ACCTG(<value>Y)

PARMGEN name
KD2_PFnn_HIS_ACCTG_CLAS

PARMGEN classification
NTH

KD2_PFnn_HIS_BUFSIZE:
Data collection buffer size

Description
Specifies the parameter that controls the size of the buffer, which is used to hold IFI records until they can be written out to the log dataset by the Near-Term History Data Collector. This value is specified in kilobytes.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
1024

Minimum
50

Maximum
9999

Location where the parameter value is stored
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
BUFSIZE(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P8

Panel field
Buffer size

Default value
1024

Minimum
50

Maximum
9999

Batch parameter name
KD2_PF_HIS_BUFSIZE
PARMGEN name
KD2_PFnn_HIS_BUFSIZE

PARMGEN classification
NTH

KD2_PFnn_HIS_COLL_INTV:
Collection interval

Description
Specifies the time interval for statistics data collection. This interval also applies to thread data collection if grouping is selected. The default interval is the same as the RMF interval if RMF is active, or 15 minutes if RMF is not active.

Required or optional
Optional (Required in case KD2_PF_HIS.START is set to Y)

Default value
15

Location where the parameter value is stored
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
INTERVAL(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P8

Panel field
Collection interval

Default value
15

Batch parameter name
KD2_PF.HIS_COLL_INTV

PARMGEN name
KD2_PFnn_HIS_COLL_INTV

PARMGEN classification
NTH

KD2_PFnn_HIS_DB2_STAT:
Collect statistics data

Description
This specifies whether to collect statistics information IFCIDs 1 and 2. If Y is entered, statistics information is recorded once for each collection interval.

Required or optional
Optional (Required in case KD2_PF_HIS.START is set to Y)
KD2_OMPE_VSAM_DSHLQ

Default value
Y

Permissible values
Y, N

Location where the parameter value is stored
In the COPTssid member of the rhllev.midlev.rlename.RKD2PAR library

Output line
STATISTICS(<value>Y)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PB

Panel field
Statistics

Default value
Y

Permissible values
Y, N

Batch parameter name
KD2_PF_HIS_DB2_STAT

PARMGEN name
KD2_PFnn_HIS_DB2_STAT

PARMGEN classification
NTH

KD2_PFnn_HIS_DYN_DSNAME:

This parameter lets you specify a base dataset name that is used to create the sequential datasets for storing Near-Term History trace data.

Description

Specify a base dataset name that is used to create the sequential datasets that store Near-Term History trace data. Use the following variables to construct the sequential dataset name. To ensure unique dataset names, you must use at least @DB2, @DATE and @TIME:

@DB2  Inserts the DB2 subsystem ID of the data being collected into the name of the dataset.

@DATE  Inserts the date of the first record in the dataset into the name of the dataset.

@TIME  Inserts the time of the first record in the dataset into the name of the dataset.

This field is applicable only if the storage type is VSAMSEQ, VSAMSEQTHVSAM, or SEQTHVSAM and the storage mechanism is DYNAMIC.
**Required or optional**
Optional (Required if KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to D)

**Default value**
None

**Location where the parameter value is stored**
In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

**Output line**
<value>

**PARMGEN name**
KD2_PFnn_HIS_DYN_DSNAME

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_DYN_MCLAS:**
Management class DYNAMIC

**Description**
If the historical sequential datasets are SMS-managed, then specify the SMS management class to be used on the allocation. If your installation does not use the SMS MGMTCLAS parameter, you can leave this field blank.

**Required or optional**
Optional

**Default value**
%RTE_SMS_VSAM_MGMTCLAS%

**Location where the parameter value is stored**
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
MGMTCLAS(<value>)

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261PZ2

**Panel field**
Mgmtclas

**Default value**
&RTESVMGT

**Batch parameter name**
KD2_PF_HIS_DYN_MCLAS

**PARMGEN name**
KD2_PFnn_HIS_DYN_MCLAS

**PARMGEN classification**
NTH
KD2_PFnn_HIS_DYN_PRIMAR:

Primary space for sequential datasets

**Description**

Specify the primary space allocation used for the sequential data sets created by the Near-Term History Data Collector. The default is 10 cylinders.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, or SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

**Required or optional**

Optional (Required if KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to D)

**Default value**

10

**Valid values**

Any number in the range 3-9999

**Location where the parameter value is stored**

In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

**Output line**

```
SPACE(CYL,<value>,<KD2_PFnn_HIS_DYN_SECONDARY>)
```

**PARMGEN name**

KD2_PFnn_HIS_DYN_PRIMAR

**PARMGEN classification**

NTH

**KD2_PFnn_HIS_DYN_SCLAS:**

Storage class DYNAMIC

**Description**

If the historical sequential datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.

**Required or optional**

Optional

**Default value**

%RTE_SMS_VSAM_STORCLAS%

**Location where the parameter value is stored**

In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**

```
STORCLAS(<value>)
```

**In the Configuration Tool (ICAT)**

**Panel name**

Near-Term History

**Panel ID**

KD261PZ2
KD2_PF_HIS_DYN_SCLAS

Panel field
   Storclas
Default value
   &RTEVSTOR

Batch parameter name
   KD2_PF_HIS_DYN_SCLAS

PARMGEN name
   KD2_PFnn_HIS_DYN_SCLAS

PARMGEN classification
   NTH

KD2_PFnn_HIS_DYN_SECONDARY:

Secondary space for sequential datasets

Description
   Specify the secondary space allocation used for the sequential data sets created by the Near-Term History Data Collector. The default is 2 cylinders.
   This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, or SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Required or optional
   Optional (Required if KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to D)

Default value
   2

Valid values
   Any number in the range 0-9999

Location where the parameter value is stored
   In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

Output line
   SPACE(CYL,<KD2_PFnn_HIS_DYN_PRIMARY>,<value>)

PARMGEN name
   KD2_PFnn_HIS_DYN_SECONDARY

PARMGEN classification
   NTH

KD2_PFnn_HIS_DYN_SQL:

The KD2_PFnn_HIS_DYN_SQL parameter specifies whether to collect dynamic SQL data.

Valid values
   This specifies whether dynamic SQL text and access path information is collected.
   Y: the collector activates IFCIDs 22, 63, 105, and 107.
**KD2_PF_HIS_DYN_SQL**

F: the collector activates IFCIDs 22, 350, 105, and 107. IFCID 350 records the complete text of a parsed SQL statement, while IFCID 63 is limited to the first 5000 bytes of a SQL statement.

**Required or optional**  
Optional (Required if KD2_PF_HIS_START is set to Y.)

**Default value**  
N

**Valid values**  
Y, N, F

**Locations where the parameter value is stored**

**Location 1**  
In the DB2PROF member of the %RTE_HILEV%.%RTE_NAME%.RKD2PRF library

**Output line**  
DB2_DSNTIAD=<value>NTIA

**Location 2**  
In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

**Output line**  
DYNAMICSQ(<value>Y)

**PARMGEN name**  
KD2_PFnn_HIS_DYN_SQL

**PARMGEN classification**  
NTH

**KD2_PFnn_HIS_DYN_UNIT:**

**Unit** DYNAMIC

**Description**  
Specify the unit name for the allocation of the historical sequential datasets. If the historical sequential datasets are not SMS-managed then this is a required entry. If your installation does not use the unit name, you can leave this field blank.

**Required or optional**  
Optional

**Default value**  
%RTE_SMS_UNIT%

**Location where the parameter value is stored**  
In the COPTssid member of the rhilev,midlev,rtename.RKD2PAR library

**Output line**  
UNIT(<value>)

**In the Configuration Tool (ICAT)**

**Panel name**  
Near-Term History

**Panel ID**  
KD261PZ2
Panel field
  Unit
Default value
  &RTEU
Batch parameter name
  KD2_PF_HIS_DYN_UNIT
PARMGEN name
  KD2_PFnn_HIS_DYN_UNIT
PARMGEN classification
  NTH

KD2_PFnn_HIS_DYN_VOLUME:

Volser DYNAMIC

Description
  Specify the volume serial numbers for the allocation of the historical sequential datasets. If the historical sequential datasets are not to be SMS-managed, then this is a required entry. If your installation does not use the volume serial number, you can leave this field blank.

Required or optional
  Optional
Default value
  %RTE_SMS_VSAM_VOLUME%
Location where the parameter value is stored
  In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library
Output line
  VOLSER(<value>)

In the Configuration Tool (ICAT)

Panel name
  Near-Term History
Panel ID
  KD261PZ2
Panel field
  Volser
Default value
  &RTEVV
Batch parameter name
  KD2_PF_HIS_DYN_VOL
PARMGEN name
  KD2_PFnn_HIS_DYN_VOLUME
PARMGEN classification
  NTH

KD2_PFnn_HIS_GDG_DSNAME:

Dataset name GDG

Description
Specify the name for the base dataset of the Generation Data Group GDG. For the GDG type, the dataset name can have a maximum of 35 characters. And the storage mechanism is GDG.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to G)

**Default value**
None

**Locations where the parameter value is stored**

**Location 1**
In the ALLOCDS member of the rhilev.midlev.rabbitname.RKD2SAM library

**Output line**
(NAME ('<value>') -

**Location 2**
In the ALLOCDS member of the rhilev.midlev.rabbitname.RKD2SAM library

**Output line**
ENTRIES(''<value>'') -

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261PZ3

**Panel field**
Dataset name

**Default value**
None

**Batch parameter name**
KD2_PF_HIS_GDG_DSNAME

**PARMGEN name**
KD2_PFnn_HIS_GDG_DSNAME

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_GDG_LIM:**
The KD2_PFnn_HIS_GDG_LIM parameter specifies the number of GDG generations to be used for this GDG.

**Valid values**
Any number in the range 1-255.
This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, or SEQTHVSAM and the storage mechanism is GDG.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to G)
Default value
7

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME
%.RKD2SAM library

Output line
LIMIT(<value>))

Location 2
In the HCRVssid member of the %RTE_HILEV%.%RTE_NAME
%.RKD2SAM library

Output line
LIMIT(<value>))

PARMGEN name
KD2_PFnn_HIS_GDG_LIM

PARMGEN classification
NTH

KD2_PFnn_HIS_GDG_MCLAS:

Management class GDG

Description
If the historical sequential datasets are SMS-managed, then specify the SMS
management class to be used on the allocation. If your installation does not
use the SMS MGMTCLAS parameter, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_MGMTCLAS%

Location where the parameter value is stored
In the COPTssid member of the rhilev.midlev.rtypename.RKD2PAR library

Output line
MGMTCLAS(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ3

Panel field
Mgmtclas

Default value
&RTESVMGT

Batch parameter name
KD2_PF_HIS_GDG_MCLAS

PARMGEN name
KD2_PFnn_HIS_GDG_MCLAS
KD2_PF_HIS_GDG_MCLAS

PARMGEN classification
NTH

KD2_PFnn_HIS_GDG_PRIMARY:
The KD2_PFnn_HIS_GDG_PRIMARY parameter specifies the primary space allocation used for the GDG.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to G)
This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, or SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Default value
10

Valid values
Any number in the range 3-9999

Location where the parameter value is stored
In the COPTissid member of the \%RTE_HILEV\.\%RTE_NAME\.RKD2PAR library

Output line
SPACE(CYL,<value>,<KD2_PFnn_HIS_GDG_SECONDARY>)

PARMGEN name
KD2_PFnn_HIS_GDG_PRIMARY

PARMGEN classification
NTH

KD2_PFnn_HIS_GDG_SCLAS:
Storage class GDG

Description
If the historical sequential datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_STORCLAS%

Location where the parameter value is stored
In the COPTissid member of the rhilev.milev.rtename.RKD2PAR library

Output line
STORCLAS(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ3
Panel field
  Storclas

Default value
  &RTEVSTOR

Batch parameter name
  KD2_PF_HIS_GDG_SCLAS

PARMGEN name
  KD2_PFnn_HIS_GDG_SCLAS

PARMGEN classification
  NTH

**KD2_PFnn_HIS_GDG_SECONDARY:**

The KD2_PFnn_HIS_GDG_SECONDARY parameter specifies the secondary space allocation used for the GDG.

**Default value**

- 2 cylinders

  This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

**Required or optional**

- Optional (Required in case KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to G)

**Valid values**

- Any number in the range 0-9999

**Location where the parameter value is stored**

- In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

**Output line**

```
SPACE(CYL,<KD2_PFnn_HIS_GDG_PRIMARY>,<value>)
```

**PARMGEN name**

- KD2_PFnn_HIS_GDG_SECONDARY

**PARMGEN classification**

- NTH

**KD2_PFnn_HIS_GDG_UNIT:**

**Unit GDG**

**Description**

Specify the unit name for the allocation of the historical sequential datasets. If the historical sequential datasets are not SMS-managed then this is a required entry. If your installation does not use the unit name, you can leave this field blank.

**Required or optional**

- Optional

**Default value**

- %RTE_SMS_UNIT%
Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the `rhilev.midlev.rename.RKD2SAM` library

Output line
UNIT(<value>)

Location 2
In the COPTssid member of the `rhilev.midlev.rename.RKD2PAR` library

Output line
UNIT(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ3

Panel field
Unit

Default value
&RTEU

Batch parameter name
KD2_PF_HIS_GDG_UNIT

PARMGEN name
KD2_PFnn_HIS_GDG_UNIT

PARMGEN classification
NTH

KD2_PFnn_HIS_GDG_VOLUME:

Volser GDG

Description
Specify the volume serial numbers for the allocation of the historical sequential datasets. If the historical sequential datasets are not to be SMS-managed, then this is a required entry. If your installation does not use the volume serial number, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_VOLUME%

Location where the parameter value is stored
In the ALLOCDS member of the `rhilev.midlev.rename.RKD2SAM` library

Output line
VOLUME(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History
Panel ID
KD261PZ3

Panel field
Volser

Default value
&RTEVV

Batch parameter name
KD2_PF_HIS_GDG_VOL

PARMGEN name
KD2_PFnn_HIS_GDG_VOLUME

PARMGEN classification
NTH

KD2_PFnn_HIS_IFIREAD:

IFI trace read frequency

Description
Specifies the IFI trace record read time in "mmsstth" format where "mmsstth" is minutes, seconds, tenths and hundredths of seconds. This parameter controls the frequency with which the Near-Term History Data Collector reads the new IFI trace records into the collection buffer.

You can increase the frequency by decreasing the interval, however, CPU utilization will increase. The default is 010000 which is 1 minute.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
010000

Minimum
000100

Maximum
010000

Location where the parameter value is stored
In the COPTissid member of the rhilev.midlev.ritename.RKD2PAR library

Output line
IFIREADTIME(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P8

Panel field
IFI read frequency

Default value
010000

Minimum
000100
KD2_PF_HIS_IFIREAD

Maximum
010000

Batch parameter name
KD2_PF_HIS_IFIREAD

PARMGEN name
KD2_PFnn_HIS_IFIREAD

PARMGEN classification
NTH

KD2_PFnn_HIS_LOCK_CNTN:

The KD2_PFnn_HIS_LOCK_CNTN parameter specifies whether lock timeout and deadlock information is collected.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
N

Valid values
Y: Collector activates IFCIDs 172, 196, 105, and 107
N

Location where the parameter value is stored
In the COPTissid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

Output line
LOCKCONT(<value>Y)

PARMGEN name
KD2_PFnn_HIS_LOCK_CNTN

PARMGEN classification
NTH

KD2_PFnn_HIS_LOCK_SUSP:

The KD2_PFnn_HIS_LOCK_SUSP parameter specifies whether to collect lock wait information for local resources.

Description
If Y is entered, the collector activates IFCIDs 44, 45, 213, 214, 105, 107.

Required or optional
Optional (Required if KD2_PF_HIS_START is set to Y)

Default value
N

Valid values
Y, N

Location where the parameter value is stored
In the COPTissid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

Output line
LOCKSUSP(<value>Y)
PARMGEN name
KD2_PFnn_HIS_LOCK_SUSP

PARMGEN classification
NTH

KD2_PFnn_HIS_LOG1:

VSAM log dataset 1

Description
Specify a name for the VSAM log dataset to be created. Specify at least two datasets to allow for log switching. The Near-Term History Data Collector will automatically switch to a free log dataset when the current dataset is full. Near-Term History VSAM dataset names must be unique for each DB2 subsystem.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
%RTE_VSAM_HILEV%.%RTE_NAME%.%DB%.RKD2VS01

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
ENTRIES('<value>') -

Location 2
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
(NAME(<value>) -

Location 3
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
<value>

Location 4
In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
DEFINE CLUSTER( NAME(<value>) -

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
VSAM log data set name
KD2_PF_HIS_LOG1

Default value
None

Batch parameter name
KD2_PF_HIS_LOG1

PARMGEN name
KD2_PFnn_HIS_LOG1

PARMGEN classification
NTH

KD2_PFnn_HIS_LOG2:

The KD2_PFnn_HIS_LOG2 parameter specifies a name for the VSAM log data set to be created

Specify at least two data sets to allow for log switching. The Near-Term History Data Collector will automatically switch to a free log data set when the current data set is full. Near-Term History VSAM data set names must be unique for each DB2 subsystem.

Required or optional
Optional (Required if KD2_PF_HIS_START is set to Y)

Default value
%RTE_VSAM_HILEV%.%RTE_NAME%.%DB%.RKD2VS02

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME%.RKD2SAM library

Output line
ENTRIES('<value>') -

Location 2
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME%.RKD2SAM library

Output line
(NAME(<value>) -

Location 3
In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

Output line
<value>

Location 4
In the HCRVssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2SAM library

Output line
DEFINE CLUSTER( NAME(<value>) -

PARMGEN name
KD2_PFnn_HIS_LOG2

PARMGEN classification
NTH
KD2_PFnn_HIS_LOG2:

The KD2_PFnn_HIS_LOG2 parameter specifies a name for the VSAM log data set to be created.

Specify at least two data sets to allow for log switching. The Near-Term History Data Collector will automatically switch to a free log data set when the current data set is full. Near-Term History VSAM data set names must be unique for each DB2 subsystem.

**Required or optional**

Optional (Required if KD2_PF_HIS_START is set to Y)

**Default value**

%RTE_VSAM_HILEV%.%RTE_NAME%.%DB%.RKD2VS02

**Locations where the parameter value is stored**

**Location 1**

In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME%.RKD2SAM library

**Output line**

ENTRIES('<value>') -

**Location 2**

In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME%.RKD2SAM library

**Output line**

(NAME(<value>) -

**Location 3**

In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

**Output line**

<value>

**Location 4**

In the HCRVssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2SAM library

**Output line**

DEFINE CLUSTER( NAME(<value>) -

**PARMGEN name**

KD2_PFnn_HIS_LOG2

**PARMGEN classification**

NTH

KD2_PFnn_HIS_LOG3:

VSAM log dataset 3

**Description**

Specify a name for the VSAM log dataset to be created. Specify at least two datasets to allow for log switching. The Near-Term History Data Collector will automatically switch to a free log dataset when the current dataset is full. Near-Term History VSAM dataset names must be unique for each DB2 subsystem.
KD2_PF_HIS_LOG3

**Required or optional**
Optional

**Default value**
%RTE_VSAM_HILEV%.%RTE_NAME%.%DB%.RKD2VS03

**Locations where the parameter value is stored**

**Location 1**
In the ALLOCDS member of the `rhilev.midlev.rtename.RKD2SAM` library

**Output line**
(NAME(<value>) -

**Location 2**
In the ALLOCDS member of the `rhilev.midlev.rtename.RKD2SAM` library

**Output line**
ENTRIES(''<value>'') -

**Location 3**
In the COPTssid member of the `rhilev.midlev.rtename.RKD2PAR` library

**Output line**
<value>

**Location 4**
In the HCRVssid member of the `rhilev.midlev.rtename.RKD2SAM` library

**Output line**
DEFINE CLUSTER( NAME(<value>) -

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261P7

**Panel field**
VSAM log data set name

**Default value**
None

**Batch parameter name**
KD2_PF_HIS_LOG3

**PARMGEN name**
KD2_PFnn_HIS_LOG3

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_LOG4:**

**VSAM log dataset 4**

**Description**
Specify a name for the VSAM log dataset to be created. Specify at least two datasets to allow for log switching. The Near-Term History Data Collector will automatically switch to a free log dataset when the current dataset is full. Near-Term History VSAM dataset names must be unique for each DB2 subsystem.

Required or optional
Optional

Default value
%RTE_VSAM_HILEV%.%RTE_NAME%.%DB%.RKD2VS04

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rttename.RKD2SAM library

Output line
(NAME(<value>) -

Location 2
In the ALLOCDS member of the rhilev.midlev.rttename.RKD2SAM library

Output line
ENTRIES(''<value>'') -

Location 3
In the COPTssid member of the rhilev.midlev.rttename.RKD2PAR library

Output line
<value>

Location 4
In the HCRVssid member of the rhilev.midlev.rttename.RKD2SAM library

Output line
DEFINE CLUSTER( NAME(<value>) -

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
VSAM log data set name

Default value
None

Batch parameter name
KD2_PF_HIS_LOG4

PARMGEN name
KD2_PFnn_HIS_LOG4

PARMGEN classification
NTH
KD2_PF_HIS_LOG5:

VSAM log dataset 5

Description
Specify a name for the VSAM log dataset to be created. Specify at least two datasets to allow for log switching. The Near-Term History Data Collector will automatically switch to a free log dataset when the current dataset is full. Near-Term History VSAM dataset names must be unique for each DB2 subsystem.

Required or optional
Optional

Default value
%RTE_VSAM_HILEV%.%RTE_NAME%.%DB%.RKD2VS05

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
(NAME(<value>) -

Location 2
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
ENTRIES('<value>') -

Location 3
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
<value>

Location 4
In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
DEFINE CLUSTER( NAME(<value>) -

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
VSAM log data set name

Default value
None

Batch parameter name
KD2_PF_HIS_LOG5
PARMGEN name
   KD2_PFnn_HIS_LOG5

PARMGEN classification
   NTH

KD2_PFnn_HIS_LOG6:

VSAM log dataset 6

Description

Specify a name for the VSAM log dataset to be created. Specify at least two datasets to allow for log switching. The Near-Term History Data Collector will automatically switch to a free log dataset when the current dataset is full. Near-Term History VSAM dataset names must be unique for each DB2 subsystem.

Required or optional
   Optional

Default value
   %RTE_VSAM_HILEV%.%RTE_NAME%.%DB%.RKD2VS06

Locations where the parameter value is stored

Location 1
   In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library
   Output line
   (NAME(<value>) -

Location 2
   In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library
   Output line
   ENTRIES(''<value>'') -

Location 3
   In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library
   Output line
   <value>

Location 4
   In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library
   Output line
   DEFINE CLUSTER( NAME(<value>) -

In the Configuration Tool (ICAT)

Panel name
   Near-Term History

Panel ID
   KD261P7

Panel field
   VSAM log data set name
**KD2_PF_HIS_LOG6**

**Default value**
None

**Batch parameter name**
KD2_PF_HIS_LOG6

**PARMGEN name**
KD2_PFnn_HIS_LOG6

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_LOG7:**

VSAM log dataset 7

**Description**
Specify a name for the VSAM log dataset to be created. Specify at least two datasets to allow for log switching. The Near-Term History Data Collector will automatically switch to a free log dataset when the current dataset is full. Near-Term History VSAM dataset names must be unique for each DB2 subsystem.

**Required or optional**
Optional

**Default value**
%RTE_VSAM_HILEV%.%RTE_NAME%.%DB%.RKD2VS07

**Locations where the parameter value is stored**

**Location 1**
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**
(NAME(<value>) -

**Location 2**
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**
ENTRIES('<value>') -

**Location 3**
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
=value>

**Location 4**
In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**
DEFINE CLUSTER( NAME(<value>) -

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History
Panel ID
KD261P7

Panel field
VSAM log data set name

Default value
None

Batch parameter name
KD2_PF_HIS_LOG7

PARMGEN name
KD2_PFnn_HIS_LOG7

PARMGEN classification
NTH

KD2_PFnn_HIS_NEQSQL:

Negative SQL option

Description
Specifies whether or not the number of SQL calls executed by a thread which resulted in a negative return code is collected. If Y is entered, the collector activates IFCIDs 58,59,60,61,62,64,65 and 66 to the DB2 START TRACE PERFORMANCE command.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
NE6SQL(<value>Y)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PB

Panel field
Negative SQL

Default value
N

Permissible values
Y, N

Batch parameter name
KD2_PF_HIS_NEQSQL

PARMGEN name
KD2_PFnn_HIS_NEQSQL
**KD2_PF_HIS_POSTPCT**

Threshold for historical collection

**Description**

Specifies the option to tune the Near-Term History Data Collector if you often see the DSNW133I messages issued by DB2. This value is used to compute a “high water mark” or threshold for historical collection. This threshold is a percentage of the total number of bytes in the IFI buffer. When this threshold is exceeded, DB2 will post the Near-Term History Data Collector to drain the buffer. The Near-Term History Data Collector will allow any percentage value from 1-99. Start from the default value of 70 and test small increments up or down.

**Required or optional**

Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**

70

**Minimum**

1

**Maximum**

99

**Location where the parameter value is stored**

In the COPTssid member of the rhilev.midlev.rlename.RKD2PAR library

**Output line**

`POSTPCT(<value>)`

**In the Configuration Tool (ICAT)**

**Panel name**

Near-Term History

**Panel ID**

KD261P8

**Panel field**

Threshold

**Default value**

70

**Minimum**

1

**Maximum**

99

**Batch parameter name**

KD2_PF_HIS_POSTPCT

**PARMGEN name**

KD2_PFnn_HIS_POSTPCT

**PARMGEN classification**

NTH
KD2_PFnn_HIS_SCAN_SUMM:

The KD2_PFnn_HIS_SCAN_SUMM parameter specifies whether to collect scan summary data.

Description

If Y is entered, the collector activates IFCIDs 15,16,17,18.

Required or optional

Optional (Required if KD2_PF_HIS_START is set to Y)

Default value

N

Valid values

Y, N

Location where the parameter value is stored

In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

Output line

SCAN(<value>Y)

PARMGEN name

KD2_PFnn_HIS_SCAN_SUMM

PARMGEN classification

NTH

KD2_PFnn_HIS_SEQLOG1:

The KD2_PFnn_HIS_SEQLOG1 parameter specifies names for up to 7 sequential data sets that will be created for trace data collection.

Description

A minimum of 2 data sets is required. Ensure that the set of historical sequential data sets is unique for each DB2 subsystem.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, or SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Required or optional

Optional (Required if KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to S)

Default value

None

Locations where the parameter value is stored

Location 1

In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME%.RKD2SAM library

Output line

LISTCAT ENTRIES('<value>') NAME

Location 2

In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME%.RKD2SAM library
**KD2_PF_HIS_SEQLOG1**

Output line

```
ALLOC DSNAME('<value>') -
```

**PARMGEN name**

KD2_PFnn_HIS_SEQLOG1

**PARMGEN classification**

NTH

**KD2_PFnn_HIS_SEQLOG2:**

Sequential dataset 2

**Description**

Specify the name of sequential dataset 2. See KD2_PFnn_HIS_SEQLOG1 for details.

**Required or optional**

Optional (Required in case KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to S)

**Default value**

None

**Locations where the parameter value is stored**

**Location 1**

In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**

```
LISTCAT ENTRIES('<value>') NAME
```

**Location 2**

In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**

```
ALLOC DSNAME('<value>') -
```

**In the Configuration Tool (ICAT)**

**Panel name**

Near-Term History

**Panel ID**

KD261PZ1

**Panel field**

Dataset name

**Default value**

None

**Batch parameter name**

KD2_PF_HIS_SEQLOG2

**PARMGEN name**

KD2_PFnn_HIS_SEQLOG2

**PARMGEN classification**

NTH
KD2_PFnn_HIS_SEQLOG3:

Sequential dataset 3

Description
Specify the name of sequential dataset 3. See KD2_PFnn_HIS_SEQLOG1 for details.

Required or optional
Optional

Default value
None

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rttename.RKD2SAM library

Output line
LISTCAT ENTRIES('value') NAME

Location 2
In the ALLOCDS member of the rhilev.midlev.rttename.RKD2SAM library

Output line
ALLOC DSNAME('value') -

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ1

Panel field
Dataset name

Default value
None

Batch parameter name
KD2_PF_HIS_SEQLOG3

PARMGEN name
KD2_PFnn_HIS_SEQLOG3

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQLOG4:

Sequential dataset 4

Description
Specify the name of sequential dataset 4. See KD2_PFnn_HIS_SEQLOG1 for details.

Required or optional
Optional
KD2_PF_HIS_SEQLOG4

Default value
None

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
LISTCAT ENTRIES('<value>') NAME

Location 2
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
ALLOC DSNAMES('<value>') -

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ1

Panel field
Dataset name

Default value
None

Batch parameter name
KD2_PF_HIS_SEQLOG4

PARMGEN name
KD2_PFnn_HIS_SEQLOG4

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQLOG5:

Sequential dataset 5

Description
Specify the name of sequential dataset 5. See KD2_PFnn_HIS_SEQLOG1 for details.

Required or optional
Optional

Default value
None

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
LISTCAT ENTRIES('<value>') NAME
Location 2
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
ALLOC DSNAME('<value>') -

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ1

Panel field
Dataset name

Default value
None

Batch parameter name
KD2_PF_HIS_SEQLOG5

PARMGEN name
KD2_PFnn_HIS_SEQLOG5

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQLOG6:

Sequential dataset 6

Description
Specify the name of sequential dataset 6. See KD2_PFnn_HIS_SEQLOG1 for details.

Required or optional
Optional

Default value
None

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
LISTCAT ENTRIES('<value>') NAME

Location 2
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
ALLOC DSNAME('<value>') -

In the Configuration Tool (ICAT)

Panel name
Near-Term History
Panel ID
KD261PZ1

Panel field
Dataset name

Default value
None

Batch parameter name
KD2_PF_HIS_SEQLOG6

PARMGEN name
KD2_PFnn_HIS_SEQLOG6

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQLOG7:

Sequential dataset 7

Description
Specify the name of sequential dataset 7. See KD2_PFnn_HIS_SEQLOG1 for details.

Required or optional
Optional

Default value
None

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rtnamex.RKD2SAM library

Output line
LISTCAT ENTRIES(''<value>'') NAME

Location 2
In the ALLOCDS member of the rhilev.midlev.rtnamex.RKD2SAM library

Output line
ALLOC DNAME(''<value>'') -

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ1

Panel field
Dataset name

Default value
None

Batch parameter name
KD2_PF_HIS_SEQLOG7
KD2_PF_HIS_SEQLOG7

PARMGEN name
KD2_PFnn_HIS_SEQLOG7

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_ARC_DS:
The KD2_PFnn_HIS_SEQ_ARC_DS parameter specifies the name of the archive data set.

Description
If you selected GDG, specify the following parameters:
Specify the name for the base data set of the Generation Data Group GDG. For the GDG type, the data set name can have a maximum of 35 characters.
If you selected DYN, specify the following parameters:
Use the following variables to construct the sequential data set name. To ensure unique data set names, you must use at least @DB2, @DATE and @TIME:
@DB2 Inserts the DB2 subsystem ID of the data being collected into the name of the data set.
@DATE Inserts the date of the first record in the data set into the name of the data set.
@TIME Inserts the time of the first record in the data set into the name of the data set.
This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to S)

Default value
None

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %.RKD2SAM library
Output line
(NAME ('<value>') -

Location 2
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %.RKD2SAM library
Output line
ENTRIES('<value>') -

PARMGEN name
KD2_PFnn_HIS_SEQ_ARC_DS
KD2_PF_HIS_SEQ_ARC_DS

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_ARC_GDGLIM:

GDG Limit for the archive dataset

Description
Specify the number of GDG generations to be used for this GDG. You can specify 1 to 255.
This field is only applicable if you specified GDG as the storage mechanism to be used for archiving.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to S and KD2_PF_HIS_SEQ_ARC_TYP is set to GDG)

Default value
7

Minimum
1

Maximum
255

Location where the parameter value is stored
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
LIMIT(<value>))

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZA

Panel field
Limit for GDG data sets

Default value
7

Minimum
1

Maximum
255

Batch parameter name
KD2_PF_HIS_SEQ_ARC_GDGLIM

PARMGEN name
KD2_PFnn_HIS_SEQ_ARC_GDGLIM

PARMGEN classification
NTH
KD2_PFnn_HIS_SEQ_ARC_MCLAS:

The KD2_PFnn_HIS_SEQ_ARC_MCLAS parameter specifies the management class for archive data sets.

Description

If the data set is SMS-managed, specify the SMS management class to use on the allocation. If your installation does not use the SMS MGMTCLAS parameter, you can leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, or SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Required or optional
Optional

Default value
%RTE_SMS_MGMTCLAS%

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %.R KD2SAM library

Output line
MGMTCLAS(<value>)

Location 2
In the HCRVssid member of the %RTE_HILEV%.%RTE_NAME %.R KD2SAM library

Output line
MGMTCLAS(<value>)

PARMGEN name
KD2_PFnn_HIS_SEQ_ARC_MCLAS

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_ARC_SCLAS:

Storage class for the archive datsets

Description

If the dataset is SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Required or optional
Optional

Default value
%RTE_SMS_STORCLAS%

Locations where the parameter value is stored
KD2_PF_HIS_SEQ_ARC_SCLAS

Location 1
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %RKD2SAM library

Output line
STORCLAS(<value>)

Location 2
In the HCRVssid member of the %RTE_HILEV%.%RTE_NAME %RKD2SAM library

Output line
STORCLAS(<value>)

PARMGEN name
KD2_PFnn_HIS_SEQ_ARC_SCLAS

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_ARC_TYP:
The KD2_PFnn_HIS_SEQ_ARC_TYP parameter specifies the storage mechanism for archive data sets.

Description
You configured the Near-Term History Data Collector to store the trace data to VSAM data sets and sequential data sets VSAMSEQ, VSAMSEQTHVSAM, or SEQTHVSAM and you specified the storage mechanism.

On this panel you can specify the information used to create the archive data sets that are generated by the Near-Term History Data Collector. There are two choices:

GDG Generation Data Group

DYN the Near-Term History Data Collector always allocates a new data set when the currently used data set is full.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to S)

Default value
GDG

Permissible values
GDG, DYN

Location where the parameter value is stored
This value is not stored in a configuration member.

PARMGEN name
KD2_PFnn_HIS_SEQ_ARC_TYP

PARMGEN classification
NTH
KD2_PFnn_HIS_SEQ_ARC_UNIT:
The KD2_PFnn_HIS_SEQ_ARC_UNIT parameter specifies the unit for the archive data sets.

Description
Specify the unit name for the allocation of the data set. If the data set is not SMS-managed, this parameter is required. If your installation does not use unit name, leave this field blank.

Required or optional
Optional
This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Default value
%RTE_SMS_UNIT%

Locations where the parameter value is stored
Location 1
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %.RKD2SAM library
Output line
UNIT(<value>)

Location 2
In the HCRVssid member of the %RTE_HILEV%.%RTE_NAME %.RKD2SAM library
Output line
UNIT(<value>)

PARMGEN name
KD2_PFnn_HIS_SEQ_ARC_UNIT

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_ARC_VOLUME:
The KD2_PFnn_HIS_SEQ_ARC_VOLUME parameter specifies the volume serial (volser) range for the archive data sets.

Description
If the data set is not to be SMS-managed, this is required. If your installation does not use volume serial number, leave this field blank.

Required or optional
Optional
This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, or SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Default value
%RTE_SMS_VOLUME%

Locations where the parameter value is stored
The KD2_PFnn_HIS_SEQ_MCLAS1 parameter specifies the SMS management class for sequential data set 1.

**Description**

If the historical sequential data sets are SMS-managed, then specify the SMS management class to use on the allocation. If your installation does not use the SMS MGMTCLAS parameter, leave this field blank.

**Required or optional**

Optional

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

**Default value**

%RTE_SMS_MGMTCLAS%

**Location where the parameter value is stored**

In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %RKD2SAM library

**Output line**

MGMTCLAS(<value>) +

The KD2_PFnn_HIS_SEQ_MCLAS2 parameter specifies the SMS management class for sequential data set 2.

**Description**

If the historical sequential data sets are SMS-managed, then specify the SMS management class to use on the allocation. If your installation does not use the SMS MGMTCLAS parameter, leave this field blank.
KD2_PF_HIS_SEQ_MCLAS2

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, or SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

**Required or optional**

Optional

**Default value**

%RTE_SMS_MGMTCLAS%

**Location where the parameter value is stored**

In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %RKD2SAM library

**Output line**

MGMTCLAS(<value>) +

**PARMGEN name**

KD2_PFnn_HIS_SEQ_MCLAS2

**PARMGEN classification**

NTH

KD2_PFnn_HIS_SEQ_MCLAS3:

The KD2_PFnn_HIS_SEQ_MCLAS3 parameter specifies the SMS management class for sequential data set 3.

**Description**

If the historical sequential data sets are SMS-managed, then specify the SMS management class to use on the allocation. If your installation does not use the SMS MGMTCLAS parameter, leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

**Required or optional**

Optional

**Default value**

%RTE_SMS_MGMTCLAS%

**Location where the parameter value is stored**

In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %RKD2SAM library

**Output line**

MGMTCLAS(<value>) +

**PARMGEN name**

KD2_PFnn_HIS_SEQ_MCLAS3

**PARMGEN classification**

NTH

KD2_PFnn_HIS_SEQ_MCLAS4:

The KD2_PFnn_HIS_SEQ_MCLAS4 parameter specifies the management class for sequential data set 4.

**Description**
If the historical sequential data sets are SMS-managed, specify the SMS management class to use on the allocation. If your installation does not use the SMS MGMTCLAS parameter, leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

**KD2_PF_HIS_SEQ_MCLAS4**

Required or optional
Optional

Default value
%RTE_SMS_MGMTCLAS%

Location where the parameter value is stored
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %RKD2SAM library

Output line
MGMTCLAS(<value>) +

**PARMGEN name**
KD2_PFnn_HIS_SEQ_MCLAS4

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_SEQ_MCLAS5**:

The KD2_PFnn_HIS_SEQ_MCLAS5 parameter specifies the management class for sequential data set 5.

**Description**

If the historical sequential data sets are SMS-managed, specify the SMS management class to use on the allocation. If your installation does not use the SMS MGMTCLAS parameter, leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Required or optional
Optional

Default value
%RTE_SMS_MGMTCLAS%

Location where the parameter value is stored
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %RKD2SAM library

Output line
MGMTCLAS(<value>) +

**PARMGEN name**
KD2_PFnn_HIS_SEQ_MCLAS5

**PARMGEN classification**
NTH
KD2_PFnn_HIS_SEQ_MCLAS6:

The KD2_PFnn_HIS_SEQ_MCLAS6 parameter specifies the management class for sequential data set 6.

Description

If the historical sequential data sets are SMS-managed, specify the SMS management class to use on the allocation. If your installation does not use the SMS MGMTCLAS parameter, leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Required or optional
Optional

Default value
%RTE_SMS_MGMTCLAS%

Location where the parameter value is stored
In the ALLOCDS member of the %RTE_HILEV%,%RTE_NAME,%RKD2SAM library

Output line
MGMTCLAS(<value>) +

PARMGEN name
KD2_PFnn_HIS_SEQ_MCLAS6

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_MCLAS7:

Mgmt Class for sequential dataset 7

Description

If the historical sequential datasets are SMS-managed, then specify the SMS management class to be used on the allocation. If your installation does not use the SMS MGMTCLAS parameter, you can leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Required or optional
Optional

Default value
%RTE_SMS_MGMTCLAS%

Location where the parameter value is stored
In the ALLOCDS member of the %RTE_HILEV%,%RTE_NAME,%RKD2SAM library

Output line
MGMTCLAS(<value>) +

PARMGEN name
KD2_PFnn_HIS_SEQ_MCLAS7
PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_PRIMARY_CYL:
Primary space for sequential datasets

Description
Specify the primary space allocation used for the sequential datasets. The default is 10 cylinders.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to S)

Default value
10

Minimum
3

Maximum
9999

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %RKD2SAM library

Output line
DSORG(PS) SPACE(<value>,<KD2_PFnn_HIS_SEQ_SECONDARY_CYL>) CYLINDERS

Location 2
In the COPTSSID member of the %RTE_HILEV%.%RTE_NAME %RKD2PAR library

Output line
SPACE(CYL,<value>,<KD2_PFnn_HIS_SEQ_SECONDARY_CYL>)

PARMGEN name
KD2_PFnn_HIS_SEQ_PRIMARY_CYL

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_SCLAS1:
Storage class for sequential dataset 1

Description
If the historical sequential datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.
Required or optional
Optional

Default value
%RTE_SMS_STORCLAS%

Location where the parameter value is stored
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME
%RTE_SMS_STORCLAS% library

Output line
STORCLAS(<value>) +

PARMGEN name
KD2_PFnn_HIS_SEQ_SCLAS1

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_SCLAS2:

Storage class for sequential dataset 2

Description
If the historical sequential datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Required or optional
Optional

Default value
%RTE_SMS_STORCLAS%

Location where the parameter value is stored
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME
%RTE_SMS_STORCLAS% library

Output line
STORCLAS(<value>) +

PARMGEN name
KD2_PFnn_HIS_SEQ_SCLAS2

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_SCLAS3:

Storage class for sequential dataset 3

Description
If the historical sequential datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.
KD2_PF_HIS_SEQ_SCLAS3

Required or optional
Optional

Default value
%RTE_SMS_STORCLAS%

Location where the parameter value is stored
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %RTE_RK2SAM library

Output line
STORCLAS(<value>) +

PARMGEN name
KD2_PFnn_HIS_SEQ_SCLAS3

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_SCLAS4:

Storage class for sequential dataset 4

Description
If the historical sequential datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Required or optional
Optional

Default value
%RTE_SMS_STORCLAS%

Location where the parameter value is stored
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %RTE_RK2SAM library

Output line
STORCLAS(<value>) +

PARMGEN name
KD2_PFnn_HIS_SEQ_SCLAS4

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_SCLAS5:

Storage class for sequential dataset 5

Description
If the historical sequential datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.
Required or optional
Optional

Default value
%RTE_SMS_STORCLAS%

Location where the parameter value is stored
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME
%.RKD2SAM library

Output line
STORCLAS(<value>) +

PARMGEN name
KD2_PFnn_HIS_SEQ_SCLAS5

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_SCLAS6:

Storage class for sequential dataset 6

Description
If the historical sequential datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

Required or optional
Optional

Default value
%RTE_SMS_STORCLAS%

Location where the parameter value is stored
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME
%.RKD2SAM library

Output line
STORCLAS(<value>) +

PARMGEN name
KD2_PFnn_HIS_SEQ_SCLAS6

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_SCLAS7:

The KD2_PFnn_HIS_SEQ_SCLAS7 parameter specifies the storage class for sequential dataset 7

Description
If the historical sequential datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.
KD2_PF_HIS_SEQ_SCLAS7

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

**Required or optional**
Optional

**Default value**
%RTE_SMS_STORCLAS%

**Location where the parameter value is stored**
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %.RKD2SAM library

**Output line**
STORCLAS(<value>) +

**PARMGEN name**
KD2_PFnn_HIS_SEQ_SCLAS7

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_SEQ_SECONDARY_CYL:**
Secondary space for sequential datasets

**Description**
Specify the secondary space allocation used for the sequential datasets. The default is 2 cylinders.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to C,Y and KD2_PF_HIS_SEQ_TYP is set to S)

**Default value**
2

**Minimum**
0

**Maximum**
9999

**Locations where the parameter value is stored**

**Location 1**
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %.RKD2SAM library

**Output line**
DSORG(PS) SPACE(<KD2_PFnn_HIS_SEQ_PRIMARY_CYL>,<value>) CYLINDERS

**Location 2**
In the COPTssid member of the %RTE_HILEV%.%RTE_NAME %.RKD2PAR library

**Output line**
SPACE(CYL,<KD2_PFnn_HIS_SEQ_PRIMARY_CYL>,<value>)
Storage mechanism

Description
If you specified VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM you can choose one of the following 3 alternatives to store trace data in sequential files:

**Static sequential S**
You may specify 2 to 7 sequential datasets for trace data collection. When the first dataset is full the Near-Term History Data Collector switches to the next available dataset. When the last available dataset in the sequence is full, the Near-Term History Data Collector switches to the first dataset in the sequence again and overwrites the data in the first dataset. Each time the Near-Term History Data Collector switches to a full sequential dataset to overwrite it, you can archive its content to additional sequential datasets.

**Dynamic sequential D**
The Near-Term History Data Collector always allocates a new dataset when the currently used dataset becomes full. As a result, the collected data is not overwritten.

**GDG G**
In this case a Generation Data Group GDG is used. The mechanism is similar to the one described for the storage type Static sequential. When all datasets are full the Near-Term History Data Collector overwrites the trace data in the first dataset. However, in a GDG, the z/OS, not the Near-Term History Data Collector, switches between the different datasets generations. For this alternative archiving is not supported.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to C, Y and KD2_PF_HIS_STORE is set to VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM)

**Default value**
S

**Permissible values**
S, D, G

**Location where the parameter value is stored**
This value is not stored in a configuration member.
KD2_PF_HIS_SEQ_UNIT1

KD2_PFnn_HIS_SEQ_UNIT1:

Unit for sequential dataset 1

Description
Specify the unit name for the allocation of the historical sequential datasets. If the historical sequential datasets are not SMS-managed then this is a required entry. If your installation does not use the unit name, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_UNIT%

Location where the parameter value is stored
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
UNIT(<value>) +

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ1

Panel field
Unit

Default value
&RTEU

Batch parameter name
KD2_PF_HIS_SEQ_UNIT1

PARMGEN name
KD2_PFnn_HIS_SEQ_UNIT1

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_UNIT2:

Unit for sequential dataset 2

Description
Specify the unit name for the allocation of the historical sequential datasets. See KD2_PFnn_HIS_SEQ_UNIT1 for details.

Required or optional
Optional

Default value
%RTE_SMS_UNIT%

Location where the parameter value is stored
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
UNIT(<value>) +
In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ1

Panel field
Unit

Default value
&RTEU

Batch parameter name
KD2_PF_HIS_SEQ_UNIT2

PARMGEN name
KD2_PFnn_HIS_SEQ_UNIT2

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_UNIT3:
Unit for sequential dataset 3

Description
Specify the unit name for the allocation of the historical sequential datasets. See KD2_PFnn_HIS_SEQ_UNIT1 for details.

Required or optional
Optional

Default value
%RTE_SMS_UNIT%

Location where the parameter value is stored
In the ALLOCDS member of the rhlev,midlev,rtename.RKD2SAM library

Output line
UNIT(<value>) +

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ1

Panel field
Unit

Default value
&RTEU

Batch parameter name
KD2_PF_HIS_SEQ_UNIT3

PARMGEN name
KD2_PFnn_HIS_SEQ_UNIT3

PARMGEN classification
NTH
KD2_PF_HIS_SEQ_UNIT4

KD2_PFnn_HIS_SEQ_UNIT4:

Unit for sequential dataset 4

Description
Specify the unit name for the allocation of the historical sequential datasets. See KD2_PFnn_HIS_SEQ_UNIT1 for details.

Required or optional
Optional

Default value
%RTE_SMS_UNIT%

Location where the parameter value is stored
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
UNIT(<value>) +

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ1

Panel field
Unit

Default value
&RTEU

Batch parameter name
KD2_PF_HIS_SEQ_UNIT4

PARMGEN name
KD2_PFnn_HIS_SEQ_UNIT4

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_UNIT5:

Unit for sequential dataset 5

Description
Specify the unit name for the allocation of the historical sequential datasets. See KD2_PFnn_HIS_SEQ_UNIT1 for details.

Required or optional
Optional

Default value
%RTE_SMS_UNIT%

Location where the parameter value is stored
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
UNIT(<value>) +

In the Configuration Tool (ICAT)
Panel name
   Near-Term History

Panel ID
   KD261PZ1

Panel field
   Unit

Default value
   &RTEU

Batch parameter name
   KD2_PF_HIS_SEQ_UNIT5

PARMGEN name
   KD2_PFnn_HIS_SEQ_UNIT5

PARMGEN classification
   NTH

KD2_PFnn_HIS_SEQ_UNIT6:

Unit for sequential dataset 6

Description
   Specify the unit name for the allocation of the historical sequential datasets. See KD2_PFnn_HIS_SEQ_UNIT1 for details.

Required or optional
   Optional

Default value
   %RTE_SMS_UNIT%

Location where the parameter value is stored
   In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
   UNIT(<value>) +

In the Configuration Tool (ICAT)

Panel name
   Near-Term History

Panel ID
   KD261PZ1

Panel field
   Unit

Default value
   &RTEU

Batch parameter name
   KD2_PF_HIS_SEQ_UNIT6

PARMGEN name
   KD2_PFnn_HIS_SEQ_UNIT6

PARMGEN classification
   NTH
**KD2_PF_HIS_SEQ_UNIT7**

**KD2_PFnn_HIS_SEQ_UNIT7:**

Unit for sequential dataset 7

**Description**

Specify the unit name for the allocation of the historical sequential datasets. See KD2_PFnn_HIS_SEQ_UNIT1 for details.

**Required or optional**

Optional

**Default value**

%RTE_SMS_UNIT%

**Location where the parameter value is stored**

In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**

UNIT(<value>) +

**In the Configuration Tool (ICAT)**

**Panel name**

Near-Term History

**Panel ID**

KD261PZ1

**Panel field**

Unit

**Default value**

&RTEU

**Batch parameter name**

KD2_PF_HIS_SEQ_UNIT7

**PARMGEN name**

KD2_PFnn_HIS_SEQ_UNIT7

**PARMGEN classification**

NTH

**KD2_PFnn_HIS_SEQ_VOLUME1:**

Volser for sequential dataset 1

**Description**

Specify the volume serial number for the allocation of the historical sequential dataset. If the historical sequential datasets are not to be SMS-managed, then this is a required entry. If your installation does not use the volume serial number, you can leave this field blank.

This field is only applicable if the storage type is VSAMSEQ, VSAMSEQTHVSAM, SEQTHVSAM and the storage mechanism is STATIC SEQUENTIAL.

**Required or optional**

Optional

**Default value**

%RTE_SMS_VOLUME%
Location where the parameter value is stored
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME
%RTE_SMS_VOLUME%.

Output line
VOLUME(<value>) +

PARMGEN name
KD2_PFnn_HIS_SEQ_VOLUME1

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_VOLUME2:
Volser for sequential dataset 2

Description
Specify the volume serial number for the allocation of the historical sequential dataset. See KD2PF_HIS_SEQ_VOL1 for details.

Required or optional
Optional

Default value
%RTE_SMS_VOLUME%

Location where the parameter value is stored
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME
%RTE_SMS_VOLUME%.

Output line
VOLUME(<value>) +

In the Configuration Tool (ICAT)
Panel name
Near-Term History

Panel ID
KD261PZ1

Panel field
Volser

Default value
&RTENV

Batch parameter name
KD2_PF_HIS_SEQ_VOL2

PARMGEN name
KD2_PFnn_HIS_SEQ_VOLUME2

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_VOLUME3:
Volser for sequential dataset 3

Description
Specify the volume serial number for the allocation of the historical sequential dataset. See KD2PF_HIS_SEQ_VOL1 for details.
**KD2_PF_HIS_SEQ_VOLUME3**

**Required or optional**
Optional

**Default value**
%RTE_SMS_VOLUME%

**Location where the parameter value is stored**
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**
VOLUME(<value>) +

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261PZ1

**Panel field**
Volser

**Default value**
&RTEV

**Batch parameter name**
KD2_PF_HIS_SEQ_VOL3

**PARMGEN name**
KD2_PFnn_HIS_SEQ_VOLUME3

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_SEQ_VOLUME4:**
Volser for sequential dataset 4

**Description**
Specify the volume serial number for the allocation of the historical sequential dataset. See KD2PF_HIS_SEQ_VOL1 for details.

**Required or optional**
Optional

**Default value**
%RTE_SMS_VOLUME%

**Location where the parameter value is stored**
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**
VOLUME(<value>) +

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261PZ1

**Panel field**
Volser
Default value
&RTEV

Batch parameter name
KD2_PF_HIS_SEQ_VOL4

PARMGEN name
KD2_PFnn_HIS_SEQ_VOLUME4

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_VOLUME5:

Volser for sequential dataset 5

Description
Specify the volume serial number for the allocation of the historical sequential dataset. See KD2PF_HIS_SEQ_VOL1 for details.

Required or optional
Optional

Default value
%RTE_SMS_VOLUME%

Location where the parameter value is stored
In the ALLOCDS member of the rhilev,midlev,rtename.RKD2SAM library

Output line
VOLUME(<value>) +

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261PZ1

Panel field
Volser

Default value
&RTEV

Batch parameter name
KD2_PF_HIS_SEQ_VOL5

PARMGEN name
KD2_PFnn_HIS_SEQ_VOLUME5

PARMGEN classification
NTH

KD2_PFnn_HIS_SEQ_VOLUME6:

Volser for sequential dataset 6

Description
Specify the volume serial number for the allocation of the historical sequential dataset. See KD2PF_HIS_SEQ_VOL1 for details.
**KD2_PF_HIS_SEQ_VOLUME6**

**Required or optional**
Optional

**Default value**
%RTE_SMS_VOLUME%

**Location where the parameter value is stored**
In the ALLOCDS member of the rhldev.midlev.rtname.RKD2SAM library

**Output line**
VOLUME(<value>) +

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261PZ1

**Panel field**
Volser

**Default value**
&RTEV

**Batch parameter name**
KD2_PF_HIS_SEQ_VOL6

**PARMGEN name**
KD2_PFnn_HIS_SEQ_VOLUME6

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_SEQ_VOLUME7:**

**Volser for sequential dataset 7**

**Description**
Specify the volume serial number for the allocation of the historical sequential dataset. See KD2PF_HIS_SEQ_VOL1 for details.

**Required or optional**
Optional

**Default value**
%RTE_SMS_VOLUME%

**Location where the parameter value is stored**
In the ALLOCDS member of the rhldev.midlev.rtname.RKD2SAM library

**Output line**
VOLUME(<value>) +

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261PZ1

**Panel field**
Volser
Default value
&RTEV

Batch parameter name
KD2_PF_HIS_SEQ_VOL7

PARMGEN name
KD2_PFnn_HIS_SEQ_VOLUME7

PARMGEN classification
NTH

KD2_PFnn_HIS_SORT_SUMM:

Collect sort summary data

Description
This specifies whether sort data is collected.
If Y is entered, the collector activates IFCIDs 95 and 96.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

Output line
SORT(<value>Y)

PARMGEN name
KD2_PFnn_HIS_SORT_SUMM

PARMGEN classification
NTH

KD2_PFnn_HIS_START:

Start Near-Term History

Description
Controls whether Near-Term History is to be configured and automatically started at Server startup.

Y Configure and autostart Near-Term History.
C Configure, but do not autostart Near-Term History. All required configuration members are generated and datasets are allocated. Near-Term History can be started via operator commands later. See Configuration and Customization Guide.
N Near-Term History is not configured and as result cannot bestarted via operator command.

Required or optional
Required
**KD2_PF_HIS_SEQ_VOLUME7**

**Default value**

N

**Permissible values**

Y, N, C

**Location where the parameter value is stored**

This value is not stored in a configuration member.

**In the Configuration Tool (ICAT)**

**Panel name**

Near-Term History

**Panel ID**

KD261PX

**Panel field**

Start Near-Term History

**Default value**

N

**Permissible values**

Y, N, C

**Batch parameter name**

KD2_PF_HIS_START

**PARMGEN name**

KD2_PFnn_HIS_START

**PARMGEN classification**

NTH

**KD2_PFnn_HIS_STORE:**

**Storage type**

**Description**

The data collected by Near-Term History is stored in VSAM datasets. If you want to make the data available for long-term history analysis with the Batch Reporter component, it has to be stored in sequential files in addition to VSAM datasets. If you want to collect Thread history data for Enhanced 3270UI, THVSAM should be specified. Specify one of the following values for storage type:

**VSAM**

Store the data to VSAM datasets for OMEGAMON DB2 Classic near-term-history (NTH) support.

**VSAMSEQ**

Store the data to VSAM datasets and sequential files for OMEGAMON DB2 Classic NTH support.

**THVSAM**

Store the data to VSAM datasets for Enhanced 3270UI Thread history support.

**VSAMSEQTHVSAM**

Store the data to VSAM datasets, sequential files for OMEGAMON DB2 Classic NTH support and VSAM datasets for Enhanced 3270UI Thread history support.
SEQTHVSAM
Store the data to sequential files for OMEGAMON DB2 Classic NTH support and VSAM datasets for Enhanced 3270UI Thread history support.

VSAMTHVSAM
Store the data to VSAM datasets for OMEGAMON DB2 Classic NTH support and VSAM datasets for Enhanced 3270UI Thread history support.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
VSAM

Permissible values
VSAM, VSAMSEQ, THVSAM, VSAMSEQTHVSAM, SEQTHVSAM, VSAMTHVSAM

Location where the parameter value is stored
In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

Output line
WRITEOPTION(<value>)

PARMGEN name
KD2_PFnn_HIS_STORE

PARMGEN classification
NTH

KD2_PFnn_HIS_SUBINT:

Collection sub-interval

Description
Specifies the number of minutes or seconds to be used as the smallest time grouping for display of historical thread accounting data. The sub-interval should be specified as a period of time for convenient display of the threads executed. The more threads are executed per minute the smaller the sub-interval that you may want to specify.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
5

Minimum
1

Maximum
60

Locations where the parameter value is stored

Location 1
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
NTAINTERVAL(<value>.S)
In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P8

Panel field
Collection sub-interval

Default value
5

Minimum
1

Maximum
60

Batch parameter name
KD2_PF_HIS_SUBINT

PARMGEN name
KD2_PFnn_HIS_SUBINT

PARMGEN classification
NTH

KD2_PFnn_HIS_SUBINT_UNIT:

Collection sub-interval time unit

Description
Specifies the collection sub-interval time unit to be used to display the historical thread accounting data. Specify M for minutes or S for seconds.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
M

Permissible values
M, S

Location where the parameter value is stored
This value is not stored in a configuration member.

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P8

Panel field
Collection sub-interval unit
Suspend data collection

Description

Specifies the option that controls memory usage by the Near-Term History Data Collector during times when no VSAM dataset is available. A VSAM file is considered unavailable from the time all allocated file space is used until the end of a successful flush job execution. The 'Y' option causes the collector to discard the collected trace data until a VSAM file becomes available for use. The 'N' option causes the Near-Term History Data Collector to accumulate trace data to memory until a VSAM file becomes available for use.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
Y

Permissible values
Y, N

Location where the parameter value is stored
In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
SUSPCOLL(<value>Y)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P8

Panel field
Suspend data collection

Default value
Y

Permissible values
Y, N
KD2_PF_HIS_SEQ_VOLUME7

**PARMGEN name**
KD2_PFnn_HIS_SUSPCOLL

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_VSAM_MB:**

Primary space for the VSAM log data sets.

**Description**

Specify the primary space allocation used for the VSAM log data sets. Please refer to the Configuration and Customization Guide for information about VSAM data set space requirements.

This parameter depends on the unit for the primary log space set in KD2_PFnn_HIS_VSAM_SU.

<table>
<thead>
<tr>
<th>CYLS</th>
<th>Specify the primary space for the VSAM log data sets in cylinders. The minimum is 3 and the maximum is 9999 cylinders.</th>
</tr>
</thead>
</table>

**Note:** Depending on the disk device type, the maximum number of cylinders might need to be lower than 9999 to avoid exceeding the 2048 megabyte limit. For example, on a 3390 device, the limit of 2048 megabytes is reached with about 2600 cylinders.

| MB | Specify the primary space for the VSAM log data sets in megabytes. The minimum is 1 and the maximum is 2048 megabytes. |

**Required or optional**

Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**

900

**Minimum**

1

**Maximum**

9999

**Locations where the parameter value is stored**

**Location 1**

In the ALLOCDS member of the %RTE_HILEV%.*RTE_NAME %RKD2SAM library.

**Note:** Also used in the standalone version of the thread history allocation jobs (TCRV&dbid thread history to allocate the %KD2_OMPE_VSAM_DSHLQ%.*DB%.*RKTH* VSAMs for thread history), and HCRV&dbid Classic near-term history VSAMs %KD2_PF_HIS_LOGn%, which is the RKD2VSnn VSAMs for near-term history in the Classic interface.

**Output line**

CYLINDERS(<value> 0) -

**Location 2**

In the ALLOCDS member of the %RTE_HILEV%.*RTE_NAME %RKD2SAM library
Output line
MEGABYTES(<value> 0) -

Location 3
In the HCRVssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2SAM library

Output line
<KD2_PFnn_HIS_VSAM_SU>(<value> 0) -

PARMGEN name
KD2_PFnn_HIS_VSAM_MB

PARMGEN classification
NTH

KD2_PFnn_HIS_VSAM_MCLAS1:
Management class for VSAM dataset 1

Description
If the VSAM datasets are SMS-managed, then specify the SMS Management class to be used on the allocation. If your installation does not use the SMS MGMTCLAS parameter, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_MGMTCLAS%

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
MGMTCLAS(<value>)

Location 2
In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
MGMTCLAS(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
Mgmtclas

Default value
&RTESVMGT

Batch parameter name
KD2_PF_HIS_VSAM_MCLAS1
KD2_PF_HIS_SEQ_VOLUME7

PARMGEN name
KD2_PFnn_HIS_VSAM_MCLAS1

PARMGEN classification
NTH

KD2_PFnn_HIS_VSAM_MCLAS2:

Management class for VSAM dataset 2

Description
- If the VSAM datasets are SMS-managed, then specify the SMS Management class to be used on the allocation. If your installation does not use the SMS MGMTCLAS parameter, you can leave this field blank.

Required or optional
- Optional

Default value
- %RTE_SMS_VSAM_MGMTCLAS%

Locations where the parameter value is stored

Location 1
- In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library
  
  Output line
  - MGMTCLAS(<value>)

Location 2
- In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library
  
  Output line
  - MGMTCLAS(<value>)

In the Configuration Tool (ICAT)

Panel name
- Near-Term History

Panel ID
- KD261P7

Panel field
- Mgmtclas

Default value
- &RTESVGMGT

Batch parameter name
- KD2_PF_HIS_VSAM_MCLAS2

PARMGEN name
KD2_PFnn_HIS_VSAM_MCLAS2

PARMGEN classification
NTH

KD2_PFnn_HIS_VSAM_MCLAS3:

Management class for VSAM dataset 3

Description
If the VSAM datasets are SMS-managed, then specify the SMS Management class to be used on the allocation. If your installation does not use the SMS MGMTCLAS parameter, you can leave this field blank.

**Required or optional**
Optional

**Default value**
%RTE_SMS_VSAM_MGMTCLAS%

**Locations where the parameter value is stored**

**Location 1**
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

*Output line*
MGMTCLAS(<value>)

**Location 2**
In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

*Output line*
MGMTCLAS(<value>)

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261P7

**Panel field**
Mgmtclas

**Default value**
&RTESVMGT

**Batch parameter name**
KD2_PF_HIS_VSAM_MCLAS3

**PARMGEN name**
KD2_PFnn_HIS_VSAM_MCLAS3

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_VSAM_MCLAS4:**
Management class for VSAM dataset 4

**Description**
If the VSAM datasets are SMS-managed, then specify the SMS Management class to be used on the allocation. If your installation does not use the SMS MGMTCLAS parameter, you can leave this field blank.

**Required or optional**
Optional

**Default value**
%RTE_SMS_VSAM_MGMTCLAS%

**Locations where the parameter value is stored**
KD2_PF_HIS_SEQ_VOLUME7

Location 1
In the ALLOCDS member of the rhilev.midlev rtename.RKD2SAM library

Output line
MGMTCLAS(<value>)

Location 2
In the HCRVssid member of the rhilev.midlev rtename.RKD2SAM library

Output line
MGMTCLAS(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
Mgmtclas

Default value
&RTESVMGT

Batch parameter name
KD2_PF_HIS_VSAM_MCLAS4

PARMGEN name
KD2_PFnn_HIS_VSAM_MCLAS4

PARMGEN classification
NTH

KD2_PFnn_HIS_VSAM_MCLAS5:
Management class for VSAM dataset 5

Description
If the VSAM datasets are SMS-managed, then specify the SMS Management class to be used on the allocation. If your installation does not use the SMS MGMTCLAS parameter, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_MGMTCLAS%

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev rtename.RKD2SAM library

Output line
MGMTCLAS(<value>)

Location 2
In the HCRVssid member of the rhilev.midlev rtename.RKD2SAM library
In the Configuration Tool (ICAT)

<table>
<thead>
<tr>
<th>Panel name</th>
<th>Near-Term History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel ID</td>
<td>KD261P7</td>
</tr>
<tr>
<td>Panel field</td>
<td>Mgmtclas</td>
</tr>
<tr>
<td>Default value</td>
<td>&amp;RTESVMGT</td>
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Batch parameter name

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PARMGEN name

<table>
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<th>KD2_PFnn_HIS_VSAM_MCLAS5</th>
</tr>
</thead>
</table>

PARMGEN classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>NTH</th>
</tr>
</thead>
</table>

**KD2_PFnn_HIS_VSAM_MCLAS6:**

Management class for VSAM dataset 6

**Description**

If the VSAM datasets are SMS-managed, then specify the SMS Management class to be used on the allocation. If your installation does not use the SMS MGMTCLAS parameter, you can leave this field blank.

**Required or optional**

Optional

**Default value**

%RTE_SMS_VSAM_MGMTCLAS%

**Locations where the parameter value is stored**

Location 1

In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**

MGMTCLAS(<value>)

Location 2

In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**

MGMTCLAS(<value>)

In the Configuration Tool (ICAT)

**Panel name**

Near-Term History

**Panel ID**

KD261P7

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Chapter 3. Installing and configuring 237
KD2_PF_HIS_SEQ_VOLUME7

Panel field
  Mgmtclas

Default value
  &RTESVMGT

Batch parameter name
  KD2_PF_HIS_VSAM_MCLAS6

PARMGEN name
  KD2_PFnn_HIS_VSAM_MCLAS6

PARMGEN classification
  NTH

KD2_PFnn_HIS_VSAM_MCLAS7:

Management class for VSAM dataset 7

Description
  If the VSAM datasets are SMS-managed, then specify the SMS Management class to be used on the allocation. If your installation does not use the SMS MGMTCLAS parameter, you can leave this field blank.

Required or optional
  Optional

Default value
  %RTE_SMS_VSAM_MGMTCLAS%

Locations where the parameter value is stored

Location 1
  In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

  Output line
    MGMTCLAS(<value>)

Location 2
  In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

  Output line
    MGMTCLAS(<value>)

In the Configuration Tool (ICAT)

Panel name
  Near-Term History

Panel ID
  KD261P7

Panel field
  Mgmtclas

Default value
  &RTESVMGT

Batch parameter name
  KD2_PF_HIS_VSAM_MCLAS7

PARMGEN name
  KD2_PFnn_HIS_VSAM_MCLAS7
PARMGEN classification
NTH

KD2_PFnn_HIS_VSAM_SCLAS1:
Storage class for VSAM dataset 1

Description
If the VSAM datasets are SMS-managed, then specify the SMS storage class
to be used on the allocation. If your installation does not use the SMS
STORCLAS parameter, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_STORCLAS%

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhlev.midlev.rtename.RKD2SAM
library

Output line
STORCLAS(<value>)

Location 2
In the HCRVssid member of the rhlev.midlev.rtename.RKD2SAM
library

Output line
STORCLAS(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
Storclas

Default value
&RTEVSTOR

Batch parameter name
KD2_PF_HIS_VSAM_SCLAS1

PARMGEN name
KD2_PFnn_HIS_VSAM_SCLAS1

PARMGEN classification
NTH

KD2_PFnn_HIS_VSAM_SCLAS2:
Storage class for VSAM dataset 2

Description
If the VSAM datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can leave this field blank.

**Required or optional**
Optional

**Default value**
%RTE_SMS_VSAM_STORCLAS%

**Locations where the parameter value is stored**

**Location 1**
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**
STORCLAS(<value>)

**Location 2**
In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**
STORCLAS(<value>)

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261P7

**Panel field**
Storclas

**Default value**
&RTEVSTOR

**Batch parameter name**
KD2_PF_HIS_VSAM_SCLAS2

**PARMGEN name**
KD2_PFnn_HIS_VSAM_SCLAS2

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_VSAM_SCLAS3:**

**Storage class for VSAM dataset 3**

**Description**
If the VSAM datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can or if it is optional, you may leave this field blank.

**Required or optional**
Optional

**Default value**
%RTE_SMS_VSAM_STORCLAS%
Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhlev.midlev.rtename.RKD2SAM library

Output line
STORCLAS(<value>)

Location 2
In the HCRVssid member of the rhlev.midlev.rtename.RKD2SAM library

Output line
STORCLAS(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
Storclas

Default value
&RTEVSTOR

Batch parameter name
KD2_PF_HIS_VSAM_SCLAS3

PARMGEN name
KD2_PFnn_HIS_VSAM_SCLAS3

PARMGEN classification
NTH

KD2_PFnn_HIS_VSAM_SCLAS4:

Storage class for VSAM dataset 4

Description
If the VSAM datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can or if it is optional, you may leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_STORCLAS%

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhlev.midlev.rtename.RKD2SAM library

Output line
STORCLAS(<value>)
**KD2_PF_HIS_SEQ_VOLUME7**

Location 2
In the HCRVssid member of the *rhlев.midlev.rtename*.RKD2SAM library

Output line

```
  STORCLAS(<value>)
```

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
Storclas

Default value
&RTEVSTOR

Batch parameter name
KD2_PF_HIS_VSAM_SCLAS4

PARMGEN name
KD2_PFnn_HIS_VSAM_SCLAS4

PARMGEN classification
NTH

**KD2_PFnn_HIS_VSAM_SCLAS5:**

Storage class for VSAM dataset 5

Description
If the VSAM datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can or if it is optional, you may leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_STORCLAS%

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the *rhlев.midlev.rtename*.RKD2SAM library

Output line

```
  STORCLAS(<value>)
```

Location 2
In the HCRVssid member of the *rhlев.midlev.rtename*.RKD2SAM library

Output line

```
  STORCLAS(<value>)
```

In the Configuration Tool (ICAT)
Panel name
Near-Term History

Panel ID
KD261P7

Panel field
Storclas

Default value
&RTEVSTOR

Batch parameter name
KD2_PF_HIS_VSAM_SCLAS5

PARMGEN name
KD2_PFnn_HIS_VSAM_SCLAS5

PARMGEN classification
NTH

KD2_PFnn_HIS_VSAM_SCLAS6:

Storage class for VSAM dataset 6

Description
If the VSAM datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can or if it is optional, you may leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_STORCLAS%

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
STORCLAS(<value>)

Location 2
In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
STORCLAS(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
Storclas
**KD2_PF_HIS_SEQ_VOLUME7**

**Default value**
&RTEVSTOR

**Batch parameter name**
KD2_PF_HIS_VSAM_SCLAS6

**PARMGEN name**
KD2_PFnn_HIS_VSAM_SCLAS6

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_VSAM_SCLAS7:**

**Storage class for VSAM dataset 7**

**Description**
If the VSAM datasets are SMS-managed, then specify the SMS storage class to be used on the allocation. If your installation does not use the SMS STORCLAS parameter, you can or if it is optional, you may leave this field blank.

**Required or optional**
Optional

**Default value**
%RTE_SMS_VSAM_STORCLAS%

**Locations where the parameter value is stored**

**Location 1**
In the ALLOCDS member of the rhilev.midlev.rtname.RKD2SAM library

**Output line**
STORCLAS(<value>)

**Location 2**
In the HCRVssid member of the rhilev.midlev.rtname.RKD2SAM library

**Output line**
STORCLAS(<value>)

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261P7

**Panel field**
Storclas

**Default value**
&RTEVSTOR

**Batch parameter name**
KD2_PF_HIS_VSAM_SCLAS7

**PARMGEN name**
KD2_PFnn_HIS_VSAM_SCLAS7
PARMGEN classification
NTH

KD2_PFnn_HIS_VSAM_SU:
Space units used for VSAM log datasets

Description
Specify the space units used for the VSAM log datasets allocation. The allowable values are MB - megabytes and CYLS - cylinders.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
MB

Permissible values
MB, CYLS

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %.RKD2SAM library

Output line
CYLINDERS(<value> 0) -

Location 2
In the ALLOCDS member of the %RTE_HILEV%.%RTE_NAME %.RKD2SAM library

Output line
MEGABYTES(<value> 0) -

Location 3
In the HCRVssid member of the %RTE_HILEV%.%RTE_NAME %.RKD2SAM library

Output line
<value>(<KD2_PFnn_HIS_VSAM_MB> 0) -

PARMGEN name
KD2_PFnn_HIS_VSAM_SU

PARMGEN classification
NTH

KD2_PFnn_HIS_VSAM_VOLUME1:
Volser for VSAM dataset 1

Description
Specify the volume serial numbers for the allocation of the VSAM datasets. If VSAM datasets are not to be SMS-managed, then this is a required entry. If your installation does not use the volume serial number, you can leave this field blank.

Required or optional
Optional
**KD2_PF_HIS_SEQ_VOLUME7**

**Default value**

%RTE_SMS_VSAM_VOLUME%

**Locations where the parameter value is stored**

**Location 1**

In the ALLOCDS member of the `rhilev.midlev.rtname.RKD2SAM` library

**Output line**

`VOLUME(<value>)`

**Location 2**

In the HCRVssid member of the `rhilev.midlev.rtname.RKD2SAM` library

**Output line**

`VOLUME(<value>)`

In the Configuration Tool (ICAT)

**Panel name**

Near-Term History

**Panel ID**

KD261P7

**Panel field**

Volser

**Default value**

&RTEVVV

**Batch parameter name**

KD2_PF_HIS_VSAM_VOL1

**PARMGEN name**

KD2_PFnn_HIS_VSAM_VOLUME1

**PARMGEN classification**

NTH

**KD2_PFnn_HIS_VSAM_VOLUME2:**

Volser for VSAM dataset 2

**Description**

Specify the volume serial numbers for the allocation of the VSAM datasets. If VSAM datasets are not to be SMS-managed, then this is a required entry. If your installation does not use the volume serial number, you can leave this field blank.

**Required or optional**

Optional

**Default value**

%RTE_SMS_VSAM_VOLUME%

**Locations where the parameter value is stored**

**Location 1**

In the ALLOCDS member of the `rhilev.midlev.rtname.RKD2SAM` library
KD2_PF_HIS_SEQ_VOLUME7

Output line
VOLUME(<value>)

Location 2
In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
VOLUME(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P7

Panel field
Volser

Default value
&RTEVV

Batch parameter name
KD2_PF_HIS_VSAM_VOL2

PARMGEN name
KD2_PFnn_HIS_VSAM_VOLUME2

PARMGEN classification
NTH

KD2_PFnn_HIS_VSAM_VOLUME3:

Volser for VSAM dataset 3

Description
Specify the volume serial numbers for the allocation of the VSAM datasets. If VSAM datasets are not to be SMS-managed, then this is a required entry. If your installation does not use the volume serial number, you can leave this field blank.

Required or optional
Optional

Default value
%RTE_SMS_VSAM_VOLUME%

Locations where the parameter value is stored

Location 1
In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

Output line
VOLUME(<value>)

Location 2
In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
VOLUME(<value>)
**KD2_PF_HIS_SEQ_VOLUME7**

In the Configuration Tool (ICAT)

Panel name  
Near-Term History

Panel ID  
KD261P7

Panel field  
Volser

Default value  
&RTEVV

Batch parameter name  
KD2_PF_HIS_VSAM_VOL3

PARMGEN name  
KD2_PFnn_HIS_VSAM_VOLUME3

PARMGEN classification  
NTH

**KD2_PFnn_HIS_VSAM_VOLUME4:**

Volser for VSAM dataset 4

**Description**

Specify the volume serial numbers for the allocation of the VSAM datasets. If VSAM datasets are not to be SMS-managed, then this is a required entry. If your installation does not use the volume serial number, you can leave this field blank.

**Required or optional**

Optional

**Default value**

%RTE_SMS_VSAM_VOLUME%

**Locations where the parameter value is stored**

**Location 1**

In the ALLOCDS member of the `rhilev.midlev.rtename.RKD2SAM` library

**Output line**

`VOLUME(<value>)`

**Location 2**

In the HCRVssid member of the `rhilev.midlev.rtename.RKD2SAM` library

**Output line**

`VOLUME(<value>)`
Default value

&RTEVV

**Batch parameter name**

KD2_PF_HIS_VSAM_VOL4

**PARMGEN name**

KD2_PFnn_HIS_VSAM_VOLUME4

**PARMGEN classification**

NTH

KD2_PFnn_HIS_VSAM_VOLUME5:

Volser for VSAM dataset 5

**Description**

Specify the volume serial numbers for the allocation of the VSAM datasets.
If VSAM datasets are not to be SMS-managed, then this is a required entry.
If your installation does not use the volume serial number, you can leave this field blank.

**Required or optional**

Optional

**Default value**

%RTE_SMS_VSAM_VOLUME%

**Locations where the parameter value is stored**

**Location 1**

In the ALLOCDS member of the rhilev,midlev,rtename.RKD2SAM library

**Output line**

```
VOLUME(<value>)
```

**Location 2**

In the HCRVssid member of the rhilev,midlev,rtename.RKD2SAM library

**Output line**

```
VOLUME(<value>)
```

**In the Configuration Tool (ICAT)**

**Panel name**

Near-Term History

**Panel ID**

KD261P7

**Panel field**

Volser

**Default value**

&RTEVV

**Batch parameter name**

KD2_PF_HIS_VSAM_VOL5

**PARMGEN name**

KD2_PFnn_HIS_VSAM_VOLUME5
KD2_PF_HIS_SEQ_VOLUME7

**PARMGEN classification**

NTH

**KD2_PFnn_HIS_VSAM_VOLUME6:**

Volser for VSAM dataset 6

**Description**

Specify the volume serial numbers for the allocation of the VSAM datasets. If VSAM datasets are not to be SMS-managed, then this is a required entry. If your installation does not use the volume serial number, you can leave this field blank.

**Required or optional**

Optional

**Default value**

%RTE_SMS_VSAM_VOLUME%

**Locations where the parameter value is stored**

**Location 1**

In the ALLOCDS member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**

VOLUME(<value>)

**Location 2**

In the HCRVssid member of the rhilev.midlev.rtename.RKD2SAM library

**Output line**

VOLUME(<value>)

**In the Configuration Tool (ICAT)**

**Panel name**

Near-Term History

**Panel ID**

KD261P7

**Panel field**

Volser

**Default value**

&RTEVV

**Batch parameter name**

KD2_PF_HIS_VSAM_VOL6

**PARMGEN name**

KD2_PFnn_HIS_VSAM_VOLUME6

**PARMGEN classification**

NTH

**KD2_PFnn_HIS_VSAM_VOLUME7:**

Volser for VSAM dataset 7

**Description**
Specify the volume serial numbers for the allocation of the VSAM datasets. If VSAM datasets are not to be SMS-managed, then this is a required entry. If your installation does not use the volume serial number, you can leave this field blank.

**Required or optional**
- Optional

**Default value**
```
%RTE_SMS_VSAM_VOLUME%
```

**Locations where the parameter value is stored**

**Location 1**
- In the ALLOCDS member of the \textit{rhlev.midlev.rtename}.RKD2SAM library
- Output line
  
  \texttt{VOLUME(\textless value\textgreater )}

**Location 2**
- In the HCRVssid member of the \textit{rhlev.midlev.rtename}.RKD2SAM library
- Output line
  
  \texttt{VOLUME(\textless value\textgreater )}

**In the Configuration Tool (ICAT)**

**Panel name**
- \textit{Near-Term History}

**Panel ID**
- KD261P7

**Panel field**
- Volser

**Default value**
```
&RTEVV
```

**Batch parameter name**
- KD2_PF_HIS_VSAM_VOL7

**PARMGEN name**
- KD2_PFnn_HIS_VSAM_VOLUME7

**PARMGEN classification**
- NTH

**KD2_PFnn_HIS_WHEN_AUTHID:**

**Selection criteria AUTHID**

**Description**
- Specifies selection criteria based on AUTHID. For example, if AUTH1 and AUTH2 were specified for AUTHID, only data for threads with the specified authorization identifiers would be collected.

To specify selection criteria, you can use the wildcard character *, which is for one or more characters, the suffix only, and the ?, which is for a single character.

**Required or optional**
- Optional (Required in case KD2_PF_HIS_START is set to Y)
**KD2_PF_HIS_SEQ_VOLUME7**

Default value
None

Location where the parameter value is stored
In the COPTissid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
```
AUTH(<value>)
```

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P8

Panel field
AUTHID

Default value
None

Batch parameter name
KD2_PF_HIS_WHEN_AUTHID

PARMGEN name
KD2_PFnn_HIS_WHEN_AUTHID

PARMGEN classification
NTH

KD2_PFnn_HIS_WHEN_CONNID:

Selection criteria CONNID

Description
Specifies selection criteria based on CONNID. For example, if CON01 and CON02 were specified for CONNID, only data for threads that use the specified connections would be collected.

To specify selection criteria, you can use the wildcard character *, which is for one or more characters, the suffix only, and the ?, which is for a single character.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
None

Location where the parameter value is stored
In the COPTissid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
```
CONN(<value>)
```

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P8
Panel field

CONNID

Default value

None

Batch parameter name

KD2_PF_HIS_WHEN_CONNID

PARMGEN name

KD2_PFnn_HIS_WHEN_CONNID

PARMGEN classification

NTH

KD2_PFnn_HIS_WHEN_CORRID:

Selection criteria CORRID

Description

Specifies selection criteria based on CORRID. For example, if STC01 and STC02 were specified for CORRID, only data for threads with the specified correlation identifiers would be collected. To specify selection criteria, you can use the wildcard character *, which is for one or more characters, the suffix only, and the ?, which is for a single character.

Required or optional

Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value

None

Location where the parameter value is stored

In the COPTssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line

CORR(<value>)

In the Configuration Tool (ICAT)

Panel name

Near-Term History

Panel ID

KD261P8

Panel field

CORRID

Default value

None

Batch parameter name

KD2_PF_HIS_WHEN_CORRID

PARMGEN name

KD2_PFnn_HIS_WHEN_CORRID

PARMGEN classification

NTH
**KD2_PF_HIS_WHEN_ORIG:**

Selection criteria ORIGAUTHID

**Description**
Specifies selection criteria based on ORIGAUTHID. To specify selection criteria, you can use the wildcard character *, which is for one or more characters, the suffix only, and the ?, which is for a single character.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**
None

**Location where the parameter value is stored**
In the COPTssid member of the rhilev.midlev.rtname.RKD2PAR library

**Output line**
ORIGAUTH(<value>)

**In the Configuration Tool (ICAT)**

**Panel name**
Near-Term History

**Panel ID**
KD261P8

**Panel field**
ORIGAUTHID

**Default value**
None

**Batch parameter name**
KD2_PF_HIS_WHEN_ORIG

**PARMGEN name**
KD2_PFnn_HIS_WHEN_ORIG

**PARMGEN classification**
NTH

**KD2_PFnn_HIS_WHEN_PLAN:**

Selection criteria PLANNNAME

**Description**
Specifies selection criteria based on PLANNNAME. For example, if CICSPR01 and CICSPR02 were specified for PLANNNAME, only data for threads with the specified plannames would be collected.

To specify selection criteria, you can use the wildcard character *, which is for one or more characters, the suffix only, and the ?, which is for a single character.

**Required or optional**
Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**
None
Location where the parameter value is stored
In the COPTssid member of the rhilev.midlev.ritename.RKD2PAR library

Output line
PLAN(<value>)

In the Configuration Tool (ICAT)

Panel name
Near-Term History

Panel ID
KD261P8

Panel field
PLANNAME

Default value
None

Batch parameter name
KD2_PF_HIS_WHEN_PLAN

PARMGEN name
KD2_PFnn_HIS_WHEN_PLAN

PARMGEN classification
NTH

KD2_PFnn_THRDHIS_DYN_SQL:

Collect dynamic SQL data

Description
This specifies whether dynamic SQL text and access path information is collected.
If Y is entered, the collector activates IFCIDs 22,63,105,107.
If F is entered, the collector activates IFCIDs 22,350,105,107. IFCID 350 records the complete text of a parsed SQL statement, while IFCID 63 is limited to the first 5000 bytes of a SQL statement.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
N

Permissible values
Y, N, F

Location where the parameter value is stored
In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

Output line
THRSQL(<value>Y)

PARMGEN name
KD2_PFnn_THRDHIS_DYN_SQL

PARMGEN classification
NTH
KD2_PF_HIS_SEQ_VOLUME7

KD2_PFnn_THRDHIS_LOCK_CNTN:
Collect Lock contention data

Description
This specifies whether lock timeout and deadlock information is collected.
If Y is entered, the collector activates IFCIDs 172,196,105,107.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

Output line
THRDCONT(<value>Y)

PARMGEN name
KD2_PFnn_THRDHIS_LOCK_CNTN

PARMGEN classification
NTH

KD2_PFnn_THRDHIS_LOCK_SUSP:
Collect lock suspension data

Description
This specifies whether lock wait information for local resources is collected.
If Y is entered, the collector activates IFCIDs 44,45,213,214,105,107.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

Output line
THRDSUSP(<value>Y)

PARMGEN name
KD2_PFnn_THRDHIS_LOCK_SUSP

PARMGEN classification
NTH
**KD2_PFnn_THRDHIS_LOG_NUM:**

Number of Thread History VSAM datasets

**Description**

Specify the number of VSAM datasets to be used for Thread History collection for Enhanced 3270UI. You can specify 3 to 60. The default is 7.

This field is only applicable if you specified THVSAM, VSAMSEQTHVSAM, SEQTHVSAM, VSAMTHVSAM as the storage mechanism to be used for Near Term History.

**Required or optional**

Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**

7

**Minimum**

3

**Maximum**

60

**Location where the parameter value is stored**

In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

**Output line**

THRDLOG(<value>)

**PARMGEN name**

KD2_PFnn_THRDHIS_LOG_NUM

**PARMGEN classification**

NTH

**KD2_PFnn_THRDHIS_SCAN_SUMM:**

Collect scan summary data

**Description**

This specifies whether scan data is collected.

If Y is entered, the collector activates IFCIDs 15,16,17,18.

**Required or optional**

Optional (Required in case KD2_PF_HIS_START is set to Y)

**Default value**

N

**Permissible values**

Y, N

**Location where the parameter value is stored**

In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.RKD2PAR library

**Output line**

THRDSSCAN(<value>Y)

**PARMGEN name**

KD2_PFnn_THRDHIS_SCAN_SUMM
PARMGEN classification
NTH

KD2_PFnn_THRDHIS_SORT_SUMM:

Collect sort summary data

Description
This specifies whether sort data is collected.
If Y is entered, the collector activates IFCIDs 95 and 96.

Required or optional
Optional (Required in case KD2_PF_HIS_START is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the COPTssid member of the %RTE_HILEV%.%RTE_NAME%.R KD2PAR library

Output line
THRDSORT(<value>Y)

PARMGEN name
KD2_PFnn_THRDHIS_SORT_SUMM

PARMGEN classification
NTH

Snapshot history (including DB2 Connect Monitoring)
This section lists the parameters for snapshot history (including DB2 Connect Monitoring).

Snapshot history data is useful, for example, if you want to examine activities leading to, and following, an exception without recreating the situation. The data is periodically stored by the OMEGAMON Collector in a wrap-around-managed snapshot history data set.

You can define how often the snapshots are stored by setting the sample interval time. The amount of stored snapshots depends on the snapshot data volume and the specified snapshot history data set size. When the defined maximum number of snapshots is exceeded, the oldest snapshot is deleted and the newest snapshot is added.

You can view this information through the history mode in the Performance Expert Client. This mode allows you to display recently stored snapshots at a specified point-in-time. You can then scroll forward and backward through the history of snapshot data to get a better understanding of what happened and to identify what caused the problem (for example, detected situations, bottlenecks, deadlocks, timeouts).

KD2_PFnn_DCM_D2SHDCAI:

DB2 Connect application data interval

Description
Specifies in seconds how often the OMEGAMON Collector is to collect DB2 Connect application data for later viewing. This value can be set from 10 seconds to 86400 seconds for one day. It is recommended to set this value to a multiple of KD2_PFnn_SH_D2SHSTAI.

Required or optional
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y and KD2_PF_DCM_D2SHDCAP is set to Y)

Default value
60

Minimum
10

Maximum
86400

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
SHDB2CONNECTAPPLICATION=(<KD2_PFnn_DCM_D2SHDCAP>,<value>)

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PE

Panel field
DB2 Connect Application Interval

Default value
60

Minimum
10

Maximum
86400

Batch parameter name
KD2_PF_DCM_D2SHDCAI

PARMGEN name
KD2_PFnn_DCM_D2SHDCAI

PARMGEN classification
SS_HIS

KD2_PFnn_DCM_D2SHDCAP:

DB2 Connect Monitoring application data

Description
Specify whether DB2 Connect Monitoring application data is to be collected.

If you enable data collection for this collection then this enables the function DB2 Connect Monitoring.
Note: To use DB2 Connect Monitoring Performance Warehouse has to run at least once to set up the required tables for DB2 Connect Monitoring. Furthermore the DB2 Performance Expert Agent for DB2 Connect Monitoring Workstation has to be installed.

**Required or optional**
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y)

**Default value**
N

**Permissible values**
Y, N

**Location where the parameter value is stored**
In the OMPEssid member of the rhilev.midlevrtename.RKD2PAR library

**Output line**
SHDB2CONNECTAPPLICATION={<value>,<KD2_PFnn_DCM_D2SHDCAI>}

**In the Configuration Tool (ICAT)**

**Panel name**
Snapshot History

**Panel ID**
KD261PE

**Panel field**
DB2 Connect Application

**Default value**
N

**Permissible values**
Y, N

**Batch parameter name**
KD2_PF_DCM_D2SHDCAP

**PARMGEN name**
KD2_PFnn_DCM_D2SHDCAP

**PARMGEN classification**
SS_HIS

**KD2_PFnn_DCM_D2SHDCSI:**

DB2 Connect system data

**Description**
Specifies in seconds how often the OMEGAMON Collector is to collect DB2 Connect system data for later viewing. This value can be set from 10 second to 86400 seconds for one day. It is recommended to set this value to a multiple of KD2_PFnn_SH_D2SHSTAI.

**Required or optional**
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y and KD2_PF_DCM_D2SHDCST is set to Y)

**Default value**
120

**Minimum**
10
**Maximum**

86400

**Location where the parameter value is stored**
In the OMPEssid member of the rhilev.midlev riftename.RKD2PAR library

**Output line**
SHDB2CONNECTSYSTEM=(<KD2_PFnn_DCM_D2SHDCST>,<value>)

**In the Configuration Tool (ICAT)**

**Panel name**
Snapshot History

**Panel ID**
KD261PE

**Panel field**
DB2 Connect System Interval

**Default value**
120

**Minimum**
10

**Maximum**
86400

**Batch parameter name**
KD2_PF_DCM_D2SHDCSI

**PARMGEN name**
KD2_PFnn_DCM_D2SHDCSI

**PARMGEN classification**
SS_HIS

**KD2_PFnn_DCM_D2SHDCST:**

DB2 Connect system data

**Description**
Specify whether DB2 Connect Monitoring system data is to be collected.
If you enable data collection for this collection then this enables the function DB2 Connect Monitoring.

Note: To use DB2 Connect Monitoring Performance Warehouse has to run at least once to set up the required tables for DB2 Connect Monitoring. Furthermore the DB2 Performance Expert Agent for DB2 Connect Monitoring Workstation has to be installed.

**Required or optional**
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y)

**Default value**
N

**Permissible values**
Y, N

**Location where the parameter value is stored**
In the OMPEssid member of the rhilev.midlev riftename.RKD2PAR library
Output line

SHDB2CONNECTION=(<value>,<KD2_PFnN_DCM_D2SHDCST>)

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PE

Panel field
DB2 Connect System

Default value
N

Permissible values
Y, N

Batch parameter name
KD2_PF_DCM_D2SHDCST

PARMGEN name
KD2_PFnn_DCM_D2SHDCST

PARMGEN classification
SS_HIS

KD2_PFnn_SH_D2SHDATA:

Data set statistics data

Description
Specifies whether data set statistics data is collected.

Required or optional
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rename.RKD2PAR library

Output line

SHDATASETSTATISTICS=(<value>,<KD2_PFnN_SH_D2SHDAT1>)

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PE

Panel field
Data Set Statistics

Default value
Y
Permissible values

Y, N

Batch parameter name

KD2_PF_SH_D2SHDATA

PARMGEN name

KD2_PFnn_SH_D2SHDATA

PARMGEN classification

SS_HIS

KD2_PFnn_SH_D2SHDATI:

Data set statistics interval

Description

Specifies in seconds how often the OMEGAMON Collector is to collect data set statistics data for later viewing. This value can be set from 1 second to 86400 seconds for one day.

Required or optional

Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y and KD2_PF_SH_D2SHDATA is set to Y)

Default value

300

Minimum

1

Maximum

86400

Location where the parameter value is stored

In the OMPEssid member of the rhilev,midlev,rtname.RKD2PAR library

Output line

SHDATASETSTATISTICS=(<KD2_PFnn_SH_D2SHDATA>,<value>)

In the Configuration Tool (ICAT)

Panel name

Snapshot History

Panel ID

KD261PE

Panel field

Data Set Statistics Interval

Default value

300

Minimum

1

Maximum

86400

Batch parameter name

KD2_PF_SH_D2SHDATI

PARMGEN name

KD2_PFnn_SH_D2SHDATI
**KD2_PF_SH_D2SHDATI**

**PARMGEN classification**

SS_HIS

**KD2_PFnn_SH_D2SHKHST:**

Enable Snapshot history

**Description**

Used to specify whether Snapshot History data is to be collected.

**Required or optional**

Required

**Default value**

N

**Permissible values**

Y, N

**Location where the parameter value is stored**

In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**

SNAPSHOTHISTORY=<value>

**In the Configuration Tool (ICAT)**

**Panel name**

Snapshot History

**Panel ID**

KD261PE

**Panel field**

Enable Snapshot history

**Default value**

N

**Permissible values**

Y, N

**Batch parameter name**

KD2_PF_SH_D2SHKHST

**PARMGEN name**

KD2_PFnn_SH_D2SHKHST

**PARMGEN classification**

SS_HIS

**KD2_PFnn_SH_D2SHLTHD:**

Thread data including locking data

**Description**

Used to specify whether the collected thread data is to include locking data.

**Required or optional**

Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y and KD2_PF_SH_D2SHTHDD is set to Y)
KD2_PF_SH_D2SHLTHD

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
SHTHREADLOCK=<value>

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PE

Panel field
Thread Include Locking

Default value
N

Permissible values
Y, N

Batch parameter name
KD2_PF_SH_D2SHLTHD

PARMGEN name
KD2_PFnn_SH_D2SHLTHD

PARMGEN classification
SS_HIS

KD2_PFnn_SH_D2SHSPAI:

System parameters interval

Description
Specifies in seconds how often the OMEGAMON Collector is to collect system parameters data for later viewing. This value can be set from 1 second to 86400 seconds for one day.

Required or optional
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y and KD2_PF_SH_D2SHSPAR is set to Y)

Default value
300

Minimum
1

Maximum
86400

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
SHSYSTEMPARAMETERS=(<KD2_PFnn_SH_D2SHSPAR>,<value>)
**KD2_PF_SH_D2SHSPAI**

In the Configuration Tool (ICAT)

<table>
<thead>
<tr>
<th>Panel name</th>
<th>Snapshot History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel ID</td>
<td>KD261PE</td>
</tr>
<tr>
<td>Panel field</td>
<td>System Parameters Interval</td>
</tr>
<tr>
<td>Default value</td>
<td>300</td>
</tr>
<tr>
<td>Minimum</td>
<td>1</td>
</tr>
<tr>
<td>Maximum</td>
<td>86400</td>
</tr>
</tbody>
</table>

Batch parameter name: KD2_PF_SH_D2SHSPAI

PARMGEN name: KD2_PFnn_SH_D2SHSPAI

PARMGEN classification: SS_HIS

**KD2_PFnn_SH_D2SHSPAR:**

System Parameters data

**Description**

Specifies whether system parameters data is collected.

**Required or optional**

Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y)

**Default value**

N

**Permissible values**

Y, N

**Location where the parameter value is stored**

In the OMPEffsid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**

```
SHSYSTEMPARAMETERS=(<value>,<KD2_PFnn_SH_D2SHSPAI>)
```

In the Configuration Tool (ICAT)

<table>
<thead>
<tr>
<th>Panel name</th>
<th>Snapshot History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel ID</td>
<td>KD261PE</td>
</tr>
<tr>
<td>Panel field</td>
<td>System Parameters</td>
</tr>
<tr>
<td>Default value</td>
<td>Y</td>
</tr>
</tbody>
</table>
Permissible values
Y, N

Batch parameter name
KD2_PF_SH_D2SHSPAR

PARMGEN name
KD2_PFnn_SH_D2SHSPAR

PARMGEN classification
SS_HIS

KD2_PFnn_SH_D2SHSQLC:

Dynamic Statement cache data

Description
Specifies whether dynamic statement cache data is collected.

Required or optional
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rename.RKD2PAR library

Output line
SHSQLCACHE=(<value>,<KD2_PFnn_SH_D2SHSQLI>)

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PE

Panel field
Dynamic Statement Cache

Default value
Y

Permissible values
Y, N

Batch parameter name
KD2_PF_SH_D2SHSQLC

PARMGEN name
KD2_PFnn_SH_D2SHSQLC

PARMGEN classification
SS_HIS

KD2_PFnn_SH_D2SHSQLI:

Dynamic statement cache interval

Description
KD2_PF_SH_D2SHSQLI

Specifies in seconds how often the OMEGAMON Collector is to collect dynamic statement cache data for later viewing. This value can be set from 1 second to 86400 seconds for one day.

**Required or optional**
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y and KD2_PF_SH_D2SHSQLC is set to Y)

**Default value**
300

**Minimum**
1

**Maximum**
86400

**Location where the parameter value is stored**
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
SHSQLCACHE=(<KD2_PFnn_SH_D2SHSQLC>,<value>)

**In the Configuration Tool (ICAT)**

**Panel name**
Snapshot History

**Panel ID**
KD261PE

**Panel field**
Dynamic Statement Cache Interval

**Default value**
300

**Minimum**
1

**Maximum**
86400

**Batch parameter name**
KD2_PF_SH_D2SHSQLI

**PARMGEN name**
KD2_PFnn_SH_D2SHSQLI

**PARMGEN classification**
SS_HIS

**KD2_PFnn_SH_D2SHSQLT:**

Thread data including statement text

**Description**
Used to specify whether thread data collected for Snapshot history is to include SQL statement text.

**Required or optional**
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y and KD2_PF_SH_D2SHTHDD is set to Y)
Default value
N
Permissible values
Y, N

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
SHTHREADSQL=<value>

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PE

Panel field
Thread Include Stmt Text

Default value
N

Permissible values
Y, N

Batch parameter name
KD2_PF_SH_D2SHSQLT

PARMGEN name
KD2_PFnn_SH_D2SHSQLT

PARMGEN classification
SS_HIS

KD2_PFnn_SH_D2SHSSZE:

Archive size

Description
Used to specify the maximum size of the Snapshot History data set. The specified value is the size of the data set in megabytes.

Required or optional
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y)

Default value
16

Locations where the parameter value is stored

Location 1
In the OMDDssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
MEGABYTES(<value>) -

Location 2
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library
Output line

SHDATASETSIZE=<value>

In the Configuration Tool (ICAT)

Panel name
  Snapshot History

Panel ID
  KD261PE

Panel field
  Snapshot history archive size

Default value
  16

Batch parameter name
  KD2_PF_SH_D2SHSSZE

PARMGEN name
  KD2_PFnn_SH_D2SHSSZE

PARMGEN classification
  SS_HIS

KD2_PFnn_SH_D2SHSTAI:

Statistics interval

Description
  Specifies in seconds how often the OMEGAMON Collector is to collect
  statistics data for later viewing. This value can be set from 1 second to
  86400 seconds for one day.

Required or optional
  Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y and
  KD2_PF_SH_D2SHSTAT is set to Y)

Default value
  120

Minimum
  1

Maximum
  86400

Location where the parameter value is stored
  In the OMPEssid member of the rhilev.midlevrename.RKD2PAR library

Output line

SHSTATISTICS=(<KD2_PFnn_SH_D2SHSTAT>,<value>)

In the Configuration Tool (ICAT)

Panel name
  Snapshot History

Panel ID
  KD261PE

Panel field
  Statistics Interval
Default value
120

Minimum
1

Maximum
86400

Batch parameter name
KD2_PF_SH_D2SHSTAI

PARMGEN name
KD2_PFnn_SH_D2SHSTAI

PARMGEN classification
SS_HIS

KD2_PFnn_SH_D2SHSTAT:

Collect Statistics data

Description
Specifies whether statistics data is to be collected.

Required or optional
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
SHSTATISTICS=(<value>,<KD2_PFnn_SH_D2SHSTAI>)

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PE

Panel field
Statistics

Default value
Y

Permissible values
Y, N

Batch parameter name
KD2_PF_SH_D2SHSTAT

PARMGEN name
KD2_PFnn_SH_D2SHSTAT

PARMGEN classification
SS_HIS
KD2_PF_SH_D2SHTHDD

KD2_PFnn_SH_D2SHTHDD:

Thread data

Description
Specified whether thread data 'without SQL text and locking information' is collected.

Required or optional
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y)

Default value
N

Permissible values
Y, N

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rename.RKD2PAR library

Output line
SHTTHREAD=(<value>,<KD2_PFnn_SH_D2SHTHDI>)

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PE

Panel field
Thread

Default value
Y

Permissible values
Y, N

Batch parameter name
KD2_PF_SH_D2SHTHDD

PARMGEN name
KD2_PFnn_SH_D2SHTHDD

PARMGEN classification
SS_HIS

KD2_PFnn_SH_D2SHTHDI:

Thread information interval

Description
Specifies in seconds how often the OMEGAMON Collector is to collect thread data for later viewing. This value can be set from 1 second to 86400 seconds for one day.

Required or optional
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y and KD2_PF_SH_D2SHTHDD is set to Y)

Default value
60
### KD2_PF_SH_D2SHTHDI

**Minimum**
1

**Maximum**
86400

**Location where the parameter value is stored**
In the OMPEssid member of the `rhilev.midlev.runame.RKD2PAR` library

**Output line**

```plaintext
SHTHREAD=(<KD2_PFnn_SH_D2SHTHDD>,<value>)
```

**In the Configuration Tool (ICAT)**

**Panel name**
Snapshot History

**Panel ID**
KD261PE

**Panel field**
Thread Interval

**Default value**
60

**Minimum**
1

**Maximum**
86400

**Batch parameter name**
KD2_PF_SH_D2SHTHDI

**PARMGEN name**
KD2_PFnn_SH_D2SHTHDI

**PARMGEN classification**
SS_HIS

**KD2_PFnn_SH_D2SQCON1:**

Filter 1 DB2 connection ID

**Description**
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

**Required or optional**
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y)

**Default value**
*

**Location where the parameter value is stored**
In the OMPEssid member of the `rhilev.midlev.runame.RKD2PAR` library

**Output line**

```plaintext
HQ1=...,CN='<value>',...
```

**In the Configuration Tool (ICAT)**

**Panel name**
Snapshot History
**KD2_PF_SH_D2SQCON1**

Panel ID  
KD261PK

Panel field  
Connection ID

Default value  
*

Batch parameter name  
KD2_PF_SH_D2SQCON1

PARMGEN name  
KD2_PFnn_SH_D2SQCON1

PARMGEN classification  
SS_HIS

**KD2_PFnn_SH_D2SQCON2:**

Filter 2 DB2 connection ID

**Description**

Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

**Required or optional**

Optional

**Default value**

None

**Location where the parameter value is stored**

In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**

HQ2=(...,CN='<value>',...)

**In the Configuration Tool (ICAT)**

Panel name  
Snapshot History

Panel ID  
KD261PK

Panel field  
Connection ID

Default value  
None

Batch parameter name  
KD2_PF_SH_D2SQCON2

PARMGEN name  
KD2_PFnn_SH_D2SQCON2

PARMGEN classification  
SS_HIS
KD2_PFnn_SH_D2SQCON3:

Filter 3 DB2 connection ID

Description
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

Required or optional
Optional

Default value
None

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
HQ3={...,CN='<value>'...,}

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PK

Panel field
Connection ID

Default value
None

Batch parameter name
KD2_PF_SH_D2SQCON3

PARMGEN name
KD2_PFnn_SH_D2SQCON3

PARMGEN classification
SS_HIS

KD2_PFnn_SH_D2SQCON4:

Filter 4 DB2 connection ID

Description
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

Required or optional
Optional

Default value
None

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
HQ4={...,CN='<value>'...,}

In the Configuration Tool (ICAT)
### KD2_PF_SH_D2SQCON4

<table>
<thead>
<tr>
<th>Panel name</th>
<th>Snapshot History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel ID</td>
<td>KD261PK</td>
</tr>
<tr>
<td>Panel field</td>
<td>Connection ID</td>
</tr>
<tr>
<td>Default value</td>
<td>None</td>
</tr>
</tbody>
</table>

**Batch parameter name**
KD2_PF_SH_D2SQCON4

**PARMGEN name**
KD2_PFnn_SH_D2SQCON4

**PARMGEN classification**
SS_HIS

**KD2_PFnn_SH_D2SQCON5:**

Filter 5 DB2 connection ID

**Description**
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

**Required or optional**
Optional

**Default value**
None

**Location where the parameter value is stored**
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
HQ5=(...,CN='<value>',...)

**In the Configuration Tool (ICAT)**

<table>
<thead>
<tr>
<th>Panel name</th>
<th>Snapshot History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel ID</td>
<td>KD261PK</td>
</tr>
<tr>
<td>Panel field</td>
<td>Connection ID</td>
</tr>
<tr>
<td>Default value</td>
<td>None</td>
</tr>
</tbody>
</table>

**Batch parameter name**
KD2_PF_SH_D2SQCON5

**PARMGEN name**
KD2_PFnn_SH_D2SQCON5

**PARMGEN classification**
SS_HIS
KD2_PFnn_SH_D2SQCON6:

Filter 6 DB2 connection ID

**Description**

Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

**Required or optional**

Optional

**Default value**

None

**Location where the parameter value is stored**

In the OMPEssid member of the `rhilev.midlev.rtename.RKD2PAR library`

**Output line**

HQ6=(...,CN=’<value>’,...)

**In the Configuration Tool (ICAT)**

**Panel name**

Snapshot History

**Panel ID**

KD261PK

**Panel field**

Connection ID

**Default value**

None

**Batch parameter name**

KD2_PF_SH_D2SQCON6

**PARMGEN name**

KD2_PFnn_SH_D2SQCON6

**PARMGEN classification**

SS_HIS

KD2_PFnn_SH_D2SQCOR1:

Filter 1 DB2 correlation ID

**Description**

Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

**Required or optional**

Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y)

**Default value**

`
`

**Location where the parameter value is stored**

In the OMPEssid member of the `rhilev.midlev.rtename.RKD2PAR library`

**Output line**

HQ1=(...,CR=’<value>’)

**In the Configuration Tool (ICAT)**
### KD2_PF_SH_D2SQCOR1

<table>
<thead>
<tr>
<th>Panel name</th>
<th>Snapshot History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel ID</td>
<td>KD261PK</td>
</tr>
<tr>
<td>Panel field</td>
<td>Correlation Name</td>
</tr>
</tbody>
</table>

**Default value**

* *

**Batch parameter name**

KD2_PF_SH_D2SQCOR1

**PARMGEN name**

KD2_PFnn_SH_D2SQCOR1

**PARMGEN classification**

SS_HIS

**KD2_PFnn_SH_D2SQCOR2:**

Filter 2 DB2 correlation ID

**Description**

Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

**Required or optional**

Optional

**Default value**

None

**Location where the parameter value is stored**

In the OMPEssid member of the rhilev.midlev.rename.RKD2PAR library

**Output line**

HQ2=(...,CR='\'<value>')

**In the Configuration Tool (ICAT)**

<table>
<thead>
<tr>
<th>Panel name</th>
<th>Snapshot History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel ID</td>
<td>KD261PK</td>
</tr>
<tr>
<td>Panel field</td>
<td>Correlation Name</td>
</tr>
</tbody>
</table>

**Default value**

None

**Batch parameter name**

KD2_PF_SH_D2SQCOR2

**PARMGEN name**

KD2_PFnn_SH_D2SQCOR2

**PARMGEN classification**

SS_HIS
KD2_PFnn_SH_D2SQCOR3:

Filter 3 DB2 correlation ID

**Description**

Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

**Required or optional**

Optional

**Default value**

None

**Location where the parameter value is stored**

In the OMPEssid member of the `rhilev.midlev.rtename.RKD2PAR` library

**Output line**

HQ3=(...,CR='<value>')

**In the Configuration Tool (ICAT)**

**Panel name**

Snapshot History

**Panel ID**

KD261PK

**Panel field**

Correlation Name

**Default value**

None

**Batch parameter name**

KD2_PF_SH_D2SQCOR3

**PARMGEN name**

KD2_PFnn_SH_D2SQCOR3

**PARMGEN classification**

SS_HIS

KD2_PFnn_SH_D2SQCOR4:

Filter 4 DB2 correlation ID

**Description**

Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

**Required or optional**

Optional

**Default value**

None

**Location where the parameter value is stored**

In the OMPEssid member of the `rhilev.midlev.rtename.RKD2PAR` library

**Output line**

HQ4=(...,CR='<value>')

**In the Configuration Tool (ICAT)**
**KD2_PF_SH_D2SQCOR4**

Panel name
Snapshot History

Panel ID
KD261PK

Panel field
Correlation Name

Default value
None

Batch parameter name
KD2_PF_SH_D2SQCOR4

PARMGEN name
KD2_PFnn_SH_D2SQCOR4

PARMGEN classification
SS_HIS

KD2_PFnn_SH_D2SQCOR5:

Filter 5 DB2 correlation ID

Description
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

Required or optional
Optional

Default value
None

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
HQ5=(...,CR='<value>')

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PK

Panel field
Correlation Name

Default value
None

Batch parameter name
KD2_PF_SH_D2SQCOR5

PARMGEN name
KD2_PFnn_SH_D2SQCOR5

PARMGEN classification
SS_HIS
KD2_PFnn_SH_D2SQCOR6:

Filter 6 DB2 correlation ID

Description
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

Required or optional
Optional

Default value
None

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
HQ6=(...,CR='<value>')

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PK

Panel field
Correlation ID

Default value
None

Batch parameter name
KD2_PF_SH_D2SQCOR6

PARMGEN name
KD2_PFnn_SH_D2SQCOR6

PARMGEN classification
SS_HIS

KD2_PFnn_SH_D2SQPLA1:

Filter 1 DB2 Plan name

Description
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

Required or optional
Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y)

Default value
*

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
HQ1=(...,PL='<value>','...')

In the Configuration Tool (ICAT)
**KD2_PF_SH_D2SQPLA1**

- **Panel name**: Snapshot History
- **Panel ID**: KD261PK
- **Panel field**: DB2 Plan Name
- **Default value**: *

**Batch parameter name**: KD2_PF_SH_D2SQPLA1

**PARMGEN name**: KD2_PFnn_SH_D2SQPLA1

**PARMGEN classification**: SS_HIS

**KD2_PFnn_SH_D2SQPLA2**: Filter 2 DB2 Plan name

**Description**: Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

**Required or optional**: Optional

**Default value**: None

**Location where the parameter value is stored**: In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**: HQ2=(...,PL='<value>',...,)

In the Configuration Tool (ICAT)

- **Panel name**: Snapshot History
- **Panel ID**: KD261PK
- **Panel field**: DB2 Plan Name
- **Default value**: None

- **Batch parameter name**: KD2_PF_SH_D2SQPLA2
- **PARMGEN name**: KD2_PFnn_SH_D2SQPLA2
- **PARMGEN classification**: SS_HIS
KD2_PFnn_SH_D2SQPLA3:

Filter 3 DB2 Plan name

Description
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

Required or optional
Optional

Default value
None

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
HQ3=(...,PL=’<value>’,...)

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PK

Panel field
DB2 Plan Name

Default value
None

Batch parameter name
KD2_PF_SH_D2SQPLA3

PARMGEN name
KD2_PFnn_SH_D2SQPLA3

PARMGEN classification
SS_HIS

KD2_PFnn_SH_D2SQPLA4:

Filter 4 DB2 Plan name

Description
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

Required or optional
Optional

Default value
None

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
HQ4=(...,PL=’<value>’,...)

In the Configuration Tool (ICAT)
Panel name
  Snapshot History

Panel ID
  KD261PK

Panel field
  DB2 Plan Name

Default value
  None

Batch parameter name
  KD2_PF_SH_D2SQPLA4

PARMGEN name
  KD2_PFnn_SH_D2SQPLA4

PARMGEN classification
  SS_HIS

KD2_PFnn_SH_D2SQPLA5:

Filter 5 DB2 Plan name

Description
  Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

Required or optional
  Optional

Default value
  None

Location where the parameter value is stored
  In the OMPEssid member of the rhilev.midlev.runtime=RKD2PAR library

Output line
  HQ5=(...,PL='<value>',...,)

In the Configuration Tool (ICAT)

Panel name
  Snapshot History

Panel ID
  KD261PK

Panel field
  DB2 Plan Name

Default value
  None

Batch parameter name
  KD2_PF_SH_D2SQPLA5

PARMGEN name
  KD2_PFnn_SH_D2SQPLA5

PARMGEN classification
  SS_HIS
KD2_PFnn_SH_D2SQPLA6:

Filter 6 DB2 Plan name

**Description**

Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

**Required or optional**

Optional

**Default value**

None

**Location where the parameter value is stored**

In the OMPEssid member of the rhilev.midlev.runame.RKD2PAR library

**Output line**

```
HQ6=(...,PL='<value>',...,)
```

**In the Configuration Tool (ICAT)**

- **Panel name**
  
  Snapshot History

- **Panel ID**
  
  KD261PK

- **Panel field**
  
  DB2 Plan Name

- **Default value**
  
  None

**Batch parameter name**

KD2_PF_SH_D2SQPLA6

**PARMGEN name**

KD2_PFnn_SH_D2SQPLA6

**PARMGEN classification**

SS_HIS

KD2_PFnn_SH_D2SQPR11:

Filter 1 Primary AUTH ID

**Description**

Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

**Required or optional**

Optional (Required in case KD2_PF_SH_D2SHKHST is set to Y)

**Default value**

```
*
```

**Location where the parameter value is stored**

In the OMPEssid member of the rhilev.midlev.runame.RKD2PAR library

**Output line**

```
HQ1=(PR='<value>'),...
```

**In the Configuration Tool (ICAT)**
Panel name
Snapshot History

Panel ID
KD261PK

Panel field
Primary AUTH ID

Default value
*

Batch parameter name
KD2_PF_SH_D2SQPRI1

PARMGEN name
KD2_PFnn_SH_D2SQPRI1

PARMGEN classification
SS_HIS

KD2_PFnn_SH_D2SQPRI2:

Filter 2 Primary AUTH ID

Description
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

Required or optional
Optional

Default value
None

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
HQ2=(PR='<value>','...)

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PK

Panel field
Primary AUTH ID

Default value
None

Batch parameter name
KD2_PF_SH_D2SQPRI2

PARMGEN name
KD2_PFnn_SH_D2SQPRI2

PARMGEN classification
SS_HIS
KD2 PFnn_SH_D2SQPRI3:

Filter 3 Primary AUTH ID

Description
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

Required or optional
Optional

Default value
None

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
HQ3=(PR='<value>',...)

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PK

Panel field
Primary AUTH ID

Default value
None

Batch parameter name
KD2_PF_SH_D2SQPRI3

PARMGEN name
KD2_PFnn_SH_D2SQPRI3

PARMGEN classification
SS_HIS

KD2_PFnn_SH_D2SQPRI4:

Filter 4 Primary AUTH ID

Description
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

Required or optional
Optional

Default value
None

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
HQ4=(PR='<value>',...)

In the Configuration Tool (ICAT)
**Panel name**
Snapshot History

**Panel ID**
KD261PK

**Panel field**
Primary AUTH ID

**Default value**
None

**Batch parameter name**
KD2_PF_SH_D2SQPRI4

**PARMGEN name**
KD2_PFnn_SH_D2SQPRI4

**PARMGEN classification**
SS_HIS

**KD2_PFnn_SH_D2SQPRI5:**
Filter 5 Primary AUTH ID

**Description**
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

**Required or optional**
Optional

**Default value**
None

**Location where the parameter value is stored**
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
HQ5=(PR='<value>',...)

**In the Configuration Tool (ICAT)**

**Panel name**
Snapshot History

**Panel ID**
KD261PK

**Panel field**
Primary AUTH ID

**Default value**
None

**Batch parameter name**
KD2_PF_SH_D2SQPRI5

**PARMGEN name**
KD2_PFnn_SH_D2SQPRI5

**PARMGEN classification**
SS_HIS
Filter 6 Primary AUTH ID

Description
Specify a qualifier or wildcard character to take the default. Any qualifiers that are not specified are set to an asterisk.

Required or optional
Optional

Default value
None

Location where the parameter value is stored
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

Output line
HQ6=(PR='<value>',...)

In the Configuration Tool (ICAT)

Panel name
Snapshot History

Panel ID
KD261PK

Panel field
Primary AUTH ID

Default value
None

Batch parameter name
KD2_PF_SH_D2SQPRI6

PARMGEN name
KD2_PFnn_SH_D2SQPRI6

PARMGEN classification
SS_HIS

DB2 Explain
This section lists the parameters for DB2 Explain.

Explain functions provide an easy-to-read representation of access plan information for your SQL queries and statements. You can use this information to decide how to tune your queries. The built-in explain functions are Easy Explain and the EXPLAIN report.

Note: You must create a database to be used by EXPLAIN. There are no special requirements regarding database name, storage group, or index buffer pool. But you must use an 8 KB buffer pool. The database name has to be specified using the PARMGEN.

KD2_PFnn_EX_D2EXACT:

Enable DB2 EXPLAIN

Description
Specify whether you want to enable DB2 EXPLAIN:
Enable DB2 EXPLAIN.

Y

N

Disable DB2 EXPLAIN.

Required or optional

Required

Default value

N

Permissible values

Y, N

Location where the parameter value is stored

This value is not stored in a configuration member.

In the Configuration Tool (ICAT)

Panel name

DB2 Explain

Panel ID

KD261P4

Panel field

Enable DB2 EXPLAIN

Default value

N

Permissible values

Y, N

Batch parameter name

KD2_PF_EX_D2EXACT

PARMGEN name

KD2_PFnn_EX_D2EXACT

PARMGEN classification

EXPLAIN

KD2_PFnn_EX_D2EXDB:

DB2 EXPLAIN data base

Description

Specify the EXPLAIN database name. There are no special requirements regarding database name, storage group, or index buffer pool. But you must use an 8 KB buffer pool.

Required or optional

Optional (Required in case KD2_PF_EX_D2EXACT is set to Y)

Default value

DATBA8K

Locations where the parameter value is stored

Location 1

In the EXCTssid member of the rhilev.midlev.qrename.RKD2SAM library

Output line

IN DATABASE <value>
Location 2
In the EXGRssid member of the rhilev.midlev.runtime.RKD2SAM library

Output line
GRANT CREATETS ON DATABASE <value> TO <KD2_PFnn_EX_D2EXOBJ>

Location 3
In the EXGRssid member of the rhilev.midlev.runtime.RKD2SAM library

Output line
GRANT CREATETAB ON DATABASE <value> TO <KD2_PFnn_EX_D2EXOBJ>

Location 4
In the EXCQ ssid member of the rhilev.midlev.runtime.RKD2SAM library

Output line
IN DATABASE <value>

In the Configuration Tool (ICAT)

Panel name
DB2 Explain

Panel ID
KD261P4

Panel field
EXPLAIN database

Default value
DATBA8K

Batch parameter name
KD2_PF_EX_D2EXDB

PARMGEN name
KD2_PFnn_EX_D2EXDB

PARMGEN classification
EXPLAIN

KD2_PFnn_EX_D2EXOBJ:

DB2 EXPLAIN objects owner

Description
Specify the AUTH ID of the OMEGAMON XE for DB2 PE started task.

Required or optional
Optional (Required in case KD2_PF_EX_D2EXACT is set to Y)

Default value
DB2PM

Locations where the parameter value is stored

Location 1
In the EXBDsssid member of the rhilev.midlev.runtime.RKD2SAM library
Output line
  OWNER  (<value>) +

Location 2
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
  GRANT SELECT ON SYIBM.SYSPLAN  TO <value>;

Location 3
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
  GRANT SELECT ON SYIBM.SYSSTMT  TO <value>;

Location 4
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
  GRANT SELECT ON SYIBM.SYSTABLES  TO <value>;

Location 5
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
  GRANT SELECT ON SYIBM.SYSPACKSTMT  TO <value>;

Location 6
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
  GRANT SELECT ON SYIBM.SYSINDEXES  TO <value>;

Location 7
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
  GRANT SELECT ON SYIBM.SYSTABLEPART  TO <value>;

Location 8
In the EXC8ssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
  SET CURRENT SQLID = '<value>';
Location 11
In the EXGPssid member of the rhilev.midlev.runtime.RKD2SAM library

Output line
GRANT SELECT ON TABLE <value>..DGO_SYSDBRM TO %exuser%;

Location 12
In the EXGRssid member of the rhilev.midlev.runtime.RKD2SAM library

Output line
GRANT CREATETS ON DATABASE <KD2_PFnn_EX_D2EXDB> TO <value>;

Location 13
In the EXGRssid member of the rhilev.midlev.runtime.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSTABLESPACE TO <value>;

Location 14
In the EXGPssid member of the rhilev.midlev.runtime.RKD2SAM library

Output line
GRANT INSERT ON TABLE <value>..DGO_SYSPACKAGE TO %exuser%;

Location 15
In the EXCQssid member of the rhilev.midlev.runtime.RKD2SAM library

Output line
SET CURRENT SQLID = '<value>';

Location 16
In the EXC0ssid member of the rhilev.midlev.runtime.RKD2SAM library

Output line
SET CURRENT SQLID = '<value>';

Location 17
In the EXGRssid member of the rhilev.midlev.runtime.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSKEYS TO <value>;

Location 18
In the EXGRssid member of the rhilev.midlev.runtime.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSINDEXSTATS TO <value>;

Location 19
In the EXGRssid member of the rhilev.midlev.runtime.RKD2SAM library
Output line
GRANT SELECT ON SYSIBM.SYSPACKDEP TO <value>;

Location 20
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSTABSTATS TO <value>;

Location 21
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSCOLUMNS TO <value>;

Location 22
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT CREATETAB ON DATABASE <KD2_PFnn_EX_D2EXDB> TO <value>;

Location 23
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT PACKADM ON COLLECTION K02EX510 TO <value>;

Location 24
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT USE OF STOGROUP SYSDEFLT TO <value>;

Location 25
In the EXCVssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
SET CURRENT SQLID = '<value>';
Output line
GRANT SELECT ON TABLE <value>..DGO_SYSPACKAGE TO %exuser%;

Location 29
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSCOLDIST TO <value>;

Location 30
In the EXCTssid member of the rhilev.midlev.rtname.RKD2SAM library

Output line
SET CURRENT SQLID = '<value>';

Location 31
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSFIELDS TO <value>;

Location 32
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSDBRM TO <value>;

Location 33
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSSYNONYMS TO <value>;

Location 34
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON SYSIBM.SYSPACKLIST TO <value>;

Location 35
In the EXGPssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT INSERT ON TABLE <value>..DGO_SYSDBRM TO %exuser%;

Location 36
In the EXBPssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
OWNER (<value>) +

Location 37
In the EXGRssid member of the rhilev.midlev.rtename.RKD2SAM library
In the Configuration Tool (ICAT)

Panel name
DB2 Explain

Panel ID
KD261P4

Panel field
Owner of EXPLAIN objects

Default value
DB2PM

Batch parameter name
KD2_PF_EX_D2EXOBJ

PARMGEN name
KD2_PFnn_EX_D2EXOBJ

PARMGEN classification
EXPLAIN

KD2_PFnn_EX_D2EXQMF:

Is DB2 EXPLAIN QMF installed

Description
Specify Y if QMF is installed.

Required or optional
Optional (Required in case KD2_PF_EX_D2EXACT is set to Y)

Default value
N

Permissible values
Y, N

Locations where the parameter value is stored

Location 1
In the EXGPssid member of the rhilev.midlev.rtename.RKD2SAM
library

Output line
GRANT SELECT ON <value>I..OBJECT_DATA TO %exuser%;

Location 2
In the EXCQssid member of the rhilev.midlev.rtename.RKD2SAM
library

Output line
FROM <value>I..OBJECT_DIRECTORY ;

Location 3
In the EXGPssid member of the rhilev.midlev.rtename.RKD2SAM
library
Output line
GRANT SELECT ON <value>..OBJECT_DIRECTORY TO %exuser%;

Location 4
In the EXCQssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
FROM <value>..OBJECT_DATA ;

In the Configuration Tool (ICAT)
Panel name
DB2 Explain

Panel ID
KD261P4

Panel field
Is QMF installed

Default value
N

Permissible values
Y, N

Batch parameter name
KD2_PF_EX_D2EXQMF

PARMGEN name
KD2_PFnn_EX_D2EXQMF

PARMGEN classification
EXPLAIN

KD2_PFnn_EX_D2EXQMF:

DB2 QMF Owner ID

Description
If QMF is installed, specify the QMF Owner ID.

Required or optional
Optional (Required in case KD2_PF_EX_D2EXACT is set to Y and KD2_PF_EX_D2EXQMF is set to Y)

Default value
Q

Locations where the parameter value is stored

Location 1
In the EXGPssid member of the rhilev.midlev.rtename.RKD2SAM library

Output line
GRANT SELECT ON <value>..OBJECT_DIRECTORY TO %exuser%;

Location 2
In the EXCQssid member of the rhilev.midlev.rtename.RKD2SAM library

Chapter 3. Installing and configuring  297
Output line
FROM <value>..OBJECT_DIRECTORY ;

Location 3
In the EXCQssid member of the rhilev.midlev.rttename.RKD2SAM library

Output line
FROM <value>..OBJECT_DATA ;

Location 4
In the EXGPssid member of the rhilev.midlev.rttename.RKD2SAM library

Output line
GRANT SELECT ON <value>..OBJECT_DATA TO %exuser%;

In the Configuration Tool (ICAT)
Panel name
DB2 Explain

Panel ID
KD261P4

Panel field
QMF Owner ID

Default value
Q

Batch parameter name
KD2_PF_EX_D2EXQMFI

PARMGEN name
KD2_PFnn_EX_D2EXQMFI

PARMGEN classification
EXPLAIN

DB2 SQL Performance Analyzer
This section lists all configuration parameters provided for DB2 SQL Performance Analyzer.

DB2 SQL Performance Analyzer provides you with an extensive analysis of SQL queries without executing them. This analysis helps you in tuning your queries to achieve maximum performance. DB2 SQL Performance Analyzer can analyze new access paths, determine if action is needed, and estimate the costs of new paths in database resources consumed.

With DB2 SQL Performance Analyzer you can reduce the escalating costs of database queries by estimating their cost prior to execution. It delivers an Easy Explain function that provides an alternate view of the Explain data. Comparison of old and new plans is supported, along with Retro-Explain for Access plans, helping you to find out how long queries will take and to prevent queries from running too long. It can also aid in the migration of catalog statistics to test machines for in-depth analysis of production applications.

KD2_PFnn_SQLPA_CF_ANLC:

Fully qualified SQL PA ANLC config

Description
Specify the fully qualified SQL PA ANL Control configuration.

**Required or optional**
Optional (Required in case KD2_PF_SQLPA_ENABLE is set to Y and KD2_PF_SQLPA_CF_ENBL is set to Y)

**Default value**
SYS1.DB2.SQLPA(ANLC)

**Location where the parameter value is stored**
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
SQLPAANLCNTL=<value>

**In the Configuration Tool (ICAT)**

**Panel name**
SQL Performance Analyzer

**Panel ID**
KD261PQ

**Panel field**
ANL Control

**Default value**
None

**Batch parameter name**
KD2_PF_SQLPA_CF_ANLC

**PARMGEN name**
KD2_PFnn_SQLPA_CF_ANLC

**PARMGEN classification**
SQLPA

**KD2_PFnn_SQLPA_CF_ANLP:**

**Fully qualified SQL PA ANLP config**

**Description**
Specify the fully qualified SQL PA ANL Parm configuration.

**Required or optional**
Optional (Required in case KD2_PF_SQLPA_ENABLE is set to Y and KD2_PF_SQLPA_CF_ENBL is set to Y)

**Default value**
SYS1.DB2.SQLPA(ANLP)

**Location where the parameter value is stored**
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
SQLPAANLPARM=<value>

**In the Configuration Tool (ICAT)**

**Panel name**
SQL Performance Analyzer

**Panel ID**
KD261PQ
Panel field
   ANL Parm

Default value
   None

Batch parameter name
   KD2_PF_SQLPA_CF_ANLP

PARMGEN name
   KD2_PFnn_SQLPA_CF_ANLP

PARMGEN classification
   SQLPA

**KD2_PFnn_SQLPA_CF_ENBL:**

Enable use of SQL PA configuration

**Description**

Used to specify whether an existent SQL Performance Analyzer configuration is to be used:

- **Y** The SQL Performance Analyzer configuration is used.
- **N** The SQL Performance Analyzer configuration is not used.

In version 520 and above, this parameter must be set to **Y**.

**Required or optional**

Optional (Required in case KD2_PF_SQLPA_ENABLE is set to **Y**)

**Default value**

**Y**

**Permissible values**

**Y**

**Location where the parameter value is stored**

This value is not stored in a configuration member.

**In the Configuration Tool (ICAT)**

**Panel name**

SQL Performance Analyzer

**Panel ID**

KD261PQ

**Panel field**

Use existing SQL Performance Analyzer configuration

**Default value**

**Y**

**Permissible values**

**Y**

**Batch parameter name**

KD2_PF_SQLPA_CF_ENBL

**PARMGEN name**

KD2_PFnn_SQLPA_CF_ENBL

**PARMGEN classification**

SQLPA
KD2_PFnn_SQLPA_ENABLE:

Enable SQL Performance Analyzer

**Description**

Used to specify whether the SQL Performance Analyzer is to be configured. Specify one of the following values:

- **Y**  
  The SQL Performance Analyzer is to be configured.
- **N**  
  The SQL Performance Analyzer is not to be configured.

**Required or optional**

Required

**Default value**

N

**Permissible values**

Y, N

**Location where the parameter value is stored**

This value is not stored in a configuration member.

**In the Configuration Tool (ICAT)**

Panel name

SQL Performance Analyzer

Panel ID

KD261PQ

Panel field

Enable SQL Performance Analyzer

**Default value**

N

**Permissible values**

Y, N

**Batch parameter name**

KD2_PF_SQLPA_ENABLE

**PARMGEN name**

KD2_PFnn_SQLPA_ENABLE

**PARMGEN classification**

SQLPA

KD2_PFnn_SQLPA_STEPDSN:

Fully qualified SQL PA STEPLIB dsn

**Description**

Specify the fully qualified SQL PA STEPLIB data set name. Refer to the IBM DB2 SQL Performance Analyzer for z/OS Installation Guide for detailed installation and customization information.

**Required or optional**

Optional (Required in case KD2_PF_SQLPA_ENABLE is set to Y)

**Default value**

SYS1.DB2.SQLPA
**Location where the parameter value is stored**
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
SQLPASTEPLIB=<value>

**In the Configuration Tool (ICAT)**

**Panel name**
SQL Performance Analyzer

**Panel ID**
KD261PQ

**Panel field**
Dataset name

**Default value**
None

**Batch parameter name**
KD2_PF_SQLP_STEPDSN

**PARMGEN name**
KD2_PFnn_SQLP_STEPDSN

**PARMGEN classification**
SQLPA

**KD2_PFnn_SQLP_STEPDSN:**

DB2 version for SQLPA

**Description**
This is the version of the SQL Performance Analyzer. Valid values are 4.2 and 5.1

**Required or optional**
Optional (Required in case KD2_PF_SQLPA_ENABLE is set to Y)

**Default value**
5.1

**Permissible values**
4.2, 5.1

**Location where the parameter value is stored**
In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**
SQLPAVERSION=<value>

**In the Configuration Tool (ICAT)**

**Panel name**
SQL Performance Analyzer

**Panel ID**
KD261PQ

**Panel field**
Version

**Default value**
5.1
Additional DB2 traces
This section lists the parameters for additional DB2 traces.

You can specify additional DB2 trace commands to be started automatically when OMEGAMON XE for DB2 PE starts. Use the following parameters to provide valid START TRACE commands. Note that when OMEGAMON XE for DB2 PE/OMEGAMON XE for DB2 PM shuts down, the traces are not stopped.

**KD2_PFnn_TRACES_318:**

Start IFCID 318

**Description**

Used to specify whether a start trace command should be issued for IFCID 318. IFCID 318 is a switch that causes DB2 to collect detailed information on SQL statements in the dynamic statement cache. The collected information is externalized by means of IFCID 316.

If you set 'Enable end-to-end SQL monitoring support' (KD2_OMPE_E2E_MON_SPRT) to Y, IFCID 318 must be set to Y.

Note: Dynamic statement cache data collection is only available for DB2 Version 8 and higher. If you intend to use end-to-end SQL monitoring dynamic statement cache data collection is required. Make sure to set this flag to Y.

**Required or optional**

Required

**Default value**

N

**Permissible values**

Y, N

**Location where the parameter value is stored**

This value is not stored in a configuration member.

**In the Configuration Tool (ICAT)**

**Panel name**

Start Additional DB2 Traces

**Panel ID**

KD2PTRAC

**Panel field**

IFCID 318 (Dynamic SQL statement cache)

**Default value**

N
**Permissible values**

Y, N

**Batch parameter name**

KD2_PF_TRACES_318

**PARMGEN name**

KD2_PFnn_TRACES_318

**PARMGEN classification**

DB2

**KD2_PFnn_TRACES_400:**

Start IFCID 400

**Description**

Used to specify whether a start trace command should be issued for IFCID 400. IFCID 400 is a switch that causes DB2 to collect detailed information on static SQL statement in the EDM pool. The collected information is externalized by means of IFCID 401. The default is N.

If you set 'Enable end-to-end SQL monitoring support' (KD2_OMPE_E2E_MON_SPRT) to Y, IFCID 400 must be set to Y.

Note: Static statement data collection is only available for DB2 Version 10. If you intend to use end-to-end SQL monitoring static SQL statement data collection is required. Make sure to set this flag to Y.

**Required or optional**

Required

**Default value**

N

**Permissible values**

Y, N

**Location where the parameter value is stored**

This value is not stored in a configuration member.

**In the Configuration Tool (ICAT)**

**Panel name**

Start Additional DB2 Traces

**Panel ID**

KD2PTRAC

**Panel field**

IFCID 400 (Static SQL statement cache)

**Default value**

N

**Permissible values**

Y, N

**Batch parameter name**

KD2_PF_TRACES_400

**PARMGEN name**

KD2_PFnn_TRACES_400
PARMGEN classification
DB2

KD2_PFnn_TRACES_DB2CMD2:

DB2 Command 2

Description
You can enter any valid DB2 command in this field. For each DB2 subsystem that is monitored by the OEMGAMON Collector a PE Server subtask is started. The DB2 command specified here is issued as part of the start sequence of the PE Server subtask.

Note: Your input for these fields is not validated. You have to make sure that you enter a valid DB2 command. If the DB2 command is not correct the return code is written to the SYSPRINT of the OMEGAMON Collector at startup.

Required or optional
Optional

Default value
None

Location where the parameter value is stored
In the OMPEssid member of the rhilev,midlev,rtename.RKD2PAR library

Output line
DB2COMMAND='<value>'

In the Configuration Tool (ICAT)

Panel name
Start Additional DB2 Traces

Panel ID
KD2PTRAC

Panel field
DB2 command

Default value
None

Batch parameter name
KD2_PF_TRACES_DB2CMD2

PARMGEN name
KD2_PFnn_TRACES_DB2CMD2

PARMGEN classification
DB2

KD2_PFnn_TRACES_DB2CMD3:

DB2 Command 3

Description
You can enter any valid DB2 command in this field. For each DB2 subsystem that is monitored by the OEMGAMON Collector a PE Server subtask is started. The DB2 command specified here is issued as part of the start sequence of the PE Server subtask.
**KD2_PF_TRACES_DB2CMD3**

Note: Your input for these fields is not validated. You have to make sure that you enter a valid DB2 command. If the DB2 command is not correct the return code is written to the SYSPRINT of the OMEGAMON Collector at startup.

**Required or optional**

Optional

**Default value**

None

**Location where the parameter value is stored**

In the OMPEssid member of the `rhilev.midlev.rtename.RKD2PAR` library

**Output line**

```
DB2COMMAND='<value>'
```

**In the Configuration Tool (ICAT)**

**Panel name**

Start Additional DB2 Traces

**Panel ID**

KD2PTRAC

**Panel field**

DB2 command

**Default value**

None

**Batch parameter name**

KD2_PF_TRACES_DB2CMD3

**PARMGEN name**

KD2_PFnn_TRACES_DB2CMD3

**PARMGEN classification**

DB2

**KD2_PFnn_TRACES_DB2CMD4:**

DB2 Command 4

**Description**

You can enter any valid DB2 command in this field. For each DB2 subsystem that is monitored by the OMEGAMON Collector a PE Server subtask is started. The DB2 command specified here is issued as part of the start sequence of the PE Server subtask.

Note: Your input for these fields is not validated. You have to make sure that you enter a valid DB2 command. If the DB2 command is not correct the return code is written to the SYSPRINT of the OMEGAMON Collector at startup.

**Required or optional**

Optional

**Default value**

None

**Location where the parameter value is stored**

In the OMPEssid member of the `rhilev.midlev.rtename.RKD2PAR` library
Output line
   DB2COMMAND='<value>'

In the Configuration Tool (ICAT)
   Panel name
      Start Additional DB2 Traces
   Panel ID
      KD2PTRAC
   Panel field
      DB2 command
   Default value
      None

Batch parameter name
   KD2_PF_TRACES_DB2CMD4

PARMGEN name
   KD2_PFnn_TRACES_DB2CMD4

PARMGEN classification
   DB2

Additional monitoring features
This section lists the parameters for additional monitoring features.

This section contains parameters to enable additional monitoring features. These include DB2 message monitoring and Stored Procedure monitoring.

**KD2_PFnn_ACS_DB2MSGMON:**

Starts the DB2 message monitor

**Description**

If **Y** is specified the DB2 message monitor is started.

**Required or optional**

Required

**Default value**

**N**

**Permissible values**

**Y, N**

Location where the parameter value is stored

In the OMPESsid member of the *rhilev.midlev.rtename.RKD2PAR* library

Output line

   DB2MSGMON=<value>

In the Configuration Tool (ICAT)

   Panel name
      Additional Settings
   Panel ID
      KD2PPFAC
   Panel field
      Start DB2 message monitoring
**KD2_PF_ACS_DB2MSGMON**

Default value

N

Permissible values

Y, N

**Batch parameter name**

KD2_PF_ACS_DB2MSGMON

**PARMGEN name**

KD2_PFnn_ACS_DB2MSGMON

**PARMGEN classification**

READA

**KD2_PFnn_READA_OPBUFSIZE:**

The size of the OP buffer

**Description**

The size of the OP buffer used by the READA collector task to collect DB2 IFCIDs for all monitoring functions. The default value is 16 MB. The value is customizable between 16 and 64 MB.

**Required or optional**

Required

**Default value**

16

**Minimum**

16

**Maximum**

64

**Location where the parameter value is stored**

In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**

RACOPSZIE=<value>

**In the Configuration Tool (ICAT)**

**Panel name**

Additional Settings

**Panel ID**

KD2PPFAC

**Panel field**

OP Buffer Size

**Default value**

16

**Minimum**

16

**Maximum**

64

**Batch parameter name**

KD2_PF_READA_OPBUFSIZE
KD2_PF_READA_OPBUFSIZE

**PARMGEN name**

KD2_PFnn_READA_OPBUFSIZE

**PARMGEN classification**

READA

**KD2_PFnn_READA_OPBUFTHR:**

The threshold for the OP buffer POST event

**Description**

The threshold used to fire a POST event to the READA collector task. The threshold specifies the percentage of the OP buffer size that can be buffered before the monitor program ECB is posted. The ECB is posted when the amount of trace data collected has reached the value that is specified in the byte count field.

**Required or optional**

Required

**Default value**

6

**Minimum**

5

**Maximum**

75

**Location where the parameter value is stored**

In the OMPESsid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**

RACOPTHRSHLD=<value>

**In the Configuration Tool (ICAT)**

**Panel name**

Additional Settings

**Panel ID**

KD2PPFAC

**Panel field**

OP Buffer POST Threshold

**Default value**

5

**Minimum**

5

**Maximum**

75

**Batch parameter name**

KD2_PF_READA_OPBUFTHR

**PARMGEN name**

KD2_PFnn_READA_OPBUFTHR

**PARMGEN classification**

READA
**KD2_PF_READA_SPMON**

**KD2_PFnn_READA_SPMON:**

Starts the Stored Procedure monitor

**Description**

If Y is specified the SP monitor is started. The READA collector task is not started by default. However, if the SP monitor is activated the READA collector task gets automatically started. By starting the SP monitor, other monitor functions in the READA collectors task are not influenced. If the SP monitor is stopped and no other monitor function is started in the READA collector task, then the READA collector task is also stopped. When activating the SP monitor a DB2 trace command is started.

**Required or optional**

Required

**Default value**

N

**Permissible values**

Y, N

**Location where the parameter value is stored**

In the OMPEssid member of the rhilev.midlev.rtename.RKD2PAR library

**Output line**

SPMON=<value>

**In the Configuration Tool (ICAT)**

**Panel name**

Additional Settings

**Panel ID**

KD2PPFAC

**Panel field**

Start DB2 message monitoring

**Default value**

N

**Permissible values**

Y, N

**Batch parameter name**

KD2_PF_READA_SPMON

**PARMGEN name**

KD2_PFnn_READA_SPMON

**PARMGEN classification**

READA

---

**Preparing the system**

Before you can configure OMEGAMON for DB2 PE, you must install the program files, set up PARMGEN and a first runtime environment, and ensure that your system fulfills the prerequisites for the components that you plan to use.
About this task

The following topics provide detailed information:
1. “Installing the program files”
2. “Setting up security for the OMEGAMON Collector address spaces”
3. “Setting up TCP/IP services for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring”
4. “Enabling started jobs for Performance Warehouse” on page 312
5. “Specifying DB2 load libraries for the ISPF Monitoring Dialogs” on page 313
6. “Setting up RRSAF” on page 314

Installing the program files

OMEGAMON XE for DB2 PE on z/OS is installed using SMP/E.

About this task

See the Program Directory for IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS for detailed instructions.

Setting up security for the OMEGAMON Collector address spaces

The OMEGAMON Collector started task runs under a user ID. Therefore, you must create either a user ID or a group ID with the name DB2PM and connect the started task to this ID. Note that if you do not want to use Performance Warehouse, DB2 Connect Monitoring, or SQL Performance Analyzer, you can use a different started task user ID that is not DB2PM. In this case, perform the steps below with your started task user ID instead of DB2PM.

Before you begin

Ensure that you have sufficient privileges to create a new user ID or group ID in the security system that you are using, for example RACF.

About this task

Complete the following steps to create the user ID or group ID DB2PM and connect the OMEGAMON Collector started task to it:

Procedure

1. Create the user ID DB2PM in your security system. If you prefer to use an alternative user ID other than DB2PM, create a group ID DB2PM and add the user ID that you want to use to the user group DB2PM.
2. Connect the OMEGAMON Collector started task to the user ID DB2PM.

Setting up TCP/IP services for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring

The OMEGAMON Collector uses OpenEdition to perform TCP/IP services. If you plan to use Performance Expert Client and/or end-to-end SQL or stored procedure monitoring, you must configure the OMEGAMON Collector to use TCP/IP
services. This means that the user ID and the connected group ID of the OMEGAMON Collector must be known to OpenEdition and have sufficient OpenEdition privileges.

**Before you begin**

Perform this task only if you plan to use Performance Expert Client and/or end-to-end SQL or stored procedure monitoring.

If you perform this task, ensure that you have system administrator privileges for your security system, for example RACF SPECIAL for RACF security.

**About this task**

OpenEdition can be used by user IDs that have a valid OMVS segment in the RACF user profile. Add the OMVS segment to the user ID of the OMEGAMON Collector by performing the following steps:

**Procedure**

1. Assign a UID in the OMVS segment to the RACF user profile of the OMEGAMON Collector user ID. Issue the following command:
   
   ```
   ALTUSER <OMEGAMON Collector user ID> OMVS(UID(0))
   ```

   where `<OMEGAMON Collector user ID>` is the user ID that the OMEGAMON Collector started task is connected to.

   **Note:** The usage of special TCP/IP services requires that the user ID of the OMEGAMON Collector has root privileges in OpenEdition. To minimize the impact of granting the OpenEdition root privilege, use a user ID for the OMEGAMON Collector started task that is not a valid TSO user ID.

2. Optional: If you connected the OMEGAMON Collector started task to a user ID and a group ID, you need to assign a GID in the OMVS segment to the group ID. Issue the following command:
   
   ```
   ALTGROUP <OMEGAMON Collector group ID> OMVS(GID(<gid>))
   ```

   where `<OMEGAMON Collector group ID>` is the group ID that the OMEGAMON Collector started task is connected to. Replace `<gid>` with a valid and free group ID in OpenEdition. You can use the `LISTGRP OMVS` command of RACF to get an overview about the currently used group IDs in OpenEdition.

**Enabling started jobs for Performance Warehouse**

The Performance Warehouse job is run as a started job. A started job is a started task that contains a job statement. If you plan to use Performance Warehouse, you must configure your z/OS system to support started jobs.

**Before you begin**

Perform this task only if you plan to use Performance Warehouse.

If your z/OS system is already configured to support started jobs, skip this task.

If you perform this task, ensure that you have UPDATE privileges on the system PARMLIB, for example on SYS1.PARMLIB.
About this task

Your z/OS system must be configured to search started jobs in the PROCLIB of the started tasks, so that the OMEGAMON Collector can create the Performance Warehouse at startup.

The master JCL MSTJCLxx in your system PARMLIB defines started job PROCLIBs either by an IEFJOBS or an IEFPDSI DD statement. As the Performance Warehouse job will be copied to the started tasks PROCLIB, this PROCLIB data set must be part of the IEFJOBS or IEFPDSI concatenation.

Procedure

1. Open the master JCL in your system PARMLIB and find the IEFJOBS or the IEFPDSI DD statement. If no IEFJOBS or IEFPDSI DD statement exists, add a new IEFJOBS DD statement to the master JCL.
2. Add a further partitioned data set to the IEFPDSI or IEFJOBS concatenation for your started tasks PROCLIB.

Specifying DB2 load libraries for the ISPF Monitoring Dialogs

If you want to use Online Monitoring from the ISPF Monitoring Dialogs, you must add the DB2 load libraries to your standard search libraries for load modules. This must be done for every user that wants to use Online Monitoring from the ISPF Monitoring Dialogs.

Before you begin

You only need to perform this task if you plan to use Online Monitoring from the ISPF Monitoring Dialogs. If you do not plan to use Online Monitoring from the ISPF Monitoring Dialogs, you can skip this task.

If you perform this task, ensure that you have z/OS system administrator privileges.

About this task

You must add the DB2 load library of the DB2 subsystem that you want to monitor to the standard search path.

Note: If you use more than one DB2 version, use the DB2 load library from the DB2 subsystem with the second highest DB2 version. Like this, you can monitor DB2 subsystems of three different versions. For example, with the load library of DB2 10, you can monitor subsystems of DB2 9 and DB2 10, and DB2 11. If you do not do this, you must unload and load the DB2 load modules when switching to a DB2 subsystem with a different DB2 version in the ISPF Monitoring Dialogs.

Use one of the following methods to add the DB2 load library to the standard search path:

Procedure

- Use the TSO TSOLIB command. This is the preferred method.
- Add the DB2 load library to the TSO logon step library STEPLIB DD.
- Add the DB2 load library to the link pack area LPALSTxx.
- Add the DB2 load library to the system link list concatenation LNKLSTxx.
Setting up RRSAF

OMEGAMON for DB2 PE uses Resource Recovery Services Attachment Facility (RRSAF) for connecting to DB2 subsystems.

About this task

Ensure that RRSAF can be used on your system. Complete the following steps:
1. Ensure that the RRS subsystem is running on your system.
2. If you have not already established a profile for controlling access from the RRS attachment facility, define \(<ssid>.RRSAF\) (where ssid is the DB2 subsystem ID) in the resource class DSNR (the RACF resource class for DB2). This has to be done for each DB2 subsystem that you want to monitor. You can also define a generic resource RRSAF. These profiles might already exist if, for example, stored procedures have been used before. Assign READ authority for this RACF profile to the OMEGAMON for DB2 PE Collector started task ID (userid).

Configuration scenarios

This section contains configuration scenarios to help you set up OMEGAMON for DB2 PE/OMEGAMON for DB2 PM.

About this task

The following topics provide detailed information:
1. “Basic configuration scenario”
2. “Installing OMEGAMON for DB2 PE from scratch with the most basic configuration”
3. “Configuration scenario specific to OMEGAMON for DB2 PE/OMEGAMON for DB2 PM” on page 321
4. “Configuring Near-Term History with system variable support” on page 322
5. “Configuring InfoSpher Optim Performance Manager and Performance Expert Client” on page 322

Basic configuration scenario

This section contains one basic scenario that shows how to set up OMEGAMON for DB2 PE/OMEGAMON for DB2 PM from scratch with the most basic configuration. The scenario mainly contains default values.

About this task

The following topic provides detailed information:
1. “Installing OMEGAMON for DB2 PE from scratch with the most basic configuration”

Installing OMEGAMON for DB2 PE from scratch with the most basic configuration

This scenario shows how to install OMEGAMON for DB2 PE from scratch.

Before you begin

Apply SMP/E before you start with this scenario.
About this task

To keep the setup effort to a minimum, monitoring functions are not enabled. After the configuration, you will be able to open the Classic interface and check the performance of your DB2 subsystem.

Procedure

1. Start the Configuration and Installation Tools user interface by issuing the command `ex` on the TKANCUS library in your SMP/E installation.

   ```
   ex '&trghlq.TKANCUS'
   ```

2. Use option 3 Configuration Workflow to open the PARMGEN workflow user interface.

   KCIPQGW
   Welcome to the z/OS Installation and Configuration Tools for z Systems Management Suites
   
   1. Checklist: System preparation checklists
      Tip: Read/Print Checklists prior to installation and configuration.
   
   2. Installation Workflow:
      SMP/E-install z/OS products with Install Job Generator (JOBGEN)
      Conditional: JOBGEN is not required when using SystemPac or ServerPac.
   
   3. Configuration Workflow (Post-installation):
      Configure z/OS products with Parameter Generator Workflow (PARMGEN)
   
   1. What's New in PARMGEN? <== Revised

3. As this is the first setup, you must provide GBL_TARGET_HILEV information in this first panel:

   KCIPOTLV
   ----------- SPECIFY GBL_TARGET_HILEV PARAM VERIFY GBL_TARGET_HILEV
   PARMGEN stores configuration values in the TSO user's ISPF profile.
   If this is the first-time your TSO user ID is invoking PARMGEN,
   enter the GBL_TARGET_HILEV-related values appropriate for your deployment:

   HLQ of SMP/E target (TK*) datasets
   
   If this is not the first time your user ID (in this example, MIS1) is invoking PARMGEN, this panel is also presented if the GBL_TARGET_HILEV stored value changed from the last time you invoked PARMGEN. Verify GBL_TARGET_HILEV, UNIT, VOLSER, STORCLAS, and/or MGMTCLAS values accordingly.

4. This is the first setup, so you must provide some basic information on the second panel:
Enter parameter values appropriate for the LPAR runtime environment (RTE).

**GBL_USER_JCL:** SYS1PMO.O310.V540.PARMGEN.JCL
(for example, SYS1.K02.V540.SYSPLEX.PARMGEN.JCL)
Specify the dataset name of the PARMGEN common/global library for the different LPAR runtime environments (RTEs).
Use the same dataset for managing the different LPAR RTEs.
Multiple users can specify the same dataset to manage RTEs.

**RTE_PLIB_HILEV:** SYS1PMO.O310
Specify the High-Level Qualifier (&hlq) portion of the PARMGEN interim staging and work libraries for this LPAR RTE:
- &hlq.&rte_name.IK* (IKANCMDU,IKANPARU,IKANSAMU)
- &hlq.&rte_name.WK* (WKANCMDU,WKANPARU,WKANSAMU)
- &hlq.&rte_name.WCONFIG

**RTE_NAME:** RTE0A___ (Type ? for a list of configured RTEs)
Specify the runtime environment (&rte_name) for this LPAR.

5. Add common PARMGEN-related information for the parameter **GBL_USER_JCL**. For example, which RTE did you use last, what jobs were run, when were they run, and what are their return codes.

6. Add high-level a qualifier for your runtime environments for parameter **RTE_PLIB_HILEV**.

7. Add the name of your new RTE for parameter **RTE_NAME**.

8. This example uses the following values for these parameters:
   - **GBL_USER_JCL:** SYS1PMO.O310.V540.PARMGEN.JCL
   - **RTE_PLIB_HILEV:** SYS1PMO.O310
   - **RTE_NAME:** RTE0A

**Note:** The length of **RTE_PLIB_HILEV** plus **RTE_NAME** must not exceed 18 characters.

9. Press Enter to commit your settings. The next panel is displayed:
10. Use option 1 KCIJPFCFG to start the setup of the PARMGEN work environment for this new RTE. As PARMGEN is workflow-based, this walkthrough follows steps 1 to 4, as shown in the list below the RTE names.

11. On KCIPQPG1, fill in your jobcard that will be used for all jobs at the bottom of the screen. If you need more lines for your jobcard, you can edit the $JOBCARD member in your user JCL data (provided by parameter GBL_USER_JCL).

Note: If you change $JOBCARD, the user interface only shows the first four lines.

12. Press Enter to display the next panel.

13. On KCIPQPG2, provide a value for parameter GBL_TARGET_HILEV. This parameter is the high-level qualifier of your SMP/E target data sets. Fill out UNIT, VOLSER, STORCLAS, MGMGCLAS, GBL_SYSDA_UNIT, and GBL_REGION as appropriate for your system.

14. Press Enter to get to the next panel.

15. On KCIPQPG3 you find a number of RTE-specific parameters. For this walkthrough, review the following:
   a. RTE_HILEV is the high-level qualifier as previously defined by parameter RTE_PLIB_HILEV, which is why it is set as default.
   b. RTE_VSAM_HILEV is the high-level qualifier for VSAM runtime libraries. The same applies here as for RTE_HILEV.
   c. RTE_TEMS_CONFIGURED_FLAG is the enablement flag for the Tivoli Enterprise Monitoring Server. Change the default to N, as this walkthrough does not cover the enablement of the Tivoli Monitoring infrastructure.
   d. RTE_X_SECURITY_EXIT_LIB is the security exit library. If you changed RTE_HILEV or RTE_VSAM_HILEV, ensure that the high-level qualifier is the same as for RTE_PLIB_HILEV.
   e. Leave the rest of the parameters as is and press Enter.
16. On **KCIP@PG1**, you see a list of products that can be configured, as a result of the components found. In general, you can exclude specific products if you do not want PARMGEN to run through their configuration processing. For OMEGAMON for DB2 PE, you must not exclude the Tivoli Enterprise Monitoring Server (KDS). Even if you disabled the Tivoli Enterprise Monitoring Server using **RTE_TEMS_CONFIGURED_FLAG** on **KCIP@PG3**, this product is still required for the configuration. For this example, do not exclude anything and confirm this with **Y** in the appropriate field.

17. Press **Enter** to display a dialog that asks you whether you want to back up your existing configuration.

18. Press **Enter**, as the backup is only required if you rerun the **KCIJPCFG** job.
19. Submit the KCIJPFG job that is open, then press PF3 once to go back to the main menu. You see in the status field of the KCICPFG job that the job is submitted.

20. Press Enter until the KCIJPFG field contains a return code. The expected return code is zero. If you have a higher return code, inspect the job log and take appropriate actions.

21. Use option 2 RTE0A (name of the RTE) to open the list of available PARMGEN profiles.

22. The list of available PARMGEN profiles is displayed on KCIP@PG6.

<table>
<thead>
<tr>
<th>Command</th>
<th>Scroll</th>
</tr>
</thead>
<tbody>
<tr>
<td>====&gt;</td>
<td>====&gt;</td>
</tr>
</tbody>
</table>

(Required) Customize the RTE profile and the $GBL$USR user profiles:
1. RTE0A RTE LPAR-specific CONFIG profile in WCONFIG (User copy)
2. $GBL$USR Global parameters CONFIG profile in WCONFIG (User copy)

(Not Required) Customize the RTE Variables profile if RTE_SYSV_SYSVAR_FLAG=Y:
3. RTE0A Variables (system, user) CONFIG profile in GBL_USER_JCL global library (SYS1PMO.O310.V540.PARMGEN.JCL).
   Add or override system or user-defined symbols and their resolution values for symbols used in the user profiles.

(Tip) Review/Custimize WCONFIG Kpp$C*/Kpp$P*/Kpp$S* user imbeds:
4. WCONFIG SYS1PMO.O310.RTE0A.WCONFIG

(Tip) Review if you want to compare with IBM-supplied default profile values:
5. $CFG$IBM RTE LPAR-specific CONFIG profile in WCONFIG (IBM copy)
6. $GBL$IBM Global parameters CONFIG profile in WCONFIG (IBM copy)

(Optional) Override SYSIN member to supply additional (User) profiles:
7. $SYSIN$PARSE/$PARSESV SYSIN controls (CONFIG/SELECT MEMBER)

PARMGEN profiles contain the parameter value pairs that make up the configuration. RTE0A contains all product/component-specific parameters. $GBL$USR contains all global configuration parameters.

23. Use option 1 RTE0A to open the PARMGEN user profile for the products/components and adjust the following parameters with the given values:
   a. RTE_X_STC_INAPF_INCLUDE_FLAG = Y When this parameter is set to Y, the started task contains an imbed that does the APF authorization for you. If you need to set the APF authorizations in your environment by hand, leave this parameter to N and follow the steps in the Complete the Configuration for the OMEGAMON for Db2 Performance Expert/Monitor Technote at the end of this walkthrough.
   b. KD2_CLASSIC_DB2PM_PLANPKG_OWNER = DB2PM This is the name of the plan and package owner that is used to access the OMEGAMON for DB2 PE packages in DB2.
   c. KD2_OMPE_GRANT_PEUSER = <user for Started tasks> This is the user for the RACF userid/groupid in OMGssid grant job in xKD2SAM DB2 job. Under this user Classic Interface Started task and other Started tasks should run.
   d. KD2_DB01_DB2_SSID = <SSID of the subsystem you want to monitor> Use this parameter to specify the SSID of the subsystem that you want to monitor at the end of this walkthrough.
e. KD2_DB01_DB2_VER = <DB2 version of the subsystem that you want to monitor> Specify the DB2 version of your subsystem that you want to monitor. This can be either 10, 11 or 12.

24. Use PF3 to get back to KCIP@PG6. This walkthrough covers only a very basic setup. After you complete all the steps, you can adjust all parameters, add subsystems, and configure your monitoring profiles accordingly. For now, keep all other parameters as is.

25. Use option 2 $GBLSUSR to open the global PARMGEN user profile and adjust the following parameters with the given values:
   a. **GBL_DSN_DB2_RUNLIB_Vxx** = <Path to your DB2 runlib> This is the path to the data sets that holds your DB2 RUNLIB. You have to specify the corresponding library of the DB2 version that is provided by KD2_DB01_DB2_VER. This parameter and the following parameters are commented out by default. To comment them in, remove the asterisk (*) at the beginning of the line.
   b. **GBL_DSN_DB2_LOADLIB_Vxx** = <Path to your DB2 loadlib> This is the path to the data sets that hold your DB2 LOADLIB. You have to specify the corresponding library of the DB2 version that is provided by KD2_DB01_DB2_VER.
   c. **GBL_DSN_DB2_DSNEXIT** = <Path to your DB2 exit library> This is the path to the data sets that hold your DB2 exit library.

26. Use PF3 twice to get back to KCIPQPGB, the workflow user interface welcome page.

27. Use option 3 $PARSE to open KCIP@PR1.

28. Use option 1 $PARSE to open the composite job that generates the work libraries. The resulting set of libraries is a complete environment that can be used to test the configuration before deploying it to the production environment. In other words, $PARSE generates all the configuration members in the corresponding work data sets WK*.

29. Submit the job. The expected return code is zero.

30. Use PF3 to get back to KCIPQPGB the workflow user interface

31. Use option 4 SUBMIT to open KCIP@SUB. This panel contains several more jobs, most of which are conditional and are used to finish the configuration. This includes the allocation of the runtime libraries and the copy of the program code from the target libraries to the runtime libraries. Not all jobs that are listed here are submitted by the composite job automatically. This depends on your environment and your monitoring needs.
Use option 1 KCIP@SUB to open the composite SUBMIT job and submit it. The expected return code is zero.

Use PF3 to get back to the KCIP@SUB panel. Press Enter until all jobs are finished. The expected return codes are zero. If you have a higher return code, check the job log and take appropriate actions.

Use PF3 to get back to the KCIPQPGB panel.

As a final step, see “Completing the configuration for z/OS components” on page 405. This guide contains several mandatory steps to set up the server correctly. Most of these steps only have to be done once. After you finished these steps, you can start the server and open the Classic Interface to start monitoring your subsystem.

What to do next

After having installed OMEGAMON for DB2 PE from scratch, you can continue by enabling more functions. Functions that can be enabled are, for example, Near-Term History and Snapshot History.

You can continue with other scenarios in order to configure more than one DB2 subsystem, even if they are spread over different LPARs in your environment.

Configuration scenario specific to OMEGAMON for DB2 PE/OMEGAMON for DB2 PM

This section contains some scenarios that are specific to OMEGAMON for DB2 PE/OMEGAMON for DB2 PM.

About this task

The following topics provide detailed information:
1. “Configuring Near-Term History with system variable support” on page 322
2. “Configuring InfoSphere Optim Performance Manager and Performance Expert Client” on page 322
Configuring Near-Term History with system variable support
This scenario describes how to configure Near-Term History in an RTE that is enabled for system variable support.

Before you begin
As a prerequisite, you need an RTE having OMEGAMON for DB2 PE already configured and system variable support enabled.

Procedure
1. Start the Configuration and Installation Tools user interface by issuing the command `ex` on the TKANCUS library in your SMP/E installation.
   
   ```
   ex '&trgh1q.TKANCUS'
   ```

2. Use option 3 Configuration Workflow to open the PARMGEN workflow user interface.
3. Enable your existing RTE that has been already enabled for system variable support.
4. Use option 2 to open the PARMGEN profile selection menu.
5. Use option 1 to open the RTE LPAR configuration profile.
6. Enable Near-Term History for those profiles that you use for monitoring your DB2 subsystems by setting parameter `KD2_PFnn_HIS_START` to Y. `nn` is the profile ID. Previously, with the Configuration Tool, you had to enable system variable support for Near-Term History separately on the panel KD261PI Global Control Parameters. This prevented the use of `%DB%` and `%SY%` in the Near-Term History data sets. This limitation no longer exists. In addition, you do not have to enable system variable support for Near-Term History separately.
7. Use PF3 to get back to the main workflow panel KCIPQPGB.
8. Use option 3 to open the $PARSE job panel KCIP@PR1.
9. Use option 1 to open the composite $PARSE job and submit it. The expected return code is zero.
10. Use PF3 twice to get back to the main workflow panel KCIPQPGB.
11. Use option 4 to open the SUBMIT job panel KCIP@SUB.
12. Use option 5 to open the KCIJVUPV job that regenerates the Near-Term History configuration and submit it. The expected return code is zero.
13. Use option 12 to open the KCIJPW2R deployment job and submit it. The expected return code is zero.

What to do next
Now that you configured Near-Term History, restart the OMEGAMON for DB2 PE server. Use the Classic Interface to look at the history data.

Configuring InfoSphere Optim Performance Manager and Performance Expert Client
This scenario describes how to configure the InfoSphere Optim Performance Manager in order to get end-to-end SQL monitoring (Extended Insight) and stored procedure monitoring. This feature is only for OMEGAMON for DB2 PE only (not for OMEGAMON for DB2 PM).
Before you begin

As a prerequisite, you need a runtime environment having OMEGAMON for DB2 PE already configured.

Procedure

1. Start the Configuration and Installation Tools user interface by issuing the command \texttt{ex} on the TKANCUS library in your SMP/E installation.

\texttt{ex 'trgh1q.TKANCUS'}

2. Use option 3 Configuration Workflow to open the PARMGEN workflow user interface.

3. Enable the runtime environment where you want to configure InfoSphere Optim Performance Manager.

4. Use option 2 to open the PARMGEN profile selection menu.

5. Use option 1 to open the RTE LPAR configuration profile and adjust the following parameters:

\begin{table}[h]
\centering
\begin{tabular}{|c|c|l|}
\hline
\textbf{Parameter} & \textbf{Value} & \textbf{Description} \\
\hline
\texttt{KD2_OMPE\_E2E\_MON\_SPRT} & Y & Enables Extended Insight Dashboard (end-to-end SQL monitoring) \\
\hline
\texttt{KD2\_DBnn\_DB2\_PORT\_NUM} & \textless port\textgreater & Mandatory. This specifies the port that is used to connect InfoSphere Optim Performance Manager to the OMEGAMON for DB2 PE server. You can keep the default port 2000. You need this port information for later. \\
\hline
\texttt{KD2\_PFnn\_TRACES\_318} & Y & Enables the automatic start of IFCID 318. \\
\hline
\texttt{KD2\_PFnn\_TRACES\_400} & Y & Enables the automatic start of IFCID 400. Set this parameter to Y only if you want to monitor DB2 10 and above. \\
\hline
\texttt{KD2\_PF01\_READA\_SPMON} & Y & Enables stored procedure monitoring. \\
\hline
\end{tabular}
\end{table}

6. Use PF3 to get back to the main workflow panel KCIPQPGB.

7. Use option 3 SPARSE to open the job panel KCIP@PR1.

8. Use option 1 to open the composite SPARSE job and submit it. The expected return code is zero.

9. Use PF3 to get back to the main workflow panel KCIPQPGB.

10. Use option 4 to open the SUBMIT job panel KCIP@SUB.

11. Use option 12 to open the KCIJPW2R to copy the configuration from the work libraries to the runtime libraries. Submit the upcoming job. The expected return code is zero.

What to do next

For integration of the InfoSphere Optim Performance Manager into Tivoli Enterprise Portal find more information in section “Enabling InfoSphere Optim Performance Manager integration” on page 377 in “Completing the configuration for z/OS components” on page 405.
Install InfoSphere Optim Performance Manager and configure it for the monitored database. For more information, see the IBM InfoSphere Optim Performance Manager in the Knowledge Center.

Configuring basic components on z/OS

The basic setup of OMEGAMON for DB2 PE covers the configuration of the OMEGAMON Collector, the configuration of the user interfaces, and the configuration of the monitoring functions that are enabled globally for all DB2 subsystems.

About this task

Perform the following steps to configure basic components on z/OS:

Procedure

1. Configure global control parameters. See “Configuring global control parameters and the OMEGAMON Collector” for detailed information.
4. Configure the user interfaces on z/OS. See the following topics for detailed information:
   • “Configuring Classic Interface” on page 325
   • For configuring OMEGAMON enhanced 3270 user interface, see the IBM OMEGAMON and Tivoli Management Services on z/OS shared documentation.
   • Optional: “Configuring ISPF Monitoring Dialogs” on page 334
5. Optional: Enable Performance Expert Client and/or end-to-end SQL or stored procedure monitoring support. See “Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support” on page 373 for detailed information.
6. Optional: Enable IBM Tivoli Monitoring and integration of Extended Insight (end-to-end SQL monitoring) support. See “Enabling IBM Tivoli Monitoring” on page 374 and “Enabling InfoSphere Optim Performance Manager integration” on page 377 for detailed information.

Configuring global control parameters and the OMEGAMON Collector

You must specify the global control parameters for the runtime environment that you created and configure the OMEGAMON Collector.

You must specify parameters to control specific rollout scenarios, to control the creation of DB2 related runtime members, and to handle DB2 Performance Expert Agent for DB2 Connect Monitoring program updates. To configure global control parameters and the OMEGAMON Collector, open the PARMGEN user profile and adjust the parameters that you find in the section "Basic product parameters" in the Parameter Reference.

Enabling DB2 Event Exception Processing

You can enable DB2 Event Exception Processing in the PARMGEN user profile.
DB2 Event Exception Processing alerts you when specific system events occur. These events include deadlocks, timeouts, locks, escalations, and starts and stops of a coupling facility structure rebuild. To enable DB2 Event Exception Processing, set parameter KD2_OMPE_DB2_EVENT to Y in the PARMGEN user profile. If you want to make further changes to DB2 Event Exception Processing, refer to the related parameters in section "Basic product parameters" in the Parameter Reference.

Here is a list of the related parameters:
- KD2_OMPE_AUTH_FAIL
- KD2_OMPE_EDMP_FULL
- KD2_OMPE_THREAD_COMMIT
- KD2_OMPE_DEADLOCK
- KD2_OMPE_TIMEOUT
- KD2_OMPE_CF_REBUILT
- KD2_OMPE_GLOBAL_TRACE
- KD2_OMPE_DSN_EXTENT
- KD2_OMPE_EXTENT_THOLD
- KD2_OMPE_USER
- KD2_OMPE_LOGSPACE

Enabling CPU parallelism data collection
You can enable CPU parallelism data collection in the PARMGEN user profile.

To collect query parallelism data for real-time and historical monitoring, enable CPU parallelism data collection. To enable CPU parallelism data collection, set parameter KD2_OMPE_CPU_PARALLEL to Y in the PARMGEN user profile. If you want to make further changes to CPU parallelism data collection, refer to the related parameters in section "Basic product parameters" in the Parameter Reference.

The following parameter is related:
- KD2_OMPE_DSP_SIZE

Configuring Classic Interface
Classic Interface is always configured by default.

If you want to make further changes to Classic Interface, refer to the related parameters in section "Basic product parameters" in the Parameter Reference.

Here is a list of the related parameters:
- KD2_CLASSIC_VTAM_NODE
- KD2_CLASSIC_VTAM_APPL_LOG
- KD2_CLASSIC_UMAX
- KD2_CLASSIC_USER_PROFILE
- KD2_CLASSIC_LROWS
- KD2_CLASSIC_DB2ID_DEFAULT

Near-term history data collection options
This topic provides an overview of the Near-term history data collection options member of RKD2PAR.
This topic describes the data collection options that determine the behavior of a Near-Term History Data Collector and the amount of data being collected.

For each Near-Term History Data Collector the Configuration Tool generates a data set member COPTcccc (where cccc specifies the DB2 subsystem identifier) that holds the data collection options. Collection options members for specific DB2 subsystems can be created and invoked at startup of a Near-Term History Data Collector. Collection options in a COPTcccc data set member are specified by keywords and associated keyword values. Basically, keywords and values specify and limit the data to be collected by the Near-Term History Data Collector.

Generally, the Configuration Tool should be used to generate collection options members. Nevertheless, a collection options member for a specific DB2 subsystem can also be created by copying an existing collection options member or the default member rhilev.RKD2PAR(COPTcccc) and modifying the collection options in the copied member.

**Keyword syntax and considerations**

Keywords in a collection options member are used in the following ways:

- **Keyword(value)**
- **Keyword(value,value,...)**
- **Keyword(value□value△...)**

If a keyword accepts only one value, enter the value in parentheses after the keyword. If a keyword accepts multiple values, enter the values in parentheses after the keyword and separate the values by commas or spaces.

The NOT operator (¬) negates value specifications. For example, CONNID(¬IM3D,¬I210) specifies that the Near-Term History Data Collector should collect data about all connection identifiers except for IM3D and I210.

The asterisk (*) wildcard character can be used at the end of value specifications. For example, PLAN(ABCD*) specifies that the Near-Term History Data Collector should collect data about all plans with names that begin with ABCD.

The question mark (?) wildcard character can be used as a single character replacement within value specifications. For example, DB2ID(D??T) specifies that the Near-Term History Data Collector should collect data about all DB2 subsystems with names that begin with D, followed by two variable characters, and end with T.

If you must continue statements in an COPTcccc member on another line for keywords such as AUTHID, CONNID, CORRID, ORIGAUTH, or PLAN:

- Do not use a continuation character. This means, do not repeat a “Keyword(” entry on the next line.
- Do no start the continuation line in column 1. Only keywords should begin in column 1, as in the following example:

```plaintext
PLAN(¬DSNG* ¬DSNTI* ¬FINAN1 ¬FINAN2 ¬DSNG* □¬DSNZZ ¬FINAN3 ¬FINAN4 ¬DSNR* ¬DSNRR* □¬FINAN5 ¬FINAN6)
```
Near-term history data collection options keywords by purposes:

This topic groups the keywords that can be used in a collection options member of RKD2PAR by their purposes.

**Define DB2 subsystem and collection interval**
- DB2SYS
- INTERVAL
- NTAINTRVAL

**Define data types to collect**
- ACCTG
- DYNAMICSQL
- LOCKCONT
- LOCKSUSP
- NEGSQL
- SCAN
- SORT
- STATISTICS

**Specify storage destination**
- ARCHIVESEQ
- DESTINATION
- H2DATASET
- SEQDATASET
- WRITEOPTION

**Define filter and options**
- AUTHID
- CONNID
- CONNTYPE
- CORRID
- ORIGID
- PLAN

**Performance options**
- BUFSIZE
- IFRREADTIME
- POSTPCT

**Near-term history data collection option keyword descriptions:**

This topic lists and describes in detail the keywords that can be used in a collection options member of RKD2PAR.

The keywords are listed in alphabetical order. Default values are underscored.
ACCTG - Near-term history data collection options keyword:

Specifies the type of Accounting data to collect.

**ACCTG**(type)

**type**

1 collects data from Accounting class 1 (IFCID 0003, and 0106, no In-DB2 or I/O and lock wait times).
2 collects data from Accounting class 1 and 2 (IFCID 0003 In-DB2 elapsed and CPU time).
3 collects data from Accounting class 1, 2, and 3 (IFCID 0003 all wait times I/O and lock wait times).
7 collects data from Accounting class 7 (IFCID 0003, 0239 Package In-DB2 time).
8 collects data from Accounting class 8 (IFCID 0003, 0239 Package I/O and lock wait times).
10 collects data from Accounting class 10 (IFCID 0239 Package detail).
11 collects data from Accounting class 11 (IFCID 0003 and 0200). For DB2 11 and above only.

Accounting class 10 data contains package detail data from IFCID 239. To avoid unnecessary system overhead, collect this data only if required.

To reduce the number of IFCIDs collected and not collect the IFCID 239, class 11 should be requested without classes 7, 8 and 10.

No default is applied. If this keyword is not specified, no Accounting data is collected.

ARCHIVESEQ - Near-term history data collection options keyword:

Specifies the pointer to the ARCScccc member in data set rhilev.RK02PAR. The member contains the JCL required to archive static sequential data sets and is mandatory in this case.

**ARCHIVESEQ**(member)

**member**

A 1- to 8-character member name.

AUTHID - Near-term history data collection options keyword:

Specifies the authorization identifier about which data should be collected.

**AUTHID**(identifier)

**identifier**

A 1- to 8-character authorization identifier.

No default is applied. If this keyword is not specified, all data from all authorization identifiers is collected.
BUFSIZE - Near-term history data collection options keyword:

Specifies the size of the buffer that is used to hold IFI records until they can be written out by the Near-Term History Data Collector.

**BUFSIZE**(n)

n The buffer size, in KB, from 50 to 16000 KB. 300 KB is the default.

CONNID - Near-term history data collection options keyword:

Specifies the connection identifier about which data should be collected.

**CONNID**(identifier)

identifier A 1- to 8-character connection identifier.

No default is applied. If this keyword is not specified, all data from all connection identifiers is collected.

CORRID - Near-term history data collection options keyword:

Specifies the correlation identifier about which data should be collected.

**CORRID**(identifier)

identifier A 1- to 12-character correlation identifier.

No default is applied. If this keyword is not specified, all data from all correlation identifiers is collected.

DB2SYS - Near-term history data collection options keyword:

Specifies the DB2 subsystem to be monitored.

**DB2SYS**(name)

name A 1- to 4-character DB2 subsystem name.

This keyword is required.

DESTINATION - Near-term history data collection options keyword:

Specifies the backup destination for the trace output from the DB2 traces started by the Near-Term History Data Collector.

**DESTINATION**(name)

name

**SMF** Record trace output to SMF (record types 100, 101, and 102).

**GTF** Record trace output to GTF.
No default is applied. If this keyword is not specified, the only trace destination will be the Instrumentation Facility Interface (IFI).

**DYNAMICSQ**AL - Near-term history data collection options keyword:

Specifies whether the Near-Term History Data Collector should collect SQL text and access path information for dynamic SQL.

**DYNAMICSQ**AL *(toggle)*

*toggle*

**YES**

IFCID63 is collected to provide SQL text.

**NO**

No SQL text-related IFCIDS are started.

**FULL**

IFCID350 is collected to provide SQL text.

**H2DATASET** - Near-term history data collection options keyword:

Specifies up to 60 names of the VSAM data sets in which the near-term history data is to be stored by the Near-Term Historical Data Collector.

**H2DATASET**(data set name,data set name,data set name)

data set name

A 1- to 44-character VSAM data set name.

This keyword is required if WRITEOPTION(VSAM) or WRITEOPTION(VSAM,SEQ) is specified.

**IFIREADTIME** - Near-term history data collection options keyword:

Specifies the frequency with which the Near-Term History Data Collector reads new IFI trace records into its buffer.

**IFIREADTIME**(mmssth)

mmssth

mm Minutes

ss Seconds

t Tenths

h Hundredths

If this keyword is not specified, the default of 010000 (one minute) is applied.

The maximum value that should be specified is one minute.

**INTERVAL** - Near-term history data collection options keyword:

Specifies the time interval used by the Near-Term History Data Collector to record Statistics or Accounting data, if the GROUPBY keyword is used.

**INTERVAL**(time specification)

time specification
An interval ranging from 1 to 60 minutes.

RMF
— This keyword synchronizes the collection interval with the RMF™ interval. If RMF is not active, a 15-minute interval is assumed.

LOCKCONT - Near-term history data collection options keyword:

Specifies whether the Near-Term History Data Collector should collect lock timeout and deadlock information.

LOCKCONT(toggle)

toggle

YES
Collect lock timeout and deadlock information.

NO
Do not collect lock timeout and deadlock information.

LOCKSUSP - Near-term history data collection options keyword:

Specifies whether the Near-Term History Data Collector should collect lock suspension information.

LOCKSUSP(toggle)

toggle

YES
Collect lock suspension information.

NO
Do not collect lock suspension information.

NEGSQL - Near-term history data collection options keyword:

Specifies whether the Near-Term History Data Collector should collect negative SQL code IFCID 58 and produce the Negative Application Codes SQL report.

NEGSQL(toggle)

toggle

YES
Collect negative SQL code IFCID 58 and produce the Negative Application Codes SQL report.

Note: Set NEGSQL to YES only if WRITEOPTION(VSAM, SEQ) is selected. In this case the negative SQL data is written to the sequential data set and can then be analyzed in the SQL Activity Report.

NO
Do not collect negative SQL code IFCID 58 and produce the Negative Application Codes SQL report.

NTAINTERVAL - Near-term history data collection options keyword:

Specifies the number of minutes or seconds to be used as the smallest time span for display of historical thread accounting data by subinterval. The subinterval should be specified as a period of time for convenient display of the threads executed. The more threads executed per minute, the smaller subinterval you may want to specify.
**NTAINTERVAL** *(time specification)*

*time specification*

- **n**  The subinterval in minutes.
- **nS**  The subinterval in seconds. **n** must be some even fraction of a minute, for example 5S, 6S, 10S, 20S, or 30S. However, 7S is not allowed.

The INTERVAL keyword can only be set as low as one minute. Installations with a huge number of threads per minute might use the Thread History By Subinterval panel to view thread history by smaller periods of time. The NTAINTERVAL keyword gives control over the time interval that is used for the Thread History By Subinterval panel.

**ORIGAUTH - Near-term history data collection options keyword:**

Specifies the original authorization identifier for which OMEGAMON XE for DB2 PE should collect Accounting activity data.

**ORIGAUTH**(identifier)

*identifier*

A 1- to 8-character original authorization identifier.

No default is applied. If this keyword is not specified, all data from all original authorization identifiers is collected.

**PLAN - Near-term history data collection options keyword:**

Specifies the plane name for which OMEGAMON XE for DB2 PE should collect data.

**PLAN**(name)

*name*

A 1- to 8-character plan name.

No default is applied. If this keyword is not specified, all data from all plan names is collected.

**SCAN - Near-term history data collection options keyword:**

Directs OMEGAMON XE for DB2 PE to collect scan data.

**SCAN**(toggle)

*toggle*

**YES**  Collect scan data.

**NO**  Do not collect scan data.

**SEQDATASET - Near-term history data collection options keyword:**

Specifies up to 10 names of static sequential data sets in which the near-term history data is to be stored by the Near-Term Historical Data Collector.

**SEQDATASET**(data set name,data set name,...)
data set name

A 1- to 44-character data set name.

This keyword is required if WRITEOPTION(VSAM,SEQ) is specified.

The SPACE keyword is required in conjunction with SEQDATASET to allocate the data set appropriately.

If dynamic sequential data sets or Generation Data Group (GDG) data sets were chosen as the medium of sequential data storage, the corresponding (base) file name is added as keyword value.

Example for static sequential data sets

SEQDATASET(
  SYS1PMO.O4.ESP.ESP4.DB11.RKD2SQ01
  SYS1PMO.O4.ESP.ESP4.DB11.RKD2SQ02
  SYS1PMO.O4.ESP.ESP4.DB11.RKD2SQ03
)
SPACE(CYL,65,2)

Example for dynamic sequential data set

SEQDATASET(SYS1PMO.O4.SEQARC.@DB2.@DATE.@TIME)
SPACE(CYL,5,2)

Example for GDG data set

SEQDATASET(SYS1PMO.O4.SEQGDG(+1))
SPACE(CYL,5,2)

SORT - Near-term history data collection options keyword:

Directs OMEGAMON XE for DB2 PE to collect sort data.

SORT(toggle)

toggle

  YES
  Collect sort data.

  NO
  Do not collect sort data.

SPACE - Near-term history data collection options keyword:

Used in conjunction with the SEQDATASET options keyword to specify the space allocation for a sequential data set.

SPACE(xxx,nnn,nnn2)

xxx

  CYL
  For cylinders.

  TRK
  For tracks.

nnn
  The number for primary allocation.

nnn2
  The number for secondary allocation.
STATISTICS - Near-term history data collection options keyword:

Directs OMEGAMON XE for DB2 PE to collect Statistics trace data.

**STATISTICS**(toggle)

toggle

**YES**

Collect Statistics trace data.

**NO**

Do not collect Statistics trace data.

WRITEOPTION - Near-term history data collection options keyword:

Specifies the storage medium for near-term history data.

**WRITEOPTION**(medium)

medium

**VSAM**

VSAM data set. This specification requires also the specification of the H2DATASET keyword.

VSAM is required for Accounting data to be displayed.

**VSAM, SEQ**

VSAM data set and sequential data set. This specification requires also the specification of the SEQDATASET keyword.

Configuring ISPF Monitoring Dialogs

ISPF Monitoring Dialogs is always configured by default.

If you want to make further changes to ISPF Monitoring Dialogs, refer to the related parameters in section "Basic product parameters" in the [Parameter Reference](#). The following parameter is related:

- KD2_OMPE_ISPF_LANGUAGE

Customizing the ISPF Online Monitor

You can customize the Online Monitor, for example, you might want to set exception thresholds or change the default layout of the panels.

For information about tailoring exception thresholds and exception profiling, see the [Reporting User’s Guide](#).

Customizing panels:

You can customize the layout of headings, field labels, fields displayed, and the order in which the fields appear in the Thread Detail panel, the DB2 Statistics Detail panel, and the DB2 System Parameters panel.

The panels are defined by using ISPF. Each field name corresponds to an ISPF variable.

Customize your panels to filter the data shown so that you can focus on particular areas of performance.
If you are adding or removing any fields from these panels, you need to add or remove the corresponding field help panels. You might also have to modify the exception processing variables in the same panels.

Example of a customized Thread Detail panel

To view an example of the standard Thread Detail panel, see [Standard Thread Detail panel](#).

The following figure shows an example of a customized Thread Detail panel. It demonstrates the flexibility of customizing panels.

![Customized Thread Detail panel](#)

**Figure 3. Customized Thread Detail panel**

The panel above is tailored to show LUW and CICS instances and more detailed buffer information. It is also tailored to show all needed fields in one panel, thereby removing the need to use the scrolling keys. Furthermore, the following general modifications were made to the panel above:

- Fields are added, removed, rearranged, and field labels are changed.
- The heading of the panel is changed from Thread Detail to Thread Information.

You can also add or remove field help panels and modify the exception processing ISPF variables to match the changes made to the fields.

**Note:** The DGOMTPSM (Thread Detail), DGOMSPSM (DB2 Statistics Detail), and DGOMZPSM (DB2 System Parameters) panels displayed at your site might have been tailored by your installation and consequently might not necessarily match the panel examples shown in this information.

**How to customize panels:**

Before you modify any of the Online Monitor detail panels, become familiar with the way ISPF panels are defined. Consult your system programmer before making any change to your ISPF or TSO environment.
The Online Monitor panels are defined by using ISPF. The procedure for customizing an Online Monitor panel involves copying the ISPF panel member to your own library, and editing your copy of the panel to match your requirements.

Each field name corresponds to an ISPF variable. If you add or remove fields, you also need to add or remove the corresponding help panels for the appropriate fields. For a list of all available Online Monitor fields and their corresponding help panel names, see “Online Monitor field table” on page 342.

Thread Detail panel:

Use the Thread Detail panel to view detailed information about the thread being monitored. From the Thread Detail panel, you can reach the Category windows, which show selected information about the monitored thread in greater detail.

To display the Thread Detail panel, select any active thread listed in the Thread Summary panel, Threads Holding Resource window, or the Periodic Exceptions List panel.

Some fields can have values that are longer than the space available to show them in this panel. When this happens, the last character in the field is replaced with an asterisk (*) to indicate that the reported value is truncated.

Note: The Thread Detail panel displayed at your site might have been tailored by your installation and consequently might not necessarily match the panel example shown in this information.
Figure 4. Thread Detail panel

If you have enabled display exception processing, all fields in exception status are shown in reverse video, and the color indicates the level of the exception. Warning level exceptions are highlighted in yellow, while problem level exceptions are highlighted in red. Categories that can be selected from this panel are shown in reverse video when their next level windows contain fields in exception status.

If DBRM is used, the Current Package field displayed in the Thread Detail panel is shown as Current DBRM instead.

The following list describes some of the important fields that are shown in this panel:

**Type** The type of the thread being monitored.

- **ALLIED** The thread is not involved in any distributed activity.
- **A-DIST** The thread is initiated by a DB2 attach and requests data from one or more server locations.
- **DBAT** The thread is initiated by, and performing work on behalf of, a remote (requester) location.
D-DIST Distributed database access thread, both a DDF server and requester.

It is important to know whether the thread is involved in distributed activity, because this can affect the fields that should be monitored. For example, if the thread is involved in distributed activity, the class 1 elapsed time is higher than if there was no distributed activity, because this time includes network time.

**Class 1 Times**
This field shows the elapsed time and the CPU time for the processing performed and includes the time spent not only in DB2 but also in the application.

CPU time is the sum of:
- The agent’s CPU (TCB) time
- The CPU time spent in stored procedures
- The accumulated processing time of the parallel tasks (if query parallelism or utility parallelism is used)

**Class 2 Times**
This field shows the elapsed time and the CPU time for the processing performed in DB2 only. Elapsed time includes wait times.

CPU time is the sum of:
- The agent’s CPU (TCB) time
- The CPU time spent in stored procedures
- The accumulated processing time of the parallel tasks (if query parallelism or utility parallelism is used)

For threads that exploit query parallelism or utility parallelism, class 2 CPU time can be larger than class 2 elapsed time because the CPU time includes the execution time of all parallel threads. To separate the agent’s CPU time from the sum of all parallel tasks’ CPU times, select Times, which displays the Thread Times window. See also the discussion at the beginning of "Accounting times" on page 339.

**Class 3 Times**
This field shows the total time spent waiting because of class 3 suspensions. For threads that exploit query parallelism or utility parallelism, wait times are summed for the originating task and all parallel tasks. See also the discussion at the beginning of "Accounting times" on page 339.

**Suspensions**
This field includes all types of lock suspensions.

**Getpage requests**
This field shows the number of Getpage requests. Reducing Getpage requests reduces CPU usage and improves performance. Fewer Getpage requests also result in fewer synchronous reads, because fewer pages that are not in the buffer pool must be fetched.

**Prefetch reads**
This includes number of Prefetch reads done because of Sequential Prefetch, List Prefetch, and Dynamic Prefetch.

**Synchronous I/O**
This includes both synchronous reads and synchronous writes.
Accounting times:

Accounting times are usually the prime indicator of a performance problem and should be the starting point for analysis.

DB2 times are classified as follows:

- Class 1 time shows the time the application spent since connecting to DB2, including time spent outside DB2.
- Class 2 elapsed time shows the time spent in DB2. It is divided into CPU time and waiting time.
- Class 3 elapsed time is divided into various waits, such as the duration of suspensions because of waits for locks and latches or waits for I/O.

Tailoring the Thread Detail panel:

You can modify the Thread Detail panel to include the first 200 characters of the currently executing SQL statement. This field is divided into 4 fields of 50 characters each.

The names of these fields are:

- **QW01242T**
  - The first 50 characters of the SQL statement text

- **QW012422**
  - The second 50-character block of the SQL statement text

- **QW012423**
  - The third 50-character block of the SQL statement text

- **QW012424**
  - The fourth 50-character block of the SQL statement text.

The EXPLAIN command can also be made available in the Thread Detail panel so that you can examine the access path methods of the SQL statement text that is shown. To make the command available:

- Add the following line to the INIT section of the panel:
  
  ```
  &SQLONDET='X'
  ```

- Change the following statement:
  ```
  )PANEL KEYLIST(MTABLE,DGOF)
  ```

  to:

  ```
  )PANEL KEYLIST(MTABLE,DGOF)
  ```

The latter change assigns the EXPLAIN command to F18 (Explain).

Editing exception fields:

Each Online Monitor exception field has a corresponding ISPF variable that indicates the exception status of that field.

The ISPF variable has the same name as the OMEGAMON XE for DB2 PE field it represents, with the first letter of the field name replaced by an X for thread activity fields, and an E or T for statistics fields. For example, the thread activity field ADRECETT (Class 1 elapsed time) has a corresponding exception ISPF
variable XDRECETT, and the statistics field Q3STABRT (Rollback) has a corresponding exception ISPF variable E3STABRT.

An exception ISPF variable can contain one of the following one-character values:

- **P** Indicates a problem level exception
- **W** Indicates a warning level exception
- **blank** Indicates that the corresponding field is not in exception status.

If you want your exception fields to be highlighted when they are in exception status, you need to test for an exception condition and highlight the field appropriately. For example, to test and highlight the Q3STABRT field in the Thread Detail panel, you would add the following lines to the panel logic:

```plaintext
if (&x3stabrt = 'P')
    .attr(q3stabrt) = 'color(red) hilite(reverse)'
if (&x3stabrt = 'W')
    .attr(q3stabrt) = 'color(yellow) hilite(reverse)'
```

If you remove an exception field, also remove the corresponding code that tests and highlights the field.

*Editing selection fields:*

The selection fields in the detail panels provide access to other Online Monitor panels. These fields are selected by typing any nonblank character in a field and pressing Enter.

You can remove or disable any of the selection fields in the Thread Detail panel, DB2 Statistics Detail panel, or DB2 System Parameters panel.

The following table shows the names of all selection fields and their corresponding subheadings in the Thread Detail panel:

<table>
<thead>
<tr>
<th>Selection field name</th>
<th>Subheading</th>
</tr>
</thead>
<tbody>
<tr>
<td>C01</td>
<td>Thread Identification</td>
</tr>
<tr>
<td>C02</td>
<td>Current® Package/DBRM</td>
</tr>
<tr>
<td>C03</td>
<td>Times</td>
</tr>
<tr>
<td>C04</td>
<td>Locking Activity</td>
</tr>
<tr>
<td>C05</td>
<td>Locked Resources</td>
</tr>
<tr>
<td>C06</td>
<td>RID List Processing</td>
</tr>
<tr>
<td>C07</td>
<td>SQL Activity, Commits and Rollbacks</td>
</tr>
<tr>
<td>C08</td>
<td>Buffer Manager Activity</td>
</tr>
<tr>
<td>C09</td>
<td>SQL Statement and Package/DBRM</td>
</tr>
<tr>
<td>C10</td>
<td>Distributed Data</td>
</tr>
<tr>
<td>C11</td>
<td>IFI (Class 5) and Data Capture</td>
</tr>
<tr>
<td>C12</td>
<td>Query Parallelism Data</td>
</tr>
<tr>
<td>C13</td>
<td>Data Sharing Locking Activity</td>
</tr>
<tr>
<td>C14</td>
<td>Group Buffer Pools Activity</td>
</tr>
<tr>
<td>C15</td>
<td>Stored Procedures</td>
</tr>
</tbody>
</table>
The following table shows the names of all selection fields and their corresponding subheadings in the DB2 Statistics Detail panel:

*Table 17. Selection field names and corresponding subheadings in the DB2 Statistics Detail panel*

<table>
<thead>
<tr>
<th>Selection field name</th>
<th>Subheading</th>
</tr>
</thead>
<tbody>
<tr>
<td>C01T01</td>
<td>EDM Pool</td>
</tr>
<tr>
<td>C01T02</td>
<td>Buffer Manager</td>
</tr>
<tr>
<td>C01T03</td>
<td>Locking Activity</td>
</tr>
<tr>
<td>C01T04</td>
<td>Open/Close Management</td>
</tr>
<tr>
<td>C01T05</td>
<td>Bind Processing</td>
</tr>
<tr>
<td>C01T06</td>
<td>Plan/Package Allocation, Authorization Management</td>
</tr>
<tr>
<td>C01T07</td>
<td>Log Manager</td>
</tr>
<tr>
<td>C01T08</td>
<td>Subsystem Services</td>
</tr>
<tr>
<td>C01T09</td>
<td>SQL Activity</td>
</tr>
<tr>
<td>C01T11</td>
<td>RID List Processing</td>
</tr>
<tr>
<td>C01T12</td>
<td>Distributed Data</td>
</tr>
<tr>
<td>C01T13</td>
<td>CPU Times and Other Data</td>
</tr>
<tr>
<td>C01T14</td>
<td>Data Sharing Locking Activity</td>
</tr>
<tr>
<td>C01T15</td>
<td>Group Buffer Pool Activity</td>
</tr>
<tr>
<td>C01T16</td>
<td>Global Group Buffer Pool Statistics</td>
</tr>
<tr>
<td>C01T17</td>
<td>Stored Procedures</td>
</tr>
</tbody>
</table>

The following table shows the names of all selection fields and their corresponding subheadings in the DB2 System Parameters panel:

*Table 18. Selection field names and corresponding subheadings in the DB2 System Parameters panel*

<table>
<thead>
<tr>
<th>Selection field name</th>
<th>Subheading</th>
</tr>
</thead>
<tbody>
<tr>
<td>C01T1</td>
<td>Virtual Buffer Sizes</td>
</tr>
<tr>
<td>C01T2</td>
<td>Storage Sizes and Connections</td>
</tr>
<tr>
<td>C01T3</td>
<td>Operator and DDF Functions</td>
</tr>
<tr>
<td>C01T4</td>
<td>Tracing, Data Installation and Pseudo-Close</td>
</tr>
<tr>
<td>C01T5</td>
<td>Locking (IRLM)</td>
</tr>
<tr>
<td>C01T6</td>
<td>Active Log</td>
</tr>
<tr>
<td>C01T7</td>
<td>Archive Log</td>
</tr>
<tr>
<td>C01T8</td>
<td>Protection and Data Definition</td>
</tr>
<tr>
<td>C01T9</td>
<td>Stored Procedures</td>
</tr>
<tr>
<td>C01T10</td>
<td>Group Buffer Pools</td>
</tr>
<tr>
<td>C01T1A</td>
<td>Data Sharing Parameters</td>
</tr>
<tr>
<td>C01T1B</td>
<td>Application Programming Defaults</td>
</tr>
<tr>
<td>C01T11</td>
<td>Other Parameters</td>
</tr>
</tbody>
</table>
Online Monitor field table:

The tables in this section provide a list of the Online Monitor thread activity fields, statistics fields, and system parameters fields.

You can use these tables to cross-reference exception field names for display exception processing and for periodic exception processing, or to look up a field help panel name when customizing Online Monitor panels, as described in “Customizing panels” on page 334.

The following is a description of the table columns:

**Field name**
The name of the field.

**Field description**
The field title, as the field is shown in the panel. The field titles vary slightly from panel to panel depending on the context in which the fields are used.

**Help panel name**
The member name of the associated help panel.

**Exception**
Indicates if the field is an Online Monitor exception field.

**Table 19. Accounting - Buffer Pool Activity**

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
<th>Exception</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABCLSPR</td>
<td>Prefetch Reads</td>
<td>DGO0231</td>
<td>●</td>
</tr>
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<td>QBACIMW</td>
<td>Synchronous Writes</td>
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**Table 20. Accounting - Data Capture Activity and Class 5 Times**

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<td>QIFAAIET</td>
<td>Class 5 Elapsed Time</td>
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<td>Class 5 TCB Time</td>
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<td>QIFAAAMB</td>
<td>Describe Time</td>
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<td>QIFAAMLT</td>
<td>Log Extraction Time</td>
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<td>QIFAANDD</td>
<td>Data Descriptions Returned</td>
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Table 20. Accounting - Data Capture Activity and Class 5 Times (continued)

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Table 21. Accounting - Data Sharing Locking Activity

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<td>Buffer Pool Hit Ratio (%)</td>
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<td>AGLOBRAT</td>
<td>Global Contention Rate (%)</td>
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<td>Change Requests</td>
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<td>Change Requests - XES</td>
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<td>QTGADRTA</td>
<td>Incompatible Retained Lock</td>
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<td>Suspensions - False Contention</td>
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<td>QTGAIGLO</td>
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<td>Notify Messages Sent</td>
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<td>Suspensions - XES Global Contention</td>
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Table 22. Accounting - Distributed Data Facility Activity

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<td>Current DDF Conversions</td>
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<td>ADPROT</td>
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<td>Requester Elapsed</td>
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<td>Messages Received</td>
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<td>Network Connection Type</td>
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<td>QW01488T</td>
<td>Time of Last Message</td>
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### Table 23. Accounting - Group Buffer Pools Activity

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<td>ABGAXR</td>
<td>Read (Cross Inval.)-No Data Returned</td>
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<td>QBGADG</td>
<td>Unregister Page</td>
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<td>Group Buffer Pool ID</td>
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<td>QBGAMD</td>
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<td>Read Prefetch</td>
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<td>QBGASW</td>
<td>Changed Pages Written</td>
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<td>QBGAWC</td>
<td>Clean Pages Written</td>
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<td>QBGAXD</td>
<td>Read (Cross Invalidation) - Data Returned</td>
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### Table 24. Accounting - Locking Activity

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<td>Change Requests</td>
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<td>QTXACLNO</td>
<td>Claim Requests</td>
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<td>QTXACLUN</td>
<td>Unsuccessful Claim Requests</td>
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<td>Deadlocks</td>
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<td>Drain Requests</td>
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<td>Unsuccessful Drain Requests</td>
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<td>Other IRLM Requests</td>
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<td>Lock Escalations - shared</td>
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<td>Lock Escalations - Exclusive</td>
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Table 24. Accounting - Locking Activity (continued)

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Table 25. Accounting - Package Data

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<td>Other Write I/O</td>
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### Table 25. Accounting - Package Data (continued)

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### Table 26. Accounting - Query Parallelism

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Table 27. Accounting - RID List Processing

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Table 28. Accounting - SQL Activity (DML, DCL, DDL)

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Table 28. Accounting - SQL Activity (DML, DCL, DDL) (continued)

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### Table 28. Accounting - SQL Activity (DML, DCL, DDL) (continued)

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### Table 29. Accounting - SQL Nested Activity

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### Table 30. Accounting - Termination Conditions, Commit/Rollback, Incremental Binds

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### Table 30. Accounting - Termination Conditions, Commit/Rollback, Incremental Binds (continued)

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### Table 31. Accounting - Timing Data (Elapsed, TCB, Suspensions, and so on)

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Table 31. Accounting - Timing Data (Elapsed, TCB, Suspensions, and so on) (continued)

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### Table 31. Accounting - Timing Data (Elapsed, TCB, Suspensions, and so on) (continued)

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### Table 32. Statistics - Authorization Management

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### Table 33. Statistics - Buffer Pool Activity

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<td>Dynamic Prefetch Pages Read / Dyn. Pref. Read</td>
<td>DGO0361</td>
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<td>SDGETRAN</td>
<td>Getpage Request - Random</td>
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<td>SDLPPPPIO</td>
<td>List Prefetch Pages Read / List Prefetch Read</td>
<td>DGO0357</td>
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<td>SDSTRAN</td>
<td>Synchronous Reads - Random</td>
<td>DGO0348</td>
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Table 34. Statistics - Data Capture Activity

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<tr>
<td>QWSDCDDD</td>
<td>Data Descriptions Returned</td>
<td>DGO0634</td>
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<td>QWSDCDDR</td>
<td>Data Rows Returned</td>
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<td>QWSDCDLC</td>
<td>Log Records Captured</td>
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<td>QWSDCDLR</td>
<td>Log Reads Performed</td>
<td>DGO0630</td>
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<td>QWSDCDMB</td>
<td>Describes Performed</td>
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<tr>
<td>QWSDCDRR</td>
<td>Log Records Returned</td>
<td>DGO0631</td>
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<td>QWSDCDTB</td>
<td>Tables Returned</td>
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Table 35. Statistics - Data Sharing Locking Activity

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<td>QTGSCHNP</td>
<td>P-lock Negotiation - Change</td>
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<tr>
<td>QTGSCPLK</td>
<td>P-locks - Change Requests</td>
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<td>QTGSCSLM</td>
<td>Synchronous XES - Change Requests</td>
<td>DGO1321</td>
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<tr>
<td>QTGSDRTA</td>
<td>Incompatible Retained Lock</td>
<td>DGO1327</td>
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<tr>
<td>QTGSFLSE</td>
<td>Suspensions - False Contention</td>
<td>DGO1326</td>
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<td>QTGSIGLO</td>
<td>Suspensions - IRLM Global Contention</td>
<td>DGO1324</td>
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<td>QTGSKIDS</td>
<td>Asynchronous XES - Resources</td>
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<td>QTGSLPLK</td>
<td>P-locks - Lock Requests</td>
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<td>QTGSLSLM</td>
<td>Synchronous XES - Lock Requests</td>
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<td>QTGSNTFR</td>
<td>Notify Messages Received</td>
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<td>QTGSNTFY</td>
<td>Notify Messages Sent</td>
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<td>QTGSOTPE</td>
<td>P-lock Negotiation - Other</td>
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### Table 35. Statistics - Data Sharing Locking Activity (continued)

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<td>QTGSPEMX</td>
<td>P-Lock/Notify Exists - Maximum Engines</td>
<td>DGO1330</td>
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<tr>
<td>QTGSPEQW</td>
<td>P-locks/Notify Exists - Engines Unavailable</td>
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<td>QTGSPGPE</td>
<td>P-lock Negotiation - Page</td>
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<td>QTGSPPPE</td>
<td>P-lock Negotiation - Pageset/Partition</td>
<td>DGO1332</td>
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<td>QTGSNGLO</td>
<td>Suspensions - Global Contention</td>
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<td>QTGSUPLK</td>
<td>P-locks - Unlock Requests</td>
<td>DGO1318</td>
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<td>SBUFFRAT</td>
<td>Buffer Pool Hit Ratio (%)</td>
<td>DGO1772</td>
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<td>SGLOBRAT</td>
<td>Global Contention Rate (%)</td>
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### Table 36. Statistics - DB2 Application Programming Interface

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<td>QWSDSCA</td>
<td>Abends</td>
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<td>QWSDSCCO</td>
<td>Command Requests</td>
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<td>QWSDSCRA</td>
<td>READA Requests</td>
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<td>QWSDSCRS</td>
<td>READS Requests</td>
<td>DGO0587</td>
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<td>QWSDSCU</td>
<td>Unrecognized</td>
<td>DGO0584</td>
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<td>QWSDSCWR</td>
<td>WRITE Requests</td>
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<td>SDIFITOT</td>
<td>Total number of calls made to IFI</td>
<td>DGO0589</td>
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### Table 37. Statistics - DB2 Commands

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<tr>
<td>Q9STCTRA</td>
<td>Stop DB2</td>
<td>DGO0552</td>
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<tr>
<td>Q9STCTRB</td>
<td>Term Utility</td>
<td>DGO0557</td>
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<tr>
<td>Q9STCTRC</td>
<td>Display Trace</td>
<td>DGO0539</td>
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<tr>
<td>Q9STCTRD</td>
<td>RESET GENERICLU</td>
<td>DGO1545</td>
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<tr>
<td>Q9STCTRE</td>
<td>Start RLIMIT</td>
<td>DGO0548</td>
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</tr>
<tr>
<td>Q9STCTRF</td>
<td>Stop RLIMIT</td>
<td>DGO0553</td>
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<tr>
<td>Q9STCTRG</td>
<td>DISPLAY RLIMIT</td>
<td>DGO0540</td>
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<tr>
<td>Q9STCTRH</td>
<td>Modify Trace</td>
<td>DGO0555</td>
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<tr>
<td>Q9STCTRI</td>
<td>Start DDF</td>
<td>DGO0549</td>
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<tr>
<td>Q9STCTRJ</td>
<td>Stop DDF</td>
<td>DGO0554</td>
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<tr>
<td>Q9STCTRKK</td>
<td>Cancel DDF Thread</td>
<td>DGO0556</td>
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<tr>
<td>Q9STCTRL</td>
<td>Display Location</td>
<td>DGO0541</td>
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<tr>
<td>Q9STCTRM</td>
<td>Archive Log</td>
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<tr>
<td>Q9STCTRN</td>
<td>Alter Bufferpool</td>
<td>DGO0544</td>
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<tr>
<td>Q9STCTRO</td>
<td>Display Bufferpool</td>
<td>DGO0543</td>
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<tr>
<td>Q9STCTRP</td>
<td>Set Archive</td>
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### Table 37. Statistics - DB2 Commands (continued)

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<td>Display Archive</td>
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<td>Q9STCTR</td>
<td>Reset Indoubt</td>
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<td>Q9STCTR5</td>
<td>ALTER GROUPBUFFERPOOL</td>
<td>DGO1361</td>
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<td>Q9STCTR7</td>
<td>DISPLAY GROUPBUFFERPOOL</td>
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<td>Q9STCTR8</td>
<td>DISPLAY PROCEDURE</td>
<td>DGO1456</td>
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<td>Q9STCTR9</td>
<td>START PROCEDURE</td>
<td>DGO1457</td>
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<tr>
<td>Q9STCTR0</td>
<td>STOP PROCEDURE</td>
<td>DGO1458</td>
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<tr>
<td>Q9STCTR1</td>
<td>DISPLAY GROUP</td>
<td>DGO1544</td>
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<tr>
<td>Q9STCTR2</td>
<td>Display Database</td>
<td>DGO0536</td>
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<td>Q9STCTR3</td>
<td>Display Thread</td>
<td>DGO0537</td>
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<td>Q9STCTR5</td>
<td>Display Utility</td>
<td>DGO0538</td>
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<td>Q9STCTR6</td>
<td>Recover BSDS</td>
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<td>Q9STCTR7</td>
<td>Recover Indoubt</td>
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<td>Q9STCTR0</td>
<td>Start Database</td>
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<td>Q9STCTR1</td>
<td>Start Trace</td>
<td>DGO0546</td>
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<td>Q9STCTR2</td>
<td>Start DB2</td>
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<td>Q9STCTR3</td>
<td>Stop Database</td>
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<td>Q9STCTR4</td>
<td>Stop Trace</td>
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<td>Q9STEROR</td>
<td>Unrecognized Commands</td>
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<td>SDSTTTL</td>
<td>Total number of DB2 commands issued</td>
<td>DGO0564</td>
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### Table 38. Statistics - DB2 Destination Data

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<td>SDIGTNW</td>
<td>GTF Not Written</td>
<td>DGO0596</td>
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<td>SDIGTFA</td>
<td>GTF Not Accepted</td>
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<td>SDIGTFWF</td>
<td>GTF Write Failure</td>
<td>DGO0598</td>
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<td>SDIGTFWR</td>
<td>GTF Written</td>
<td>DGO0595</td>
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<td>SDIOP1NW</td>
<td>OP1 Not Written</td>
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<td>SDIOP1RA</td>
<td>OP1 Not Accepted</td>
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<td>SDIOP1WR</td>
<td>OP1 Written</td>
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<td>SDIOP2NW</td>
<td>OP2 Not Written</td>
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<td>SDIOP2RA</td>
<td>OP2 Not Accepted</td>
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<td>SDIOP2WR</td>
<td>OP2 Written</td>
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<td>SDIOP3NW</td>
<td>OP3 Not Written</td>
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<td>SDIOP4RA</td>
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### Table 38. Statistics - DB2 Destination Data (continued)

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<td>OP5 Not Written</td>
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<td>SDIOP5RA</td>
<td>OP5 Not Accepted</td>
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<td>OP5 Written</td>
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<td>OP6 Not Written</td>
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<td>OP6 Written</td>
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<td>OP7 Not Written</td>
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<td>SDIOP7RA</td>
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<td>OP7 Written</td>
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<td>OP8 Not Written</td>
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<td>SDIOP8RA</td>
<td>OP8 Not Accepted</td>
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<td>SDIOTTWR</td>
<td>RES Written</td>
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<td>SDISMFBF</td>
<td>SMF Buffer Overrun</td>
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<td>SDISMFNW</td>
<td>SMF Not Written</td>
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<td>SMF Write Failure</td>
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<td>SMF Written</td>
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<td>SDTOTNA</td>
<td>Total number of IFC records not accepted</td>
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<td>Total number of IFC records not written</td>
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<td>SDTOTW</td>
<td>Total number of IFC records succ. written</td>
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<td>SDTOTWF</td>
<td>Total number of IFC write failures</td>
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### Table 39. Statistics - DB2 Instrumentation

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<td>SDBSCRNW</td>
<td>System Parameters - Buffer Pools</td>
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<td>System Parameters - Buffer Pools</td>
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<td>SDIACTN</td>
<td>Accounting (not written)</td>
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<td>SDIACTW</td>
<td>Accounting (written)</td>
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<td>SDIAUDN</td>
<td>Audit (not written)</td>
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<td>SDIAUDW</td>
<td>Audit (written)</td>
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<td>SIDDRRN</td>
<td>Database Related (not written)</td>
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<td>SIDDRRW</td>
<td>Database Related (written)</td>
<td>DGO0567</td>
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<td>SDISRRN</td>
<td>System Related (not written)</td>
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<td>SDISRRW</td>
<td>System Related (written)</td>
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<td>SDISTPN</td>
<td>Stop Trace (not written)</td>
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<td>SDISTPW</td>
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<td>SDISTRW</td>
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### Table 39. Statistics - DB2 Instrumentation (continued)

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<td>SDIZPMN</td>
<td>Dsnzparm (not written)</td>
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<tr>
<td>SDIZPMW</td>
<td>Dsnzparm (written)</td>
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<td>SDTSCRNW</td>
<td>Total count of all DB2 records not written</td>
<td>DGO0582</td>
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<tr>
<td>SDTSCRSW</td>
<td>Total count of all DB2 records written</td>
<td>DGO0581</td>
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### Table 40. Statistics - Distributed Data Facility - per Location

<table>
<thead>
<tr>
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<th>Help panel name</th>
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<td>QLSTABBR</td>
<td>Rollbacks Received</td>
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<td>QLSTBTBF</td>
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<td>QLSTBYTR</td>
<td>Bytes Received</td>
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<td>QLSTBYTS</td>
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<td>QLSTCNVQ</td>
<td>Conversations Queued</td>
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<td>QLSTCNVR</td>
<td>Conversations Received</td>
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<td>QLSTCOMR</td>
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<td>QLSTINDT</td>
<td>Thread Went Indoubt</td>
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<td>QLSTLOCN</td>
<td>Remote Location</td>
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<td>QLSTMSGR</td>
<td>Messages Received</td>
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<td>QLSTROWR</td>
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<td>SQL Statements Received</td>
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<td>QLTSQ</td>
<td>SQL Statements Sent</td>
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### Table 41. Statistics - Distributed Data Facility - Global

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<tr>
<td>QDSTCNAT</td>
<td>Active DBATs - Currently</td>
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<tr>
<td>QDSTCSTR</td>
<td>Cold Start Connections</td>
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<td>QDSTHWAT</td>
<td>Active DBATs - high water mark</td>
<td>DGO1617</td>
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<td>QDSTHWDT</td>
<td>Total DBATs - high water mark</td>
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<td>QDSTQCIT</td>
<td>Inactive DBATs - Currently</td>
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<td>QDSTQCRT</td>
<td>Conversions Deallocated-Maximum Connected</td>
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<td>QDSTQDBT</td>
<td>DBAT Queued-Maximum Active</td>
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<td>QDSTQMIT</td>
<td>Inactive DBATs - HWM</td>
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### Table 41. Statistics - Distributed Data Facility - Global (continued)

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<td>QDSTRSAT</td>
<td>Resynchronization Attempted</td>
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<td>QDSTRSSU</td>
<td>Resynchronization Succeeded</td>
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<td>QDSTWSTR</td>
<td>Warm Start Connections</td>
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### Table 42. Statistics - EDM Pool Activity

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<td>QISECT</td>
<td>Pages Used for CT</td>
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<td>QISECTG</td>
<td>Requests for CT Sections</td>
<td>DGO0408</td>
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<td>QISECTL</td>
<td>CT Section Not Found In EDM Pool</td>
<td>DGO0409</td>
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<td>QISEDBD</td>
<td>Pages Used for DBD</td>
<td>DGO0403</td>
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<td>QISEDBDG</td>
<td>Requests for DBD Sections</td>
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<td>QISEDBDL</td>
<td>DBD Section Not Found In EDM Pool</td>
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<td>QISEDYNI</td>
<td>Inserts for Dynamic Cache</td>
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<td>QISEDYNP</td>
<td>Pages Used for Cache</td>
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<td>Requests for Dynamic Cache Section</td>
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<td>QISEFAIL</td>
<td>EDM Pool Full</td>
<td>DGO0407</td>
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<td>QISEFREE</td>
<td>Free Pages In Free Chain</td>
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<td>QISEKT</td>
<td>Pages Used for PT</td>
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<td>QISEKTL</td>
<td>Requests for PT Sections</td>
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<td>Pages Used for Skct</td>
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<td>Pages Used for Skpt</td>
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<td>QXSTDEXP</td>
<td>Kept Dynamic Statement Discarded</td>
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<td>QXSTDINV</td>
<td>Dynamic Cache Statement Purged</td>
<td>DGO1824</td>
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<td>QXSTFND</td>
<td>Prepares Satisfied</td>
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<td>QXSTIPRP</td>
<td>Prepares Implicit</td>
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<td>Prepares Received</td>
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<td>QXSTNPRP</td>
<td>Prepares Avoided</td>
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<td>SERBUTP</td>
<td>EDM Pool Pages In Use (%)</td>
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<td>SERCTL</td>
<td>CT Requests / CT Not In EDM Pool</td>
<td>DGO0410</td>
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<td>SERDBLR</td>
<td>DBD Requests / DBD Not In EDM Pool</td>
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<td>SERPTLR</td>
<td>PT Requests / PT Not In EDM</td>
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### Table 43. Statistics - Global Group Buffer Pool Statistics

<table>
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<tr>
<td>QBGBGCK</td>
<td>Checkpoint Interval (Minutes)</td>
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<tr>
<td>QBGBGCT</td>
<td>Class Castout Threshold (%)</td>
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<td>QBGBGDR</td>
<td>Actual Directory Entries</td>
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Table 43. Statistics - Global Group Buffer Pool Statistics (continued)

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<td>QBGBGDTC</td>
<td>Actual Data Entries</td>
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<td>QBGBGGTD</td>
<td>Buffer Pool Castout Threshold (%)</td>
<td>DGO1586</td>
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<td>QBGBGR1</td>
<td>Current Directory to Data Ratio</td>
<td>DGO1584</td>
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<td>QBGBGR2</td>
<td>Pending Directory to Data Ratio</td>
<td>DGO1590</td>
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<td>QBGBGDSZ</td>
<td>Allocated Buffer Pool Size (4k)</td>
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<td>QW0254CC</td>
<td>Castout</td>
<td>DGO1575</td>
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<td>QW0254DE</td>
<td>Directory Entry</td>
<td>DGO1576</td>
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<td>QW0254DR</td>
<td>Directory Entry Reclaim</td>
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<td>QW0254GN</td>
<td>Group Buffer Pool Name</td>
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<tr>
<td>QW0254RD</td>
<td>Read Miss Directory Hit</td>
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<tr>
<td>QW0254RF</td>
<td>Read Miss Cache Full</td>
<td>DGO1567</td>
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<td>QW0254RH</td>
<td>Read Hit</td>
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<td>QW0254RN</td>
<td>Read Miss Name Assignment</td>
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<td>QW0254RS</td>
<td>Read Miss Assignment Suppressed</td>
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<td>QW0254TC</td>
<td>Total Changed</td>
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<td>QW0254TE</td>
<td>Data Entry</td>
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<td>QW0254TR</td>
<td>Data Entry Reclaim</td>
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<td>QW0254WC</td>
<td>Clean Page Write Hit</td>
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<td>QW0254WF</td>
<td>Write Miss Cache Full</td>
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<td>QW0254WH</td>
<td>Changed Page Write Hit</td>
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<td>QW0254XR</td>
<td>XI Directory Entry Reclaim</td>
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Table 44. Statistics - Group Buffer Pools Activity

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<tr>
<td>QBGLAC</td>
<td>Clean Pages Written Asynchronously</td>
<td>DGO1356</td>
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<tr>
<td>QBGLAD</td>
<td>Asynchronous Reads - Data Returned</td>
<td>DGO1342</td>
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<td>QBGLAN</td>
<td>Asynchronous reads - No read/write interest</td>
<td>DGO1344</td>
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<td>QBGLAW</td>
<td>Changed Pages Written Asynchronously</td>
<td>DGO1346</td>
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<td>QBGLAX</td>
<td>Register page list request</td>
<td>DGO1656</td>
<td>●</td>
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<tr>
<td>QBGLAY</td>
<td>Changed pages - Read after register page list</td>
<td>DGO1657</td>
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<td>QBGLAZ</td>
<td>Clean pages - Read after register page list</td>
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<td>QBGLCC</td>
<td>Read Castout Class</td>
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<td>QBGLCK</td>
<td>GBP Checkpoints Triggered</td>
<td>DGO1733</td>
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<tr>
<td>QBGLCN</td>
<td>Castout Engine Unavailable</td>
<td>DGO1350</td>
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<td>QBGLCS</td>
<td>Read Castout Statistics</td>
<td>DGO1732</td>
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<td>QBGLCT</td>
<td>Castout Class Threshold</td>
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<td>QBGLDG</td>
<td>Unregister Page</td>
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Table 44. Statistics - Group Buffer Pools Activity (continued)

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<td>QBGLDN</td>
<td>Delete Name</td>
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<td>QBGLGN</td>
<td>Group Bufferpool ID</td>
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<td>QBGLGT</td>
<td>Group Bufferpool Castout Threshold</td>
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<td>QBGLMD</td>
<td>Synchronous Reads Not Found - Data Returned</td>
<td>DGO1339</td>
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<tr>
<td>QBGLMN</td>
<td>Synchr. Reads Not Found - No R/W Interest</td>
<td>DGO1341</td>
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<td>QBGLMR</td>
<td>Sync. Read (Not Found) - No Data Returned</td>
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<td>QBGLOS</td>
<td>Read Storage Statistics</td>
<td>DGO1760</td>
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<td>QBGLRB</td>
<td>Participation in GBP Rebuild</td>
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<td>QBGLRC</td>
<td>Pages Castout</td>
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<td>QBGLRD</td>
<td>Read Directory Info</td>
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<td>QBGLRF</td>
<td>Read Failed - No Storage</td>
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<td>QBGLRG</td>
<td>Register Page</td>
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<td>QBGLSU</td>
<td>Write Engine Unavailable</td>
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<td>QBGLSW</td>
<td>Changed Pages Written Synchronously</td>
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<td>QBGLUN</td>
<td>Unlock Castout</td>
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<td>QBGLWC</td>
<td>Clean Pages Written Synchronously</td>
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<td>QBGLWF</td>
<td>Write Failed - No Storage</td>
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<td>QBGLXD</td>
<td>Synchr. Reads Cross Valid. - Data Returned</td>
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<td>QBGLXN</td>
<td>Synchr. Reads Cross Valid. - No R/W Interest</td>
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<td>QBGLXR</td>
<td>Synchronous Read (XI) - No Data Returned</td>
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Table 45. Statistics - Locking Activity

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<td>Claim Requests</td>
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<td>QTXACLUN</td>
<td>Unsuccessful Claim Requests</td>
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<td>QTXADEA</td>
<td>Deadlocks</td>
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<td>QTXADRNO</td>
<td>Drain Requests</td>
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<td>QTXADRUN</td>
<td>Unsuccessful Drain Requests</td>
<td>DGO0485</td>
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<td>QTXAIRLM</td>
<td>Other Requests</td>
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<td>QTXALES</td>
<td>Lock Escalation (shared)</td>
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<td>QTXALEX</td>
<td>Lock Escalation (exclusive)</td>
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<td>Lock Requests</td>
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<td>Query Requests</td>
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<td>QTXASLAT</td>
<td>Suspensions (latch only)</td>
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<td>Suspensions (lock only)</td>
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Table 45. Statistics - Locking Activity (continued)

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<td>QTXASOTH</td>
<td>Suspensions (other)</td>
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<td>QTXATIM</td>
<td>Timeouts</td>
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<td>Unlock Requests</td>
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<td>SLCLKET</td>
<td>Lock Escalations</td>
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<td>SLRLCRLS</td>
<td>Lock and Change Requests per Lock Suspension</td>
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<td>SLRSUSP</td>
<td>Suspensions (all)</td>
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Table 46. Statistics - Log Activity

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<td>QJSTALR</td>
<td>Archive Log Read Allocations</td>
<td>DGO0519</td>
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<td>QJSTALW</td>
<td>Archive Log - Write Allocations</td>
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<td>QJSTBFL</td>
<td>Control Intervals Created</td>
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<td>QJSTBFWR</td>
<td>Write Output Log Buffers</td>
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<td>QJSTBSDS</td>
<td>Total BSDS Access Request</td>
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<td>QJSTCIOF</td>
<td>Archive Log - Control Intervals Offloaded</td>
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<td>QJSTLAMA</td>
<td>Look Ahead Mounts Attempted</td>
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<td>QJSTLAMS</td>
<td>Look Ahead Mount Successful</td>
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<td>QJSTRACT</td>
<td>Reads Satisfied - Active Log</td>
<td>DGO0505</td>
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<td>QJSTRARH</td>
<td>Reads Satisfied - Archive Log</td>
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<td>QJSTRBUF</td>
<td>Reads Satisfied - Output Buffer</td>
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<td>QJSTTVC</td>
<td>Reads Delayed - Tape Volume Contention</td>
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<td>QJSTWRNW</td>
<td>Write-no-wait</td>
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<td>QJSTWTB</td>
<td>Unavailable Output Log Buffers</td>
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<td>QJSTWUR</td>
<td>Reads Delayed - Unavailable Resource</td>
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<td>SARLRACT</td>
<td>Reads Satisfied - Active Log(%)</td>
<td>DGO0506</td>
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<td>SARLRARC</td>
<td>Reads Satisfied - Archive Log(%)</td>
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<td>SARLRBUF</td>
<td>Reads Satisfied - Output Buffer(%)</td>
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<td>SARWBCAC</td>
<td>Out Log Buf Writes / Act. Log Cntl I'val</td>
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Table 47. Statistics - Miscellaneous

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<tr>
<td>QJSTCOLS</td>
<td>Columns Bypassed</td>
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<td>QWSDLR</td>
<td>Log RBA</td>
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<td>QWSDRINV</td>
<td>Reason Invoke</td>
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### Table 48. Statistics - Open/Close Activity

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<td>QTDSDRN</td>
<td>Data Sets Closed Threshold Reached</td>
<td>DGO0426</td>
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<td>QTDSONP</td>
<td>Open Data Sets - Current</td>
<td>DGO0418</td>
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<td>QTMAXDS</td>
<td>Open Data Sets - HWM</td>
<td>DGO0417</td>
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<tr>
<td>QTMAXPB</td>
<td>Open Data Sets - Not In Use, Not Closed (HWM)</td>
<td>DGO0422</td>
<td>●</td>
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<tr>
<td>QTPCCT</td>
<td>Data Sets Converted R/W To R/O</td>
<td>DGO0755</td>
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<td>QTREOPN</td>
<td>Successful Logical Reopens</td>
<td>DGO0429</td>
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<td>QTSLWDD</td>
<td>Open DSs - Not In Use, Not Closed (current)</td>
<td>DGO0420</td>
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<tr>
<td>SDINUSEC</td>
<td>Open Data Sets In Use</td>
<td>DGO0757</td>
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### Table 49. Statistics - Plan/Package Processing

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<td>QTABIND</td>
<td>Autobind Plan Successful</td>
<td>DGO0442</td>
<td>●</td>
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<tr>
<td>QTABINDA</td>
<td>Autobind Plan Attempts</td>
<td>DGO0441</td>
<td>●</td>
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<tr>
<td>QTALLOC</td>
<td>Plan Allocation Successful</td>
<td>DGO0431</td>
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<td>QTALLOCIA</td>
<td>Plan Allocation Attempts</td>
<td>DGO0430</td>
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<tr>
<td>QTAUTOB</td>
<td>Auto Bind Package Attempts</td>
<td>DGO0444</td>
<td>●</td>
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<td>QTBINDA</td>
<td>Bind Plan Add Subcommands</td>
<td>DGO0435</td>
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<tr>
<td>QTBINDPA</td>
<td>Bind Package Add Subcommand</td>
<td>DGO0439</td>
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<tr>
<td>QTBINDPR</td>
<td>Bind Package Replace Subcommand</td>
<td>DGO0440</td>
<td></td>
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<tr>
<td>QTBINDR</td>
<td>Bind Plan Replace Subcommands</td>
<td>DGO0436</td>
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<td>QTFREE</td>
<td>Free Plan Subcommands</td>
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<td>QTFREEA</td>
<td>Free Plan Attempts</td>
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<td>QTFREEAP</td>
<td>Free Package Attempts</td>
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<td>QTFREEEP</td>
<td>Free Package Subcommands</td>
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<td>QTINVRID</td>
<td>Autobind Plan Invalid Resource ID</td>
<td>DGO0443</td>
<td>●</td>
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<td>QTPKABND</td>
<td>Auto Bind Packages Successful</td>
<td>DGO0445</td>
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<td>QTPKALL</td>
<td>Package Allocation Successful</td>
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<td>QTPKALLA</td>
<td>Package Allocation Attempts</td>
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<td>QTPKGBD</td>
<td>Packages Bound</td>
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<td>QTPKGFRD</td>
<td>Free Package Successful</td>
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<td>QTPKGRBD</td>
<td>Rebind Package Successful</td>
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<td>QTPLNBD</td>
<td>Plans Bound</td>
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<td>QTPLNFRD</td>
<td>Free Plan Successful</td>
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<td>QTPLNRBD</td>
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<td>QTRBINDA</td>
<td>Rebind Plan Attempts</td>
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<td>QTRBINDP</td>
<td>Rebind Package Subcommands</td>
<td>DGO0449</td>
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<td>QTRBNDPA</td>
<td>Rebind Package Attempts</td>
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### Table 49. Statistics - Plan/Package Processing (continued)

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<tr>
<td>QTREBIND</td>
<td>Rebind Plan Subcommands</td>
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<td>QTTESTB</td>
<td>Test Binds No Plan-ID</td>
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### Table 50. Statistics - Query Parallelism

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<tr>
<td>QXCOORNO</td>
<td>One DB2 - COORDINATOR Parm = NO</td>
<td>DGO1672</td>
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<tr>
<td>QXDEGBUF</td>
<td>Fall To Sequential Mode (no buffer)</td>
<td>DGO0327</td>
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<td>QXDEGCUR</td>
<td>Fall To Sequential Mode Cursor</td>
<td>DGO0748</td>
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<td>QXDEGESA</td>
<td>Fall To Sequential Mode No ESA</td>
<td>DGO0747</td>
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<tr>
<td>QXISORR</td>
<td>One DB2 - Isolation Level</td>
<td>DGO1673</td>
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<tr>
<td>QXMAXDEG</td>
<td>Maximum Degree of Parallelism</td>
<td>DGO0326</td>
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<tr>
<td>QXNORGRP</td>
<td>Planned Parallel Degree</td>
<td>DGO0329</td>
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<td>QXREDGRP</td>
<td>Reduced Parallel Degree</td>
<td>DGO0328</td>
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<td>QXTOTGRP</td>
<td>Parallel Groups Executed</td>
<td>DGO0749</td>
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<td>SDTOTPFL</td>
<td>Parallel Fall To Sequential</td>
<td>DGO0746</td>
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<td>SXXCRAT</td>
<td>Member Skipped (%)</td>
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### Table 51. Statistics - RID List Processing

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<tr>
<td>QISTRCUR</td>
<td>RID Blocks Allocated - Current</td>
<td>DGO0466</td>
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<tr>
<td>QISTRHIG</td>
<td>RID Blocks Allocated - Maximum</td>
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<tr>
<td>QISTRLLM</td>
<td>Terminated - RDS Limit Exceeded</td>
<td>DGO0468</td>
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<tr>
<td>QISTRMAX</td>
<td>Terminated - Process Limit Exceeded</td>
<td>DGO0470</td>
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<tr>
<td>QISTRPLM</td>
<td>Terminated - DM Limit Exceeded</td>
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<td>QISTRSTG</td>
<td>Terminated - No Storage</td>
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<tr>
<td>SKTTERM</td>
<td>Number of Times RID List Processing Not Used</td>
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### Table 52. Statistics - SQL Activity (DCL)

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<td>QXALOCC</td>
<td>Allocate Cursor</td>
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<td>QXALOCL</td>
<td>Associate Locators</td>
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<tr>
<td>QXCON1</td>
<td>Connect Type 1</td>
<td>DGO0296</td>
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<tr>
<td>QXCON2</td>
<td>Connect Type 2</td>
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<tr>
<td>QXGRANT</td>
<td>Grant</td>
<td>DGO0292</td>
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<td>QXLOCK</td>
<td>Lock Table</td>
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<tr>
<td>QXREL</td>
<td>Release</td>
<td>DGO0298</td>
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<td>QXREVOK</td>
<td>Revoke</td>
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Table 52. Statistics - SQL Activity (DCL) (continued)

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<td>QXSETCDG</td>
<td>Set Current Degree</td>
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<td>QXSETCON</td>
<td>Set Connection</td>
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<td>QXSETCRL</td>
<td>Set Current Rules</td>
<td>DGO1357</td>
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<td>QXSETHV</td>
<td>Set Host Variable</td>
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<td>QXSETSQL</td>
<td>Set Current SQLID</td>
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<td>SSCDCL</td>
<td>Total DCL</td>
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Table 53. Statistics - SQL Activity (DDL)

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<td>QXALDAB</td>
<td>Alter Database</td>
<td>DGO0312</td>
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<td>QXALTIX</td>
<td>Alter Index</td>
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<td>QXALTST</td>
<td>Alter Stogroup</td>
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<td>QXALTTA</td>
<td>Alter Table</td>
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<td>QXALTTS</td>
<td>Alter Tablespace</td>
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<td>QXCMTON</td>
<td>Comment On</td>
<td>DGO0323</td>
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<td>QXCRALS</td>
<td>Create Alias</td>
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<td>Create Database</td>
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<td>QXCRGTT</td>
<td>Temp. Table</td>
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<td>QXCRINX</td>
<td>Create Index</td>
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<td>QXCRSTG</td>
<td>Create Stogroup</td>
<td>DGO0307</td>
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<td>Create Synonym</td>
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<td>QXDEFVU</td>
<td>Create View</td>
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<td>QXDRPALK</td>
<td>Drop Alias</td>
<td>DGO0321</td>
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<td>QXDRPDAB</td>
<td>Drop Database</td>
<td>DGO0319</td>
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<td>QXDRPIX</td>
<td>Drop Index</td>
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<td>QXDRPPKG</td>
<td>Drop Package</td>
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<td>QXDRPST</td>
<td>Drop Stogroup</td>
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<td>Drop Synonym</td>
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### Table 54. Statistics - SQL Activity (DML)

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<td>QXCLOSE</td>
<td>Close Cursor</td>
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<td>QXDELET</td>
<td>Delete</td>
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<tr>
<td>QXDESC</td>
<td>Describe</td>
<td>DGO0285</td>
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<td>QXDSCRTB</td>
<td>Describe Table</td>
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<td>QXFETCH</td>
<td>Fetch</td>
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<td>QXINSRT</td>
<td>Insert</td>
<td>DGO0281</td>
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<td>QXOPEN</td>
<td>Open Cursor</td>
<td>DGO0287</td>
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<td>QXPREP</td>
<td>Prepare</td>
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<td>QXSELECT</td>
<td>Select</td>
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<td>QXUPDATE</td>
<td>Update</td>
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### Table 55. Statistics - SQL Nested Activity

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<td>QXCALL</td>
<td>Call Statements Executed</td>
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<tr>
<td>QXCALLAB</td>
<td>Procedure Abends</td>
<td>DGO1363</td>
<td>●</td>
</tr>
<tr>
<td>QXCALLRJ</td>
<td>Call Statement Rejected</td>
<td>DGO1365</td>
<td>●</td>
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<tr>
<td>QXCALLTO</td>
<td>CALL Statement Timeouts</td>
<td>DGO1364</td>
<td>●</td>
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### Table 56. Statistics - Subsystem Services

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
<th>Exception</th>
</tr>
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<tbody>
<tr>
<td>QWSDCKPT</td>
<td>System Event Checkpoint</td>
<td>DGO0535</td>
<td>●</td>
</tr>
<tr>
<td>QSTABRT</td>
<td>Rollback</td>
<td>DGO0525</td>
<td>●</td>
</tr>
<tr>
<td>QSTCOMM</td>
<td>Commits Phase 2</td>
<td>DGO0527</td>
<td></td>
</tr>
<tr>
<td>QSTCTHD</td>
<td>Create Thread</td>
<td>DGO0522</td>
<td>●</td>
</tr>
<tr>
<td>QSTCTHW</td>
<td>Queued At Create Thread</td>
<td>DGO0532</td>
<td>●</td>
</tr>
<tr>
<td>QSTIDEN</td>
<td>Identify</td>
<td>DGO0521</td>
<td></td>
</tr>
<tr>
<td>QSTINDT</td>
<td>Units of Recovery Gone Indoubt</td>
<td>DGO0529</td>
<td>●</td>
</tr>
<tr>
<td>QSTMEOM</td>
<td>Subsystem Allied Memory End of Memory</td>
<td>DGO0534</td>
<td>●</td>
</tr>
<tr>
<td>QSTMEOT</td>
<td>Subsystem Allied Memory End of Task</td>
<td>DGO0533</td>
<td>●</td>
</tr>
<tr>
<td>QSTPREP</td>
<td>Commits Phase 1</td>
<td>DGO0526</td>
<td></td>
</tr>
<tr>
<td>QSTRDON</td>
<td>Commits Read Only</td>
<td>DGO0528</td>
<td></td>
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<tr>
<td>QSTRRIUR</td>
<td>Units of Recovery Indoubt Resolved</td>
<td>DGO0530</td>
<td></td>
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<tr>
<td>QSTSIGN</td>
<td>Signon</td>
<td>DGO0523</td>
<td>●</td>
</tr>
<tr>
<td>QSTSYNC</td>
<td>Synchs (single phase commit)</td>
<td>DGO0531</td>
<td></td>
</tr>
<tr>
<td>QSTTERM</td>
<td>Terminate</td>
<td>DGO0524</td>
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### Table 57. Statistics - Times

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
<th>Exception</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDDFSRBT</td>
<td>DDF Address Space SRB Time</td>
<td>DGO0498</td>
<td></td>
</tr>
<tr>
<td>SDDFTCBT</td>
<td>DDF Address Space TCB Time</td>
<td>DGO0497</td>
<td></td>
</tr>
<tr>
<td>SDDFTOTT</td>
<td>DDF Address Space Total Time</td>
<td>DGO0499</td>
<td></td>
</tr>
<tr>
<td>SDISRBT</td>
<td>IRLM SRB Time</td>
<td>DGO0495</td>
<td></td>
</tr>
<tr>
<td>SDITCBT</td>
<td>IRLM TCB Time</td>
<td>DGO0494</td>
<td></td>
</tr>
<tr>
<td>SDITOTT</td>
<td>IRLM Total Time</td>
<td>DGO0496</td>
<td></td>
</tr>
<tr>
<td>SDSRB</td>
<td>Database Services SRB Time</td>
<td>DGO0492</td>
<td></td>
</tr>
<tr>
<td>SDTTCBT</td>
<td>Database Services TCB Time</td>
<td>DGO0491</td>
<td></td>
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<tr>
<td>SDTLSRBT</td>
<td>Total</td>
<td>DGO0501</td>
<td></td>
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<tr>
<td>SDTLTCBT</td>
<td>Total</td>
<td>DGO0500</td>
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</tr>
<tr>
<td>SDTLTOTT</td>
<td>Total</td>
<td>DGO0502</td>
<td></td>
</tr>
<tr>
<td>SDTOTT</td>
<td>Database Services Total Time</td>
<td>DGO0493</td>
<td></td>
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<tr>
<td>SSSRB</td>
<td>System Services SRB Time</td>
<td>DGO0489</td>
<td></td>
</tr>
<tr>
<td>SSTCBT</td>
<td>System Services TCB Time</td>
<td>DGO0488</td>
<td></td>
</tr>
<tr>
<td>SSTOTT</td>
<td>System Services Total Time</td>
<td>DGO0490</td>
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### Table 58. System Parameters - Application Programming Defaults

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
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<tbody>
<tr>
<td>QWPBAGID</td>
<td>ASCII GBCS CCSID</td>
<td>DGO1741</td>
</tr>
<tr>
<td>QWPBAMID</td>
<td>ASCII MBCS CCSID</td>
<td>DGO1742</td>
</tr>
<tr>
<td>QWPBAR</td>
<td>Default Decimal Arithmetic</td>
<td>DGO1748</td>
</tr>
<tr>
<td>QWPBASID</td>
<td>ASCII SBCS CCSID</td>
<td>DGO1743</td>
</tr>
<tr>
<td>QWPBCHAR</td>
<td>Default Character Set</td>
<td>DGO1763</td>
</tr>
<tr>
<td>QWPBDATE</td>
<td>Date Format</td>
<td>DGO1755</td>
</tr>
<tr>
<td>QWPBDE</td>
<td>Decimal Point Option</td>
<td>DGO1747</td>
</tr>
<tr>
<td>QWPBDL</td>
<td>Default Delimiter</td>
<td>DGO1749</td>
</tr>
<tr>
<td>QWPBDLEN</td>
<td>Local Date Length</td>
<td>DGO1757</td>
</tr>
<tr>
<td>QWPBSDSD</td>
<td>Distributed SQL String Delimiter</td>
<td>DGO1754</td>
</tr>
<tr>
<td>QWPBENS</td>
<td>Default Encoding Scheme</td>
<td>DGO1750</td>
</tr>
<tr>
<td>QWPBGID</td>
<td>EBCDIC GBCS CCSID</td>
<td>DGO1744</td>
</tr>
<tr>
<td>QWPBGRA</td>
<td>Default Mixed Graphic</td>
<td>DGO1752</td>
</tr>
<tr>
<td>QWPBLANG</td>
<td>Default Host Language</td>
<td>DGO1751</td>
</tr>
<tr>
<td>QWPBMID</td>
<td>EBCDIC MBCS CCSID</td>
<td>DGO1745</td>
</tr>
<tr>
<td>QWPBSDL</td>
<td>Default SQL Delimiter</td>
<td>DGO1753</td>
</tr>
<tr>
<td>QWPBSID</td>
<td>EBCDIC SBCS CCSID</td>
<td>DGO1746</td>
</tr>
<tr>
<td>QWPBSQL</td>
<td>SQL Language Support Level</td>
<td>DGO1759</td>
</tr>
<tr>
<td>QWPBTIME</td>
<td>Time Format</td>
<td>DGO1756</td>
</tr>
<tr>
<td>QWPBTLEN</td>
<td>Local Time Length</td>
<td>DGO1758</td>
</tr>
<tr>
<td>QWP4CDEG</td>
<td>Current Degree (CDSSRDEF)</td>
<td>DGO1659</td>
</tr>
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</table>
Table 58. System Parameters - Application Programming Defaults (continued)

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
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<tbody>
<tr>
<td>QWP4CDYN</td>
<td>Cache Dynamic SQL Statements</td>
<td>DGO1809</td>
</tr>
<tr>
<td>QWP4RCHL</td>
<td>Release Cursor Hold Locks</td>
<td>DGO1814</td>
</tr>
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</table>

Table 59. System Parameters - Archive Log Installation Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
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<tbody>
<tr>
<td>QWP2ADL</td>
<td>Number of Copies</td>
<td>DGO1416</td>
</tr>
<tr>
<td>QWP2ARCL</td>
<td>Maximum Data Sets Recorded In BSDS</td>
<td>DGO1242</td>
</tr>
<tr>
<td>QWP2MRTU</td>
<td>Maximum Read Tape Units</td>
<td>DGO1248</td>
</tr>
<tr>
<td>QWP3BKSZ</td>
<td>Archive Log Block Size</td>
<td>DGO1251</td>
</tr>
<tr>
<td>QWP3COMP</td>
<td>Compact Data</td>
<td>DGO1252</td>
</tr>
<tr>
<td>QWP3CTLG</td>
<td>Catalog Archive Data Sets</td>
<td>DGO1253</td>
</tr>
<tr>
<td>QWP3CYL</td>
<td>Space Allocation Method</td>
<td>DGO1420</td>
</tr>
<tr>
<td>QWP3DTIM</td>
<td>Timestamp Archive Log Data Sets</td>
<td>DGO1254</td>
</tr>
<tr>
<td>QWP3MQP</td>
<td>Quiesce Period (seconds)</td>
<td>DGO1255</td>
</tr>
<tr>
<td>QWP3MSV1</td>
<td>Archive Copy 1 Mass Storage Group Name</td>
<td>DGO1256</td>
</tr>
<tr>
<td>QWP3MSV2</td>
<td>Archive Copy 2 Mass Storage Group Name</td>
<td>DGO1257</td>
</tr>
<tr>
<td>QWP3RETN</td>
<td>Days To Retain Archive Log Data Sets</td>
<td>DGO1258</td>
</tr>
<tr>
<td>QWP3RE1N</td>
<td>Copy 1 Prefix</td>
<td>DGO1259</td>
</tr>
<tr>
<td>QWP3RE2N</td>
<td>Copy 2 Prefix</td>
<td>DGO1260</td>
</tr>
<tr>
<td>QWP3RISP</td>
<td>Primary Space</td>
<td>DGO1261</td>
</tr>
<tr>
<td>QWP3SECS</td>
<td>Secondary Space</td>
<td>DGO1263</td>
</tr>
<tr>
<td>QWP3UNT1</td>
<td>Copy 1 Archive Log Device Type</td>
<td>DGO1264</td>
</tr>
<tr>
<td>QWP3UNT2</td>
<td>Copy 2 Archive Log Device Type</td>
<td>DGO1419</td>
</tr>
<tr>
<td>QWP3WTOR</td>
<td>Issue WTO Before Mount for Archive Volume</td>
<td>DGO1265</td>
</tr>
<tr>
<td>ZWP2TIME</td>
<td>Tape Unit Deallocation Period</td>
<td>DGO1424</td>
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</table>

Table 60. System Parameters - Buffer Pool Information Page

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
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<tbody>
<tr>
<td>QDBPCAST</td>
<td>Castout Attribute</td>
<td>DGO1210</td>
</tr>
<tr>
<td>QDBPDWQT</td>
<td>Deferred Write Threshold</td>
<td>DGO1211</td>
</tr>
<tr>
<td>QDBPNM</td>
<td>Buffer Pool Name</td>
<td>DGO1214</td>
</tr>
<tr>
<td>QDBPTSQT</td>
<td>Parallel Sequential Threshold</td>
<td>DGO1215</td>
</tr>
<tr>
<td>QDBPVDQT</td>
<td>Vertical Deferred Write Threshold</td>
<td>DGO1216</td>
</tr>
<tr>
<td>QDBPVPSH</td>
<td>Virtual Sequential Threshold</td>
<td>DGO1217</td>
</tr>
<tr>
<td>QDBPVPSZ</td>
<td>Virtual Pool Size</td>
<td>DGO1218</td>
</tr>
<tr>
<td>QDBPXSQT</td>
<td>Assisting Parallel Sequential Threshold</td>
<td>DGO1660</td>
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Table 61. System Parameters - Data Definition Control Support

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
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<tbody>
<tr>
<td>QWP4ESC</td>
<td>Escape Character</td>
<td>DGO1273</td>
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</table>
Table 61. System Parameters - Data Definition Control Support (continued)

<table>
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<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
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<tbody>
<tr>
<td>QWP4REGA</td>
<td>Application Registration Table</td>
<td>DGO1286</td>
</tr>
<tr>
<td>QWP4REGC</td>
<td>Register Table Owner</td>
<td>DGO1287</td>
</tr>
<tr>
<td>QWP4REGD</td>
<td>Control All Applications</td>
<td>DGO1288</td>
</tr>
<tr>
<td>QWP4REGI</td>
<td>Install DD Control</td>
<td>DGO1289</td>
</tr>
<tr>
<td>QWP4REGN</td>
<td>DDL Registration Database Name</td>
<td>DGO1290</td>
</tr>
<tr>
<td>QWP4REGO</td>
<td>Object Registration Table</td>
<td>DGO1291</td>
</tr>
<tr>
<td>QWP4REGQ</td>
<td>Require Full Names</td>
<td>DGO1292</td>
</tr>
<tr>
<td>QWP4REGU</td>
<td>Unregistered DDL Default</td>
<td>DGO1293</td>
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Table 62. System Parameters - Data Installation Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
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<tbody>
<tr>
<td>QWP6CATN</td>
<td>Icf Catalog Qualifier</td>
<td>DGO1303</td>
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Table 63. System Parameters - Data-Sharing Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
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<tbody>
<tr>
<td>QWPAAASST</td>
<td>Parallelism Assistant</td>
<td>DGO1780</td>
</tr>
<tr>
<td>QWPACOOR</td>
<td>Query coordinator</td>
<td>DGO1675</td>
</tr>
<tr>
<td>QWPAGRPN</td>
<td>Group name</td>
<td>DGO1455</td>
</tr>
<tr>
<td>QWPADOPT</td>
<td>Data sharing enabled</td>
<td>DGO1548</td>
</tr>
<tr>
<td>QWPAMAXM</td>
<td>Maximum number of members</td>
<td>DGO1549</td>
</tr>
<tr>
<td>QWPAMBRN</td>
<td>Member name</td>
<td>DGO1547</td>
</tr>
<tr>
<td>QWPASUCV</td>
<td>SU conversion factor</td>
<td>DGO1676</td>
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Table 64. System Parameters - Distributed Data Facility Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
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</tr>
</thead>
<tbody>
<tr>
<td>QWP1SCER</td>
<td>Extended Security</td>
<td>DGO1674</td>
</tr>
<tr>
<td>QWP4HOP</td>
<td>Hop Site Authorization</td>
<td>DGO1274</td>
</tr>
<tr>
<td>QWP9CMST</td>
<td>DBAT Status</td>
<td>DGO1304</td>
</tr>
<tr>
<td>QWP9RLFN</td>
<td>Resource Limit Spec. Table Error Action (DDF)</td>
<td>DGO1305</td>
</tr>
<tr>
<td>QWP9RYC</td>
<td>Resynchronization Interval (minutes)</td>
<td>DGO1306</td>
</tr>
<tr>
<td>QWP9STRT</td>
<td>DB2 Startup Option</td>
<td>DGO1307</td>
</tr>
<tr>
<td>QWP9TTO</td>
<td>Idle Thread Timeout Interval</td>
<td>DGO1435</td>
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Table 65. System Parameters - Group Buffer Pools Parameters Page

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QBGBGAS</td>
<td>AUTOREC (automatic recovery)</td>
<td>DGO1725</td>
</tr>
<tr>
<td>QBGBGDR</td>
<td>Actual Directory Entry</td>
<td>DGO1559</td>
</tr>
<tr>
<td>QBGBGDT</td>
<td>Actual Data Entry</td>
<td>DGO1560</td>
</tr>
<tr>
<td>QBGBGR2</td>
<td>Pending Directory to Data Ratio</td>
<td>DGO1561</td>
</tr>
<tr>
<td>QBGBGSZ</td>
<td>Allocated Buffer Pool Size (4K)</td>
<td>DGO1558</td>
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</table>
### Table 66. System Parameters - IRLM Installation Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWP4IAUT</td>
<td>Automatic Start</td>
<td>DGO1405</td>
</tr>
<tr>
<td>QWP4IPRC</td>
<td>Start Procedure Name</td>
<td>DGO1276</td>
</tr>
<tr>
<td>QWP4ISID</td>
<td>Subsystem Name</td>
<td>DGO1277</td>
</tr>
<tr>
<td>QWP4ISWT</td>
<td>Time DB2 Will Wait for Start (seconds)</td>
<td>DGO1278</td>
</tr>
<tr>
<td>QWP4TOUT</td>
<td>Resource Timeout (seconds)</td>
<td>DGO1299</td>
</tr>
<tr>
<td>QWP4UTO</td>
<td>Utility Timeout Factor</td>
<td>DGO1300</td>
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### Table 67. System Parameters - Lock Escalation Parameters

<table>
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<th>Field description</th>
<th>Help panel name</th>
</tr>
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<tbody>
<tr>
<td>QWP4LKTS</td>
<td>Maximum Locks per Table Space</td>
<td>DGO1279</td>
</tr>
<tr>
<td>QWP4LKUS</td>
<td>Maximum Locks per User</td>
<td>DGO1280</td>
</tr>
<tr>
<td>QWP4WAIT</td>
<td>Wait For Retained Locks</td>
<td>DGO1738</td>
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### Table 68. System Parameters - Log Installation Parameters

<table>
<thead>
<tr>
<th>Field name</th>
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</tr>
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<tbody>
<tr>
<td>QWP2DUAL</td>
<td>Number of Copies</td>
<td>DGO1431</td>
</tr>
<tr>
<td>QWP2IBPS</td>
<td>Input Buffer Size (KB)</td>
<td>DGO1246</td>
</tr>
<tr>
<td>QWP2OBPS</td>
<td>Output Buffer Size (KB)</td>
<td>DGO1249</td>
</tr>
<tr>
<td>QWP2WRTH</td>
<td>Write Threshold On Filled Buffers</td>
<td>DGO1250</td>
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### Table 69. System Parameters - Operator Functions Installation Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWP1RLF</td>
<td>Resource Limit Facility Automatic Start</td>
<td>DGO1228</td>
</tr>
<tr>
<td>QWP1RLFN</td>
<td>Resource Limit Spec. Table Error Action</td>
<td>DGO1230</td>
</tr>
<tr>
<td>QWP1RLFT</td>
<td>Resource Limit Specification Table Suffix</td>
<td>DGO1231</td>
</tr>
<tr>
<td>QWP1SMRC</td>
<td>WTO Route Codes</td>
<td>DGO1236</td>
</tr>
<tr>
<td>QWP4ABN</td>
<td>Allow Autobind Operations</td>
<td>DGO1266</td>
</tr>
<tr>
<td>QWP4ABX</td>
<td>Allow Explain At Autobind</td>
<td>DGO1267</td>
</tr>
<tr>
<td>QWP4ENF</td>
<td>DPROP Support</td>
<td>DGO1404</td>
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<tr>
<td>QWP4SIT</td>
<td>Site Type</td>
<td>DGO1296</td>
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<tr>
<td>QWP9TCPA</td>
<td>TCP/IP Already Verified</td>
<td>DGO1761</td>
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### Table 70. System Parameters - Other System Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
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</tr>
</thead>
<tbody>
<tr>
<td>MZDBSTR</td>
<td>Databases and Table Spaces</td>
<td>DGO1208</td>
</tr>
<tr>
<td>QWP1DFRQ</td>
<td>Checkpoints Level ID Updates</td>
<td>DGO1434</td>
</tr>
<tr>
<td>QWP2DBSD</td>
<td>Dual BSDS Mode</td>
<td>DGO1243</td>
</tr>
<tr>
<td>QWP4DSMX</td>
<td>Maximum Open Data Sets (DSMAX)</td>
<td>DGO1271</td>
</tr>
<tr>
<td>QWP4DSST</td>
<td>Static describe (DESCSTAT)</td>
<td>DGO1701</td>
</tr>
<tr>
<td>QWP4ISWI</td>
<td>IRLM Initial Inquiry by DB2</td>
<td>DGO1433</td>
</tr>
</tbody>
</table>
Table 70. System Parameters - Other System Parameters (continued)

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWP4MDDN</td>
<td>Asynchronous Drain Stop (%DSMAX)</td>
<td>DGO1281</td>
</tr>
<tr>
<td>QWP4TDDN</td>
<td>Asynchronous Drain Start (%DSMAX)</td>
<td>DGO1298</td>
</tr>
<tr>
<td>QWP4WBMP</td>
<td>IMS/BMP time-out factor (BMPTOUT)</td>
<td>DGO1669</td>
</tr>
<tr>
<td>QWP4WDLI</td>
<td>IMS/DLI time-out factor (DLITOUT)</td>
<td>DGO1670</td>
</tr>
<tr>
<td>XWP4CDEG</td>
<td>Current Degree (CDSSRDEF)</td>
<td>DGO1859</td>
</tr>
</tbody>
</table>

Table 71. System Parameters - Protection Installation Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWP1RLFA</td>
<td>Resource Limit Table Creator Authid</td>
<td>DGO1229</td>
</tr>
<tr>
<td>QWP3RTCT</td>
<td>RACF Protect Archive Log</td>
<td>DGO1262</td>
</tr>
<tr>
<td>QWP4ADM2</td>
<td>System Administrator 2 Authid</td>
<td>DGO1268</td>
</tr>
<tr>
<td>QWP4AUCA</td>
<td>Plan Authorization Cache Size</td>
<td>DGO1428</td>
</tr>
<tr>
<td>QWP4AUTH</td>
<td>DB2 Authorization Enabled</td>
<td>DGO1269</td>
</tr>
<tr>
<td>QWP4BNVA</td>
<td>Bind New Version</td>
<td>DGO1430</td>
</tr>
<tr>
<td>QWP4DFID</td>
<td>Default (unknown) User Authid</td>
<td>DGO1270</td>
</tr>
<tr>
<td>QWP4OPR1</td>
<td>System Operator 1 Authid</td>
<td>DGO1283</td>
</tr>
<tr>
<td>QWP4OPR2</td>
<td>System Operator 2 Authid</td>
<td>DGO1284</td>
</tr>
<tr>
<td>QWP4PAC</td>
<td>Package Authorization Cache Size</td>
<td>DGO1779</td>
</tr>
<tr>
<td>QWP4SADM</td>
<td>System Administrator 1 Authid</td>
<td>DGO1294</td>
</tr>
</tbody>
</table>

Table 72. System Parameters - Storage Sizes Installation Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWP1CDB</td>
<td>Maximum Remote</td>
<td>DGO1220</td>
</tr>
<tr>
<td>QWP1CT</td>
<td>Maximum Concurrent Threads</td>
<td>DGO1221</td>
</tr>
<tr>
<td>QWP1IDB</td>
<td>Maximum Batch</td>
<td>DGO1223</td>
</tr>
<tr>
<td>QWP1IDF</td>
<td>Maximum TSO</td>
<td>DGO1224</td>
</tr>
<tr>
<td>QWP1RMT</td>
<td>Maximum Remote Active</td>
<td>DGO1232</td>
</tr>
<tr>
<td>QWP4EDPL</td>
<td>Maximum Size of EDM Pool</td>
<td>DGO1272</td>
</tr>
<tr>
<td>QWP4IXTP</td>
<td>Default Index Type</td>
<td>DGO1546</td>
</tr>
<tr>
<td>QWP4MXKD</td>
<td>Maximum Kept Dynamic Statements</td>
<td>DGO1810</td>
</tr>
<tr>
<td>QWP4PST</td>
<td>Utility Cache Option</td>
<td>DGO1766</td>
</tr>
<tr>
<td>QWP4RMAX</td>
<td>Maximum Size of RID Pool</td>
<td>DGO1396</td>
</tr>
<tr>
<td>QWP4SCAC</td>
<td>3990 Cache</td>
<td>DGO1295</td>
</tr>
<tr>
<td>QWP4SPOL</td>
<td>Maximum Size of Sort Pool</td>
<td>DGO1297</td>
</tr>
</tbody>
</table>

Table 73. System Parameters - Stored Procedures Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWP1SPAB</td>
<td>Abends Allowed</td>
<td>DGO1437</td>
</tr>
<tr>
<td>QWP1SPPN</td>
<td>MVS Procedure Name</td>
<td>DGO1436</td>
</tr>
<tr>
<td>QWP1SPTO</td>
<td>Timeout Value</td>
<td>DGO1438</td>
</tr>
</tbody>
</table>
Table 74. System Parameters - Tracing, Checkpoint and Pseudo-Close Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWP1AUDT</td>
<td>Start Audit Trace</td>
<td>DGO1219</td>
</tr>
<tr>
<td>QWP1FREQ</td>
<td>Pseudo-Close Frequency</td>
<td>DGO1222</td>
</tr>
<tr>
<td>QWP1LOGL</td>
<td>Checkpoint Frequency</td>
<td>DGO1225</td>
</tr>
<tr>
<td>QWP1MON</td>
<td>Start Monitor Trace</td>
<td>DGO1226</td>
</tr>
<tr>
<td>QWP1MONS</td>
<td>Monitor Buffer Size (bytes)</td>
<td>DGO1227</td>
</tr>
<tr>
<td>QWP1SMFA</td>
<td>Start SMF Accounting</td>
<td>DGO1234</td>
</tr>
<tr>
<td>QWP1SMFS</td>
<td>Start SMF Statistics Trace</td>
<td>DGO1235</td>
</tr>
<tr>
<td>QWP1STIM</td>
<td>Statistics Interval (minutes)</td>
<td>DGO1237</td>
</tr>
<tr>
<td>QWP1TMR</td>
<td>Pseudo-Close Timer</td>
<td>DGO1238</td>
</tr>
<tr>
<td>QWP1TRST</td>
<td>Start Global Trace</td>
<td>DGO1239</td>
</tr>
<tr>
<td>QWP1TRSZ</td>
<td>Trace Table Size (4 KB multiple)</td>
<td>DGO1240</td>
</tr>
<tr>
<td>QWP1URCK</td>
<td>UR Check Frequency</td>
<td>DGO1712</td>
</tr>
</tbody>
</table>

OMEGAMON Collector purpose and function:

The OMEGAMON Collector executes as a started task address space. The purpose of the OMEGAMON Collector is to support functions that are not suited to a TSO address space.

The following functions are available if the OMEGAMON Collector is installed and active at your site:
- Viewing past data
- Periodic exception processing while you are not logged on
- Exception event processing
- Collection of parallel tasks for query CP parallelism

There is one OMEGAMON Collector for all DB2 subsystems.

Viewing past data

Before you can view past data, the OMEGAMON Collector needs to be active so that instrumentation data can be gathered.

This data is gathered by the OMEGAMON Collector at installation-defined intervals. You can specify the types of data (IFCID) gathered and the interval at which the data is collected using the OMEGAMON Collector parameters. The data gathered is written to a VSAM history data set or data space where it can be later retrieved and browsed using the HISTORY command.

You can qualify the thread activity data gathered by the OMEGAMON Collector to reduce unnecessary system overhead and to limit the quantity of data stored using the OMEGAMON Collector parameters.

For more information, see [IBM Db2 for z/OS in the IBM Knowledge Center](https://www.ibm.com/support/knowledgecenter/SSEPGG_11.16.0/com.ibm.zos.doc/html/r0000001c.htm).

Periodic exceptions

With the OMEGAMON Collector active, you can log off the system while periodic exception processing is running. Any periodic exception messages issued while
you are offline are gathered by the OMEGAMON Collector and are written to the periodic exceptions list, where they can be examined by using the LOOK command. You are notified of any periodic exceptions when you log on to your TSO system the next time.

Exception events

With exception event processing, you can monitor the DB2 subsystem for the presence of specific events. When a specified event occurs and is detected, you are notified by the Exception Notification window.

You can log off the system while exception event processing is running. Any exception event messages issued while you are offline are gathered by the OMEGAMON Collector and are written to the exception event list, where they can be examined by using the LOOK command. You are notified of any exception events when you log on to your TSO system the next time.

You can specify the exception event traces to start during OMEGAMON Collector startup using the OMEGAMON Collector parameters. For more information, see IBM Db2 for z/OS in the IBM Knowledge Center.

Collection of parallelism data

The data that the Online Monitor shows for threads that exploit utility parallelism or query CP parallelism comes from three different sources:
1. The originating task
2. All currently active parallel tasks
3. All parallel tasks that have finished processing

While the first two types of data are readily available from DB2, the third type has to be stored and administered separately. This is accomplished by the OMEGAMON Collector if it has been set up to do so. See parameter COLLECTCPUPARALLEL or CCP in IBM Db2 for z/OS in the IBM Knowledge Center.

If your DB2 system exploits query CP parallelism, set CCP to YES to enable the OMEGAMON Collector to collect the parallel tasks that have finished processing. Otherwise, the performance data shown by the Online Monitor for a thread might not be correct, because it does not include all parallel tasks of that thread.

Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support

If you want to use Performance Expert Client, the SQL Dashboard, the end-to-end SQL or stored procedure monitoring support, you must enable the host data collector started task to listen on a specific TCP/IP port.

The SQL Dashboard allows you to monitor all dynamic and static SQL statements executed on DB2 for z/OS. The stored procedure monitoring allows you to see the overall execution but also to drill down into stored procedure nested SQL activities as well as information where stored procedures are used.

With the end-to-end SQL monitoring, distributed SQL statement execution can be monitored, as well as stored procedures called via DDF.
The three dashboards are using the InfoSphere Optim web user interface and its infrastructure with direct communication with the host data collector address space.

The Performance Expert Client is a user interface that supports online monitoring and reporting, Performance Warehouse management, and buffer pool analysis on the workstation.

To enable Performance Expert Client, the SQL Dashboard, the end-to-end SQL or stored procedure monitoring to communicate with the data collector, set parameter KD2_OMPE_PE_SUPPORT or parameter KD2_OMPE_E2E_MON_SPRT to Y in the PARMGEN user profile. If you want to make further changes to Performance Expert Client support and/or end-to-end SQL or stored procedure monitoring support, refer to the related parameters in section "Basic product parameters" in the Parameter Reference.

Here is a list of the related parameters:
- KD2_OMPE_TCPIP_NAME
- KD2_OMPE_TCPIP_ADDRESS
- KD2_OMPE_MAX_SESSIONS

After you have enabled Performance Expert Client support and/or end-to-end SQL or stored procedure monitoring support, you must perform the following tasks:
- You have to specify a separate port for each DB2 subsystem if the Performance Expert Client or end-to-end SQL or stored procedure monitoring is enabled, otherwise there will be errors in the log. See “Specifying the port information for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring” on page 394.
- Ensure that the OMEGAMON Collector is configured to use TCP/IP services. See “Setting up TCP/IP services for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring” on page 311 for detailed information.
- Install Performance Expert Client or end-to-end SQL or stored procedure monitoring on the workstation. For Performance Expert Client, see “Installing and configuring Performance Expert Client” on page 436 for more information. For end-to-end SQL or stored procedure monitoring, see “Installing and configuring end-to-end SQL or stored procedure monitoring” on page 851 for more information.

**Enabling IBM Tivoli Monitoring**

IBM Tivoli Monitoring (ITM) monitors and manages system and network applications and monitors the availability and performance of all parts of your enterprise. IBM Tivoli Monitoring also provides reports that you can use to track trends and troubleshoot problems.

IBM Tivoli Monitoring consists of the following components:
- Tivoli Enterprise Monitoring Agent. The Tivoli Enterprise Monitoring Agent for OMEGAMON for DB2 PE is the OMEGAMON Agent.
- Tivoli Enterprise Monitoring Server
- Tivoli Enterprise Portal Server
- Tivoli Enterprise Portal
- IBM Eclipse Help Server
To use IBM Tivoli Monitoring, you must install Tivoli Enterprise Monitoring Server, Tivoli Enterprise Monitoring Agent, and Tivoli Enterprise Monitoring Server application support. Additionally, you must install Tivoli Enterprise Portal, Tivoli Enterprise Portal Server, and IBM Eclipse Help Server on the workstation. Tivoli Data Warehouse is an optional component that is installed on the workstation.

The following sections contain detailed installation and configuration instructions or references to the respective documentation:

1. “Configuring Tivoli Enterprise Monitoring Server”
2. “Enabling Tivoli Enterprise Monitoring Agent”
3. “Verifying that Tivoli Enterprise Monitoring Agent starts correctly” on page 376
4. “Installing application support for a Tivoli Enterprise Monitoring Server on z/OS” on page 377

For more information about Tivoli Enterprise Portal, see “Installing and configuring Tivoli Enterprise Portal” on page 851.

For more information about Tivoli Data Warehouse, see “Adding Tivoli Data Warehouse” on page 851.

Detailed information about the components, additional instructions for installation, and additional instructions for configuration are available in the Tivoli Monitoring in the IBM Knowledge Center.

Configuring Tivoli Enterprise Monitoring Server

The Tivoli Enterprise Monitoring Server collects performance data from monitored resources, preprocesses it, and then archives it in a central database. You need at least one Tivoli Enterprise Monitoring Server to be the HUB for your Tivoli Enterprise Portal environment.

About this task

If you have many monitored resources, you might also install remote Tivoli Enterprise Monitoring Servers to preprocess some of the data for the HUB Tivoli Enterprise Monitoring Server.

Detailed configuration instructions are provided in the Tivoli Monitoring in the IBM Knowledge Center Search for Configuring Tivoli Enterprise Monitoring Server on z/OS. Also see section ‘Installing and configuring the hub Tivoli Enterprise Monitoring Server’.

Enabling Tivoli Enterprise Monitoring Agent

The Tivoli Enterprise Monitoring Agent for OMEGAMON for DB2 PE is the OMEGAMON Agent.

About this task

When used with OMEGAMON for DB2 PE, the Tivoli Enterprise Monitoring Agent does not retrieve performance data. Instead, it connects with the OMEGAMON Collector so that the Tivoli Enterprise Portal infrastructure can access the performance data that is collected in the OMEGAMON Collector.
You can configure the Tivoli Enterprise Monitoring Agent as a stand-alone address space or as part of a Tivoli Enterprise Monitoring Server address space. To improve performance, you might want to configure the Tivoli Enterprise Monitoring Agent as a stand-alone address space.

Restriction: When more than one Tivoli Enterprise Monitoring Agent for DB2 is installed and running on the same LPAR connecting to the same hub Tivoli Enterprise Monitoring Server, the hub Tivoli Enterprise Monitoring Server can only accept data from one Tivoli Enterprise Monitoring Agent per LPAR at a time.

The instructions in this section describe how to configure a stand-alone Tivoli Enterprise Monitoring Agent in its own address space (that is on the same LPAR as the Tivoli Enterprise Monitoring Server). Instructions for configuring the Tivoli Enterprise Monitoring Agent in a Tivoli Enterprise Monitoring Server address space are available in the Common PARMGEN - Implementation scenarios.

To configure Tivoli Enterprise Monitoring Agent, refer to the KD5 parameters in section ‘OMEGAMON XE for DB2 Agent’ in the IBM OMEGAMON for DB2 Performance Expert/Performance Monitor Parameter Reference.

For more information, refer to the IBM® OMEGAMON and Tivoli Management Services on z/OS shared documentation and the Common parameters.

For the Complete the Configuration information, refer to the Complete the Configuration for the OMEGAMON XE for Db2 Agent Technote.

Verifying that Tivoli Enterprise Monitoring Agent starts correctly

Before you install Tivoli Enterprise Portal, check that the Tivoli Enterprise Monitoring Server and the Tivoli Enterprise Monitoring Agent are configured correctly and that they connect to the other components correctly.

About this task

To verify that Tivoli Enterprise Monitoring Agent starts successfully, perform the following steps:

Procedure

1. Start the OMEGAMON Collector.
2. Start the Tivoli Enterprise Monitoring Server.
3. Start the Tivoli Enterprise Monitoring Agent.
4. Check the Tivoli Enterprise Monitoring Agent startup messages.
   a. Verify that the Tivoli Enterprise Monitoring Server that is configured is correct. This information is found in the RKLVLOG in the following message:
      
      \[(0008-DA3327CB:kbsssge.c,52,"BSS1_GetEnv") CT_OMSLIST="<protocol>:<TEMS>"\]

      where <protocol> is the communication protocol and <TEMS> is the name of the Tivoli Enterprise Monitoring Server.
   b. Verify that the Tivoli Enterprise Monitoring Agent connected to the Tivoli Enterprise Monitoring Server. This information is found in the RKLVLOG in the following message:
      
      \[(0001-DA300D6B:kraaulog.cpp,442,"ctira_insert_log") KRAREG000,
      Connecting to CMS MMRE:CMS., Producer(IRA Manager)\]
where MMRTE:CMS is the name of the Tivoli Enterprise Monitoring Server.

c. Verify that the Tivoli Enterprise Monitoring Agent connected to the OMEGAMON Collector. This information is in the JESMSGLG in the following message:

KO210189I AGENT Agent STC CONNECTED TO D2 OM Server STC VERSION V540 BY REQUEST - DB2 DB2SSID

where:

- Agent STC is the name of the Tivoli Enterprise Monitoring Agent started task.
- OM Server STC is the Started task ID of server.
- DB2SSID is the DB2 subsystem ID.

If you do not see this message, verify that the OMEGAMON Collector started task name specified in the KD5_AGT_STC parameter is correct on the SPECIFY CONFIGURATION PARAMETERS panel.

d. Verify that the Tivoli Enterprise Monitoring Agent connected to the OMEGAMON Collector. This information is in the JESYSMSG of the OMEGAMON Collector in the following message:

KO210154I D5API COLLECTOR IS CONNECTING TO DB2 DB2SSID ON BEHALF OF AGENT Agent STC

where:

- DB2SSID is the DB2 subsystem ID.
- Agent STC is the name of the Tivoli Enterprise Monitoring Agent started task.

If you do not see this message, verify on the SPECIFY CONFIGURATION PARAMETERS panel that the OMEGAMON Collector started task name, specified in the KD5_AGT_STC parameter, is correct.

Enabling InfoSphere Optim Performance Manager integration

If you want to use InfoSphere Optim Performance Manager integrated into Tivoli Enterprise Portal, you need to enable InfoSphere Optim Performance Manager integration.

About this task

Before you can use the InfoSphere Optim Performance Manager integrated into Tivoli Enterprise Portal, check that the subsystems are enabled for monitoring support in the Tivoli Enterprise Monitoring Agent configuration. To do this, set the appropriate values for the following parameters for each DB2 subsystem configuration:

- KD5_DBnn_OPM_E2ESECURE_SECURE
- KD5_DBnn_OPM_E2ESQLHN_TCP_HOST
- KD5_DBnn_OPM_E2ESQLPT_PORT_NUM

Installing application support for a Tivoli Enterprise Monitoring Server on z/OS

Before you can view data in the Tivoli Enterprise Portal on the workstation, you must install application support. Application support files provide agent-specific information for workspaces, helps, situations, templates, and other data.
About this task

Detailed configuration instructions are provided in the Tivoli Monitoring in the IBM Knowledge Center. Search for Configuring Tivoli Enterprise Monitoring Server on z/OS.

Best practices

This section contains different best practices to help you reduce the configuration effort.

About this task

The following topics provide detailed information:

1. “Creating new DB2 subsystem configurations and/or monitoring profiles via duplication”
2. “Configuring all DB2 subsystems/data sharing groups” on page 381

Creating new DB2 subsystem configurations and/or monitoring profiles via duplication

In order to monitor more DB2 subsystems/data sharing groups, you need to add more subsystem configurations to the PARMGEN profile. The same applies to monitoring profiles, if you want to analyze different performance metrics for selected DB2 subsystems. In order to create a new DB2 configuration or monitoring profile, you can duplicate an existing one. Per default, two DB2 configurations and one monitoring profile are available.

Before you begin

This best practice does not require any prerequisites. You can follow the steps while doing your first configuration or when updating your existing configuration.

About this task

You will duplicate an existing monitoring profile in this workflow. However, this information is also applicable to all other parameters that are table-based. These are all parameters of the structure kpp_Axx, where:

- pp is the product code
- AA is the parameter function identifier (for example, PF for monitoring profiles, or DB for DB2 configurations)
- xx is the row ID

In order to create a new monitoring profile in the PARMGEN user profile, you duplicate an existing profile. After this step, you adjust the profile ID that is part of the parameter. For example, in parameter KD2_PF01_SQLPA_VERSION, the profile ID is PF01.

The sample PARMGEN profile that is provided with OMEGAMON for DB2 PE already contains a default monitoring profile configuration. You can use this default profile for the following steps, or create a new profile PF02.

Procedure

1. Open the PARMGEN user profile and search for the first or any existing monitoring profile. Issue the following command: f PFxx
2. Issue the following primary command to exclude all lines: `x all`

3. Issue the following primary command to include all profile monitoring parameters: `f PF01 all`

**Note:** You can include commented lines using the line command `f`. For example, to include the six lines between `KD2_PF01_DESCRIPTION` and `KD2_PF01_OA_ECM`, use `f6`. This results in the following screen:

```
File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.03 Command ====> f PF01 all
001743 ** BEGIN KD2_PF01 - Monitoring profile ID: PF01
001744 KD2_PF01_ROW 01
001745 KD2_PF01_PROFID P001
001746 KD2_PF01_DESCRIPTION "PF01 PROFILE"
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - 6 Line(s) not Displayed
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - 1 Line(s) not Displayed
001753 KD2_PF01_OA_ECM N * Enablement Parameter *
001755 KD2_PF01_OA_WAIT 5
001756 KD2_PF01_OA_START N
001757 KD2_PF01_OA_THREAD N
001758 KD2_PF01_OA_INTV 15
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - 7 Line(s) not Displayed
```

Results in:

```
File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.03 Columns 00080 00080
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - 1742 Line(s) not Displayed
001743 ** BEGIN KD2_PF01 - Monitoring profile ID: PF01
001744 KD2_PF01_ROW 01
001745 KD2_PF01_PROFID P001
001746 KD2_PF01_DESCRIPTION "PF01 PROFILE"
001753 KD2_PF01_OA_ECM N * Enablement Parameter *
001755 KD2_PF01_OA_WAIT 5
001756 KD2_PF01_OA_START N
001757 KD2_PF01_OA_THREAD N
001758 KD2_PF01_OA_INTV 15
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - 7 Line(s) not Displayed
```
KD2_PF_READA_SPMON

001751 ** Specify Object and Volume Analysis (OA) parameters used in the
001752 ** KD2PAR(STRTOA) member:
001753 KD2_PF01_OA_ECM N * Enablement Parameter *
001755 KD2_PF01_OA_WAIT 5
001756 KD2_PF01_OA_START N
001757 KD2_PF01_OA_THREAD N
001758 KD2_PF01_OA_INTV 15
- - - - - - - - - - - - - - - - - 7 Line(s) not Displayed

4. Issue the rr block line command on all included lines to repeat the profile once.

File Edit Edit_Settings Menu Utilities Compilers Test Help
-----------------------------------------------
EDIT SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.03 253 CHARS 'PF01'
Command ==> Scroll ==> CSR
****** ******************************************* Top of Data ****************************
rr1743 ** BEGIN KD2_PF01 - Monitoring profile ID: P001
001744 KD2_PF01_ROW 01
001745 KD2_PF01_PROFID P001
001746 KD2_PF01_DESCRIPTION "P001 PROFILE"

5. Issue the rr block line command to exclude the first of the two identical profiles to ensure you do not edit it.

File Edit Edit_Settings Menu Utilities Compilers Test Help
-----------------------------------------------
EDIT SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.03 253 CHARS 'PF01'
Command ==> Scroll ==> CSR
****** ******************************************* Top of Data ****************************
xx1743 ** BEGIN KD2_PF01 - Monitoring profile ID: P001
001744 KD2_PF01_ROW 01
001745 KD2_PF01_PROFID P001
001746 KD2_PF01_DESCRIPTION "P001 PROFILE"

6. Issue the following primary command to change the monitoring profile ID to a new ID, so that you have two different monitoring profiles:

   c PF01 PF02 all nx

File Edit Edit_Settings Menu Utilities Compilers Test Help
-----------------------------------------------
EDIT SAR.PG.V540.OMPE01.WCONFIG(OMPE01) - 01.04 Columns 00001 00080
Command ==> c PF01 PF02 all nx Scroll ==> CSR
****** ******************************************* Top of Data ****************************
==CHG> ** BEGIN KD2_PF02 - Monitoring profile ID: P001
==CHG> KD2_PF02_ROW 01
==CHG> KD2_PF02_PROFID P001
==CHG> KD2_PF02_DESCRIPTION "P001 PROFILE"

Note: The nx command ensures that the change command only affects the non-excluded lines.

7. Change the KD2_PF02_ROW parameter to match the ID in PFxx.

File Edit Edit_Settings Menu Utilities Compilers Test Help
-----------------------------------------------
8. Change the **KD2_PF02_PROFID** parameter to a new monitoring profile ID to ensure that it differs from the original profile ID.

---

### Configuring all DB2 subsystems/data sharing groups

The most basic deployment scenario in PARMGEN is to create one completely separate RTE on each single LPAR. PARMGEN provides support for system variables in order to have only one PARMGEN profile that can be shared among all runtime environments.

#### Before you begin

You need a runtime environment where OMEGAMON for DB2 PE is already configured. This runtime environment must have system variable support enabled.

The following table shows some necessary information on runtime environments for this best practice. The source runtime environment is the one that needs to exist already while the deployment target runtime environment is the one that is being created.

<table>
<thead>
<tr>
<th>Table 75. Runtime environment values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name of runtime environment</strong></td>
</tr>
<tr>
<td>OMPE01</td>
</tr>
<tr>
<td><strong>Started task name</strong></td>
</tr>
<tr>
<td><strong>Started task prefix</strong></td>
</tr>
<tr>
<td><strong>VTAM APPLID prefix</strong></td>
</tr>
<tr>
<td><strong>LPAR name</strong></td>
</tr>
<tr>
<td><strong>Global user JCL</strong></td>
</tr>
<tr>
<td><strong>Runtime environment high-level qualifier</strong></td>
</tr>
</tbody>
</table>

#### About this task

As DB2 subsystem configurations and data sharing group configurations (in the following example only DB2 subsystem configurations) depend on the LPAR, this approach is not ready for immediate use. The reason is that a DB2 subsystem resides on only one LPAR but PARMGEN configures all specified DB2 subsystem configurations that are given in the PARMGEN user profile. Thus, you need to adjust those DB2 subsystem configurations on each runtime environment. The best approach is to share as much as possible and to change as little as possible. This best practice will show you a way how to achieve this.
This scenario has the following setup: Two LPARs have two DB2 subsystems each. You need an existing runtime environment that is configured on the first LPAR. The following graphic shows the prerequisite and the outcome of this scenario.

The basic idea of the setup is to adjust RTE 1 in a way that it can be used as input for RTE 2 with as little effort as possible. Then you create RTE 2 and only adjust the local DB2 subsystem information.

**Procedure**

1. Adjust RTE 1 by moving all DB2 subsystem-specific information from the PARMGEN user profile to a new configuration member in your WCONFIG library.

2. Create two new configuration members in the WCONFIG library named DB2PMO1 and DB2PMO2. Name the configuration member starting with DB2, followed by the system name.

3. When starting on the deployment source runtime environment, move all **KD2_DBxx** parameters from the PARMGEN profile to DB2PMO1.
4. Add a short note to include the subsystem configuration in $SYSIN later.

5. DB2PMO1 now contains your DB2 subsystem configuration for your first LPAR. Adjust DB2PMO2 accordingly, so that it contains all DB2 subsystem configurations on your second LPAR. Create a DB2 subsystem configuration member for each LPAR where you want it to deploy OMEGAMON for DB2 PE.
6. Add the following parameters to the DB2PMO* configuration members:
   a. Parameter for the started task name (GLB_DB2_CLASSIC_STC from $GBLUSR) to the DB2PMO* configuration members, if USER.PROCLIB is shared.
   b. Parameters GLB_DSN_DB2_* from $GBLUSR to the DB2PMO* configuration members, if the DB2 run and load libraries are not shared.

   This prevents you from having to adjust these parameters on each LPAR.

   File Edit Edit_Settings Menu Utilities Compilers Test Help
   0000138 **GLB_DSN_DB2_DSNLOAD DSN.V9R1M0.SDSNLOAD**
   0000139 **GLB_DSN_DB2_LOADLIB_V9 DSN.V9R1M0.SDSNLOAD**
   0000140 **GLB_DSN_DB2_LOADLIB_V9 DSN.V9R1M0.SDSNLOAD**
   0000141 **GLB_DSN_DB2_LOADLIB_V10 DSN.V100.SDSNLOAD**
   0000142 **GLB_DSN_DB2_LOADLIB_V11 DSN.V9R1M0.SDSNLOAD**
   0000143 **GLB_DSN_DB2_RUNLIB_V8 DSN.V9R1M0.RUNLIB**
   0000144 **GLB_DSN_DB2_RUNLIB_V9 DSN.V9R1M0.RUNLIB**
   0000145 **GLB_DSN_DB2_RUNLIB_V10 DSN.V100.SDSNLOAD**
   0000146 **GLB_DSN_DB2_RUNLIB_V11 DSN.V9R1M0.RUNLIB**
   0000147 **GLB_DSN_DB2_RUNLIB_V12 DSN.V9R1M0.RUNLIB**
   0000148 **GLB_DSN_DB2_DSNSXIT DSN.V9R1M0.DSNEXIT**
   0000149 **GLB_DSN_DB2_DSNSXIT DSN.V9R1M0.DSNEXIT**
   0000150 **GLB_DSN_DB2_DSNSXIT DSN.V9R1M0.DSNEXIT**
   0000151 **GLB_DSN_DB2_DSNSXIT DSN.V9R1M0.DSNEXIT**
   0000152 **GLB_DSN_DB2_DSNSXIT DSN.V9R1M0.DSNEXIT**
   0000153 **GLB_DSN_DB2_DSNSXIT DSN.V9R1M0.DSNEXIT**
   0000154 **GLB_DSN_DB2_DSNSXIT DSN.V9R1M0.DSNEXIT**
   0000155 **GLB_DSN_DB2_DSNSXIT DSN.V9R1M0.DSNEXIT**
   0000156 **GLB_DSN_DB2_DSNSXIT DSN.V9R1M0.DSNEXIT**
   0000157 **GLB_DSN_DB2_DSNSXIT DSN.V9R1M0.DSNEXIT**
   0000158 **GLB_DSN_DB2_DSNSXIT DSN.V9R1M0.DSNEXIT**
   0000159 **GLB_DSN_DB2_DSNSXIT DSN.V9R1M0.DSNEXIT**
   0000160 **GLB_DSN_DB2_CLASSIC_STC OMPE02S**

   **Note:** Depending on your configuration, you can have more parameters that can be moved to DB2PMO2. In general, use system variables if possible. But if parameters are not applicable for system variables, you can put them into LPAR-specific configuration members.

7. Open $SYSIN and add DB2PMO1 to the list of configuration members.

   File Edit Edit_Settings Menu Utilities Compilers Test Help
   ISREDDE2 SAR.PG.V540.OMPE01.WCONFIG($SYSIN) - 01.00 Columns 00001 00080
   0000005 **CONFIG MEMBER=(WCONFIG:OMPE01)**
   0000006 **CONFIG MEMBER=(WCONFIG:DB2PMO1)**
   0000007 **CONFIG MEMBER=(WCONFIG:WCONFIG)**
   0000008 **CONFIG MEMBER=(WCONFIG:WCONFIG)**
   0000009 **CONFIG MEMBER=(WCONFIG:WCONFIG)**
   0000010 **CONFIG MEMBER=(WCONFIG:WCONFIG)**
   0000011 **CONFIG MEMBER=(WCONFIG:WCONFIG)**
   0000012 **CONFIG MEMBER=(WCONFIG:WCONFIG)**
   0000013 **CONFIG MEMBER=(WCONFIG:WCONFIG)**
   0000014 **CONFIG MEMBER=(WCONFIG:WCONFIG)**
   0000015 **CONFIG MEMBER=(WCONFIG:WCONFIG)**
   0000016 **CONFIG MEMBER=(WCONFIG:WCONFIG)**

8. Create a new runtime environment (RTE 2) on LPAR 2 and ensure that system variable support is enabled. Reference the PARMGEN profile of RTE 1 in the PARMGEN work environment setup.

   KCIIPPMG1 ---- SET UP PARMGEN WORK ENVIRONMENT FOR AN RTE (1 OF 3) -----
   Specify the RTE profile library and member name that fits your scenario:
   => SAR.PG.V540.OMPE01.WCONFIG(OMPE01) (ex:$dset(rte))
   - If creating a brand new RTE, leave this field blank. **or**
   - If creating another new RTE and you want to clone a PARMGEN-created RTE’s configured product set, specify the WCONFIG profile library and RTE member name to clone (ex.: $hlq.&rte.WCONFIG(&clone_from)). **or**
   - If reconfiguring or upgrading this existing OMPE02 RTE, specify its
Note: If you need more information on enterprise deployment, refer to the deployment scenario in the Parameter Reference.

9. Before submitting the KCIIJPCCF job to clone the existing OMPE01 RTE, include the DB2PMO* DB2 subsystem configuration members. This way, they are copied to RTE 2 as well.

```
000095 * ************************************************************
000096 * ----------- BEGIN - USER SECTION: SELECT MEMBER -------------- *
000097 * ************************************************************
000098 * USER SECTION: SELECT MEMBER *
000099 * ***************************************************************
001000 SELECT MEMBER=(???$C*)
001001 SELECT MEMBER=(???$P*,??@$PDAL,??@$PDPG)
001002 SELECT MEMBER=(???$S*,??@$X*)
001003 SELECT MEMBER=($GBL$,USR)
001004 SELECT MEMBER=(?JOBCARD)
001005 SELECT MEMBER=(DB2PMO*)
001006 SELECT MEMBER=(DB2PMO+)
001007 EXCLUDE MEMBER=(??@$CFG,??@$RCFG,??@$RCFG,??@$KCI$SYV,??@$KCI$SYN)
001008 EXCLUDE MEMBER=(??@$OC*,??@$OS*)
001009 EXCLUDE MEMBER=(??@$PAUD,??@$PSDA,KPD$PD*)
001010 * ----------- END - USER SECTION: SELECT MEMBER -------------- *
```

Note: This job will overwrite your existing JOBCARD with the one from RTE 1 on LPAR 1. If you want to prevent this, comment out the appropriate line in the KCIIJPCCF job (line number 104 in the above job example).

10. Replace %MODEL% with the source runtime environment (for example, OMPE01) before submitting the KCIIJPMC2 job.

```
000058 * ********** BEGIN - USER SECTION: CONFIG MEMBER ******************
000059 * **************************************************************
000060 CONFIG MEMBER=(WCONFIG:OMPE02)
000061 CONFIG MEMBER=(WCONFIG:DB2PMO2)
000062 CONFIG MEMBER=(WCONFIG:&user_config_profile_placeholder)
000063 CONFIG MEMBER=(WCONFIG:&profile)
000064 * **************************************************************
```

11. Remove all KD2_DBxx parameters in the PARMGEN user profile.

12. Add DB2PMO2 to the $SYSIN configuration profile including the member.

---

Chapter 3. Installing and configuring

385
**Note:** Depending on your configuration, it is possible that you do not have to submit the KCIIPMC2 job. Whenever possible, use system variables with system variable support. If you need the KCIIPMC2 merge job, check all parameters and adjust them if required. What you always have to adjust are the following:

- Name of runtime environment (and all corresponding prefixes)
- VTAM APPLID prefix
- Started task prefix (if your USER.PROCLIB is shared among the LPARs)

13. Finish the installation and configuration as usual.

**What to do next**

If you want to deploy to more LPARs, you have to create more LPAR-specific profiles. After that, the procedure remains the same. Create a new runtime environment having system variable support enabled, remove the **KD2_DBxx** parameters and include the LPAR-specific DB2PMO* configuration member in $SYSIN.

---

**Configuring monitoring profiles and DB2 subsystems**

OMEGAMON for DB2 PE provides several optional z/OS components to help you analyze, monitor, and tune your DB2 subsystems.

**About this task**

You must add one or more monitoring profiles to configure the monitoring functionality that you want to use for the different DB2 subsystems. In the next step you can associate these monitoring profiles to the DB2 subsystems that you want to monitor.

Adding and configuring one or more monitoring profiles:

- The monitoring profiles define the monitoring functionality that you want to use. To add a new monitoring profile, see "Creating new DB2 subsystem configurations and/or monitoring profiles via duplication" on page 378.
- The following topics provide detailed configuration information on the functionality that can be configured as part of a monitoring profile:
  
  - "Enabling Object Volume Analysis" on page 387
  - "Enabling Periodic Exception Processing" on page 388
  - "Enabling Near-Term History" on page 389
  - "Enabling Snapshot History" on page 391
  - "Enabling Performance Expert Agent for DB2 Connect Monitoring support" on page 391
  - "Enabling DB2 EXPLAIN" on page 392
  - "Enabling IBM DB2 SQL Performance Analyzer" on page 393
  - "Starting Additional DB2 Traces" on page 393

Now you can configure which DB2 subsystems you want to monitor:

- For each DB2 subsystem, you must specify which monitoring profile it should use. Each profile can be used for one or more DB2 subsystems. You do this by associating the DB2 subsystem with a monitoring profile. See "Associating a DB2 subsystem with a monitoring profile" on page 387 for instructions on how to do this.
You can configure as many DB2 subsystems as you like. However, the server only monitors the first 32 monitoring-enabled DB2 subsystems as listed in RKD2PRF(DB2PROF). To monitor more DB2 subsystems on a single LPAR you need to configure an additional OMPE Collector.

- For configuring DB2 subsystem-specific Performance Expert Client and/or end-to-end SQL or stored procedure monitoring, see “Specifying the port information for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring” on page 394 for configuration instructions.
- For configuring Performance Warehouse, see “Enabling Performance Warehouse” on page 395 for configuration instructions.

**Configuring DB2 subsystem monitoring**

You must associate each DB2 subsystem with a monitoring profile and build the DB2-related runtime members.

**About this task**

After you configure the monitoring profiles, you must configure the DB2 subsystem monitoring. The monitoring profiles define the monitoring functionality that you wish to use. Then you specify which monitoring profile you want to apply for each DB2 subsystem. In addition, you must enter some configuration information that is specific to each DB2 subsystem, and build the runtime members for the DB2 subsystem.

The following topic provides detailed configuration information:

1. “Associating a DB2 subsystem with a monitoring profile”

**Associating a DB2 subsystem with a monitoring profile**

You enter the configuration information for your DB2 subsystem and associate it with a monitoring profile.

**About this task**

In order to assign a monitoring profile to a DB2 subsystem configuration, provide the profile ID from the KD2_PFxx_PROFID parameter to the KD2_DBxx_DB2_PROFID parameter. The default profile assigned to the DB2 subsystems is P001.

**Enabling Object Volume Analysis**

The Object Volume Analysis function reveals the effect of an application on overall disk access. This can help you balance the load and determine where DB2 data sets should be placed to reduce system congestion.

**About this task**

The following sections provide detailed installation and configuration instructions:

1. “Configuring Object Volume Analysis” on page 388
2. “Verifying the Object Volume Analysis configuration” on page 388

**What to do next**

1. You configure Object Volume Analysis in a monitoring profile. After you have configured the component, you must associate a DB2 subsystem with this profile and create the runtime members for this DB2 subsystem. See “Configuring DB2 subsystem monitoring” for detailed instructions.
Configuring Object Volume Analysis
You can enable and configure Object Volume Analysis in the PARMGEN user profile.

About this task
To enable Object Volume Analysis, set parameter KD2_PFxx_OA_ECM to Y in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "Profile parameters", "Object/Volume analysis" in the [Parameter Reference](#).

Verifying the Object Volume Analysis configuration
Check the OMEGAMON Collector JESMSGLOG output to verify that the server accepted your parameters.

Before you begin
Before you test the setup of Object Volume Analysis, ensure that you have completed the product setup, so that you can start the OMEGAMON Collector.

About this task
After you have configured the DB2 subsystem, perform the following steps:

Procedure
1. Start the OMEGAMON Collector.
2. In SDSF, open the JESMSGLOG output of the OMEGAMON Collector started task.
3. Review the JESMSGLOG. You should see the output similar to the following excerpt:

   ...
   KO2E3000I EVENTMGR INITIALIZATION IN PROGRESS
   KO2E3001I EVENTMGR INITIALIZATION SUCCESSFUL
   ...
   KO2E3070I OBJECT ANALYSIS - INITIALIZATION IN PROGRESS FOR DB2=DB24
   KO2E3050I OBJECT ANALYSIS - PHASE1 INITIALIZATION COMPLETE FOR DB2=DB24
   ...
   KO2E3051I OBJECT ANALYSIS - PHASE2 INITIALIZATION COMPLETE FOR DB2=DB24
   ...
   KO2E3071I OBJECT ANALYSIS - INITIALIZATION SUCCESSFUL FOR DB2=DB24
   Messages KO2E3000I and KO2E301I indicate that the Event Collection Manager is configured and is starting.
   Messages KO2E3070I, KO2E3051I, and KO2E3071I indicate that the Object Analysis support is configured and is starting.

Enabling Periodic Exception Processing
Periodic Exception Processing analyzes system metrics and compares them against predefined thresholds, user-defined thresholds, and application metrics. When a threshold is exceeded, an exception event is shown.

About this task
You can use Periodic Exception Processing in three different ways:
• You configure Periodic Exception Processing in the PARMGEN user profile.
In this case, the function is started automatically at startup of the OMEGAMON Collector. One common set of threshold definitions is used for all users.

- You start Periodic Exception Processing manually after you start Performance Expert Client.
  
  In this case, you do not need to configure the function in the PARMGEN user profile. You can define a set of threshold definitions for each user ID.
- You can use the Exception Processing user exit that issues messages to the operator console in case of exceptions.

The following section provides detailed instructions for configuring Periodic Exception Processing in the PARMGEN user profile:

“Configuring Periodic Exception Processing in PARMGEN.”

What to do next

1. After you configure the component, you allocate operational data sets. See the “Completing the configuration for z/OS components” on page 405 for detailed instructions.

2. In addition, you have to provide threshold definitions in the threshold data set. Before you can use Periodic Exception Processing, you must allocate additional runtime data sets first to allocate the Threshold Exception data set, and then copy the default threshold definitions. For more information, see the Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS Reporting User’s Guide in the Tivoli Monitoring in the IBM Knowledge Center.

Configuring Periodic Exception Processing in PARMGEN

If you configure Periodic Exception Processing in PARMGEN, the function is started automatically at startup of the OMEGAMON Collector.

About this task

To configure Periodic Exception Processing, set parameter KD2_PFxx_AEXCP_D2PYACT to Y in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section “Profile parameters”, “Periodic exception processing” in the Parameter Reference.

Enabling Near-Term History

Near-Term History captures and stores recent DB2 instrumentation data so that you can review thread performance after the threads have ended.

About this task

Important: Near-Term History is only available through the Classic Interface.

The following sections provide detailed installation and configuration instructions:

1. “Configuring the Near-Term History Data Collector” on page 390
2. “Verifying the Near-Term History configuration” on page 390

What to do next

1. After you configure the component, you must allocate operational data sets. See “Completing the configuration for z/OS components” on page 405 for detailed instructions.
Configuring the Near-Term History Data Collector
You must specify the settings for the Near-Term History Data Collector in the PARMGEN user profile.

About this task
To configure Near-Term History, set parameter KD2_PFxx_HIS_START to Y or C in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "Profile parameters", "Near-Term History" in the Parameter Reference.

You can use variable %DB% for the DB2 subsystem ID or variable %SY% for the system ID in the VSAM data set names. Variable %DB% will be replaced by the DB2 subsystem ID for the allocation of the data sets, and variable %SY% will be replaced by the z/OS system ID that you configured.

Verifying the Near-Term History configuration
Check the OMEGAMON Collector JESMSGLOG output to verify that the server accepted your parameters.

Before you begin
Before you test the setup for Near-Term History, make sure that you have completed the product setup, so that you can start the OMEGAMON Collector.

About this task
To verify that the OMEGAMON Collector accepted your changes for Near-Term History, perform the following steps:

Procedure
1. Start the OMEGAMON Collector.
2. In SDSF, open the JESMSGLG output of the OMEGAMON Collector started task.
3. Review the JESMSGLG. You should see the output similar to the following excerpt:

Messages KO2O1309I and KO2O1308I indicate that Near-Term History started successfully for the configured DB2 subsystems. Message KO2R0128I identifies the previously configured Near-Term History data sets.
4. Review the SYSPRINT log. You should see the following message:

KO2013181 NEAR-TERM HISTORY DATA COLLECTOR - NEW OPTIONS
IN EFFECT FOR CURRENT INTERVAL (NEWINOPT)

**Enabling Snapshot History**

Snapshot history data is useful, for example, if you want to examine activities leading to, and following, an exception without recreating the situation.

**About this task**

The following section provides detailed installation and configuration instructions:

"Configuring Snapshot History"

**What to do next**

1. After you configure the component, you must allocate operational data sets. See “Completing the configuration for z/OS components” on page 405 for detailed instructions.

**Configuring Snapshot History**

Here you specify the type of information that is collected in the Snapshot History.

**About this task**

To enable Snapshot History, set parameter **KD2_PFxx_SH_D2SHKHST** to **Y** in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "Profile parameters", "Snapshot history (including DB2 Connect Monitoring)" in the [Parameter Reference].

**Enabling Performance Expert Agent for DB2 Connect Monitoring support**

The Performance Expert Agent for DB2 Connect Monitoring monitors connections of remote applications within the Distributed Relational Database Architecture (DRDA) of DB2 that are connected through DB2. It is installed on the DB2 Connect Server gateway and provides DB2 Connect data for the OMEGAMON Collector.

**Before you begin**

You must enable Performance Warehouse before beginning. See “Enabling Performance Warehouse” on page 395 for more information.

**Tip:** If you do not want to use Performance Warehouse for purposes other than DB2 Connect Monitoring, you can enable it in PARMGEN a single time, verify that the OMEGAMON Collector has created the Performance Warehouse tables, and then return to PARMGEN to disable it. If you disable Performance Warehouse, you must enable it again before you install a PTF that indicates that in the ++HOLD. Otherwise, the necessary changes to the Performance Warehouse database are not made. This might result in SQL errors.

**About this task**

The following section provides detailed installation and configuration instructions:
What to do next

1. After you complete the configuration steps outside of PARMGEN, you must complete the configuration in PARMGEN. See “Completing the configuration for z/OS components” on page 405 for detailed instructions.

2. After you have enabled Performance Expert Agent for DB2 Connect Monitoring support, you must install Performance Expert Agent for DB2 Connect Monitoring on the system hosting a DB2 Connect gateway. See “Installing and configuring Performance Expert Agent for DB2 Connect Monitoring” on page 406 for more information.

Configuring Performance Expert Agent for DB2 Connect Monitoring support

You can use the PARMGEN user profile to configure Performance Expert Agent for DB2 Connect Monitoring support.

About this task

To enable Performance Expert Agent for DB2 Connect Monitoring support, set parameter KD2_PFxx_SH_D2SHKHST to Y and parameter KD2_PFxx_DCM_D2SHDCAP to Y in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "Profile parameters", "Snapshot history (including DB2 Connect Monitoring)” in the Parameter Reference.

Enabling DB2 EXPLAIN

Explain functions provide an easy-to-read representation of access plan information for your SQL queries and statements. You can use this information to decide how to tune your queries. The built-in explain functions are Easy Explain and the EXPLAIN report.

Before you begin

You must create a database to be used by EXPLAIN. There are no special requirements regarding database name, storage group, or index buffer pool. But you must use an 8 KB buffer pool. The database name has to be specified in parameter KD2_PFxx_EX_D2EXDB.

About this task

The following section provides detailed installation and configuration instructions:

“Configuring DB2 EXPLAIN”

What to do next

1. After you complete the configuration steps in PARMGEN, you must complete the configuration outside of PARMGEN. See “Completing the configuration for z/OS components” on page 405 for detailed instructions.

Configuring DB2 EXPLAIN

Before you can use DB2 EXPLAIN, you must enter your configuration values in PARMGEN.
About this task

To configure DB2 EXPLAIN, set parameter **KD2_PFxx_EX_D2EXACT** to Y in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "Profile parameters", "DB2 Explain" in the Parameter Reference.

**Enabling IBM DB2 SQL Performance Analyzer**

IBM DB2 SQL Performance Analyzer provides resource usage information and costs associated with SQL queries without having to run them in DB2. This analysis helps you to tune your queries to achieve maximum performance.

**Before you begin**

You must enable Performance Warehouse before beginning. See [“Enabling Performance Warehouse” on page 395](#) for more information. Performance Warehouse has to be running while you are using SQL Performance Analyzer.

* You must install IBM DB2 SQL Performance Analyzer as a separate product before you begin. See the IBM DB2 SQL Performance Analyzer for z/OS Installation Guide in the IBM Db2 Tools Product Documentation.

**About this task**

The following section provides configuration instructions for IBM DB2 SQL Performance Analyzer:

[“Configuring IBM DB2 SQL Performance Analyzer.”](#)

**Configuring IBM DB2 SQL Performance Analyzer**

You use PARMGEN to enable and configure IBM DB2 SQL Performance Analyzer.

**About this task**

To configure IBM DB2 SQL Performance Analyzer, set parameter **KD2_PFxx_SQLPA_ENABLE** to Y in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "Profile parameters", "DB2 SQL Performance Analyzer" in the Parameter Reference.

**Starting Additional DB2 Traces**

With this option you can start additional DB2 traces. For certain functionality, such as displaying SQL statements and metrics for dynamic statement cache or EDM pool, it is required to start additional DB2 traces. Starting these traces causes considerable CPU overhead. Therefore, these traces are not started by default. With this option you can specify if additional DB2 traces should be started automatically when the OMEGAMON Collector starts.

**About this task**

The following section provides detailed installation and configuration instructions:

[“Configuring Additional DB2 Traces”](#)

**Configuring Additional DB2 Traces**

You can use the Configuration Tool to configure Additional DB2 Traces.
About this task

There are two ways to configure Additional DB2 Traces.

Procedure

- The first way is to set parameter KD2_PFxx_TRACES_318 and parameter KD2_PFxx_TRACES_400 to Y. This enables collection IFCID 318 for dynamic and IFCID 400 for static statement cache metrics.

  Note: Parameter KD2_PFxx_TRACES_400 is only applicable for DB2 10 and above versions. The enablement of those two parameters is required when using Extended Insight (end-to-end SQL monitoring) and stored procedure monitoring.

- The second way is to use the KD2_PFxx_TRACES_DB2CMDx parameters (where x is either 2, 3, or 4). This alternative gives you the possibility to provide three more custom START TRACE commands.

  Note: It is not possible to add line breaks to the statement. Therefore, use abbreviations for this command wherever possible.

  You find more information on these parameters in the Parameter Reference.

Configuring Additional Monitoring Features

Additional Monitoring Features are a special set of functions only for OMEGAMON for DB2 PE. If you want to enable additional monitoring functions, such as DB2 message monitoring and stored procedure monitoring, you must enable them in PARMGEN. DB2 message monitoring is used to show DB2 messages in the Tivoli Enterprise Portal workspaces. Stored procedure monitoring data is used in the InfoSphere Optim Performance Manager dashboards.

To start DB2 message monitor, set parameter KD2_PFxx_ACS_DB2MSGMON to Y.

To enable stored procedure monitoring support in the InfoSphere Optim Performance Manager user interface, set parameter KD2_PFxx_READA_SPMON to Y in the PARMGEN user profile. In order for this function to work, you also have to enable end-to-end SQL or stored procedure monitoring, see “Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support” on page 373, and you also have to enable collection of IFCID 318 and 400 traces, see “Configuring Additional DB2 Traces” on page 393.

You find more information on this and an other function-specific parameters in the Parameter Reference.

Specifying the port information for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring

If you want to use Performance Expert Client and/or end-to-end SQL or stored procedure monitoring for some DB2 subsystems, you must specify the Performance Expert Client port information for each DB2 subsystem.

Before you begin

You must enable Performance Expert Client support and/or end-to-end SQL or stored procedure monitoring support before you specify the port information. See “Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support” on page 373 for more information.
About this task

To specify the port information, use parameter **KD2_DBxx_DB2_PORT_NUM** for each of your DB2 subsystem configurations that you want to monitor using either Performance Expert Client or end-to-end SQL or stored procedure monitoring.

What to do next

1. For Performance Expert Client: After you have added Performance Expert Client support, you must install Performance Expert Client on the workstation. See "Installing and configuring Performance Expert Client” on page 436 for more information. For end-to-end SQL or stored procedure monitoring: After you have added end-to-end SQL or stored procedure monitoring support, you must install end-to-end SQL or stored procedure monitoring on the workstation. See “Installing and configuring end-to-end SQL or stored procedure monitoring” on page 851 for more information.

Verifying the Performance Expert Client support and/or end-to-end SQL or stored procedure monitoring support configuration

Check the OMEGAMON Collector started task SYSPRINT output to verify that the server accepted your parameters.

Before you begin

Before you test the setup of the OMEGAMON Collector, ensure you have completed the product setup, so that you can start the OMEGAMON Collector.

About this task

After you have configured the DB2 subsystem, perform the following steps:

Procedure

1. Start the OMEGAMON Collector.
2. Review the SYSPRINT output of the OMEGAMON Collector started task in SDSF. Verify that the following outputs match the parameters you specified:
   a. TCP/IP
   b. IP ADDRESS OF SERVER INSTANCE. If you left the IP address blank because your host only has one IP address, you will see 0.0.0.0 here.
   c. MAXIMUM NUMBER OF PARALLEL SESSIONS.
   d. TCPNAME (this value is not of interest for end-to-end SQL or stored procedure monitoring).
   e. DATASHARINGGROUP.
   f. TCPIP PORT.
3. Verify that the last output is FPEV1330I, TCP/IP SERVER TASK STARTED. This means that the TCP/IP port opened successfully.

Enabling Performance Warehouse

You can use PARMGEN to install and configure Performance Warehouse.

Before you begin

- The started task user ID must be DB2PM or associated with a group ID with the name DB2PM, see "Setting up security for the OMEGAMON Collector address spaces” on page 311.
If you want to install the Performance Warehouse Client, you must enable Performance Expert Client support first. See “Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support” on page 373 and “Specifying the port information for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring” on page 394 for more information.

Verify that your system supports started jobs. For a detailed explanation, see “Enabling started jobs for Performance Warehouse” on page 312.

Create any storage groups that you will use for this Performance Warehouse database.

Create 4 KB and 32 KB buffer pools that you will use for this Performance Warehouse database.

Grant user DB2PM or group DB2PM access to the buffer pools that you will use for this Performance Warehouse database.

About this task

The Performance Warehouse is an automated Performance Database that consists of DB2 tables to save Accounting and Statistics performance data and internal control tables.

The following section contains detailed installation and configuration instructions:
1. “Configuring the Performance Warehouse”

What to do next

After you enable Performance Warehouse, you must perform the following tasks:

• Complete the configuration outside of PARMGEN. See “Completing the configuration for z/OS components” on page 405 for more information.

• Install and configure the Performance Expert Client on the workstation. This enables you to view information that is stored in the Performance Warehouse using the Performance Warehouse Client function. For more information, see “Installing and configuring Performance Expert Client” on page 436 or “Configuring the Performance Warehouse Client” on page 443.

• Verify that the OMEGAMON Collector accepted your changes for Performance Warehouse. See “Verifying the Performance Warehouse configuration” on page 397 for more information.

Configuring the Performance Warehouse

You must configure Performance Warehouse so that the OMEGAMON Collector can create and control it.

About this task

You must configure Performance Warehouse on DB2 subsystem level. It cannot be configured on monitoring profile level, because several configuration parameters are unique for each DB2 subsystem.

During the configuration process, you can define some parameters for the database, but the database name is always DB2PM and you cannot change it.

To enable Performance Warehouse, set parameter KD2_DBxx_PWH_D2PWPWHA to Y in the PARMGEN user profile. For more information on this and on other function-specific parameters, refer to section "DB2 subsystem parameters", 
Verifying the Performance Warehouse configuration

Check the OMEGAMON Collector started task SYSPRINT output to verify that the server accepted your parameters.

Before you begin

Before you test the setup of the Performance Warehouse, ensure that you have completed the product setup, so that you can start the OMEGAMON Collector.

About this task

To verify that the OMEGAMON Collector has successfully incorporated your changes, review the SYSPRINT output of the OMEGAMON Collector started task:

Procedure

1. Start the OMEGAMON Collector.
2. In SDSF, open the SYSPRINT output of the OMEGAMON Collector started task.
3. Review the SYSPRINT. You should see the output similar to the following excerpt:

   0FPEV0129I D824 PERFORMANCEWAREHOUSE=YES
   0FPEV0133I D824 - PERFORMANCEWAREHOUSEADRESSSPACENAME=CANSPW
   0FPEV1339I D824 TCPIP PORT=6080
   ...
   0FPEV5003I D824 CHECKING DATABASE FOR NECESSARY CHANGES. PLEASE WAIT
   0FPEV5016I D824 REQUIRED DBRM DGOZMIG1 NOT BOUND. BINDING IT
   ...
   0FPEV5005I D824 DATABASE UPDATE COMPLETE

Note: It might take several minutes to create the Performance Warehouse database. Message 0FPEV5016I indicates that the OMEGAMON Collector is still creating the database and binding the DBRMs. In every subsequent startup, the database already exists and the OMEGAMON Collector will only check for required updates and BINDs. After this check, the message 0FPEV5005I is displayed.

Configuring additional components on z/OS

OMEGAMON for DB2 PE provides additional optional z/OS components to help you analyze, monitor, and tune your DB2 databases. These components are configured outside of PARMGEN.

About this task

The following sections provide configuration instructions for the additional components on z/OS:

- “Enabling Application Trace Facility” on page 398
- “Enabling Buffer Pool Analyzer” on page 398
- “Adding a Performance Database” on page 398
- “Enabling Reporter” on page 399
Enabling Application Trace Facility
You can enable and configure Application Trace Facility in the Classic Interface.

About this task
Application Trace Facility (ATF) traces the execution of a DB2 thread so that you can improve application flow and resource consumption.

You enable Application Trace Facility in the Classic Interface. For more information, see “IBM DB2 SQL Performance Analyzer (SQL PA)” on page 17.

Enabling Buffer Pool Analyzer
You can use the sample members in the TKO2SAMP library to help you configure Buffer Pool Analyzer.

About this task
IBM DB2 Buffer Pool Analyzer for z/OS helps database administrators manage buffer pools more efficiently by providing information about current buffer pool behavior and by using simulation to anticipate future behavior.

For detailed installation and configuration instructions see IBM DB2 Buffer Pool Analyzer for z/OS Configuration Guide on the IBM Db2 Tools Product Documentation.

Adding a Performance Database
You can use the sample statements in the sample library to create and to load a Performance Database. If you use an SMP/E sharing runtime environment, the sample library is TKO2SAMP. For all other types of runtime environments, the sample library is RKO2SAMP.

About this task
The Performance Database is a DB2 database that can hold aggregated and raw DB2 activity information spanning a long period of time. The type of data stored in the Performance Database depends on the reporter command (FILE or SAVE) used to create input data sets for the DB2 LOAD utility. This long-term history can help you with performance tuning activities, with trend analysis, and with capacity planning.

Important: If you are planning to use a Performance Warehouse and a Performance Database in the same DB2 subsystem, then you need to create the Performance Database tables with an owner ID that differs from the Performance Warehouse owner ID DB2PM.

To add a Performance Database, perform the following steps:

Procedure
1. Create data for the Performance Database from already collected performance data. You can use the OMEGAMON for DB2 PE batch reporter with either the
FILE option or the SAVE option to create performance data. However, if you use the SAVE option, you must convert the data to the FILE format before you can load it into the tables.

2. Create the Performance Database tables. You can use the sample CREATE statements in the RKO2SAMP library as a starting point and then modify the statements to meet your needs.

3. Load data into the Performance Database. You can use the sample LOAD statements in the RKO2SAMP library and the DB2 LOAD utility. If you modified the CREATE statements from the RKO2SAMP library, you must also modify the LOAD statements.

What to do next

For detailed information about the structure of the Performance Database, including the types of data that you can store in a Performance Database, and how it is formatted and loaded, see the *IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS; IBM Tivoli OMEGAMON XE for DB2 Performance Monitor on z/OS: Reporting User’s Guide*.

Enabling Reporter

The Reporter is enabled when you download the program files from SMP/E.

About this task

The Reporter generates predefined reports to help you collect and analyze historical performance data. It also enables you to prepare performance data before you load it into the Performance Warehouse or into the Performance Database.

You do not need to perform any additional installation or configuration steps.

For more information about Reporter, see *IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS; IBM Tivoli OMEGAMON XE for DB2 Performance Monitor on z/OS: Report Command Reference*.

Enabling options in OMEGAMON for DB2 PE Collector Realtime Customer Options (OMPEOPTS)

You can enable options in OMEGAMON for DB2 PE Collector Realtime Customer Options to override default settings.

About this task

OMEGAMON for DB2 PE externalizes user-modifiable options in member OMPEOPTS of the ‘hlq.RKD2PAR’ parameter library. You can use the defaults, or change them to conform to your installation standards.

The XCFMODE option specifies how the coupling facility component of the OMEGAMON for DB2 PE Collector subsystem is initialized at OMEGAMON for DB2 PE Collector initialization time. The default is XCFMODE=ACTIVE, which causes the coupling facility component of the OMEGAMON for DB2 PE to initialize in active mode. You can disable this option by specifying XCFMODE=INACTIVE. This causes the coupling facility XCF gateway component of the OMEGAMON for DB2 PE to be initialized in inactive mode.
Once XCFMODE is enabled, you can also enable user options DB2RTCPU and DB2REMIO. The default for both user options is enabled (DB2RTCPU=YES and DB2REMIO=YES).

The DB2RTCPU user option allows viewing DB2 remote thread CPU time for threads running on remote members of the data sharing group that the connected DB2 subsystem belongs to. It is also used for collecting lock information for remote threads. You can disable this user option by specifying DB2RTCPU=NO.

The DB2REMIO user option allows viewing Thread DSN Activity for threads running on remote members of the data sharing group that the connected DB2 subsystem belongs to. You can disable this user option by specifying DB2REMIO=NO.

The message subsystem displays the current DB2 subsystem and IRLM messages. It also allows you to issue DB2 commands, for example, to display the status of utility jobs or terminate utilities that have abended. Message subsystem activation and deactivation is controlled by the MGSUBSYS=[ACTIVE/INACTIVE] user option specified in OMPEOPTS member of the RKD2PAR PARMGEN data set. By default, OMEGAMON for DB2 PE on z/OS is shipped with MGSUBSYS=INACTIVE. To activate the message subsystem, set MGSUBSYS=ACTIVE and restart the OMEGAMON for DB2 PE Collector address space. You can then view messages when you select the DB2 CONSOLE option on the OMEGAMON Classic Interface Realtime main menu.

Cross-system coupling facility (OMEGAMON/XCF) feature

The cross-system-coupling facility (OMEGAMON/XCF) feature enables peer-to-peer communication between OMEGAMON Collectors.

The OMEGAMON Collector XCF gateway component allows peer-to-peer communication between OMEGAMON Collectors by implementing the cross-system coupling (XCF) services supported in the z/OS system complex (sysplex) environment. OMEGAMON Collectors use XCF member connection services to connect to a predefined OMPEXCF default group name. All OMEGAMON Collectors connected to the same group can then issue send and receive requests against each other to exchange DB2 performance monitoring data.

The OMEGAMON/XCF feature is initialized at OMEGAMON Collector initialization time when real-time user option XCFMODE=ACTIVE is specified in member OMPEOPTS of the RKD2PAR parameters data set. When XCFMODE=ACTIVE is specified, the XCF gateway component performs additional environmental initialization functions specified by the following parameters of member OMPE00 of the RKD2PAR data set:

- XCFGROUP=OMPEXCF
- XCFTASKS=04
- XCFTIMER=30
- DSPSIZE=128M

The XCF group is a set of related members defined in the z/OS XCF by the OMEGAMON Collector XCF gateway, in which members of the group can communicate (send and receive data) between z/OS systems with other OMEGAMON Collector members of the same group. A group can span one or more of the systems in a sysplex and represents a complete logical entity to z/OS XCF. When a Classic or Common (D5API) OMEGAMON Collector session is
started, the OMEGAMON Collector XCF gateway connects a member to the group name (XCFGROUP=OMPEXCF). The member connection persists for the life of the Classic or Common Collector session.

The z/OS XCF member connection is terminated when one of the following conditions is met:

- The Classic or Common Collector session terminates.
- The Classic session switches to a different DB2 subsystem.
- The OMEGAMON Collector address space is normally shut down.

When the OMEGAMON Collector address space is abnormally terminated, all connections are terminated. Cancelling or forcing the OMEGAMON Collector address space might under certain conditions only activate the XCF connections. Issuing the D XCF,GROUP,OMPEXCF z/OS command might still show these connections as defined to z/OS XCF.

**Note:**
The OMEGAMON Collector XCF gateway will reuse these existing connections on subsequent OMEGAMON Collector start ups.

Message KO2Z638I is issued to indicate that a Classic or Common Collector session has joined the OMPEXCF group. For example, KO2Z638I OMPE V540 Session BPMYD2C/IPV$TCE0 joined XCF group OMPEXCF/PMO1SGP1DM520001

**KO2Z638I message explanation:**

<table>
<thead>
<tr>
<th>Value</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMPE</td>
<td>Identifies the subsystem name assigned to the OMEGAMON Collector</td>
</tr>
<tr>
<td>V540</td>
<td>Identifies the OMEGAMON Collector release</td>
</tr>
<tr>
<td>BPMYD2C</td>
<td>Identifies the OMEGAMON Collector VTAM ACB name</td>
</tr>
<tr>
<td>IPV$TCE0</td>
<td>Identifies the VTAM terminal ID</td>
</tr>
<tr>
<td>/</td>
<td>Group name and member name separator</td>
</tr>
<tr>
<td>OMPEXCF</td>
<td>Identifies the OMEGAMON Collector XCF gateway group name</td>
</tr>
<tr>
<td>PMO1</td>
<td>Identifies the SMF system ID</td>
</tr>
<tr>
<td>SGP1DM52</td>
<td>Identifies the name of the OMEGAMON Collector STC address space</td>
</tr>
<tr>
<td>0001</td>
<td>Identifies the joined unique XCF gateway connection ID</td>
</tr>
</tbody>
</table>

Message KO2Z806I is issued to indicate that a Classic or Common Collector session has been disconnected from the OMPEXCF group. For example, KO2Z806I OMPE V540 Session BPMYD2C/IPV$TCE0 disconnected from XCF group OMPEXCF/PMO1SGP1DM520001

**KO2Z806I message explanation:**

<table>
<thead>
<tr>
<th>Value</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMPE</td>
<td>Identifies the subsystem name assigned to the OMEGAMON Collector</td>
</tr>
</tbody>
</table>
This OMEGAMON Collector XCF gateway parameter specifies the number of receive tasks to attach in the OMEGAMON Collector address space. These tasks are used to receive and process OMEGAMON Collector service requests from other local or remote OMEGAMON Collectors connected to the same OMPEXCF group name.

The default number of tasks that are attached at OMEGAMON Collector initialization time is \textbf{MAXTASKS=04}. The minimum number of tasks that can be specified is \textbf{MAXTASKS=2}. At task initialization time, each receive task connects to the OMEGAMON Collector XCF gateway using the \textbf{XCFGROUP=OMPEXCF}. The XCF connection for each attached receive task persists for the life of the OMEGAMON Collector address space. When the OMEGAMON Collector is normally shut down, these XCF connections are terminated. When the OMEGAMON Collector is cancelled or forced, these XCF connections remain defined to the z/OS XCF and will be reused by the OMEGAMON Collector on subsequent start up.

You can display all XCF gateway connections by issuing the \texttt{D XCF,GROUP,OMPEXCF} z/OS XCF command. For example:

\begin{verbatim}
D XCF,GROUP,OMPEXCF

IXC332I  22.45.54  DISPLAY XCF 992
GROUP OMPEXCF:

  PMO1SGP1DM52X000  PMO1SGP1DM52X001  PMO1SGP1DM52X002
  PMO1SGP1DM52X003  PMO1SGP1DM52X004  PMO1SGP1DM52X005
  PMO1SGP1DM52X006  PMO1SGP1DM52X007  PMO1SGP1DM52X008
  PMO1SGP1DM52X009  PMO1SGP1DM52X010  PMO1SGP1DM52X011
  PMO1SGP1DM52X012  PMO1SGP1DM52X013  PMO1SGP1DM52X014
  PMO1SGP1DM52X015
\end{verbatim}

<table>
<thead>
<tr>
<th>Value</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMPEXCF</td>
<td>Identifies the OMEGAMON Collector XCF gateway group name</td>
</tr>
<tr>
<td>PM01</td>
<td>Identifies the SMF system ID</td>
</tr>
<tr>
<td>SGP1DM52</td>
<td>Identifies the name of the OMEGAMON Collector STC address space</td>
</tr>
<tr>
<td>X</td>
<td>Identifies the member name as a receive task member name</td>
</tr>
</tbody>
</table>
The default \texttt{XCFTIMER=30} parameter specifies the maximum elapsed time in seconds required to complete a send request for DB2 performance monitoring data from one OMEGAMON Collector to another collector, connected to the same \texttt{OMPEXCF} group. If a response is not received within the 30 seconds default elapsed time interval, the request is terminated and the \texttt{KO2Z810E} error message is issued. For example: 
\texttt{KO2Z810E OMPE V510 OMPE Collector SGP1DM5S SSID=D91A MEMBER=PM01SGP1DM5S0010 response not received} 

This error condition might be caused by one or more of the following:

- The remote OMEGAMON Collector address space terminated either normally or abnormally.
- All receive tasks specified by the \texttt{MAXTASKS} parameter are busy.
- The remote LPAR/VMID has failed or is being restarted.
- The OMEGAMON Collector WLM dispatch priority is too low.

Take the following action(s):

- Verify that the remote OMEGAMON Collector is still active.
- Increase the number of receive tasks defined by the \texttt{XCFTASKS} parameter.
- Increase the \texttt{XCFTIMER} elapsed time seconds value.
- Verify that the OMEGAMON Collector is executing with the same priority or higher as your DB2 subsystem.

The default \texttt{DSPSIZE=128M} parameter specifies the size of the XCF gateway data space (in megabytes) that is created when a Classic or Common Collector session is connected to the OMEGAMON Collector XCF gateway. The date space is used to collect remote thread CPU data. Up to 20,000 remote threads CPU usage data can be collected in a single XCF send service request.

\textbf{Note:} z/OS page data set space is only incurred when remote thread CPU data is being retrieved. When remote thread CPU data is not being collected, the paging space is released and not used.

\section*{Dynamic subsystem name assignment}

Dynamic subsystem name assignment removes the restriction that the OMEGAMON Collector subsystem name is specified in the \texttt{PARM=JCL} parameter.

This change does not affect you if you already specify the OMEGAMON Collector subsystem name in your JCL procedure. You can optionally specify a two-character prefix in addition to the four-character name that is required.

The following subsystem name specifications are supported:

- \texttt{PARM='/SUB=OMPE'}

  The OMEGAMON Collector JCL procedure is shipped with a default OMEGAMON Collector subsystem name of \texttt{OMPE(PARM='/SUB=OMPE')}.

  \begin{verbatim}
  //O2CI EXEC PGM=KO2ZTOPB,
  //       REGION=0M,MEMLIMIT=NOLIMIT,DPRTY=(15,15),TIME=1440,
  //       PARM=:'/SUB=OMPE'
  \end{verbatim}
This serviceability enhancement also allows you to only specify a two-character OMEGAMON Collector subsystem prefix. When only the subsystem prefix is specified, the subsystem initialization driver dynamically adds an unused suffix in the range of 00 to 99 to form a complete four-character OMEGAMON Collector subsystem name.

//O2CI EXEC PGM=KO2ZTOPB,
// REGION=OM,MEMLIMIT=NOLIMIT,DPRTY=(15,15),TIME=1440,
// PARM='/SUB=OM'

Once a subsystem name is associated with an OMEGAMON Collector address space, the association is maintained for the life of the z/OS operating system IPL.

The OMEGAMON Collector also creates a subsystem called O2. If Object Analysis is configured, a subsystem called E2 will be started.

**Defining OMEGAMON Collector component message logs**

This function allows units of work executing in the OMEGAMON Collector address space to have their messages stored in component message logs.

Component message logs are optional and are not required for normal OMEGAMON Collector operation.

The following component message logs are supported:

**FPEVLOG**
This log is activated when DD name "/FPEVLOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by the OMEGAMON Collector Performance Expert component.

**OMPELOG**
This log is activated when DD name "/OMPELOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by all OMEGAMON Collector components.

**KO2ILOG**
This log is activated when DD name "/KO2ILOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by the Common Collector subsystem.

**KO2HLOG**
This log is activated when DD name "/KO2HLOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by the OMEGAMON Collector Near-Term History component.

**KO2RLOG**
This log is activated when DD name "/KO2RLOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by the capture server component.

**KO2OLOG**
This log is activated when DD name "/KO2OLOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by OMEGAMON Collector Near-Term History parser component.

**KO2SLOG**
This log is activated when DD name "/KO2SLOG DD SYSOUT=*" is specified on the OMEGAMON Collector JCL procedure. It contains messages issued by Virtual Storage Manager STORMAN component.
Completing the configuration for z/OS components

About this task

After you configured OMEGAMON for DB2 PE, go through the list of mandatory steps in the post-configuration README in PARMGEN. Also consider going through the optional steps in that README to see whether further configuration steps are required. To open the post-configuration README follow these steps:

1. In PARMGEN, navigate to the Primary Option Menu on panel KCIPQPGB.
2. Either:
   - Select option 5 POSTCFG to open KCIP@FNL.
   - or:
     - Type U as primary command to show the utilities panel KCIPQPGU.
     - a. Select 13 Display a consolidated list of post-configuration READMEs.
3. In the product list, select KD5.

Questions and answers

This section contains frequently asked questions and their answers.

Why do I need to enable the use of an existing configuration for IBM DB2 SQL Performance Analyzer for z/OS?

OMEGAMON for DB2 PE V5.4.0 only supports the use of an existing configuration. All parameters that could be configured in the Configuration Tool on the panels KD261PR, KD261PS, KD261PT, and KD261PU are obsolete.

After migrating from a previous OMEGAMON for DB2 PE version, there are two ways in order to use IBM DB2 SQL Performance Analyzer with your existing configuration. For both, you have to enable the use of an existing configuration (KD2_PFxx_SQLPA_CF_ENBL set to Y). Then, do one of the following:

- Use IBM DB2 SQL Performance Analyzer to recreate your configuration and use KD2_PFxx_SQLPA_CF_ANLC and KD2_PFxx_SQLPA_CF_ANLP to point to it.
- Point KD2_PFxx_SQLPA_CF_ANLC and KD2_PFxx_SQLPA_CF_ANLP to the OMQCssid and OMQPssid configuration members that were generated in the Configuration Tool or PARMGEN in your previous OMEGAMON for DB2 PE version.

How can I change the plan name from the default DSNTIA\textit{vv} (where \textit{vv} is the DB2 z/OS version) to a custom name?

Use the KD2_PLAN_NAME_OVERRIDE parameter to provide an override.

Note: All plans will then have the same name, independent of the DB2 version.
Installing and configuring components on the workstation

In addition to the components on z/OS, OMEGAMON for DB2 PE also offers several components that run on the workstation.

About this task

The following sections provide installation and configuration instructions for components that run on the workstation:

- “Installing and configuring Performance Expert Agent for DB2 Connect Monitoring” on page 406
- “Installing and configuring Performance Expert Client” on page 436
- “Configuring the Performance Warehouse Client” on page 443
- “Adding Tivoli Data Warehouse” on page 851

Installing and configuring Performance Expert Agent for DB2 Connect Monitoring

You can use the installation wizard to install and configure Performance Expert Agent for DB2 Connect Monitoring on your workstation.

Before you begin

- You must enable Performance Warehouse before beginning. See “Enabling Performance Warehouse” on page 395 for more information.
- You must enable Performance Expert Agent for DB2 Connect Monitoring support on z/OS before beginning. See “Enabling Performance Expert Agent for DB2 Connect Monitoring support” on page 391 for more information.

About this task

The Performance Expert Agent for DB2 Connect Monitoring monitors connections of remote applications within the Distributed Relational Database Architecture (DRDA) of DB2 that are connected through DB2. It is installed on the DB2 Connect Server gateway and provides DB2 Connect data for the OMEGAMON Collector.

The following topics provide detailed installation and configuration instructions:

- “Configuration scenarios for Performance Expert Agent for DB2 Connect Monitoring” on page 407
- “Installing and configuring Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 408
  1. “Hardware requirements for Performance Expert Agent on Windows” on page 409
  2. “Software requirements for Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 409
  3. “Downloading the program files of Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 410
  4. “Installing the program files of Performance Expert Agent Version 5 on Windows” on page 410
  5. “Configuring Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 411
  6. “Starting Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 420
Configuration scenarios for Performance Expert Agent for DB2 Connect Monitoring

With DB2 Connect Monitoring, you can monitor remote DB2 clients that connect through a DB2 Connect gateway. There are several possible ways to set up Performance Expert Agent for DB2 Connect Monitoring.

DB2 Connect Monitoring involves the OMEGAMON Collector and the Performance Expert Agent for DB2 Connect Monitoring. The Performance Expert Agent for DB2 Connect Monitoring, also called DB2 Connect Agent, collects information about the requests that are issued from the clients through the DB2 Connect gateway and makes it available for the OMEGAMON Collector. You can view the monitoring information with Tivoli Enterprise Portal, Classic Interface, and Performance Expert Client. This means that you can choose the platform that you are most comfortable with, view the type of information available, and decide which monitoring component is the most useful for you.

There are two configuration scenarios for the Performance Expert Agent for DB2 Connect Monitoring. Either you configure it to report the DB2 Connect gateway information to each DB2 subsystem that is monitored by the OMEGAMON Collector, or you configure it to report the information to just one of the monitored DB2 subsystems. This affects what data you can see in the user interface, for example in Performance Expert Client.

**Scenario 1: The Performance Expert Agent for DB2 Connect Monitoring reports all client requests that come through the DB2 Connect gateway to one DB2 subsystem.**

If the following conditions are met, the Performance Expert Agent for DB2 Connect Monitoring reports all requests that are issued to the DB2 Connect gateway to only one DB2 subsystem:

- Monitoring is enabled for only one DB2 subsystem. See “Enabling a DB2 instance gateway to be monitored by using Performance Expert Agent for DB2 Connect Monitoring” on page 413.
In the Configuration Tool, you enabled Performance Expert Agent for DB2 Connect Monitoring for only this one DB2 subsystem. See “Installing and configuring Performance Expert Agent for DB2 Connect Monitoring” on page 406.

In this setup, the data that you can access in the user interface is limited. If you are using Performance Expert Client, for example, and you select the DB2 subsystem for which you configured DB2 Connect Monitoring, you can retrieve all information that you gathered on the DB2 Connect gateway for this DB2 subsystem. However, if you select another DB2 subsystem in Performance Expert Client, you will not see any DB2 Connect data because the data is stored in the Performance Warehouse database for the one DB2 subsystem that is enabled for monitoring. The OMEGAMON Collector does not check this Performance Warehouse database when another DB2 subsystem is selected.

To view the requests from all DB2 subsystems, do not select a specific DB2 subsystem in the Performance Expert Client but choose the DB2 Connect gateway. This view is only available in Performance Expert Client, not in Tivoli Enterprise Portal or Classic Interface.

The setup of this scenario is limited, but it requires less configuration effort. It is sufficient if you plan to use the Performance Expert Client for monitoring and want to monitor the DB2 Connect data for all DB2 subsystems from only the DB2 Connect gateway perspective, or if you need the detailed data for only one DB2 subsystem.

Scenario 2: The Performance Expert Agent for DB2 Connect Monitoring reports all client requests that come through the DB2 Connect gateway to all DB2 subsystems.

If the following conditions are met, the Performance Expert Agent for DB2 Connect Monitoring reports all requests that are issued to the DB2 Connect gateway to all DB2 subsystems:

- Monitoring is enabled for all DB2 subsystems that you want to monitor. See “Enabling a DB2 instance gateway to be monitored by using Performance Expert Agent for DB2 Connect Monitoring” on page 413.
- In PARMGEN, you enabled Performance Expert Agent for DB2 Connect Monitoring for all DB2 subsystems. See “Installing and configuring Performance Expert Agent for DB2 Connect Monitoring” on page 406.

In this setup, you can select each of the DB2 subsystems in the monitoring user interface and access all data. The restrictions that are mentioned above do not apply here. In most cases, this setup is preferred.

Installing and configuring Performance Expert Agent for DB2 Connect Monitoring on Windows

Performance Expert Agent for DB2 Connect Monitoring monitors connections of remote applications within the Distributed Relational Database Architecture (DRDA) of DB2. When Performance Expert Agent for DB2 Connect Monitoring is installed on the system on which DB2 Connect is installed as a gateway, it collects connection-related data, such as the connection status of a remote application. It also collects statistics about DB2 Connect activities.

The following topics provide additional information about how to install and configure Performance Expert Agent for DB2 Connect Monitoring on Windows:

- “Hardware requirements for Performance Expert Agent on Windows” on page 409
Hardware requirements for Performance Expert Agent on Windows:

Ensure that your system has enough resources. Check the RAM and available disk space.

The minimum hardware requirements for Performance Expert Agent are:

- A personal computer with Intel-based processor architecture, 400 MHz Pentium
- 256 MB RAM
- 150 MB disk space in the TEMP directory for the temporary program files during the installation of Performance Expert Agent. This applies to Windows 64-bit.
- The following disk space in the installation directory for the program files of Performance Expert Agent according to your operating system:
  - Windows 64-bit: 320 MB
- 5 MB disk space in the working directory for log and ini files of Performance Expert Agent
  The name of the working directory is
  C:\Program Files\IBM\IBM DB2 Performance Expert Agent V5\instances\<instance name>
  where <instance name> is the name of the DB2 instance on which Performance Expert Agent runs.

Software requirements for Performance Expert Agent for DB2 Connect Monitoring on Windows:

Performance Expert Agent for DB2 Connect Monitoring requires the following system and software prerequisites. Review these requirements to ensure that your environment is prepared for installation.

The minimum software requirements to install and run Performance Expert Agent for DB2 Connect Monitoring on Windows are:

- One of the following Windows versions:
  - Windows XP 64-bit Professional Edition
Windows 7
- One of the following DB2 systems:
  - DB2 Enterprise systems:
    - DB2 Enterprise Server Edition V9.7 or later
  - DB2 Connect systems:
    - DB2 Connect Application Server Edition V9.7 or later
    To check the fix pack level of your DB2 installation, type `db2level` on the command line.
- TCP/IP installed on the workstation.
- Software programs to download files or code from z/OS, such as File Transfer Protocol (FTP) or IBM Personal Communications.

**Downloading the program files of Performance Expert Agent for DB2 Connect Monitoring on Windows:**

**About this task**

Both, the initial version and later fixes for the program files for Performance Expert Agent for DB2 Connect Monitoring are available online. For download instructions, refer to the technote "OMEGAMON XE for DB2 PE/PM: web-based delivery and updates for Windows- and UNIX-based components" on the [IBM Support website](https://www.ibm.com/support). If needed, the direct link to the technote is also included in the hold instructions of every Performance Expert Agent PTF on the host. The available program build levels and fix descriptions are documented in the technote.

**Installing the program files of Performance Expert Agent Version 5 on Windows:**

Complete these steps to install Performance Expert Agent Version 5 or to migrate from Performance Expert Agent Version 3.

**Before you begin**

- The name of the directory from which you install the program files and the name of the directory to which you install the program files might not contain non-Latin-based characters.
- You need administration privileges and DB2 instance owner privileges.
- You must install Performance Expert Agent on the same system on which Database Connection Services (DCS) connections are performed.
- If you want to perform a silent installation for additional Performance Expert Agents, you must create a response file to record your installation steps. For detailed instructions on silent installation, see "Installing Performance Expert Agent silently by using a response file" on page 427.

**About this task**

To install the program files, complete these steps:

**Procedure**

1. Extract the files from the compressed file(s). Ensure that all downloaded files are extracted.
2. Ensure that all of the installation files are in the same directory. The installation package consists of these items:
a. An installation launcher db2pe.agent.*.install-on-win32.exe
b. An installation launcher db2pe.agent.*.install-on-win64.exe
c. The iehs321win.jar file that contains the help system files

The installation wizard starts, and the IBM DB2 Performance Expert Agent V5 Setup window opens.

3. Click Next.

The next IBM DB2 Performance Expert Agent V5 Setup window shows the License Agreement.

4. Select I accept the terms of the license agreement, then click Next.

The next IBM DB2 Performance Expert Agent V5 Setup window opens.

5. Specify the installation directory for the program files.

This step depends on the task that you want to perform:

- New installation: You install Performance Expert Agent Version 5 whereas no previous version is installed.

- If you install Performance Expert Agent Version 5 whereas no previous version is installed, take one of these steps:
  - To install the program files to the default installation directory, click Next.
    The name of the default installation directory is
    C:\Program Files\IBM\IBM DB2 Performance Expert Agent V5
  - To install the program files to a different directory, click Browse, select another directory, then click Next.
    The next IBM DB2 Performance Expert Agent V5 Setup window opens.

- If you migrate from Performance Expert Agent Version 3, select the installation directory in which the previous version of Performance Expert Agent is installed.
  The next IBM DB2 Performance Expert Agent V5 Setup window opens.

6. Check the displayed information, then click Install.

The program files are copied to the specified directory, then the next IBM DB2 Performance Expert Agent V5 Setup window opens. It shows summary information about the installation. It also shows the location of the log file.

7. Check the summary information, then click Finish to exit the installation wizard.

Results

Performance Expert Agent Version 5 is installed.

You can now start the configuration GUI of IBM DB2 Performance Expert Agent V5 Setup at any time from the Windows Start menu in Performance Expert Agent.

Configuring Performance Expert Agent for DB2 Connect Monitoring on Windows:

Performance Expert Agent for DB2 Connect Monitoring stores the collected data in the Performance Warehouse database DB2PM on the host (referred to as performance database) on which the OMEGAMON Collector resides. OMEGAMON
Collector correlates this data with the monitored DB2 activity. Therefore, you must register the OMEGAMON Collector and prepare DB2 Connect monitoring before starting it.

You can use the GUI or the Command line utility to do this.

The following topics provide additional information:

- "Configuring Performance Expert Agent for DB2 Connect Monitoring by using the GUI" on page 413
- "Configuring Performance Expert Agent for DB2 Connect Monitoring by using the command line utility" on page 416

**Configuring Performance Expert Agent for DB2 Connect Monitoring by using the GUI:**

To configure Performance Expert Agent for DB2 Connect Monitoring so that it monitors DB2 instances that serve as a gateway, you must perform several tasks within the Agent Configuration GUI.

**Before you begin**

Before you install the program files, ensure that you have the necessary privileges and that the users and user groups under which Performance Expert Agent for DB2 Connect Monitoring should run are defined. The required privileges and user group requirements are as follows:

- To install the program files, you must have the following privileges:
  - Windows administrator rights.
  - DB2 instance owner privileges. The DB2 instance user ID and password must be alphanumeric. White-space characters or multibyte characters are not allowed.
- The setup procedure can use only existing users and user groups.
  - If you do not want to use the default account db2admin but the option **Account from locally defined users**, ensure that one of the following conditions applies:
    - The selected user has SYSADM authority in DB2 and the Windows right **Log on as service**.
    - The selected user is a member of the Windows administrators group.
  - If none of these conditions applies, the selected user cannot start Performance Expert Agent for DB2 Connect Monitoring.

- One or more local DB2 instances that serve as a DB2 Connect gateway must be available.

**About this task**

The Performance Expert Agent for DB2 Connect Monitoring Configuration GUI guides you through the following tasks:

- "Enabling a DB2 instance gateway to be monitored by using Performance Expert Agent for DB2 Connect Monitoring" on page 413
- "Adding a performance database for an enabled DB2 instance" on page 414
- "Changing authorization for a performance database" on page 414
- "Disabling a DB2 instance for monitoring by using Performance Expert Agent for DB2 Connect Monitoring" on page 415
- "Removing a performance database from a DB2 instance" on page 415
- "Testing the connection to a performance database" on page 415
What to do next

The Performance Expert Agent for DB2 Connect Monitoring Configuration GUI window has the following panes:

• The left pane shows the local DB2 instance gateways, in a tree structure.
• The right pane shows details of the selected instance.

You can configure Performance Expert Agent for DB2 Connect Monitoring by using one of these options:

• The menu bar
• The context menu
• The buttons in the table pane

Note: These topics describe how to configure the Performance Expert Agent for DB2 Connect Monitoring by using the menu bar options.

Enabling a DB2 instance gateway to be monitored by using Performance Expert Agent for DB2 Connect Monitoring:

When Performance Expert Agent for DB2 Connect Monitoring is newly installed, it does not yet monitor the local DB2 instances that serve as a DB2 Connect gateway. You must enable monitoring for these DB2 instances.

About this task

To enable a DB2 instance for monitoring, complete the following steps:

Procedure

1. Open the DB2 Performance Expert Agent for DB2 Connect Monitoring Configuration window by clicking Start → Programs → IBM DB2 Performance Expert Agent V5 → Configure Using the GUI.
   • The left pane shows the local DB2 instances that serve as a DB2 Connect gateway. Active DB2 instances that are available for monitoring are indicated with (available).
   • If you have not yet configured a system for monitoring, the Enable Monitoring button is displayed in the right pane.
2. Select the DB2 instance that you want to monitor.
3. Click Enable Monitoring.
4. In the field User ID, enter the user ID of the administrator of the gateway.
5. In the field Password, enter the password for this user ID.
6. Click OK.

What to do next

After the DB2 instance is successfully enabled, you must add a performance database in which Performance Expert Agent for DB2 Connect Monitoring can store the collected data.
Adding a performance database for an enabled DB2 instance:

You must add one or more performance databases to each enabled DB2 instance in which Performance Expert Agent for DB2 Connect Monitoring stores the collected data. A performance database is the database on the host that has been enabled for Performance Warehouse.

About this task

To add a performance database, complete the following steps:

Procedure

1. Open the DB2 Performance Expert Agent for DB2 Connect Monitoring Configuration window by clicking Start → Programs → IBM DB2 Performance Expert Agent V5 → Configure Using the GUI.
2. Select the DB2 instance for which you want to add a performance database.
3. Select Add Database from the Selected menu.
4. In the field System, select the system where the performance monitor is running, z/OS or Multiplatform. According to your selection, the relevant dialog details appear.
5. Complete all fields in the dialog box, then click OK. For more information about the fields, see Field description. After you click OK, the dialog box closes and the updated information is shown in the right pane of the DB2 Performance Expert Agent for DB2 Connect Monitoring Configuration window.

What to do next

Before Performance Expert Agent for DB2 Connect Monitoring can collect data and store it in the performance database, you must start the Windows service for Performance Expert Agent for DB2 Connect Monitoring as described in “Starting Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 420.

Changing authorization for a performance database:

For security purposes, you might have to change authorization settings for a performance database. You must make these changes also on Performance Expert Agent for DB2 Connect Monitoring to enable connection to the database.

About this task

To change authorization for a performance database, complete the following steps:

Procedure

1. Open the DB2 Performance Expert Agent for DB2 Connect Monitoring Configuration window by clicking Start → Programs → IBM DB2 Performance Expert Agent V5 → Configure Using the GUI.
2. Select the DB2 instance that you want to change.
3. Select the performance database for which you want to change the authorization.
4. Select Change Database Authorization from the Selected menu. The connection details are disabled, you can change only the user details.
5. Change the user ID, or the password, or both, then click OK.
If you change the user ID, the User ID column in the right pane shows the updated information.

Disabling a DB2 instance for monitoring by using Performance Expert Agent for DB2 Connect Monitoring:

When you disable a DB2 instance, monitoring stops immediately. The DB2 instance remains in the list of registered DB2 instances.

About this task

To disable a DB2 instance, complete the following steps:

Procedure

1. Open the DB2 Performance Expert Agent for DB2 Connect Monitoring Configuration window by clicking Start → Programs → IBM DB2 Performance Expert Agent V5 → Configure Using the GUI.
2. Select the DB2 instance that you want to disable.
3. Select Disable Monitoring from the Selected menu.
4. Click OK. The selected DB2 instance is disabled for monitoring.

Removing a performance database from a DB2 instance:

You might have to remove a performance database if the location of the OMEGAMON Collector changes or is no longer available.

About this task

To remove a performance database, complete the following steps:

Procedure

1. Open the DB2 Performance Expert Agent for DB2 Connect Monitoring Configuration window by clicking Start → Programs → IBM DB2 Performance Expert Agent V5 → Configure Using the GUI.
2. Select the DB2 instance for which you want to remove the performance database.
3. Select the performance database that you want to remove.
4. Select Remove Database from the Selected menu.
5. To confirm the removal, click Yes. The performance database is removed from the right pane in the DB2 Performance Expert Agent for DB2 Connect Monitoring Configuration window.

Testing the connection to a performance database:

After you add a performance database, you can test the connection to ensure that Performance Expert Agent for DB2 Connect Monitoring can store collected data in this database.

About this task

To test the connection to a performance database, complete the following steps:
Procedure

1. Open the DB2 Performance Expert Agent for DB2 Connect Monitoring Configuration window by clicking Start → Programs → IBM DB2 Performance Expert Agent V5 → Configure Using the GUI.

2. Select the performance database that you want to test.

3. Select Test Database Configuration from the Selected menu. If the test is not successful, you get an SQL error message.

Configuring Performance Expert Agent for DB2 Connect Monitoring by using the command line utility:

Performance Expert Agent for DB2 Connect Monitoring can be configured with the command line utility to monitor DB2 connect gateways for collecting data.

Before you begin

Before you install the program files, ensure that you have the necessary privileges and that the users and user groups under which Performance Expert Agent for DB2 Connect Monitoring should run are defined. The required privileges and user group requirements are as follows:

- To install the program files, you must have the following privileges:
  - Windows administrator rights.
  - DB2 instance owner privileges. The DB2 instance user ID and password must be alphanumeric. White-space characters or multibyte characters are not allowed.

- The setup procedure can use only existing users and user groups.

If you do not want to use the default account db2admin but the option Account from locally defined users, ensure that one of the following conditions applies:
  - The selected user has SYSADM authority in DB2 and the Windows right Log on as service.
  - The selected user is a member of the Windows administrators group.

If none of these conditions applies, the selected user cannot start Performance Expert Agent for DB2 Connect Monitoring.

- One or more local DB2 instances that serve as a DB2 Connect gateway must be available.

About this task

Configuring Performance Expert Agent for DB2 Connect Monitoring with the command line utility includes the following tasks:

- "Registering the OMEGAMON Collector on Windows"
- "Reusing the configuration file on Windows" on page 419
- "Reactivating the connection mode on Windows" on page 419

Registering the OMEGAMON Collector on Windows:

Before Performance Expert Agent for DB2 Connect Monitoring can store the collected data, you must register the OMEGAMON Collector and prepare DB2 Connect monitoring.
About this task

To register the OMEGAMON Collector:

Procedure

1. Log on to the workstation on which Performance Expert Agent for DB2 Connect Monitoring is installed.
2. Open a Command Prompt window.
3. Change to the bin folder of the installation directory.
5. Enter one of the following commands on the command line depending on what you want to do.
   a. To add an OMEGAMON Collector that is located on z/OS to the e2e.ini file of Performance Expert Agent for DB2 Connect Monitoring, enter `e2e --addhost <host name> <DB2 port> <location name> <mainframe flag> <user login> <user password>`
      Variable description:
      <host name>
      Denotes the network host name or IP address of the DB2 subsystem on which the registered OMEGAMON Collector runs.
      <DB2 port>
      Denotes the port number of the DB2 subsystem on which the registered OMEGAMON Collector runs.
      <location name>
      Denotes the location name of the DB2 subsystem on which the registered OMEGAMON Collector runs.
      <mainframe flag>
      Denotes whether the OMEGAMON Collector is located in a mainframe environment.
      For a multiplatform environment, select 'N'.
      <user login>
      Denotes the user ID of the user who has access to the DB2PM database in Performance Warehouse on the OMEGAMON Collector side.
      <user password>
      Denotes the password of the user who has access to the DB2PM database in Performance Warehouse on the OMEGAMON Collector side.

      Important: You should not include the password in the --addhost command if it contains special characters because the command might not work with special characters. You are then prompted to enter the password afterwards on a separate line. You can include the following special characters in passwords, but they might not work on the command line: ! @ # $ % ^ & ( ) { } [ ] _ + | * . - / ? : ; , < > = " + !

   b. To change the user ID and password for a registered OMEGAMON Collector later, enter `e2e --change <number> <user login> <user password>` where:
Denotes the number of the OMEGAMON Collector that you want to change the user login and password for.

Denotes the user ID of the user who has access to the DB2PM database in Performance Warehouse on the OMEGAMON Collector side.

Denotes the password that you want to change.

Important: You should not include the password in the --change command if it contains special characters because the command might not work with special characters. You are then prompted to enter the password afterwards on a separate line. You can include the following special characters in passwords, but they might not work on the command line: ! @ # $ % ^ & ( ) [ ] { } * . - _ / \ ? ; , < > = " " + |

To see the numbers of all registered OMEGAMON Collectors, enter e2e --listhosts.

to remove the registration entry of an OMEGAMON Collector from the e2e.ini file of Performance Expert Agent for DB2 Connect Monitoring, enter e2e --removehost <number>

where:

Denotes the number of the OMEGAMON Collector that you want to remove the registration entry for.

to test the connection to the registered server, enter e2e --test <number>

6. Ensure that the following subcommands for the PESERVER subtask are issued before you start DB2 Connect monitoring:
   - SNAPSHOTHISTORY=Y for Snapshot History processing
   - SHDB2CONNECTAPPLICATION=Y if you want to collect DB2 Connect application data
   - SHDB2CONNECTSYSTEM=Y if you want to collect DB2 Connect system data

For detailed information about these subcommands, refer to "Subtask commands to Performance Expert Server" on page 4653.

7. When DB2 Connect monitoring is active for more than one server, ensure that only one of these servers accesses the collected data on the corresponding DB2 subsystem at a time.

You must consider this if one of these conditions applies:
   - You use more than one OMEGAMON for DB2 PE.
   - You use DB2 Performance Expert for z/OS and OMEGAMON for DB2 PE, or both, or several of both.
   - You use OMEGAMON for DB2 PE in a data sharing group running on different logically partitioned modes (LPARs) in a sysplex environment.

Results

All information regarding the server registration is added to the configuration file e2e.ini. You can reuse the configuration file that contains a list of registered OMEGAMON Collectors for other Performance Expert Agents for DB2 Connect Monitoring that you want to install. For more information about reusing the
configuration file, see “Reusing the configuration file on Windows.”

Reusing the configuration file on Windows:

You can reuse the e2e.ini configuration file of Performance Expert Agent for DB2 Connect Monitoring each time you install a new Performance Expert Agent for DB2 Connect Monitoring.

About this task

When you start Performance Expert Agent for DB2 Connect Monitoring, it uses the configuration file in the agent's working directory. If you want to reuse an existing e2e.ini configuration file for a new Performance Expert Agent for DB2 Connect Monitoring, perform the following steps:

Procedure

1. Copy the e2e.ini configuration file that you want to reuse from the agent’s working directory to another directory to store it there.
2. Install the new Performance Expert Agent for DB2 Connect Monitoring.
3. Copy the e2e.ini configuration file from the directory where you stored it to the new agent’s working directory.

Reactivating the connection mode on Windows:

If the host of the connection mode is in paused status, you can reactivate the connection in the e2e.ini configuration file. Refer to the --change command

About this task

Hosts in connection mode paused are shown in the log file and on the console after each start of Performance Expert Agent for DB2 Connect Monitoring. You can see the paused flag also by using the command e2e --listhosts.

Note: This information is not displayed in the GUI.

The connection to the corresponding host is changed to paused in the e2e.ini configuration file if one of the following conditions applies:

- You specified the wrong user ID or password.
- The password on the OMEGAMON Collector side is changed or expired.

To reactivate the connection to the registered OMEGAMON Collector, you must change the incorrect user ID or password by using either the command e2e --change or by selecting the Change option in the GUI.

Note: Starting with Performance Expert Agent V5, Performance Expert for Multiplatforms V5 and later are no longer supported. If a Performance Expert agent detects a connection to a Performance Expert for Multiplatforms V5 or later performance database, the corresponding connection is set in paused mode. This can happen in environments where Performance Expert agent retrieves both Multiplatforms and z/OS connection data from the DB2 Connect gateway and the Performance Expert for Multiplatforms V3.2.0 server is updated to version V5. In this scenario it is not possible to reactivate the paused connection.
Starting Performance Expert Agent for DB2 Connect Monitoring on Windows:

On Windows, you start Performance Expert Agent from the Windows Start Menu or from the Control Panel.

About this task

To start Performance Expert Agent for DB2 Connect Monitoring from the Control Panel:

Procedure

1. Click **Start** → **Settings** → **Control Panel** → **Administrative Tools**.
2. Double-click **Services**.
3. Check that the **DB2 Performance Expert Agent for DB2 Instance (DB2)** service is started, where (DB2) denotes the DB2 instance on which Performance Expert Agent for DB2 Connect Monitoring runs.
   
   If it is not started, right-click the corresponding service and click **Start**.
4. Optional: Configure the service to start automatically at system start.
   
   a. Right-click the corresponding service and click **Properties**.
   
   b. In the **Startup Type** list, select **Automatic**.

   The service will start automatically the next time Windows is started.

What to do next

Before you can work with Performance Expert Agent for DB2 Connect Monitoring, you must configure it as described in “Configuring Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 411.

Stopping Performance Expert Agent for DB2 Connect Monitoring on Windows:

On Windows, you stop Performance Expert Agent for DB2 Connect Monitoring from the Control Panel.

About this task

To stop Performance Expert Agent for DB2 Connect Monitoring on Windows:

Procedure

1. Click **Start** → **Settings** → **Control Panel** → **Administrative Tools**.
2. Double-click **Services**.
3. Right-click **Performance Expert Agent for DB2 Connect Monitoring**.
4. Click **Stop**.

Updating Performance Expert Agent for DB2 Connect Monitoring on Windows:

This method is a step-by-step update of Performance Expert Agent for DB2 Connect Monitoring using an installation wizard.

About this task

To update Performance Expert Agent for DB2 Connect Monitoring manually:
Procedure

1. Ensure that the OMEGAMON Collector from which you want to get the update is registered and configured for Performance Expert Agent for DB2 Connect Monitoring.

2. Log on to the system on which Performance Expert Agent for DB2 Connect Monitoring is installed.

3. Click Start → Settings → Control Panel.


5. Double-click Services.

6. Stop the service DB2 Performance Expert Agent for DB2 Instance (DB2), where (DB2) denotes the DB2 instance on which Performance Expert Agent for DB2 Connect Monitoring runs.

7. Open a Command Prompt window.

8. Change to your installation directory, for example, C:\Program Files\IBM\Performance Expert Agent for DB2 Connect Monitoring\bin

9. Enter e2e --update on the command line.

   If a new version of Performance Expert Agent for DB2 Connect Monitoring is found, you get the message New version downloaded.

10. Restart Performance Expert Agent for DB2 Connect Monitoring in one of the following ways:

    • Start the Performance Expert Agent for DB2 Connect Monitoring service in the Services window.

    • Enter e2e --start on the command line.

Results

The latest version of Performance Expert Agent for DB2 Connect Monitoring is installed. To test it, perform the following steps:

1. Ensure that Performance Expert Agent for DB2 Connect Monitoring is started.

2. Use Performance Expert Client to log on to a DB2 subsystem for which Performance Expert Agent for DB2 Connect Monitoring collects data about the connection status.

3. Verify that the data is collected.

If the update does not work correctly, you can recover the previous version of Performance Expert Agent for DB2 Connect Monitoring by doing the following:

1. Stop the service Performance Expert Agent for DB2 Connect Monitoring (DB2) if it is already started, where (DB2) denotes the DB2 instance on which Performance Expert Agent for DB2 Connect Monitoring runs.

2. Open a Command Prompt window.

3. Change to your installation directory, for example, C:\Program Files\IBM\Performance Expert Agent for DB2 Connect Monitoring\bin

4. Enter e2e --rollback on the command line.

The previous version of Performance Expert Agent for DB2 Connect Monitoring is reinstalled and you get the message Old version restored.
Removing Performance Expert Agent for DB2 Connect Monitoring on Windows:

About this task

To remove Performance Expert Agent for DB2 Connect Monitoring from your Windows workstation:

Procedure

1. Stop Performance Expert Agent for DB2 Connect Monitoring.
2. Click Start → IBM DB2 Performance Expert Agent V5 → Uninstall.
   The Performance Expert Agent for DB2 Connect Monitoring Setup window opens.
3. Click Next.
4. Check the summary information, then click Uninstall.
   The program files are removed. You are asked if you want to remove the files that were not deleted from the installation directory.
5. To completely remove Performance Expert Agent for DB2 Connect Monitoring, click Next.
   The files are removed and the next Performance Expert Agent for DB2 Connect Monitoring Setup window opens. It shows summary information and the location of the log file.
6. Click Finish to exit the InstallAnywhere Wizard.

Results

Performance Expert Agent for DB2 Connect Monitoring is completely removed from your Windows workstation.

Installing and configuring Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux

Performance Expert Agent for DB2 Connect Monitoring monitors connections of remote applications within the Distributed Relational Database Architecture (DRDA) of DB2. When Performance Expert Agent for DB2 Connect Monitoring is installed on the system on which DB2 Connect is installed as a gateway, it collects connection-related data, such as the connection status of a remote application. It also collects statistics about DB2 Connect activities.

The following topics provide additional information about how to install and configure it on UNIX and Linux systems.

- “Hardware requirements for Performance Expert Agent on Linux and UNIX” on page 423
- “Software requirements for Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux” on page 423
- “Downloading the program files of Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux” on page 425
- “Installing the program files of Performance Expert Agent Version 5 on UNIX and Linux” on page 425
- “Configuring Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux” on page 429
- “Starting Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux” on page 434
Hardware requirements for Performance Expert Agent on Linux and UNIX:

Ensure that your system has enough resources. Check the RAM and available disk space.

The minimum hardware requirements for Performance Expert Agent are:

- 512 MB RAM
- The following disk space in a temporary directory for the temporary program files during the installation of Performance Expert Agent:
  - Linux on xSeries 32-bit: 260 MB
  - Linux on xSeries 64-bit: 500 MB
  - Linux on pSeries: 300 MB
  - Linux on zSeries: 300 MB
  - AIX®: 150 MB
  - HP-UX: 600 MB
  - Solaris Operating System: 500 MB
- The following disk space in the installation directory for the program files and log files of Performance Expert Agent:
  - Linux on xSeries 32-bit: 200 MB
  - Linux on xSeries 64-bit: 350 MB
  - Linux on pSeries: 200 MB
  - Linux on zSeries: 200 MB
  - AIX: 200 MB
  - HP-UX: 350 MB
  - Solaris Operating System: 350 MB
- 5 MB disk space in the working directory for log and ini files of Performance Expert Agent

Software requirements for Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux:

Performance Expert Agent for DB2 Connect Monitoring requires the following system and software prerequisites. Review these requirements to ensure that your environment is prepared for installation.

The minimum software requirements to install and run Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux are:

- One of the following operating systems:
  - AIX V6.1
  - AIX V7.1
- HP-UX for Itanium-based HP Integrity Series systems 11i v2 with patches PHKL_35029, PHSS_35045
- HP-UX for Itanium-based HP Integrity Series systems 11i v3
- Solaris Operating Environment V9 and V10 for UltraSPARC
- One of the Linux systems as shown in the following table:
Validated distributions are marked with *Validated*.

- Distributions that are supported, but have not yet been validated are marked with *Supported*.
- Unsupported distributions are marked with *Not supported*.

**Table 76. Supported Linux systems.**

<table>
<thead>
<tr>
<th>Distributions</th>
<th>Kernel</th>
<th>glibc</th>
<th>Linux on xSeries</th>
<th>Linux on zSeries</th>
<th>Linux on pSeries</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUSE Linux Enterprise Server 9</td>
<td>2.6.5</td>
<td>2.3.3</td>
<td>Val<em>idated</em></td>
<td>Val<em>idated</em></td>
<td>Not supported</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Val<em>idated</em></td>
<td>Val<em>idated</em></td>
<td>Val<em>idated</em></td>
</tr>
<tr>
<td>SUSE Linux Enterprise Server 10</td>
<td>2.6.1</td>
<td>2.4 to 3.1</td>
<td>Val<em>idated</em></td>
<td>Sup<em>ort</em>ed*</td>
<td>Not supported</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Val<em>idated</em></td>
<td>Sup<em>ort</em>ed*</td>
<td>Sup<em>ort</em>ed*</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 4</td>
<td>2.6.9</td>
<td>2.3.4 to 2.13</td>
<td>Val<em>idated</em></td>
<td>Sup<em>ort</em>ed*</td>
<td>Not supported</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Val<em>idated</em></td>
<td>Sup<em>ort</em>ed*</td>
<td>Sup<em>ort</em>ed*</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 5</td>
<td>2.6.18</td>
<td>2.5</td>
<td>Val<em>idated</em></td>
<td>Sup<em>ort</em>ed*</td>
<td>Not supported</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Val<em>idated</em></td>
<td>Sup<em>ort</em>ed*</td>
<td>Sup<em>ort</em>ed*</td>
</tr>
</tbody>
</table>

- One of the following DB2 systems:
  - DB2 systems:
    - DB2 Enterprise Server Edition V9.7 or later
  - DB2 systems for HP-UX Version 11i v3 for Itanium-based HP Integrity Series systems:
    - DB2 Enterprise Server Edition V9.1 FP3 or later
  - DB2 Connect systems:
    - DB2 Connect Enterprise Edition V9.7 or later
    - DB2 Connect Application Server Edition V9.7 or later
    - DB2 Connect Personal Server Edition V9.7 or later
  - DB2 Connect systems for HP-UX Version 11i v3 for Itanium-based HP Integrity Series systems:
    - DB2 Connect Enterprise Edition V9.1 FP3 or later
    - DB2 Connect Unlimited Edition (for zSeries) V9.1 FP3 or later
    - DB2 Connect Application Server Edition V9.1 FP3 or later
- TCP/IP installed on the workstation
- Software programs to download files or code from z/OS, such as File Transfer Protocol (FTP) or IBM Personal Communications

The following table shows which bit width Performance Expert supports for the DB2 instances on the supported platforms.

**Table 77. Platform support matrix.**

<table>
<thead>
<tr>
<th>Operating system</th>
<th>DB2 instance bit width</th>
<th>PE Agent</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX</td>
<td>32-bit</td>
<td>Not supported</td>
</tr>
<tr>
<td></td>
<td>64-bit</td>
<td>Supported</td>
</tr>
</tbody>
</table>

KD2_PF_READA_SPMON
Table 77. Platform support matrix (continued).

<table>
<thead>
<tr>
<th>Operating system</th>
<th>DB2 instance bit width</th>
<th>PE Agent</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP-UX on IA®</td>
<td>32-bit</td>
<td>Not supported</td>
</tr>
<tr>
<td></td>
<td>64-bit</td>
<td>Supported</td>
</tr>
<tr>
<td>Solaris on SPARC</td>
<td>32-bit</td>
<td>Not supported</td>
</tr>
<tr>
<td></td>
<td>64-bit</td>
<td>Supported</td>
</tr>
<tr>
<td>Linux on System x</td>
<td>32-bit</td>
<td>Supported</td>
</tr>
<tr>
<td></td>
<td>64-bit</td>
<td>Supported</td>
</tr>
<tr>
<td>Linux on System p</td>
<td>32-bit</td>
<td>Not supported</td>
</tr>
<tr>
<td></td>
<td>64-bit</td>
<td>Supported</td>
</tr>
<tr>
<td>Linux on System z</td>
<td>32-bit</td>
<td>Not supported</td>
</tr>
<tr>
<td></td>
<td>64-bit</td>
<td>Supported</td>
</tr>
<tr>
<td>Windows</td>
<td>64-bit</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Downloading the program files of Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux:

About this task

Both, the initial version and later fixes for the program files for Performance Expert Agent for DB2 Connect Monitoring are available online. For download instructions, refer to the technote "OMEGAMON XE for DB2 PE/PM: web-based delivery and updates for Windows- and UNIX-based components" on the IBM Software Support website. If needed, the direct link to the technote is also included in the hold instructions of every Performance Expert Agent PTF on the host. The available program build levels and fix descriptions are documented in the technote.

Installing the program files of Performance Expert Agent Version 5 on UNIX and Linux:

Complete these steps to install Performance Expert Agent Version 5 or to migrate from Performance Expert Agent Version 3.

Before you begin

- The name of the directory from which you install the program files and the name of the directory to which you install the program files, might not contain non-Latin-based characters or blanks.
- You must install Performance Expert Agent on the same system on which DCS connections are performed.
- If you want to perform a silent installation for additional Performance Expert Agents, you must create a response file to record your installation steps. For detailed instructions on silent installation, see "Installing Performance Expert Agent silently by using a response file" on page 427.
- If you want to run the installation wizard in GUI mode, ensure that you can run X applications.
- If you are migrating from Performance Expert Agent Version 3 on AIX, Linux on System z, HP-UX, or Solaris on a 32-bit platform, you must uninstall Performance Expert Agent Version 3 before beginning. If you want to reuse your current settings, you can save your existing configuration file. The configuration is stored in the e2e.ini file.
About this task

To install the program files, complete these steps:

Procedure

1. Log on as root and ensure that your umask is 022. sudo is not supported.
2. Extract the file from the downloaded compressed file into one directory. The installation package consists of the following item:
   - An installation launcher db2pe.agent.*.install-on-<operating system>.bin where <operating system> is your operating system, for example, db2pe.agent.*.install-on-xlinux.bin.
3. Start the installation wizard in GUI mode or in console mode.
   - To run the installation wizard in GUI mode, open a shell window and run the executable file that is appropriate for your operating system. The executable files have the following form:
     - For Linux on xSeries: 
       ./db2pe.agent.*.install-on-xlinux-x86-32.bin
       ./db2pe.agent.*.install-on-xlinux-x86-64.bin
     - For Linux on pSeries: 
       .db2pe.agent.*.install-on-pseries.bin
     - For Linux on zSeries: 
       .db2pe.agent.*.install-on-zseries.bin
     - For AIX: 
       .db2pe.agent.*.install-on-aix.bin
     - For HP-UX: 
       .db2pe.agent.*.install-on-hpai.bin
     - For the Solaris Operating Environment: 
       .db2pe.agent.*.install-on-solaris.bin
   - To run the installation wizard in console mode, enter the appropriate command for your operating system and append -i console. For example, for Linux on xSeries enter:
     .db2pe.agent.*.install-on-xlinux -i console

Note: To avoid problems with multiple versions of the script being present in the installation directory, you should use the original file name, replacing the * as appropriate.

Important: Installation path names might not contain blanks.
The program files are temporarily stored in a temporary directory. By default, the temporary directory is created in the home directory of the root user, for example, /root.

Important: If you specify a different temporary directory, program files are stored in the new temporary directory, and program scripts are stored in the default temporary directory. Therefore, you must ensure that both temporary directories have enough disk space.
To specify a different path name for the temporary directory, enter the command

export IATEMPDIR=<temp dir name>
where `<temp dir name>` is the name of the temporary directory.

The installation wizard starts, and the IBM DB2 Performance Expert Agent V5 Setup Welcome window opens.

4. Click **Next**.
   The IBM DB2 Performance Expert Agent V5 Setup window shows the License Agreement.

5. Select **I accept the terms of the license agreement**, then click **Next**.
   The next IBM DB2 Performance Expert Agent V5 Setup window opens.

6. Specify the installation directory for the program files.
   This step depends on the task that you want to perform:
   - **New installation**: You install Performance Expert Agent Version 5 whereas no previous version is installed.
   - **Migration from Performance Expert Agent Version 3 on the same platform**: You replace Performance Expert Agent Version 3 by Performance Expert Agent Version 5.
   - **Migration from Performance Expert Agent Version 3 on AIX, Linux on System z, or Solaris on a 32-bit platform**: You uninstall Performance Expert Agent Version 3 and then follow the new installation instructions.
   - If you install Performance Expert Agent Version 5 whereas no previous version is installed or you migrate from Performance Expert Agent Version 3 on an older platform, take one of these steps:
     - To install the program files to the default installation directory, click **Next**.
       The name of the default installation directory is:
       `/opt/IBM/db2peage/v5`
     - To install the program files to a different directory, click **Browse**, select another directory, then click **Next**.
       The next IBM DB2 Performance Expert Agent V5 Setup window opens.
   - If you migrate from Performance Expert Agent Version 3 on the same platform, select the installation directory in which the previous version of Performance Expert Agent is installed.
     The next IBM DB2 Performance Expert Agent V5 Setup window opens.

7. Click **Next**.
   The next IBM DB2 Performance Expert Agent V5 Setup window opens.

8. Check the displayed information, then click **Install**.
   The program files are copied to the specified directory, then the next IBM DB2 Performance Expert Agent V5 Setup window opens. It shows summary information about the installation. It also shows the location of the log file.

9. Check the summary information, then click **Finish** to exit the installation wizard.

**Results**

Performance Expert Agent Version 5 is installed.

*Installing Performance Expert Agent silently by using a response file:*

A silent installation is an installation that runs without displaying an interface or prompting you for input. You can do silent installations of Performance Expert Agent to simplify the process of installing it on multiple computers.
Before you begin

Before you install Performance Expert Agent silently, you must first create a response file. A response file is a file that contains the properties and values that drive the installation. You create a response file by running the installation wizard or console mode with the following command-line option: `-r response_file_name`. When you complete the installation, the information that you entered in the installation wizard or console mode is recorded in the response file. You will use this file to install the product silently on other computers.

Procedure

To install Performance Expert Agent silently by using a response file:
1. From the directory of the installation image for Performance Expert Agent, run the following command:
   
   On Windows 64-bit:
   ```
   db2pe.agent.*.install-on-win64.exe -i silent -f response_file_name
   ```

   For Linux on xSeries:
   ```
   db2pe.agent.*.install-on-xlinux-x86-32.bin -i silent -f response_file_name
   db2pe.agent.*.install-on-xlinux-x86-64.bin -i silent -f response_file_name
   ```

   For Linux on pSeries:
   ```
   db2pe.agent.*.install-on-pseries.bin -i silent -f response_file_name
   ```

   For Linux on zSeries:
   ```
   db2pe.agent.*.install-on-zseries.bin -i silent -f response_file_name
   ```

   For AIX:
   ```
   db2pe.agent.*.install-on-aix.bin -i silent -f response_file_name
   ```

   For HP-UX:
   ```
   db2pe.agent.*.install-on-hpia.bin -i silent -f response_file_name
   ```

   For the Solaris Operating Environment:
   ```
   db2pe.agent.*.install-on-solaris.bin -i silent -f response_file_name
   ```

   where response_file_name is the name of the response file that you created during a previous installation of the product.

   The product is installed.

   2. Verify that the installation was successful by checking the db2peage.log installation log file in the following directory:
      - On Windows: `%USERPROFILE%` (For example: C:\Documents and Settings\Administrator)
      - On Linux and Solaris: `/var/log`
      - On AIX and HP-UX: `/var/adm/sw`

   3. Start Performance Expert Agent:
      - “Starting Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux” on page 434
      - “Starting Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 420

What to do next

You are now ready to configure the product. For instructions on configuring and using Performance Expert Agent, see “Configuring Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux” on page 429 and/or “Configuring Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 411.
Configuring Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux:

Performance Expert Agent for DB2 Connect Monitoring stores the collected data in the Performance Warehouse database DB2PM on the host (referred to as the performance database) on which the OMEGAMON Collector resides. OMEGAMON Collector correlates this data with the monitored DB2 activity. Therefore, you must register the OMEGAMON Collector and prepare DB2 Connect monitoring before starting it.

**Restriction:** Consider the following restrictions before configuring Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux:

- When DB2 Connect monitoring is active for more than one server, only one of these servers should access the collected data on the corresponding DB2 subsystem at a time.
- When more than one Performance Expert Agent for DB2 Connect Monitoring is installed on one LPAR, the hub Tivoli Enterprise Monitoring Server can only accept monitoring data from one Performance Expert Agent for DB2 Connect Monitoring per LPAR at a time.

You must consider this if you use one of the following:

- More than one OMEGAMON for DB2 PE
- DB2 Performance Expert for z/OS and OMEGAMON for DB2 PE, or both, or several of both
- OMEGAMON for DB2 PE in a data sharing group running on different logically partitioned modes (LPARs) in a sysplex environment

The following topics provide additional information:

- “Registering the OMEGAMON Collector on UNIX and Linux as root”
- “Registering an OMEGAMON Collector on UNIX and Linux as DB2 instance owner” on page 430
- “Reusing the configuration file on UNIX and Linux” on page 433

**Registering the OMEGAMON Collector on UNIX and Linux as root:**

Before Performance Expert Agent for DB2 Connect Monitoring can store collected data, you must register the OMEGAMON Collector and prepare DB2 Connect monitoring before starting it.

**About this task**

To register the OMEGAMON Collector:

**Procedure**

1. Log on directly as root via telnet or ssh, for example, or switch to root by entering `su -`
2. Change to the directory `/opt/IBM/db2peage/V5/bin`
3. Invoke the configuration script by entering `.\db2peage-config`
   You get a list of available DB2 instances.
4. Type the name of the DB2 instance for which you want to configure Performance Expert Agent for DB2 Connect Monitoring.
   A menu from which you can choose options for the selected DB2 instance opens.
5. Select **Add a host to your Performance Expert Agent**.
   
   This host is the DB2 system on which the OMEGAMON Collector runs. It contains the DB2PM database in which the collected data is to be stored.
   
   To add all OMEGAMON Collectors now, select this option repeatedly. If you want to register other OMEGAMON Collectors later, refer to “Registering an OMEGAMON Collector on UNIX and Linux as DB2 instance owner.”
   
6. Ensure that the following subcommands for the PESERVER subtask are issued before you start DB2 Connect monitoring.

   **SNAPSHOTHISTORY=Y**
   
   for Snapshot History processing
   
   **SHDB2CONNECTAPPLICATION=Y**
   
   if you want to collect DB2 Connect application data
   
   **SHDB2CONNECTSYSTEM=Y**
   
   if you want to collect DB2 Connect system data
   
   For detailed information about these subcommands, refer to “Subtask commands to Performance Expert Server” on page 4653.
   
7. When DB2 Connect monitoring is active for more than one server, ensure that only one of these servers accesses the collected data on the corresponding DB2 subsystem at a time.
   
   You must consider this if you use one of the following:
   
   • More than one OMEGAMON for DB2 PE
   
   • DB2 Performance Expert for z/OS and OMEGAMON for DB2 PE, or both, or several of both
   
   • OMEGAMON for DB2 PE in a data sharing group running on different logically partitioned modes (LPARs) in a sysplex environment

Results

All information regarding the server registration is added to the configuration file e2e.ini. It is located in the directory /var/db2pe/V3/<DB2 subsystem>, where <DB2 subsystem> denotes the DB2 subsystem on which Performance Expert Agent for DB2 Connect Monitoring runs. You can reuse the configuration file that contains a list of registered OMEGAMON Collectors for other Performance Expert Agents for DB2 Connect Monitoring that you want to install. For more information about reusing the configuration file, see “Reusing the configuration file on UNIX and Linux” on page 433.

Registering an OMEGAMON Collector on UNIX and Linux as DB2 instance owner:

Probably, you have registered OMEGAMON Collectors during configuration of Performance Expert Agent for DB2 Connect Monitoring by using the script db2peage-config. You can, however, register and unregister OMEGAMON Collectors at any time without root authorization.

**Before you begin**

- You must prepare instances for the Performance Expert Agent for DB2 Connect Monitoring before beginning. You can do this either by:
  - Having registered an OMEGAMON Collector by using the script db2peage-config as root.
  - Starting the db2peage-config configuration script to prepare the instances, but exit the script without actually having configured the server. This will prepare the instances for later configuration.
If Performance Expert Agent for DB2 Connect Monitoring is started, you must stop it before you can issue any command.

**Note:** Starting with Performance Expert Agent V5, Performance Expert for Multiplatforms V5 and later are no longer supported. If a Performance Expert agent detects a connection to a Performance Expert for Multiplatforms V5 or later performance database, the corresponding connection is set in paused mode. This can happen in environments where the Performance Expert agent retrieves both Multiplatform and z/OS connection data from the DB2 Connect gateway and the Performance Expert for Multiplatforms V3.2.0 server is updated to version V5. In this scenario it is not possible to reactivate the paused connection.

**About this task**

To register an OMEGAMON Collector:

**Procedure**

1. Log on to the DB2 instance on which Performance Expert Agent for DB2 Connect Monitoring is installed.
2. Change to the BIN folder of the installation directory of Performance Expert Agent for DB2 Connect Monitoring.
3. Stop Performance Expert Agent for DB2 Connect Monitoring by entering `./e2e --stop`
4. Enter one of the following commands on the command line depending on what you want to do:
   a. To add an OMEGAMON Collector that is located on z/OS to the `e2e.ini` file of Performance Expert Agent for DB2 Connect Monitoring, enter `./e2e --addhost <host name> <DB2 port> <location name> <mainframe flag> <user login> <user password>`
      where the variables represent the following:
      
      `<host name>`
      the network host name or IP address of the DB2 subsystem on which the registered OMEGAMON Collector runs.

      `<DB2 port>`
      the port number of the DB2 subsystem on which the registered OMEGAMON Collector runs.

      `<location name>`
      the location name of the DB2 subsystem on which the registered OMEGAMON Collector runs.

      `<mainframe flag>`
      whether the OMEGAMON Collector is located in a mainframe environment.
      
      For a z/OS environment, specify Y. For a multiplatform environment, specify N.

      `<user login>`
      the user ID of the user who has access to the DB2PM database in Performance Warehouse on the OMEGAMON Collector side.

      `<user password>`
      the password of the user who has access to the DB2PM database in Performance Warehouse on the OMEGAMON Collector side.
**Important:** You should not include the password in the --addhost command if it contains special characters because the command might not work with special characters. You are then prompted to enter the password afterwards on a separate line. You can include the following special characters in passwords, but they might not work on the command line:

! @ # $ % ^ & ( ) [ ] { } * . - _ / \ ? : ; , < > = ' " + | 

b. To later change the user ID and password for a registered OMEGAMON Collector, enter 
```
./e2e --change <number> <user login> <user password>
```
where the variables represent the following:

<number>
the number of the OMEGAMON Collector for which user login and password are to be changed.

<user login>
the user ID of the user who has access to the DB2PM database in Performance Warehouse on the OMEGAMON Collector side.

<user password>
the password that is to be changed.

**Important:** You should not include the password in the --change command if it contains special characters because the command might not work with special characters. You are then prompted to enter the password afterwards on a separate line. You can include the following special characters in passwords, but they might not work on the command line:

! @ # $ % ^ & ( ) [ ] { } * . - _ / \ ? : ; , < > = ' " + | 

c. To see the numbers of all registered OMEGAMON Collectors, enter 
```
./e2e --listhosts
```
d. To remove the registration entry of an OMEGAMON Collector from the e2e.ini file of Performance Expert Agent for DB2 Connect Monitoring, enter 
```
./e2e --removehost <number>
```
where <number> denotes the number of the OMEGAMON Collector for which you want to remove the registration entry.

e. To test the connection, enter 
```
e2e --test <number>
```

5. Ensure that the following subcommands for the PESEVER subtask are issued before you start DB2 Connect monitoring:

```
SNAPSHOTHISTORY=Y
```
for Snapshot History processing

```
SHDB2CONNECTAPPLICATION=Y
```
if you want to collect DB2 Connect application data

```
SHDB2CONNECTSYSTEM=Y
```
if you want to collect DB2 Connect system data

6. When DB2 Connect monitoring is active for more than one server, ensure that only one of these servers accesses the collected data on the corresponding DB2 subsystem at a time.

You must consider this if you use one of the following:

- More than one OMEGAMON for DB2 PE
- DB2 Performance Expert for z/OS and OMEGAMON for DB2 PE, or both, or several of both
• OMEGAMON for DB2 PE in a data sharing group running on different logically partitioned modes (LPARs) in a sysplex environment

Results

All information regarding the server registration is added to the configuration file e2e.ini. You can reuse the configuration file that contains a list of registered OMEGAMON Collectors for other Performance Expert Agents for DB2 Connect Monitoring that you want to install. For more information about reusing the configuration file, see “Reusing the configuration file on UNIX and Linux.”

Reusing the configuration file on UNIX and Linux:

You can reuse the e2e.ini configuration file of Performance Expert Agent for DB2 Connect Monitoring each time you install a new Performance Expert Agent for DB2 Connect Monitoring.

About this task

To reuse the e2e.ini configuration file, it must be located in the directory /var/db2pe/V3/<DB2 instance>, where <DB2 instance> denotes the name of the monitored DB2 instance that serves as a gateway.

To reuse the e2e.ini configuration file for a new Performance Expert Agent for DB2 Connect Monitoring:

Procedure

1. Copy the e2e.ini configuration file that you want to reuse from the home directory to another directory to store it there.
2. Install the new Performance Expert Agent for DB2 Connect Monitoring.
3. Copy the e2e.ini configuration file from the directory in which you stored it to the directory /var/db2pe/V3/<DB2 instance>, where <DB2 instance> denotes the name of the monitored DB2 instance that serves as a gateway.
   When you start Performance Expert Agent for DB2 Connect Monitoring, it uses the configuration file in the directory /var/db2pe/V3/<DB2 instance>

Reactivating the connection mode on UNIX and Linux:

If the host of the connection mode is in paused status, you can reactivate the connection in the e2e.ini configuration file.

About this task

Hosts in connection mode paused are shown in the log file and on the console after each start of Performance Expert Agent for DB2 Connect Monitoring. You can see the paused flag also by using the command e2e --listhosts

The connection to the corresponding host is changed to paused in the e2e.ini configuration file if one of the following conditions applies:
• You specify the user ID or the password incorrectly.
• The password on the OMEGAMON Collector side is changed or expired.

To reactivate the connection to the registered OMEGAMON Collector, change the incorrect user ID or password by using the command e2e --change
Starting Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux:

About this task

To start Performance Expert Agent for DB2 Connect Monitoring:

Procedure
1. Log on as the DB2 instance owner under which you want to run Performance Expert Agent for DB2 Connect Monitoring.
2. Change to the directory `<installdiragent>/bin`
   where `<installdiragent>` denotes the installation directory of Performance Expert Agent for DB2 Connect Monitoring, for example, `/opt/IBM/db2peage/V5`
3. Enter `./e2e --start`.
   To start Performance Expert Agent for DB2 Connect Monitoring as a background process, enter one of the following commands:
   - `./e2e --start &`
   - `./e2e --start -bg`

What to do next

Before you can work with Performance Expert Agent for DB2 Connect Monitoring, you must configure it as described in "Configuring Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux" on page 429.

Stopping Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux:

About this task

To stop Performance Expert Agent for DB2 Connect Monitoring:

Procedure
1. Log on as the DB2 instance owner under which you want to run Performance Expert Agent for DB2 Connect Monitoring.
2. Change to the directory `<installdiragent>/bin`
   where `<installdiragent>` denotes the installation directory of Performance Expert Agent for DB2 Connect Monitoring.
3. Enter the command `./e2e --stop`

Updating Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux:

This method is a step-by-step update of Performance Expert Agent for DB2 Connect Monitoring.

About this task

To update Performance Expert Agent for DB2 Connect Monitoring manually:

Procedure
1. Log on as the DB2 instance owner.
2. Change to the directory `<installdiragent>/bin`
where `<installdiragent>` denotes the installation directory of Performance Expert Agent for DB2 Connect Monitoring.

3. Stop Performance Expert Agent for DB2 Connect Monitoring if it is started by using the command `./e2e --stop`.

4. Log on as root.

5. Enter the command `./e2e --update`.
   
   If a new version of Performance Expert Agent for DB2 Connect Monitoring is found, you get the message New version downloaded.

6. Restart Performance Expert Agent for DB2 Connect Monitoring by entering the command `./e2e --start` on the command line.

Results

The latest version of Performance Expert Agent for DB2 Connect Monitoring is installed. To test it, perform the following steps:

1. Ensure that Performance Expert Agent for DB2 Connect Monitoring is started.
2. Use Performance Expert Client to log on to a DB2 subsystem or DB2 instance for which Performance Expert Agent for DB2 Connect Monitoring collects data about the connection status.
3. Verify that the data is collected.

If the update does not work correctly, you can recover the previous version of Performance Expert Agent for DB2 Connect Monitoring by doing the following:

1. Stop Performance Expert Agent for DB2 Connect Monitoring by entering `./e2e --stop` on the command line.
2. Enter `./e2e --rollback` on the command line.

The previous version of Performance Expert Agent for DB2 Connect Monitoring is reinstalled and you get the message Old version restored.

Removing Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux:

About this task

To remove Performance Expert Agent for DB2 Connect Monitoring from your UNIX or Linux system:

Procedure

1. Log on as the DB2 instance owner.
2. Change to the directory `<installdiragent>/bin`
   
   where `<installdiragent>` denotes the installation directory of Performance Expert Agent for DB2 Connect Monitoring.
4. Log on as root.
5. Enter `<installdiragent>/uninstall/uninstaller`
   
   where `<installdiragent>` denotes the installation directory of Performance Expert Agent for DB2 Connect Monitoring.
6. Press Enter.
   
   The InstallAnywhere Multiplatform Wizard opens.
7. Select Next and follow the instructions.
8. Select Finish to complete the procedure.
The InstallAnywhere Multiplatform Wizard is closed.
9. Enter `rm -fr /<installdiragent>` to delete the installation directory of Performance Expert Agent for DB2 Connect Monitoring.

Installing and configuring Performance Expert Client

Performance Expert Client provides real-time and historical monitoring of a DB2 subsystem or DB2 data sharing group. This section describes how to enable Performance Expert Client to an existing runtime environment.

Before you begin

You must do the following before beginning:

- Verify that your system meets the hardware and software requirements.
- Enable Performance Expert Client support on z/OS. See “Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support” on page 373.

About this task

The following topics provide detailed installation instructions:

- “Hardware requirements for Performance Expert Client”
- “Software requirements for Performance Expert Client” on page 437
- “Downloading the program files of Performance Expert Client” on page 438
- “Installing the program files of Performance Expert Client” on page 438
- “Preparing access to Performance Warehouse” on page 440
- “Defining the DB2 subsystem” on page 442

Hardware requirements for Performance Expert Client

Performance Expert Client requires the following hardware prerequisites. Review these requirements to ensure that your environment is prepared for installation.

The minimum hardware requirements to install and run Performance Expert Client are:

- A personal computer with Intel-based processor architecture, 400 MHz Pentium
- 512 MB RAM
- 650 MB (Windows 32-bit and 64-bit) disk space in the installation directory for the installation files
- 400 MB temporary space for running the installation program
- A high-resolution display unit of 1024 x 768 or higher
- If you install OMEGAMON for DB2 PE, which includes buffer pool object placement, the following free memory for object placement:
  - 60 MB for up to 1000 objects
  - 220 MB for up to 100 000 objects
  - 500 MB for up to 200 000 objects
  where objects are table spaces and index spaces.

Recommendation: If you have installed only the minimum requirements, you should not run other applications at the same time.
Software requirements for Performance Expert Client

Performance Expert Client requires the following system and software prerequisites. Review these requirements to ensure that your environment is prepared for installation.

The minimum software requirements to install and run Performance Expert Client are:

• One of the following Windows (x86-64) versions:
  – Windows XP Professional Edition with Service Pack 2, including XP FDCC

• The following data servers (64-bit) are supported for DB2 Performance Expert Client:
  – IBM DB2 Enterprise Server Edition for Linux, UNIX, and Windows Version 9.1 or later
  – IBM DB2 Workgroup Server Edition for Linux, UNIX, and Windows Version 9.1 or later
  – IBM DB2 Personal Server Edition for Linux, UNIX, and Windows Version 9.1 or later
  – IBM DB2 Connect Enterprise Edition for Linux, UNIX, and Windows Version 9.1 or later
  – IBM DB2 Connect Personal Edition for Linux, UNIX, and Windows Version 9.1 or later
  – IBM DB2 Connect Application Server Edition for Linux, UNIX, and Windows Version 9.1 or later
  – IBM DB2 Connect Unlimited Edition for zSeries Version 9.1
  – IBM DB2 Client Version 9.1
  – IBM DB2 Data Server Client Version 9.5 and Version 9.7

• If the Explain function is used:
  – IBM Db2 Query Workload Tuner for z/OS Version 5.1
  – IBM InfoSphere Optim Query Workload Tuner Version 4.1 or later (including Data Studio) (before Db2 12)

• TCP/IP installed on the workstation

• One of the following web browsers:
  – Microsoft Internet Explorer Version 7 or later
  – Netscape Navigator Version 7 or later
  – Mozilla Firefox Version 3.6 or later
Downloading the program files of Performance Expert Client

About this task

Both the initial version and later fixes for the program files for Performance Expert Agent for DB2 Connect Monitoring are available online. For download instructions, refer to the technote "OMEGAMON XE for DB2 PE/PM: web-based delivery and updates for Windows- and UNIX-based components" on the IBM Software Support website. If needed, the direct link to the technote is also included in the hold instructions of every Performance Expert Agent PTF on the host. The available program build levels and fix descriptions are documented in the technote.

Installing the program files of Performance Expert Client

After downloading the program files of Performance Expert Client, you install them using the InstallAnywhere Wizard.

Before you begin

Before beginning, you must do the following:

• Verify that you have administration privileges.
• Download the program files of Performance Expert Client. See "Downloading the program files of Performance Expert Client" for more information.
• Close the DB2 Control Center before installing the Performance Expert Client program files (if applicable).
• If you want to perform a silent installation, you must create a response file to record your installation steps. For detailed instructions on silent installation, see "Installing Performance Expert Client silently by using a response file" on page 439.

About this task

To install the program files, do the following:

Procedure

1. Verify that you have closed the DB2 Control Center. The DB2 Control Center must be closed before you start the client installation in order for the Control Center plug-in to be installed properly.
2. Extract the files and directories from the compressed file(s) into the installation directory, for example, C:\PROGRAMS\IBM\PECLIENT. The archives contain the following files and directories:
   • db2pe.client.*.exe
   • iehs*win.jar
3. Run the *.exe file. With Windows 8 or later, ensure that you run the *.exe file in Windows 7 Compatibility mode.
   The InstallAnywhere Wizard starts, and the IBM DB2 Performance Expert V5 Setup window opens.
   If you did not close the DB2 Control Center before installing the plug-in then you might not be able to access the Performance Expert Client from the DB2 Control Center.
4. Click Next.
   The next setup window shows the License Agreement.
5. To install Performance Expert Client, click I accept the terms of the license agreement, then click Next.
6. Click **Performance Expert on z/OS**, then click **Next**. If you only want to install IBM Tivoli OMEGAMON XE for DB2 Performance Monitor on z/OS, click **Performance Monitor on z/OS** instead.

   In the next window, you can specify the installation path.

7. Select the setup type that you prefer, then click **Next**.

8. To install the program files to the default destination folder, click **Next**. To install the program files to a different folder, click **Browse**, then select another folder.

9. Check the summary information, then click **Install**.

   The program files are copied to the specified destination folder and the next setup window opens. It shows summary information about the installation. It also shows the location of the log file.

10. Click **Finish** to exit the InstallAnywhere Wizard.

**Results**

Performance Expert Client is installed.

**Installing Performance Expert Client silently by using a response file:**

A silent installation is an installation that runs without displaying an interface or prompting you for input. You can do silent installations of Performance Expert Client to simplify the process of installing it on multiple computers.

**Before you begin**

Before you install Performance Expert Client silently, you must first create a response file. A **response file** is a file that contains the properties and values that drive the installation. You create a response file by running the installation wizard or console mode with the following command-line option: -r *response_file_name*. When you complete the installation, the information that you entered in the installation wizard or console mode is recorded in the response file. You will use this file to install the product silently on other computers.

**Procedure**

To install Performance Expert Client silently by using a response file:

1. From the directory of the installation image for Performance Expert Client, run the following command:

   **On Windows 64-bit:**

   ```
   db2pe.client.*.install-on-win64.exe -i -silent -f *response_file_name*
   ```

   where *response_file_name* is the name of the response file that you created during a previous installation of the product.

   **Note:** Run as Administrator.

   **Note:** If you are on Windows 8, ensure that you run the *.exe* file in Windows 7 Compatibility mode.

   The product is installed.

2. Verify that the installation was successful by checking the *db2pec1i.log* installation log file in the following directory:
• On Windows: %USERPROFILE% (For example: C:\Documents and Settings\Administrator)

3. Start the Performance Expert Client from the Windows Start menu or the created Desktop icon.

What to do next

You are now ready to configure the product. For instructions on configuring and using Performance Expert Client, see “Preparing access to Performance Warehouse” and “Defining the DB2 subsystem” on page 442.

Preparing access to Performance Warehouse

Before you can access Performance Warehouse on z/OS from Performance Expert Client or use SQL activity tracing, you must configure the DB2 subsystem on which Performance Warehouse and the associated database DB2PM reside.

Before you begin

You must complete the configuration of Performance Warehouse as described in “Enabling Performance Warehouse” on page 395 before starting.

About this task

The following example shows how to configure the DB2 subsystem by using the Configuration Assistant. Note that the description applies to the Configuration Assistant for DB2 V10.

Procedure

1. Open the Configuration Assistant.
2. From the Selected menu, select Add Database Using Wizard....
   The Add Database Wizard opens.
3. On the Source page, click Manually configure a connection to a database, then click Next.
4. On the Protocol page, click TCP/IP, select The database physically resides on a host or OS/400 system, then click Next.
5. On the TCP/IP page, specify the host name or TCP/IP address, and the TCP/IP port number, then click Next.
6. On the Database page, specify the database name (DB2 subsystem location) and type a name for the database alias, then click Next.

Note: You use this database alias in the Connect to Performance Warehouse window.

7. This step is optional. On the Data Source page:
   a. Select Register this database for ODBC.
   b. Select As system data source.
   c. Click Next.
8. On the Node Options page, select z/OS as operating system, specify DB2 as instance name, then click Next.
9. On the Systems Options page, accept the default values, then click Next.
10. On the Security Options page, accept the default values, then click Finish.
11. This step is optional: On the DCS Options page, customize your direct connection to host or OS/400® databases.
Results

The DB2 subsystem is configured and you can access Performance Warehouse on z/OS or use SQL activity tracing.

Perform the following steps to start SQL activity trace from the Performance Expert Client:
1. Open the DB2 Subsystem Properties panel of the DB2 subsystem of interest.
2. On the Performance Warehouse tab, in the Database alias field, specify the database alias you just created.

Setting up your environment for Performance Warehouse

Before you can access Performance Warehouse on z/OS from Performance Expert Client, you must have at least DB2 Data Server Runtime Client installed with the appropriate licenses to access DB2 for z/OS. With OMEGAMON for DB2 PE, you receive a limited license for this usage.

About this task

Perform the following steps:

Procedure
1. Download the DB2 Data Server Runtime Client (version 9.7 or later) from the [Download Db2 Fix Packs by version for Db2 for Linux, UNIX and Windows website](#).
   - For DB2 10.1, select Fixpack 1.
2. Download the member FPEKCNLI from your TKO2WS01 SMPE/E library in binary format. Add the extension .zip. Extract the zip file. It contains several .lic and .jar files for the various Data Server Runtime client versions.
3. Locate the \consv_ee\db2\licence folder for your version within the .zip file. Extract the .lic file to Program Files\IBM\SQLLIB and the db2cc_license_cisuz.jar file to \IBM\SQLLIB\java.
4. Install the downloaded DB2 Data Server Runtime Client.
5. After successful installation, run the following command to register the license: `db2licm -a nnnn` where `nnnn` is the version-related .lic file name you have just extracted. Double check with command `db2licm -l` that you have the necessary permanent licenses installed.
6. Before you can access your z/OS database, it needs to be added to your workstation’s DB2 catalog. Enter `db2cmd` to start the DB2 Command Line Processor window from \IBM\SQLLIB. At the next prompt, type `db2`.

   Note: For the 9.7 driver, you can use the Client Configuration Assistant to perform this task.
   a. CATALOG TCP/IP NODE <node-name> REMOTE <host-name> SERVER <port-number> OSTYPE OS390 where port number is the port on which the DB2 subsystem is listening, not the port on which OMEGAMON is listening.
   b. CATALOG DATABASE <location-name> AS <alias> AT NODE <node-name> AUTHENTICATION SERVER
   c. CATALOG DCS DATABASE <alias> AS <target-DB-name>
Results

Now you can start the Performance Expert Client and add the alias for the Performance Warehouse connection and open Performance Warehouse.

Defining the DB2 subsystem

Before you can use the Performance Expert Client, you must establish a connection to the OMEGAMON Collector.

Before you begin

If there is a local firewall on the processor where the Performance Expert Client is installed, you must grant access for DB2PEClient.exe. Otherwise, the connection fails.

About this task

To monitor a DB2 subsystem from the PE Client, you must establish a connection between the PE Client and the OMEGAMON Collector. This allows the PE Client access to the performance data for this DB2 subsystem.

To define the DB2 subsystem, perform the following steps:

Procedure

1. Establish the connection.
   a. Start the Performance Expert Client and go to Monitor + New DB2 Subsystem.
   b. Select DB2 on z/OS, OS 390 systems. Click Next.
   c. In the Host field, enter the hostname where the OMEGAMON Collector is running.
   d. In the Port field, enter the port for the OMEGAMON Collector. Click Next.
   e. Click Retrieve. The Wizard adds information about the DB2 subsystem to your configuration.
   f. When prompted, enter a user ID and a password for a TSO user on the system where the OMEGAMON Collector is running. If the retrieval fails, check the following and then click retrieve again.
      - Check that the OMEGAMON Collector is started.
      - Check that the TCP/IP port is correct.
      - Check that a firewall is not blocking your connection request.
   g. Optional: If you want to work with Performance Warehouse, specify the database alias on the Performance Warehouse tab, in the Database alias field, specify the database alias you created.
   h. Click Finish.

2. Verify that the connection was successful.
   a. Logon to the OMEGAMON Collector. To do so, from the DB2 Performance Expert - System Overview window, right click on the server in the navigation tree in the panel on the left. Select Logon.
   b. Verify that the main functions for the Performance Expert Client are displayed in the middle panel of the window.
Configuring the Performance Warehouse Client

You can view information that is stored in the Performance Warehouse from the Performance Warehouse Client. If you want to use the Performance Warehouse Client, you must configure it first.

Before you begin

- You must install the Performance Expert Client before beginning. See “Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support” on page 373 and “Installing and configuring Performance Expert Client” on page 436 for more information.
- You must install Performance Warehouse on z/OS before beginning. See “Enabling Performance Warehouse” on page 395 for more information.

About this task

To complete this task, you can use the DB2 Configuration Assistant, or you can use the DB2 command line utility. These instructions explain how to use the DB2 Configuration Assistant. This is also a prerequisite action to be able to start SQL activity tracing.

Procedure

1. Define a DB2 connection to the Performance Warehouse database DB2PM. See “Preparing access to Performance Warehouse” on page 440 for a detailed description.
2. Configure the Performance Warehouse Client. In this step, you tell the Performance Warehouse Client which DB2 connection to use to access the Performance Warehouse.
   a. Start the Performance Expert Client.
   b. Right click on the DB2 subsystem that contains the Performance Warehouse from the navigation tree in the left frame. Select Properties.
   c. Select the Performance Warehouse tab. In the Database alias field, enter the Database alias that you just created. Click OK.

The Performance Warehouse Client is configured. You can start it by choosing one of the Performance Warehouse options in the Tools menu.

Supported Versions

Here you find an overview of the supported versions.

The following releases of OMEGAMON XE for DB2 PE are supported if you are running IBM Tivoli Management Services 6.3.0:

- Version 5.1.1
- Version 5.2.0
- Version 5.3.0
- Version 5.4.0

With OMEGAMON XE for DB2 PE you can:

- Obtain information about the performance and health of DB2.
- Get general information about OMEGAMON XE for DB2 PE workspaces, attributes, and predefined situations.
- Use the table of contents to view detailed information about a specific workspace or attributes.
Support for a staged migration

OMEGAMON XE for DB2 PE:
- V5.1.1 and V5.2 must run with Tivoli Management Services V6.2.3 Fix Pack 1 or later.
- V5.3 and V5.4 must run with Tivoli Management Services V6.3.0 Fix Pack 2 or later.
- V5.4 must run with Tivoli Management Services V6.3.0 Fix Pack 6 or later

If you have installed an earlier version of ITM, it must be upgraded to V6.3.0 Fix Pack 6 or later. Tivoli Management Services V6.3.0 and later supports OMEGAMON XE for DB2 PE V5.1.1 and later running in your environment during a migration period, so that you can deploy new V5.4 monitoring agents along with older monitoring agents of the same product. If you are running in this mixed-migration environment, there might be differences when viewing data for an agent running an earlier version.

General migration hints

The attribute *Product*, which is a two-letter code of a monitoring agent in the Tivoli Enterprise Monitoring Server (TEMS) table *INODESTS*, depends on the version installed:
- In V5.1.1 and later, the two-letter product code is *DP*.

**Note:** If you have customized your workspace or situations in Tivoli Enterprise Monitoring Server (TEMS) table *INODESTS* and filtering on attribute *Product* is set to *D5* (applies to versions of OMEGAMON XE for DB2 PE that are no longer supported), you must set the filtering to *D5* or *DP*. This migration is not required, if you use OMEGAMON XE for DB2 PE V5.1.1 or later.

Migrating a workspace

The attribute *Product* in workspace *Managed System Status* has the following values:
- *DP* for OMEGAMON XE for DB2 PE V5.1.1 or later

**Note:** The workspace *Managed System Status* can be navigated from navigator item *Enterprise*. If you have customized your workspace based on workspace *Managed System Status* and filtering on attribute *Product* is set to *D5* (applies to versions of OMEGAMON XE for DB2 PE that are no longer supported), you must set the filtering to *D5* or *DP*.

Migrating situations

If you have a customized situation based on product-provided situation *MS_Offline* from *All Managed Systems*, and filtering on attribute *Product* is set to *D5* (applies to versions of OMEGAMON XE for DB2 PE that are no longer supported), you must set the filtering to *D5* or *DP*.

**Upgrading to OMEGAMON XE for DB2 PE V5.4.0**

OMEGAMON XE V5.4.0 monitoring agents require Tivoli Management Services V6.3.0 Fix Pack 6.

If you upgrade from OMEGAMON XE for DB2 PE V4.2, V5.1.0, V5.1.1, V5.2 or V5.4, you must upgrade to Tivoli Management Services V6.3.0 Fix Pack 6 or later.
If you have installed an earlier version of Tivoli Management Services V6.3.0, you must, at least, upgrade the hub Tivoli Enterprise Monitoring Server before you install your first V5.4.0 monitoring agent. In addition, any remote monitoring server through which a V5.4.0 OMEGAMON XE monitoring agent reports to the hub monitoring server must also be upgraded to Tivoli Management Services V6.3.0 Fix Pack 6 or later.

The OMEGAMON XE V5.4.0 products support a staged migration. This means as you are migrating from OMEGAMON XE V4.2, V5.1, V5.2 or V5.3 products to OMEGAMON XE V5.4.0 products, you may have a combination of V5.1.0, V5.1.1, V5.2, V5.3 and V5.4 monitoring agents installed in your environment. For example, you may have an OMEGAMON XE for DB2 PE monitoring agent V5.3 and an OMEGAMON XE for DB2 PE monitoring agent V5.1 running in the same hub Tivoli Enterprise Monitoring Server environment during the migration period. Support of a mixed environment is provided as a migration help. Operators working in such a transitional environment should be aware of the following issues:

- OMEGAMON XE for DB2 supports agent versioning. If a workspace has different versions, it always shows the agent that corresponds to the version. For example, a V5.2 workspace is displayed for a V5.2 agent. The full-text help and the situation editor provides information for all supported versions of agents.

- You can use the predefined dynamic workspace links provided by the OMEGAMON XE for DB2 workspace in the workspace of another OMEGAMON XE product as long as the target workspace exists in this IBM Tivoli Monitoring (ITM) enterprise. If the target workspace does not exist, you will receive message KFWITM081E.

- You can use the predefined dynamic workspace links provided by V5.4.0 agents to link from an OMEGAMON XE V5.4.0 workspace to the workspace of another OMEGAMON XE V4.2 product as long as the target workspace exists in the product. If the target workspace does not exist, you will receive message KFWITM081E.

- In cases where the V5.4.0 of the target workspace has been modified (for example, HTML links added to some workspaces) you may notice a different behavior when you migrate the target product from V5.1.1 to V5.4.0.

- All user interfaces (except for the Configuration Tool and Install Shield) provided with Tivoli Enterprise Portal version 6.2 or later and the OMEGAMON XE version 5.1 or later monitoring agents are globalized. As a result, workspaces in OMEGAMON XE V5.1 or later are displayed in the specified language (for example, Spanish or Chinese).

**Organization of the Predefined Workspaces**

In most cases, a workspace contains data or columns that have similar attributes in an attribute group.

This table shows the relationships between the predefined workspaces and the attribute groups. (The workspaces are listed in alphabetical order.)

<table>
<thead>
<tr>
<th>Workspace</th>
<th>Related Attribute Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>“All Threads Connected to DB2 Workspace” on page 451</td>
<td>“All Threads Attributes” on page 451</td>
</tr>
<tr>
<td>“Application Information Workspace” on page 467</td>
<td>“DB2 Connect Server Attributes” on page 467</td>
</tr>
<tr>
<td>“Buffer Pool Details Workspace” on page 471</td>
<td>“DB2 SRM BPD Attributes” on page 471</td>
</tr>
<tr>
<td>Workspace</td>
<td>Related Attribute Group</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>“Buffer Pool Management Workspace” on page 475</td>
<td>“DB2 SRM BPM Attributes” on page 475</td>
</tr>
<tr>
<td>“CICS Connections Workspace” on page 476</td>
<td>“DB2 CICS Exceptions Attributes” on page 477</td>
</tr>
<tr>
<td>“CICS Threads Workspace” on page 478</td>
<td>“DB2 CICS Threads Attributes” on page 478</td>
</tr>
<tr>
<td>“CICS Thread Summary Workspace” on page 479</td>
<td>“All Threads Attributes” on page 451</td>
</tr>
<tr>
<td>“Common Storage Workspace” on page 480</td>
<td>“DB2 Memory Attributes” on page 496</td>
</tr>
<tr>
<td></td>
<td>“MVS Storage Attributes” on page 505</td>
</tr>
<tr>
<td>“Coupling Facility Connections Workspace” on page 512</td>
<td>“Group Buffer Pool Connection Attributes” on page 512</td>
</tr>
<tr>
<td>“Coupling Facility Structures Workspaces” on page 514</td>
<td>“DB2 Group Coupling Facility Attributes” on page 514</td>
</tr>
<tr>
<td>“Critical DB2 Messages by Message ID Workspace” on page 517</td>
<td>“DB2 Message Attributes” on page 517</td>
</tr>
<tr>
<td>“Data Sharing Thread Activity Workspace” on page 518</td>
<td>“Data Sharing Thread Detail Attributes” on page 519</td>
</tr>
<tr>
<td>“Data Sharing Thread Statistics Workspace” on page 526</td>
<td>“Data Sharing Thread Statistics Attributes” on page 526</td>
</tr>
<tr>
<td>“DB2 Connect/Gateway Statistics Workspace” on page 529</td>
<td>“DB2 Connect Server Attributes” on page 467</td>
</tr>
<tr>
<td>“DB2 Connect Server Workspace” on page 528</td>
<td>“DB2 Connect Server Attributes” on page 467</td>
</tr>
<tr>
<td>“DB2 Connect Server Package Statistics Workspace” on page 529</td>
<td>“DB2 Connect Server Package Attributes” on page 529</td>
</tr>
<tr>
<td>“DB2 Connect Server at Thread Level Workspace” on page 531</td>
<td>“DB2 Connect Server at Thread Level Overview Attributes” on page 531</td>
</tr>
<tr>
<td>“DB2 Messages Workspace” on page 543</td>
<td>“DB2 Message Attributes” on page 517</td>
</tr>
<tr>
<td>“DB2 Messages by Message ID Workspace” on page 544</td>
<td>“DB2 Message Attributes” on page 517</td>
</tr>
<tr>
<td>“DB2 Messages by Time Interval Workspace” on page 544</td>
<td>“DB2 Message Attributes” on page 517</td>
</tr>
<tr>
<td>“DBAT End-to-End SQL Monitoring Workspace” on page 544</td>
<td>“All Threads Attributes” on page 451, “DB2 SRM Subsystem Attributes” on page 545</td>
</tr>
<tr>
<td>“DDF Conversations Workspace” on page 549</td>
<td>“DB2 DDF CONV Attributes” on page 549</td>
</tr>
<tr>
<td>“DDF Statistics Workspace” on page 550</td>
<td>“DB2 DDF STAT Attributes” on page 551</td>
</tr>
<tr>
<td>“Detailed Thread Exception Workspace” on page 554</td>
<td>“DB2 Thread Exceptions Attributes” on page 554</td>
</tr>
<tr>
<td>“Distributed Allied Thread Summary Workspace” on page 564</td>
<td>“All Threads Attributes” on page 451</td>
</tr>
<tr>
<td>“Distributed Thread Detail Workspace” on page 565</td>
<td>“DB2 Thread Detail Attributes” on page 565</td>
</tr>
<tr>
<td>“Distributed Thread SQL Statistics Workspace” on page 571</td>
<td>“DB2 Thread Detail Attributes” on page 565</td>
</tr>
<tr>
<td>“DSG DSNZP ARM Application Parameters Workspace” on page 571</td>
<td>“DB2 Parameters Attributes” on page 572, “DSG DSNZPARM Application Parameters” on page 571</td>
</tr>
<tr>
<td>Workspace</td>
<td>Related Attribute Group</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Archiving Parameters Workspace&quot; on page 651</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Authorization, RLF, and DDF Parameters Workspace&quot; on page 651</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Buffer Pool Parameters Workspace&quot; on page 652</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Data Parameters Workspace&quot; on page 652</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Data Sharing Parameters Workspace&quot; on page 653</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Data Set and Database Parameters Workspace&quot; on page 654</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM DDCS Parameters Workspace&quot; on page 654</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM IRLM Parameters Workspace&quot; on page 655</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Logging Parameters Workspace&quot; on page 655</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Other System Parameters Workspace&quot; on page 656</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Performance and Optimization Parameters Workspace&quot; on page 657</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Storage and Size Parameters Workspace&quot; on page 658</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Stored Procedures Parameters Workspace&quot; on page 658</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Thread Parameters Workspace&quot; on page 659</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Trace Parameters Workspace&quot; on page 659</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSG DSNZPARM Utility Parameters Workspace&quot; on page 660</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSNZPARM Application Parameters Workspace&quot; on page 661</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSNZPARM Archiving Parameters Workspace&quot; on page 662</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSNZPARM Authorization, RLF, and DDF Parameters Workspace&quot; on page 662</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSNZPARM Buffer Pool Parameters Workspace&quot; on page 663</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSNZPARM Data Parameters Workspace&quot; on page 663</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSNZPARM Data Sharing Parameters Workspace&quot; on page 663</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>&quot;DSNZPARM Data Set and Database Parameters Workspace&quot; on page 664</td>
<td>&quot;DB2 Parameters Attributes&quot; on page 572, &quot;DSG DB2 Parameters&quot; on page 650</td>
</tr>
<tr>
<td>Workspace</td>
<td>Related Attribute Group</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>“DSNZPARM DDCS Parameters Workspace” on page 665</td>
<td>“DB2 Parameters Attributes” on page 572</td>
</tr>
<tr>
<td>“DSNZPARM IRLM Parameters Workspace” on page 665</td>
<td>“DB2 Parameters Attributes” on page 572</td>
</tr>
<tr>
<td>“DSNZPARM Logging Parameters Workspace” on page 666</td>
<td>“DB2 Parameters Attributes” on page 572</td>
</tr>
<tr>
<td>“DSNZPARM Other System Parameters Workspace” on page 666</td>
<td>“DB2 Parameters Attributes” on page 572</td>
</tr>
<tr>
<td>“DSNZPARM Performance and Optimization Parameters Workspace” on page 667</td>
<td>“DB2 Parameters Attributes” on page 572</td>
</tr>
<tr>
<td>“DSNZPARM Storage and Size Parameters Workspace” on page 668</td>
<td>“DB2 Parameters Attributes” on page 572</td>
</tr>
<tr>
<td>“DSNZPARM Stored Procedures Parameters Workspace” on page 670</td>
<td>“DB2 Parameters Attributes” on page 572</td>
</tr>
<tr>
<td>“DSNZPARM Thread Parameters Workspace” on page 668</td>
<td>“DB2 Parameters Attributes” on page 572</td>
</tr>
<tr>
<td>“DSNZPARM Trace Parameters Workspace” on page 671</td>
<td>“DB2 Parameters Attributes” on page 572</td>
</tr>
<tr>
<td>“DSNZPARM Utility Parameters Workspace” on page 671</td>
<td>“DB2 Parameters Attributes” on page 572</td>
</tr>
<tr>
<td>“EDM Pool Workspace” on page 672</td>
<td>“EDM Pool Attributes” on page 672</td>
</tr>
<tr>
<td>“EDM Pool (DB2 10) Workspace” on page 672</td>
<td>“EDM Pool Attributes” on page 672</td>
</tr>
<tr>
<td>“Enclave Thread Summary Workspace” on page 677</td>
<td>“Thread Enclave Attributes” on page 678</td>
</tr>
<tr>
<td>“End-to-End SQL Monitoring Workspace” on page 686</td>
<td>“All Threads Attributes” on page 451</td>
</tr>
<tr>
<td>“Group Buffer Pool Workspace” on page 699</td>
<td>“Group Buffer Pool Attributes” on page 699</td>
</tr>
<tr>
<td>“Group Buffer Pool Connections Workspace” on page 701</td>
<td>“Group Buffer Pool Connection Attributes” on page 512</td>
</tr>
<tr>
<td>“Group Buffer Pool Detailed Statistics Workspace” on page 702</td>
<td>“Group Buffer Pool Statistics Detail Attributes” on page 702</td>
</tr>
<tr>
<td>“Group Buffer Pool Statistics Workspace” on page 702</td>
<td>“Group Buffer Pool Statistics Attributes” on page 705</td>
</tr>
<tr>
<td>“Group Buffer Pool Structures Workspace” on page 708</td>
<td>“Group Buffer Pool Attributes” on page 699</td>
</tr>
<tr>
<td>“Group Object Activity Database Workspace” on page 708</td>
<td>“Group Object Activity Summary Attributes” on page 709</td>
</tr>
<tr>
<td>“Group Object Activity by Space Name” on page 710</td>
<td>“Group Object Space Name Attributes” on page 711</td>
</tr>
<tr>
<td>“Group Object Activity by Space Name Detail Workspace” on page 712</td>
<td>“Group Object Space Name Attributes” on page 711</td>
</tr>
<tr>
<td>“Group Object Analysis Workspace” on page 712</td>
<td>“Group Object Analysis Attributes” on page 712</td>
</tr>
<tr>
<td>Workspace</td>
<td>Related Attribute Group</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>“Group Object Analysis Thread Database Workspace” on page 714</td>
<td>“Group Object Analysis Thread Activity Summary Attributes” on page 714</td>
</tr>
<tr>
<td>“Group Object Analysis Thread Space Name Workspace” on page 716</td>
<td>“Group Object Analysis Thread Volume Summary Attributes” on page 716</td>
</tr>
<tr>
<td>“Group Object Analysis Thread Space Name Detail Workspace” on page 718</td>
<td>“Group Object Analysis Thread Volume Summary Attributes” on page 716</td>
</tr>
<tr>
<td>“Group Object Analysis Volume Workspace” on page 718</td>
<td>“Group Object Analysis Volume Summary Attributes” on page 719</td>
</tr>
<tr>
<td>“Group Object Analysis Volume Database Workspace” on page 720</td>
<td>“Group Object Analysis Volume Database Summary Attributes” on page 721</td>
</tr>
<tr>
<td>“Group Object Analysis Volume Space Name Workspace” on page 722</td>
<td>“Group Object Analysis Volume Database Summary Attributes” on page 721</td>
</tr>
<tr>
<td>“Group Object Analysis Volume Space Name Detail Workspace” on page 723</td>
<td>“Group Object Analysis Volume Database Summary Attributes” on page 721</td>
</tr>
<tr>
<td>“Group Object Analysis Volume Thread Workspace” on page 723</td>
<td>“Group Object Analysis Volume Thread Summary Attributes” on page 716</td>
</tr>
<tr>
<td>“Group Object Analysis Volume Thread Detail Workspace” on page 725</td>
<td>“Group Object Analysis Volume Thread Summary Attributes” on page 716</td>
</tr>
<tr>
<td>“IMS Connections Workspace” on page 726</td>
<td>“DB2 IMS Connections Attributes” on page 726</td>
</tr>
<tr>
<td>“IMS Region Information Workspace” on page 727</td>
<td>“DB2 IMS Regions Attributes” on page 727</td>
</tr>
<tr>
<td>“IMS Thread Summary Workspace” on page 731</td>
<td>“All Threads Attributes” on page 451</td>
</tr>
<tr>
<td>“Installation Parameters” on page 732</td>
<td>“DB2 Parameters Attributes” on page 572</td>
</tr>
<tr>
<td>“Lock Conflicts Workspace” on page 732</td>
<td>“Local DB2 Lock Conflict Attributes” on page 733</td>
</tr>
<tr>
<td>“Log Manager Workspace” on page 745</td>
<td>“DB2 SRM Log Manager Attributes” on page 746</td>
</tr>
<tr>
<td>“MVS Storage Above 2 GB Workspace” on page 750</td>
<td>“MVS Storage Attributes” on page 505</td>
</tr>
<tr>
<td>“MVS Storage Below 2 GB Workspace” on page 750</td>
<td>“MVS Storage Attributes” on page 505, “DB2 Memory Attributes” on page 496</td>
</tr>
<tr>
<td>“Object Analysis Database Workspace” on page 751</td>
<td>“Group Object Analysis Attributes” on page 712</td>
</tr>
<tr>
<td>“Object Analysis Space Name Workspace” on page 751</td>
<td>“Group Object Space Name Attributes” on page 711</td>
</tr>
<tr>
<td>“Object Analysis Space Name Detail Workspace” on page 751</td>
<td>“Group Object Space Name Attributes” on page 711</td>
</tr>
<tr>
<td>“Overall Transaction Data Workspace” on page 752</td>
<td>“DB2 Connect Server at Thread Level Overview Attributes” on page 531</td>
</tr>
<tr>
<td>“Package Statistics Workspace” on page 528</td>
<td>“DB2 Connect Server Package Attributes” on page 529</td>
</tr>
<tr>
<td>“Performance Workspace” on page 752</td>
<td>“DB2 Connect Server Attributes” on page 467</td>
</tr>
<tr>
<td>“SQL Counts 1 Workspace” on page 753</td>
<td>“SQL Counts Attributes” on page 753</td>
</tr>
<tr>
<td>“SQL Counts 2 Workspace” on page 762</td>
<td>“SQL Counts Attributes” on page 753</td>
</tr>
<tr>
<td>Workspace</td>
<td>Related Attribute Group</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>“SQL Counts 3 Workspace” on page 763</td>
<td>“SQL Counts Attributes” on page 753</td>
</tr>
<tr>
<td>“Statement Information Workspace” on page 763</td>
<td>“Thread DB2 Connect Statement Attributes” on page 764</td>
</tr>
<tr>
<td>“Storage Consumption Workspace” on page 772</td>
<td>“DB2 Memory DBM1 or DIST Attributes” on page 773</td>
</tr>
<tr>
<td>“DB2 Memory Attributes” on page 496</td>
<td>“Storage Consumption Attributes” on page 776</td>
</tr>
<tr>
<td>“MVS Storage Attributes” on page 505</td>
<td></td>
</tr>
<tr>
<td>“Subsystem Management Workspace” on page 781</td>
<td>“DB2 SRM Subsystem Attributes” on page 545</td>
</tr>
<tr>
<td>“System Status Workspace” on page 782</td>
<td>“DB2 System States Attributes” on page 783</td>
</tr>
<tr>
<td></td>
<td>“ZOS CPU Utilization Attributes” on page 792</td>
</tr>
<tr>
<td>“Tasks List Workspace” on page 793</td>
<td>“DB2 Connect Server Tasklist Attributes” on page 793</td>
</tr>
<tr>
<td>“Threads Workspaces” on page 795</td>
<td>“All Threads Attributes” on page 451</td>
</tr>
<tr>
<td>“Thread Activity Workspace” on page 795</td>
<td>“Thread Detail Attributes (Data Sharing)” on page 796</td>
</tr>
<tr>
<td>“Thread Activity by Package Workspace” on page 803</td>
<td>“All Threads Attributes” on page 451</td>
</tr>
<tr>
<td>“Thread Activity by Plan Workspace” on page 803</td>
<td>“All Threads Attributes” on page 451</td>
</tr>
<tr>
<td>“Thread Detail Workspace” on page 804</td>
<td>“Thread Detail Attributes (Data Sharing)” on page 796</td>
</tr>
<tr>
<td>“Thread Enclave Detail Workspace” on page 805</td>
<td>“Thread Enclave Attributes” on page 678</td>
</tr>
<tr>
<td>“Thread Enclave Service Period Information Workspace” on page 806</td>
<td>“Thread Enclave Attributes” on page 678</td>
</tr>
<tr>
<td>“Thread Locks Owned Workspace” on page 806</td>
<td>“Thread Locks Owned Attributes” on page 817</td>
</tr>
<tr>
<td></td>
<td>“Thread Locks Owned Summary Attributes” on page 814</td>
</tr>
<tr>
<td>“Thread SQL Counts 1 Workspace” on page 818</td>
<td>“Thread SQL Counts Attributes” on page 818</td>
</tr>
<tr>
<td>“Thread SQL Counts 2 Workspace” on page 828</td>
<td>“Thread SQL Counts Attributes” on page 818</td>
</tr>
<tr>
<td>“Thread SQL Counts 3 Workspace” on page 828</td>
<td>“Thread SQL Counts Attributes” on page 818</td>
</tr>
<tr>
<td>“Thread Statistics Workspace” on page 829</td>
<td>“Thread Statistics Attributes” on page 829</td>
</tr>
<tr>
<td>“Thread Wait Events Workspace” on page 830</td>
<td>“Thread Detail Attributes (Data Sharing)” on page 796</td>
</tr>
<tr>
<td>“Utility Jobs Workspace” on page 831</td>
<td>“DB2 SRM UTL Attributes” on page 832</td>
</tr>
<tr>
<td>“Volume Activity Workspace” on page 833</td>
<td>“DB2 Volume Activity Attributes” on page 833</td>
</tr>
</tbody>
</table>
The following attribute groups are not associated with predefined workspaces. They can be used to create situations:

"Data Sharing Status Attributes" on page 835

"Local Group Object Analysis Thread Volume Attributes" on page 836

"Local Group Object Analysis Volume Group Attributes" on page 837

"Local Group Object Analysis Volume Database Attributes" on page 839

"Local Object Activity Attributes" on page 840

"Local Object Space Name Attributes" on page 842

All Threads Connected to DB2 Workspace:

The All Threads Connected to DB2 workspace provides an overview of the activity of all threads that are connected to DB2.

This workspace is comprised of the following views:

**In-DB2 CP CPU Time (bar chart)**
Shows the class 2 CPU time (in DB2) for all threads.

**In-DB2 Time (bar chart)**
Shows the class 2 elapsed time (in DB2) for all threads.

**All Threads Connected to DB2 (table view)**
Provides key data for all threads that are connected to DB2.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace”
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

All Threads Attributes:
Use the All Threads attributes to create situations to monitor thread activity including DB2 thread activity that originates from connected IMS or CICS subsystems.

**Ace Address** The DB2 thread ACE address for internal use.

**Agent Address** The address of the agent in DB2 associates all processes that are involved in a DB2 unit of work.

**AGNT ASID** The address space ID (ASID) of the agent.

**Agent TCB Address** The z/OS Task Control Block that is associated with this DB2 thread.

**Authorization ID** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

**Authorization ID (Unicode)** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

**Begin Time** Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and IMS wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

**Bytes Sent** The number of bytes of data sent to the requester location.

**Cancel Command** The command string needed to cancel a thread. You can use Take Action with this attribute to cancel a thread: The format is "src CANCEL THREAD(nnnnnn)", where src is the subsystem recognition character and nnnnnn is the thread token.

**CICS MVS ID** The CICS MVS ID.

**Collection ID** This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 18 characters.

**Collection ID (Unicode)** The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

**Commits** The number of successful phase 2 or single-phase commit (sync) requests. Valid value is an integer in the range 0-999 commits.

**All Thread Attributes** Identifies the connection of an application to a DB2 system. It is an alphanumeric text string, with a maximum length of eight characters.

**All Thread Attributes** The type of connection associated with the thread.

Valid values are:
<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attach facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Conversations** The number of conversations that were initiated from the requester location.

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters. For example: DLKEX212.

**CP CPU Rate** The central processor CPU rate.

**Current Period** The service class period number in goal mode.

**Database Access CPU** The database access agent CPU time. This value is calculated by accumulating the amount of CPU time spent by the database access thread at the DB2 server each time a request message is processed.

**Database Access Time** The timestamp of last send or receive in distributed database access.

**DB2 ID** The DB2 subsystem ID.

**DB2 Status** The current DB2 status of the thread. It is an alphanumeric text string, with a maximum length of 12 characters.

Valid values are:

**Status**  **Description**

**NOT-AVAIL**  The thread is not available.

**IN-ABORT**  The thread is in abort processing.

**IN-ACCEL**  The thread is executing on IBM DB2 Analytics Accelerator for z/OS.
The thread is processing an autonomous procedure.

The thread is in dynamic bind processing.

The thread is in static bind processing.

Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

The thread is in Commit phase 1 processing.

The thread is in Commit phase 2 processing.

The thread is in Create Thread processing.

The thread is executing in DB2. A more descriptive status could not be determined.

The thread is in doubt.

The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

The thread is processing an SQL call.

The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

The thread is currently running in a stored procedure.

The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

The thread is currently running in a trigger.

The thread is currently running a user-defined function.

The thread is not currently executing in DB2.

The thread is trying but not able to run in a stored procedure or user-defined function.
SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.
WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT-LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.
Distributed Allied Elapsed Time The elapsed time for this thread executing on
distributed host.

Elapsed Time The total amount of elapsed time since thread creation or DB2
sign-on. Valid value is an integer in the range 0-99999999 seconds.

Elapsed Per Commit The average amount of elapsed time for each database
commit performed.

Enclave CP CPU Time The central processor CPU time used by each thread that is
associated with an enclave token.

Enclave CPU Time The enclave CPU time.

Enclave Token The ID assigned by the z/OS workload manager for this enclave. A
z/OS enclave lets each thread have its own performance objective. Using z/OS
workload management (WLM) support, you can establish z/OS performance
objectives for individual DDF server threads.

Enclave Token Unused This field is unused.

End User ID The user ID of the workstation end user. This user ID can be different
from the authorization ID used to connect to DB2. This field contains blanks if the
client does not supply this information (Field name: QWHCEUID).

Get Page The number of getpage requests. This field counts successful requests
for pages for queries that are processed in parallel and both successful and
unsuccessful requests for pages for queries that are not processed in parallel. Valid
value is an integer in the range 0-99999 pages.

Get Page 64 The number of getpage requests. This field counts successful requests
for pages for queries that are processed in parallel and both successful and
unsuccessful requests for pages for queries that are not processed in parallel. Valid
value is an integer in the range 0-999999999 pages.

Get Page Per Read The ratio of requested pages that resulted in actual I/O versus
being found in a buffer. The read I/O count divided by Get Page count.

Get Page Per Read 64 The ratio of requested pages that resulted in actual I/O versus
being found in a buffer. The read I/O count divided by Get Page count.

IIP CPU The accumulated CPU time consumed while executing on an IBM zIIP in
all environments.

IIP In-DB2 CPU The amount of time that the In DB2 CPU has been running on a
zIIP processor.

In DB2 IIP CPU The total amount of CPU time that DB2 has accumulated for a
thread in the zIIP processor. Valid value is an integer in the range 0-99999999
seconds.

In DB2 CP CPU Time The CP CPU time accumulated in DB2 when the SQL
statement exit from DB2.

In DB2 Per Commit The average amount of in-DB2 CPU time used between each
commit.
**In DB2 Time** The elapsed time accumulated in DB2 when the SQL statement exit from DB2.

**Interval Start** The start time of the interval.

**Job Name** The job name that is associated with a thread.

**Local Elapsed Time** The elapsed time, in tenths of a second, for local thread (in units that represent tenths of seconds).

**Location** The requesting location.

**Location (Unicode)** The requesting location.

**Logical Unit Name** The LUNAME of the connection to the remote DB2 system.

**Messages Sent** The number of messages sent to remote location.

**MVSID** The MVS system identifier.

**Original Authorization ID** The DB2 original Authorization ID of the thread. It is an alphanumeric text string, with a maximum length of 8 characters.

**Original Authorization ID (Unicode)** The DB2 original Authorization ID of the thread. It is an alphanumeric text string, with a maximum length of 8 characters.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Package Name** Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

**Package Name (Unicode)** Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

**Parallel Indicator** The thread parallelism indicator.

Valid values are:

* Indicates that this thread is a parallel task initiated for another (originating) thread to process a query request in parallel.

O Indicates that this thread is the originating thread that invoked autonomous procedures.

P Indicates that this thread is the parent, or originating thread, of the parallel tasks created to process a query request in parallel. The activity performed for this (originating) thread is reflected under the parallel tasks.

X Indicates that this thread is a parallel task initiated for another (originating) thread on another DB2 for SYSPLEX parallelism.

**Parent Ace** The token used to correlate parallel task or utility subtask records with the records of the originating task or main utility task. For a record that is issues from a parallel task or utility subtask this field contains a token that is equal to the agent control element (ACE) of the originating task or main utility task. Otherwise, the value in this field is zero.
**Performance Index** This field is related to the z/OS Workload manager. A Performance Index less than one is an indication that the goal for this service class period is being exceeded. The service class period may be considered as a "donor", giving up CPU or pageable storage for other more important service class periods on the system. A Performance Index greater than one is an indication that the goal for this service class period is not being met. Depending on the importance, this Service class period may be considered for additional services to meet the defined goal.

**Plan** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Prefetch Requests** The number of prefetch requests issued per second over the last interval.

**Remote CPU** The database access agent CPU time at the remote location.

**Remote Elapsed** The elapsed database access agent time at the remote location.

**Request Type** The request type for a ALL THREAD related workspaces. Internal use only.

**Rows Sent** The number of rows of data sent to the requester location.

**Service Class** The service class name associated with this address space.

**SQL Calls Sent** The number of SQL statement sent to the server.

**SQL Received** The number of SQL statements received from the requester.

**Sync Reads** The number of synchronous reads per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

**Synchronous Read I/O Rate** The thread synchronous read I/O rate.

**Thread Status** The current status of a thread.

Valid values are:

**Status**  **Description**

**NOT-AVAIL**  
The thread is not available.

**IN-ABORT**  
The thread is in abort processing.

**IN-ACCEL**  
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

**IN-AUTO-PROC**  
The thread is processing an autonomous procedure.

**IN-BIND-DYNM**  
The thread is in dynamic bind processing.
**IN-BIND-STAT**
The thread is in static bind processing.

**IN-COMMAND**
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

**IN-COMMIT**
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

**IN-COMT-PHS1**
The thread is in Commit phase 1 processing.

**IN-COMT-PHS2**
The thread is in Commit phase 2 processing.

**IN-CRTE-THRD**
The thread is in Create Thread processing.

**IN-DB2**
The thread is executing in DB2. A more descriptive status could not be determined.

**INDOUBT**
The thread is in doubt.

**IN-SIGNON**
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

**IN-SQL-CALL**
The thread is processing an SQL call.

**IN-SQL-SORT**
The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

**IN-STOR-PROC**
The thread is currently running in a stored procedure.

**IN-TERM-THRD**
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

**IN-TRIGGER**
The thread is currently running in a trigger.

**IN-USER-FUNC**
The thread is currently running a user-defined function.

**NOT-IN-DB2**
The thread is not currently executing in DB2.

**SP/UDF-INACT**
The thread is trying but not able to run in a stored procedure or user-defined function.

**SWAPPED-OUT**
The thread is not currently executing in DB2. The thread originating address space is swapped out.
WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

**WAIT-ACCEL**
The thread is currently waiting for claimers to be released after acquiring drain lock.

**WAIT-CLAIMER**
The thread is currently waiting for claimers to be released after acquiring drain lock.

**WAIT-CL3LOCK**
The thread is currently waiting for the completion of an identify call to the IRLM.

**WAIT-COMMIT**
The thread is waiting for the FORCE-AT-COMMIT event to complete.

**WAIT-DRNLOCK**
The thread is currently waiting to acquire drain lock.

**WAIT LOB**
The thread is currently waiting for TCP/IP to materialize a LOB.

**WAIT-LOCKLAT**
The thread is waiting for a LOCK-I/O-LATCH.

**WAIT-LOCKPIP**
The thread is currently waiting for a PIPE suspend.

**WAIT-LOCKPQS**
The thread is currently suspended for parallel task synchronization.

**WAIT-LOGQSCE**
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

**WAIT-PGLATCH**
The thread is currently waiting for page latch.

**WAIT-SP-SCHD**
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

**WAIT-SWITCH**
The thread is currently waiting for the completion of a synchronous execution switch.

**WAIT-SYNC-IO**
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

*Note:* This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

**Status Description**

**NOT-AVAIL**
The thread is not available.
IN-ABORT
The thread is in abort processing.

IN-ACCEL
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

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The thread is in dynamic bind processing.

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The thread is in static bind processing.

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SYSGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

**WAIT-SP-STOP**
The thread is queued waiting for a stopped stored procedure.

**WAIT-TERM-TH**
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

**UTIL-STOP**
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

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The thread is currently waiting for claimers to be released after acquiring drain lock.

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**WAIT-SP-SCHD**
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

**WAIT-SWITCH**
The thread is currently waiting for the completion of a synchronous execution switch.
WAIT-SYNC-IO

The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Token The thread token uniquely identifies a specific thread.

Thread Type The thread type. It can be:

- A = IMS
- B = BATCH
- C = CICS
- 0 = Unknown
- 1 = DB_Access
- 3 = SYSTEM
- 5 = UTILITY
- 6 = RRSAF
- 7 = TSO
- 9 = Allied
- 10 = WAIT_LOCKLAT

Transaction ID The transaction ID at the workstation.

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (Field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

Updates The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page that is updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2 internal Deferred Write algorithm, not immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative.

Wait Time Total class 3 wait time for a thread.

Workstation ID The end user’s workstation name. This field contains blanks if this information was not supplied by the client.

zIIP Different Speed The setting if the zIIP processor is at a different speed. Valid values are:

- Yes The zIIP processor is set to a different speed.
No The zIIP processor is set to the same speed.

**zIIP Processor** The setting to confirm that the enclave is using a zIIP processor.

Yes The enclave is using a zIIP processor.

No The enclave is not using a zIIP processor. If No then the other zIIP related fields will be N/A.

**Application Information Workspace:**

The Application Information workspace provides details on the Database Connection Services (DCS) application. You can use it for problem determination on DCS applications.

This workspace is comprised of the following views:

**Application Information (table view)**
Shows the key data for the DCS application.

**Client Information (table view)**
Shows details on the client application.

**DB2 Host (table view)**
Identifies the host database and shows how communication between the DB2 Connect gateway and the host database is established.

**Thread/Application ID (table view)**
Identifies the thread and the DCS application.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DB2 Connect Server Attributes:**
Use DB2 Connect Server attributes to create situations that monitor all active and inactive gateways.

**Agents Assigned from Pool** The number of agents assigned by an agent pool.

**Agents Created because of Empty Pool** The number of agents created because the agent pool was empty.

**Agents Registered** The number of agents registered in the database manager instance that is being monitored.

You can use this counter in conjunction with the **Agents - Agents waiting for token** counter to determine the percentage of agents waiting for a token so they can perform a transaction in the database manager. If the percentage is high, you can improve the concurrency in the database manager by increasing the MAXCAGENTS (maximum number of concurrent agents) database manager configuration parameter. This number is always greater than, or equal to, the number of local databases with current connects.

**Agents Waiting for Token** The number of agents waiting for a token so they can perform a transaction in the database manager.

You can use this counter in conjunction with the **Agents - Agents registered** counter to determine the percentage of "sleeping" agents. If the percentage is high,
you can improve the concurrency in the database manager by increasing the MAXCAGENTS (maximum number of concurrent agents) database manager configuration parameter.

**Attempted Connections for DB2 Connect** The total number of current connections initiated from remote clients to the instance of the database manager that is being monitored. It also shows the level of activity between this instance and other instances of the database manager.

**Committed Private Memory** The amount of private memory that the instance of the database manager has committed at the time of the snapshot.

You can use this counter to set the MIN_PRIV_MEM (minimum committed private memory) database manager configuration parameter to ensure you have enough private memory available. This counter is only applicable to platforms containing an agent pool, such as OS/2.

**Connection Switches** The number of the times that an agent from the agent pool was primed with a connection and was stolen for use with a different DRDA database.

**Connection Waiting for Client to Send Request** The current number of connections to the host databases that are handled by the DB2 Connect gateway and are waiting for the client to send a request.

**Connection Waiting for Host Reply** The current number of connections to the host databases that are handled by the DB2 Connect gateway and are waiting for a reply from the host.

**Current Connections** The number of applications that are currently connected to the database.

You can use this counter to understand the level of activity within a database and the amount of system resource being used. It can help you adjust the setting of the MAXAPPLS (maximum number of applications) database configuration parameter and the MAXAGENTS (maximum number of agents) database manager configuration parameter. If its value is always the same as MAXAPPLS, you may want to increase the value of MAXAPPLS. If it is always less than MAXAPPLS, you may want to increase the value of MAXAGENTS.

**DB2 ID** The DB2 subsystem ID.

**Gateway Snapshot Time** The date and time at which the database system monitor information was collected.

**Idle Agents** The number of agents in the agent pool that are currently unassigned to an application and are, therefore, idle.

**IP Address** The current IP address.

**Maximum Agent Overflows** The number of times a request to create a new agent was received when the MAXAGENTS (maximum number of agents) database manager configuration parameter had already been reached.

**Maximum Agents Registered** The maximum number of agents that the database manager has registered at the same time since it was started.
You can use this counter to evaluate your setting of the MAXAGENTS (maximum number of agents) database manager configuration parameter. The number of agents registered at the time the snapshot was taken is recorded in the Agents - Agents Registered counter.

**Maximum Agents Waiting** The maximum number of agents that have been waiting for a token at the same time since the database manager was started.

You can use this counter to evaluate your setting of the MAXCAGENTS (maximum number of concurrent agents) database manager configuration parameter. If MAXCAGENTS is set to its default value, which is -1, no agents should wait for a token and the value for this counter should be zero.

The number of agents waiting for a token at the time the snapshot was taken is recorded in the Agents Waiting for Token counter.

**Maximum Coordinating Agents** The maximum number of coordinating agents working at one time.

**MVS ID** The MVS system identifier.

**Name** The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

**Node Name** The name of the node being monitored by the database system monitor. It identifies the database server node you are monitoring.

This information can be useful if you are saving your monitor output in a file or database for later analysis and you need to differentiate the data from different database server nodes. This node name is determined based on the NNAME configuration parameter.

**Node Number** The number assigned to the node in the file with filename db2nodes and file type cfg. (db2nodes.cfg).

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Remote Connections** The current number of connections initiated from remote clients to the instance of the database manager that is being monitored.

**Remote Connections Executing in the DBM** The number of remote applications that are currently connected to a database and are currently processing a unit of work within the database manager instance being monitored.

**Server Instance Name** The name of the database manager instance for which the snapshot was taken. If a system contains more than one instance of the database manager, this name is used to uniquely identify the instance for which the snapshot call was issued. Along with configuration NNAME at monitoring (server) node, this information can be useful if you are saving your monitor output in a file or database for later analysis, and you need to differentiate the data from different instances of the database manager.

**Server Product Version ID** The product and version that is running on the server in the form pppvverm.
It provides the following information:

- *ppp* stands for SQL
- *vvv* identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- *rr* identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- *m* identifies a 1-digit modification level

**Server Status** Shows whether the server is active or inactive.

**Server Version** The version of the server returning the information.

**Sort Heap Allocated** The total number of allocated pages of sort heap space for all sorts at the level chosen and at the time the snapshot was taken.

The amount of memory allocated for each sort can be part of or the entire sort heap size available. Sort heap size is the amount of memory available for each sort as defined in the SORTHEAP database configuration parameter. It is possible for a single application to have concurrent sorts active. For example, in some cases a SELECT statement with a subquery can cause concurrent sorts. Information can be collected at two levels:

- At the database manager level, it represents the sum of sort heap space allocated for all sorts in all active databases in the database manager.
- At the database level, it represents the sum of the sort heap space allocated for all sorts in a database.

**Stolen Agents** The number of times that agents are stolen from an application. Agents are stolen when an idle agent associated with an application is reassigned to work on a different application.

**Time in DB2 Connect** For a DCS statement, this counter shows the elapsed time for processing an SQL request at a host database server. This value is reported by this server. In contrast to the **Times for sample SQL statement - Total statement time** counter, this counter does not include the network elapsed time between DB2 Connect and the host database server.

**Time in Network Connection** The total time, in seconds and microseconds, at the DB2 Connect gateway to process an application request (since the connection was established), or to process a single statement.

**Time on DB2 Host** The total time, in seconds and microseconds, that was spent executing a particular statement in the SQL cache.

**Time Stamp** The start time of this interval.

**Time Zone Displacement** The number of hours that the local time zone is displaced from Greenwich Mean Time (GMT).

**Total Inactive DRDA agents** The number of connections made by a subagent to the database at the node.

**Total Statement Time** For a DCS statement, this counter shows the elapsed time between the time the statement was sent from the DB2 Connect gateway to the host for processing and the time at which the result was received from the host.
For a DCS database or application, this counter shows the sum of the elapsed
times for all the statements that were executed for a particular application or
database.

This counter shows the sum of the values for the Times for sample SQL statement - Time in DB2 Connect and Times for sample SQL statement - Time in network connection counters.

**Buffer Pool Details Workspace:**

The Buffer Pool Details workspace provides status, threshold, and ratio details
associated with specific buffer pool activity.

This workspace is comprised of the following views:

**Ratio (table view)**
Provides thread performance details associated with the buffer pool.

**Status (table view)**
Provides "at a glance" buffer pool details, including size and page allocation information.

**Thresholds (table view)**
Lists the thread’s performance and status thresholds for the selected buffer pool.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Buffer Pool Hit Percent Random**
The random buffer pool hit percentage calculated as follows: ((# of Random Getpages - # Random Sync Read I/O) / # of Random Getpages) * 100. Valid entry ranges from 0.0 to 100.0.
**Buffer Pool Hit Percent Sequential** The sequential buffer pool hit percentage calculated as follows: \( \frac{(# \text{ of Sequential Getpages} - # \text{Getpage Fails} - \# \text{pages read from DASD})}{# \text{of Sequential Getpages} - # \text{Getpage Fails}} \times 100 \). The \# pages read from DASD is the sum of Sequential Sync Read I/O, Sequential Prefetch Pages, List Prefetch Pages, and Dynamic Prefetch Pages. Valid entry ranges from 0.0 to 100.0.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>MVS is allowed to discard data cached in the hiperpool when a shortage of expanded storage arises.</td>
</tr>
<tr>
<td>No</td>
<td>MVS is prevented from discarding data cached in the hiperpool unless expanded storage pages are reconfigured out of the system.</td>
</tr>
</tbody>
</table>

It is an alphanumeric text string, with a maximum length of four characters.

**Deferred Write Thresh** The deferred write threshold for the virtual buffer pool - DWQT. Write operations are scheduled when the percentage of unavailable pages in the virtual buffer pool exceeds this threshold in order to decrease the unavailable pages to 10% below the threshold.

**Dyn Prefetch Per IO** The ratio of dynamic prefetch requests to dynamic prefetch I/Os.

**Dyn Prefetch Per IO Extended Precision** The ratio of dynamic prefetch requests to dynamic prefetch I/Os.

**Getpages Per Syn IO** The ratio of getpage requests to read I/Os.

**GetPages Per Synchronous IO Extended Precision** The ratio of getpage requests to read I/Os.

**Interval Time** The number of seconds since last sample.

**List Prefetch Per IO** The ratio of list prefetch requests to list prefetch I/Os.

**List Prefetch Per IO Extended Precision** The ratio of list prefetch requests to list prefetch I/Os.

**Max Concur Prefetch** The highest number of concurrent prefetch I/O streams allocated to support I/O parallelism.

**Maximum Concurrent Prefetch Extended Precision** The highest number of concurrent prefetch I/O streams allocated to support I/O parallelism.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Page Reads Per Dyn Prefetch** The ratio of pages read by dynamic prefetch to dynamic prefetch requests.
**Page Reads Per Dyn Prefetch Extended Precision** The ratio of pages read by dynamic prefetch to dynamic prefetch requests.

**Page Reads Per List Prefetch** The ratio of pages read by list prefetch to list prefetch requests.

**Page Reads Per List Prefetch Extended Precision** The ratio of pages read by list prefetch to list prefetch requests.

**Page Reads Per Prefetch** The ratio of pages read by prefetch processing to total prefetch requests.

**Page Reads Per Prefetch Extended Precision** The ratio of pages read by prefetch processing to total prefetch requests.

**Page Reads Perseq Prefetch** The ratio of pages read by sequential prefetch to sequential prefetch requests.

**Page Reads Per Sequential Prefetch Extended Precision** The ratio of pages read by sequential prefetch to sequential prefetch requests.

**Page Writes Per Write IO** The ratio of page writes to physical I/Os.

**Page Writes Per Write IO Extended Precision** The ratio of page writes to physical I/Os.

**Pages In Use** The number of virtual buffer pool pages in use at the end of the interval (a snapshot value of the current number of non-stealable buffers). A non-stealable buffer is either one which has an outstanding getpage (someone is currently looking at this page) or one which has been updated and not yet written out to DASD.

**Pool ID** Buffer Pool ID.

**Prefetch Per IO** The ratio of prefetch requests to physical I/Os.

**Prefetch Per IO Extended Precision** The ratio of prefetch requests to physical I/Os.

**Sequential Prefetch Per IO** The ratio of pages read by sequential prefetch to sequential prefetch I/O.

**Sequential Prefetch Per IO Extended Precision** The ratio of pages read by sequential prefetch to sequential prefetch I/O.

**Sysplex Parallel Thresh** Parallel I/O sequential threshold - VPPSEQT. This threshold determines how much of the virtual buffer pool might be used for parallel I/O operations. It is a percentage of the VPSEQT. If set to zero, I/O parallelism is disabled.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is **CYYMMDDHHMMSSmmm** (as in 1180315064501000 for 03/15/18 06:45:01) where:

- C = Century (0 for 20th, 1 for 21st)
• Y = Year
• M = Month
• D = Day
• H = Hour
• M = Minute
• S = Second
• m = Millisecond

Use Count The number of open table spaces and index spaces in this buffer pool.

Vert Deferred Write Thresh The vertical deferred write threshold for the virtual buffer pool - VDWQT. This is the percentage of the buffer pool that might be occupied by updated pages from a single data set.

Virtual Page Steal Method Identifies the page stealing algorithm (PGSTEAL) that is used for the virtual buffer pool (DB2 field name: QDBPPGST). It controls when and whether performance-critical objects in buffer pools are removed from buffer pools when the space is needed by other objects. Possible values are:

LRU Least recently used (LRU) objects are removed first. This means it takes away pages that are not used so that more recently used pages can remain in the virtual buffer pool. This is used by default.

FIFO This results in a small decrease in the cost of a Getpage operation. It can reduce internal DB2 latch contention in environments that require very high concurrency.

NONE Objects are not removed from buffer pool (no page stealing). This setting provides the highest availability for business-critical objects.

VP Buffers Allocated The number of pages allocated to the virtual buffer pool.

VP Buffers Delete The number of pages to be deleted from an active virtual buffer pool as a result of pool contraction.

VP Parallel Sequential Thresh The parallel I/O sequential threshold - VPPSEQT. This threshold determines how much of the virtual buffer pool might be used for parallel I/O operations. It is a percentage of the VPSEQT. If set to zero, I/O parallelism is disabled.

VP Sequential Thresh The sequential steal threshold for the virtual buffer pool - VPSEQT. This is the percentage of the virtual buffer pool that might be occupied by sequentially accessed pages. If set to zero, prefetch is disabled.

VP Size The size of the virtual buffer pool.

Workfile Maximum The maximum number of work files that were allocated during sort/merge processing during the current statistics period.

Workfile Maximum Extended Precision The maximum number of work files that were allocated during sort/merge processing during the current statistics period.
Buffer Pool Management Workspace:

Buffer pools, also called virtual buffer pools, are areas of virtual storage where DB2 temporarily stores pages of table spaces or indexes.

The Buffer Pool Management workspace provides an overview of buffer pool activity. This workspace is comprised of the following views:

**Buffer Pool Management (table view)**
- Shows activity details for specific buffer pools.

**Buffer Pool Rates (bar chart)**
- Shows the rate of get page operations, read I/O operations, prefetch requests, and write I/Os performed.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DB2 SRM BPM Attributes:**
Use the DB2 SRM BPM attributes to create situations to monitor buffer pool activity.

- **Allocated Pages** The total number of pages allocated to the buffer pool: It includes pages that are currently read or updated, updated pages, and available pages.

- **Get Page Rate** The number of get page operations per second over the last interval.

- **Get Page Rate Extended Precision** The number of get page operations per second over the last interval.

- **Interval Time** The number of seconds since last sample.

- **Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

- **Pages In Use** The number of virtual buffer pool pages in use at the end of the interval (a snapshot value of the current number of non-stealable buffers): A non-stealable buffer is either one which has an outstanding Getpage (someone is currently looking at this page) or one which has been updated and not yet written out to DASD.

- **Pool ID** The buffer pool ID.

- **Prefetch Request Rate** The number of prefetch requests issued per second over the last interval.

- **Prefetch Request Rate Extended Precision** The number of prefetch requests issued per second over the last interval.
**Read IO Rate** The number of read I/O operations per second over the last interval.

**Read IO Rate Extended Precision** The number of read I/O operations per second over the last interval.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:

- **C** = Century (0 for 20th, 1 for 21st)
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- **D** = Day
- **H** = Hour
- **M** = Minute
- **S** = Second
- **m** = Millisecond

**Utilization** The percentage of the buffer pool currently in use: It is calculated as: \((\text{QBSTCBA} / \text{QBSTVPL})\times 100\) for DB2 9 and \((\text{QBSTCBA} / \text{QDBPVPSZ})\times 100\) for DB2 10 or later.

Field descriptions:

- **QBSTCBA**
  The total number of currently active (nonstealable) buffers.

- **QBSTVPL**
  The number of buffers allocated for a virtual buffer pool.

- **QDBPVPSZ**
  The size of the virtual buffer pool.

Valid entry ranges from 0 to 10000.

**VP Size** The size of the virtual buffer pool.

**Write IO Rate** The number of write I/Os performed per second over the last interval.

**Write IO Rate Extended Precision** The number of write I/Os performed per second over the last interval.

**CICS Connections Workspace:**

The CICS Connections workspace provides an overview of DB2 thread activity originating from connected CICS subsystems. It provides information on a connection level about all CICS subsystems identified to DB2.

This workspace is comprised of the following views:

**CICS Connections Summary (table view)**
Lists thread status details, including the components of the Thread Usage chart and thread utilization data.
Thread Usage (bar chart)

Shows the counts of currently active pool threads, pool threads that are waiting because the maximum has been reached, and active threads for this CICS connection (including entry and pool threads).

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 CICS Exceptions Attributes:
Use the DB2 CICS Exceptions attributes to create situations to monitor thread activity originating from connected CICS subsystems.

CICS ID The job name of the CICS region connected to this DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

CICS Release The enumerated value for the CICS release of the CICS region connected to this DB2 system.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Pool Thread Maximum The maximum number of pool threads that are allowed.

Pool Thread Utilization The utilization of pool threads based on the current pool thread in use count divided by the maximum allowed pool threads.

Pool Thread Waits The count of pool threads that are waiting because the maximum has been reached.

Pool Threads In Use The count of pool threads that are currently active.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 118031506450100 for 03/15/18 06:45:01) where:

- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

Total Thread Utilization The utilization of threads based on the current total threads in use divided by the maximum allowed threads.

Total Threads In Use The count of active threads for this CICS connection (including both entry and pool threads).
**Total Threads Maximum** The maximum number of threads that can be used concurrently for this CICS connection (entry plus pool threads).

**CICS Threads Workspace:**

The CICS Threads workspace provides data to monitor DB2 thread activity originating from connected CICS subsystems.

This workspace is comprised of the following views:

**CICS Threads (table view)**
Identifies and measures thread activity from the CICS region.

**Thread Counts (bar chart)**
Shows "at a glance" counts of entry threads in use, entry threads waiting, and pool thread overflow.

**Note:** This workspace is available only when at least one thread is active from the CICS region.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DB2 CICS Threads Attributes:**
Use the DB2 CICS Threads attributes to create situations to monitor DB2 thread activity originating from connected CICS subsystems.

**CICS ID** The job name of the CICS region connected to this DB2 system.
It is an alphanumeric text string, with a maximum length of eight characters.

**CICS Release** The enumerated value for the CICS release of the CICS region connected to this DB2 system.

**Entry Thread Waiting** The count of threads waiting because the maximum entry thread limit has been reached.

**Entry Threads In Use** The count of active entry threads for this plan and transaction within the CICS region.

**Entry Threads Utilization** The percentage of total entry threads allowed for this plan.

**Maximum Entries** The cap on the number of entry threads allowed for this plan.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Plan Name** The name of the DB2 plan being executed by this CICS region. It is an alphanumeric text string, with a maximum length of eight characters.

**Pool Thread Overflow** The number of threads for this plan and transaction that is being executed on a thread from the global pool.
**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is `CYYMMDDHHMMSSmmm` (as in `1180315064501000` for `03/15/18 06:45:01`) where:
- **C** = Century (0 for 20th, 1 for 21st)
- **Y** = Year
- **M** = Month
- **D** = Day
- **H** = Hour
- **M** = Minute
- **S** = Second
- **m** = Millisecond

**Transaction ID** The ID for the transaction currently being executed for the plan. It is an alphanumeric text string, with a maximum length of four characters.

**CICS Thread Summary Workspace:**

The CICS Thread Summary workspace provides an overview for threads originating from CICS.

This workspace is comprised of the following views:

- **CICS Thread Summary (table view)**
  Shows summary information for the CICS threads.

- **In-DB2-CPU Time (bar chart)**
  Shows the class 2 CPU time (in DB2) for CICS threads.

- **In-DB2 Time (bar chart)**
  Shows the class 2 elapsed time (in DB2) for CICS threads.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace”
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
Common Storage Workspace:

The Common Storage workspace provides an overview of the common storage above and below the 2 GB bar. You can view this information if DB2 10 is installed.

This workspace is comprised of the following views:
- Common Storage Below 2 GB (table view)
- Common Storage Above 2 GB (table view)
- MVS LPAR Shared Storage Above 2 GB
- DB2 Subsystem Shared Storage Above 2 GB
- DB2 Subsystem Shared Variable Storage Above 2 GB

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can use the navigation links in the MVS LPAR Shared Storage Above 2 GB view to open:
- "MVS Storage Above 2 GB Workspace" on page 750
- "MVS Storage Below 2 GB Workspace" on page 750

DB2 CICS Threads Attributes:

Use the DB2 CICS Threads attributes to create situations to monitor DB2 thread activity originating from connected CICS subsystems.

- **CICS ID** The job name of the CICS region connected to this DB2 system. It is an alphanumeric text string, with a maximum length of eight characters.

- **CICS Release** The enumerated value for the CICS release of the CICS region connected to this DB2 system.

- **Entry Thread Waiting** The count of threads waiting because the maximum entry thread limit has been reached.

- **Entry Threads In Use** The count of active entry threads for this plan and transaction within the CICS region.

- **Entry Threads Utilization** The percentage of total entry threads allowed for this plan.

- **Maximum Entries** The cap on the number of entry threads allowed for this plan.

- **Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

- **Plan Name** The name of the DB2 plan being executed by this CICS region. It is an alphanumeric text string, with a maximum length of eight characters.
Pool Thread Overflow The number of threads for this plan and transaction that is being executed on a thread from the global pool.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMDDHHMMSSmmm (as in 118031506450100 for 03/15/18 06:45:01) where:
- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

Transaction ID The ID for the transaction currently being executed for the plan. It is an alphanumeric text string, with a maximum length of four characters.

All Threads Attributes:
Use the All Threads attributes to create situations to monitor thread activity including DB2 thread activity that originates from connected IMS or CICS subsystems.

Ace Address The DB2 thread ACE address for internal use.

Agent Address The address of the agent in DB2 associates all processes that are involved in a DB2 unit of work.

AGNT ASID The address space ID (ASID) of the agent.

Agent TCB Address The z/OS Task Control Block that is associated with this DB2 thread.

Authorization ID The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Authorization ID (Unicode) The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Begin Time Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and ims wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

Bytes Sent The number of bytes of data sent to the requester location.
**Cancel Command** The command string needed to cancel a thread. You can use Take Action with this attribute to cancel a thread: The format is "src CANCEL THREAD(nnnnnn)", where src is the subsystem recognition character and nnnnnn is the thread token.

**CICS MVS ID** The CICS MVS ID.

**Collection ID** This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 18 characters.

**Collection ID (Unicode)** The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

**Commits** The number of successful phase 2 or single-phase commit (sync) requests. Valid value is an integer in the range 0-999 commits.

**All Thread Attributes** Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**All Thread Attributes** The type of connection associated with the thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Conversations** The number of conversations that were initiated from the requester location.

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters. For example: DLKEX212.

**CP CPU Rate** The central processor CPU rate.

**Current Period** The service class period number in goal mode.
**Database Access CPU** The database access agent CPU time. This value is calculated by accumulating the amount of CPU time spent by the database access thread at the DB2 server each time a request message is processed.

**Database Access Time** The timestamp of last send or receive in distributed database access.

**DB2 ID** The DB2 subsystem ID.

**DB2 Status** The current DB2 status of the thread. It is an alphanumeric text string, with a maximum length of 12 characters.

Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT-AVAIL</td>
<td>The thread is not available.</td>
</tr>
<tr>
<td>IN-ABORT</td>
<td>The thread is in abort processing.</td>
</tr>
<tr>
<td>IN-ACCEL</td>
<td>The thread is executing on IBM DB2 Analytics Accelerator for z/OS.</td>
</tr>
<tr>
<td>IN-AUTO-PROC</td>
<td>The thread is processing an autonomous procedure.</td>
</tr>
<tr>
<td>IN-BIND-DYNM</td>
<td>The thread is in dynamic bind processing.</td>
</tr>
<tr>
<td>IN-BIND-STAT</td>
<td>The thread is in static bind processing.</td>
</tr>
<tr>
<td>IN-COMMAND</td>
<td>Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)</td>
</tr>
<tr>
<td>IN-COMMIT</td>
<td>The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).</td>
</tr>
<tr>
<td>IN-COMT-PHS1</td>
<td>The thread is in Commit phase 1 processing.</td>
</tr>
<tr>
<td>IN-COMT-PHS2</td>
<td>The thread is in Commit phase 2 processing.</td>
</tr>
<tr>
<td>IN-CRTE-THRD</td>
<td>The thread is in Create Thread processing.</td>
</tr>
<tr>
<td>IN-DB2</td>
<td>The thread is executing in DB2. A more descriptive status could not be determined.</td>
</tr>
<tr>
<td>INDOUBT</td>
<td>The thread is in doubt.</td>
</tr>
<tr>
<td>IN-SIGNON</td>
<td>The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.</td>
</tr>
</tbody>
</table>
IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.
WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT-LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.
WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Distributed Allied Elapsed Time The elapsed time for this thread executing on distributed host.

Elapsed Time The total amount of elapsed time since thread creation or DB2 sign-on. Valid value is an integer in the range 0-99999999 seconds.

Elapsed Per Commit The average amount of elapsed time for each database commit performed.

Enclave CP CPU Time The central processor CPU time used by each thread that is associated with an enclave token.

Enclave CPU Time The enclave CPU time.

Enclave Token The ID assigned by the z/OS workload manager for this enclave. A z/OS enclave lets each thread have its own performance objective. Using z/OS workload management (WLM) support, you can establish z/OS performance objectives for individual DDF server threads.

Enclave Token Unused This field is unused.

End User ID The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (Field name: QWHCEUID).

Get Page The number of getpage requests. This field counts successful requests for pages for queries that are processed in parallel and both successful and unsuccessful requests for pages for queries that are not processed in parallel. Valid value is an integer in the range 0-999999 pages.

Get Page 64 The number of getpage requests. This field counts successful requests for pages for queries that are processed in parallel and both successful and
unsuccessful requests for pages for queries that are not processed in parallel. Valid value is an integer in the range 0-999999999 pages.

**Get Page Per Read** The ratio of requested pages that resulted in actual I/O versus being found in a buffer. The read I/O count divided by Get Page count.

**Get Page Per Read 64** The ratio of requested pages that resulted in actual I/O versus being found in a buffer. The read I/O count divided by Get Page count.

**IIP CPU** The accumulated CPU time consumed while executing on an IBM zIIP in all environments.

**IIP In-DB2 CPU** The amount of time that the In DB2 CPU has been running on a zIIP processor.

**In DB2 IIP CPU** The total amount of CPU time that DB2 has accumulated for a thread in the zIIP processor. Valid value is an integer in the range 0-999999999 seconds.

**In DB2 CP CPU Time** The CP CPU time accumulated in DB2 when the SQL statement exit from DB2.

**In DB2 Per Commit** The average amount of in-DB2 CPU time used between each commit.

**In DB2 Time** The elapsed time accumulated in DB2 when the SQL statement exit from DB2.

**Interval Start** The start time of the interval.

**Job Name** The job name that is associated with a thread.

**Local Elapsed Time** The elapsed time, in tenths of a second, for local thread (in units that represent tenths of seconds).

**Location** The requesting location.

**Location (Unicode)** The requesting location.

**Logical Unit Name** The LUNAME of the connection to the remote DB2 system.

**Messages Sent** The number of messages sent to remote location.

**MVSID** The MVS system identifier.

**Original Authorization ID** The DB2 original Authorization ID of the thread. It is an alphanumeric text string, with a maximum length of 8 characters.

**Original Authorization ID (Unicode)** The DB2 original Authorization ID of the thread. It is an alphanumeric text string, with a maximum length of 8 characters.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.
**Package Name** Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

**Package Name (Unicode)** Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

**Parallel Indicator** The thread parallelism indicator. Valid values are:

- *: Indicates that this thread is a parallel task initiated for another (originating) thread to process a query request in parallel.
- O: Indicates that this thread is the originating thread that invoked autonomous procedures.
- P: Indicates that this thread is the parent, or originating thread, of the parallel tasks created to process a query request in parallel. The activity performed for this (originating) thread is reflected under the parallel tasks.
- X: Indicates that this thread is a parallel task initiated for another (originating) thread on another DB2 for SYSPLEX parallelism.

**Parent Ace** The token used to correlate parallel task or utility subtask records with the records of the originating task or main utility task. For a record that is issues from a parallel task or utility subtask this field contains a token that is equal to the agent control element (ACE) of the originating task or main utility task. Otherwise, the value in this field is zero.

**Performance Index** This field is related to the z/OS Workload manager. A Performance Index less than one is an indication that the goal for this service class period is being exceeded. The service class period may be considered as a "donor", giving up CPU or pageable storage for other more important service class periods on the system. A Performance Index greater than one is an indication that the goal for this service class period is not being met. Depending on the importance, this Service class period may be considered for additional services to meet the defined goal.

**Plan** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Prefetch Requests** The number of prefetch requests issued per second over the last interval.

**Remote CPU** The database access agent CPU time at the remote location.

**Remote Elapsed** The elapsed database access agent time at the remote location.

**Request Type** The request type for a ALL THREAD related workspaces. Internal use only.

**Rows Sent** The number of rows of data sent to the requester location.

**Service Class** The service class name associated with this address space.
**SQL Calls Sent** The number of SQL statement sent to the server.

**SQL Received** The number of SQL statements received from the requester.

**Sync Reads** The number of synchronous reads per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

**Synchronous Read I/O Rate** The thread synchronous read I/O rate.

**Thread Status** The current status of a thread.

Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT-AVAIL</td>
<td>The thread is not available.</td>
</tr>
<tr>
<td>IN-ABORT</td>
<td>The thread is in abort processing.</td>
</tr>
<tr>
<td>IN-ACCEL</td>
<td>The thread is executing on IBM DB2 Analytics Accelerator for z/OS.</td>
</tr>
<tr>
<td>IN-AUTO-PROC</td>
<td>The thread is processing an autonomous procedure.</td>
</tr>
<tr>
<td>IN-BIND-DYNM</td>
<td>The thread is in dynamic bind processing.</td>
</tr>
<tr>
<td>IN-BIND-STAT</td>
<td>The thread is in static bind processing.</td>
</tr>
<tr>
<td>IN-COMMAND</td>
<td>Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)</td>
</tr>
<tr>
<td>IN-COMMIT</td>
<td>The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).</td>
</tr>
<tr>
<td>IN-COMT-PHS1</td>
<td>The thread is in Commit phase 1 processing.</td>
</tr>
<tr>
<td>IN-COMT-PHS2</td>
<td>The thread is in Commit phase 2 processing.</td>
</tr>
<tr>
<td>IN-CRTE-THRD</td>
<td>The thread is in Create Thread processing.</td>
</tr>
<tr>
<td>IN-DB2</td>
<td>The thread is executing in DB2. A more descriptive status could not be determined.</td>
</tr>
<tr>
<td>INDOUBT</td>
<td>The thread is in doubt.</td>
</tr>
<tr>
<td>IN-SIGNON</td>
<td>The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.</td>
</tr>
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</table>
IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call's request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
• Inter-system communication within the data sharing group to determine if there is lock contention.
• A lock held by another subsystem in the data sharing group.
WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.
WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSC
The thread is currently suspended because of an ARCHIVE LOG MODE (QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

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Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Token The thread token uniquely identifies a specific thread.

Thread Type The thread type. It can be:
A = IMS
B = BATCH
C = CICS
0 = Unknown
1 = DB_Access
3 = SYSTEM
5 = UTILITY
6 = RRSAF
7 = TSO
9 = Allied
10 = WAIT_LOCKLAT
**Transaction ID** The transaction ID at the workstation.

**Uniqueness Value** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (Field name: QWHLUUV).

**Uniqueness Value 2** The DB2 thread uniqueness value. For internal use.

**Updates** The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page that is updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2 internal Deferred Write algorithm, not immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative.

**Wait Time** Total class 3 wait time for a thread.

**Workstation ID** The end user’s workstation name. This field contains blanks if this information was not supplied by the client.

**zIIP Different Speed** The setting if the zIIP processor is at a different speed. Valid values are:

- **Yes** The zIIP processor is set to a different speed.
- **No** The zIIP processor is set to the same speed.

**zIIP Processor** The setting to confirm that the enclave is using a zIIP processor.

- **Yes** The enclave is using a zIIP processor.
- **No** The enclave is not using a zIIP processor. If No then the other zIIP related fields will be N/A.

**DB2 Memory Attributes:**
Use the attributes to view the DB2 memory for the database address space (DBM1 or DIST).

**4-Bit Aux Frames Shared Stack** Identifies the number of auxiliary slots (4K) in use for 64-bit shared stack storage. This is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out (DB2 field name: QW0225ShrStkStg_Aux). This field is available in z/OS 1.10 (and maintenance) or later.

**Shared stack storage (MB)** Identifies the number of real-storage frames (4K) in use for 64-bit shared stack storage. This is recorded at the subsystem level (DB2 field name: QW0225ShrStkStg_Real). This field is available in z/OS 1.10 (and maintenance) or later.

**64-Bit Shared Storage (MB)** Identifies the number of 64-bit shared memory pages allocated for this MVS LPAR (this count includes hidden pages) (DB2 field name: QW0225SHRPAGES).

**Active and Disconnect DBATs** Identifies the number of active and disconnected DBAT threads (DB2 field name: QW0225DB).
**Active Threads** Identifies the number of active allied threads (DB2 field name: QW0225AT).

**Average Thread Footprint 64-bit common real** Shows the current average real storage in use for common storage of active user threads (allied threads + active and pooled DBATs).

**Average Thread Footprint (MB)** Shows the current average real storage in use for subsystem shared storage of active user threads (allied threads + active and pooled DBATs).

**Agent Local Storage (MB)** The amount of storage, in MB, allocated for agent-related local storage (DB2 field name: QW0225AL). This storage is used for operations such as sort. Valid value is an integer in the range 0 - 9999999. This field includes the total agent local storage (31-bit DBM1 private variable pools) and total agent local storage (64-bit shared variable pools).

**Agent System Storage (MB)** Identifies the storage used by system agents (DB2 field name: QW0225AS). This field includes the total system agent storage (31-bit DBM1 private variable pools) and the total system agent storage (64-bit shared variable pools).

**Aux Storage Used 64-Bit shared (MB)** Shows the amount of auxiliary storage used for 64-bit shared storage for this MVS LPAR (including reserved auxiliary slots for pages that are paged in).

**Aux Stg In Use 64-Bit Common (MB)** Shows the number of auxiliary slots (4K) in use for 64-bit common storage. This is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out (DB2 field name: QW0225ComStg_Aux). This field is available in z/OS 1.10 (and maintenance) or later.

**Auxiliary Slots Used Shared Storage 64 Bit** Shows the number of auxiliary slots used for 64-bit shared storage for this MVS LPAR (DB2 field name: QW0225SHRAUXSLOTS).

**Auxiliary Storage in use (MB)** Shows the number of 4 KB auxiliary slots that are used for 64-bit shared stack storage. This value is recorded at the subsystem level. It includes only auxiliary slots that are occupied by pages that are page out. This field is available in z/OS 1.10 (and maintenance) or later.

**Buffer Manager Storage Control Blocks (MB)** Identifies the total storage used for page set control blocks (DB2 field name: QW0225BB).

**Castout Engines** Identifies the number of engines available for data-sharing castout processing (DB2 field name: QW0225CE).

**Common Fixed Pool Above (MB)** Identifies the amount of storage allocated for 64-bit common fixed pool storage (DB2 field name: QW0225FCG).

**Common Fixed Pool Below (MB)** Identifies the amount of storage allocated for 31-bit common fixed pool storage (DB2 field name: QW0225FC).

**Common Getmained Above (MB)** Identifies the amount of storage allocated for 64-bit common getmained storage (DB2 field name: QW0225GCG).
Common Getmained Below (MB) Identifies the amount of storage allocated for 31-bit common getmained storage (DB2 field name: QW0225GC).

Common Storage Manager Control Block Above (MB) Identifies the amount of storage allocated for 64-bit common storage for storage manager control structures (DB2 field name: QW0225SMC).

Common Variable Pool Above (MB) Shows the amount of storage allocated for 64-bit common variable pool storage (DB2 field name: QW0225VCG).

Common Variable Pool Below (MB) Identifies the amount of storage allocated for 31-bit common variable pool storage (DB2 field name: QW0225VC).

Compression Dictionary Identifies the storage space allocated for the compression dictionary (DB2 field name: QW0225CD).

Data Sharing Group The name of the DB2 data sharing group. It is an alphanumeric text string with a maximum of 8 characters.

Data Sharing Member The name of the DB2 data sharing member or the member name of the DB2 subsystem. It is an alphanumeric text string with a maximum of 8 characters.

DB2 Subsystem The name of the DB2 subsystem.

DB2 Version The version of the DB2 system.

Deferred Write Engines Identifies the number of engines used for deferred write operations (DB2 field name: QW0225DW).

Dynamic Statement Cache Control Block (MB) Identifies the amount of storage used for dynamic statement cache control blocks above the 2 GB bar (DB2 field name: QW0225S2).

Extended CSA Size (MB) Identifies the size of the common storage area (CSA) above the 16 MB line (DB2 field name: QW0225EC).

GBP Write Engines Identifies the number of engines for group buffer pool writes (DB2 field name: QW0225GW).

HWM 64-Bit Shared Storage (MB) Identifies the high water mark number of 64-bit shared bytes for this MVS LPAR (DB2 field name: QW0225SHRGBYTES).

HWM Requested Non Shr Dyn SQL (MB) Shows statistics interval high-water mark (HWM) of requested non-shareable storage for dynamic SQL statements used by active threads. For DB2 10 or later, this value is related to shared agent local variable pools above the bar.

HWM Shr Dyn SQL (MB) Identifies the statistics interval high-water mark (HWM) of requested shareable storage for dynamic SQL statements used by active threads.

Interval Start The start time of this interval.
IRLM Current used 31-bit private  Shows the total amount of 31-bit private storage that is currently in use by Internal Resource Lock Manager (IRLM) pools (DB2 field name: QW0225I_BBPVT). This value is the total of all 31-bit IRLM private pools.

It can show the following values:

N/A  Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
  • A counter is not available in one DB2 version.
  • Counters are mutually exclusive.

N/C  Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
  • A divide by zero (percentages, ratios).
  • Suppression of negative elapsed time values.
  • Required counter values for calculation marked as N/A or N/P.
  • Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P  Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
  • When counter values are not generated because of operational conditions (a trace class is not active).
  • An application does not provide a value because it is optional.

IRLM Current used 64-bit common  Shows the total amount of 64-bit common storage that is currently in use by Internal Resource Lock Manager (IRLM) pools (DB2 field name: QW0225I_ABCSA). This value is the total of all 64-bit common IRLM pools.

It can show the following values:

N/A  Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
  • A counter is not available in one DB2 version.
  • Counters are mutually exclusive.

N/C  Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
  • A divide by zero (percentages, ratios).
  • Suppression of negative elapsed time values.
  • Required counter values for calculation marked as N/A or N/P.
  • Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

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  • When counter values are not generated because of operational conditions (a trace class is not active).
  • An application does not provide a value because it is optional.

IRLM Current used 64-bit private  Shows the total amount of 64-bit private storage in use by Internal Resource Lock Manager (IRLM) pools (DB2 field name: QW0225I_ABPVT).
It can show the following values:

**N/A**  Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
  - A counter is not available in one DB2 version.
  - Counters are mutually exclusive.

**N/C**  Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
  - A divide by zero (percentages, ratios).
  - Suppression of negative elapsed time values.
  - Required counter values for calculation marked as N/A or N/P.
  - Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

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  - When counter values are not generated because of operational conditions (a trace class is not active).
  - An application does not provide a value because it is optional.

**IRLM Current used ECSA** Shows the total amount of Extended Common Service Area (ECSA) storage in use by Internal Resource Lock Manager (IRLM) pools.

It can show the following values:

**N/A**  Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
  - A counter is not available in one DB2 version.
  - Counters are mutually exclusive.

**N/C**  Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
  - A divide by zero (percentages, ratios).
  - Suppression of negative elapsed time values.
  - Required counter values for calculation marked as N/A or N/P.
  - Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

**N/P**  Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
  - When counter values are not generated because of operational conditions (a trace class is not active).
  - An application does not provide a value because it is optional.

**IRLM ECSA high water mark** Shows the high water mark of Extended Common Service Area (ECSA) storage allocated by Internal Resource Lock Manager (IRLM) pools.

It can show the following values:

**N/A**  Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
  - A counter is not available in one DB2 version.
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N/C  Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
  • A divide by zero (percentages, ratios).
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N/P  Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
  • When counter values are not generated because of operational conditions (a trace class is not active).
  • An application does not provide a value because it is optional.

IRLM HWM for 31-bit private (MB)  Shows the high water mark of 31-bit private storage that has been in use (DB2 field name: QW0225I_BBPVH). This value is the total amount of all 31-bit private IRLM pools.

It can show the following values:

N/A  Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
  • A counter is not available in one DB2 version.
  • Counters are mutually exclusive.

N/C  Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
  • A divide by zero (percentages, ratios).
  • Suppression of negative elapsed time values.
  • Required counter values for calculation marked as N/A or N/P.
  • Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P  Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
  • When counter values are not generated because of operational conditions (a trace class is not active).
  • An application does not provide a value because it is optional.

IRLM HWM for 64-bit common (MB)  Shows the high water mark of 64-bit common storage that has been in use. This value is the total of all 64-bit common IRLM pools (DB2 field name: QW0225I_ABCSH).

It can show the following values:

N/A  Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
  • A counter is not available in one DB2 version.
  • Counters are mutually exclusive.

N/C  Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
  • A divide by zero (percentages, ratios).
  • Suppression of negative elapsed time values.
KD2_PF_READA_SPMON

- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
  - When counter values are not generated because of operational conditions (a trace class is not active).
  - An application does not provide a value because it is optional.

IRLM HWM for 64-bit private Shows the high water mark of 64-bit private storage allocated by IRLM pools (DB2 field name: QW0225I_ABPVH).

It can show the following values:

N/A Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
  - A counter is not available in one DB2 version.
  - Counters are mutually exclusive.

N/C Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
  - A divide by zero (percentages, ratios).
  - Suppression of negative elapsed time values.
  - Required counter values for calculation marked as N/A or N/P.
  - Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
  - When counter values are not generated because of operational conditions (a trace class is not active).
  - An application does not provide a value because it is optional.

IRLM Threshold virtual 31-Bit Shows the threshold of 31-bit virtual storage available for normal IRLM execution. Only requests for storage by "must complete" tasks will be granted if this threshold is exceeded (DB2 field name: QW0225I_BPMAX).

It can show the following values:

N/A Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
  - A counter is not available in one DB2 version.
  - Counters are mutually exclusive.

N/C Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
  - A divide by zero (percentages, ratios).
  - Suppression of negative elapsed time values.
  - Required counter values for calculation marked as N/A or N/P.
  - Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).
N/P Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:

- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

IRLM Threshold virtual 64-Bit Shows the threshold of 64-bit virtual storage available for normal IRLM execution. Only requests for storage by "must complete" tasks will be granted if this threshold is exceeded.

It can show the following values:

N/A Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:

- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

N/C Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:

- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:

- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

Log Manager Control frames Aux (MB) The number of frames in auxiliary storage that are being used for log manager control structures.

Log Manager Control frames REAL (MB) The number of frames in real storage that are being used for log manager control structures.

Log Manager Wrt buff frames REAL (MB) The number of frames in real storage that are being used for log manager write buffers.

MVS System ID The MVS system identifier.

Number of active parallel child threads Shows the number of active parallel child threads.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

P-Lock Notify Exit Engines Identifies the number of data sharing P-Lock engines and Notify Exit engines (DB2 field name: QW0225PL).

Prefetch Engines Identifies the number of engines used for sequential, list, and dynamic prefetch (DB2 field name: QW0225PF).
RID Pool Storage (MB) Identifies the storage for RID list processing such as list prefetch, index ANDing and ORing (DB2 field name: QW0225RP).

Real Frames Common 64-Bit Identifies the number of real-storage frames (4K) in use for 64-bit common storage. This is recorded at the subsystem level (DB2 field name: QW0225ComStg_Real). This field is available in z/OS 1.10 (and maintenance) or later.

Real Storage in use (MB) Shows the total amount of real storage in use for 64-bit shared storage. This is recorded at the subsystem level. This field is available in z/OS 1.10 (and maintenance) or later.

Shared Agent Local Storage (MB) Shows the amount of storage allocated for agent-related 64-bit local storage (DB2 field name: QW0225ALG).

Shared Agent Non-System Storage (MB) Shows the amount of 64-bit storage used by non-system agents. It is the difference between the Total Agent Local Storage (DB2 field name: QW0225ALG) and the Total Agent System Storage (DB2 field name: QW0225ASG).

Shared Agent System Storage (MB) Shows the amount of 64-bit storage used by system agents (DB2 field name: QW0225ASG).

Shared Fixed Storage 64-bit (MB) Identifies the amount of total fixed virtual shared storage above the 2 GB bar (DB2 field name: QW0225SF).

Shared Getmained Storage (MB) Identifies the amount of virtual shared storage acquired by GETMAIN above the 2 GB bar (DB2 field name: QW0225SG).

Shared Memory Objects Identifies the number of shared memory objects allocated for this MVS LPAR (DB2 field name: QW0225SHRNMOB).

Shared Non-System Agent Stack Storage (MB) Shows the amount of 64-bit shared storage allocated for non-system agent stack use.

Shared Non-System Agent Stack Storage in Use (MB) Shows the amount of 64-bit shared non-system agent stack that is in use.

Shared Pages Backed in Real Storage 64 Bit Shows the number of 64-bit shared pages backed in real storage (4K pages) for this MVS LPAR (DB2 field name: QW0225SHRINREAL).

Shared Pages Paged In from Aux Storage 64 Bit Identifies the number of 64-bit shared pages paged in from auxiliary storage for this MVS LPAR (DB2 field name: QW0225SHRPAGEINS).

Shared Pages Paged Out from Auxiliary Storage 64 Bit Shows the number of 64-bit shared pages paged out to auxiliary storage for this MVS LPAR (DB2 field name: QW0225SHRPAGEOUTS).

Shared System Agent Stack Storage (MB) Shows the amount of 64-bit shared storage allocated for system agent stack use.

Shared Storage Manager Control Block (MB) Shows the amount of 64-bit shared storage allocated for storage manager control structures.
**Shared Variable Storage (MB)** Identifies the amount of virtual shared variable storage above the 2 GB bar (DB2 field name: QW0225SV).

**Stack Storage In Use (MB)** Shows the amount of 64-bit shared system agent stack that is in use.

**Shared thread and system (MB)** Shows the number of real-storage frames (4K) in use for 64-bit shared storage. This does not include shared stack storage (DB2 field name: QW0225ShrStg_Real). This is recorded at the subsystem level. This field is available in z/OS 1.10 (and maintenance) or later.

**Subsystem 64-bit Shared Thd and Sys** Shows the number of auxiliary slots (4K) in use for 64-bit shared storage. This does not include shared stack storage (DB2 field name: QW0225ShrStg_Aux). This is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out. This field is available in z/OS 1.10 (and maintenance) or later.

**Thread Copies of Cached SQL Date at HWM** Identifies the timestamp at high-water storage (DB2 field name: QW0225HT).

**Thread Copies of Cached SQL Statement Count** Identifies the number of statements in the local cache storage pool (DB2 field name: QW0225LC).

**Thread Copies of Cached SQL Statement Count at HWM** Identifies the number of statements in the local cache storage pool at high storage time (DB2 field name: QW0225HC).

**Total Agent Non-System Storage (MB)** Shows the total Agent Non-System Storage. It is the difference between the Total Agent Local Storage (QW0225AL) and the Total Agent System Storage (QW0225AS).

**Total Alloc Shr Static SQL (MB)** Identifies the total shareable storage allocated for static SQL statements.

**Total Allocated Shareable Storage for dynamic (MB)** Identifies the total shareable storage allocated for dynamic SQL statements used by active threads.

**Total Requested Non Shr Dyn SQL (MB)** Identifies the total non-shareable storage requested for dynamic SQL statements used by active threads. For DB2 10 or later, this value is related to shared agent local variable pools above the bar.

**Total Requested Shr Dyn SQL (MB)** Identifies the total shareable storage requested for dynamic SQL statements used by active threads.

**MVS Storage Attributes:**
Use the MVS Storage attributes to view the system storage sizes. This information is provided with DB2 10.

**24 Bit High Private (MB)** Identifies the amount of private MVS storage below the 16 MB line (DB2 field name: QW0225HI). This storage is obtained from top downward, usually for authorized programs.

**24 Bit Low Private (MB)** Identifies the amount of private MVS storage below the 16 MB line (DB2 field name: QW0225LO). This storage is obtained from bottom upward, usually for unauthorized programs.
31 Bit Extended High Private (MB) Identifies the amount of private MVS storage above the 16 MB line (DB2 field name: QW0225EH). This storage is obtained from top downward, usually for authorized programs.

31 Bit Extended Low Private (MB) Identifies the amount of private MVS storage above the 16 MB line (DB2 field name: QW0225EL). This storage is obtained from bottom upward, usually for unauthorized programs.

Active and Disconnect DBATs Identifies the number of active and disconnected DBAT threads (DB2 field name: QW0225DB).

Active Threads Identifies the number of active allied threads (DB2 field name: QW0225AT).

Address Space Name Shows the address space name (DBM1 or DIST) (DB2 field name: QW0225AN).

Agent Local Storage (MB) Identifies the amount of storage allocated for agent-related local storage (DB2 field name: QW0225AL). This storage is used for operations such as sort.

Agent Non-System Storage (MB) Identifies the total agent non-system storage. It is the difference between the Total Agent Local Storage (QW0225AL) and the Total Agent System Storage (QW0225AS).

Agent System Storage (MB) Identifies the storage used by system agents (DB2 field name: QW0225AS).

Auxiliary 4K Slot in Use 31 Bit Identifies the number of auxiliary slots (4K) in use by DBM1 (DB2 field name: QW0225AX).

Auxiliary 4K Slot in Use 64 Bit Identifies the number of auxiliary 4K slots in use for 64-bit private pools (DB2 field name: QW0225HVAuxSlots). This value is available from z/OS 1.11.

Auxiliary Slots Used Shared Storage 64 Bit Identifies the number of auxiliary slots used for 64-bit shared storage for this MVS LPAR (DB2 field name: QW0225SHRAUXSLOTS).

Auxiliary Storage in Use (MB) Identifies the number of auxiliary slots (4K) in use by DBM1 (DB2 field name: QW0225AX).

Avg Thread Footprint (MB) The current average memory usage of active allied threads and the maximum number of existing active DBATs. Valid value is an integer.

It is calculated as follows:

\[
\frac{\text{(total variable storage)} - \text{(total agent system storage)} - \text{(amount of storage allocated for the local cache storage pool)}}{\text{[(active allied threads) + (active DBATs)]}}
\]

Average Thread Footprint (MB) The current average memory usage of active allied threads and the maximum number of existing active DBATs. It is an alphanumeric text string with a maximum of 10 characters.
It is calculated as follows:

\[
([\text{total variable storage}] - [\text{total agent system storage}] - [\text{amount of storage allocated for the local cache storage pool}]) \\
/ ([\text{active allied threads}] + [\text{active DBATs}])
\]

**Buffer Manager Data Manager Trace Table (MB)** Identifies the storage used for Buffer Manager and Data Manager internal trace tables (DB2 field name: QW0225TT).

**Buffer Manager Storage Control Blocks (MB)** Identifies the storage used for page set control blocks (DB2 field name: QW0225BB).

**Castout Buffers (MB)** Identifies the storage used for castout buffers (DB2 field name: SW0225C2).

**Castout Engines** Identifies the number of engines available for data-sharing castout processing (DB2 field name: QW0225CE).

**Common Fixed Pool Above (MB)** Identifies the amount of storage allocated for 64-bit common fixed pool storage (DB2 field name: QW0225FCG).

**Common Fixed Pool Below (MB)** Identifies the amount of storage allocated for 31-bit common fixed pool storage (DB2 field name: QW0225FC).

**Common Getmained Above (MB)** Identifies the amount of storage allocated for 64-bit common getmained storage (DB2 field name: QW0225GCG).

**Common Getmained Below (MB)** Identifies the amount of storage allocated for 31-bit common getmained storage (DB2 field name: QW0225GC).

**Common Storage Manager Control Block Above (MB)** Identifies the amount of storage allocated for 64-bit common storage for storage manager control structures (DB2 field name: QW0225SMC).

**Common Variable Pool Above (MB)** Identifies the amount of storage allocated for 64-bit common variable pool storage (DB2 field name: QW0225VCG).

**Common Variable Pool Below (MB)** Identifies the amount of storage allocated for 31-bit common variable pool storage (DB2 field name: QW0225VC).

**Compression Dictionary** Identifies the storage space allocated for the compression dictionary (DB2 field name: QW0225CD).

**Current Private High Addr 24 Bit** Identifies the current high address of the 24-bit private region (DB2 field name: QW0225TP). It indicates the highest value (upper limit) of the private area of the DB2 database address space and the private area of the distributed data address space.

**Current Private High Addr 31 Bit** Identifies the current high address of the 31-bit private region (DB2 field name: QW0225EP).

**DB2 ID** Identifies the DB2 ID.

**DB2 Version** The version of the DB2 system.
Deferred Write Engines Identifies the number of engines used for deferred write operations (DB2 field name: QW0225DW).

Dynamic Statement Cache Control Block (MB) Identifies the amount of storage used for dynamic statement cache control blocks above the 2 GB bar (DB2 field name: QW0225S2).

Extended CSA Size (MB) Identifies the size of the common storage area (CSA) above the 16 MB line (DB2 field name: QW0225EC).

Fixed Storage Identifies the total amount of fixed storage (DB2 field name: QW0225FX).

Fixed Storage above (MB) Identifies the total amount of fixed storage above the 2 GB bar (DB2 field name: QW0225FA).

GBP Write Engines Identifies the number of engines for group buffer pool writes (DB2 field name: QW0225GW).

Getmained Storage (MB) Identifies the total storage acquired by GETMAIN (DB2 field name: QW0225GM). This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, hiperpool control blocks, and data space buffer pool control blocks. This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Getmained Storage above (MB) Identifies the total storage acquired by GETMAIN (DB2 field name: QW0225GA). This includes space for the compression dictionary, and statement and DBD cache that can be used by the Environmental Descriptor Manager (EDM). This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Getmained Stack Storage (MB) Identifies the total GETMAINED storage allocated for program stack use (DB2 field name: QW0225GS).

HWM Auxiliary 4K Slot in Use 64 Bit Identifies the high water mark for the number of auxiliary 4K slots in use for 64-bit private pools (DB2 field name: QW0225HVGAuxSlots). This value is available from z/OS 1.11.

HWM Real 4K Frame in Use 64 Bit Identifies the high water mark for the number of real 4K frames in use for 64-bit private pools (DB2 field name: QW0225HVGPagesInReal). This value is available from z/OS 1.11.

HWM Shared Bytes 64 Bit (MB) Identifies the high water mark for number of 64-bit shared bytes for this MVS LPAR (DB2 field name: QW0225SHRGBYTES).

HWM Thread Copies Cached SQL (MB) Identifies the statistics interval high-water mark of allocated storage for thread copies in the local cache storage pool (DB2 field name: QW0225HS).

Interval Start The time at the Tivoli Enterprise Monitoring Server location when the data was sampled. The format is MM/DD/YY HH:MM:SS.
Local Dynamic Statement Cache Control Block (MB) Identifies the storage for local dynamic statement cache control blocks (DB2 field name: QW0225SB).

Max Extended Region Size (MB) Identifies the maximum amount of MVS private storage available above the 16 MB line (DB2 field name: QW0225RG).

Max Number of Threads The maximum number of possible threads. This depends on the storage size, the average memory usage of active user threads, and the maximum number of existing active DBATs. Valid value is an integer.

It is calculated as follows:

\[
\text{Maximum Number of Threads} = \frac{(\text{extended region size}) - (31 \text{ bit extended low private}) - \text{minimum (extended region size / 8, 200 * 1024 * 1024)} - [(\text{total getmaind storage}) + (\text{total getmaind stack storage}) + (\text{total fixed storage})]}{\text{(average thread footprint)}}
\]

MVS System ID The MVS system identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Prefetch Engines Identifies the number of engines used for sequential, list, and dynamic prefetch (DB2 field name: QW0225PF).

Pipe Manager Subpool Storage (MB) Identifies the storage allocated to Pipe Manager for parallel query operations (DB2 field name: QW0225PM).

P-Lock Notify Exit Engines Identifies the number of data sharing P-Lock engines and Notify Exit engines (DB2 field name: QW0225PL).

RDS OP Pool Storage (MB) Identifies the storage for RDS operations pool used for sort, prepare, and so on (DB2 field name: QW0225RO).

Real 4K Frame in Use 31 Bit Identifies the amount of real-storage frames in use for 31-bit and 64-bit private pools (DB2 field name: QW0225RL).

Real 4K Frame in Use 64 Bit Identifies the number of real 4K frames in use for 64-bit private pools (DB2 field name: QW0225HVPagesInReal). This value is available from z/OS 1.11.

Real Storage in Use (MB) Identifies the amount of real storage in use for 31-bit and 64-bit private pools.
RID Pool Storage (MB) Identifies the storage for RID list processing such as list prefetch, index ANDing and ORing (DB2 field name: QW0225RP).

Shared Agent Local Storage (MB) Identifies the amount of storage allocated for agent-related 64-bit local storage (DB2 field name: QW0225ALG).

Shared Agent Non-System Storage (MB) Identifies the amount of 64-bit storage used by non-system agents. It is the difference between the Total Agent Local Storage (QW0225ALG) and the Total Agent System Storage.

Shared Agent System Storage (MB) Identifies the amount of 64-bit storage used by system agents (DB2 field name: QW0225ASG).

Shared Fixed Storage (MB) Identifies the amount of total fixed virtual shared storage above the 2 GB bar (DB2 field name: QW0225SF).

Shared Getmained Storage (MB) Identifies the amount of virtual shared storage acquired by GETMAIN above the 2 GB bar (DB2 field name: QW0225SG).

Shared Memory Objects Identifies the number of shared memory objects allocated for this MVS LPAR (DB2 field: QW0225SHRNMOB).

Shared Memory Storage (MB) Identifies the total 64-bit storage allocated for storage manager control structures (DB2 field name: QW0225SM).

Shared Memory Pages 64 Bit Identifies the number of 64-bit shared memory pages allocated for this MVS LPAR (this count includes hidden pages) (DB2 field name: QW0225SHRPAGES).

Shared Non-System Agent Stack Storage (MB) Identifies the amount of 64-bit shared storage allocated for non-system agent stack use (DB2 field name: QW0225GSG).

Shared Non-System Stack Storage in Use (MB) Identifies the amount of 64-bit shared non-system agent stack that is in use (DB2 field name: QW0225SUG).

Shared Pages Backed in Real Storage 64 Bit Identifies the number of 64-bit shared pages backed in real storage (4K pages) for this MVS LPAR (DB2 field name: QW0225SHRINREAL).

Shared Pages Paged In from Auxiliary Storage 64 Bit Identifies the number of 64-bit shared pages paged in from auxiliary storage for this MVS LPAR (DB2 field name: QW0225SHRPAGEINS).

Shared Pages Paged Out from Auxiliary Storage 64 Bit Identifies the number of 64-bit shared pages paged out to auxiliary storage for this MVS LPAR (DB2 field name: QW0225SHRPAGEOUTS).

Shared Storage Manager Control Block (MB) Identifies the amount of 64-bit shared storage allocated for storage manager control structures (DB2 field name: QW0225SMS).

Shared System Agent Stack Storage (MB) Identifies the amount of 64-bit shared storage allocated for system agent stack use (DB2 field name: QW0225GSG_SYS).
Shared System Agent Stack Storage in Use (MB) Identifies the amount of 64-bit shared system agent stack that is in use (DB2 field name: QW0225SUG_SYS).

Shared Variable Storage (MB) Identifies the amount of virtual shared variable storage above the 2 GB bar (DB2 field name: QW0225SV).

Stack Storage In Use (MB) Identifies the amount of stack storage that is in use (DB2 field name: QW0225SU).

Storage Cushion (MB) Identifies the storage reserved to allow DB2 to complete critical functions while short on storage (DB2 field name: STORCUSH). This includes the contract warning cushion, storage reserved for must-complete operations, and storage for MVS use.

Storage Manager Control Block (MB) Identifies the total 64-bit storage allocated for storage manager control structures (DB2 field name: QW0225SM).

Thread Copies of Cached SQL (MB) Identifies the amount of storage allocated for the local cache storage pool (DB2 field name: QW0225SC). For DB2 10, the storage is allocated for executable code sequences of dynamic SQL statements.

Thread Copies of Cached SQL above HWM Allocated Statement (MB) Identifies the statistics interval high-water mark (HWM) of allocated storage for thread copies in the cache storage pool above the 2 GB bar (DB2 field name: QW0225H2).

Thread Copies of Cached SQL above In Use (MB) Identifies the amount of storage used for thread copies in the cache storage pool above the 2 GB bar (DB2 field name: QW0225L2).

Thread Copies of Cached SQL Date at HWM Identifies the timestamp at high-water storage (DB2 field name: QW0225HT).

Thread Copies of Cached SQL in Use (MB) Identifies the amount of storage used for thread copies in the local cache storage pool (DB2 field name: QW0225LS). This is a subset of the total allocated storage for thread copies QW0225SC.

Thread Copies of Cached SQL Statement Count Identifies the number of statements in the local cache storage pool (DB2 field name: QW0225LC).

Thread Copies of Cached SQL Statement Count at HWM Identifies the number of statements in the local cache storage pool at high storage time (DB2 field name: QW0225HC).

Thread Copies of Static SQL (MB) Identifies the amount of storage allocated below the bar for executable code sequences of static SQL statements (DB2 field name: QW0225SX).

Total Storage Below (MB) Identifies total DBM1 storage (DB2 field name: SW0225DB). This includes:
- Fixed length storage use
- Getmained storage
- Save areas
- Variables
Variable Storage (MB) Identifies the total storage used by all variable pools (DB2 field name: QW0225VR). This includes storage used by:

- System agents
- Local agents
- RID pool
- Pipe manager subpool
- Local dynamic statement cache control blocks
- Local dynamic statement cache statement pool
- Buffer and data manager trace tables

Variable Storage above (MB) Identifies the amount of variable storage available above the 2 GB bar (DB2 field name: QW0225VA).

QW0225AV Identifies the total amount of storage available for storage manager pools (DB2 field name: QW0225AV).

QW0225CR Identifies the storage reserved for operation that must complete before DB2 is allowed to stop (DB2 field name: QW0225CR).

QW0225F1 This field is for IBM service (DB2 field name: QW0225F1).

QW0225F2 This field is for IBM service (DB2 field name: QW0225F2).

QW0225MV Identifies the amount of storage available for operating system activity (DB2 field name: QW0225MV).

QW0225SO Identifies the amount of free storage, in megabytes, available in the DBM1 data space (DB2 field name: QW0225SO).

Coupling Facility Connections Workspace:

The Coupling Facility Connections workspace displays connection status information for all connections to a coupling facility structure.

Use the Coupling Facility Connections workspace to:

- View the status of all connections to a structure
- Identify the operating system name, the associated coupling facility name and job name

To investigate a non-active connection, review the information provided in Accessing an OMEGAMON Host Session.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Buffer Pool Connection Attributes:

Use the Group Buffer Pool (GBP) Connection attributes to create situations that monitor connections to DB2 coupling facilities.

Connection Status The status of the connection between a DB2 coupling facility member (IRLM subsystem) and group.

Valid values are:
<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVE</td>
<td>Active member connection</td>
</tr>
<tr>
<td>CONNECT</td>
<td>Member connected but not active</td>
</tr>
<tr>
<td>DISCONN</td>
<td>Member disconnected</td>
</tr>
<tr>
<td>FAILED</td>
<td>Member failed to connect</td>
</tr>
<tr>
<td>FAIL_PER</td>
<td>Member persistently fails to connect</td>
</tr>
</tbody>
</table>

**Coupling Facility Name** The name of a DB2 coupling facility. It is an alphanumeric text string with a maximum of 16 characters; for example, DB2_D411.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Data Sharing Group Element** The name of an element of within the data sharing group.

**DB2 ID** The name of a DB2 subsystem.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**Job Name** The job name connected to a coupling facility structure. It is an alphanumeric text string with a maximum of 8 characters; for example, IRLM.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example, SP11.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Structure Name** The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.
Coupling Facility Structures Workspaces:

The Coupling Facility Structures workspace provides a global view of LOCK1 and SCA coupling facility structures for a specific data sharing group.

Use the workspace to:
- Monitor activity rates within a structure
- Track structure utilization over a period of time
- View structure data for a true coupling facility situation
- View comprehensive global and false contention data

Analyzing Coupling Facility Connections

You can analyze a specific coupling facility structure to view the connection status of all connections to the structure.

From the Coupling Facility Structure table view, right-click a structure name and then click **Link to --> Coupling Facility Connections**. The **Coupling Facility Connections workspace** is displayed. This view shows the connection status details for your coupling facility structure.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Group Coupling Facility Attributes:

Use the DB2 Group Coupling Facility attributes to create situations that determine the excess usage and reduced availability of group coupling facility structures.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 Change Requests** The number of change requests for P-locks. Valid value is an integer in the range 0 - 99999999.

**DB2 False Contention** Provides a global view of false contentions for all DB2 systems in a data sharing group. The formula is the number of false contentions divided by the total number of global contentions, multiplied by 100. Valid value is an integer in the range 0 - 99999999.

**DB2 False Suspends** The number of suspends because of MVS XES (Cross-system Extended Services) false contention. Valid value is an integer in the range 0 - 99999999.

**DB2 Global Contention** Provides a global view of global contentions for all DB2 systems in a data sharing group. The formula is the total number of suspends because global contention divided by the total number of XES requests, multiplied by 100. Valid value is an integer in the range 0 - 99999999.

**DB2 IRLM Suspends** The number of suspends because of IRLM global resource contentions. This occurs when IRLM states are in conflict and require inter-system communication for resolution. Valid value is an integer in the range 0 - 99999999.

**DB2 Lock Requests** The number of lock requests for P-locks. Valid value is an integer in the range 0 - 99999999.
**DB2 Unlock Requests** The number of unlock requests for P-locks. Valid value is an integer in the range 0 - 99999999.

**DB2 XES Suspends** The number of suspends because MVS XES global resource contentions that are not IRLM-level contention. This occurs when XES lock states are in conflict but the IRLM lock states are not in conflict. Valid value is an integer in the range 0 - 99999999.

**False Contention** The number of contentions that the IRLM thought were competing for the same database resource. Valid value is an integer in the range 0 - 99999999.

Usage: An IRLM subsystem identifies a contention but grants a lock to a contending IRLM subsystem because the contending IRLM is requesting access to a different segment in the database.

**False Contention Rate** The number of false contentions divided by the number of seconds during the collection interval. Valid value is an integer in the range 0 - 99999999.

**Global Contention** The total number of contentions competing for the same database resource. Valid value is an integer in the range 0 - 99999999.

**Global Contention Rate** The number of contentions divided by the number of seconds during the collection interval. Valid value is an integer in the range 0 - 99999999.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**List Entries Allocated** The total number of list entries that a DB2 system has allocated for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**List Entries Percent** The number of list entries that IRLM is currently using divided by the number of list entries that DB2 has allocated. Valid value is an integer in the range 0 - 100.

**List Entries Used** The total number of list entries IRLM is currently using for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**Lock Entries Allocated** The total number of lock entries that a DB2 system has allocated for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**Lock Entries Percent** The number of lock entries that IRLM is currently using divided by the number of lock entries DB2 has allocated. Valid value is an integer in the range 0 - 100.

**Lock Entries Used** The total number of lock entries IRLM is currently using for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**Number of Indexes** Identifies the number of indexes.
**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Structure Connect Count** The number of active connections to a structure. Valid value is an integer in the range 0 - 16.

**Structure Name** The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

**Structure Size** The size, in kilobytes, of a DB2 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**Structure Status** The current status of the coupling facility structure.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVE</td>
<td>The structure is active</td>
</tr>
<tr>
<td>INACTIVE</td>
<td>The structure is inactive</td>
</tr>
</tbody>
</table>

For duplexed group buffer pool structures, additional valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REB_NEW</td>
<td>Rebuild on new (secondary GBP)</td>
</tr>
<tr>
<td>REB_OLD</td>
<td>Rebuild on old (primary) GBP</td>
</tr>
<tr>
<td>REB_TRAN</td>
<td>Structure is in transition</td>
</tr>
<tr>
<td>REB_HOLD</td>
<td>Structure is in holding state</td>
</tr>
<tr>
<td>REB_ERR</td>
<td>Error during the structure rebuild</td>
</tr>
</tbody>
</table>

**Structure Type** The type of DB2 coupling facility structure.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CACHE</td>
<td>Cache data of interest to several DB2 systems in data sharing group</td>
</tr>
<tr>
<td>LIST</td>
<td>Shared Communications Area (SCA) for data sharing group members</td>
</tr>
<tr>
<td>LOCK</td>
<td>Controls locking</td>
</tr>
</tbody>
</table>

**Structure Used** The number of kilobytes that DB2 uses within a structure type. Valid value is an integer in the range 0 - 99999999.

**Structure Used Percent** The percent of the total available kilobytes that DB2 is currently using within a structure type. Valid value is an integer in the range 0 - 100.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.
Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

Critical DB2 Messages by Message ID Workspace:

The Critical DB2 Messages by Message ID workspace displays critical DB2 messages sorted by message identification number.

This workspace is comprised of the following views:

Critical DB2 Messages by Message ID (table view)
Reports information about critical messages, including when the message was generated, the message identification number, and the message text.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following workspace from the Critical DB2 Messages by Message ID workspace:
• DB2 Messages

DB2 Message Attributes:
Use the DB2 Message attributes to identify problems with your DB2 system.

DB2ID The name of a DB2 subsystem.

DB2 Version The version of the DB2 system.

Interval Start The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Long Message Action Code The long message action code.

Message ID The system identification number for the message. It is an alphanumeric text string with a maximum of eight characters.

Message Text A description of the message. It is an alphanumeric text string with a maximum of 2500 characters.

MVS System ID The MVS system identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.
Note: By default DB2 messages are not collected. If you want to collect DB2 messages, use the Configuration Tool and select: Monitoring Profile configuration –> Additional configuration settings. If you configure it to YES, the DB2 message subtask is started during DB2 instance initialization.

To start or stop DB2 message collection manually specify the following:
`F <cccccccc>,F PEservername,F<db2>,FDB2MSGMON=<p>`

where:
- `cccccccc` Identifies the OMEGAMON Collector started task name.
- `db2` Identifies the DB2 name.
- `p` Select `Y` to start or `N` to stop the message subtask.

If you do not see any DB2 messages, check if DB2 message subtask is started from the OMEGAMON Collector started task.

Data Sharing Thread Activity Workspace:

The Data Sharing Thread Activity workspace provides a global view of thread activity for an entire data sharing group. A consolidated list of DB2 threads displays on the table view in alphabetical order by plan name. Your table view may sort differently if you have changed the sort field or sort order.

This workspace is comprised of the following views:
- Threads Using CP CPU (bar chart)
- Threads that have Wait Times (bar chart)
- Data Sharing Threads (table view)

Use the Data Sharing Threads table view to:
- Identify all active threads.
- Track thread activity for application threads over a period of time.
- Analyze thread data when a thread evaluates to true.

Monitoring Thread Activity

You can use the Data Sharing Threads table view to identify all active application threads and track thread activity over a period of time. You can use the thread data to:
- Monitor critical application threads.
- Evaluate the thread elapsed and wait times for critical threads.
- Observe thread activity for threads within the same system, group, and member.

Analyzing Thread Statistics

You can analyze a specific application thread on the Data Sharing Threads table view and review statistical information.
1. Right-click a row on the Data Sharing Threads table view.
2. Click Link to --&gt; Thread Statistics.

The Thread Statistics workspace displaying statistical information for your thread is displayed.
Investigating Excessive Thread Elapsed Time

You can use the Tivoli Enterprise Portal terminal emulator adapter to access an OMEGAMON host session. You can then review further information that will assist you in investigating a thread with excessive elapsed time. For information about using this feature, see the Tivoli Enterprise Portal online help.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Data Sharing Thread Detail Attributes:
Use Data Sharing Thread Detail attributes to create situations that monitor thread activity for an entire data sharing group.

Ace Address The DB2 thread ACE address for internal use.

Authorization ID The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Authorization ID (Unicode) The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Begin Time Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and ims wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

Cancel Command The command string needed to cancel a thread. You can use Take Action with this attribute to cancel a thread: The format is "src CANCEL THREAD(nnnnnn)", where src is the subsystem recognition character and nnnnnn is the thread token.

Collection ID The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 18 characters

Collection ID (Unicode) The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

Data Sharing Thread Detail Attributes Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Thread Detail Attributes (Data Sharing) The type of DB2 connection.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job.</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>DB2CAF</td>
<td>DB2 call attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed or DBAccess</td>
<td>Distributed thread</td>
</tr>
<tr>
<td>IMS BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>IMS</td>
<td>IMS thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 utility</td>
</tr>
</tbody>
</table>

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example DLKEX212.

**CP CPU Time** The central processor CPU time.

**DB2 ID** The name of a DB2 subsystem.

**Display CPU Time** The total amount of CPU time that DB2 has accumulated for a thread.

Valid format is HH:MM:SS:mmm, where:
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

If the time goes over 24 hours, the format is DD-HH:MM where:
- D = Day
- H = Hour
- M = Minute

For example, 00:14:59 indicates that the display CPU time is 14 minutes and 59 seconds.

**Display Elapsed Time** The total amount of elapsed time since thread creation or DB2 sign-on.

Valid format is DD-HH:MM:SS, where:
- D = Day
- H = Hour
- M = Minute
- S = Second
For example, 00-20:16:18 indicates that the display elapsed time is 20 hours, 16 minutes, and 18 seconds.

**Display Wait Time** The total amount of thread wait time. The collection of thread wait time requires activation of Accounting Class 2 in the monitored DB2 subsystem.

Valid format is HH:MM:SS:mmm, where:
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

If the time goes over 24 hours, the format is DD-HH:MM where:
- D = Day
- H = Hour
- M = Minute

For example, 00:14:59 indicates that the display CPU time is 14 minutes and 59 seconds.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**In DB2 Elapsed Time** The elapsed time accumulated in DB2.

**LUWID** The logical unit name (LUNAME) of the connection to the remote DB2 system.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Package DBRM (Unicode)** The package DBRM name.

**Package Name** Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

**Parent Ace** The token used to correlate parallel task or utility subtask records with the records of the originating task or main utility task. For a record that is issues from a parallel task or utility subtask this field contains a token that is equal to the agent control element (ACE) of the originating task or main utility task. Otherwise, the value in this field is zero.

**Plan Name** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. Valid format is alphanumeric, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Thread Elapsed Time** The total amount of elapsed time since thread creation or DB2 sign-on. Valid value is an integer in the range 0 - 99999999 seconds.
**Thread Group Member Name** The name of the member within a data sharing group for a thread.

**Thread Group Name** The name of a data sharing group for a thread. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Thread Status** The current status of a thread.

Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT-AVAIL</td>
<td>The thread is not available.</td>
</tr>
<tr>
<td>IN-ABORT</td>
<td>The thread is in abort processing.</td>
</tr>
<tr>
<td>IN-ACCEL</td>
<td>The thread is executing on IBM DB2 Analytics Accelerator for z/OS.</td>
</tr>
<tr>
<td>IN-AUTO-PROC</td>
<td>The thread is processing an autonomous procedure.</td>
</tr>
<tr>
<td>IN-BIND-DYNM</td>
<td>The thread is in dynamic bind processing.</td>
</tr>
<tr>
<td>IN-BIND-STAT</td>
<td>The thread is in static bind processing.</td>
</tr>
<tr>
<td>IN-COMMAND</td>
<td>Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)</td>
</tr>
<tr>
<td>IN-COMMIT</td>
<td>The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).</td>
</tr>
<tr>
<td>IN-COMT-PHS1</td>
<td>The thread is in Commit phase 1 processing.</td>
</tr>
<tr>
<td>IN-COMT-PHS2</td>
<td>The thread is in Commit phase 2 processing.</td>
</tr>
<tr>
<td>IN-CRTE-THRD</td>
<td>The thread is in Create Thread processing.</td>
</tr>
<tr>
<td>IN-DB2</td>
<td>The thread is executing in DB2. A more descriptive status could not be determined.</td>
</tr>
<tr>
<td>INDOUBT</td>
<td>The thread is in doubt.</td>
</tr>
<tr>
<td>IN-SIGNON</td>
<td>The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.</td>
</tr>
<tr>
<td>IN-SQL-CALL</td>
<td>The thread is processing an SQL call.</td>
</tr>
</tbody>
</table>
IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWRR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
• Inter-system communication within the data sharing group to determine if there is lock contention.
• A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.
WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.
WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Stored Procedure Name The name of the stored procedure that a thread invokes. It is an alphanumeric text string, with a maximum of 18 characters; for example, SPCALC_TAX.

Thread Token The thread token uniquely identifies a specific thread.

Data Sharing Thread Detail Attributes The type of thread. It can be:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMPP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

Thread Wait Time The total amount of thread wait time. Valid format is an integer in the range 09 - 99999999 seconds. Note: collection of thread time requires activation of Accounting Class 2 in the Monitored DB2 subsystem.
**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

The timestamp format for SCAN and STR functions is **CYYMMDDHHMMSSmmm** (as in 1180315064501000 for 03/15/18 06:45:01) where:
- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

**Data Sharing Thread Statistics Workspace:** The Data Sharing Thread Statistics workspace displays thread statistics for a specific application thread. If the application thread is a parallel thread, the table view displays thread statistics for all the associated parallel threads.

**Viewing Additional Thread Information**

You can use the Tivoli Enterprise Portal terminal emulator adapter to access an OMEGAMON host session to investigate a thread with excessive elapsed time. For information about using this feature, see the Tivoli Enterprise Portal online help.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Data Sharing Thread Statistics Attributes:**
Use Data Sharing Thread Statistics attributes to create situations that determine the usage of parallel threads.

**Asynchronous Page Reads** The number of asynchronous page reads for prefetch. Valid value is an integer in the range 0 - 2147483647.

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 ID** The name of a DB2 subsystem.

**Dynamic Prefetch** The number of dynamic prefetch requests. Valid value is an integer in the range 0 - 2147483647.

**Get Page Requests** The number of thread getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. Valid value is an integer in the range 0 - 2147483647.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.
Immediate Write I/O The number of synchronous write I/O requests that DB2 issues on behalf of a thread. Valid value is an integer in the range 0 - 2147483647.

List Prefetch The number of list prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of SETW The number of set write requests to write a page out to DASD. Valid value is an integer in the range 0 - 2147483647.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Sequential Prefetch The number of sequential prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

Synchronous Read I/O The number of synchronous read I/O requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

DB2 Thread Exceptions Indicates the type of parallel thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Not a parallel thread</td>
</tr>
<tr>
<td>Parent</td>
<td>Parallel thread is a parent</td>
</tr>
<tr>
<td>Child</td>
<td>Parallel thread is a child</td>
</tr>
<tr>
<td>Autonomous SP</td>
<td>Originating thread who invoked autonomous stored procedures</td>
</tr>
</tbody>
</table>
Unsuccessful Get Page Operation The number of conditional getpage requests that failed. Valid value is an integer in the range 0 - 2147483647.

DB2 Connect Server Workspace:

The DB2 Connect Server workspace provides key information about all active and inactive DB2 Connect gateways.

This workspace is comprised of the following views:

DB2 Connect Server - Key Events (bar chart)
Shows the key events of all active DB2 Connect gateways.

DB2 Connect Server (table view)
Shows key data on all active and inactive DB2 Connect gateways.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Package Statistics Workspace:

The Package Statistics workspace provides information about the size of the data exchanged between the DB2 Connect gateway and the host database and about the network time required.

It enables you to measure the throughput between the host database and the DB2 Connect gateway and gives you a better idea of the database activity and network traffic at the application level.

This workspace is comprised of the following views:

Thread/Application ID (table view)
Identifies the thread and the Database Connection Services (DCS) application.

Outbound Data (table view)
Shows the number of bytes exchanged between the host database and the DB2 Connect gateway during the processing of statements.

Network Time (table view)
Shows how many statements required which network time. The network time is the difference between the host response time and the elapsed execution time for a statement.

Data Sent (table view)
Shows how many packages of a certain size were sent from the DB2 Connect gateway to the host database.

Data Received (table view)
Shows many packages of a certain size were sent from the host database to the DB2 Connect gateway.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DB2 Connect/Gateway Statistics Workspace:**

The DB2 Connect/Gateway Statistics workspace provides statistics about the selected DB2 Connect gateway, including details about the number of agents and pooled agents, the connections waiting for the host to reply, and the connections waiting for the client to send a request.

This workspace is comprised of the following views:

**DB2 Connect Server - Key Events (bar chart)**

Shows the key events of the selected DB2 Connect gateway.

**DB2 Connect Server - High Water Mark (bar chart)**

Shows key high water marks with regard to agents.

**DB2 Connect Information (table view)**

Shows key data on the selected DB2 Connect gateway.

**DB2 Connect Agents (table view)**

Provides information about the agents.

**Connections (table view)**

Provides information about the connections.

**Sorts/Memory (table view)**

Shows the total number of allocated pages of sort heap space for all sorts at the level chosen and at the time the snapshot was taken.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DB2 Connect Server Package Statistics Workspace:**

The Package Statistics workspace provides statistics about the packages that were received at the selected DB2 Connect gateway.

This workspace is comprised of the following views:

**DB2 Connect Server - Package Network Time (bar chart)**

Shows the network time and the average network time required for processing a sample SQL statement. The network time is the difference between the host response time and the elapsed execution time for a statement.

**DB2 Connect Information (table view)**

Shows key information about the selected DB2 Connect gateway.

**Package Statistics (table view)**

Provides details on the packages received at the DB2 Connect gateway.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DB2 Connect Server Package Attributes:**
Use DB2 Connect Server Package attributes to create situations that will alert you when the package network time is too high.

**Average Network Time** The result of the value for the Network time counter divided by the number of SQL chains being transferred.

**Average Request Size Outbound** The number of bytes sent by the DB2 Connect gateway to the host database, excluding communication protocol overhead, divided by the number of SQL chains being transferred.

**Average Response Size Outbound** The number of bytes received by the DB2 Connect gateway from the host database, excluding communication protocol overhead, divided by the number of SQL chains being transferred.

**DB2 Subsystem Identifier** The DB2 subsystem ID.

**Gateway Snapshot Time** The date and time at which the database system monitor information was collected.

**IP Address** The current IP address.

**MVSID** The MVS system identifier.

**Name** The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

**Node Name** The name of the node being monitored by the database system monitor. It identifies the database server node you are monitoring.

This information can be useful if you are saving your monitor output in a file or database for later analysis and you need to differentiate the data from different database server nodes. This node name is determined based on the NNAME configuration parameter.

**Node Number** The number assigned to the node in the file with filename db2nodes and file type cfg. (db2nodes.cfg).

**Network Time** The difference between the value for the Times for sample SQL statement - Total statement time counter and the value of the Times for sample SQL statement - Time on DB2 host counter. Both counters are on the Performance page.

**Originating System ID** The managed system name of the agent. It is alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Parent Database Name** The name of the remote database to which the remote application is connected.

**Server Instance Name** The name of the database manager instance for which the snapshot was taken.

If a system contains more than one instance of the database manager, this name is used to uniquely identify the instance for which the snapshot call was issued. Along with configuration NNAME at monitoring (server) node, this information
can be useful if you are saving your monitor output in a file or database for later analysis, and you need to differentiate the data from different instances of the database manager.

**Server Product Version ID** The product and version that is running on the server in the form pppvrrrm.

In this case, pppvrrrm represents:
- **ppp** stands for SQL
- **vv** identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- **rr** identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- **m** identifies a 1-digit modification level

**Server Status** Shows whether the server is active or inactive.

**Server Version** The version of the server returning the information.

**Statement Group** The number of statements with outbound bytes.

**Time Stamp** The start time of this interval.

**Time Zone Displacement** The number of hours that the local time zone is displaced from Greenwich Mean Time (GMT).

**DB2 Connect Server at Thread Level Workspace:**

The DB2 Connect Server at Thread Level workspace provides summary information about the Database Connection Services (DCS) application related to this thread.

This workspace is comprised of the following views:

**Application Time (bar chart)**
Shows the elapsed execution time of the unit of work that was completed most recently. It indicates the time that it takes for units of work to complete.

**Thread/Application ID (table view)**
Identifies the thread and the DCS application.

**DB2 Connect Server Information (table view)**
Shows key data on the DCS application.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DB2 Connect Server at Thread Level Overview Attributes:**
Use the DB2 Connect Server at Thread Level attributes to create situations to monitor connected gateways of a DB2 subsystem.

**Ace Address** The DB2 thread ACE address for internal use.

**Application Agent ID** The system-wide unique ID for the application. On a single-partitioned database, this ID consists of a 16-bit counter. On a
multi-partitioned database, it consists of the coordinating partition number concatenated with a 16-bit counter. In addition, it is the same on every partition where the application might make a secondary connection.

**Application ID** The ID that is generated when the application connects to the database at the database manager or when Distributed Database Connection Services (DDCS) receives a request to connect to a DRDA database.

It is known at both the client and the server, so you can use it to correlate the client and server parts of the application. For DDCS applications, you will also need to use the **Outbound Application ID** to correlate the client and server parts of the application. This ID is unique across the network. There are different formats for the application ID, which are dependent on the communication protocol between the client and the server machine on which the database manager, the DDCS, or both, are running. Each of the formats consists of three parts separated by periods.

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Format</th>
<th>Example</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPC</td>
<td>Network.Logical Unit Name.Application instance</td>
<td>CAIBMTOR.OSFDBX09301319452</td>
<td>This application ID is the displayable format of an actual SNA LUWID (logical unit-of-work ID) that flows on the network when an APPC conversation is allocated. APPC-generated application IDs are made up by concatenating the network name, the Logical Unit name, and the LUWID instance number, which create a unique label for the client/server application. The network name and Logical Unit name can each be a maximum of 8 characters. The application instance corresponds to the 12-decimal-character LUWID instance number.</td>
</tr>
<tr>
<td>Protocol</td>
<td>Format</td>
<td>Example</td>
<td>Details</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>IPAddr.Port.Application instance</td>
<td>A12CF9E8.3F0A.930131214645</td>
<td>A TCP/IP-generated application ID is made up by concatenating the IP address in hexadecimal characters, the port number (4 hexadecimal characters), and a unique ID for the instance of this application. The IP address is a 32-bit number displayed as a maximum of 8 hexadecimal characters.</td>
</tr>
</tbody>
</table>
| IPX/SPX  | Netid.nodeid.Application instance | C11A8E5C.400011528250131214645 | An IPX/SPX-generated application ID is made up by concatenating a character network ID (8 hexadecimal characters), a node ID (12 hexadecimal characters), and a unique ID for the instance of the application. The application instance corresponds to a 10-decimal-character timestamp of the form mmddhhmmss, where:  
  - M = Month  
  - D = Day  
  - H = Hour  
  - M = Minute  
  - S = Second |
<table>
<thead>
<tr>
<th>Protocol</th>
<th>Format</th>
<th>Example</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>NetBIOS</td>
<td>*NETBIOS.nname. Application instance</td>
<td>*NETBIOS.SBOIVIN. 930131214645</td>
<td>For nonpartitioned database systems, a NetBIOS application ID is made up by concatenating the string *NETBIOS, the NNAME defined in the database configuration file for the client, and a unique ID for the instance of this application. For partitioned database systems, a NetBIOS application ID is made up by concatenating the string N xxx.etc where xxx is the partition the application is attached to.</td>
</tr>
<tr>
<td>Local applications</td>
<td>*LOCAL.DB2 instance.Application instance</td>
<td>*LOCAL.DB2INST1. 930131235945</td>
<td>The application ID generated for a local application is made up by concatenating the string *LOCAL, the name of the DB2 instance, and a unique ID for the instance of this application.</td>
</tr>
</tbody>
</table>

**Application Idle Time** The number of seconds since an application issued any requests to the server. This includes applications that have not terminated a transaction, for example, not issued a commit or rollback. You can use this information to implement applications that force users that have been idle for a specified number of seconds.

**Application Name** The name of the application running at the client as known to the database manager or DB2 Connect. Together with the **Application ID** counter, it can be used to relate data items with your application.

**Application Status Change Time** The date and time the application entered its current status. This counter allows you to determine how long an application has been in its current status. If it has been in the same status for a long period of time, this can indicate a problem.

**Authorization ID** Shows the authorization ID of the user who invoked the application that is being monitored. On a DB2 Connect gateway node, this is the authorization ID of the user on the host.

**Authorization ID** The authorization ID.

**Authid (Unicode)** The authorization ID.
**Client Communication Protocol** The communication protocol that the client application is using to communicate with the server. You can use this counter for problem determination on remote applications.

Valid values for this counter are:
- API Constant Communication Protocol
- SQLM_PROT_UNKNOWN (Note 1)
- SQLM_PROT_LOCAL none (Note 2)
- SQLM_PROT_APPC APPC
- SQLM_PROT_TCPIP TCP/IP
- SQLM_PROT_IPXSPX IPX/SPX
- SQLM_PROT_NETBIOS NETBIOS

**Note:** The client is communicating using an unknown protocol. This value is only returned if future clients connect with a down-level server. The client is running on the same node as the server and no communications protocol is in use.

**Client Operating Platform** The operating system on which the client application is running. You can use this counter for problem determination on remote applications.

**Client Process ID** The process ID of the client application that made the connection to the database. You can use this counter to correlate monitor information such as CPU and I/O time to your client application. In the case of a DRDA-AS connection, this counter is set to 0.

**Client Product Version ID** The product and version that is running on the client. You can use this counter to identify the product and code version of the database client. It is in the form pppvvvrmm, where:
- **ppp** stands for SQL
- **vv** identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- **rr** identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- **m** identifies a 1-digit modification level

**Code Page Used by Application** The code page ID. For snapshot monitor data, this is the code page at the partition where the monitored application started. This ID can be used for problem determination for remote applications. You can use this information to ensure that data conversion is supported between the application code page and the database code page or, for DRDA host databases, the host coded character set ID (CCSID). For event monitor data, this is the code page of the database for which event data is collected. You can use this counter to determine whether your event monitor application is running under a different code page from that used by the database. Data written by the event monitor uses the database code page. If your event monitor application uses a different code page, you might need to perform some character conversion to make the data readable.

**Commit Statements Attempted** The total number of SQL COMMIT statements that have been attempted.
A small change rate in this counter during the monitor period can indicate that applications do not commit frequently, which can lead to problems with logging and data concurrency. You can also use this counter to calculate the total number of units of work by calculating the sum of the following:

\[
\text{(Commit statements attempted)} + \text{(Internal commits)} + \text{(Rollback statements attempted)} + \text{(Internal rollbacks)}
\]

**Configuration Name of Client**

The NNAME in the database manager configuration file at the client node. You can use this counter to identify the client node that is running the application.

**DB2 Connect Server at Thread Level Overview Attributes**

Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**Corrid**

The correlation ID.

**Database Alias at the Gateway**

The alias used at the DB2 Connect gateway to connect to the host database. Use this counter for problem determination on DCS applications.

**DB2 Connect First Connect**

The date and time at which the first connection to the host database was initiated from the DB2 Connect gateway. Use this counter for problem determination on DCS applications.

**DB2 ID**

The DB2 subsystem ID.

**DCS Application Status**

The current status of the application. It can help you diagnose potential application problems.

**DCS Database Name**

The name of the remote database as cataloged in the DCS directory. Use this counter for problem determination on DCS applications.

**Elapsed Time DB2CONN Execution**

Shows the time, in seconds and microseconds, at the DB2 Connect gateway to process an application request (since the connection was established), or to process a single statement. Use this counter to determine what portion of the overall processing time is due to DB2 Connect gateway processing.

**Failed Statement Percentage**

The number of statements that were attempted, but failed.

**Failed Statements Operations**

The number of SQL statements that were attempted, but failed.

You can use this counter to calculate the total number of successful SQL statements at the database or application level:

\[
\text{(Dynamic SQL statements attempted)} + \text{(Static SQL statements attempted)} - \text{(Failed statement operations)}
\]

This count includes all SQL statements that received a negative SQLCODE. This counter might also help you determine the reasons for poor performance because failed statements mean time wasted by the database manager and, as a result, lower throughput for the database.

**Gateway Snapshot Time**

The date and time at which the database system monitor information was collected.
Host Coded Character Set ID The coded character set ID (CCSID) of the host database. Use this counter for problem determination on DCS applications.

Host Database Name The real name of the host database for which information is being collected or to which the application is connected. This is the name that was given to the database when it was created. Use this counter for problem determination on DCS applications.

Host Product Version ID The product and version that is running on the server.

This counter is used to identify the product and code version of the DRDA host database product. It is in the form pppvvvrrm, where:

- **ppp** identifies the host DRDA product:
  - ARI for DB2 for VSE & VM
  - DSN for DB2 for OS/390 and z/OS
  - QSQ for DB2 UDB for AS/400
  - SQL for other DB2 products
- **vv** identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- **rr** identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- **m** identifies a 1-digit modification level

Inbound Bytes Received The number of bytes received (measured in 1000-byte increments) by the DB2 Connect gateway from the client, excluding communication protocol overhead (for example, TCP/IP or SNA headers). Use this counter to measure the throughput from the client to the DB2 Connect gateway.

Inbound Communication Address The communication address of the client. For example, it could be an SNA net ID and Logical Unit partner name, or an IP address and port number for TCP/IP. Use this counter for problem determination on DCS applications.

IP Address The current IP address.

Last Reset Timestamp The date and time that the monitor counters were reset for the application issuing the GET SNAPSHOT. You can use this counter to determine the scope of information returned by the database system monitor. If the database manager counters have never been reset, the value for this counter is zero. The database manager counters is only reset if you reset all active databases.

Most Recent Unit of Work Elapsed Time The elapsed execution time of the most recently completed unit of work. It indicates time that it takes for units of work to complete.

MVSID The MVS system identifier.

Name The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

Number of Open Cursors The number of cursors currently open for an application. Use this counter to assess how much memory is being allocated. The amount of memory allocated by the DB2 client, DB2 Connect, or the database agent on the target database is related to the number of cursors that are currently
open. Knowing this information can help with capacity planning. For example, each open cursor that is blocking has a buffer size as specified by the RQROBLK database manager configuration parameter. If DEFERRED_PREPARE is enabled, two buffers are allocated.

**Number of SQL Statements Attempted** The number of SQL statements that have been attempted since the latter of: application startup, database activation, or last reset. For a data transmission, this is the number of SQL statements that have been attempted against this DCS database or in this DCS application since the database was activated, the connection to it was established by the application, or RESET MONITOR was issued against the database, and that used this number of data transmissions between the DB2 Connect gateway and the host during statement processing. Use this counter to measure the database activity for a database or application. To calculate the SQL statement throughput for a given period, you can divide this counter by the elapsed time between two snapshots. For a data transmission, use this counter to get statistics on how many statements used two, three, four, etc. data transmissions during their processing. At least two data transmissions are necessary to process a statement: a send and a receive. These statistics can give you a better idea of the database or application activity and network traffic for a database or an application.

**Number of Transmissions** The number of data transmissions between the DB2 Connect gateway and the host that was used to process this DCS statement. (One data transmission consists of one send or one receive.)

Use this counter to get a better understanding of the reasons why a particular statement took longer to execute. For example, a query returning a large result set might need many data transmissions to complete.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Outbound Application ID** This ID is generated when the application connects to the DRDA host database. It is used to connect the DB2 Connect gateway to the host, while the application ID is used to connect a client to the DB2 Connect gateway.

You can use this counter in conjunction with the Application ID counter to correlate the client and server parts of the application information. This ID is unique across the network.
<table>
<thead>
<tr>
<th>Format</th>
<th>Example</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network.Logical Unit Name.Application instance</td>
<td>CAIBMTOR.OSFDBM0.93013194520</td>
<td>Application ID is the displayable format of an actual SNA LUWID (logical unit-of-work ID) that flows on the network when an APPC conversation is allocated. APPC-generated application IDs are made up by concatenating the network name, the Logical Unit name, and the LUWID instance number, which creates a unique label for the client/server application. The network name and Logical Unit name can each be a maximum of 8 characters. The application instance corresponds to the 12-decimal-character LUWID instance number.</td>
</tr>
</tbody>
</table>

**Outbound Application ID Internal** The interval for the Outbound Application ID.

**Outbound Communication Address** The communication address of the target database. For example, it could be an SNA net ID and Logical Unit partner name, or an IP address and port number for TCP/IP. Use this counter for problem determination on DCS applications.

**Outbound Communication Protocol** The communication protocol used between the DB2 Connect gateway and the host. Use this counter for problem determination on DCS applications.

Valid values are:

- `SQLM_PROT_APPC`
- `SQLM_PROT_TCP/IP`

**Outbound Sequence Number** Reserved for future use. In this release, its value will is always 0001. It can contain different values in future releases of the product.

**Previous Unit of Work Completion Timestamp** The time when the previous unit of work was completed.

You can use this counter with the **Overall transaction data - Unit of work stop timestamp** counter to calculate the total elapsed time between COMMIT or ROLLBACK points, and with the **Overall transaction data - Unit of work start timestamp** counter to calculate the time spent in the application between units of work:

- For applications currently within a unit of work, this is the time at which the latest unit of work completed.
- For applications not currently within a unit of work (the application has completed a unit of work, but not yet started a new one), this is the stop time of...
the last unit of work that completed prior to the one that just completed. The stop time of the one just completed is indicated by the **Overall transaction data**

- **Unit of work stop timestamp** counter.

- For applications within their first unit of work, this is the database connection request completion time.

**Plan** The plan name.

**Rollback Statements Attempted** The total number of SQL ROLLBACK statements that have been attempted.

A ROLLBACK can result from an application request, a DEADLOCK, or an error situation. This counter only includes the number of ROLLBACK statements issued from applications. For an application, this counter can help you determine the level of database activity for the application and the amount of conflict with other applications. For a database, it can help you determine the amount of activity in the database and the amount of conflict between applications running on the database.

**Note:** Try to minimize the number of rollbacks because higher rollback activity results in lower throughput for the database.

You can also use this counter to calculate the total number of units of work, by calculating the sum of the following:

(Commit statements attempted) + (Internal commits) + (Rollback statements attempted) + (Internal rollbacks)

**Row Selected** The number of rows that have been selected and returned to the application.

You can use this counter to gain insight into the current level of activity within the database. This counter does not include a count of rows read for actions, such as COUNT(*) or joins. For a federated system you can calculate the average time to return a row to the federated server from the data source:

\[
\text{average time} = \frac{\text{rows returned}}{\text{aggregate query response time}}
\]

You can use these results to modify CPU speed or communication speed parameters in =SYSCAT.SERV. Modifying these parameters can impact whether the optimizer does or does not send requests to the data source.

**Sequence Number** Is incremented whenever a unit of work ends, that is, when a COMMIT or ROLLBACK terminates a unit of work.

Together with the **Application ID** counter, this counter uniquely identifies a transaction.

**Server Instance Name** The name of the database manager instance for which the snapshot was taken. If a system contains more than one instance of the database manager, this name is used to uniquely identify the instance for which the snapshot call was issued. Along with configuration NNNAME at monitoring (server) node, this information can be useful if you are saving your monitor output in a file or database for later analysis, and you need to differentiate the data from different instances of the database manager.

**Time Stamp** The start time of this interval.
**Transaction ID** The unique transaction ID across all databases generated by a transaction manager in a two-phase commit transaction.

You can use this ID to correlate the transaction generated by the transaction manager with the transactions executed against multiple databases. In addition, it can help you diagnose transaction manager problems by tying database transactions that involve a two-phase commit protocol with the transactions that are originated by the transaction manager.

**Total Inbound Bytes Sent** The number of bytes (measured in 1000-byte increments) sent by the DB2 Connect gateway to the client, excluding communication protocol overhead, for example, TCP/IP or SNA headers. Use this counter to measure the throughput from the DB2 Connect gateway to the client.

**Total Host Response Time** For a DCS statement, this is the elapsed time between the time that the statement was sent from the DB2 Connect gateway to the host for processing and the time when the result was received from the host.

For a DCS database or DCS application, it is the sum of the elapsed times for all the statements that were executed for a particular database or application. For a data transmission, this is the sum of host response times for all the statements that used this many data transmissions. Use this counter with the Overall transaction data - Total outbound bytes sent and Overall transaction data - Total out bytes received counters to calculate the outbound response time (transfer rate):

\[
\frac{(\text{Total outbound bytes sent}) + (\text{Total out bytes received})}{\text{Total host response time}}
\]

**Total Outbound Bytes Received** The number of bytes (measured in 1000-byte increments) received by the DB2 Connect gateway from the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers. For a data transmission, this is the number of bytes received by the DB2 Connect gateway from the host during the processing of all the statements that used this number of data transmissions. Use this counter to measure the throughput from the host databases to the DB2 Connect gateway.

**Total Outbound Bytes Sent** The number of bytes sent (measured in 1000-byte increments) by the DB2 Connect gateway to the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers. For a data transmission, this is the number of bytes sent by the DB2 Connect gateway to the host during the processing of all the statements that used this number of data transmissions. Use this counter to measure the throughput from the DB2 Connect gateway to the host database.

**Total Statement Execution Elapsed Time** For a DCS statement, this is the elapsed time spent processing an SQL request on a host database server. This value is reported by this server. In contrast to the Overall transaction data - Total host response time counter, this counter does not include the network elapsed time between DB2 Connect and the host database server. At other levels, this value represents the sum of the host execution times for all the statements that were executed for a particular database or application, or for those statements that used a given number of data transmissions. Use this counter, along with other elapsed time monitor elements, to evaluate the processing of SQL requests by the database server and to help isolate performance issues. Subtract the value for this counter from the value for the Overall transaction data - Total host response time counter to calculate the network elapsed time between DB2 Connect and the host database server.
Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

Unit of Work Completion Status The status of the unit of work and how it stopped.

You can use this counter to determine if the unit of work ended due to a DEADLOCK or abnormal termination. It can be:
- Committed due to a commit statement
- Rolled back due to a rollback statement
- Rolled back due to a deadlock
- Rolled back due to an abnormal termination
- Committed at normal application termination
- Unknown as a result of a FLUSH EVENT MONITOR command for which units of work were in progress

Note: API users should refer to the sqlmon.h header file containing definitions of database system monitor constants.

Unit of Work Start Timestamp The date and time at which the unit of work first required database resources.

This resource requirement occurs at the first SQL statement execution of that unit of work:
- For the first unit of work, it is the time of the first database request (SQL statement execution) after the date and time that a connection request was granted.
- For subsequent units of work, it is the time of the first database request (SQL statement execution) after the previous COMMIT or ROLLBACK.

The database system monitor excludes the time spent between the COMMIT/ROLLBACK and the next SQL statement from its definition of a unit of work. This measurement method reflects the time spent by the database manager in processing database requests, separate from the time spent in the application before the first SQL statement of that unit of work. The unit-of-work elapsed time does include the time spent running the application between SQL statements within the unit of work. You can use this counter with the Overall transaction data - Unit of work stop timestamp counter to calculate the total elapsed time of the unit of work and with the Overall transaction data - Previous Unit of Work completion timestamp counter to calculate the time spent in the application between units of work. You can use the Overall transaction data - Unit of work stop timestamp and Overall transaction data - Previous Unit of Work completion timestamp counters to calculate the elapsed time for a unit of work.

Unit of Work Stop Timestamp The date and time at which the most recent unit of work completed, which occurs when database changes are committed or rolled back.

You can use this counter with the Overall transaction data - Previous Unit of Work completion timestamp counter to calculate the total elapsed time between COMMIT or ROLLBACK points, and with the Overall transaction data - Unit of
**work start timestamp** counter to calculate the elapsed time of the latest unit of work. The timestamp contents are set as follows:

- When the application has completed a unit of work and has not yet started a new one (as defined by the **Overall transaction data - Unit of work start timestamp** counter). This counter is a valid, nonzero timestamp.
- When the application is currently executing a unit of work, this counter contains zeros.
- When the application first connects to the database, this counter is set to the connection completion time.

As a new unit of work is started, the contents of this counter are moved to the **Overall transaction data - Previous Unit of Work completion timestamp** counter.

**User Login ID** Shows the ID that the user specified when logging in to the operating system. This ID differs from authorization ID, which the user specifies when connecting to the database. You can use this counter to determine the operating system user ID of the individual running the application that you are monitoring.

**DB2 Messages Workspace:**

The DB2 Messages workspace displays messages that can help you identify problems with your DB2 system.

This workspace is comprised of the following views:

**Critical DB2 Messages (table view)**
Displays all critical DB2 messages and warning DB2 messages. Critical messages are highlighted in red and warning messages are highlighted in yellow.

**Last 10 DB2 Messages (table view)**
Displays the ten most recent DB2 messages. Critical messages are highlighted in red and warning messages are highlighted in yellow.

**Note:** Not all messages are written to the message log. DISPLAY commands, for example, are filtered out and are not shown in the log.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Note:** By default DB2 messages are not collected. If you want to collect DB2 messages, use the Configuration Tool and select: Monitoring Profile configuration --> Additional configuration settings. If you configure it to YES, the DB2 message subtask is started during DB2 instance initialization.

To start or stop DB2 message collection manually, specify the following:

F <ccccccccc>,F PESERVER,F<db2>,DB2MSGMON=<p>

where:

- **ccccccccc** Identifies the OMEGAMON Collector started task name.
- **db2** Identifies the DB2 name.
- **p** Enter Y to start or N to stop the message subtask.
If you do not see any DB2 messages, check if the DB2 message subtask is started from the OMEGAMON Collector started task.

You can link to the following workspaces from the DB2 Messages workspace:

- Critical DB2 Messages by Message ID
- DB2 Messages by Time Interval
- DB2 Messages by Message ID

DB2 Messages by Message ID Workspace:

The DB2 Messages by Message ID workspace displays DB2 messages sorted by message identification number.

This workspace is comprised of the following views:

DB2 Messages by Message ID (table view)

Reports when the message was generated, the message identification number, and the message text.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following workspaces from the DB2 Messages by Message ID workspace:

- DB2 Messages
- DB2 Messages by Time Interval

DB2 Messages by Time Interval Workspace:

The DB2 Messages by Time Interval workspace displays DB2 messages sorted by time. The most recent messages are at the top of the list.

This workspace is comprised of the following views:

DB2 Messages by Time Interval (table view)

Reports when the message was generated, the message identification number, and the message text.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following workspaces from the DB2 Messages by Time Interval workspace:

- DB2 Messages
- DB2 Messages by Message ID

DBAT End-to-End SQL Monitoring Workspace:

The DBAT End-to-End SQL Monitoring workspace provides summarized performance information about DDF (Distributed Data Facility) thread activity. From here you can launch to the Extended Insight Analysis Dashboard, which collects the various SQL statement executions and shows them in an aggregated view.
This workspace is comprised of the following views:

**DDF DB Access Thread CPU% (bar chart)**
Shows the percentage of CPU that is used by distributed database access threads, which are server threads responding to SQL requests from a remote DB2 location.

**DDF DB Access Thread In-DB2 CP CPU Time (bar chart)**
Shows the class 2 CPU time (in DB2) that is used by distributed database access threads.

**Distributed Database Access Thread Connection Summary (table view)**
Provides the distributed database access threads connection summary.
Click the *End-to-End SQL Monitoring* link to launch to the *Extended Insight Analysis Dashboard*.

**Distributed Database Access Thread Summary (table view)**
Provides key data to identify which distributed database access threads use resources excessively.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:
- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

**DB2 SRM Subsystem Attributes:**
Use the DB2 SRM Subsystem attributes to create situations to monitor workload related information associated with a DB2 subsystem.

**Abends EOM Rate** The number of abends per second because an End of Memory (EOM) condition was detected over the last sampling period.

**Abends EOT Rate** The number of abends per second because an End of Task (EOT) condition was detected over the last sampling period.

**Abort Rate** The number of abort requests per second over the last sampling period.
Background Limit The system limit on background connections.

Background Utilization The percentage of available threads being used for background connections. Valid entry ranges from 0.0 to 100.0.

CONDBAT The maximum number of concurrent remote connections of Database Access Threads (DBATs) defined in DSNZPARM (Field name: QWP1CDB). When this limit is reached, any new connection request is rejected. Valid entry is an integer.

Commit Rate The number of commits per second over the last sampling period.

Create Thread Wait Rate The number of Create Thread requests per second that had to wait over the last sampling period.

Create Threads Rate The number of threads created per second over the last sampling period.

CTHREAD HWM The highest number of batch CICS, IMS, and TSO tasks.

Current Background The current number of background connections.

Current DBAT The current number of active DBATs.

Current Foreground The current number of foreground connections.

Current Threads The current number of active threads; Database Access threads are not included.

DBAT Conn HWM The number of high water mark remote connections (Field name: QDSTHWDT).

DBAT Conn Utilization The percentage of remote connections (CONDBAT) (derived field: SDBATCUT). The value is calculated as follows: DBAT connection * 100 / QWP1CDB

DBAT Connection The current number of remote connections for both, active and inactive connections (derived field: SDBATCON).

The value of active connections is calculated as follows: QDSTCNAT - QDSTNADS (active DBATs - disconnected DBATs)

The value of inactive connections is calculated as follows: QDSTQCIT + QDSTCIN2 (type1 inactive DBATs + type2 inactive DBATs)

DBAT Utilization The number of Database Access Threads (DBATs) in use is approaching the maximum number of DBATs defined by the MAXDBAT parameter in DSNZPARM.

Delta Abends EOM The number of abends detected because an End of Memory during the last sampling period.

Delta Abends EOT The number of abends detected because End of Task during the last sampling period.

Delta Aborts The number of abort requests during the last sampling period.
<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Delta Commits</strong></td>
<td>The number of commits during the last sampling period.</td>
</tr>
<tr>
<td><strong>Delta Create Thread Wait</strong></td>
<td>The number of times a Create Thread operation had to wait during the last sampling period.</td>
</tr>
<tr>
<td><strong>Delta Create Threads</strong></td>
<td>The number of threads created during the last sampling period.</td>
</tr>
<tr>
<td><strong>Delta Identify</strong></td>
<td>The number of Identify requests during the last sampling period.</td>
</tr>
<tr>
<td><strong>Delta In Doubt</strong></td>
<td>The number of Unit of Recovery threads that went in doubt during the last sampling period.</td>
</tr>
<tr>
<td><strong>Delta In Doubt Resolve</strong></td>
<td>The number of Unit of Recovery threads that were in doubt and resolved during the last sampling period.</td>
</tr>
<tr>
<td><strong>Delta Phase1 Commits</strong></td>
<td>The number of phase 1 commits during the last sampling period.</td>
</tr>
<tr>
<td><strong>Delta Phase2 Commits</strong></td>
<td>The number of phase 2 commits during the last sampling period.</td>
</tr>
<tr>
<td><strong>Delta Read Only Commits</strong></td>
<td>The number of Read Only commits during the last sampling period.</td>
</tr>
<tr>
<td><strong>Delta Sign-on</strong></td>
<td>The number of sign-on requests during the last sampling period.</td>
</tr>
<tr>
<td><strong>Delta Single Phase Commits</strong></td>
<td>The number of single phase commits during the last sampling period.</td>
</tr>
<tr>
<td><strong>Delta Terminate Thread</strong></td>
<td>The number of threads terminated during the last sampling period.</td>
</tr>
<tr>
<td><strong>Foreground Limit</strong></td>
<td>The system limit on foreground connections.</td>
</tr>
<tr>
<td><strong>Foreground Utilization</strong></td>
<td>The percentage of available threads being used for foreground connections.</td>
</tr>
<tr>
<td></td>
<td>Valid entry ranges from 0.0 to 100.0.</td>
</tr>
<tr>
<td><strong>IDBACK HWM</strong></td>
<td>The maximum number of connections from batch or TSO background tasks.</td>
</tr>
<tr>
<td><strong>Identify Rate</strong></td>
<td>The number of identify requests per second over the last sampling period.</td>
</tr>
<tr>
<td><strong>IDFORE HWM</strong></td>
<td>The maximum number of connections from TSO foreground tasks.</td>
</tr>
<tr>
<td><strong>In Doubt Rate</strong></td>
<td>The number of Unit of Recovery threads per second that went in doubt over the last sampling period.</td>
</tr>
<tr>
<td><strong>In Doubt Resolve Rate</strong></td>
<td>The number of Unit of Recovery threads that were in doubt and resolved per second over the last sampling period.</td>
</tr>
<tr>
<td><strong>Interval Time</strong></td>
<td>The number of seconds since last sample.</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>The DB2 location name.</td>
</tr>
</tbody>
</table>
MAXDBAT The number of maximum DBATs defined in DSNZPARM.

MAXDBAT HWM The maximum number of active and disconnected (pooled) DBATs that existed (field name: QDSTHWAT). This value is a high-water mark for QDSTCNAT.

Max Threads Allowed The total number of concurrent threads allowed.

OPM IP ADDR The host name or IP address of the IBM Optim Performance manager Web console.

OPM Port The port number of the IBM Optim Performance Web console.

OPM HTTP The HTTP or HTTPS for internal use only.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Phase1 Commit Rate The number of phase 1 commits per second over the last sampling period.

Phase2 Commit Rate The number of phase 2 commits per second over the last sampling period.

Read Only Commit Rate The number of read only commits per second over the last sampling period.

Sign-on Rate The number of sign-on requests per second over the last sampling period.

Single Phase Commit Rate The number of single phase commits per second over the last sampling period.

Terminate Thread Rate The number of Terminate Thread requests per second over the last sampling period.

Thread Utilization The percentage of available threads being used; this percentage is calculated as Current Threads/CTHREAD parameter in DSNZPARM *100; Database Access threads are not included. Valid entry ranges from 0.0 to 100.0.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYYMMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:

- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond
Total Abends EOM The total number of abends detected because End of Memory.

Total Abends EOT The total number of abends detected because End of Task.

Total Aborts The total number of abort requests.

Total Commits The total number of commit requests.

Total Create Thread Wait The total number of times a Create Thread operation has to wait.

Total Create Threads The total number of threads created.

Total Identify The total number of Identify requests.

Total In Doubt The total number of Unit of Recovery threads that went in doubt.

Total In Doubt Resolve The total number of Unit of Recovery threads that were in doubt that were resolved.

Total Phase1 Commits The total number of phase 1 commits.

Total Phase2 Commits The total number of phase 2 commits.

Total Read Only Commits The total number of read only commits.

Total Sign-on The total number of sign-on requests.

Total Single Phase Commits The total number of single phase commits.

Total Terminate Thread The total number of thread terminations.

DDF Conversations Workspace:

The DDF Conversations workspace presents conversation (connection between two transaction programs) information.

This workspace is comprised of the following view:

DDF Conversations (table view)

Lists conversation details, including IDs, counts, and maximums.

Note: This workspace is available only when the DB2 system is configured to use the distributed data facility.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 DDF CONV Attributes:

Use the DB2 DDF CONV attributes to create situations to monitor conversation (connection between two transaction programs) information.

Conversation LOGMODE The conversation ID (LOGMODE Name). It is an alphanumeric text string, with a maximum length of eight characters.
**Conversation LUNAME** The conversation ID (LUNAME Name). It is an alphanumeric text string, with a maximum length of eight characters.

**Conversation Utilization** The percentage of maximum conversations that is currently in use. Valid entry ranges from 0.0 to 100.0.

**Conversation Waits** The count of processes waiting because the conversation limit has been reached.

**Conversations In Use** The current count of conversations.

**Conversations Max** The maximum number of concurrent conversations allowed as derived from CNOS.

**Conversations Other Limit** The maximum number of concurrent conversations defined in CDB.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 118031506450100 for 03/15/18 06:45:01) where:
- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

**DDF Statistics Workspace:**

The DDF Statistics workspace monitors Distributed Database Facility (DDF) statistics, including send and receive counts.

This workspace is comprised of the following views:

**Send/Receive Counts (bar chart)**
- Shows "at a glance" counts of SQL calls, messages, and transactions (received and sent).

**Distributed Thread Statistics (table view)**
- Lists activity data associated with the DDF.

**Note:** This workspace is available for any thread defined as an allied-distributed thread.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
DB2 DDF Attributes:
Use the DB2 DDF attributes to create situations to monitor Distributed Database Facility statistics.

Aborts Received The number of aborts received from remote location.

Aborts Sent The number of aborts sent to remote location.

Agent Elapsed Time The elapsed time at the local site spent processing for the remote site (in units that represent tenths of seconds).

Block Mode Switches The count of block mode switches performed.

Blocks Received The blocks received from remote location.

Blocks Sent The blocks sent to remote location.

Commits Received The number of commits received from remote location.

Commits Sent The number of commits sent to remote location.

Conversations Initiated Local The number of conversations initiated by local side of connection.

Conversations Initiated Remote The number of conversations initiated by remote side of connection.

Conversations Allocated The conversations allocated.

Conversations Deallocated The conversations deallocated.

Conversations Queued The number of conversations queued.

Coordinator Backouts Received The number of backout requests received from coordinator (2-phase commit only).

Coordinator Backouts Sent The number of backout requests sent to the coordinator (2-phase commit only).

Coordinator Commits Received The number of commit requests received from coordinator (2-phase commit only).

Coordinator Commits Sent The number of commit requests sent to the coordinator (2-phase commit only).

Coordinator Forgets Sent The number of forget response requests sent to the coordinator (2-phase commit only).

Data Bytes Received The number of data bytes received from the remote location.

Data Bytes Sent The number of data bytes sent to the remote location.

Data Rows Received The number of data rows received from the remote location.

Data Rows Sent The number of data rows sent to the remote location.
**DB Access CPU Time** The database access agent CPU time at the remote site (in units that represent milliseconds).

**Directed Access** The type of directed access.

**Elapsed DB Access** The elapsed database access agent time at the remote site (in units that represent tenths of seconds).

**Interval Time** The number of seconds since last sample (in units that represent seconds).

**Last Agent Request Received** The number of last agent requests received from initiator (2-phase commit only).

**Last Agent Request Sent** The number of last agent requests sent to coordinator (2-phase commit only).

**Local Elapsed Time** The elapsed time, in tenths of a second, for local thread (in units that represent tenths of seconds).

**Maximum Conversations** The maximum conversations allowed.

**Message Buffer Rows** The message buffer rows.

**Messages Received** The number of messages received from remote location.

**Messages Sent** The number of messages sent to remote location.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Participant Backouts Received** The number of backout requests received from participant (2-phase commit only).

**Participant Backouts Sent** The number of backout requests sent to the participant (2-phase commit only).

**Participant Commits Received** The number of commit requests received from participant (2-phase commit only).

**Participant Commits Sent** The number of commit requests sent to the participant (2-phase commit only).

**Participant Forgets Received** The number of forget requests received from participant (2-phase commit only).

**Prepare Requests Received** The number of prepare requests received from participant (2-phase commit only).

**Prepare Requests Sent** The number of prepare requests sent to participant (2-phase commit only).

**Protocol Used** The protocol used for this conversation. It is an alphanumeric text string, with a maximum length of 12 characters.
Remote Binds The binds from remote access.

Remote Commit Operations The number of commit operations performed with the remote location as COORD.

Remote CPU Time The CPU time for remote system in milliseconds (in units that represent milliseconds).

Remote Elapsed Time The elapsed time for remote thread in tenths of a second (in units that represent tenths of seconds).

Remote In Doubt Threads The number of threads that went in doubt with the remote location as COORD.

Remote Location Name The name of the remote system to which this thread is connected. It is an alphanumeric text string, with a maximum length of 12 characters.

Remote Logical Unit Name The LUNAME of the connection to the remote DB2 system. It is an alphanumeric text string, with a maximum length of eight characters.

Remote Product ID The remote product ID. It is an alphanumeric text string, with a maximum length of eight characters.

Remote Rollback Operations The number of rollback operations performed with the remote location as COORD.

SQL Calls Received The number of SQL calls received from the remote location.

SQL Calls Sent The number of SQL calls made to the remote location.

Thread Token The attribute that ties this entry to the owning thread by using the thread token as a foreign key.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:

- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

Transactions Received The number of Transactions received from remote location.

Transactions Sent The number of transactions sent to remote location.
Detailed Thread Exception Workspace:

The Detailed Thread Exception workspace provides a detailed view of threads and thread exceptions connected to DB2.

This workspace is comprised of the following views:

**Locks owned (bar chart)**
Provides information about the number of locks owned by an individual thread.

**Detailed Thread Exceptions (table view)**
Lists “status” data for the activity of individual threads.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:
- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace”
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

**DB2 Thread Exceptions Attributes:**
Use the DB2 Thread Exceptions attributes to create situations to monitor thread-related performance.

**Ace Address** The DB2 thread ACE address for internal use.

**Archive Tape Wait** True if waiting for a tape for an archive operation. It is an alphanumeric text string, with a maximum length of one character.

**Asynchronous Page Reads** The number of asynchronous page reads for prefetch. Valid value is an integer in the range 0 - 2147483647.

**Authorization ID** The authorization ID of the thread. It is an alphanumeric text string, with a maximum length of eight characters.

**Authorization ID (Unicode)** The authorization ID of the thread. It is an alphanumeric text string, with a maximum length of eight characters.
**Begin Time** Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and IMS wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

**Cancel Command** The command string needed to cancel a thread. It is an alphanumeric text string, with a maximum length of eight characters.

**CICS MVS ID** The MVS identifier used for CICS dynamic workspace linking.

**Collection ID** The collection ID.

**Collection ID (Unicode)** The collection ID.

**Commit Count** The number of times the thread successfully completed commit processing. DB2 resets the commit count at Create Thread and Signon. If Signon is not driven, the count is cumulative.

**Commit Ratio** The ratio of total system page updates to total commits.

**Connection ID** Identifies the connection of an application to a DB2 system. It is an alphanumeric text string, with a maximum length of eight characters.

**Connection Type** The type of thread connection.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application_Directed</td>
<td>Application directed access</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DB2_CALL_ATTACH</td>
<td>DB2 call attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>DISTRIBUTED</td>
<td>Distributed thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>IMS</td>
<td>IMS thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Correlation ID** The correlation ID for this thread. It is an alphanumeric text string, with a maximum length of 12 characters.
**CPU Utilization** The rate of CPU consumption during last interval.

**CP CPU Time** The total amount of central processor CPU time that DB2 has accumulated for a thread.

**CP DB2 CPU Used** The CP CPU time accumulated in DB2 when the SQL statement exit from DB2.

**DB2 Elapsed Time** The elapsed time accumulated in DB2 when the SQL statement exit from DB2.

**DB2 ID** The name of the DB2 system on which this thread is running. It is an alphanumeric text string, with a maximum length of four characters.

**Display CPU Time** The total amount of CPU time that DB2 has accumulated for a thread.

Valid format is HH:MM:SS:mmm, where:
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

If the time goes over 24 hours, the format is DD-HH:MM where:
- D = Day
- H = Hour
- M = Minute

For example, 00:14:59 indicates that the display CPU time is 14 minutes and 59 seconds.

**Display Elapsed Time** The total amount of elapsed time since thread creation or DB2 sign-on.

Valid format is DD-HH:MM:SS, where:
- D = Day
- H = Hour
- M = Minute
- S = Second

For example, 00-20:16:18 indicates that the display elapsed time is 20 hours, 16 minutes, and 18 seconds.

**Display Wait Time** The total amount of thread wait time. The collection of thread wait time requires activation of Accounting Class 2 in the monitored DB2 subsystem.

Valid format is HH:MM:SS:mmm, where:
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

If the time goes over 24 hours, the format is DD-HH:MM where:
• D = Day
• H = Hour
• M = Minute

For example, 00:14:59 indicates that the display CPU time is 14 minutes and 59 seconds.

**Distributed Bytes Received** The amount of data received by distributed threads from remote DB2.

**Distributed Bytes Received 64** The amount of data received by distributed threads from remote DB2. It has a length of 64 bit to resolve overflow problems.

**Distributed Bytes Sent** The amount of data sent by distributed threads to remote DB2.

**Distributed Bytes Sent 64** The amount of data sent by distributed threads to remote DB2. It has a length of 64 bit to resolve overflow problems.

**Distributed CPU Seconds** The amount of CPU time being used by a distributed DB access thread (in units that represent milliseconds).

**Dynamic Prefetch** The number of dynamic prefetch requests. Valid value is an integer in the range 0 - 2147483647.

**Elapsed Time** The elapsed time for a DB2 thread (in units that represent seconds).

**Getpage Count** The number of get page operations for this thread during the last interval.

**Getpage Ratio** The number of Get pages divided by the Read I/O count.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**Immediate Write I/O** The number of synchronous write I/O requests that DB2 issues on behalf of a thread. Valid value is an integer in the range 0 - 2147483647.

**In-DB2 IIP CPU Time** The IIP CPU time consumed when executing in DB2.

**In Doubt** If True, the thread is in an INDOUBT status. It is an alphanumeric text string, with a maximum length of one character.

**Interval Time** The amount of time this thread has existed during the last sampling period (in units that represent seconds).

**Job Name** The job name connected to a coupling facility structure. It is an alphanumeric text string with a maximum of 8 characters; for example, IRLM.

**List Prefetch** The number of list prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

**Lock Percentage** The number of locks owned divided by the maximum allowed locks for a thread.

**Locks Max** The maximum number of locks allowed for a single thread.
Locks Owned The number of locks this thread currently owns.

LUWID The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:

USCAC001.02022A.A1FEBE04B9D4=8

Misc Flag Miscellaneous flag. It is an alphanumeric text string, with a maximum length of one character.

MVS System The name of the MVS image where the DB2 system identified by the DB2ID field is running. It is an alphanumeric text string, with a maximum length of four characters.

Name The name of the DB2 thread. It is an alphanumeric text string, with a maximum length of four characters.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package DBRM (Unicode) The package DBRM name.

Package Name The name of the package to which this thread belongs.

Page Update Rate The number of page update requests per second made by a thread.

Plan Name The ID of the plan this thread is executing. It is an alphanumeric text string, with a maximum length of eight characters.

Parent Ace The token used to correlate parallel task or utility subtask records with the records of the originating task or main utility task. For a record that is issues from a parallel task or utility subtask this field contains a token that is equal to the agent control element (ACE) of the originating task or main utility task. Otherwise, the value in this field is zero.

Prefetch Count The number of sequential, prefetch operations during the interval.

Prefetch Rate The read sequential, prefetch rate.

Read Count The number of read operations during the interval.

Read I/O Rate The thread synchronous read I/O rate.

Resource Count The total resource count.

Resource Limit The limit on number of resources allowed.
**Resource Limit Percent** The resource usage divided by resource limit.

**Sync Read Count** The number of synchronous reads during last interval.

**Thread Connection Type** The type of thread connection.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
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<tbody>
<tr>
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<td>IMS control region</td>
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<td>RRSASF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
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<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Thread Create Wait** The application waiting for thread creation. It is an alphanumeric text string, with a maximum length of one character.

**Thread Group Member Name** The name of the member within a data sharing group for a thread.

**Thread Group Name** The name of a data sharing group for a thread. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Thread Status** The description of the current thread status. It is an alphanumeric text string, with a maximum length of 12 characters.

Valid values are:

**Status** **Description**

NO-T-AVAIL
   The thread is not available.

IN-ABORT
   The thread is in abort processing.

IN-ACCEL
   The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
   The thread is processing an autonomous procedure.
IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call's request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.
WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.
UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Stored Procedure Name The name of the stored procedure that a thread invokes. It is an alphanumeric text string, with a maximum of 18 characters; for example, SPCALC_TAX.
Thread Token The thread token used as foreign key to DDF, also used for the cancel thread command.

Thread Type The type of thread. It can be:

<table>
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<tr>
<th>Value</th>
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<tbody>
<tr>
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</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

Thread Wait Time The total amount of thread wait time. It is an integer in the range 09 - 99999999 seconds. Note: collection of thread time requires activation of Accounting Class 2 in the Monitored DB2 subsystem.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:

- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

Type Indicator Indicates the type of parallel thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Not a parallel thread</td>
</tr>
<tr>
<td>Parent</td>
<td>Parallel thread is a parent</td>
</tr>
<tr>
<td>Child</td>
<td>Parallel thread is a child</td>
</tr>
</tbody>
</table>
KD2_PF_READA_SPMON

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomous SP</td>
<td>Originating thread which invoked autonomous stored procedures</td>
</tr>
</tbody>
</table>

**Unsuccessful Get Page Operation** The number of conditional getpage requests that failed. Valid value is an integer in the range 0 - 2147483647.

**Update Count** The number of update operations during last interval.

**Wait Resource** The resource being waited on. It is an alphanumeric text string, with a maximum length of six characters.

**Wait Time** Total class3 wait time for a thread.

**Wait Time Distributed Query** The time distributed allied thread has been waiting for response - remote SQL (in units that represent milliseconds).

**Wait Time Drain Claims** The time thread waiting for drain of claims.

**Wait Time Drain Lock** The time thread waiting for acquisition of drain lock.

**Wait Time Global Lock** The time thread waiting because of global contention.

**Wait Time Log Queue** The time thread waiting for ARCHIVE LOG MODE(QUIESCE).

**Wait Time Procedure** The time thread waiting for a TCB to schedule a stored procedure.

**Wait Time Resource** The time thread waiting for a resource.

**Wait Time Service** The time thread waiting for DB2 Service (in units that represent milliseconds).

**Distributed Allied Thread Summary Workspace:**

The Distributed Allied Thread Summary workspace provides summarized performance information about DDF (Distributed Data Facility) thread activity.

This workspace is comprised of the following views:

**DDF Allied Thread-Remote Elap Time (bar chart)** Shows the remote elapsed time for the distributed allied threads that are used to issue SQL requests to a remote DB2 location.

**DDF Allied Thread-Remote CPU (bar chart)** Shows the remote CPU for distributed allied threads.

**Distributed Allied Thread Summary (table view)** Provides key data to identify which distributed allied threads use resources excessively.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli
Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:
- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

Distributed Thread Detail Workspace:

The Distributed Thread Detail workspace provides information about the VTAM APPC conversations and TCP/IP conversations of a distributed (DDF) thread.

This workspace is comprised of the following views:

**Thread ID (table view)**
Identifies the thread.

**Distributed VTAM APPC Conversations (table view)**
Shows the VTAM APPC conversations data of the thread if the thread is connected through VTAM APPC.

**Distributed TCP/IP Data (table view)**
Shows the TCP/IP data of the thread if the thread is connected through TCP/IP.

**Distributed Remote Location Summary (table view)**
Each row provides a SQL statistics summary for each remote DB2 location with which the thread has communicated, as a requestor or a server.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Distributed Thread Detail Attributes:**
Use the Distributed Thread Detail attributes to create situations that monitor VTAM APPC conversations and TCP/IP conversations of a distributed (DDF) thread.

**Aborts Received** The number of rollback requests received from the requesting location (single-phase commit operators only). This value is maintained at the server location.

**Aborts Sent** The number of rollback requests sent to the server location (single-phase commit operations only). This value is maintained at the requesting location.

**Ace Address** The ace address.

**Agent Address** The agent address.

**AGNT ASID** The address space ID (ASID) of the agent.

**Agent TCB Address** The Agent TCB address.

**Allocations Received** The number of create database access thread (DBAT) requests received by the server DBAT from the requester allied agent. This value is maintained by the server DBAT and is always 1.

**Allocations Sent** The number of successful conversation allocations. All allocation attempts, whether successful or not, are counted in QLACCNVS. The difference between QLACCNVS and QLACCNVA can be used to identify a session resource on resource constraint problem.

**Application Directed Access** If using application directed access, this is on.

**Authorization ID** The authorization ID.

**Authorization ID (Unicode)** The authorization ID.

**Backouts Received** The number of backout requests received from the coordinator (two-phase commit operations only).

**Backouts Received from Coordinator** The number of backout responses received from the participant (two-phase commit operations only). This indicates that the participant voted no to the prepare request.

**Backouts Sent** The number of backout requests sent to the participant (two-phase commit operations only).

**Backouts Sent to Coordinator** The number of backout responses sent to the coordinator (two-phase commit operations only). This indicates that the participant voted no to the prepare request.

**Binds** The number of static SQL statements that were bound for remote access (DB2 private protocol only). This value is maintained at the requester location.

**Block Mode Switch Count** The number of times a switch was made from continuous block mode to limited block mode (DB2 private protocol only).
**Blocks Received** The number of blocks received using block fetch. This value is maintained at the requester location.

**Blocks Sent** The number of blocks transmitted using block fetch. This value is maintained at the server location.

**Bytes Received** The number of bytes of data received from the server location. More bytes of data might be sent from the server location than are received by the requester because of the way SQL statements are processed internally.

**Bytes Sent** The number of bytes of data sent to the requester location. This value is maintained at the server location.

**Collection** The package collection ID.

**Collection (Unicode)** The package collection ID.

**Commits Performed** The number of commit operations performed with the remote location as the coordinator (two-phase commit operations only).

**Commits Received** The number of commit requests received from the requester location (single-phase commit operations only). This value is maintained as the server location.

**Commits Received Phase 2** The number of commit requests received from the coordinator (two-phase commit operations only).

**Commits Sent** The number of commit requests sent to the server location (single-phase commit operations only). This value is maintained at the requester location.

**Commits Sent Phase 2** The number of commit requests sent to the participant (two-phase commit operations only).

**Distributed Thread Detail Attributes** Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**Distributed Thread Detail Attributes** The type of connection associated with the thread.

Valid values are:

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</tbody>
</table>

**Conversation ID** The conversation ID.

**Conversations Allocated** The number of successful conversation allocations.

**Conversations Deallocated** The number of conversations terminated.

**Conversations Initiated Location** The number of conversations that were initiated from the requester to the server location. This value is updated as the server location.

**Conversations Initiated Thread** The number of conversations that were initiated from the requester location. This value is maintained at the requester.

**Conversations Queued** The number of conversation requests queued by DDF that are waiting for allocation. This value is maintained at the requestor location. If the value is a large number, you might want to increase the limit for the number of conversations. See SE for the number of conversations.

**Conversation Status** The conversation status.

**Correlation ID** The correlation ID.

**DBAT CPU** The database access agent CPU time at the serving location.

**DBAT Elapsed** The elapsed time at the requester. It includes the total of DB2 and network time (DB2 field name: ADDSELRQ).

**DB2 ID** The DB2 subsystem ID.

**End User ID** The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (DB2 field name: QWHCEUID).

**Forgets Received** The number of forget responses received from the participant (two-phase commit operations only). This indicates that the participant was read only.

**Forgets Sent** The number of forget responses sent to the coordinator (two-phase commit operations only). This indicates that the participant was read only.

**From Location** The location from.

**Host Name** The host name.
Interval Start  The start time of this interval.

IP Address  The TCP/IP address (prior to DB2 9).

Last Agents Received  The number of last agent requests received from the initiator (two-phase commit operations only). This counter is incremented when the DB2 server is receiving a last agent request from its upstream partner.

Last Agents Sent  The number of last agent requests sent to the coordinator (two-phase commit operations only).

Last Appc Request  The conversation last appc request issued.

Last Appc Qualifier Used  The conversation last appc qual issued.

Location  The requesting location.

Location (Unicode)  The requesting location.

Logical Unit Name  The conversation Logical Unit name.

Maximum Conversations  The largest number of conversations open at any time.

Message Buffer Rows  The number of rows transmitted in message buffers using block fetch. This field is maintained at both the requester and the server locations.

Messages Received  The number of messages received from the location. More messages might be sent from the server location than are received by the requester because of the way SQL statements are processed internally. This value is maintained internally.

Messages Sent  The number or messages sent to the location. A message, as defined by VTAM, is a group of characters and control IT sequences transferred as an entity. This value is maintained at the location where the messages originated.

MVS ID  The MVS system identifier.

Number In Doubt  The number of threads that became INDOUBTz with the remote location as the coordinator (two-phase commit operations only). This indicates that communication with the coordinator was lost.

Originating System ID  The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package DBRM  The package DBRM name.

Package DBRM (Unicode)  The package DBRM name.

Plan  The plan name.

Port  The TCP/IP port number.

Prepares Received  The number of prepare requests received from the coordinator (two-phase commit operations only).
Prepares Sent  The number of prepare requests sent to the participant (two-phase commit operations only).

Product Name  Shows the ACCRDB PRID parameter of the DDM command, where "ACCRDB" is the product specific ID of the "access relational database" and "PRID" is the product ID of the requester. The value is zero if the record is written at the application requester location.

Protocol Used  The protocol used.

Remote Elapsed Time  The remote elapsed time.

Remote Wait Time  The time spent waiting for remote response.

Request Commits Received  The number of request commit responses received from the participant (two-phase commit operations only).

Request Commits Sent  The number of request commit responses sent to the coordinator (two-phase commit operations only).

Rollbacks Remote  The number of rollback operations performed with the remote location as the coordinator (two-phase commit operations only).

Row Count  The row counter.

Rows Received  The number of rows of data retrieved from the server location (the count does not include either the SQLDA or SQLCA if they are transmitted). This value is maintained at the requester location.

Rows Send  The number of rows of data sent to the requester location (includes SQLDA). This value is maintained at the server location.

Service Name  The EXSCAT SRVNAM parameter.

Session ID  The session ID.

Srvclsnm  The EXSCAT SRVNAM parameter.

SQL Calls Received  The number of SQL statements received from the requester.

SQL Calls Sent  The number of SQL statements sent to the server. This value is maintained at the requester location.

System Access  System access.

Thread Type  The thread type is DBACCESS/ALLIED.

Time Since Last VTAM Request  The time since the last VTAM request was issued.

Transaction ID  The transaction ID at the workstation.

Uniqueness Value  The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSFLUUV).

Uniqueness Value 2  The DB2 thread uniqueness value. For internal use.
VTAM Logmode The VTAM log mode entry name in use by the session.

VTAM Luname The location Logical Unit name.

Workstation ID The workstation ID.

Distributed Thread SQL Statistics Workspace:

The Distributed Thread SQL Statistics workspace provides distributed SQL statistics for a remote DB2 location with which the distributed (DDF) thread has communicated, as a requester or a server.

This workspace is comprised of the following views:

Thread ID (table view)
Identifies the thread.

Distributed VTAM APPC Conversations (table view)
Shows the VTAM APPC conversations data of the thread if the thread is connected through VTAM APPC.

Distributed TCP/IP Data (table view)
Shows the TCP/IP data of the thread if the thread is connected through TCP/IP.

Distributed SQL Statistics (table view)
Shows SQL-related statistics for the selected remote DB2 location with which the thread has communicated, as a requester or a server.

Send & Receive (table view)
Shows send and receive data for the selected remote DB2 location with which the thread has communicated, as either a requester or a server.

2-Phase Commit: Send & Receive (table view)
Shows two-phase-commit-related send and receive data for the selected remote DB2 location with which the thread has communicated, as either a requester or a server.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Application Parameters Workspace:

The DSG DSNZPARM Application Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect the default settings of the DB2 application.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPF - Application Default 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.
DSNTIP4 - Application Default 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

DSNTIP4 - Application Default 3 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Parameters Attributes:
Use the DB2 Parameters attributes to view ZPARM fields to see how your DB2 subsystem is configured. This information also applies if DB2 is a member of a data sharing group.

Data Sharing Group The name of the DB2 data sharing group. It is an alphanumeric text string with a maximum of 8 characters.

Data Sharing Member The name of the DB2 data sharing member or the member name of the DB2 subsystem. It is an alphanumeric text string with a maximum of 8 characters.

DB2 Subsystem The name of the DB2 subsystem.

Field Name The name of the DB2 field. It is an alphanumeric text string with a maximum of 8 characters.

Field Description The description of the DB2 field. It is an alphanumeric text string with a maximum of 44 characters.

The field descriptions of the DB2 parameters are listed in alphabetical order:
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3990-3 SEQ CACHE (SEQCACH)</td>
<td>Indicates whether DB2 prefetch uses sequential mode to read cached data from a 3990 controller. When BYPASS (default), DB2 prefetch bypasses the cache. When SEQ, DB2 prefetch uses sequential access for read activity. There is a performance benefit using SEQ with DFSMS or DFP controls with newer 3990 caches. Install parameter SEQUENCEAL CACHE on panel DSNTIPE, or ZPARM SEQCACH in DSN6SPRM.</td>
</tr>
<tr>
<td>ACCEL STARTUP (ACCEL)</td>
<td>Specifies the accelerator servers to be used.</td>
</tr>
<tr>
<td>ACCESS CONTROL (ACCESS CNTL MODULE)</td>
<td>Shows the name of the default access control exit module. This field corresponds to field ACCESS CONTROL on installation panel DSNTIPO3. The ZPARM name is ACCESS CNTL MODULE in DSN6SYSP.</td>
</tr>
<tr>
<td>ACTIVATE I/O SCHEDULING (SPRMIOP)</td>
<td>The enablement of the index I/O parallelism ZPARM.</td>
</tr>
<tr>
<td>ACTIVE LOGS - NUMBER OF COPIES (TWOACTV)</td>
<td>The TWOACTV subsystem parameter specifies the number of copies of the active log that DB2 is to maintain: 1 (single logging) or 2 (dual logging). ZPARM TWOACTV in DSN6LOGP</td>
</tr>
<tr>
<td>ACTIVE LOGS ARE OFFLOADED ONLINE</td>
<td>Shows whether the offload process is initiated online.</td>
</tr>
<tr>
<td>ADMIN SCHEDULER (ADMTPROC)</td>
<td>The name of the JCL procedure for starting the DB2 administrative scheduler task address space. DB2 parameter ADMTPROC in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>AGGREGATION FIELDS (ACCUMUID)</td>
<td>Shows the aggregation fields used for DDF and RRSAF accounting rollup. Values are defined as follows:</td>
</tr>
<tr>
<td></td>
<td>0 End user ID, transaction name, and workstation name</td>
</tr>
<tr>
<td></td>
<td>1 End user ID</td>
</tr>
<tr>
<td></td>
<td>2 End user transaction name</td>
</tr>
<tr>
<td></td>
<td>3 End user workstation name</td>
</tr>
<tr>
<td></td>
<td>4 End user ID and transaction name</td>
</tr>
<tr>
<td></td>
<td>5 End user ID and workstation name</td>
</tr>
<tr>
<td></td>
<td>6 End user transaction name and workstation name</td>
</tr>
<tr>
<td></td>
<td>This value is ignored if DDF or RRSAF accounting are not used. DB2 writes individual accounting threads for threads that do not have all aggregation fields populated that are specified by this parameter.</td>
</tr>
<tr>
<td></td>
<td>Install parameter AGGREGATION FIELDS on installation panel DSNTIPN, or ZPARM ACCUMUID in DSN6SYSP.</td>
</tr>
<tr>
<td>ALLOCATION UNITS (ALCUNIT)</td>
<td>The unit used in allocating archive data sets. Possible values are CYLINDER, TRACK, and BLOCK.</td>
</tr>
<tr>
<td></td>
<td>Install parameter ALLOCATION UNITS on panel DSNTIPA, or ZPARM ALCUNIT in DSN6ARVP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>ALLOW AUTOBIND OPERATION (ABIND)</td>
<td>Indicates whether autobind is enabled. Values are:</td>
</tr>
<tr>
<td></td>
<td><strong>YES</strong> Allows automatic rebind operations to be performed when a plan/package:</td>
</tr>
<tr>
<td></td>
<td>• Was marked “invalid”.</td>
</tr>
<tr>
<td></td>
<td>• Was bound on DB2 Vn, but is now running on DB2 Vn-1</td>
</tr>
<tr>
<td></td>
<td>• After use on DB2 Vn-1 (as previously described), is later used again on DB2 Vn</td>
</tr>
<tr>
<td></td>
<td><strong>NO</strong> Prevent DB2 from performing any automatic rebind operations under any circumstances.</td>
</tr>
<tr>
<td>COEXIST</td>
<td>Allows automatic rebind operation to be performed in a DB2 Data Sharing coexistence environment when the plan/package:</td>
</tr>
<tr>
<td></td>
<td>• Is marked “invalid” or</td>
</tr>
<tr>
<td></td>
<td>• Was last bound in DB2 Vn and is running on DB2 Vn-1</td>
</tr>
<tr>
<td></td>
<td>ZPARM ABIND in DSN6SPRM.</td>
</tr>
<tr>
<td>ALLOW EXPLAIN AT AUTOBIND (ABEXP)</td>
<td>Indicates whether EXPLAIN processing occurs during automatic rebind.</td>
</tr>
<tr>
<td></td>
<td><strong>YES</strong> means EXPLAIN processing happens during automatic rebind of a plan or package that has EXPLAIN(YES) as a bind option. If the PLAN TABLE does not exist, automatic rebind continues, but there is no EXPLAIN output. Explain processing does not happen for a plan or package with EXPLAIN(NO).</td>
</tr>
<tr>
<td></td>
<td>ZPARM ABEXP in DSN6SPRM.</td>
</tr>
<tr>
<td>ALLOW TRACKMOD FOR IMPLICIT TSS (IMPTKMOD)</td>
<td>Shows whether you have specified the TRACKMOD option on ALTER TABLESPACE for an implicitly created table space.</td>
</tr>
<tr>
<td></td>
<td>This field corresponds to field TRACK MODIFIED PAGES on installation panel DSNTIP7. The ZPARM name is IMPTKMOD in DSN6SPRM.</td>
</tr>
<tr>
<td>AMOUNT OF SPACE ABOVE MVS</td>
<td>The amount of space above MVS</td>
</tr>
<tr>
<td>APPL COMPAT LEVEL (APPL COMPAT)</td>
<td>The application compatibility level.</td>
</tr>
<tr>
<td>APPL REGISTRATION TABLE (RGFNMPRT)</td>
<td>The name of the application registration table.</td>
</tr>
<tr>
<td></td>
<td>Install parameter APPL REGISTRATION TABLE on panel DSNTIPZ or ZPARM RGFNMPRT in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>APPLICATION ENCODING DEFAULT (APPENSCH)</td>
<td>The Application encoding scheme. Install parameter APPLICATION ENCODING on installation panel DSNTIPF, or ZPARM APPENSCH in DSNHDEC.</td>
</tr>
<tr>
<td>ARCHIVE COPY 1 MASS STORAGE GROUP (MSGVP)</td>
<td>The mass storage system volume group name of the first storage group.</td>
</tr>
<tr>
<td>ARCHIVE COPY 2 MASS STORAGE GROUP (MSGVP2)</td>
<td>The mass storage system volume group name of the second storage group.</td>
</tr>
<tr>
<td>ARCHIVE LOG BLOCK SIZE BYTES (BLKSIZE)</td>
<td>The block size of the archive log data set. The block size must be compatible with the device type used for archive logs. The value is rounded up to the next multiple of 4096 bytes. If the archive log is written to tape, use the largest possible block size to improve the reading speed. Recommended block size values are 28672 for tape, 20480 for 3380, and 24576 for 3390 or RAMAC. Install parameter BLOCK SIZE on panel DSNTIPA, or ZPARM BLKSIZE in DSN6ARVP.</td>
</tr>
<tr>
<td>ARCHIVE LOG RACF PROTECTION (PROTECT)</td>
<td>Indicates whether archive log data sets are protected with individual RACF profiles when they are created. When YES, RACF protection must be active for DB2. YES also means that you cannot use RACF generic profiles for archive log data sets. If your archive log is on tape, RACF class TAPEVOL must be active, otherwise, the off-load will fail. Install parameter ARCHIVE LOG RACF on panel DSNTIPP, or ZPARM PROTECT in DSN6ARVP.</td>
</tr>
<tr>
<td>ARCHIVE LOGS - COPY 1 PREFIX (ARCPFX1)</td>
<td>The prefix for copy 1 of the archive data set. This prefix is appended to the high-level qualifier. ZPARM ARCPFX1 in DSN6ARVP.</td>
</tr>
<tr>
<td>ARCHIVE LOGS - COPY 2 PREFIX (ARCPFX2)</td>
<td>The prefix for copy 2 of the archive data set. This prefix is appended to the high-level qualifier. ZPARM: ARCPFX2 in DSN6ARVP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>ART/OR T ESCAPE CHAR (RGFESCP)</td>
<td>The escape character used in the application registration table (ART) or object registration table (ORT). Sets of names in the ART and OR T can be represented by patterns that use the underscore (_) and percent sign (%) characters in the same way as in an SQL LIKE predicate. Install parameter ART/OR T ESCAPE CHARACTER on panel DSNTIPZ, or ZP ARM RGFESCP in DSN6SPRM.</td>
</tr>
<tr>
<td>ASCII GRAPHIC CCSID (AGCCSID)</td>
<td>Indicates the ASCII graphic coded character set ID. The default (0) means the installation has no ASCII databases, table spaces, or tables. Install parameter ASCII CCSID on panel DSNTIPF, or ZP ARM AGCCSID in DSNHDEC P.</td>
</tr>
<tr>
<td>ASCII MIXED CCSID (AMCCSID)</td>
<td>Indicates the ASCII mixed coded character set ID. The default (0) means the installation has no ASCII databases, table spaces, or tables. Install parameter ASCII CCSID on panel DSNTIPF, or ZP ARM AMCCSID in DSNHDEC P.</td>
</tr>
<tr>
<td>ASCII SINGLE-BYTE CCSID (ASCCSID)</td>
<td>The ASCII single-byte coded character set ID. The default (0) means the installation has no ASCII databases, table spaces, or tables. Install parameter ASCII CCSID on panel DSNTIPF, or ZP ARM ASCCSID in DSNHDEC P.</td>
</tr>
<tr>
<td>ASSEMBLY DATE</td>
<td>The date on which this module was assembled.</td>
</tr>
<tr>
<td>AUTH EXIT CHECK (AUTHEXIT CHECK)</td>
<td>The AUTH subsystem parameter controls whether DB2 is to check authorizations.</td>
</tr>
<tr>
<td>AUTH EXIT LIMIT (AEXITLIM)</td>
<td>The AEXITLIM subsystem parameter controls the number of abends of the DB2 access control authorization exit routine that are to be tolerated before it is shut down.</td>
</tr>
<tr>
<td>AUTHEXIT CACHEREFRESH</td>
<td>The authorization exit cache refresh.</td>
</tr>
<tr>
<td>AUTO START (IRLMAUT)</td>
<td>Indicates whether IRLM is started automatically by DB2. Install parameter AUTO START on panel DSNTIP, or ZPARM IRLMAUT in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>AUTO STARTED DATABASE/TBLSPACE</td>
<td>Database or table space is automatically started.</td>
</tr>
<tr>
<td>AUTOMATICALLY REOPTIMIZE DYN SQL (REOPTEXT)</td>
<td>Indicates that the access path of the dynamic SQL statement was automatically reoptimized.</td>
</tr>
</tbody>
</table>
| BACKOUT DURATION (BACKODUR) | Indicates how much of the log to process for backout when LIMIT BACKOUT = YES or AUTO. During restart, backward log processing continues until both of the following events occur:  
  • All inflight and inabort URs with update activity against the catalog or directory are backed out.  
  • The number of log records processed is equal to the number specified in BACKOUT DURATION times the value of CHECKPOINT FREQ. If the checkpoint frequency is specified in minutes, the number of records processed is the default of 50000 records multiplied by the value of CHECKPOINT FREQ.  
In-flight and in-abort URs that are not completely backed out during restart are converted to postponed-abort status. Page sets or partitions with postponed-backout work are put into restart pending (RESTP). This state blocks all access to the object other than access by the command RECOVER POSTPONED or by automatic backout processing performed by DB2 when LIMITED BACKOUT = AUTO.  
A table space might be in restart pending mode, without the associated index spaces also in restart pending mode. This happens if a postponed abort UR makes updates only to non-indexed fields of a table in a table space. In this case, the indexes are accessible to SQL (for index-only queries), even though the table space is inaccessible.  
Install parameter BACKOUT DURATION on panel DSNTIPL, or ZPARM BACKODUR in DSN6SYSP. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIF COMPATIBILITY</td>
<td>The BIF_COMPATIBILITY subsystem parameter specifies whether the built-in functions and specifications are to return results in the DB2 10 format or revert to the pre-Version 10 format. Acceptable values are: CURRENT V9 V9_TRIM V9_DECIMALVARCHAR N/P</td>
</tr>
<tr>
<td>ZPARM BIF_COMPATIBILITY in</td>
<td>DSN6SPRM.</td>
</tr>
<tr>
<td>BIND NEW PACKAGE (BINDNV)</td>
<td>The BINDNV subsystem parameter controls whether BIND or BINDADD authority is to be required for a user to bind a new version of an existing package. Acceptable values are BINDADD (default) or BIND.</td>
</tr>
<tr>
<td>ZPARM BINDNV in DSN6SPRM.</td>
<td></td>
</tr>
<tr>
<td>CACHE DYNAMIC SQL STATEMENTS</td>
<td>Indicates whether prepared dynamic SQL statements are saved for later use by eligible application processes in the EDM pool.</td>
</tr>
<tr>
<td>(CACHEDYN)</td>
<td>Install parameter CACHE DYNAMIC SQL on panel DSNTIP8, or ZPARM CACHEDYN in DSN6SPRM.</td>
</tr>
<tr>
<td>CATALOG DATA (CATALOG)</td>
<td>The value of the CATALOG DATA field specifies whether archive log data sets on tape are to be cataloged. Acceptable values are YES or NO (default).</td>
</tr>
<tr>
<td>ZPARM CATALOG in DSN6ARVP.</td>
<td></td>
</tr>
<tr>
<td>CHARACTER SET (DECPCHAR)</td>
<td>The character set.</td>
</tr>
<tr>
<td>CHECK FASTREPLICATION</td>
<td>The CHECK FASTREPLICATION parameter specifies the type of replication that DSS COPY uses to copy objects to shadow data sets when it is invoked by the DB2 CHECK utilities. The CHECK utilities can stipulate fast replication as PREFERRED or REQUIRED (default).</td>
</tr>
<tr>
<td>ZPARM CHECK FASTREPLICATION in</td>
<td>DSN6SPRM.</td>
</tr>
<tr>
<td>CHK FREQ RECORDS (LOGLOAD)</td>
<td>The LOGLOAD value specifies the number of log records that DB2 writes between checkpoints.</td>
</tr>
<tr>
<td>COMPACT DATA (COMPACT)</td>
<td>The COMPACT subsystem parameter controls whether data that is written to archive logs is to be compacted. Acceptable values are YES or NO (default).</td>
</tr>
<tr>
<td>ZPARM COMPACT in DSN6ARVP.</td>
<td></td>
</tr>
<tr>
<td>COMPATIBILITY OPTION (COMPAT)</td>
<td>Indicates that DB2 is running in compatibility mode.</td>
</tr>
<tr>
<td>DB2 parameter COMPAT in</td>
<td>DSNHDECP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>COMPRESS SMF RECORDS (SMFCOMP)</td>
<td>Shows the COMPRESS DEST(SMF) TRACE records. This field corresponds to field COMPRESS SMF RECS on installation panel DSNTIPN. ZPARM name: SMFCOMP in DSN6SYSP.</td>
</tr>
<tr>
<td>COMPRESS SPT01</td>
<td>COMPRESS SPT01 in macro DSN6SPRM specifies whether the SPT01 table space is to be compressed. Valid values are YES and NO. In a data sharing environment, all members should use the same setting for the COMPRESS SPT01 parameter. The default value is NO, which means that the SPT01 table space is not compressed.</td>
</tr>
<tr>
<td>CONN QUEUE MAX DEPTH (MAXCONQN)</td>
<td>Specifies the maximum number of inactive or new connections that can be queued waiting for a DBAT to process the request. The default value is OFF.</td>
</tr>
<tr>
<td>CONN QUEUE MAX WAIT (MAXCONQW)</td>
<td>Specifies the maximum length of time that a client connection waits for a DBAT to process the next unit-of-work or new connection request. The default value is OFF.</td>
</tr>
<tr>
<td>CONTRACT THREAD STORAGE (CONTSTOR)</td>
<td>Indicates whether DB2 returns unused thread storage at commit. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>Install parameter CONTRACT THREAD STG on panel DSNTIPE, or ZPARM CONTSTOR in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CONTROL ALL APPLICATIONS (RGFDEDPL)</td>
<td>The RGFDEDPL subsystem parameter specifies whether the DB2® subsystem is to be completely controlled by a set of closed applications that are identified in the application registration table. Acceptable values are YES or NO (default). ZPARM RGFDEDPL in DSN6SPRM.</td>
</tr>
<tr>
<td>CONTROL PACKAGE HASH TABLES</td>
<td>The size of the control package hash table.</td>
</tr>
<tr>
<td>COPY (FLASHCOPY COPY)</td>
<td>The value of the FLASHCOPY COPY parameter specifies whether the FLASHCOPY option of the COPY utility is to be used by default. Acceptable values are NO (default) or YES. ZPARM FLASHCOPY COPY in DSN6SPRM.</td>
</tr>
<tr>
<td>CORRELATION ID MONITOR (SPRMOZCI)</td>
<td>The correlation ID of the online application that made the last change to DB2 system settings.</td>
</tr>
<tr>
<td>CURRENT DEGREE (CDSSRDEF)</td>
<td>Shows the default for the CURRENT DEGREE special register when no degree is explicitly set with SET CURRENT DEGREE. The default disables query parallelism. Install parameter CURRENT DEGREE on panel DSNTIP8, or ZPARM CDSSRDEF in DSN6SPRM.</td>
</tr>
</tbody>
</table>
| CURRENT MAINTAINED TABLE TYPE (MAINTYPE)         | Shows the default special register for the CURRENT MAINTAINED TABLE TYPES FOR OPTIMIZATION statement when no value is explicitly set. Possible values are:  
  - ALL  
  - NONE  
  - SYSTEM (default)  
  - USER  
   
  The default allows query rewrite using system-maintained materialized query tables (SYSTEM) when CURRENT REFRESH AGE is set to ANY. When USER, query rewrite is done using user-maintained materialized query tables when CURRENT REFRESH AGE is set to ANY. ALL means that query rewrite uses both system-maintained and user- maintained materialized query tables. Install parameter CURRENT MAINT TYPES on panel DSNTIP8, or ZPARM MAINTYPE in DSN6SPRM. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURRENT QUERY ACCEL (QUERY ACCELERATION)</td>
<td>Determines the default value that is to be used for the CURRENT QUERY ACCELERATION special register. Possible values are:</td>
</tr>
<tr>
<td>NONE</td>
<td>Indicates that no query acceleration is done. This is the default value.</td>
</tr>
<tr>
<td>ENABLE</td>
<td>Indicates that queries are accelerated only if DB2 determines that it is advantageous to do so. If there is an accelerator failure while a query is running, or the accelerator returns an error, DB2 returns a negative SQLCODE to the application.</td>
</tr>
<tr>
<td>ENABLE WITH FAILBACK</td>
<td>Indicates that queries are accelerated only if DB2 determines that it is advantageous to do so. If the accelerator returns an error during the PREPARE or first OPEN for the query, DB2 executes the query without the accelerator. If the accelerator returns an error during a FETCH or a subsequent OPEN, DB2 returns the error to the user, and does not execute the query.</td>
</tr>
<tr>
<td>ELIGIBLE</td>
<td>Indicates that queries are accelerated if they are eligible for acceleration. DB2 does not use cost information to determine whether to accelerate the queries. Queries that are not eligible for acceleration are executed by DB2. If there is an accelerator failure while a query is running, or the accelerator returns an error, DB2 returns a negative SQLCODE to the application.</td>
</tr>
<tr>
<td>ALL</td>
<td>Indicates that queries are accelerated if they are eligible for acceleration. DB2 does not use cost information to determine whether to accelerate the queries. Queries that are not eligible for acceleration are not executed by DB2, and an SQL error is returned. If there is an accelerator failure while a query is running, or the accelerator returns an error, DB2 returns a negative SQLCODE to the application.</td>
</tr>
<tr>
<td>ZPARM name QUERY ACCELERATION in DSN6SPRM</td>
<td></td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CURRENT REFRESH AGE (REFSHAGE)</td>
<td>Shows the default for the CURRENT REFRESH AGE special register deferred materialized query tables. Install parameter CURRENT REFRESH AGE on panel DSNTIP8, or ZPARM REFSHAGE in DSN6SPRM.</td>
</tr>
<tr>
<td>DATA COMPRESS FOR IMPLICIT TS (IMPTSCMP)</td>
<td>Shows whether data compression in table spaces in implicitly defined databases is used. Install parameter USE DATA COMPRESS on panel DSNTIP7 or ZPARM IMPTSCMP in DSN6SYSP.</td>
</tr>
<tr>
<td>DATA DEF TIMEOUT (DDLTOX)</td>
<td>Shows the time out factor of the SQL data definition. The time out value is the product of this value and the IRLMRWT value. ZPARM name DDLTOX in DSN6SPRM.</td>
</tr>
<tr>
<td>DATA SHARING ENABLED (DSHARE)</td>
<td>Indicates whether data sharing is enabled. Install parameter DATA SHARING on panel DSNTIPA1, or ZPARM DSHARE in DSN6GRP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
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<td>-------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DATABASE PROTOCOL (DBPROTCL)</td>
<td>The default protocol (DRDA or PRIVATE) used when option DBPROTocol BIND is not explicitly specified for the bind of a plan or a package. When field INSTALL TYPE on panel DSNTIPA1 is INSTALL, the default value for DATABASE PROTOCOL is DRDA. When the value of INSTALL TYPE is MIGRATE, the default value for DATABASE PROTOCOL is PRIVATE. An application program might contain statements with three-part names, or aliases that reference remote objects. At bind or rebind of a plan, a user can specify whether these statements flow to the remote site using DB2 private or DRDA protocol. DB2 private protocol is appropriate if you do not plan to move applications that use three-part names to DRDA access immediately. To use DRDA access for applications with three-part names, you must bind packages for those applications at each location that the applications access, then bind all packages into a plan. If you cannot perform this activity immediately, and you want your applications to continue to work, you should specify PRIVATE for DATABASE PROTOCOL. The BIND commands for DB2-supplied applications are in job DSNTIJSG. Install parameter DATABASE PROTOCOL on panel DSNTIP5, or ZPARM DBPROTCL in DSN6SYSP.</td>
</tr>
<tr>
<td>DATASET STATS TIME (DSSTIME)</td>
<td>The time interval, in minutes, before DB2 resets data set statistics collected for the online performance monitors. Online performance monitors can request DB2 data set statistics for the current interval with an IFI READS request for IFCID 199. Install parameter DATASET STATS TIME on panel DSNTIPN, or ZPARM DSSTIME in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
</tbody>
</table>
| DATE FORMAT (DATE)                     | Default output format for dates. Valid formats are ISO (yyyy-mm-dd), USA (mm/dd/yyyy), EUR (dd.mm.yyyy), JIS (yyyy-mm-dd), or LOCAL (your choice, defined by a date exit routine). DB2 interprets the input date from the punctuation and converts the output date to the required format. Install parameter DATE FORMAT on panel DSNTIP4, or ZPARM DATE in DSNHDEC.
<p>| DB2-SUPPLIED DECP                      | Indicates that DECP is supplied by DB2. Using a DB2 supplied DECP could cause data corruption due to applications using wrong CCSIDs.                                                                     |
| DBADM CREATE AUTH (DBACRvw)            | Shows whether a DB2 administrator can create a view or alias for another user. Possible values are YES or NO. The default is NO.                                                                                     |
|                                        | Install parameter DBADM CREATE AUTH on panel DSNTIPP, ZPARM DBACRvw in macro DSN6SPRM.                                                                                                                         |
| DDF COMPATIBILITY                      | The DDF compatibility.                                                                                                                                                                                    |
| DDF START OPTION (DDF)                 | Specifies how the data types of stored procedure output parameters are determined when a non-Java client calls a DB2 for z/OS stored procedure. Valid values are null and SP_PARMS_NJv. The default value of null means that the data types of the returned output data match the data types of the parameters in the stored procedure definition. This is the default behavior starting in DB2 for z/OS Version 10. |
| DDF THREADS (CMTSTAT)                  | The CMTSTAT subsystem parameter controls whether threads are to be made active or inactive after they successfully commit or roll back and hold no cursors. A thread can become inactive only if it holds no cursors, has no temporary tables defined, and executes no statements from the dynamic statement cache. Acceptable values are ACTIVE or INACTIVE. ZPARM CMTSTAT in macro DSN6FAC. |</p>
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDF/RRSAF ACCUMULATION (ACCUMACC)</td>
<td>Shows whether DB2 accounting data for DDF and RRSAF threads is accumulated by end user. When NO, DB2 writes an accounting record when a DDF thread is made inactive, or when signon occurs for an RRSAF thread. A value in the range 2 through 65535 shows the number of times an end-user identifier should occur before DB2 writes an accounting record. An end-user identifier is the concatenation of the end-user user ID, end-user transaction name, and the end-user workstation name. Tracing, Checkpoint &amp; Pseudo-Close Parameters (DSNTIPN). These values can be set by DDF threads using SERVER CONNECT and SET CLIENT calls, and by RRSAF threads using the RRSAF SIGN, AUTH SIGNON, and CONTEXT SIGNON functions. An accounting record might be written prior to the number of end user occurrences in the following instances: • When an internal storage threshold is reached for the accounting RRSAF signon call. • When the thread deallocates, the accumulated accounting data for all end users on this thread is written (one record per end user). • When this parameter is dynamically changed to deactivate accounting accumulation. In this instance, the next end-UR (for DDF thread) or signon (for a RRSAF thread) causes DB2 to write the accumulated accounting data for all end users on this thread (one record per end user). Install parameter DDF/RRSAF ACCUM on installation panel DSNTIPN, or ZPARM ACCUMACC in DSN6SYS.</td>
</tr>
<tr>
<td>DEADLOCK CYCLES (DEADLOK)</td>
<td>The value of the DEADLOCK CYCLE field specifies the number of local deadlock cycles that must expire before the IRLM does global deadlock detection processing. The DEADLOCK CYCLE field is used only for DB2® data sharing. The associated IRLM PROC parameter is DEADLOK.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>DEADLOCK TIME (DEADLOK)</td>
<td>The DEADLOCK TIME field controls the amount of time for which local deadlock detection cycles are to run. A deadlock is a situation in which two or more requesters are waiting for resources that are held by another requester. Deadlock detection is the procedure that identifies deadlocks and its participants. The associated IRLM PROC parameter is DEADLOK.</td>
</tr>
<tr>
<td>DECIMAL ARITHMETIC (DECARTH)</td>
<td>Indicates the rules of precision for a decimal field. Install parameter DECIMAL ARITHMETIC on panel DSNTIP4, or ZPARM DECARTH in DSNHDECP.</td>
</tr>
<tr>
<td>DECIMAL POINT IS (DECIMAL)</td>
<td>Indicates whether the decimal contains a comma (,) or a period (.). This parameter is used for dynamic SQL and COBOL programs. It is not used or supported by other languages. Install parameter DECIMAL POINT IS on panel DSNTIPF, or ZPARM DECIMAL in DSNHDECP.</td>
</tr>
<tr>
<td>DEF DECFLOAT ROUND MODE</td>
<td>The default rounding mode for the decimal floating point type. Possible values are: X'80' ROUND CEILING X'40' ROUND DOWN X'20' ROUND FLOOR X'10' ROUND HALF DOWN X'08' ROUND HALF EVEN X'04' ROUND HALF UP X'02' ROUND UP Otherwise this field shows 'BLANK'. ZPARM DEF DECFLOAT ROUND MODE in DSNHDECP.</td>
</tr>
<tr>
<td>DEFAULT 16KB BP FOR USER DATA (TBSBP16K)</td>
<td>The default 16 KB buffer pool for: • Table spaces with a 16 KB page size in implicitly created databases • Explicitly created table spaces with a 16 KB page size, but without a buffer pool clause that is specified in the create table space statement. Install parameter DEFAULT 16-KB BUFFER POOL FOR USER DATA on panel DSNTIP1 or ZPARM TBSBP16K in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>---------------------------------------------------</td>
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</tr>
</tbody>
</table>
| DEFAULT 32KB BP FOR USER DATA (TBSBP32K)          | The default 32 KB buffer pool for:  
- Table spaces with a 32 KB page size in implicitly created databases  
- Explicitly created table spaces with a 32 KB page size, but without a buffer pool clause that is specified in the create table space statement  
Install parameter DEFAULT 32-KB BUFFER POOL FOR USER DATA on panel DSNTIP1 or ZPARM TBSBP32K in DSN6SYS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| DEFAULT 4KB BP FOR USER DATA (TBSBPOOL)           | The name of the 4 KB buffer pool for user table spaces. Install parameter DEFAULT BUFFER POOL FOR USER DATA on installation panel DSNTIP1, or ZPARM TBSBPOOL in DSN6SYS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| DEFAULT 8KB BP FOR USER DATA (TBSBP8K)            | The default 8 KB buffer pool for:  
- Table spaces with an 8 KB page size in implicitly created databases  
- Explicitly created table spaces with an 8 KB page size, but without a buffer pool clause that is specified in the create table space statement.  
Install parameter DEFAULT 8-KB BUFFER POOL FOR USER DATA on panel DSNTIP1 or ZPARM TBSBP8K in DSN6SYS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| DEFAULT BP FOR INDEXES (IDXBPOOL)                 | The name of the 4 KB buffer pool used for indexes on user data. Install parameter DEFAULT BUFFER POOL FOR USER INDEXES on installation panel DSNTIP1, or ZPARM IDXBPOOL in DSN6SYS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| DEFAULT BUFFER POOL FOR USER LOB (TBSBPLOB)       | The TBSBPLOB subsystem parameter specifies the default buffer pool that is to be used for LOB table spaces that are created implicitly. This parameter also applies to LOB tables spaces that are created explicitly without the BUFFERPOOL clause.  
Acceptable values are any 4 KB, 8 KB, 16 KB, or 32 KB buffer pool names. Default is BP0.  
ZPARM TBSBPLOB in DSN6SYS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| DEFAULT BUFFER POOL FOR USER XML (TBSBPXML)       | The TBSBPXML subsystem parameter specifies the default buffer pool that is to be used for XML table spaces that are created implicitly. Acceptable values are any 16 KB buffer pool name. Default is BP16K0.  
ZPARM TBSBPXML in DSN6SYS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| DEFAULT ENCODING SCHEME (ENSCHEME)               | The default encoding scheme, which can be ASCII or EBCDIC, or UNICODE.  
Install parameter DEF ENCODING SCHEME on panel DSNTIPF, or ZPARM ENSCHEME in DSNHDECP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
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</tr>
</thead>
<tbody>
<tr>
<td>DEFAULT PARTITION SEGSIZE (DPSEGSZ)</td>
<td>The default segment size to be used for a partitioned table space when the CREATE TABLESPACE statement does not include the SEGSIZE parameter. This field corresponds to field DEFAULT PARTITION SEGSIZE on installation panel DSNTIP7. The ZPARM name is DPSEG_SZ in DSN6SYSP.</td>
</tr>
<tr>
<td>DEFAULT TEMPLATE (FCCOPYDDN)</td>
<td>The FCCOPYDDN subsystem parameter defines the default value that is to be used for the FCCOPYDDN parameter of the FLASHCOPY option of DB2 utilities control statements. This parameter applies to the COPY, LOAD, REBUILD INDEX, REORG INDEX, and REORG TABLESPACE utilities. ZPARM FCCOPYDDN in DSN6SPRM.</td>
</tr>
<tr>
<td>DEFINE DATA SET FOR IMPLICIT TS (IMPDSDEF)</td>
<td>Defines the underlying data sets when a table space (TS) that is contained in an implicitly created database is created. Install parameter DEFINE DATA SETS on panel DSNTIP7 or ZPARM IMPDSDEF in DSN6SYSP.</td>
</tr>
<tr>
<td>DEL CFSTRUCTS ON RESTART</td>
<td>The DEL_CFSTRUCTS_ON_RESTART parameter specifies whether, during restart, DB2 is to attempt to delete the SCA, IRLM lock structure, and any allocated group buffer pools from the coupling facility. ZPARM DEL_CFSTRUCTS_ON_RESTART in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
</tbody>
</table>
| DESCRIBE FOR STATIC SQL (DESCSTAT)                | Shows whether DB2 builds a DESCRIBE SQLDA when binding static SQL statements. A DESCRIBE cannot be issued against a static SQL statement except:  
- In a distributed environment, where DB2 for z/OS is the server and the requester supports extended dynamic SQL. In this instance, a DESCRIBE on an SQL statement in the extended dynamic package appears to DB2 as a DESCRIBE on a static SQL statement in the DB2 package.  
- When an application uses a stored procedure result set, the application must allocate a cursor for that result set. The application can do this using a DESCRIBE CURSOR statement. The SQL statement actually described is the one with the cursor declared in the stored procedure. If that statement is static, a static SQL statement must be described.  
When NO (default), DB2 does not generate a DESCRIBE SQLDA at BIND time for static SQL statements. If a DESCRIBE request is received at execution time, DB2 generates an error. However, if the describe request comes from a DESCRIBE CURSOR statement, DB2 satisfies the request but is only able to provide data type and length information. Column names are not provided.  
When YES, DB2 generates a DESCRIBE SQLDA at BIND time so that DESCRIBE requests for static SQL can be satisfied during execution.  
**Note:** You must rebind packages after this value has been set to YES.  
This option increases the size of some packages because the DESCRIBE SQLDA is now stored with each statically-bound SQL SELECT statement.  
Install parameter DESCRIBE FOR STATIC on panel DSNTIP4, or ZPARM DESCSTAT in DSN6SPRM.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
<p>| DEVICE TYPE 1 (UNIT)                               | The UNIT subsystem parameter specifies the device type or unit name that is to be used for storing archive log data sets. Acceptable values are the device type or unit name. The default value is TAPE.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |</p>
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEVICE TYPE 2 (UNIT2)</td>
<td>The UNIT2 subsystem parameter specifies the device type or unit name that is to be used for storing the second copy of archive log data sets. These data sets are the COPY2 data sets. Acceptable values are the device type or unit name. The default value is none. ZPARM UNIT in DSN6ARVP.</td>
</tr>
<tr>
<td>Disable EDMRTS (DISABLE EDMRTS)</td>
<td>Specifies whether to disable the collection of real-time statistics by the Environmental Descriptor Manager (EDM). By default, EDM collects real-time statistics to track when packages were last used. Valid values are NO and YES. The default value is NO, which means that EDM continues to collect real-time statistics about the last use of packages. This is the recommended value. ZPARM DISABLE EDMRTS in DSN6SPRM.</td>
</tr>
<tr>
<td>DISALLOW DEFAULT COLLID</td>
<td>Specifies whether the default collection ID, DSN_DEFAULT_COLLID_plan-name, is used for implicitly generated packages during the automatic DBRM to package conversion process. Valid values are YES and NO. ZPARM DISALLOW_DEFAULT_COLLID in macro DSN6SPRM.</td>
</tr>
<tr>
<td>DISTRIBUTED SQL STRING DELM (DSQLDELI)</td>
<td>The DSQLDELI DECP value specifies whether an apostrophe or quotation mark is to be used as the SQL string delimiter for bind operations at this DB2 site. This delimiter is to be used when the requester does not give DB2 that information. In most cases, requesters tell DB2 whether the apostrophe or the quotation mark is to be used as the SQL string delimiter. Acceptable values are ' (apostrophe) or &quot; (quotation mark).</td>
</tr>
<tr>
<td>DO NOT SET SQLWARN1 4 AND 5 (DISABSCM)</td>
<td>Do not set SQLWARN1, 4 and 5.</td>
</tr>
<tr>
<td>DRDA ALIAS RES (DRDA RESOLVE ALIAS)</td>
<td>Specifies whether aliases are resolved with DRDA protocol. This parameter is online updatable. ZPARM DRDA_RESOLVE_ALIAS in macro DSN6SPRM.</td>
</tr>
<tr>
<td>DSNHDECP MODULE DSNNAME</td>
<td>The DSN name of the DSNHDECP module that is supplied by DB2. It is used to run the DB2 precompiler.</td>
</tr>
<tr>
<td>DSNZPARM MODULE</td>
<td>The name of the DSNZPARM module specified for DB2 startup and the date on which this module was assembled.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td><strong>DUAL ARCHIVE COPIES (TWOARCH)</strong></td>
<td>The TWOARCH subsystem parameter specifies the number of copies of the archive log that DB2 is to produce during offloading.</td>
</tr>
<tr>
<td></td>
<td>If you run the installation or migration CLIST, the setting of the NUMBER OF COPIES field determines the setting of the TWOARCH subsystem parameter. Valid values of the TWOARCH subsystem parameter are NO and YES. ZPARM TWOARCH in DSN6LOGP.</td>
</tr>
<tr>
<td><strong>DUAL BSDS MODE (TWOBSDS)</strong></td>
<td>Shows whether two BSDS data sets are used. A second BSDS (strongly recommended) makes recovery much easier in most situations. In cases that normally require recovery and restart, a second BSDS allows you to continue working. The storage overhead required is small and the data set is relatively inactive. DB2 parameter TWOBSDS in DSN6LOGP.</td>
</tr>
<tr>
<td><strong>DUMP CLASS NAME (UTILS DUMP CLASS NAME)</strong></td>
<td>The name of the DFSMSHSM dump class used by the restore system utility to restore from a system-level backup that has been dumped to tape. Install parameter DUMP CLASS NAME on installation panel DSNTIP6, or ZPARM UTILS DUMP CLASS NAME in DSN6SPRM.</td>
</tr>
<tr>
<td><strong>EBCDIC GRAPIC CCSID (GCCSID)</strong></td>
<td>The EBCDIC graphic coded character set ID. A coded character set identifier (CCSID) must be specified when DDF STARTUP OPTION field on panel DSNTIPR is set to AUTO or COMMAND, or when the MIXED DATA field on panel DSNTIPF is set to YES. When mixed data is used, valid Mixed Data CCSID must also be specified. A nonexistent CCSID causes an error. An incorrect CCSID can corrupt data. Install parameter EBCDIC CCSID on panel DSNTIPF, or ZPARM GCCSID in DSNHDECP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
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</tr>
</tbody>
</table>
| **EBCDIC MIXED CCSID (MCCSID)**                  | The EBCDIC mixed coded character set ID.  
A coded character set identifier (CCSID) must be specified when DDF STARTUP OPTION field on panel DSNTIPR is set to AUTO or COMMAND, or when the MIXED DATA field on panel DSNTIPF is set to YES. When mixed data is used, valid Mixed Data CCSID must also be specified.  
A nonexistent CCSID causes an error.  
An incorrect CCSID can corrupt data.  
Install parameter EBCDIC CCSID on panel DSNTIPF, or ZPARM MCCSID in DSNHDECP. |
| **EBCDIC SINGLE-BYTE CCSID (SCCSID)**            | The EBCDIC single-byte coded character set ID.  
A coded character set identifier (CCSID) must be specified when DDF STARTUP OPTION field on panel DSNTIPR is set to AUTO or COMMAND, or when the MIXED DATA field on panel DSNTIPF is set to YES. When mixed data is used, valid Mixed Data CCSID must also be specified.  
A nonexistent CCSID causes an error.  
An incorrect CCSID can corrupt data.  
Install parameter EBCDIC CCSID on panel DSNTIPF, or ZPARM SCCSID in DSNHDECP. |
| **EDM ABOVE 2GB (EDM ABOVE 2GB)**                | EDM above 2 GB.                                                                                                                             |
| **EDM BEST FIT (EDMBFIT)**                       | The EDMBFIT subsystem parameter controls how free space is to be utilized for large EDM pools (greater than 40 MB). Acceptable values are YES or NO (default).  
ZPARM EDMBFIT in DSN6SPRM.                        |
| **EDM LIMIT BELOW THE BAR (EDMPOOL)**            | The size (in kilobytes) of the environmental descriptor manager (EDM) pool.  
This can be the value calculated by the CLIST, based on input from previous panels, or the value entered in the Override column at installation time.  
ZPARM EDMPOOL in DSN6SPRM.                        |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDM POOL DBD CACHE SIZE (EDMDBDC)</td>
<td>The minimum size of the DBD cache that can be used by the Environmental Descriptor Manager (EDM). This value is used at DB2 startup time as the minimum value. You can increase and subsequently decrease the value with the SET SYSPARM command. This value cannot be decreased below the value that is specified at DB2 startup. This storage pool is located above the 2 GB bar. The CLIST calculates the DBD cache size. The value used at DB2 startup time is either calculated by the CLIST based on input from other installation information or an override value. ZPARM EDMDBDC in DSN6SPRM.</td>
</tr>
<tr>
<td>EDM POOL STATEMENT CACHE SIZE (EDMSTMTC)</td>
<td>The EDMSTMTC subsystem parameter determines the size (in KB) of the statement cache that is to be used by the EDM. Acceptable values are 5000 to 1048576. ZPARM EDMSTMTC in DSN6SPRM.</td>
</tr>
<tr>
<td>EDM SKELETON POOL SIZE (EDM_SKELETON_POOL)</td>
<td>The EDM_SKELETON_POOL subsystem parameter determines the minimum size of the EDM skeleton pool in KB. Acceptable values are 5120 to 2097152. ZPARM EDM_SKELETON_POOL in DSN6SPRM.</td>
</tr>
<tr>
<td>ENABLE CHANGE DATA CAPTURE (CHGDC)</td>
<td>The value of the DPROP SUPPORT field determines whether IMS DataPropagator is to be used to propagate SQL changes to tables defined with DATA CAPTURE CHANGES. Acceptable values are 1 (default), 2, or 3. ZPARM CHGDC in DSN6SPRM.</td>
</tr>
<tr>
<td>ENABLE DB CHECKING (SPRMDBC)</td>
<td>Enable database checking.</td>
</tr>
<tr>
<td>ENABLE OPT I/O WEIGHTING (OPTIOWGT)</td>
<td>You can create profiles to specify that DB2 uses particular subsystem parameters when executing SQL statements that meet the criteria defined in the profile. ATTRIBUTE1 specifies how DB2 weights I/O and CPU cost during access path selection. ENABLE is the default value. The OPTIOWGT subsystem parameter is deprecated.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>Enable Pair-wiseJoin (EN PJSJ)</td>
<td>Specifies whether to enable dynamic index ANDing, which is also called pair-wise join processing, when star join processing is enabled on DB2. Valid values are ON and OFF. The default value is OFF, which means that dynamic index ANDing is disabled. ZPARM EN_PJSJ in DSN6SPRM.</td>
</tr>
<tr>
<td>ENABLE SQL INTERRUPT (SQLINTRP)</td>
<td>Enable SQL interrupt.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
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<td>---------------</td>
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</tr>
<tr>
<td><strong>ENFORCE DPROP SUPPORT (EDPROP)</strong></td>
<td>Shows whether DataPropagator NonRelational (DPROP) is used to propagate SQL changes made to tables defined with DATA CAPTURE CHANGES.</td>
</tr>
<tr>
<td>1</td>
<td>No changes are propagated.</td>
</tr>
<tr>
<td>2</td>
<td>DPROP propagates SQL changes, and those changes made to tables defined with DATA CAPTURE CHANGES are only allowed when monitor trace class 6 is active, DPROP is installed, and the DB2 application is running in an IMS environment. If any of these conditions are not met, no changes to the DB2 table are permitted.</td>
</tr>
<tr>
<td>3</td>
<td>Data propagation occurs when monitor trace class 6 is active, DPROP is installed, and the DB2 application is running in an IMS environment. In this instance, an application that is not running in an IMS environment can update DB2 tables defined with DATA CAPTURE CHANGES. However, these changes are not propagated to IMS.</td>
</tr>
<tr>
<td><strong>ANY</strong></td>
<td>Allows subsystems to propagate some data with DPROP and other data with a different propagation program.</td>
</tr>
</tbody>
</table>

Tables that should only be updated by DB2 applications running in an IMS environment can be protected using the following methods:

- Use the ENABLE parameter on BIND to specify a specific attachment facility through which updates to data propagation tables can be made.
- Define a validation procedure for data propagation tables to define which plans can update those tables.
- Allow update authority for data propagation tables to a group of authorization IDs that can only run in IMS.

Install parameter DPROP SUPPORT on panel DSNTIPO, or ZPARM EDPROP and CHGDC in DSN6SPRM.
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVALUATE UNCOMMITTED (EVALUNC)</td>
<td>Shows whether stage 1 predicate evaluation during table access can proceed upon uncommitted data or not. This applies to isolation levels of Read Stability and Cursor Stability only. When NO (default), predicate evaluation occurs only on committed data (or on the application’s own uncommitted changes). NO ensures that all qualifying data is always included in the answer set. When YES, predicate evaluation can occur upon uncommitted data. Only committed data is returned to the query. However, a decision can be made to omit a row from the answer set based on uncommitted data. Later, undo processing (statement rollback or statement failure) could cause the data to revert to a state that satisfies the predicate. When YES, DB2 can request fewer locks than in previous versions when processing isolation level Read Stability and Cursor Stability queries. The number of locks avoided is related to the access path of the query, the number of rows evaluated when processing the stage 1 predicate of the query, and the number of those rows that are overflow rows. Specifically, for isolation level Read Stability and Cursor Stability queries, locks are avoided for rows that do not satisfy the stage 1 predicate, provided they are not overflow rows. Table access includes table space scans and index-to-data access, including ridlist-to-data access. For isolation Cursor Stability ridlist production, all row/page locking is avoided. Install parameter EVALUATE UNCOMMITTED on panel DSNTIP8, or ZPARM EVALUNC in DSN6SPRM.</td>
</tr>
<tr>
<td>EXTENDED DATESTAMP INDICATOR</td>
<td>The indicator of the extended date stamp.</td>
</tr>
<tr>
<td>EXTENDED OPTION FOR TCPALVER</td>
<td>Indicates whether DB2 accepts TCP/IP connection requests containing only a user ID. When YES, a connection request is accepted with a user ID only. This value must be the same for all members of a data sharing group. When NO (default), TCP/IP clients must provide authentication information (password, RACF PassTicket, or Kerberos ticket) to gain access to DB2. ZPARM TCPALVER in DSN6FAC.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>EXTENDED SECURITY (EXTSEC)</td>
<td>Extended security options.</td>
</tr>
<tr>
<td></td>
<td>When YES (strongly recommended), detailed reason codes are returned to a DRDA level 3 client when a DDF connection request fails because of security errors. When using SNA protocols, the requester must have included a product that supports the extended security sense codes, such as DB2 Connect version 5 and subsequent releases.</td>
</tr>
<tr>
<td></td>
<td>RACF users can change their passwords using the DRDA change password function. This support is only for DRDA level 3 requesters that have implemented support for changing passwords.</td>
</tr>
<tr>
<td></td>
<td>YES allows properly enabled DRDA clients to determine the cause of security failures without requiring DB2 operator support.</td>
</tr>
<tr>
<td></td>
<td>When NO, generic error codes are returned to the clients and RACF users are prevented from changing their passwords.</td>
</tr>
<tr>
<td></td>
<td>ZPARM EXTSEC in DSN6SYSP.</td>
</tr>
<tr>
<td>EXTRA BLOCKS REQ (EXTRAREQ)</td>
<td>The maximum number of extra DRDA query blocks DB2 requests from a remote DRDA server.</td>
</tr>
<tr>
<td></td>
<td>The default is 100.</td>
</tr>
<tr>
<td></td>
<td>This controls the total amount of data that can be transmitted on any given network exchange. It does not limit the size of the SQL query answer set.</td>
</tr>
<tr>
<td></td>
<td>ZPARM EXTRAREQ in DSN6SYSP.</td>
</tr>
<tr>
<td>EXTRA BLOCKS SERVED (EXTRASRV)</td>
<td>The maximum number of extra DRDA query blocks DB2 returns to a DRDA client.</td>
</tr>
<tr>
<td></td>
<td>The default is 100.</td>
</tr>
<tr>
<td></td>
<td>This controls the total amount of data that can be transmitted on any given network exchange. It does not limit the size of the SQL query answer set.</td>
</tr>
<tr>
<td></td>
<td>ZPARM EXTRASRV in DSN6SYSP.</td>
</tr>
<tr>
<td>FACILITY ENTRIES</td>
<td>Facility entries.</td>
</tr>
<tr>
<td>FACILITY NAME</td>
<td>The name of the DDF facility.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<tr>
<td>---------------</td>
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</tr>
<tr>
<td><strong>FAST RESTORE (REC FASTREPLICATION)</strong></td>
<td>The REC FASTREPLICATION parameter specifies whether the RECOVER utility should use FlashCopy® to recover from a FlashCopy image copy. Acceptable values are NONE, PREFERRED (default), or REQUIRED. This parameter applies only to Version 10 new-function mode. ZPARM REC FASTREPLICATION in DSN6SPRM.</td>
</tr>
<tr>
<td><strong>FIELD PROCS DESCRIBE TABLE BLOCK (SPRMFPD)</strong></td>
<td>The number of field procedures for the DESCRIBE TABLE block.</td>
</tr>
<tr>
<td><strong>FLASHCOPY (FLASHCOPY)</strong></td>
<td>FLASHCOPY</td>
</tr>
<tr>
<td><strong>FLASHCOPY PPRC</strong></td>
<td>The FLASHCOPY PPRC subsystem parameter specifies the behavior for DFSMSdss FlashCopy requests when the target disk storage volume is the primary device in a peer-to-peer remote copy (Metro Mirror) relationship. Acceptable values are NONE, PREFERRED, REQUIRED (default), or blank. ZPARM FLASHCOPY PPRC in DSN6SPRM.</td>
</tr>
<tr>
<td><strong>FREE LOCAL CACHE STM (CACHEDYN FREELOCAL)</strong></td>
<td>Indicates whether DB2 can free cached dynamic statements to relieve DBM1 below-the-bar storage. CACHEDYN_FREELOCAL applies only when the KEEPDYNAMIC(YES) bind option is active. If you specify 0, DB2 does not free cached dynamic statements to relieve high use of storage by dynamic SQL caching. The default value is 1, which means that DB2 frees some cached dynamic statements to relieve high use of storage when the cached SQL statement pools have grown to a certain size. ZPARM CACHEDYN_FREELOCAL in macro DSN6SPRM.</td>
</tr>
</tbody>
</table>
| **GET ACCEL ARCHIVE** | Determines the default value that is to be used for the CURRENT GET ACCEL ARCHIVE special register:  
**NO** Indicates that if a table is archived in an accelerator server, and a query references that table, the query does not use the data that is archived.  
**YES** Indicates that if a table is archived in an accelerator server, and a query references that table, the query uses the data that is archived. ZPARM name GET ACCEL ARCHIVE in macro DSN6SPRM. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP NAME (GRPNNAME)</td>
<td>The name of the DB2 data sharing group. The group name encompasses the entire data sharing group and is the basis for the coupling facility structure names. N/A means this DB2 is not part of a data sharing group. ZP ARM GRPNNAME in DSN6GRP.</td>
</tr>
<tr>
<td>HONOR KEEPDICTIONARY</td>
<td>Specifies whether DB2 honors the LOAD and REORG parameter KEEPDICTIONARY when tables are converted from basic row format to reordered row format. If HONOR_KEEPDICTIONARY is set to a value of YES, DB2 honors the LOAD and REORG parameter KEEPDICTIONARY. If HONOR_KEEPDICTIONARY is set to the default value of NO, DB2 ignores the LOAD and REORG parameter KEEPDICTIONARY when tables are converted from basic row format to reordered row format. ZP ARM HONOR_KEEPDICTIONARY in macro DSN6SPRM</td>
</tr>
<tr>
<td>HOP SITE AUTHORIZATION (SPRMHOP) (HOPAUTH)</td>
<td>Indicates whose authorization is checked at a second server (sometimes called a hop site) when the requester is not DB2 for z/OS. This option applies only when DB2 private protocol is used for the hop from the second to the third site. When BOTH (default), the package owner's authorization is checked for static SQL, and the runner's authorization ID is checked for dynamic SQL. When RUNNER, both static and dynamic SQL use the runner's authorization. Install parameter AUTH AT HOP SITE on panel DSNTIP5, ZP ARM HOPAUTH in DSN6SPRM.</td>
</tr>
<tr>
<td>ICF CATALOG ALIAS (CATALOG)</td>
<td>The alias of the VSAM integrated catalog facility user catalog or the name of the master catalog where the DB2 VSAM data sets created during installation are cataloged. The MVS catalog alias is also used as the high-level qualifier for DB2 VSAM data sets. Install parameter CATALOG ALIAS on panel DSNTIPA, or ZP ARM CATALOG in DSN6ARVP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>---------------------------------------------------</td>
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</tr>
<tr>
<td>IDENTIFY/AUTH (IDAUTH MODULE)</td>
<td>Shows the name of the default identify or authorization exit module. This field corresponds to field IDENTIFY/AUTH on installation panel DSNTP03. The ZPARM name is IDAUTH MODULE in DSN6SYSP.</td>
</tr>
<tr>
<td>IDLE THREAD TIMEOUT (IDTHTOIN)</td>
<td>The approximate time, in seconds, that an active server thread can remain idle before it is canceled. Inactive and indoubt threads are not subject to timeout. Threads are checked for timeouts every 3 minutes. This means that timeouts might not be honored for up to 3 minutes when the timeout value is less than this. 0 (default) means timeout processing is disabled, idle server threads remain in the system and continue to hold their resources, if any. ZPARM IDTHTOIN in DSN6FAC.</td>
</tr>
<tr>
<td>IGNORE SORTNUM STATEMENT (IGNSORTN)</td>
<td>The IGNSORTN subsystem parameter determines whether occurrences of the SORTNUM clause in utility control statements are to be ignored. Acceptable values are YES or NO (default). ZPARM IGNSORTN in DSN6SPRM.</td>
</tr>
<tr>
<td>IMMEDIATE WRITE (IMMEWRI)</td>
<td>Indicates how DB2 updates group buffer pool dependent pages. This is only valid in a data-sharing environment. Group buffer pool dependent pages can be written to DASD or SYSTEM pagesets. Install parameter IMMEDIATE WRITE on panel DSNTIP8, or ZPARM IMMEDWRI in DSN6GRP.</td>
</tr>
<tr>
<td>IMPLICIT TIMEZONE (IMPLICIT TIMEZONE)</td>
<td>The implicit time zone that is associated with DB2 table columns and routine parameters that are declared as time stamp with time zone. For IFCID 106 - Application Programming Defaults, this field is displayed twice, with its hex value and in a readable string. This field corresponds to DSNHDECP field IMPLICIT TIMEZONE.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>--------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>IMS BMP TIMEOUT (BMPTOUT)</td>
<td>The number of RESOURCE TIMEOUT units that an IMS BMP connection waits for a lock to be released.</td>
</tr>
<tr>
<td></td>
<td>The default value is 4, meaning that an IMS BMP connection can wait 4 times the resource timeout value for a resource.</td>
</tr>
<tr>
<td></td>
<td>Install parameter IMS BMP TIMEOUT on panel DSNTIPI, or ZPARM BMPTOUT in DSN6SPRM.</td>
</tr>
<tr>
<td>IMS DLI TIMEOUT (DLITOUT)</td>
<td>The number of RESOURCE TIMEOUT units that a DL/I batch connection waits for a lock to be released.</td>
</tr>
<tr>
<td></td>
<td>For example, if you use the default value of 6, a DL/I batch application can wait 6 times the resource timeout value for a resource.</td>
</tr>
<tr>
<td></td>
<td>Install parameter DL/I BATCH TIMEOUT on panel DSNTIPI, or ZPARM DLITOUT in DSN6SPRM.</td>
</tr>
<tr>
<td>INCLUDE DEPENDENT PRIVILEGE ON REVOKE</td>
<td>Allows revoking of dependent privileges to be controlled at the SQL level.</td>
</tr>
<tr>
<td>INDEX CLEANUP THREADS</td>
<td>The index cleanup threads.</td>
</tr>
<tr>
<td>INDEX I/O PARALLELISM (INDEX IO PARALLELISM)</td>
<td>The enablement of the index I/O parallelism ZPARM.</td>
</tr>
<tr>
<td>INDEX SPACE ALLOCATION IN KB (IXQTY)</td>
<td>Shows the amount of space in KB for primary and secondary space allocation for DB2-defined data sets for index spaces created without the USING clause. 0 indicates that DB2 uses standard defaults. Install parameter INDEX SPACE ALLOCATION on panel DSNTIP7, or ZPARM IXQTY in DSN6YSP.</td>
</tr>
<tr>
<td>INITIAL MODULE</td>
<td>The name of the initial DSNZPARM load module.</td>
</tr>
<tr>
<td>INSTALL DD CONTROL SUPT (RGFINSTL)</td>
<td>Indicates whether data definition support has been installed.</td>
</tr>
<tr>
<td></td>
<td>Install parameter INSTALL DD CONTROL SUPT on panel DSNTIPZ, or ZPARM RGFINSTL in DSN6SPRM.</td>
</tr>
<tr>
<td>IRLM INITIALIZATION INQUIRY TIME</td>
<td>The number of seconds DB2 waits before querying whether IRLM has completed initialization.</td>
</tr>
<tr>
<td></td>
<td>DB2 parameter SPRMISWI in DSNMSPRM.</td>
</tr>
<tr>
<td>IRLM MAXIMUM CSA ALLOWED</td>
<td>The maximum common service area (CSA) allowed for internal resource lock manager (IRLM).</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>----------------------------------------</td>
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</tr>
<tr>
<td>IRLM SUBSYSTEM (IRLMSID)</td>
<td>The IRLM subsystem name defined to MVS. This is used for communication between DB2 and the IRLM. It is included in the MVS subsystem table IEFSSN xx, where xx is the value of SUBSYSTEM MEMBER on installation panel DSNTIPM. If the IRLM for IMS is installed, the DB2 IRLM name is different because two IRLMs on the same MVS system must have unique names. Install parameter SUBSYSTEM NAME on panel DSNTIP1, or ZPARM IRLMSID in DSN6SPRM.</td>
</tr>
<tr>
<td>IX TB PART CONV EXCLUDE</td>
<td>Shows whether to include all columns in the partitioning key during conversion from index-controlled partitioning to table-controlled partitioning:</td>
</tr>
<tr>
<td></td>
<td><strong>NO</strong> Includes all columns</td>
</tr>
<tr>
<td></td>
<td><strong>YES</strong> Includes trailing columns only if they affect partitioning</td>
</tr>
<tr>
<td></td>
<td>This field corresponds to field EXCLUDE PART KEY ELEMENTS on installation panel DSNTIP71. The ZPARM name is IX TB PART CONV EXCLUDE in DSN6SPRM.</td>
</tr>
<tr>
<td>LANGUAGE DEFAULT (DEFLANG)</td>
<td>The default programming language for your site. This can be:</td>
</tr>
<tr>
<td></td>
<td>• ASM</td>
</tr>
<tr>
<td></td>
<td>• C</td>
</tr>
<tr>
<td></td>
<td>• CPP</td>
</tr>
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<td></td>
<td>• COBOL</td>
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<td></td>
<td>• COB2</td>
</tr>
<tr>
<td></td>
<td>• IBMCOB</td>
</tr>
<tr>
<td></td>
<td>• FORTRAN</td>
</tr>
<tr>
<td></td>
<td>• PLI</td>
</tr>
<tr>
<td></td>
<td>When this is C or C++, you can fold SQL identifiers to uppercase.</td>
</tr>
<tr>
<td></td>
<td>Install parameter LANGUAGE DEFAULT on panel DSNTIPF, or ZPARM DEFLANG in DSNHDECP.</td>
</tr>
<tr>
<td>LEVELID UPDATE FREQ (DLDFREQ)</td>
<td>The DLDFREQ subsystem parameter specifies whether the level ID of a page set or partition is to be updated at DB2-determined checkpoint intervals. Acceptable values are ON (default) or OFF. ZPARM DLDFREQ in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>LIKE BLANK INSIGNIFICANT</td>
<td>The LIKE BLANK INSIGNIFICANT field specifies whether blanks are significant when applying the LIKE predicate to a string.</td>
</tr>
<tr>
<td></td>
<td>When the LIKE predicate is applied against fixed length character column data, DB2 strips trailing blanks from the data before performing the comparison. If the data is all blank, DB2 reduces it to a single blank before performing the comparison.</td>
</tr>
<tr>
<td></td>
<td>If not set, LIKE treats trailing blanks within fixed length character strings as significant.</td>
</tr>
<tr>
<td>LIMIT BACKOUT (LBACKOUT)</td>
<td>The LBACKOUT subsystem parameter specifies whether DB2 is to postpone backward-log processing for some units of work. Acceptable values are AUTO (default), YES, LIGHT, LIGHTAUTO, or NO.</td>
</tr>
<tr>
<td></td>
<td>ZPARM LBACKOUT in DSN6SYSP.</td>
</tr>
<tr>
<td>LOAD (FLASHCOPY LOAD)</td>
<td>The value of the FLASHCOPY LOAD subsystem parameter specifies whether the FLASHCOPY option of the LOAD utility is to be used by default. Acceptable values are NO (default) or YES.</td>
</tr>
<tr>
<td></td>
<td>ZPARM FLASHCOPY LOAD in DSN6SPRM.</td>
</tr>
<tr>
<td>LOB INLINE LEN (LOB INLINE LENGTH)</td>
<td>The default inline length for any new storing large object (LOB) column in a Universal Table Space on the DB2 subsystem. The valid values are from 0 to 32680 inclusive (in bytes). The default value for this ZPARM is 0, which indicates that no inline attribute is required for any LOB column (BLOB, CLOB or DBCLOB) created on this subsystem.</td>
</tr>
<tr>
<td>LOCAL DATE LENGTH (DATELEN)</td>
<td>Shows the length of the longest field required to hold a locally defined date.</td>
</tr>
<tr>
<td></td>
<td>The default (0) indicates an IBM-supplied format (ISO, JIS, USA, or EUR).</td>
</tr>
<tr>
<td></td>
<td>Install parameter LOCAL DATE LENGTH on panel DSNTIP4, or ZPARM DATELEN in DSNHDECP.</td>
</tr>
<tr>
<td>LOCAL TIME LENGTH (TIMELEN)</td>
<td>Shows the length of the longest field required to hold a time when a locally defined time format is used.</td>
</tr>
<tr>
<td></td>
<td>The default (0) indicates an IBM-supplied format (ISO, JIS, USA, or EUR).</td>
</tr>
<tr>
<td></td>
<td>Install parameter LOCAL TIME LENGTH on panel DSNTIP4, or ZPARM TIMELEN in DSNHDECP.</td>
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<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>LOCALE LC CTYPE (LC CTYPE)</td>
<td>The LC TYPE DECIMAL value specifies the system LOCALE LC CTYPE. A locale is the part of your system environment that depends on language and cultural conventions. An LC CTYPE is a subset of a locale that applies to character functions. A valid locale can consist of 0 to 50 characters.</td>
</tr>
<tr>
<td>LOCKS PER TABLE (SPACE) (NUMLKTS)</td>
<td>The default (SYSTEM) for the LOCKMAX clause of the SQL statements CREATE TABLESPACE and ALTER TABLESPACE. Install parameter LOCKS PER TABLE(SPACE) on panel DSNTIPJ, or ZPARM NUMLKTS in DSN6SPRM.</td>
</tr>
<tr>
<td>LOCKS PER USER (NUMLKUS)</td>
<td>The maximum number of page or row locks that a single application can hold concurrently on all table spaces.</td>
</tr>
<tr>
<td></td>
<td>This includes locks on data pages, index pages, subpages, and rows that the program acquires when it accesses table spaces.</td>
</tr>
<tr>
<td></td>
<td>The limit applies to all table spaces defined with the LOCKSIZE PAGE, LOCKSIZE ROW, or LOCKSIZE ANY options. 0 means that there is no limit to the number of page and row locks a program can acquire.</td>
</tr>
<tr>
<td></td>
<td>DB2 assumes that 250 bytes of storage are required for each lock. If NO is specified for CROSS MEMORY, the value of this field has to take into account the available lock space. If referential constraints between tables is defined, the value of this field might need to be increased.</td>
</tr>
<tr>
<td></td>
<td>Install parameter LOCKS PER USER on panel DSNTIPJ, or ZPARM NUMLKUS in DSN6SPRM.</td>
</tr>
<tr>
<td>LOG CHECKPOINT TYPE (CHKTYPE)</td>
<td>The CHKTYPE subsystem parameter indicates whether the interval between log checkpoints is to be based on the number of written log records, the time between checkpoints, or both. Acceptable values are LOGRECS, MINUTES (default), or BOTH.</td>
</tr>
<tr>
<td></td>
<td>ZPARM CHKTYPE in DSN6SYSP.</td>
</tr>
<tr>
<td>MANAGE REAL STORAGE (REALSTORAGE MANAGEMENT)</td>
<td>Specifies whether DB2 should manage real storage consumption. Valid values are ON, OFF, and AUTO (default). The default setting is AUTO.</td>
</tr>
<tr>
<td></td>
<td>ZPARM REALSTORAGE MANAGEMENT in DSN6SPRM.</td>
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<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td><strong>MANAGE THREAD STORAGE (MINSTOR)</strong></td>
<td>Shows whether DB2 uses storage management to optimize the amount of working storage consumed by individual threads.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MANAGE THREAD STORAGE on panel DSNTIPE, or ZPARM MINSTOR in DSN6SPRM.</td>
</tr>
<tr>
<td></td>
<td>For best performance, this parameter should be NO, meaning DB2 does not manage thread storage.</td>
</tr>
<tr>
<td></td>
<td>When YES, DB2 uses best fit algorithm to manage and assign thread storage. This can help on systems that have many long-running threads and that are constrained on DBM1 address space.</td>
</tr>
<tr>
<td>Max 31-bit IRLM Private Storage</td>
<td>The maximum 31-bit IRLM private storage.</td>
</tr>
<tr>
<td>Max 64-bit IRLM Private Storage</td>
<td>The maximum 64-bit IRLM private storage.</td>
</tr>
<tr>
<td><strong>MAX ABEND COUNT (STORMXAB)</strong></td>
<td>The number of times a stored procedure is allowed to terminate abnormally, after which SQL CALL statements for the stored procedure are rejected.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MAX ABEND COUNT on panel DSNTIPX, or ZPARM STORMXAB in DSN6SYSP.</td>
</tr>
<tr>
<td><strong>MAX BATCH CONNECTIONS (IDBACK)</strong></td>
<td>The maximum allowed number of concurrent connections for batch jobs and utilities. This includes:</td>
</tr>
<tr>
<td></td>
<td>• All batch jobs using QMF.</td>
</tr>
<tr>
<td></td>
<td>• All batch jobs using the DSN command processor.</td>
</tr>
<tr>
<td></td>
<td>• All tasks connected to DB2 through call attach facility (CAF) running in batch. This can include:</td>
</tr>
<tr>
<td></td>
<td>– Batch jobs using QMF</td>
</tr>
<tr>
<td></td>
<td>– APPC applications</td>
</tr>
<tr>
<td></td>
<td>– TCP/IP FTP connections</td>
</tr>
<tr>
<td></td>
<td>When the number of batch jobs reaches this limit, further requests are rejected.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MAX BATCH CONNECT on panel DSNTIPE, or ZPARM IDBACK in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>MAX CONCURRENT PKG OPS</td>
<td>Specifies the maximum number of automatic bind requests, remote bind requests, remote rebind requests, CREATE TRIGGER statements, and CREATE PROCEDURE statements for packages that can be processed simultaneously. If the value of the AUTO BIND field of panel DSNTIPO is set to NO, the value of MAX_CONCURRENT_PKG_OPS has no effect. The default value of MAX_CONCURRENT_PKG_OPS is 10. ZPARM MAX_CONCURRENT_PKG_OPS in macro DSN6SPRM.</td>
</tr>
</tbody>
</table>
| MAX CONCURRENT(CTHREAD) | The maximum number of allied threads (threads started at the local subsystem) that can be allocated concurrently. Separate threads are created for each occurrence of the following:  
• TSO user (whether running a DSN command or a DB2 request from QMF)  
• Batch job (whether running a DSN command or a DB2 utility)  
• IMS region that can access DB2  
• Active CICS transaction that can access DB2  
• Task connected to DB2 through the call attachment facility. Install parameter MAX USERS on panel DSNTIPE, or ZPARM CTHREAD in DSN6SYSP. |
<p>| MAX DATA CACHING MB (MXDTCACH) | The MXDTCACH subsystem parameter specifies the maximum amount of memory, in MB, that is to be allocated for data caching per thread. Acceptable values are 0 to 512. ZPARM MXDTCACH in DSN6SPRM. |
| MAX DBM1 STG FOR LOG | The maximum DBM1 storage that can be used by the fast log apply process. The default value is 0 MB, which means that fast log apply is disabled except during DB2 restart, when fast log apply is always enabled. Install parameter LOG APPLY STORAGE on panel DSNTIPL, or ZPARM LOGAPSTG in DSN6SYSP. |
| MAX DSSIZE FOR IMPLICIT TSS (IMPDSSIZE) | Shows the maximum DSSIZE in gigabytes that DB2 uses for creating each partition of an implicitly created base table space. This field corresponds to field DEFAULT DSSIZE on installation panel DSNTI7P. The ZPARM name is IMPDSSIZE in DSN6SPRM. |</p>
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX INACTIVE DBATS (MAXTYPE1)</td>
<td>Indicates the number of type 1 inactive threads that DB2 allows. A large number of type 1 inactive threads can adversely affect system performance. Type 1 inactive threads are used for DB2 private protocol. DRDA uses type 2 inactive threads. Zero indicates that type 1 inactive connections are not allowed. Threads remain active when they become eligible to be made a type 1 inactive thread. A value greater than zero indicates that type 1 inactive connections are allowed, but are limited to this number. When a thread becomes eligible to be made a type 1 inactive thread, and this threshold is reached, the remote connection is terminated. When this is equal to MAX REMOTE CONNECTED on panel DSNTIPE, DB2 allows all remote threads to become type 1 inactive threads. Install parameter MAX INACTIVE DBATS on panel DSNTIPR, or ZPARM MAXTYPE1 in DSN6FAC.</td>
</tr>
<tr>
<td>Max Numb in IN-List (INLISTP)</td>
<td>Allows you to specify the maximum number of elements in an IN-list for certain IN predicate optimizations to occur. The default value for INLISTP is 50. ZPARM INLISTP in macro DSN6SPRM.</td>
</tr>
<tr>
<td>MAX NUMBER DS CONCURRENTLY IN USE (DSMAX)</td>
<td>The maximum number of data sets that can be open at one time. The practical limit can be less than the MVS limit of 32727, depending on available storage below the line. Install parameter DSMAX on panel DSNTIPC, or ZPARM DSMAX in DSN6SPRM.</td>
</tr>
<tr>
<td><strong>DB2 parameter</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>------------------</td>
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</tr>
<tr>
<td>MAX OPEN CURSORS (MAX_NUM_CUR)</td>
<td>Shows the maximum number of cursors, including allocated cursors, that are open at a given DB2 site per thread. RDS keeps a total of currently open cursors. If an application attempts to open a thread after the maximum is reached, the statement will fail.</td>
</tr>
<tr>
<td></td>
<td>In a data sharing group, this parameter is shown at member scope.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MAX OPEN CURSORS on panel DSNTIPX, or ZPARM MAX_NUM_CUR in DSN6SPRM.</td>
</tr>
<tr>
<td>MAX OPEN FILE REFS (MAXOFILR)</td>
<td>The maximum number of concurrently open data sets for processing LOB file references.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MAX OPEN FILE REFS on panel DSNTIPE or ZPARM MAXOFILR in DSN6SYSP.</td>
</tr>
<tr>
<td>MAX REMOTE ACTIVE (MAXDBAT)</td>
<td>The maximum number of database access threads (DBATs) that can be active concurrently. When this limit has been reached, DB2 uses the value of DDF THREADS on panel DSNTIPR to decide how to handle a new allocation request.</td>
</tr>
<tr>
<td></td>
<td>When DDF THREADS is ACTIVE and MAX REMOTE CONNECTED has not been reached, the allocation request is allowed but any further processing for the connection is queued waiting for an active database access thread to terminate.</td>
</tr>
<tr>
<td></td>
<td>When DDF THREADS is INACTIVE and MAX REMOTE CONNECTED has not been reached, the allocation request is allowed and is processed when DB2 can assign an unused database access thread slot to the connection.</td>
</tr>
<tr>
<td></td>
<td>The total number of threads accessing data concurrently is the sum of MAX USERS and MAX REMOTE ACTIVE. The maximum allowable value for this sum is 2000.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MAX REMOTE ACTIVE on panel DSNTIPE, or ZPARM MAXDBAT in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| MAX RID BLOCKS OF TEMP STRG (MAXTEMPS RID)| The maximum number of RID blocks of temporary storage in the work file database that a single RID list can use at any point in time. This field corresponds to field MAX TEMP RID on installation panel DSNTIP9. The ZPARM name is MAXTEMPS RID. It can have the following values:  
-1 If MAXTEMPS RID=NONE  
0 If MAXTEMPS RID=NOLIMIT  
1 to 329166 Otherwise |
| MAX RID POOL SIZE (MAXRBLK)               | The amount of storage needed for the RID pool. This can be the value calculated by the CLIST, based on input from previous panels, or the value entered in the Override column at installation time.  
When 0, DB2 does not use access paths or join methods that depend on RID pool storage.  
Install parameter RID POOL SIZE on panel DSNTIPC, or ZPARM MAXRBLK in DSN6SPRM. |
| MAX STORED PROCS (MAX_ST_PROC)            | Shows the maximum number of stored procedures per thread. If an application attempts to call a stored procedure after this is reached, the statement will fail. In a data sharing group, this parameter is shown as member scope.  
Install parameter MAX STORED PROCS on panel DSNTIPX, or ZPARM MAX_ST_PROC in DSN6SPRM. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX TSO USERS (IDFORE)</td>
<td>The maximum number of concurrent TSO foreground connections (QMF, DSN, DB2I, and SPUIF). Each of the following is a separate user:</td>
</tr>
<tr>
<td></td>
<td>• Each TSO foreground user executing a DSN command.</td>
</tr>
<tr>
<td></td>
<td>• Each TSO foreground user connected to DB2 through the call attachment facility (CAF). This can include QMF users running in TSO foreground or user-written CAF applications running in TSO foreground.</td>
</tr>
<tr>
<td></td>
<td>When the number of TSO users attempting to access DB2 exceeds this limit, connection requests are rejected. There is no subsystem parameter to control the maximum concurrent connections for IMS and CICS.</td>
</tr>
<tr>
<td></td>
<td>These are controlled by using IMS and CICS facilities. For CICS attachment, the maximum number of connections to DB2 can be controlled using the resource control table (RCT) TYPE=INIT THRDMAX value.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MAX TSO CONNECT on panel DSNTIPE, or ZP ARMS IDFORE in DSN6SYSP.</td>
</tr>
<tr>
<td>MAX ZIVLEMPEL DICT ENTRY (SPRMMDE)</td>
<td>Hardware data compression uses the Ziv-Lempel compression technique, which uses a fixed number of bits to replace a variable number of bytes. This technique requires use of a dictionary.</td>
</tr>
<tr>
<td>MAXIMUM DEGREE PARALLELISM (PARAMDEG)</td>
<td>Indicates the upper limit on the degree of parallelism for a parallel group.</td>
</tr>
<tr>
<td></td>
<td>This field has a value of 0. This means PARAMDEG is not set and DB2 can set a default maximum degree of parallelism based on the system configuration.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MAX DEGREE on panel DSNTIPE, or ZPARM PARAMDEG in DSN6SPRM.</td>
</tr>
<tr>
<td>MAX DS OPEN STOP ASYNC DRAIN (SPRMMDD)</td>
<td>The percentage of maximum open data sets until the asynchronous drain operations are stopped.</td>
</tr>
<tr>
<td></td>
<td>DB2 parameter SPRMMDD in DSN6SPRM.</td>
</tr>
<tr>
<td>MAXIMUM EXTEND SERVICE TASKS (SPRMEST)</td>
<td>Maximum number of extended service tasks.</td>
</tr>
<tr>
<td>MAXIMUM KEPT DYNAMIC STATEMENTS (MAXKEEPD)</td>
<td>Shows the total number of prepared dynamic SQL statements that are saved past a commit point. 0 means that prepared dynamic SQL statements are not saved past commit points. Install parameter MAX KEPT DYN STMTS on panel DSNTIPE, or ZPARM MAXKEEPD in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<tr>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MAXIMUM LE TOKENS (LEMAX)</td>
<td>The maximum number of LE tokens active at any time. When zero, no tokens are available.</td>
</tr>
<tr>
<td></td>
<td>A token is used each time one of the following is used: trigonometry functions, degrees, radians, rand, exp, power, log functions, upper, lower, translate.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MAXIMUM LE TOKENS on panel DSNTIP7, or ZPARM LEMAX in DSN6SPRM.</td>
</tr>
<tr>
<td>MAXIMUM NOT FOUND HASH RECORDS (SPRMKFC)</td>
<td>The maximum number of NOT FOUND hash records.</td>
</tr>
<tr>
<td>MAXIMUM NUMBER OF DS IN BSDS (MAXARCH)</td>
<td>The maximum number of archive log volumes that can be recorded in the BSDS.</td>
</tr>
<tr>
<td></td>
<td>When this number is exceeded, recording resumes at the beginning of the BSDS.</td>
</tr>
<tr>
<td></td>
<td>For dual archive, this value applies to each log data set. As an example, a value of 500 allows 500 COPY-1 and 500 COPY-2 data sets in the BSDS.</td>
</tr>
<tr>
<td></td>
<td>You must create image copies of all DB2 objects, probably several times, before the archive log data sets are discarded. If you fail to retain an adequate number of archive log data sets for all the image copies, you might need to cold start or reinstall DB2. In either case, data is lost.</td>
</tr>
<tr>
<td></td>
<td>Install parameter RECORDING MAX on panel DSNTIPA, or ZPARM MAXARCH in DSN6LOGP.</td>
</tr>
<tr>
<td>MAXIMUM READ TAPE UNITS (MAXRTU)</td>
<td>The maximum number of tape units that can be allocated for archive read purposes.</td>
</tr>
<tr>
<td></td>
<td>Install parameter READ TAPE UNITS on panel DSNTIPA, or ZPARM MAXRTU in DSN6LOGP.</td>
</tr>
<tr>
<td>MAXIMUM REMOTE CONNECT (CONDBAT)</td>
<td>The maximum allowed number of concurrent remote connections. When this limit is reached, any new connection request is rejected. Install parameter MAX REMOTE CONNECTED on panel DSNTIPE, or ZPARM CONDBAT in DSN6SYSP.</td>
</tr>
<tr>
<td>MAXIMUM TAPE UNITS (RESTORE TAPEUNITS)</td>
<td>The maximum number of tape units or tape drives that the restore system utility can use to restore from a system-level backup that has been dumped to tape.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MAXIMUM TAPE UNITS on installation panel DSNTIP6, or ZPARM RESTORE TAPEUNITS in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>--------------------------------------</td>
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</tr>
<tr>
<td>MAXIMUM TEMP STG/AGNT IN MB (MAXTEMPS)</td>
<td>The maximum amount of storage in the Workfile Database that can be used by each agent (derived from ZPARM MAXTEMPS).</td>
</tr>
<tr>
<td>MAXSORT IN MEMORY</td>
<td>The maximum number of in-memory work files created by the SORT component that were active at any point in time since DB2 start. This is a high-water mark count.</td>
</tr>
<tr>
<td>MEASURED USAGE PRICING</td>
<td>Detailed measured usage price tracking.</td>
</tr>
<tr>
<td>MEMBER NAME (MEMBNAME)</td>
<td>The member name of this DB2. N/A means this DB2 is not part of a data sharing group.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MEMBER NAME on panel DSNTIPK, or ZPARM MEMBNAME in DSN6GRP.</td>
</tr>
<tr>
<td>MIN SCALE DECIMAL DIVIDE (MINDVSCL)</td>
<td>The minimum scale for the result of a decimal division. The values for this parameter are none (the default), 3, or 6. If 3 or 6 is specified, this parameter overrides the DECDIV3 parameter.</td>
</tr>
<tr>
<td>MINIMUM DIVIDE SCALE (DECDIV3)</td>
<td>The DECDIV3 subsystem parameter determines whether to retain at least three digits to the right of the decimal point after any decimal division. Acceptable values are YES or NO. The default is NO. ZPARM DECDIV3 in DSN6SPRM.</td>
</tr>
<tr>
<td>MINS BETWEEN CHECKPOINT (CHKMINS)</td>
<td>Shows the number of minutes between log checkpoints if the LOG checkpoint type is BOTH (records and minutes).</td>
</tr>
<tr>
<td></td>
<td>This field corresponds to field MINUTES/CHECKPOINT on installation panel DSNTIPL1, or ZPARM name CHKMINS in DSN6SYSP.</td>
</tr>
<tr>
<td>MINUTES/CHECKPOINT (CHKFREQ)</td>
<td>Checkpoint frequency. This shows either the number of minutes (1 through 60) or the number of DB2 log records between the start of successive checkpoints. DB2 starts a new checkpoint when this value is reached. You can use the SET LOG command to change the number of log records between checkpoints dynamically. Valid values are 1-60 when specifying a time value and 200-16000000 when specifying a number of records. Install parameter CHECKPOINT FREQ on panel DSNTIPL, ZPARM CHKFREQ in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>MIXED DATA (MIXED)</td>
<td>The value of the MIXED DECP field indicates how the EBCDIC CCSID and ASCII CCSID fields are to be interpreted by DB2. The MIXED DATA option has no effect on the UNICODE CCSID field. Regardless of the setting for MIXED DATA, UNICODE UTF-8 data is considered mixed data and is processed according to the rules for mixed data.</td>
</tr>
<tr>
<td>MONITOR SIZE (MONSIZE)</td>
<td>The default number of bytes allocated for the monitor trace buffer. Install parameter MONITOR SIZE on panel DSNTIPN, or ZPARM MONSIZE in DSN6SYSP.</td>
</tr>
<tr>
<td>MONITOR TRACE (MON)</td>
<td>Shows whether the monitor trace is started automatically when DB2 is started. When YES, the default (trace class 1) is started. Numeric values show which classes are started. When ALL, monitor trace classes 1 through 8 are started. Install parameter MONITOR TRACE on panel DSNTIPN, or ZPARM MON in DSN6SYSP.</td>
</tr>
<tr>
<td>MVS ENVIRONMENT</td>
<td>The type of MVS environment in which DB2 is running.</td>
</tr>
<tr>
<td>NEW FUNCTION MODE (NEWFUN)</td>
<td>If YES, the DB2 subsystem/group is running in New Function Mode. At this mode/catalog level, the New Function Mode is enabled and available. The DB2 catalog is completely Unicode (UTF-8) and long names can be used. Install parameter INSTALL TYPE on panel DSNTIPA1, or ZPARM NEWFUN in DSNHDECP.</td>
</tr>
<tr>
<td><strong>DB2 parameter</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>-------------------</td>
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</tr>
</tbody>
</table>
| **NPAGES THRESHOLD OPTIMIZER** (SPRMNPAG) | This parameter allows you to specify the optimizer threshold for qualifying a table as small.  
-1 Every table qualifies as small.  
0 No table qualifies as small (this is the default).  
1 Only tables with zero pages qualify as small.  
2 Tables with less than two pages qualify as small.  
10 Tables with less than ten pages qualify as small.  
502 Tables with less than 502 pages, and tables that have not had statistics collected qualify as small. For example, when NPAGES = -1.  
DB2 parameter NPGTHRSH in DSN6SPRM. |
| **OBJECT CREATE FORMAT** | The format of OBJECT CREATE. |
| **OBJECT REGISTRATION TABLE NAME** (RGFNMDRT) | The name of the object registration table.  
Install parameter OBJT REGISTRATION TABLE on panel DSNTIPZ, or ZPARM RGFNMORT in DSN6SPRM. |
| **ONLINE ZPARM TYPE** | The type of DB2 system parameter changed by the last SET SYSPARM statement. |
| **OPT1 ROWB LOCK SORT** | Specifies whether DB2 explicitly blocks sort operations when the OPTIMIZE FOR 1 ROW clause is specified on a query. Valid values are ENABLE or DISABLE.  
ZPARM OPT1ROWBLOCSORT in macro DSN6SPRM. |
| **OPTIMIZATION HINTS ALLOWED** (OPTHINTS) | Shows whether DB2 can use optimization hints from the PLAN TABLE to influence the access paths used for certain queries.  
Install parameter OPTIMIZATION HINTS on panel DSNTIP8, or ZPARM OPPTHINTS in DSN6SPRM. |
| **OPTIMIZE EXTENT SIZING** (MGEXTSZ) | Indicates whether DB2 uses sliding secondary quantity for DB2 managed data sets to optimize extent sizing. Install parameter OPTIMIZE EXTENT SIZING on panel DSNTIP7, or ZPARM MGEXTSZ in DSN6SYSP. |
| **OUTER JOIN PERFORM ENHANCEMENT** (OJPERFEH) | Indicates whether outer join performance enhancements are enabled.  
DB2 parameter OJPERFEH in DSN6SPRM. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT BUFFER (OUTBUFF)</td>
<td>The output log buffer size in kilobytes. There is only one output log buffer per DB2 subsystem. Increasing this parameter reduces BSDS I/O updates when there is a buffer wraparound. Frequent wraparounds are likely in LOAD or REORG with logging, and mass insert operations. Increasing this parameter also helps avoid log write waits for an available buffer during heavy update workload. When the specified size is not a 4 KB multiple, it is rounded up to the next 4 KB multiple. Install parameter OUTPUT BUFFER on DSNTIPL, or ZPARM OUTBUFF in DSN6LOGP.</td>
</tr>
<tr>
<td>PACKAGE AUTH CACHE SIZE</td>
<td>The amount of storage allocated for caching authorization information for all packages on this DB2 member. 32 KB hold about 375 collection-ID.package-IDs. The cache is stored in the DSN1DBM1 address space. Install parameter PACKAGE AUTH CACHE on panel DSNTIPP, or ZPARM CACHEPAC in DSN6SPRM.</td>
</tr>
</tbody>
</table>
| PAD INDEXES BY DEFAULT (PADIX)| Shows whether new indexes are be padded by default.  
• YES indicates that a new index is padded unless the NOT Padded option is specified on the CREATE INDEX statement.  
• The default value, NO, indicates that a new index is not padded unless the Padded option is specified on the CREATE INDEX statement. Install parameter PAD INDEXES BY DEFAULT on installation panel DSNTIPE, or ZPARM PADIX in DSN6SPRM. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
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</tr>
</thead>
<tbody>
<tr>
<td>PAD NULL TERMINATED STRING (PADNTSTR)</td>
<td>Shows whether output host variables that are NULL-terminated strings are padded with blanks and a NULL terminator. When NO, NULL-terminated output host variables have the NULL terminator placed at the end of actual data returned in the host variable. When YES, NULL-terminated output host variables have the NULL terminator placed at the end of the string, after the string has been padded with blanks from the end of the actual data to the declared length of the output host variable. Install parameter PAD NUL-TERMINATED on installation panel DSNTIP4, or ZPARM PADNTSTR in DSNHDECP.</td>
</tr>
<tr>
<td>PARALLEL ACCOUNTING ROLLUP (PTASKROL)</td>
<td>Indicates whether DB2 generates a trace record at the originating task level that summarizes accounting information for all parallel tasks. DB2 parameter PTASKROL in DSN6SYSP.</td>
</tr>
<tr>
<td>PARALLEL ASSIST (ASSIST)</td>
<td>Shows whether this DB2 member can assist a parallelism coordinator with parallel processing. When YES, this member is considered an assistant at both bind and run time. To be a viable assistant at run time, both the VPPSEQT and VPXPFSEQT buffer pool thresholds of this member must be greater than 0. N/A means this DB2 is not part of a data sharing group. Install parameter ASSISTANT on panel DSNTIPK or ZPARM ASSIST in DSN6GRP.</td>
</tr>
<tr>
<td>PARALLEL COORDINATOR (COORDNTR)</td>
<td>Shows whether this DB2 member can coordinate parallel processing on other members of the group. When NO, a query can be processed by this DB2 member only. When YES, a read-only query running on this DB2 member can be processed in part on other members of the group. N/A means this DB2 is not part of a data sharing group. Install parameter COORDINATOR on panel DSNTIPK or ZPARM COORDNTR in DSN6GRP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>PARALLISM EFFICIENCY FACTOR (PARA EFF)</td>
<td>The PARA EFF subsystem parameter controls the efficiency that DB2 assumes for parallelism when DB2 chooses an access path. The integer value that is used for this parameter represents a percentage efficiency. Acceptable values are 0 - 100. The default is 50.</td>
</tr>
<tr>
<td>ZPARM PARA EFF in DSN6SPRM.</td>
<td></td>
</tr>
<tr>
<td>PARAMDEG DPSI</td>
<td>The maximum degree of parallelism that is to be allowed for a data-partitioned secondary index (DPSI).</td>
</tr>
<tr>
<td>PARAMDEG UTIL</td>
<td>The maximum degree of parallelism that is to be allowed for a utility.</td>
</tr>
<tr>
<td>PC SPECIFIED</td>
<td>This IRLM process flag indicates whether PC Yes was specified.</td>
</tr>
<tr>
<td>PCTFREE UPD</td>
<td>The update of the PCTFREE parameter.</td>
</tr>
<tr>
<td>PENDING HASH ENTRIES</td>
<td>The number of z/OS lock table hash entries pending.</td>
</tr>
<tr>
<td>PKGREL COMMIT (PKGREL COMMIT)</td>
<td>If the MODIFY DDF PKGREL(COMMIT) command has been issued at the server, the value of the bind option has no effect on packages that are executed on a DB2 server through a DRDA connection with the client system.</td>
</tr>
<tr>
<td>PLAN AUTH CACHE (AUTHCACH)</td>
<td>The size of the authorization cache to be used if no CACHESIZE is specified on the BIND PLAN subcommand.</td>
</tr>
<tr>
<td>The size of the cache is 32 bytes of overhead + (8 bytes of storage X number of concurrent users). 0 means authorization caching is not used.</td>
<td></td>
</tr>
<tr>
<td>Install parameter PLAN AUTH CACHE on panel DSNTIPP, or ZPARM AUTHCACH in DSN6SPRM.</td>
<td></td>
</tr>
<tr>
<td>PLAN MGMT SCOPE (PLANMGMTSCOPE)</td>
<td>The PLANMGMTSCOPE subsystem parameter specifies the default plan management scope to use when the PLANMGMTSCOPE option is not explicitly specified for the bind or rebind of a package. The value in this field is meaningful only when the value of the PLAN MANAGEMENT field is BASIC or EXTENDED. It can have a value of STATIC (default).</td>
</tr>
<tr>
<td>ZPARM PLANMGMTSCOPE in DSN6SPRM.</td>
<td></td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>---------------------------------------------------</td>
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</tr>
<tr>
<td>POOL THREAD TIMEOUT (POOLINAC)</td>
<td>The approximate time, in seconds, that a DBAT can remain idle in the pool before it is terminated.</td>
</tr>
<tr>
<td></td>
<td>A DBAT thread in the pool counts as an active thread against MAX REMOTE ACTIVE and can hold locks, but does not have any cursors.</td>
</tr>
<tr>
<td></td>
<td>Threads are checked for timeouts every 3 minutes. This means that timeouts might not be honored for up to 3 minutes when the timeout value is less than this. The default is 120.</td>
</tr>
<tr>
<td></td>
<td>Install parameter POOL THREAD TIMEOUT on panel DSNTIP5, ZPARM POOLINAC in DSN6FAC.</td>
</tr>
<tr>
<td>PREVIOUS MODULE</td>
<td>The name of the previous DSNZPARM load module.</td>
</tr>
<tr>
<td>PRIMARY QUANTITY (PRIQTY)</td>
<td>The primary space allocation for archive data sets.</td>
</tr>
<tr>
<td></td>
<td>Install parameter PRIMARY QUANTITY on installation panel DSNTIP5, or ZPARM PRIQTY in DSN6ARVP.</td>
</tr>
<tr>
<td>PRIVATE PROTOCOL</td>
<td>The Private protocol is no longer supported for DB2 10; however, this subsystem parameter controls package EXECUTE authorization behavior related to remote DB2 requester applications. When a remote DB2 requester application accesses the server DB2 subsystem through DRDA protocol, a plan owner is associated with the remote DB2 requester application plan. For packages that are executed as part of this plan by a remote DB2 requester application using DRDA protocol, the PRIVATE_PROTOCOL parameter has the following effects. This parameter is online updatable, and valid values are NO and AUTH.ZPARM PRIVATE_PROTOCOL in macro DSN6FAC.</td>
</tr>
<tr>
<td>PROC NAME (IRLMPRC)</td>
<td>The name of the IRLM procedure invoked by MVS if AUTO START is YES.</td>
</tr>
<tr>
<td></td>
<td>The name cannot be the same as the subsystem name given for SUBSYSTEM NAME.</td>
</tr>
<tr>
<td></td>
<td>Install parameter PROC NAME on panel DSNTIP5, or ZPARM IRLMPRC in DSN6SPRM.</td>
</tr>
<tr>
<td>PROJECT Z INSERT THRESHOLD (SPRMZTN)</td>
<td>The Project Z insertion threshold.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>QUERY ACCEL OPTIONS</td>
<td>Specifies additional types of SQL queries that are eligible for acceleration.NONE Indicates that no additional types of SQL queries are eligible. Therefore, the types of queries that are described in the other available values for this parameter are not eligible for acceleration. This is the default value.1 Indicates that queries that include data that is encoded with the EBCDIC mixed or graphic encoding schemes are eligible for acceleration.2 Indicates that an INSERT with SELECT statement is eligible for acceleration. However, only the SELECT operation of the query is processed by the accelerator server.3 Indicates that queries that contain built-in functions for which DB2 processes each byte of the input string, rather than each character of the input string, can run on an accelerator server. ZPARM name QUERY ACCEL OPTIONS in macro DSN6SPRM.</td>
</tr>
<tr>
<td>QUIESCE PERIOD SECONDS (QUIESCE)</td>
<td>The maximum amount of time (in seconds) permitted for DB2 to attempt a full system quiesce.</td>
</tr>
<tr>
<td>aranze GROUP ATTACHMENT (RANDOMATT)</td>
<td>The RANDOMATT subsystem parameter specifies whether this DB2 member can be used for randomized group attachment or subgroup attachment processing. This setting is ignored when the GROUP ATTACH field is blank. Acceptable values are YES (default) or NO. ZPARM RANDOMATT in DSN6GRP.</td>
</tr>
<tr>
<td>READ COPY2 ARCHIVES FIRST (ARC2FRST)</td>
<td>This field indicates whether the COPY2 archives should be read first when the DB2 subsystem is started.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Installation parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUIESCE PERIOD on panel DSNTIPA</td>
<td>Install parameter QUIESCE PERIOD on panel DSNTIPA, or ZPARM QUIESCE in DSN6ARVP.</td>
</tr>
<tr>
<td>READ COPY2 ARCHIVE on DSNTIPO</td>
<td>Install parameter READ COPY2 ARCHIVE on DSNTIPO, or ZPARM ARC2FRST in DSN6LOGP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>REAL TIME STATS (STATSINT)</td>
<td>The time interval that DB2 waits before it attempts to write out page set statistics to the real-time statistics tables. This value is between 1 and 65535 minutes. Install parameter REAL TIME STATS on panel DSNTIPO, or ZPARM STATSINT in DSN6SPRM.</td>
</tr>
<tr>
<td>REALSTORAGE MAX</td>
<td>The maximum amount of real storage.</td>
</tr>
<tr>
<td>REBIND PLAN MGMT DEF</td>
<td>Controls which queries are populated in the access path repository (ZPARM parameter PLANMGMTSCOPE). Possible values are: A ALL: Includes static and dynamic SQL queries. S STATIC: Includes static SQL queries only. This is the default. D DYNAMIC: Includes dynamic SQL queries only.</td>
</tr>
<tr>
<td>REBUILD INDEX (FLASHCOPY REBUILD INDEX)</td>
<td>The value of the FLASHCOPY REBUILD INDEX subsystem parameter specifies whether the FLASHCOPY option of the REBUILD INDEX utility is to be used by default. Acceptable values are NO (default) or YES. ZPARM FLASHCOPY REBUILD INDEX in DSN6SPRM.</td>
</tr>
</tbody>
</table>
| RECALL DATABASE (RECALL)                          | The RECALL subsystem parameter controls whether DFSMSHsm automatic recall is to be performed for DB2 databases:  
|                                                    | • YES indicates that DFSMSHsm is invoked to automatically recall migrated table spaces. This is the default.  
<p>|                                                    | • NO indicates that a DB2 table space that has been migrated is considered to be an unavailable resource. It must be recalled explicitly before DB2 can use it. ZPARM RECALL in DSN6SPRM. |</p>
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECALL DELAY (RECALLD)</td>
<td>The RECALLD subsystem parameter specifies the maximum length of time, in seconds, that a program can be delayed for a DFSMShsm recall. If the recall is not completed within the specified number of seconds, the program receives an error message indicating that the set is unavailable, but that a recall was initiated. If you use 0 and the RECALL DATABASE field is YES, the recall is performed asynchronously. This field is ignored if the RECALL DATABASE field is NO. The RECALL DELAY option is not used when running a DB2 utility against a DB2-migrated data set. ZPARM RECALLD in DSN6SPRM.</td>
</tr>
<tr>
<td>RECORDS BETWEEN CHECKPOINT (CHKLOGR)</td>
<td>Shows the number of records between log checkpoints if the LOG checkpoint type is BOTH (records and minutes). This field corresponds to field RECORDS/CHECKPOINT on installation panel DSNTIPL1, or ZPARM name CHKLOGR in DSN6SYSP.</td>
</tr>
<tr>
<td>RECORDS/CHECKPOINT (CHKFREQ)</td>
<td>Checkpoint frequency. This shows either the number of minutes (1 through 60) or the number of DB2 log records between the start of successive checkpoints. DB2 starts a new checkpoint when this value is reached. You can use the SET LOG command to change the number of log records between checkpoints dynamically. Valid values are 1-60 when specifying a time value and 200-16000000 when specifying a number of records. Install parameter CHECKPOINT FREQ on panel DSNTIPL, ZPARM CHKFREQ in DSN6SYSP.</td>
</tr>
<tr>
<td>REGISTRATION DATABASE (RGFDBNAM)</td>
<td>The name of the database that contains the registration tables. Install parameter REGISTRATION DATABASE on panel DSNTIPZ, or ZPARM RGFDBNAM in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>REGISTRATION TABLE OWNER (RGFCOLID)</td>
<td>The owner of the application registration table and the object registration table. This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report. Install parameter REGISTRATION OWNER on panel DSNTIPZ, or ZPARM RGFCOLID in DSN6SPRM.</td>
</tr>
<tr>
<td>RELEASE CURSOR HOLD LOCKS (RELCURHL)</td>
<td>Indicates whether, at commit time, DB2 should release a data page or row lock on which a cursor defined WITH HOLD is positioned. This lock is not necessary for maintaining cursor position. YES indicates that DB2 releases this data page or row lock after a COMMIT is issued for cursors defined WITH HOLD. This can improve concurrency. NO indicates that DB2 holds the data page or row lock for WITH HOLD cursors after the COMMIT. This option is provided to allow existing applications, which rely on this lock to continue to work correctly. Otherwise this field is left blank. Install parameter RELEASE CURSOR HOLD LOCKS on panel DSNTIP8, or ZPARM RELCURHL in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>REORDERED ROW FORMAT (RRF)</td>
<td>The reordered row format (RRF). The value of this parameter specifies whether most newly created table spaces are to store data in reordered row format (RRF) or basic row format (BRF) by default.</td>
</tr>
<tr>
<td></td>
<td><strong>ENABLE</strong></td>
</tr>
<tr>
<td></td>
<td>Newly created table spaces or newly added partitions that are created by ALTER ADD PARTITION statements on partition-by-growth table spaces will be created in RRF. Existing BRF table spaces will be converted to RRF by running LOAD REPLACE or REORG TABLESPACE.</td>
</tr>
<tr>
<td></td>
<td><strong>DISABLE</strong></td>
</tr>
<tr>
<td></td>
<td>Newly created table spaces, including universal table spaces, and newly added partitions that are created by ALTER ADD PARTITION statements on partition-by-growth table spaces will be created in BRF. Existing BRF table spaces will not be converted to RRF by LOAD REPLACE or REORG TABLESPACE.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ZPARM RRF in DSN6SPRM.</td>
</tr>
<tr>
<td>REORG DROP PBG PARTS</td>
<td>REORG DROP partition-by-growth (PBG) parts.</td>
</tr>
<tr>
<td>REORG IGNORE FREE SPACE</td>
<td>Controls whether DB2 uses the PCTFREE and FREEPAGE values that are defined for a partition-by-growth table space in the following situations:</td>
</tr>
<tr>
<td></td>
<td>• When REORG TABLESPACE is run against a subset of the partitions in a partition-by-growth (PBG) table space</td>
</tr>
<tr>
<td></td>
<td>• When REORG TABLESPACE is run against a partition-by-growth table space in which a table contains LOB columns</td>
</tr>
<tr>
<td></td>
<td>Valid values are YES and NO (default). ZPARM REORG_IGNORE_FREESPACE in macro DSN6SPRM.</td>
</tr>
<tr>
<td>REORG INDEX (FLASHCOPY REORG INDEX)</td>
<td>The value of the FLASHCOPY REORG INDEX subsystem parameter specifies whether the FLASHCOPY option of the REORG INDEX utility is to be used by default. Acceptable values are NO (default) or YES.</td>
</tr>
<tr>
<td></td>
<td>ZPARM FLASHCOPY REORG INDEX in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<tr>
<td>---------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>REORG LIST PROCESSING</td>
<td>Specifies the default setting for the PARALLEL option of the DB2 REORG TABLESPACE utility. Valid values for the REORG_LIST_PROCESSING subsystem parameter are PARALLEL and SERIAL. ZPARM REORG_LIST_PROCESSING in macro DSN6SPRM.</td>
</tr>
<tr>
<td>REORG MAPPING DATABASE</td>
<td>REORG mapping database.</td>
</tr>
<tr>
<td>REORG PART SORT NPSI</td>
<td>Specifies whether the REORG TABLESPACE PART utility decides to sort all of the keys of a non-partitioned secondary index. The setting is ignored for a REORG that is not part-level or without non-partitioned secondary indexes. The default value of REORG PART SORT NPSI is NO, which means that only keys of the non-partitioned secondary indexes that are in the scope of the REORG are sorted. ZPARM REORG PART SORT NPSI in DSN6SPRM.</td>
</tr>
<tr>
<td>REORG TABLESPACE (FLASHCOPY REORG TS)</td>
<td>The value of the FLASHCOPY REORG TS subsystem parameter specifies whether the FLASHCOPY option of the REORG TABLESPACE utility is to be used by default. Acceptable values are NO (default) or YES. ZPARM FLASHCOPY REORG TS in DSN6SPRM.</td>
</tr>
<tr>
<td>REQUIRE FULL NAMES (RGFFULLQ)</td>
<td>Indicates whether registered objects require fully qualified names. Install parameter REQUIRE FULL NAMES on panel DSNTIPZ, or ZPARM RGFFULLQ in DSN6SPRM.</td>
</tr>
<tr>
<td>RESIDENT TRACE TBL SIZE (TRACTBL)</td>
<td>Shows the size of the RES trace table in 4 KB blocks. A value of 16 means 64 KB have been allocated for this table. This is the default destination for the global trace records in DB2. Most trace records require 32-byte entries; events with more than three data items require 64-byte entries. Install parameter TRACE SIZE on panel DSNTIPN, or ZPARM TRACTBL in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>RESOURCE AUTHID (RLFAUTH)</td>
<td>The authorization ID used for the resource limit facility (governor). This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report. Install parameter RESOURCE AUTHID on panel DSNTIPP, or ZPARAM RLFAUTH in DSN6SYSP.</td>
</tr>
<tr>
<td>RESOURCE LIMIT AUTO START (RLF)</td>
<td>Shows whether the resource limit facility (governor) is automatically started when DB2 is started. Install parameter RLF AUTO START on panel DSNTIPO, or ZPARAM RLF in DSN6SYSP.</td>
</tr>
<tr>
<td>RESOURCE TIMEOUT (IRLMRWT)</td>
<td>The number of seconds before a timeout is detected. This is an integer multiple of DEADLOCK TIME on panel DSNTIPI. Timeout means that a lock request has waited for a resource (or for claims on a resource for a particular claim class to be released) longer than this time. For data sharing, the actual timeout period is longer than the timeout value. Install parameter RESOURCE TIMEOUT on panel DSNTIPI, or ZPARAM IRLMRWT in DSN6SPRM.</td>
</tr>
<tr>
<td>RESTART OR DEFER (RESTART)</td>
<td>The RESTART subsystem parameter determines whether DB2 is to restart or defer processing for the specified databases, table spaces, and index spaces when DB2 is started. Acceptable values are RESTART (default) or DEFER. ZPARAM RESTART in DSN6SPRM.</td>
</tr>
<tr>
<td>RESTORE RECOVER FROMDUMP</td>
<td>If YES, the system-level backup that is the recovery base, is from a dump on tape. Otherwise NO is shown. Install parameter RESTORE/RECOVER on installation panel DSNTIP6, or ZPARAM RESTORE RECOVER FROMDUMP in DSN6SPRM.</td>
</tr>
<tr>
<td>RESTRICT ALT COL FOR DCC</td>
<td>Specifies whether restrictions apply to ALTER TABLE ALTER COLUMN statements for target tables that are defined with the DATA CAPTURE CHANGES attribute. Valid values are NO (default) and YES.RESTRICT_ALT_COL_FOR_DCC in macro DSN6SPRM.</td>
</tr>
<tr>
<td><strong>DB2 parameter</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>-------------------</td>
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</tr>
</tbody>
</table>
| RESYNC INTERVAL (RESYNC) | The number of minutes between resynchronization periods.  
A resynchronization period is the time during which indoubt logical units of work involving this DB2 subsystem and partner logical units are processed.  
Install parameter RESYNC INTERVAL on panel DSNTIPR, or ZPARM RESYNC in DSN6FAC. |
| RETAINED LOCK TIMEOUT (RETLWAIT) | Indicates whether a request is suspended until an incompatible retained lock becomes available.  
This value is only significant in a data sharing environment. It indicates how long a transaction should wait for a lock on a resource if another DB2 in the data sharing group has failed and is holding an incompatible lock on that resource. Locks held by failed DB2 members are called retained locks.  
This value is a multiplier that is applied to the connection’s normal timeout value. For example, if the retained lock multiplier is 2, then the timeout period for a call attachment connection that is waiting for a retained lock is twice the normal CAF timeout period. The default is 0, meaning applications do not wait for incompatible retained locks, the lock request is immediately rejected and the application receives a "resource unavailable" SQLCODE.  
Install parameter RETAINED LOCK TIMEOUT on panel DSNTIPI, or ZPARM RETLWAIT in DSN6SPRM. |
| RETENTION PERIOD (ARCRETN) | The number of days DB2 keeps archive log data sets.  
This value is added to the current date to calculate the expiration date.  
The retention period is often used in tape management systems to control the reuse and scratching of data sets and tapes. DB2 uses this as the value for the dynamic allocation parameter DALRETPD when archive log data sets are created.  
Install parameter RETENTION PERIOD on panel DSNTIPA, or ZPARM ARCRETN in DSN6ARVP. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
| REVOKE DEP PRIV (REVOKE_DEP_PRIVILEGES) | Include dependent privileges on REVOKE. Possible values are:  
  - Y: If INCLUDING DEPENDENT PRIVILEGES is enforced.  
  - N: If NOT INCLUDING DEPENDENT PRIVILEGES is enforced.  
  - S: If specified in a REVOKE statement. |

**RLF ERROR PARAMETER**

Shows what DB2 does when the governor cannot access the resource limit specification table or when no row in the table matches the currently executing statement.  

- **NOLIMIT** (default) allows all dynamic SQL statements to run without limit.  
- **NORUN** terminates all dynamic SQL statements immediately with an SQL error code.  

The number of CPU service units allowed for a query can be anywhere from 1 to 5000000.  

Install parameter RLST ACCESS ERROR (RLFERR) on panel DSNTIPR, or ZPARM RLFERRD in DSN6SYSP.

**RLST ACCESS ERROR (RLFERR)**

The action taken by DB2 when the governor cannot use the resource limit:

- **NOLIMIT**  
  The dynamic SQL statements run without limit.  

- **NORUN**  
  The dynamic SQL statements terminated with an SQL error code.  

A number from 1 to 5000000 represents the number of CPU service units allowed for a query. Install parameter RLST ACCESS ERROR (RLFERR) on panel DSNTIPO, or ZPARM RLFERRD in DSN6SYSP.

**RLST ACCESS ERROR (RLFERRD)**

The action taken by DB2 when the governor cannot use the resource limit:

- **NOLIMIT**  
  The dynamic SQL statements run without limit.  

- **NORUN**  
  The dynamic SQL statements terminated with an SQL error code.  

A number from 1 to 5000000 represents the number of CPU service units allowed for a query.  

Install parameter RLST ACCESS ERROR (RLFERRD) on panel DSNTIPO, or ZPARM RLFERRD in DSN6SYSP.
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RLIST NAME SUFFIX (RLFTBL)</td>
<td>The default resource limit specification table (RLST) suffix. This suffix is used when the resource limit facility (governor) is automatically started or when the governor is started without specifying a suffix. Install parameter RLIST NAME SUFFIX on panel DSNTIPO, or ZPARM RLFTBL in DSN6YSP.</td>
</tr>
<tr>
<td>RO SWITCH CHKPTS (PCLOSEN)</td>
<td>The number of consecutive DB2 checkpoints that a page set or partition can remain in read/write mode since it was last updated. When this limit or the RO SWITCH TIME is reached, DB2 changes the page set or partition to read only. This can improve performance for recovery, logging, and data-sharing processing. Install parameter RO SWITCH CHKPTS on panel DSNTIPL, or ZPARM PCLOSEN in DSN6YSP.</td>
</tr>
<tr>
<td>RO SWITCH TIME (PCLOSET)</td>
<td>The number of minutes that a page set or partition can remain in read-write mode since it was last updated. When this limit or the RO SWITCH CHKPTS is reached, DB2 changes the page set or partition to read-only. This can improve performance for recovery, logging, and data-sharing processing. Install parameter RO SWITCH TIME on panel DSNTIPL, or ZPARM PCLOSET in DSN6YSP.</td>
</tr>
<tr>
<td>ROUTINE AUTH CACHE (CACHERAC)</td>
<td>The amount of storage allocated for caching authorization information for all routines on this DB2 member. Routines include stored procedures and user-defined functions. 32 KB hold about 380 schema.routine.type entries. Install parameter ROUTINE AUTH CACHE on panel DSNTIPL, or ZPARM CACHERAC in DSN6SPRM.</td>
</tr>
</tbody>
</table>
| SEC ADMIN 1 TYPE (SECADM1 TYPE)       | Security administrator 1 type. Possible values are:  

  - Blank indicates that the authorization ID (AUTH ID) is used.
  - L Indicates that ROLE is used.

This field corresponds to field SEC ADMIN 1 TYPE on installation panel DSNTIPL, or ZPARM SECADM1_TYPE in DSN6SPRM. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
| SEC ADMIN 2 TYPE (SECADM2 TYPE) | Security administrator 2 type. Possible values are:  
    'blank' Indicates that the authorization ID (AUTH ID) is used.  
    'L' Indicates that ROLE is used.  
    This field corresponds to field SEC ADMIN 2 TYPE on installation panel DSNTIPPI, or ZPARM SECADM2_TYPE in DSN6SPRM. |
| SECONDARY QUANTITY (SECQTY) | The device type or unit name for storing archive log data sets.  
The value can be any alphanumeric string. If you choose to archive to DASD, you can specify a generic device type with a limited volume range. DB2 requires that all archive log data sets allocated on DASD are cataloged.  
If the device type is DASD, CATALOG DATA must be set to YES. If the unit name specifies DASD, the archive log data sets can extend to a maximum of 15 volumes. PRIQTY and SECQTY must be large enough to contain all active log data set data without extending beyond 15 volumes. If the unit name specifies a tape device, DB2 can extend to a maximum of 20 volumes. Default is TAPE.  
Install parameter DEVICE TYPE 1 on panel DSNTIPA, or ZPARM UNIT in DSN6ARVP. |
| SECURITY ADMIN 1 (SECADM1) | Security administrator 1 authorization ID (blank if ROLE).  
This field corresponds to field SECURITY ADMIN 1 on installation panel DSNTIPPI, or ZPARM SECADM1 in DSN6SPRM. |
| SECURITY ADMIN 2 (SECADM2) | Security administrator 2 authorization ID (blank if ROLE).  
This field corresponds to field SECURITY ADMIN 2 on installation panel DSNTIPPI, or ZPARM SECADM2 in DSN6SPRM. |
| SECURITY ADMIN1 TYPE | Security administrator 1 type. Possible values are:  
    '' Blank indicates that the authorization ID (AUTH ID) is used.  
    'L' Indicates that ROLE is used.  
    This field corresponds to field SEC ADMIN 1 TYPE on installation panel DSNTIPPI, or ZPARM SECADM1_TYPE in DSN6SPRM. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
| SECURITY ADMIN2 TYPE                  | Security administrator 2 type. Possible values are:  
|                                       | 'blank' Indicates that the authorization ID (AUTH ID) is used.  
|                                       | 'L' Indicates that ROLE is used.  
|                                       | This field corresponds to field SEC ADMIN 2 TYPE on installation panel DSNTIPP1, or ZPARM SECADM2_TYPE in DSN6SPRM.  |
| SEPARATE SECURITY DUTIES (SEPARATE_SECURITY) | Separate security tasks. Possible values are:  
|                                       | Y SYSADM/SYSCTRL cannot GRANT/REVOKE  
|                                       | N SYSADM/SYSCTRL can GRANT/REVOKE  |
| SET CHECK PENDING (CHECK SETCHKP)     | The CHECK SETCHKP subsystem parameter specifies whether the CHECK DATA and CHECK LOB utilities are to place inconsistent objects in CHECK PENDING status. Acceptable values are YES or NO (default).  
|                                       | ZPARM CHECK SETCHKP in DSN6SPRM.  |
| SIGNON (SIGNON MODULE)                | Shows the name of the default signon exit module.  
|                                       | This field corresponds to field SIGNON on installation panel DSNTIPO3. The ZPARM name is SIGNON MODULE in DSN6SYSP.  |
| SINGLE VOLUME (SVOLARC)               | Indicates whether single-volume DASD archives are used.  
<p>|                                       | Install parameter SINGLE VOLUME on panel DSNTIPA, or ZPARM SVOLARC in DSN6ARVP. |</p>
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITE TYPE (SITETYP)</td>
<td>Shows whether this system is at a local site or a recovery site.</td>
</tr>
<tr>
<td><strong>LOCALSITE</strong></td>
<td>This is the site of the current system. Multiple image copies are made and are operational here. This is the default.</td>
</tr>
<tr>
<td><strong>RECOVERSITE</strong></td>
<td>This an alternative site for recovery purposes.</td>
</tr>
<tr>
<td></td>
<td>The RECOVER utility uses this parameter to determine what site the current system is on and recovers everything from the copies of data registered at that site.</td>
</tr>
<tr>
<td></td>
<td>The RECOVER and MERGECOPY utilities use this to determine whether COPYDDN or RECOVERDDN is allowed with NEWCOPY NO.</td>
</tr>
<tr>
<td></td>
<td>Install parameter SITE TYPE on panel DSNTIPO, or ZPARM SITETYP in DSN6SPRM.</td>
</tr>
<tr>
<td>SIZE OF LOCAL TRACE TABLES (TRACLOC)</td>
<td>The size of the local trace tables in multiples of 4 KB.</td>
</tr>
<tr>
<td>SKIP UNCOMMITTED INSERTS (SKIPUNCI)</td>
<td>The SKIPUNCI subsystem parameter specifies whether statements are to ignore a row that was inserted by another transaction if the row has not been committed or aborted. Acceptable values are NO (default) or YES.</td>
</tr>
<tr>
<td></td>
<td>ZPARM SKIPUNCI in DSN6SPRM.</td>
</tr>
<tr>
<td>SMS Data Class (CATDDACL)</td>
<td>The DIRECTORY AND CATALOG DATA field specifies the explicit Storage Management Subsystem (SMS) classes that are to be used for defining VSAM data sets for the DB2 catalog and directory.</td>
</tr>
<tr>
<td></td>
<td>Acceptable values are blank (default) or a valid SMS data class name.</td>
</tr>
<tr>
<td></td>
<td>ZPARM CATDDACL in DSN6SPRM.</td>
</tr>
<tr>
<td>SMS DATACLASS NAME FOR DATA TS (SMSDCFL)</td>
<td></td>
</tr>
<tr>
<td>SMS DATACLASS NAME FOR INDEX TS (SMSDCIX)</td>
<td></td>
</tr>
<tr>
<td>SMS IX Data Class (CATXDACL)</td>
<td></td>
</tr>
<tr>
<td>SMS IX Management Class (CATXMGCL)</td>
<td></td>
</tr>
<tr>
<td>SMS IX STO Class (CATXSTCL)</td>
<td></td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SMS Mgmt Class (CATDMGCL)</td>
<td>The DIRECTORY AND CATALOG DATA field specifies the explicit Storage Management Subsystem (SMS) classes that are to be used for defining VSAM data sets for the DB2 catalog and directory. Acceptable values are blank (default) or a valid SMS management class name. ZPARM CATDMGCL in DSN6SPRM.</td>
</tr>
<tr>
<td>SMS Storage Class (CATDSTCL)</td>
<td>The DIRECTORY AND CATALOG DATA field specifies the explicit Storage Management Subsystem (SMS) classes that are to be used for defining VSAM data sets for the DB2 catalog and directory. Acceptable values are blank (default) or a valid SMS storage class name. ZPARM CATDSTCL in DSN6SPRM.</td>
</tr>
<tr>
<td>SORT POOL SIZE (SRTPool)</td>
<td>Indicates the amount of storage needed for the sort pool. This can be the value calculated by the CLIST, based on input from previous panels, or the value entered in the Override column at installation time. Install parameter SORT POOL SIZE on panel DSNTIPC, or ZPARM SRTPool in DSN6SPRM.</td>
</tr>
<tr>
<td>SPT01 INLINE LENGTH</td>
<td>Default inline length for any new storing large object (LOB) column in a Universal Table Space on the DB2 subsystem. The valid values are from 0 to 32680 inclusive (in bytes). The default value for this ZPARM is 0, which indicates that no inline attribute is required for any LOB column (BLOB, CLOB or DBCLOB) created on this subsystem. If NOINLINE is specified, the value is set to -1.</td>
</tr>
<tr>
<td>SQL STRING DELIMITER (SQLDELI)</td>
<td>The SQLDELI DECP value specifies the character that is to be used as the SQL string delimiter to delimit character strings in dynamic SQL. Acceptable values are DEFAULT (the default value), ‘ (quotation mark), or ‘ (apostrophe).</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>STANDARD SQL LANGUAGE (STDSQL)</td>
<td>Shows whether SQL, the language standard used by applications, conforms to 1986 ANSI SQL standard.</td>
</tr>
<tr>
<td></td>
<td><strong>YES</strong> Conforms to the 1986 ANSI SQL standard</td>
</tr>
<tr>
<td></td>
<td><strong>NO</strong> Conforms to the SQL language defined by DB2</td>
</tr>
<tr>
<td></td>
<td><strong>86</strong> Conforms to the 1986 ANSI SQL standard</td>
</tr>
<tr>
<td></td>
<td>Install parameter STD SQL LANGUAGE on panel DSNTIP4, or ZPARM STDSQL in DSNHDECP.</td>
</tr>
<tr>
<td>STAR JOIN MAX POOL</td>
<td>Shows the maximum size, in MB, of the virtual memory pool for star join queries. When zero, DB2 does not allocate a memory pool for star join queries, even if star join queries are enabled. A value between 1 and 1024, shows that DB2 uses a dedicated memory pool up to the size shown for star join queries.</td>
</tr>
<tr>
<td></td>
<td>Install parameter STAR JOIN MAX POOL on panel DSNTIP8, or ZPARM SJMXPOOL in DSN6SPRM.</td>
</tr>
<tr>
<td>STAR JOIN QUERIES (STARJOIN)</td>
<td>The STARJOIN subsystem parameter specifies whether star join processing is to be enabled. Acceptable values are DISABLE (default), ENABLE, or 1 to 32768.</td>
</tr>
<tr>
<td></td>
<td>ZPARM STARJOIN in DSN6SPRM.</td>
</tr>
<tr>
<td>STAR JOIN THRESHOLD (SJTABLES)</td>
<td>The minimum number of tables in the star schema query block, including the fact table, dimensions tables, and snowflake tables. This value is considered only if the subsystem parameter STARJOIN qualifies the query for star join.</td>
</tr>
<tr>
<td></td>
<td>Possible values are:</td>
</tr>
<tr>
<td></td>
<td><strong>0</strong> Star join is disabled. This is the default.</td>
</tr>
<tr>
<td></td>
<td><strong>1, 2, or 3</strong> Star join is always considered.</td>
</tr>
<tr>
<td></td>
<td><strong>4 through 255</strong> Star join is considered if the query block has at least the specified number of tables.</td>
</tr>
<tr>
<td></td>
<td><strong>256 and greater</strong> Star join is never considered.</td>
</tr>
<tr>
<td></td>
<td>DB2 parameter SJTABLES in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>START AUDIT TRACE (AUDITST)</td>
<td>Shows whether the audit trace is started automatically when DB2 is started. When YES, the audit trace is started for the default class (class 1) whenever DB2 is started. When ALL, an audit trace is automatically started for all classes. Install parameter AUDIT TRACE on panel DSNTIPN, or ZPARM AUDITST in DSN6SYSP.</td>
</tr>
<tr>
<td>START GLOBAL TRACE (TRACSTR)</td>
<td>Shows whether the global trace is started automatically when DB2 is started. When YES, the global trace starts for the default classes (classes 1, 2, and 3) whenever DB2 is started, and additional data consistency checks are made whenever a data page or index page is modified. When ALL, the global trace is automatically started for all classes. The global trace is used to diagnose problems in DB2 but it also impacts DB2 performance. If you have production systems requiring high performance, you might consider turning off global trace. If you do this, be aware that this presents a serviceability exposure. In the event of a system failure, IBM service personnel will ask you to turn on global trace and attempt to recreate the problem. Install parameter TRACE AUTO START on panel DSNTIPN, or ZPARM TRACSTR in DSN6SYSP.</td>
</tr>
<tr>
<td>START SMF ACCOUNTING (SMFACCT)</td>
<td>Shows whether DB2 sends accounting data to SMF automatically when DB2 is started. Numeric values show what classes are sent. When YES, the default class (class 1) is sent. When ALL, accounting classes one through five are started. The SMFPRM xx member of SYS1.PARMLIB must also be set to allow SMF to write the records. Install parameter SMF ACCOUNTING on panel DSNTIPN, or ZPARM SMFACCT in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>START SMF STATISTICS (SMFSTAT)</td>
<td>Shows whether a Statistics trace was started automatically at DB2 startup time. The classes started are shown separated by commas. DB2 sends collected trace data to SMF. The SMFPRM xx member of SYS1.PARMLIB must be set to allow SMF to write the records. Install parameter SMF STATISTICS on panel DSNTIPN, or ZPARM SMFSTAT in DSN6SYSP.</td>
</tr>
<tr>
<td>STATFDBK SCOPE</td>
<td>STATFDBK scope.</td>
</tr>
<tr>
<td>STATISTICS CLUSTERING (STATCLUS)</td>
<td>Shows if the RUNSTATS utility uses enhanced or standard clustering statistics: ENHANCED is used if it is on, otherwise STANDARD is shown. Install parameter STATISTICS CLUSTERING on panel DSNTIP6, or ZPARM STATCLUS in DSN6SPRM.</td>
</tr>
<tr>
<td>STATISTICS HISTORY (STATHIST)</td>
<td>Shows which inserts and updates are recorded in catalog history tables. The report can show the following values: N / NONE Changes in the catalog are not recorded. This is the default. A / ALL All inserts and updates in the catalog are recorded. P / ACCESSPATH All inserts and updates to access path related catalog statistics are recorded. S / SPACE All inserts and updates to space related catalog statistics are recorded. Install parameter STATISTICS HISTORY on panel DSNTIPO, or ZPARM STATHIST in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>---------------------------------------------------</td>
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</tr>
<tr>
<td>STATISTICS ROLLUP DEFAULT (STATROLL)</td>
<td>Shows whether RUNSTATS utility aggregates the partition level statistics, even though some parts may not contain data. This should be YES for DB2 systems that have large partitioned table spaces, index spaces, or both. This enables the aggregation of part level statistics and helps the optimizer to choose a better access path. Install parameter STATISTICS ROLLUP on panel DSNTIPO, or ZPARM STATROLL in DSN6SPRM.</td>
</tr>
<tr>
<td>STATISTICS SYNC (SYNCVAL)</td>
<td>Shows whether DB2 statistics recording is synchronized with some part of the hour. The installation can specify that the DB2 statistics recording interval be synchronized with the beginning of the hour (00 minutes past the hour) or any number of minutes past the hour up to 59. Possible values are: 0-59, which indicate the synchronization point. When NO or N/A is shown, synchronization is disabled, this is the default. If STATISTICS TIME INTERVAL IN MINUTES (STATIME) is greater than 60, NO or N/A is shown. Install parameter STATISTICS SYNC on panel DSNTIPN, or ZPARM SYNCVAL in DSN6SYSP.</td>
</tr>
<tr>
<td>STATISTICS TIME INTERVAL (STATIME)</td>
<td>The time interval, in minutes, between statistics collections. Statistics records are written approximately at the end of this interval. Install parameter STATISTICS TIME on panel DSNTIPN, or ZPARM STATTIME in DSN6SYSP.</td>
</tr>
<tr>
<td>STRING DELIMITER (DELIM)</td>
<td>Shows the string delimiter for COBOL. Default string delimiter is the quotation mark. This option is applicable to all types of COBOL. Install parameter STRING DELIMITER on panel DSNTIPF, or ZPARM DELIM in DSNHDECP.</td>
</tr>
<tr>
<td>SU CONVERSION FACTOR</td>
<td>The CPU service unit conversion factor for this CPU. This factor allows conversion CPU time in seconds to a common unit, called service unit (SU). The conversion factor used depends on the machine. Service units allow you to calculate CPU execution times across a data sharing group.</td>
</tr>
</tbody>
</table>

Chapter 3. Installing and configuring  637
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBQ MIDX</td>
<td>Specifies whether to enable or disable multiple index access on some non-Boolean uncorrelated subquery predicates.</td>
</tr>
<tr>
<td></td>
<td>ZPARM SUBQ_MIDX in macro DSN6SPRM.</td>
</tr>
<tr>
<td>SUBSYSTEM DEFAULT (SSID)</td>
<td>The MVS subsystem name for DB2. The name is used in member IEFSSN xx of SYS1.PARMLIB.</td>
</tr>
<tr>
<td></td>
<td>A valid name has 1-4 characters, the first must be A-Z, #, $, or @. Others must be A-Z, 1-9, #, $, or @. Default is DSN1.</td>
</tr>
<tr>
<td></td>
<td>Install parameter SUBSYSTEM NAME on panel DSNTIPM, or ZPARM SSID in DSNHDECIP.</td>
</tr>
<tr>
<td>SUPPRESS LOGREC SOFT RECORD (SUPERRS)</td>
<td>Shows whether the recording of errors, such as invalid decimal data and arithmetic exceptions, in the operating system data set SYS1.LOGREC is suppressed.</td>
</tr>
<tr>
<td></td>
<td>When YES, these exceptions are not recorded in the LOGREC data set.</td>
</tr>
<tr>
<td></td>
<td>Install parameter SUPPRESS SOFT ERRORS on panel DSNTIPM or ZPARM SUPERRS in DSN6SPRM.</td>
</tr>
<tr>
<td>SYSTEM ADMIN 1 (SYSADM)</td>
<td>One of two authorization IDs with SYSADM authority. SYSADM users can access to DB2 in all cases.</td>
</tr>
<tr>
<td></td>
<td>This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.</td>
</tr>
<tr>
<td></td>
<td>Install parameter SYSTEM ADMIN 1 on panel DSNTIPM, or ZPARM SYSADM in DSN6SPRM.</td>
</tr>
<tr>
<td>SYSTEM ADMIN 2 (SYSADM2)</td>
<td>One of two authorization IDs with SYSADM authority. SYSADM users can access to DB2 in all cases.</td>
</tr>
<tr>
<td></td>
<td>This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.</td>
</tr>
<tr>
<td></td>
<td>Install parameter SYSTEM ADMIN 2 on panel DSNTIPM, or ZPARM SYSADM2 in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
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</tr>
<tr>
<td>SYSTEM LEVEL BACKUP (SYSTEM LEVEL BACKUPS)</td>
<td>Shows if RECOVER uses system level backups as the recovery base. Install parameter SYSTEM-LEVEL BACKUPS on installation panel DSNTIP6, or ZPARM SYSTEM LEVEL BACKUPS in DSN6SPRM.</td>
</tr>
<tr>
<td>SYSTEM LOB VALUE STORAGE (LOBVALS)</td>
<td>Specifies an integer that establishes an upper limit for the amount of storage per system that can have for storing lob values (in MB).</td>
</tr>
<tr>
<td>SYSTEM OPERATOR 1 (SYSOPR1)</td>
<td>One of two authorization IDs with SYSOPR authority. SYSOPR users can access DB2 even if the DB2 catalog is unavailable. This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report. Install parameter SYSTEM OPERATOR 1 on panel DSNTIPP, or ZPARM SYSOPR1 in DSN6SPRM.</td>
</tr>
<tr>
<td>SYSTEM OPERATOR 2 (SYSOPR2)</td>
<td>One of two authorization IDs with SYSOPR authority. SYSOPR users can access DB2 even if the DB2 catalog is unavailable. This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report. Install parameter SYSTEM OPERATOR 2 on panel DSNTIPP, or ZPARM SYSOPR2 in DSN6SPRM.</td>
</tr>
<tr>
<td>SYSTEM XML VALUE STORAGE (XMLVALS)</td>
<td>The maximum amount of memory for each system for storing XML values. This is ZPARM XMLVALS in DSN6SYSP.</td>
</tr>
<tr>
<td>TABLE SPACE ALLOCATION IN KB (TSQTY)</td>
<td>Specifies the amount of space in KB for primary and secondary space allocation for DB2-defined data sets for table spaces created without the USING clause. 0 indicates that DB2 uses standard defaults. Install parameter TABLE SPACE ALLOCATION on panel DSNTIP7, or ZPARM TSQTY in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<tr>
<td>---------------------------------------------------</td>
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</tr>
<tr>
<td>TAPE UNIT DEALLOCATION PERIOD (DEALLCT)</td>
<td>The number of minutes an archive read tape unit can remain unused before it is deallocated.</td>
</tr>
<tr>
<td></td>
<td>When archive log data is read from tape, this value should be high enough to allow DB2 to optimize tape handling for multiple read applications.</td>
</tr>
<tr>
<td></td>
<td>Install parameter DEALLOC PERIOD on panel DSNTI PA, or ZPARM DEALLCT in DSN6LOGP.</td>
</tr>
<tr>
<td>TCP/IP ALREADY VERIFIED (TCPALVER)</td>
<td>Indicates whether DB2 accepts TCP/IP connection requests containing only a user ID.</td>
</tr>
<tr>
<td></td>
<td>When YES, a connection request is accepted with a user ID only. This value must be the same for all members of a data sharing group.</td>
</tr>
<tr>
<td></td>
<td>When NO (default), TCP/IP clients must provide authentication information (password, RACF PassTicket, or Kerberos ticket) to gain access to DB2.</td>
</tr>
<tr>
<td></td>
<td>Install parameter TCP/IP ALREADY VERIFIED on panel DSNTI P5, or ZPARM TCPALVER in DSN6FAC.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
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</tr>
<tr>
<td>TCP/IP KEEPALIVE (TCPKPALV)</td>
<td>Indicates whether the TCP/IP configuration KeepAlive value has been overwritten. When ENABLE (default), KeepAlive is enabled, the TCP/IP configuration stack value is used. When DISABLE, TCP/IP KeepAlive has been disabled. A value in the range 1 through 65534 means KeepAlive is active, and the TCP/IP stack value has been overridden. The number reported shows the time, in seconds, between TCP/IP probes. When considering overwriting the keep-alive time, it is recommended to set a value close to the IDLE THREAD TIMEOUT value on installation panel DSNTIPR or the IRLM RESOURCE TIMEOUT value on installation panel DSNTIP1. It is good practice to set all these to about five minutes, or less. Because KeepAlive detection is accomplished by probing the network at this interval, avoid small values, which can cause excessive network traffic and system resource consumption. The trick is to find a proper balance that allows network failures to be detected on a timely basis without impacting system and network performance. Install parameter TCP/IP KEEPALIVE on panel DSNTIP5, ZPARM TCPKPALV in DSN6FAC.</td>
</tr>
<tr>
<td>TEMP DS UNIT NAME (VOLTDEVT)</td>
<td>Shows the device type or unit name for allocating temporary data sets. It is the direct access or disk unit name used for the precompiler, compiler, assembler, sort, linkage editor, and utility work-files in the tailored jobs and CLISTs. It can be any device type acceptable to the DYNALLOC parameter of the SORT or OPTION options for DFSORT. The default is SYSDA. Install parameter TEMPORARY UNIT NAME on DSNTIPA2, or ZPARM VOLTDEVT in DSN6SPRM.</td>
</tr>
<tr>
<td>TEMPLATE TIME</td>
<td>The template time.</td>
</tr>
</tbody>
</table>

Chapter 3. Installing and configuring 641
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMPORARY UNIT NAME</td>
<td>The value of the TEMPORARY UNIT NAME field specifies the device type or unit name that is to be used for allocating temporary data sets. The value of TEMPORARY UNIT NAME is the direct access or disk unit name that is used for the precompiler, compiler, assembler, sort, linkage editor, and utility work files in the tailored jobs and CLISTs.</td>
</tr>
<tr>
<td>THE LIMIT IN SUS</td>
<td>The limit in service units (SUS).</td>
</tr>
<tr>
<td>TIME FORMAT (TIME)</td>
<td>Indicates the default output format for times. Valid values are ISO (hh.mm.ss), USA (hh:mm AM), EUR (hh:mm:ss), JIS (hh:mm:ss), or LOCAL (your choice, defined by a time exit routine). DB2 interprets the input time from the punctuation and converts the output time to the required format. Install parameter TIME FORMAT on panel DSNTIP4, or ZPARM TIME in DSNHDECP.</td>
</tr>
<tr>
<td>TIME OF LAST CHANGE</td>
<td>Time of the last online change made to DB2 system settings.</td>
</tr>
<tr>
<td>TIME TO AUTOSTART (IRLMSWT)</td>
<td>The IRLM wait time in seconds. DB2 autostart abends if IRLM does not start within this time. Install parameter TIME TO AUTOSTART on panel DSNTIP1, or ZPARM IRLMSWT in DSN6SPRM.</td>
</tr>
<tr>
<td>TIMEOUT INTERVAL</td>
<td>The approximate time, in seconds, that an active server thread can remain idle before it is canceled. Inactive and indoubt threads are not subject to timeout. Threads are checked for timeouts every 3 minutes. This means that timeouts might not be honored for up to 3 minutes when the timeout value is less than this. 0 (default) means timeout processing is disabled, idle server threads remain in the system and continue to hold their resources, if any. Install parameter IDLE THREAD TIMEOUT on panel DSNTIPR, or ZPARM IDTHTOIN in DSN6FAC.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<tr>
<td>-------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>TIMEOUT VALUE (STOR TIME)</strong></td>
<td>The number of seconds before DB2 stops waiting for an SQL CALL statement to be assigned to one of the TCBs in the DB2 stored procedures address space. Install parameter TIMEOUT VALUE on panel DSNTIPX, or ZPARM STOR TIME in DSN6SPR.</td>
</tr>
<tr>
<td><strong>TIMESTAMP IN NAME (TSTAMP)</strong></td>
<td>Determines whether the time stamp is to be placed in the name of an archive log data set. You can specify YES or NO. This field is a constant for QWP3FLG1.</td>
</tr>
<tr>
<td><strong>TRACKER SITE (TRKRSITE)</strong></td>
<td>Indicates whether this subsystem is a remote tracker site for another DB2 subsystem.</td>
</tr>
<tr>
<td></td>
<td>When YES, this is a tracker site. A DB2 tracker site is a separate DB2 subsystem or data sharing group that exists solely for the purpose of keeping shadow copies of your primary site's data. No independent work can be run on the tracker site. Install parameter TRACKER TYPE on panel DSNTIPO, or ZPARM TRKRSITE in DSN6SPR.</td>
</tr>
<tr>
<td><strong>U LOCK FOR RR OR RS (RRULOCK)</strong></td>
<td>Indicates whether the U (UPDATE) lock is used when using repeatable read (RR) or read stability (RS) isolation to access a table.</td>
</tr>
<tr>
<td></td>
<td>When YES, the U lock is used for an updated cursor with repeatable read or read stability.</td>
</tr>
<tr>
<td></td>
<td>When NO, the S lock is used for an updated cursor with repeatable read or read stability.</td>
</tr>
<tr>
<td></td>
<td>If the cursor in the running applications includes the clause FOR UPDATE OF, but updates are infrequent, S locks generally provide better performance.</td>
</tr>
<tr>
<td></td>
<td>Install parameter U LOCK FOR RR/RS on panel DSNTIPI, or ZPARM RRULOCK in DSN6SPRM.</td>
</tr>
<tr>
<td><strong>UNICODE GRAPHIC CCSID (UGCCSID)</strong></td>
<td>Unicode graphics character set identification. Parameter UNICODE CCSID in installation panel DSNTIPF, or ZPARM UGCCSID in macro DSNHDECP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>UNICODE IFCIDS (UIFCIDS)</td>
<td>Shows whether output from IFC records should include Unicode information. Only a subset of the character fields (identified in the IFCID record definition by a %U in the comment area to the right of the field declaration in the DSNDQWxx copy files) are encoded in Unicode. The remaining fields maintain the same encoding of previous releases. Install parameter UNICODE IFCIDS on panel DSNTIPN, or ZPARM UIFCIDS in DSN6SYSP.</td>
</tr>
<tr>
<td>UNICODE MIXED CCSID (UMCCSID)</td>
<td>Unicode Mixed Character Set identification. Parameter UNICODE CCSID in installation panel DSNTIPF, or ZPARM UMCCSID in macro DSNHDECP.</td>
</tr>
<tr>
<td>UNICODE SINGLE-BYTE CCSID (USCCSID)</td>
<td>Unicode Single Byte Character Set identification. Parameter UNICODE CCSID in installation panel DSNTIPF, or ZPARM USCCSID in macro DSNHDECP.</td>
</tr>
<tr>
<td>UNION COLNAME 7</td>
<td>The UNION COLNAME 7.</td>
</tr>
<tr>
<td>UNKNOWN AUTHID (DEFLTID)</td>
<td>The authorization ID used if RACF is not available for batch access and USER= is not specified in the job statement. This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report. Install parameter UNKNOWN AUTHID on panel DSNTIPF, or ZPARM DEFLTID in DSN6SPRM.</td>
</tr>
<tr>
<td>UNREGISTERED DDL DEFAULT (RGFDEFLT)</td>
<td>The action taken for DDL that names an unregistered object. Options are REJECT, ACCEPT, or APPL, which rejects the DDL when the current application is not registered. Install parameter UNREGISTERED DDL DEFAULT on panel DSNTIPZ, or ZPARM RGFDEFLT in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<tr>
<td>---------------</td>
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</tr>
<tr>
<td><strong>UPDATE PART KEY COLUMNS (PARTKEYU)</strong></td>
<td>Indicates whether values in columns that participate in partitioning keys can be updated. Possible values are YES, NO, or SAME. When SAME, updates are allowed only when the updated row remains in the same partition. The default value is YES. Install parameter UPDATE PART KEY COLS on panel DSNTIP8, or ZPARM PARTKEYU in DSN6SPRM.</td>
</tr>
<tr>
<td><strong>UR CHECKPOINT FREQ (URCHKTH)</strong></td>
<td>Shows the number of checkpoint cycles to complete before DB2 issues a warning message to the console and writes an IFCID 313 record for an uncommitted, indoubt, or inflight unit of recovery (UR). The default is 0, which disables this option. Install parameter UR CHECK FREQ on panel DSNTIPL, or ZPARM URCHKTH in DSN6SYSP.</td>
</tr>
<tr>
<td><strong>UR LOG WRITE CHECK (URLGWTH)</strong></td>
<td>Shows the number of log records that are to be written by an uncommitted unit of recovery (UR) before DB2 issues a warning message to the console. This provides notification of a long-running UR. Long-running URs might result in a lengthy DB2 restart or a lengthy recovery situation for critical tables. Log records are specified in 1-K (1000 log records) increments. A value of 0 indicates that no write check is to be performed. Install parameter UR LOG WRITE CHECK on panel DSNTIPL, ZPARM URLGWTH in DSN6SYSP.</td>
</tr>
<tr>
<td><strong>UR WARNING THRESHOLD MINUTES (LRDRTHLD)</strong></td>
<td>Shows the number of minutes that a read claim can be held by an agent before DB2 reports it as a long-running reader. Valid values are 0 (default) through 1439. Install parameter LONG-RUNNING READER on installation panel DSNTIPE, or ZPARM LRDRTHLD in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>--------------------------------------------------</td>
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</tr>
<tr>
<td>USE FOR DYNAMIC RULES (DYNRULS)</td>
<td>Shows whether DB2 uses the application programming defaults specified on this panel or those of the DB2 precompiler options for dynamic SQL statements bound using DYNAMICRULES bind, define, or invoke behavior.</td>
</tr>
<tr>
<td></td>
<td>When YES, the application programming (DSNHDDECL) defaults are used for dynamic SQL statements in plans or packages bound using DYNAMICRULES bind, define, or invoke behavior.</td>
</tr>
<tr>
<td></td>
<td>The following defaults are affected:</td>
</tr>
<tr>
<td></td>
<td>• DECIMAL POINT IS</td>
</tr>
<tr>
<td></td>
<td>• STRING DELIMITER</td>
</tr>
<tr>
<td></td>
<td>• SQL STRING DELIMITER</td>
</tr>
<tr>
<td></td>
<td>• MIXED DATA</td>
</tr>
<tr>
<td></td>
<td>• DECIMAL ARITHMETIC</td>
</tr>
<tr>
<td></td>
<td>When NO, values of the precompiler options are used for dynamic SQL statements in plans or packages bound with DYNAMICRULES(BIND).</td>
</tr>
<tr>
<td></td>
<td>Install parameter USE FOR DYNAMICRULES on panel DSNTIP4, or ZPARM DYNRULS in DSNHDECPL.</td>
</tr>
<tr>
<td>USE PROTECTION (AUTH)</td>
<td>Shows whether DB2 performs authorization checking.</td>
</tr>
<tr>
<td></td>
<td>When all authorization checking by DB2 is disabled, the GRANT statement is also disabled (granting every privilege to PUBLIC); this is not recommended.</td>
</tr>
<tr>
<td></td>
<td>Install parameter USE PROTECTION on panel DSNTIPP; or ZPARM AUTH in DSN6SPRM.</td>
</tr>
<tr>
<td>USER ID MONITOR (SPRMOZUS)</td>
<td>The user ID that made the last online change to DB2 system settings.</td>
</tr>
<tr>
<td>USER LOB VALUE STORAGE (LOBVALA)</td>
<td>Specifies an integer that establishes an upper limit for the amount of storage each user can be used for storing lob values (in KB).</td>
</tr>
<tr>
<td>USER XML VALUE STORAGE (XMLVALA)</td>
<td>The maximum amount of memory for each user for storing XML values. This is ZPARM XMLVALA in DSN6SYSR.</td>
</tr>
<tr>
<td>UT DB2 SORT USE (DB2SORT)</td>
<td>The DB2SORT subsystem parameter specifies whether DB2 utilities are to use DB2 Sort instead of DFSORT for utility sort processing when DB2 Sort is installed. Acceptable values are ENABLE (default) or DISABLE. ZPARM DB2SORT in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>UT SORT DATA SET ALLOCATION (UTSORTAL)</td>
<td>The UTSORTAL subsystem parameter specifies how sort work data sets are allocated when utilities are run. This parameter applies to the CHECK, LOAD, REBUILD, REORG, and RUNSTATS utilities. Acceptable values are YES (default) or NO. ZPARM UTSORTAL in DSN6SPRM.</td>
</tr>
<tr>
<td>UTILITY CACHE OPTION (SEQPRES)</td>
<td>Shows whether utilities that scan a nonpartitioned index followed by an update of a subset of the pages in the index allow data to remain in 3990 cache longer when reading data. Install parameter UTILITY CACHE OPTION on panel DSNTIPE, or ZPARM SEQPRES in DSN6PRM.</td>
</tr>
<tr>
<td>UTILITY OBJECT CONVERSION</td>
<td>The conversion of UTILITY OBJECT.</td>
</tr>
<tr>
<td>UTILITY TIMEOUT FACTOR (UTIMOUT)</td>
<td>Shows how much longer utilities can wait for a resource than SQL applications can. This is the number of RESOURCE TIMEOUT units that a utility or utility command can wait for a lock or for all claims on a resource of a particular claim class to be released. The default value is 6, meaning a utility can wait 6 times longer than an SQL application for a resource. Install parameter UTILITY TIMEOUT on panel DSNTIPI, or ZPARM UTIMOUT in DSN6PRM.</td>
</tr>
<tr>
<td>VALUE FOR TRIGGER DRAIN (SPRMTDD)</td>
<td>The percentage below 100% DSMAX that open data sets can reach before an asynchronous drain is started. The default is 1, meaning that asynchronous drain starts when the number of open data sets reaches 99% of DSMAX. DB2 defers closing and deallocating the table spaces or indexes until the number of open data sets reaches one of the following limits: • The MVS limit for the number of concurrently open data sets. • 99% (default) of the value that you specified for DSMAX. When one of these limits is reached, DB2 closes a number of data sets not in use equal to 3% (default) of the value DSMAX. Thus, DSMAX controls not only the limit of open data sets, but also the number of data sets that are closed when that limit is reached. DB2 parameter SPRMTDD in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>VARCHAR INDEX (RETVLCFK)</td>
<td>Indicates whether the VARCHAR column is retrieved from the index. The data sharing scope of this parameter is GROUP. When NO, index-only access of variable length column data is disabled. DB2 must retrieve data from the data page. Data is retrieved with no padding. When YES, index-only access of variable length column data is enabled. This can improve performance. Data retrieved from the index is padded with blanks to the maximum length of the column. Install parameter VARCHAR FROM INDEX on panel DSNTIP8, or ZPARM RETVLCFK in DSN6SPRM.</td>
</tr>
<tr>
<td>VARY DS CONTROL INTERVAL (DSVCI)</td>
<td>Specifies whether DB2 optimizes VSAM CONTROL INTERVAL to page size for data set allocation. It shows if DB2-managed data sets created by CREATE TABLESPACE have variable VSAM control intervals (VARY DS CONTROL INTERVAL). Install parameter VARY DS CONTROL INTERVAL on panel DSNTIP7, or ZPARM DSVCI in DSN6SYSP.</td>
</tr>
<tr>
<td>WFSTGUSE AGENT THRESHOLD</td>
<td>The alert threshold of high space-usage for DGTTs or non-DGTT work files in the Workfile Database by an agent (derived from ZPARM WFSTGUSE_AGENT_THRESHOLD).</td>
</tr>
<tr>
<td>WFSTGUSE SYSTEM THRESHOLD</td>
<td>The alert threshold of high space-usage for DGTTs or non-DGTT work files in the Workfile Database (derived from zparm WFSTGUSE_SYSTEM_THRESHOLD).</td>
</tr>
<tr>
<td>WLM ENVIRONMENT (WLMENV)</td>
<td>Workload manager environment. Install parameter WLM ENVIRONMENT on panel DSNTIPX, or ZPARM WLMENV in DSN6SYSP.</td>
</tr>
<tr>
<td>WTO ROUTING CODES (ROUTCDE)</td>
<td>The MVS console routing codes. These codes are assigned to messages that are not solicited from a specific console. Up to 16 comma-separated codes can be shown. Install parameter WTO ROUTE CODES on panel DSNTIPO, or ZPARM ROUTCDE in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>WTOR BEFORE MOUNT FOR ARCHIVE (ARCWTOR)</td>
<td>Indicates whether DB2 must send a message to the operator and wait for an answer before attempting to mount an archive log data set. Other DB2 users can be forced to wait while the mount is pending. They are not affected while DB2 is waiting for a response to the message. When YES, a device such as tape is used that requires long delays for mounts. DEVICE TYPE 1 shows the device type or unit name. Install parameter WRITE TO OPER on panel DSNTIPA, or ZPARM ARCWTOR in DSN6ARVP.</td>
</tr>
<tr>
<td>X LOCK FOR SEARCHED U/D (XLKUPDLT)</td>
<td>The locking method used when performing a searched UPDATE or DELETE. When NO, DB2 uses an S or U lock when scanning for qualifying rows. For any qualifying rows or pages the lock is upgraded to an X lock before performing the update or delete. For nonqualifying rows or pages the lock is released if using ISOLATION(CS). For ISOLATION(RS), or ISOLATION(RR), an S lock is retained on the rows or pages until the next commit point. This option is used to achieve higher rates of concurrency. When YES, DB2 gets an X lock on qualifying rows or pages. For ISOLATION(CS), the lock is released if the rows or pages are not updated or deleted. For ISOLATION(RS) or ISOLATION(RR), an X lock is retained until the next commit point. This is beneficial in a data sharing environment when most or all searched updates and deletes use an index. The downside is that if searched updates or deletes result in a tablespace scan, the likelihood of timeouts and deadlocks greatly increases. Install parameter X LOCK FOR SEARCHED U/D on panel DSNTIPI, or ZPARM XLKUPDLT in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>XML RANDOMIZE DOCID</td>
<td>Specifies whether DB2 is to sequentially or randomly generate the DOCID values for XML columns. This parameter does not affect existing tables that have XML columns. Those tables continue to generate DOCIDs in the order that was specified by XML RANDOMIZE DOCID when the table was created or in sequential order if the parameter was not specified. Acceptable values are NO (default) or YES. ZPARM XML RANDOMIZE in DSN6SYSP.</td>
</tr>
<tr>
<td>Z/OS CRITICAL RESERVED SPACE MUST COMPLETE</td>
<td>The amount of space reserved for z/OS critical work that must be completed.</td>
</tr>
<tr>
<td>Z/OS LOCK TABLE HASH ENTRIES</td>
<td>The number of z/OS lock table hash entries.</td>
</tr>
<tr>
<td>Z/OS LOCK TABLE LIST ENTRIES</td>
<td>The number of z/OS lock table list entries.</td>
</tr>
<tr>
<td>Z/OS METRICS (ZOSMETRICS)</td>
<td>YES indicates that gathering of z/OS metrics using the RMF interface is enabled. ZPARM ZOSMETRICS in DSN6SPRM.</td>
</tr>
<tr>
<td>Z/OS RESERVED SPACE</td>
<td>The z/OS reserved space.</td>
</tr>
</tbody>
</table>

**Field Value** The value of the DB2 field. It is an alphanumeric text string with a maximum of 44 characters.

**Interval Start** The start time of this interval.

**MVS System ID** The MVS system identifier.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**DSG DB2 Parameters:**
Use DSG DB2 Parameters attributes to view DB2 parameters for data sharing groups.

**DB2 ID** The DB2 subsystem ID.

**Data Sharing Group** The name of the Data Sharing Group.

**Data Sharing Member** The name of the Data Sharing Group Member.

**Field Description** The description of the data field.

**Field Name** The name of the data field.

**Field Value** The data value.

**Interval Start** The start time of this interval.

**MVS System ID** The MVS system identifier.
**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Sequence Number** The sequence number of the data field.

**DSG DSNZP Parm Archiving Parameters Workspace:**

The DSG DSNZP Parm Archiving Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect DB2 archiving.

This workspace is comprised of the following views:

**DSNZP Parm Module Information (table view)**

Shows the name and the assembly date of the current, initial, and previous DSNZP Parm module.

**DSNTIPA - Archive Log Parameters (table view)**

Shows the DB2 field names, ZP Parm names, and the values set for each parameter. These entries define the characteristics of archive log data sets.

**DSNTIPH - System Resource (table view)**

Shows the DB2 field names, ZP Parm names, and the values set for each parameter. These entries specify the names of bootstrap data sets, active logs, and archive logs. These entries also specify the number of copies (1 for single logging or 2 for dual logging) for the active and archive logs.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSG DSNZP Parm Authorization, RLF, and DDF Parameters Workspace:**

The DSG DSNZP Parm Authorization, RLF, and DDF Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect DB2 access and security.

This workspace is comprised of the following views:

**DSNZP Parm Module Information (table view)**

Shows the name and the assembly date of the current, initial, and previous DSNZP Parm module.

**DSNTIPO - Operator Functions (table view)**

Shows the DB2 field names, ZP Parm names, and the values set for each parameter. These entries affect various operator functions. These functions include write-to-operator route codes, automatic recall, and the maximum amount of CPU time that is to be allocated for a dynamic SQL statement.

**DSNTIPP - Protection 1 (table view)**

Shows the DB2 field names, ZP Parm names, and the values set for each parameter. These entries define security information.
DSNTIPP - Protection 2 (table view)
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries define security information.

DSNTIPR - DDF 1 (table view)
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries define the configuration options for the SYSIBM.USERNAMES encryption routine.

DSNTIPR - DDF 2 (table view)
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries define the configuration options for the SYSIBM.USERNAMES encryption routine.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZP ARM Buffer Pool Parameters Workspace:
The DSG DSNZP ARM Buffer Pool Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect DB2 buffer pool default settings.

This workspace is comprised of the following views:

DSNZP ARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZP ARM module.

DSNTIP1 - Buffer Pools (table view)
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries specify the size of your virtual buffer pools.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZP ARM Data Parameters Workspace:
The DSG DSNZP ARM Data Parameters workspace for data sharing groups (DSG) shows information about the data that affects the default settings of the DB2 application.

This workspace is comprised of the following views:
DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIP2 - Data (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the name of the ICF catalog for DB2 VSAM data sets and indicate whether to create the specified catalog. The entries also define z/OS Storage Management Subsystem (SMS) classes that are to be used when defining data sets for the DB2 catalog and directory.

DSNTIP3 - Default Startup (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the default member names of certain modules that are to be loaded at DB2 startup. These modules are the system parameter module, the application default module, and the exit modules.

DSNTIPM - MVS Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the specifications for the DSNTIJMV job, which defines DB2 to z/OS and updates several PARMLIB members.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Data Sharing Parameters Workspace:
The DSG DSNZPARM Data Sharing Parameters workspace for data sharing groups (DSG) shows information about the data sharing installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPK - Data Sharing Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the data sharing function (GROUP, MEMBER, or ENABLE).

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
DSG DSNZPARM Data Set and Database Parameters Workspace:

The DSG DSNZPARM Data Set Parameters workspace for data sharing groups (DSG) shows information about the data set and database-related installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIP7 - SQL Object Defaults 1 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define default values for the system-required objects that DB2 creates automatically. DB2 uses these options for any indexes or table spaces that it implicitly creates. The remaining fields provide general default settings for creating table spaces.

**DSNTIP71 - SQL Object Defaults 2 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define default values for the system-required objects that DB2 creates automatically. DB2 uses these options for any indexes or table spaces that it implicitly creates. The remaining fields provide general default settings for creating table spaces.

**DSNTIP9 - Workfile Database (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the 4 KB and 32 KB page size table spaces in the DB2 Workfile Database.

**DSNTIPS - Auto Start DB/TS (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the databases, table spaces, and index spaces to restart automatically when you start DB2.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM DDCS Parameters Workspace:

The DSG DSNZPARM Data Definition Control Support (DDCS) Parameters workspace for data sharing groups (DSG) shows information about the DDCS installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.
DSNTIPZ - Data Definition Control (table view)
   Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the data definition control support.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM IRLM Parameters Workspace:

The DSG DSNZPARM Internal Resource Lock Manager (IRLM) Parameters workspace for data sharing groups (DSG) shows information about the IRLM with which DB2 communicates.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
   Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPI - IRLM 1 (table view)
   Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the installation of the internal resource lock manager (IRLM).

DSNTIPI - IRLM 2 (table view)
   Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the installation of the internal resource lock manager (IRLM).

DSNTIPI - IRLM Processing Parm (table view)
   Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the IRLM processing parameters.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Logging Parameters Workspace:

The DSG DSNZPARM Logging Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect DB2 logging.

This workspace is comprised of the following views:
DSNZP Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZP module.

DSNTIPL - Active Log Parms (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define characteristics of active log data sets.

DSNTIPL1 - Checkpoint Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define characteristics for log checkpoints.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZP Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZP module.

From DSN6SYSP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SYSP macro.

From DSN6SPRM1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SPRM macro.

From DSN6SPRM2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SPRM macro.

From DSN6LOGP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6LOGP macro.

From DSN6ARVP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6ARVP macro.
From DSN6FAC (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the data-only subsystem parameters that are provided with the DSN6FAC macro.

From DSNHDECP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the parameters of the application default load module DSNHDECP which is generated as part of the DB2 installation or migration.

Others (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the other system parameters.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Performance and Optimization Parameters Workspace:

The DSG DSNZPARM Performance and Optimization Parameters workspace for data sharing groups (DSG) shows information about the installation parameters for performance and optimization invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIP8 - Performance and Optimization 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries set the application programming default values pertaining to performance and optimization.

DSNTIP81 - Performance and Optimization 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries set the application programming default values pertaining to performance and optimization.

DSNTIP82 - Query Accelerator Ref (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the performance and optimization parameters for query accelerators.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPAREM Storage and Size Parameters Workspace:

The DSG DSNZPAREM Storage and Size Parameters workspace for data sharing groups (DSG) shows virtual storage allocations for the DB2 buffer pools and the Environmental Descriptor Manager (EDM) pool.

This workspace is comprised of the following views:

DSNZPAREM Module Information (table view)
- Shows the name and the assembly date of the current, initial, and previous DSNZPAREM module.

DSNTIPC - Storage Sizes (table view)
- Shows the DB2 field names, ZPAREM names, and the values set for each parameter. These entries show the messages that the installation CLIST issues to indicate calculated storage sizes.

DSNTIPD - Sizes (table view)
- Shows the DB2 field names, ZPAREM names, and the values set for each parameter. These entries show the size of the DB2 catalog, directory, and log data sets. They also define the amount of storage that can be used for storing large object (LOB) values.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPAREM Stored Procedures Parameters Workspace:

The DSG DSNZPAREM Stored Procedures Parameters workspace for data sharing groups (DSG) shows information about the installation parameters in the DSNZPAREM module for stored procedures invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPAREM Module Information (table view)
- Shows the name and the assembly date of the current, initial, and previous DSNZPAREM module.

DSNTIPX - Routine Parameters (table view)
- Shows the DB2 field names, ZPAREM names, and the values set for each parameter. These entries are used to start the stored procedures address space so that it can run stored procedures or user-defined functions.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSG DSNZPARM Thread Parameters Workspace:**

The DSG DSNZPARM Thread Parameters workspace for data sharing groups (DSG) shows information about the DB2 system-related installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

- **DSNZPARM Module Information (table view)**
  Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

- **DSNTIPE - Thread Management 1 (table view)**
  Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

- **DSNTIPE1 - Thread Management 2 (table view)**
  Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSG DSNZPARM Trace Parameters Workspace:**

The DSG DSNZPARM Trace Parameters workspace for data sharing groups (DSG) shows information about the automatic startup of traces in DB2.

This workspace is comprised of the following views:

- **DSNZPARM Module Information (table view)**
  Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

- **DSNTIPN - Trace Parameters (table view)**
  Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the audit, global, accounting, and monitor traces and the checkpoint frequency.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
DSG DSNZPARM Utility Parameters Workspace:

The DSG DSNZPARM Utility Parameters workspace for data sharing groups (DSG) shows information about the utility parameters invoked by SQL CALL statements.

This workspace is comprised of the following views:

- **DSNZPARM Module Information (table view)**
  Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

- **DSNTIP6 - UtilityParms 1 (table view)**
  Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

- **DSNTIP6 - UtilityParms 2 (table view)**
  Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

- **DSNTIP6 - UtilityParms 3 (table view)**
  Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Application Parameters Workspace:

The DSG DSNZPARM Application Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect the default settings of the DB2 application.

This workspace is comprised of the following views:

- **DSNZPARM Module Information (table view)**
  Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

- **DSNTIPF - Application Default 1 (table view)**
  Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

- **DSNTIP4 - Application Default 2 (table view)**
  Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels,
the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

**DSNTIP4 - Application Default 3 (table view)**

Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM Application Parameters Workspace:**

The DSNZPARM Application Parameters workspace shows information about the parameters that affect the default settings of the DB2 application.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**

Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIPF - Application Default 1 (table view)**

Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

**DSNTIP4 - Application Default 2 (table view)**

Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

**DSNTIP4 - Application Default 3 (table view)**

Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM Archiving Parameters Workspace:**

The DSNZPARM Archiving Parameters workspace shows information about the parameters that affect DB2 archiving.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIPA - Archive Log Parameters (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the characteristics of archive log data sets.

**DSNTIPH - System Resource (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries specify the names of bootstrap data sets, active logs, and archive logs. These entries also specify the number of copies (1 for single logging or 2 for dual logging) for the active and archive logs.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM Authorization, RLF, and DDF Parameters Workspace:**

The DSNZPARM Authorization, RLF, and DDF Parameters workspace shows information about the parameters that affect DB2 access and security.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIPO - Operator Functions (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect various operator functions. These functions include write-to-operator route codes, automatic recall, and the maximum amount of CPU time that is to be allocated for a dynamic SQL statement.

**DSNTIPP - Protection 1 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define security information.

**DSNTIPP - Protection 2 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define security information.
DSNTIPR - DDF 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the configuration options for the SYSIBM.USERNAMES encryption routine.

DSNTIPR - DDF 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the configuration options for the SYSIBM.USERNAMES encryption routine.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARAM Buffer Pool Parameters Workspace:

The DSNZPARAM Buffer Pool Parameters workspace shows information about the parameters that affect DB2 buffer pool default settings.

This workspace is comprised of the following views:

DSNZPARAM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARAM module.

DSNTIP1 - Buffer Pools (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries specify the size of your virtual buffer pools.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARAM Data Sharing Parameters Workspace:

The DSNZPARAM Data Sharing Parameters workspace shows information about the data sharing installation parameters in the DSNZPARAM module.

This workspace is comprised of the following views:

DSNZPARAM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARAM module.
DSNTIPK - Data Sharing Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the data sharing function (GROUP, MEMBER, or ENABLE).

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Data Set and Database Parameters Workspace:
The DSNZPARM Data Set Parameters workspace shows information about the data set and database-related installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIP7 - SQL Object Defaults 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define default values for the system-required objects that DB2 creates automatically. DB2 uses these options for any indexes or table spaces that it implicitly creates. The remaining fields provide general default settings for creating table spaces.

DSNTIP71 - SQL Object Defaults 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define default values for the system-required objects that DB2 creates automatically. DB2 uses these options for any indexes or table spaces that it implicitly creates. The remaining fields provide general default settings for creating table spaces.

DSNTIP9 - Workfile Database (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the 4 KB and 32 KB page size table spaces in the DB2 Workfile Database.

DSNTIPS - Auto Start DB/TS (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the databases, table spaces, and index spaces to restart automatically when you start DB2.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
DSNZPARM DDCS Parameters Workspace:

The DSNZPARM Data Definition Control Support (DDCS) Parameters workspace shows information about the DDCS installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
- Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIPZ - Data Definition Control (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the data definition control support.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM IRLM Parameters Workspace:

The DSNZPARM Internal Resource Lock Manager (IRLM) Parameters workspace shows information about the IRLM with which DB2 communicates.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
- Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIPI - IRLM 1 (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the installation of the internal resource lock manager (IRLM).

**DSNTIPI - IRLM 2 (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the installation of the internal resource lock manager (IRLM).

**DSNTIPI - IRLM ProcessingParms (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the IRLM processing parameters.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM Logging Parameters Workspace:**

The DSNZPARM Logging Parameters workspace shows information about the parameters that affect DB2 logging.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIPL - Active Log Parms (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define characteristics of active log data sets.

**DSNTIPL1 - Checkpoint Parameters (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define characteristics for log checkpoints.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM Other System Parameters Workspace:**

The DSNZPARM Other System Parameters workspace shows information about the other system parameters invoked by SQL CALL statements.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**From DSN6SYSP (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SYSP macro.

**From DSN6SPRM1 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SPRM macro.

**From DSN6SPRM2 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SPRM macro.
From DSN6LOGP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6LOGP macro.

From DSN6ARVP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6ARVP macro.

From DSN6FAC (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the data-only subsystem parameters that are provided with the DSN6FAC macro.

From DSNHDECP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the parameters of the application default load module DSNHDECP which is generated as part of the DB2 installation or migration.

Others (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the other system parameters.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARAM Performance and Optimization Parameters Workspace:

The DSNZPARAM Performance and Optimization Parameters workspace shows information about the installation parameters for performance and optimization invoked by SQL CALL statements.

This workspace is comprised of the following views:

**DSNZPARAM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARAM module.

**DSNTIP8 - Performance and Optimization 1 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries set the application programming default values pertaining to performance and optimization.

**DSNTIP81 - Performance and Optimization 2 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries set the application programming default values pertaining to performance and optimization.
**DSNTIP82 - Query Accelerator Ref (table view)**

Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the performance and optimization parameters for query accelerators.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM Storage and Size Parameters Workspace:**

The DSNZPARM Storage and Size Parameters workspace shows virtual storage allocations for the DB2 buffer pools and the Environmental Descriptor Manager (EDM) pool.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**

Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIPC - Storage Sizes (table view)**

Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the messages that the installation CLIST issues to indicate calculated storage sizes.

**DSNTIPD - Sizes (table view)**

Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the size of the DB2 catalog, directory, and log data sets. They also define the amount of storage that can be used for storing large object (LOB) values.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM Thread Parameters Workspace:**

The DSNZPARM Thread Parameters workspace shows information about the DB2 system-related installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**

Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.
DSNTIPE - Thread Management 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

DSNTIPE1 - Thread Management 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Thread Parameters Workspace:

The DSNZPARM Thread Parameters workspace shows information about the DB2 system-related installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPE - Thread Management 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

DSNTIPE1 - Thread Management 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Data Parameters Workspace:

The DSNZPARM Data Parameters workspace shows information about the data that affects the default settings of the DB2 application.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.
DSNTIPA2 - Data (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the name of the ICF catalog for DB2 VSAM data sets and indicate whether to create the specified catalog. The entries also define z/OS Storage Management Subsystem (SMS) classes that are to be used when defining data sets for the DB2 catalog and directory.

DSNTIP03 - Default Startup (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the default member names of certain modules that are to be loaded at DB2 startup. These modules are the system parameter module, the application default module, and the exit modules.

DSNTIPM - MVS Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the specifications for the DSNTIJMV job, which defines DB2 to z/OS and updates several PARMLIB members.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Stored Procedures Parameters Workspace:

The DSNZPARM Stored Procedures Parameters workspace shows information about the installation parameters in the DSNZPARM module for stored procedures invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPX - Routine Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries are used to start the stored procedures address space so that it can run stored procedures or user-defined functions.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
DSNZPARM Trace Parameters Workspace:

The DSNZPARM Trace Parameters workspace shows information about the automatic startup of traces in DB2.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
   Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPN - Trace Parameters (table view)
   Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the audit, global, accounting, and monitor traces and the checkpoint frequency.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Utility Parameters Workspace:

The DSNZPARM Utility Parameters workspace shows information about the utility parameters invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
   Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIP6 - Utility Parms 1 (table view)
   Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

DSNTIP6 - Utility Parms 2 (table view)
   Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

DSNTIP6 - Utility Parms 3 (table view)
   Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

EDM Pool Workspace:

The EDM Pool workspace provides an overview of the Environmental Descriptor Manager (EDM) pool activity connected with DB2. The workspace layout depends on the DB2 version installed.

The EDM Pool workspace prior to DB2 10 is comprised of the following views:

**EDM Statistics (table view)**

Lists total counts, counts during the last sample period, and the "per second" count for a variety of tasks associated with the EDM pool.

**EDM Pool Load Activity Summary (bar chart view)**

Provides activity details of the EDM pool, including the number of pages dedicated to a type of pool usage and the percentage of the EDM pool dedicated to that type of usage.

**EDM Pool Utilization (bar chart view)**

Shows the relative distribution of available pages, cursor table pages, database descriptor pages, and package table pages.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Note: If DB2 10 is installed, click the navigation link **EDM Pool (DB2 10)** in the **EDM Statistics** view to open the "EDM Pool (DB2 10) Workspace" on page 676.

**EDM Pool Attributes:**

Use the EDM Pool, DB2 SRM EDM, and DB2 SRM EDM Statistics attributes to create situations to monitor the Environmental Descriptor Manager (EDM) pool activity that is connected with DB2. The attributes depend on the DB2 version installed.

**Available Pages** The total number of EDM pages that are currently available. It is zero for DB2 10 or later.

**Available Percentage** The percentage of EDM Pool that is currently available. Valid entry ranges from 0.0 to 100.0. It is zero for DB2 9 or later.

**Cursor Table Load Rate (CT Loads)** The number of Cursor Table loads from DASD per second.

**Cursor Table Pages** The total number of EDM pages that are currently in use for Cursor Tables. It is zero for DB2 9 or later.

**Cursor Table Percentage** The percentage of EDM Pool that is currently in use for Cursor Tables. Valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.
<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cursor Table Request Rate (Cursor Table</strong></td>
<td>The number of Cursor Table requests per second.</td>
</tr>
<tr>
<td><em>Reqs)</em>*</td>
<td></td>
</tr>
<tr>
<td><strong>Dataspace Free Pages</strong></td>
<td>The number of free pages in EDM Pool Dataspace.</td>
</tr>
<tr>
<td><strong>Dataspace Total Pages</strong></td>
<td>The total number of pages in EDM Pool Dataspace.</td>
</tr>
<tr>
<td><strong>DB2 ID</strong></td>
<td>The name of a DB2 subsystem.</td>
</tr>
<tr>
<td><strong>DB2 Version</strong></td>
<td>The version of the DB2 system.</td>
</tr>
<tr>
<td><strong>DBD Free Pages</strong></td>
<td>The total number of DBD pages that are currently on free queue.</td>
</tr>
<tr>
<td><strong>DBD Free Percentage</strong></td>
<td>The percentage of DBD that is currently on the free queue. Valid entry ranges from 0.0 to 100.0.</td>
</tr>
<tr>
<td><strong>DBD Held Pct</strong></td>
<td>The percentage of DBD pages that are held.</td>
</tr>
<tr>
<td><strong>DBD Load Rate (DBD Loads)</strong></td>
<td>The number of database descriptor loads from DASD per second.</td>
</tr>
<tr>
<td><strong>DBD Pages</strong></td>
<td>The number of DBD pages that are in use.</td>
</tr>
<tr>
<td><strong>DBD Pages Held</strong></td>
<td>The number of DBD pages that are held.</td>
</tr>
<tr>
<td><strong>DBD Percentage</strong></td>
<td>The percentage of DBD pages that are in use; for DB2 10, this percentage is calculated as 100 - (((stealable+free)/total)*100).</td>
</tr>
<tr>
<td><strong>DBD Request Rate (Database Descriptor</strong></td>
<td>The number of database descriptor requests per second.</td>
</tr>
<tr>
<td><strong>Reqs)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DBD Stealable Pages</strong></td>
<td>The current number of stealable pages used for database descriptors (DBDs).</td>
</tr>
<tr>
<td><strong>DBD Total Pages</strong></td>
<td>The total number of pages that are assigned to DBD pool.</td>
</tr>
<tr>
<td><strong>Dynamic SQL Cache</strong></td>
<td>The total number of EDM pages that are currently used for dynamic SQL cache.</td>
</tr>
<tr>
<td><strong>Dynamic SQL Cache Loads (DSC Loads)</strong></td>
<td>The total number of dynamic SQL cache loads from DASD.</td>
</tr>
<tr>
<td><strong>Dynamic SQL Cache Percentage</strong></td>
<td>The percentage of EDM Pool that is currently used for Dynamic SQL caching. Valid entry ranges from 0.0 to 100.0.</td>
</tr>
<tr>
<td><strong>Dynamic SQL Cache Requests (Dynamic SQL</strong></td>
<td>The total number of dynamic SQL requests.</td>
</tr>
<tr>
<td><strong>Reqs)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>EDM Free Pages</strong></td>
<td>The total number of free pages in the EDM pool (DB2 9 or below) or the DBD pool (DB2 10 or later). It is zero for DB2 10 or later.</td>
</tr>
<tr>
<td><strong>EDM Free Percentage</strong></td>
<td>The percentage of free pages in the EDM pool (DB2 9 or below) or the DBD pool (DB2 10 or later). A valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.</td>
</tr>
</tbody>
</table>
EDM In Use Pages The total number of pages that are currently in use in the EDM pool (DB2 9 or below) or the DBD pool (DB2 10 or later). It is zero for DB2 10 or later.

EDM In Use Percentage The percentage of EDM pages (DB2 9 or below) or the percentage of DBD pages (DB2 10 or later) that is currently in use. A valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.

EDM Total Pages The total number of pages that are assigned to the EDM pool (DB2 9 or below) or the DBD pool (DB2 10 or later). It is zero for DB2 10 or later.

Fails because of Dataspace Full The total number of fails because the EDM Pool Dataspace is full.

Fails because of DBD Pool Full The total number of fails because the DBD Pool is full.

Fails because of EDM Pool Full The total number of fails because the EDM Pool is full.

Fails because of RDS Pool Full The total number of fails because the RDS Pool (above) is full.

Fails because of SKEL Pool Full The total number of fails because the Skeleton (SKEL) Pool is full.

Fails because of STMT Pool Full The total number of fails because the Statement (STMT) Pool is full.

Fails because of RDS Pool (below) Full The total number of fails because the RDS Pool (below) is full.

Interval Start The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package Search Not Found Delete The number of not found record deleted from CACHE.

Package Search Not Found Insert The number of not found record added to CACHE.

Package Search Not Found Match The number of CACHED not found record located.

Package Table Load Rate (PT Loads) The number of Package Table loads from DASD per second.

Package Table Pages The total number of pages that are currently in use for Package Table. It is zero for DB2 10 or later.

Package Table Percentage The percentage of EDM Pool that is currently in use for Package Table. Valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.
Package Table Request Rate (Package Table Reqs) The number of Package Table requests per second.

RDS Above CT Pages The number of pages in the RDS pool above the bar used for the cursor tables (CTs). This is a snapshot value. It is zero for DB2 10 or later.

RDS Above CT Percent The percentage of pages that are currently held for cursor table (CT) in the RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above Free Pages The number of free pages in RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above Free Percent The percentage of free pages in RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above In Use Pages The number of pages that are currently in use in RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above In Use Percent The percentage of pages that are currently in use in RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above PT Pages Held The number of pages that are currently held for package tables (PT) in RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above PT Percentage The percentage of pages that are currently held for package tables (PT) in RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Above Total Pages The total number of pages that are assigned to RDS Pool above the bar. It is zero for DB2 10 or later.

RDS Below Cursor Table Pages The number of pages that are currently held for cursor tables in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below Cursor Table Percent The percentage of pages that are currently held for cursor tables in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below Free Pages The number of free pages in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below Free Percent The percentage of free pages in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below In Use Pages The number of pages that are currently in use in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below In Use Percent The percentage of pages that are currently in use in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below Package Table Pages The number of pages that are currently held for package tables in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below Package Table Percent The percentage of pages that are currently held for package tables in RDS Pool below the bar. It is zero for DB2 10 or later.

RDS Below Total Pages The total number of pages that are assigned to RDS Pool below the bar. It is zero for DB2 10 or later.
**Skeleton Cursor Table Pages (SKCT Pages)** The total number of EDM pages that are currently held for skeleton cursor tables (SKCT).

**Skeleton Cursor Table Percentage (SKCT Percentage)** The percentage of EDM that is currently held for skeleton cursor tables (SKCT). Valid entry ranges from 0.0 to 100.0.

**SKEL Free Pages** The number of free pages that are currently in the skeleton (SKEL) Pool.

**SKEL Free Percent** The percentage of free pages that are currently in the skeleton (SKEL) Pool.

**SKEL In Use Pages** The number of pages that are currently in use in the skeleton (SKEL) Pool.

**SKEL In Use Percentage** The percentage of pages that are currently in use in the skeleton (SKEL) Pool; for DB2 10, this percentage is calculated as 100 - (((stealable+free)/total)*100).

**SKEL Pool Pages** The current number of pages in the skeleton (SKEL) Pool above the bar.

**SKPT Pages** The total number of pages that are currently held for skeleton package tables (SKPT).

**SKPT Percentage** The percentage of pages that are currently held for skeleton package tables (SKPT). Valid entry ranges from 0.0 to 100.0.

**SKPT Stealable Pages** The total number of stealable pages used for skeleton package tables (SKPT) pages that can be reused.

**Statement Free Pages** The number of free pages that are currently in the Statement Pool.

**Statement Free Percent** The percentage of free pages that are currently in the Statement Pool.

**Statement in Global Cache** The number of statements in Global Cache.

**Statement Held Percentage** The percentage of pages that are currently held in the Statement Pool.

**Statements Pages Held** The number of pages that are currently held in the Statement Pool.

**Statement Total Pages** The current number of pages in the EDM Statement pool above the bar. This is a snapshot value.

**EDM Pool (DB2 10) Workspace:**

The EDM Pool (DB2 10) workspace provides an overview of the Environmental Descriptor Manager (EDM) pool activity connected with DB2. You can view this information if DB2 10 is installed.

The EDM Pool (DB2 10) workspace is comprised of the following views:
EDM Statistics (table view)
Lists total counts, counts during the last sample period, and the “per second” count for a variety of tasks associated with the EDM pool.

EDM Pool Load Activity Summary (bar chart view)
Provides activity details of the EDM pool, including the number of pages dedicated to a type of pool usage and the percentage of the EDM pool dedicated to that type of usage.

EDM Pool Utilization (bar chart view)
Shows the relative distribution of available pages, cursor table pages, database descriptor pages, and package table pages.

DBD Pool (table view)
Lists information about database descriptors (DBDs).

DBD Pool Utilization (pie chart view)
Shows information about the utilization of the database descriptor (DBD) pool.

PKG Search / STMT in Global Cache (table view)
Lists information about package search and statement in global cache.

SKEL Pool (table view)
Lists information about the EDM skeleton pool.

Statement Pool (table view)
Lists information about the statements.

SKEL Pool Utilization (pie chart view)
Shows information about the EDM skeleton pool.

Statement Pool Utilization (pie chart view)
Shows information about the statements.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Enclave Thread Summary Workspace:

The Enclave Thread Summary Workspace provides an overview of the activity of all threads that are connected to DB2 and are associated with an enclave token.

This workspace is comprised of the following views:

Enclave Thread CPU% (bar chart)
Shows the percentage of the CPU used by each thread that is associated with an enclave token.

Enclave Thread Enclave CPU Time (bar chart)
Shows the CPU time used by each thread that is associated with an enclave token.
Enclave Thread Summary (table view)

Provides an overview of the activity of all threads that are connected to DB2 and are associated with an enclave token.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:
- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

Thread Enclave Attributes:
Use the Thread Enclave attributes to create situations that monitor the activity of threads that are connected to DB2 and are associated with an enclave token.

Accounting The account information.

Ace Address The ace address.

Agent Address The agent address.

AGNT ASID The address space ID (ASID) of the agent.

Agent TCB Address The Agent TCB Address.

Authorization ID The authorization ID.

Authorization ID (Unicode) The authorization ID.

Average Time Goal The average response time goal.

Class The transaction class.

Collection The package collection ID.

Collection (Unicode) The package collection ID.
Collection Name The subsystem collection name.

Thread Enclave Attributes Connection ID. Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Thread Enclave Attributes The connection type.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

CPU Critical CPU critical (Y or N).

Correlation ID The correlation ID.

DB2 ID The DB2 subsystem ID.

Discretionary Goal The discretionary goal.

Duration Service Unit The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 1 The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 2 The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 3 The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 4 The service class period duration in service units. The value is zero for the last period.
Duration Service Unit 5 The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 6 The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 7 The service class period duration in service units. The value is zero for the last period.

Duration Service Unit 8 The service class period duration in service units. The value is zero for the last period.

Enclave CPU Time The enclave CPU time.

Enclave Export Token The export token associated with the enclave, if any. A monitor can collect IWMRQRY answer areas from multiple systems and match RQAD for a particular multisystem enclave using the export token.

Enclave STOKEN The STOKEN of the address space that owns the enclave. If the enclave is foreign, this STOKEN refers to an address space on another system (not the local system).

Enclave Token The enclave token.

End User ID The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (DB2 field name: QWHCEUID).

Function Name The function name.

Goal Description The goal description.

Goal Description 1 The goal description one.

Goal Description 2 The goal description two.

Goal Description 3 The goal description three.

Goal Description 4 The goal description four.

Goal Description 5 The goal description five.

Goal Description 6 The goal description six.

Goal Description 7 The goal description seven.

Goal Description 8 The goal description eight.

Goal Mode The system WLM mode (G for Goal or C for Compatibility).

Goal Type The goal type indicator.

IIP Flag Indicates if the systems has a zIIP processor. Valid values are Y or N.

IIP Speed Indicates if the zIIP processor runs at a different speed than CP processor.
Importance Level  The importance level. The range is one to five; One is the most important.

IMPORTANCE1  The importance level. The range is one to five; One is the most important.

IMPORTANCE2  The importance level. The range is one to five; One is the most important.

IMPORTANCE3  The importance level. The range is one to five; One is the most important.

IMPORTANCE4  The importance level. The range is one to five; One is the most important.

IMPORTANCE5  The importance level. The range is one to five; One is the most important.

IMPORTANCE6  The importance level. The range is one to five; One is the most important.

IMPORTANCE7  The importance level. The range is one to five; One is the most important.

IMPORTANCE8  The importance level. The range is one to five; One is the most important.

Information Flag  The return information flag.

Interval Start  The start time of this interval.

Location  The requesting location.

Location (Unicode)  The requesting location.

Logical Unit  The logical unit name.

LUWID  The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:

USCACO01.02D22A.A1FEBE0489D4=8

MVS ID  The MVS system identifier.

Network ID  The network ID.

Originating System ID  The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.
Owner Job Name The job name of the address space that owns the enclave. If the enclave is foreign, the job name refers to a job on another system (not the local system).

Owner System The name of the system where the owner of the enclave resides. If the enclave is foreign, this is the system where the original enclave is located. Otherwise it is the local system name.

Package DBRM The package DBRM name.

Package DBRM (Unicode) The package DBRM name.

Parm1 The first start parameters.

Parm2 The second start parameters.

Percentile The goal percentile value.

Percentile1 The goal percentile value.

Percentile2 The goal percentile value.

Percentile3 The goal percentile value.

Percentile4 The goal percentile value.

Percentile5 The goal percentile value.

Percentile6 The goal percentile value.

Percentile7 The goal percentile value.

Percentile8 The goal percentile value.

Percentile Time Goal The percentile response time goal.

Performance Index The performance index.

Performance Value The performance value.

Period Number The service class period number in goal mode. When in goal mode, if the address space is a server, this value is always one. When in compatibility mode, this is the performance group period number.

Plan The plan name.

Priority The subsystem priority.

Process Name The enclave process name.

Program Name The transaction program name.

Report Class The name of the report class associated with this address space. This is only valid in goal mode.

Report Class Description The report class description.
**Resource Group** The name of the resource group associated with this address space. This is only valid in goal mode.

**Scheduling Environment** The enclave scheduling environment.

**Service Class** The name of the service class associated with this address space. This is only valid in goal mode.

**Service Class Description** The service class description.

**Service Class Resource Description** The service class resource description.

**Service Class Resource Group** The service class resource group.

**Service Class Workload** The workload name.

**Service Class Workload Description** The description of the workload.

**Service Periods** The number of service class periods for this service class.

**Storage Protection** Storage protection (Y or N).

**Stored Procedure Name** The name of the stored procedure.

**Subsystem** The subsystem name.

**Subsystem Type** The subsystem type.

**Subsystem Parameter** The subsystem parameter.

**System Goal** The system goal.

**Time Unit** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
- M = Minute
- H = Hour

**Time Unit1** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
- M = Minute
- H = Hour

**Time Unit2** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
KD2_PF_READA_SPMON

- M = Minute
- H = Hour

**Time Unit3** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
- M = Minute
- H = Hour

**Time Unit4** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
- M = Minute
- H = Hour

**Time Unit5** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
- M = Minute
- H = Hour

**Time Unit6** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
- M = Minute
- H = Hour

**Time Unit7** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
- M = Minute
- H = Hour

**Time Unit8** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
- M = Minute
- H = Hour
**Total Delays** The total number of delay samples used in the SRMS execution velocity calculation.

**Total Usings** This is a sum of the number of times the work for the service class period is allowed to use WLM managed resources.

**Transaction** The transaction ID at the workstation.

**Type** The enclave type. It can be:

<table>
<thead>
<tr>
<th>Value</th>
<th>Enclave Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Original_Dependent</td>
<td>The enclave was created by IWMECREA and is a continuation of the transaction for the owning address space.</td>
</tr>
<tr>
<td>2</td>
<td>Original_Independent</td>
<td>The enclave was created by IWMECREA and is an independent transaction.</td>
</tr>
<tr>
<td>3</td>
<td>Foreign_Independent</td>
<td>The enclave was created by IWMIMPT and is a continuation of an independent enclave on another system.</td>
</tr>
<tr>
<td>4</td>
<td>Foreign_Dependent</td>
<td>The enclave was created by IWMIMPT and is a continuation of a dependent enclave on another system.</td>
</tr>
<tr>
<td>5</td>
<td>Inactive_Enclave</td>
<td>The enclave is currently on an inactive enclave queue because SRM did not find any work unit associated with the enclave. The enclave will move back to active queue once a work unit joins the enclave.</td>
</tr>
<tr>
<td>6</td>
<td>Currently_Promoted</td>
<td>The enclave is currently promoted because of a chronic resource contention.</td>
</tr>
<tr>
<td>7</td>
<td>Continuation_Independent</td>
<td>The enclave is a continuation of an independent enclave.</td>
</tr>
</tbody>
</table>

**Uniqueness Value** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

**Uniqueness Value 2** The DB2 thread uniqueness value. For internal use.

**User ID** The user ID.

**Velocity Goal** The velocity goal.

**Velocity or Response Time Goal** The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

**Velocity or Response Time Goal 1** The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

**Velocity or Response Time Goal 2** The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

**Velocity or Response Time Goal 3** The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.
Velocity or Response Time Goal 4 The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Velocity or Response Time Goal 5 The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Velocity or Response Time Goal 6 The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Velocity or Response Time Goal 7 The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Velocity or Response Time Goal 8 The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

Version The version.

WLM Descriptor The WLM environment description.

WLM Procedure The WLM environment procedure name.

WLM System Type The type of WLM application environment system.

Workload Manager The WLM (application) environment.

Workload Name The name of the workload associated with this address space. This is only valid in goal mode.

Workstation The workstation ID.

End-to-End SQL Monitoring Workspace:

The End-to-End SQL Monitoring workspace launches to the Extended Insight Analysis Dashboard for the selected subsystem.

The Extended Insight Analysis Dashboard collects the various SQL statement executions and shows them in an aggregated view. This view is updated every 1 minute. It does not display real-time snapshots. These SQL statements may be grouped using the application server, the end-user ID, end-user transaction name, or end-user workstation name.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
Global Lock Conflicts Workspace:

The Global Lock Conflicts workspace lets you view summary information about your enterprise.

This includes the number of:
- Lock conflicts, threads, and GBP connections
- Monitored databases for a data sharing group
- Monitored DB2 systems
- Object analysis databases

This workspace is comprised of the following views:

**Lock Elapsed Time in Seconds (bar chart)**
Shows the elapsed time in seconds.

**Local Lock Conflict Table View**
Shows more information about global locking conflicts.

Thread information is not available if the thread is owned by the other member of the data sharing group.

**DB2 Lock Conflict Attributes:**
Use DB2 Lock Conflict Group attributes to create situations that monitor DB2 database lock conflicts.

**Authorization ID** The primary authorization ID from connection or sign-on, that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

**Authorization ID (Unicode)** The primary authorization ID from connection or sign-on, that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

**Begin Time** Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do
not terminate (such as CICS primed threads and imss wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

**DB2 Lock Conflict Attributes** Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**DB2 Lock Conflict Attributes** The type of connection associated with the thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example, DLKEX212.

**DB2 ID** The name of a DB2 subsystem.

**Display Elapsed Time** The total amount of elapsed time since thread creation or DB2 sign-on.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

It is an alphanumeric text string with a maximum of 8 characters; for example TDDDB242G.

**Lock Elapsed Time** The amount of time (in seconds) a waiter has been waiting for the resource.

**Lock Level** Identifies the lock resource usage.

Valid values are:
<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS</td>
<td>Intent share</td>
</tr>
<tr>
<td>IX</td>
<td>Intent exclusive</td>
</tr>
<tr>
<td>NSU</td>
<td>Non-shared Update</td>
</tr>
<tr>
<td>S</td>
<td>Share</td>
</tr>
<tr>
<td>SIX</td>
<td>Share intent exclusive</td>
</tr>
<tr>
<td>U</td>
<td>Update</td>
</tr>
<tr>
<td>UNS</td>
<td>Unprotected shared</td>
</tr>
<tr>
<td>X</td>
<td>Exclusive</td>
</tr>
</tbody>
</table>

**Lock Resource** The resource a lock owner currently has locked or the resource that caused DB2 to suspend a lock request. It is an alphanumeric text string, with a maximum of 50 characters; for example, DB=TBLBLK2 PS=PAGELK2.

**Lock Status** The status of a job holding or waiting on a lock: If the status is OWN with a DB2 subsystem name, the lock is owned by another DB2 subsystem in the Data Sharing Group (DSG); for example, if lock status is OWN-DB2A, the lock is owned by DB2 subsystem DB2A.

**Lock Token** Lock Token.

**Lock Type** The lock type of the lock request.

Valid values are:

*Table 78. Lock types*

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACSC</td>
<td>The Accelerator Services commands (ACSC) lock.</td>
</tr>
<tr>
<td>ALBP</td>
<td>The Alter buffer pool (ALBP) lock indicates a lock on a buffer pool</td>
</tr>
<tr>
<td></td>
<td>during execution of an ALTER BUFFERPOOL command.</td>
</tr>
<tr>
<td>BIND</td>
<td>The BIND lock indicates an autobind or remote bind lock.</td>
</tr>
<tr>
<td>BMBA</td>
<td>The Buffer manager SCA MBA (BMBA) L-lock.</td>
</tr>
<tr>
<td></td>
<td>The Buffer Manager (BM) gets this lock when it needs to read, insert,</td>
</tr>
<tr>
<td></td>
<td>or update a multiple buffer pool (MBA) record in a Shared</td>
</tr>
<tr>
<td></td>
<td>Communications Area (SCA).</td>
</tr>
<tr>
<td></td>
<td>(BMC_MBAO or BMC_MBAR)</td>
</tr>
<tr>
<td>BPPS</td>
<td>The Buffer Manager Pageset (BPPS) RR (repeatable read) P-lock:</td>
</tr>
<tr>
<td></td>
<td>• BP = buffer pool ID</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td>CCAT</td>
<td>The CATMAINT convert catalog (CCAT) lock is acquired when</td>
</tr>
<tr>
<td></td>
<td>catalog conversion is performed.</td>
</tr>
<tr>
<td>CDBL</td>
<td>The Compress dictionary build (CDBL) lock.</td>
</tr>
<tr>
<td>CDIR</td>
<td>The CATMAINT convert directory (CDIR) lock is acquired when</td>
</tr>
<tr>
<td></td>
<td>directory conversion is performed.</td>
</tr>
<tr>
<td>Lock type</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| CDRN      | The Cursor Stability drain (CDRN) lock is acquired to drain all CS read access to an object:  
|           | - DB = database name  
|           | - PS = pageset name  
|           | - PT = partition |
| CMDS      | The DB2 Command Serialization (CMDS) lock. |
| CMIG      | The CATMAINT migration (CMIG) lock is acquired when catalog migration is performed. |
| COLL      | The Collection (COLL) lock |
| DBDL      | The DBD load (DBDL) lock is the database descriptor load lock. |
| DBEX      | The Database exception (DBEX) lock indicates a lock on a "Logical page list" (LPL) or "Group buffer pool recovery pending" (GRECP) database exception status.  
|           | This lock is only used in a data sharing environment. |
| DBXU      | The DB exception update lock is used for updating the database exception status. |
| DGTT      | The DGTT URID lock is acquired to protect segments that belong to a Declared Global Temporary Table (DGTT). These segments are deallocated during Commit 1 by logging them and serializing them using the Unit of Recovery ID (URID) lock. |
| DPAG      | The DB2 page (DPAG) lock in a tablespace. When programs read data or update data, they acquire a page lock containing the data:  
|           | - DB = database name  
|           | - PS = pageset name  
|           | - PG = page |
| DSET      | The partitioned lock.  
|           | A partitioned tablespace contains one or more partitions (up to 64). It is created when you create a table space using the SQL CREATE TABLESPACE statement with the NUMPARTS parameter.  
|           | Only one table can be stored on a partitioned tablespace. Each partition contains one part of a table. The partitioned lock only locks the partition with the data that is referenced:  
|           | - DB = database name  
|           | - PS = pageset name  
|           | - PT = partition number |
| DTBS      | The Database lock indicates a lock on the database:  
|           | - DB = database name  
|           | - PS = pageset name  
|           | - PT = partition number |
| GRBP      | The Group buffer pool (GRBP) start/stop lock.  
|           | BP=buffer pool ID |
| HASH      | The Hash anchor (HASH) lock:  
|           | - DB = database name  
|           | - PS = pageset name  
<p>|           | - PG = page |</p>
<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPSP</td>
<td>The Header Page (HP) Bucket or Stored Procedure (SP) Command lock.</td>
</tr>
</tbody>
</table>
| IEOF      | The Index end of file (IEOF) lock is acquired at the index end of file.  
  • DB = database name  
  • PS = pageset name  
  • PT = partition |
| IPAG      | The Index page (IPAG) lock in an index space. When application programs read or update data, they acquire a lock on the page containing the index when indexing is used.  
  • DB = database name  
  • PS = pageset name  
  • PG = page |
| IXKY      | The Index key (IXKY) lock. |
| LBLK      | The Large object (LOB) lock. |
| LPLR      | The Logical page list recovery (LPLR) lock. |
| MDEL      | The Mass delete (MDEL) lock is acquired when doing a mass delete from a table (for example, when you DELETE FROM a table) within a segmented tablespace.  
  It is used to prevent another user from reusing freed segments before a delete operation is committed.  
  • DB = database name  
  • PS = pageset name |
| PALK      | The Partition lock.  
  • DB = database name  
  • PS = pageset name  
  • PT = partition |
| PBPC      | The Group BP level castout (PBPC) P-lock.  
  A physical lock acquired when a castout of a group buffer pool occurs. Castout is the process of writing pages in the group buffer pool out to DASD.  
  This lock is only used in a data sharing environment. |
| PCDB      | The DDF CDB P-lock.  
  A Distributed Data Facility communication database physical lock.  
  This lock is only used in a data sharing environment. |
| PDBD      | The DBD P-lock is a database descriptor physical lock.  
  This lock is only used in a data sharing environment. |
| PDSO      | The Pageset or partitioned pageset open lock.  
  If the data set supporting the tablespace that is referenced by the application is not opened, the program will acquire a lock to open the data set. The data set will stay open if CLOSE=NO is defined in the SQL statement creating the tablespace.  
  • DB = database name  
  • PS = pageset name |
**Table 78. Lock types (continued)**

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
</table>
| PITR      | The Index manager tree (PITR) is a physical lock (P-lock). This lock is only used in a data sharing environment.  
- DB = database name  
- PS = pageset name  
- PT = partition |
| PPAG      | The Page P-lock is a physical lock on a page. This lock is only used in a data sharing environment. |
| PPSC      | The Pageset/partition level castout physical lock (P-lock). This lock is only used in a data sharing environment. |
| PPSP      | The Pageset/partition physical lock (P-lock). This lock is only used in a data sharing environment. |
| PRLF      | The Resource Limit Facility (RLF) physical lock (P-lock). This lock is only used in a data sharing environment. |
| PSET      | The Pageset (PSET) lock can be a tablespace or indexspace. A pageset containing DB2 tables is a tablespace. A pageset containing DB2 index structure is an indexspace. A pageset can be simple or partitioned. This lock type is for the simple pageset only.  
- DB = database name  
- PS = pageset name |
| PSPI      | The Pageset piece (PSPI) lock. A pageset is a collection of pageset pieces. Each pageset piece is a separate VSAM data set. A simple pageset contains from 1 to 32 pieces. Each piece of a simple pageset is limited to 2 GB. Whenever a simple pageset piece reaches this size, another piece is allocated and the pageset grows. This is a lock on the expanded pageset piece. |
| RDBD      | The Repair DBD (RDBD) lock is acquired when REPAIR DBD REBUILD is running (test/diagnose). |
| RDRN      | The Repeatable Read drain (RDRN) lock is acquired to drain all RR access to an object.  
- DB = database name  
- PS = pageset name  
- PT = partition |
| RGDA      | The Retry Getpage During Abort (RGDA) lock. |
| ROW       | The Row lock indicates a lock on a row. |
| RSTR      | The Shared Communications Area (SCA) restart (RSTR) lock indicates a lock on SCA access for restart/redo information. (BMC-RSTP) |
Table 78. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDBA</td>
<td>The Start/stop lock on DBA (SDBA) table indicates a lock on the table, tablespace, or database when a CREATE/DROP is processed against these objects.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td>SENV</td>
<td>The System environment (SYSENV) serialization lock.</td>
</tr>
<tr>
<td>SKCT</td>
<td>The Skeleton cursor table (SKCT) lock indicates a lock on the application plan.</td>
</tr>
<tr>
<td></td>
<td>PLAN=plan name</td>
</tr>
<tr>
<td>SKPT</td>
<td>The Skeleton package table (SKPT) lock indicates a lock on the application package.</td>
</tr>
<tr>
<td></td>
<td>TOKEN= the consistency token (CONTOKEN) column from SYSIBM.SYPACKAGE.</td>
</tr>
<tr>
<td>SPRC</td>
<td>The System level point in time (PIT) recovery lock.</td>
</tr>
<tr>
<td></td>
<td>SYS_PITR</td>
</tr>
<tr>
<td>SREC</td>
<td>The Log range lock.</td>
</tr>
<tr>
<td></td>
<td>DB2 writes a record in the log range tablespace (SYSLGRNG) every time a tablespace is opened and updated, and updates SYSLGRNG whenever that tablespace is closed.</td>
</tr>
<tr>
<td></td>
<td>The record contains the opening and/or closing log RBA (relative byte address) for the tablespace. When DB2 writes to SYSLGRNG, the program acquires a lock on the tablespace with updates.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• TS = tablespace name</td>
</tr>
<tr>
<td>TABL</td>
<td>The Table (TABL) lock on the table which resides in a segmented tablespace.</td>
</tr>
<tr>
<td></td>
<td>• DBID = DBid</td>
</tr>
<tr>
<td></td>
<td>• TABL = Tableid</td>
</tr>
<tr>
<td>UIDA</td>
<td>The Util I/O Damage Assessment lock.</td>
</tr>
<tr>
<td>UNDT</td>
<td>The Undetermined (UNDT) lock indicates that this lock cannot be determined because it is not part of the other listed lock types.</td>
</tr>
<tr>
<td></td>
<td>Resource ID (in hexadecimal).</td>
</tr>
<tr>
<td>UNKN</td>
<td>The Unknown (UNKN) lock indicates the resource does not exist.</td>
</tr>
<tr>
<td>UTEX</td>
<td>The Utility exclusive execution (UTEX) lock.</td>
</tr>
<tr>
<td></td>
<td>UTEXEC</td>
</tr>
<tr>
<td>UTID</td>
<td>The Utility identifier (UTID) lock.</td>
</tr>
<tr>
<td></td>
<td>UID=utility id</td>
</tr>
<tr>
<td>UTOB</td>
<td>The Utility object (UTOB) lock.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PT = partition</td>
</tr>
</tbody>
</table>
### Table 78. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UTSE</td>
<td>The Utility serialization (UTSE) lock is required when running utility jobs.</td>
</tr>
</tbody>
</table>
| WDRN      | The Write drain (WDRN) lock is acquired to drain all write access to an object.  
  - DB = database name  
  - PS = pageset name  
  - PT = partition  
| XMLK      | The XML lock. |

**LUWID** The logical unit of work ID (LUWID) for a thread.

**MVS System** An ID for the MVS System Management Facility (SMF). It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Plan Name** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string with a maximum of 8 characters. For example PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Resource Name 1 (Unicode)** The resource name of type defined by type code.

**Resource Name 2 (Unicode)** The resource name of type defined by type code.

**Resource Name 3** The resource name of type defined by type code.

**Resource Name 4** The resource name of type defined by type code.

**Resource Type 1** This value indicates what is contained in Resource Name 1.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>Buffer Pool</td>
</tr>
<tr>
<td>CO</td>
<td>Collection name</td>
</tr>
<tr>
<td>DB Hash</td>
<td>Database</td>
</tr>
<tr>
<td>HC</td>
<td>Class</td>
</tr>
<tr>
<td>PL</td>
<td>Plan name</td>
</tr>
<tr>
<td>UT</td>
<td>Utility ID</td>
</tr>
</tbody>
</table>

**Resource Type 2** This value indicates what is contained in Resource Name 2.

Valid values are:
<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PK</td>
<td>Package</td>
</tr>
<tr>
<td>PS</td>
<td>Page Set (Table space)</td>
</tr>
</tbody>
</table>

**Resource Type 3** This value indicates what is contained in Resource Name 3.

**Resource Type 4** This value indicates what is contained in Resource Name 4.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT</td>
<td>Partition</td>
</tr>
</tbody>
</table>

**SUBSYS** The IRLM subsystem name.

**Thread Status** The current status of a thread.

Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT-AVAIL</td>
<td>The thread is not available.</td>
</tr>
<tr>
<td>IN-ABORT</td>
<td>The thread is in abort processing.</td>
</tr>
<tr>
<td>IN-ACCEL</td>
<td>The thread is executing on IBM DB2 Analytics Accelerator for z/OS.</td>
</tr>
<tr>
<td>IN-AUTO-PROC</td>
<td>The thread is processing an autonomous procedure.</td>
</tr>
<tr>
<td>IN-BIND-DYNM</td>
<td>The thread is in dynamic bind processing.</td>
</tr>
<tr>
<td>IN-BIND-STAT</td>
<td>The thread is in static bind processing.</td>
</tr>
<tr>
<td>IN-COMMAND</td>
<td>Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)</td>
</tr>
<tr>
<td>IN-COMMIT</td>
<td>The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).</td>
</tr>
<tr>
<td>IN-COMT-PHS1</td>
<td>The thread is in Commit phase 1 processing.</td>
</tr>
<tr>
<td>IN-COMT-PHS2</td>
<td>The thread is in Commit phase 2 processing.</td>
</tr>
<tr>
<td>IN-CRTE-THRD</td>
<td>The thread is in Create Thread processing.</td>
</tr>
<tr>
<td>IN-DB2</td>
<td>The thread is executing in DB2. A more descriptive status could not be determined.</td>
</tr>
</tbody>
</table>
INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.
WAIT-GLBLOCK
The thread is currently waiting for either:
• Inter-system communication within the data sharing group to determine if there is lock contention.
• A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MESSAGE
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSN recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.
WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG
MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Token The thread token uniquely identifies a specific thread.

DB2 Lock Conflict Attributes The type of thread.

It can be:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
</tbody>
</table>
Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value2 The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: the last 2 bytes of QWHSLUUV).

Group Buffer Pool Workspace:

The DB2 Group Buffer Pool workspaces provide detailed coupling facility structure information about your group buffer pool (GBP) structures.

Using the Group Buffer Pool workspaces, you can:
- Monitor structure utilization over a period of time
- Verify the status of all connections to a structure

You must be running in a DB2 data sharing environment with the MVS/ESA Coupling Facility to take advantage of the DB2 Group Buffer Pools feature.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Buffer Pool Attributes:

Use Group Buffer Pool (GBP) attributes to create situations to determine the usage and availability of coupling facility structures relating to group buffer pools, the shared communication area, and the lock table.

Cross Invalidate Count The number of notifications that the DB2 buffer has modified. Valid value is an integer in the range 0 - 99999999.

Cross Invalidate Rate The rate of cross invalidations per second. Valid value is an integer in the range 0 - 99999999.
**Data Pages** The number of data pages that DB2 has allocated for the group buffer pool. Valid value is an integer in the range 0 - 99999999.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Directory Entries** The total number of directory entries that a DB2 system has allocated for a coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**IDNAME** An internal attribute used for navigation. It contains either the Data Sharing Group Name or the DB2ID.

Valid format is alphanumeric with a maximum of 8 characters; for example TDDB242G.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Read Count** The total number of page read requests to a group buffer pool. Valid value is an integer in the range 0 - 99999999.

**Read Hit Count** The number of successful page read requests to a group buffer pool without causing a physical database read. Valid value is an integer in the range 0 - 99999999.

**Read Hit Percent** The percentage of successful page read requests in relation to the total page read requests for a group buffer pool. Valid value is an integer in the range 0 - 100.

**Structure Connect Count** The number of active connections to a structure. Valid value is an integer in the range 0 - 16.

**Structure Name** The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

**Structure Size** The size, in kilobytes, of a DB2 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**Structure Status** The current status of the coupling facility structure.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVE</td>
<td>The structure is active</td>
</tr>
<tr>
<td>INACTIVE</td>
<td>The structure is inactive</td>
</tr>
</tbody>
</table>

For duplexed group buffer pool structures, additional valid values are:
<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REB_NEW</td>
<td>Rebuild on new (secondary GBP)</td>
</tr>
<tr>
<td>REB_OLD</td>
<td>Rebuild on old (primary) GBP</td>
</tr>
<tr>
<td>REB_TRAN</td>
<td>Structure is in transition</td>
</tr>
<tr>
<td>REB_HOLD</td>
<td>Structure is in holding state</td>
</tr>
<tr>
<td>REB_ERR</td>
<td>Error during the structure rebuild</td>
</tr>
</tbody>
</table>

**Structure Type** The type of DB2 coupling facility structure.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CACHE</td>
<td>Cache data of interest to several DB2 systems in data sharing group</td>
</tr>
<tr>
<td>LIST</td>
<td>Shared Communications Area (SCA) for data sharing group members</td>
</tr>
<tr>
<td>LOCK</td>
<td>Controls locking</td>
</tr>
</tbody>
</table>

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Group Buffer Pool Connections Workspace:**

The Group Buffer Pool (GBP) Connections workspace displays connection status information for all connections to a specific group buffer pool structure.

Use this workspace to:

- Review the status of all connections to a structure
- Identify the operating system, together with the associated coupling facility name and job name

To investigate a nonactive connection, review the information provided in Accessing an OMEGAMON Host Session.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
Group Buffer Pool Detailed Statistics Workspace:

Use the Group Buffer Pool (GBP) Detailed Statistics workspace to display group buffer pool statistics for a specific group buffer pool structure.

You can use data to monitor:
- The dynamic rebuild of a group buffer pool
- Castout paging and I/O activity

You can use the Tivoli Enterprise Portal terminal emulator adapter feature to access an OMEGAMON host session and view additional group buffer pool information.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Buffer Pool Statistics Workspace:

The Data Sharing Group Buffer Pool (GBP) Statistics workspace displays detailed information about the activity in a DB2 group buffer pool during the collection interval.

Using this workspace, you can:
- Monitor structure utilization over a period of time
- Verify the status of all connections to a structure
- Review GBP statistics for a data sharing group and GBP structure

You must be running in a DB2 data-sharing environment with MVS/ESA Coupling Facility to take advantage of the Data Sharing Group Buffer Pools Statistics feature.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Buffer Pool Statistics Detail Attributes:

Use the Group Buffer Pool (GBP) Statistics Detail attributes to create situations to determine the usage of group buffer pools.

**Castout Engine Not Available** The number of times a castout engine was not available to write changed pages from a group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

**Castout for Class Threshold** The group buffer pool castout class threshold. Castout begins when the number of changed pages for a particular castout class exceeds this threshold. Valid value is an integer in the range 0 - 2147483647.

**Castout for GBP Threshold** The group buffer pool castout threshold. Castout begins when the number of changed pages in the group buffer pool exceeds this threshold. Valid value is an integer in the range 0 - 2147483647.

**Changed Page Writes** The number of changed pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Clean Page Writes** The number of clean pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.
Cross Invalidate Reads No Data The number of reads to the group buffer pool because a page in the member's buffer pool was invalidated, where the data was not found in the group buffer pool and the member read the page from DASD. Valid value is an integer in the range 0 - 2147483647.

Cross Invalidate Reads With Data The number of reads to the group buffer pool because a page in the member's buffer pool was invalidated, where the data was found and returned to the member. Valid value is an integer in the range 0 - 2147483647.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

GBP Reads No Data The number of reads to the group buffer pool where the data was not found. Valid value is an integer in the range 0 - 2147483647.

GBP Reads With Data The number of reads to the group buffer pool where the data was found. Valid value is an integer in the range 0 - 2147483647.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

IXLCACHE Delete Name The number of times that DB2 issued a request to the group buffer pool to delete directory and data entries associated with a specific page set or partition. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read Castout Class The number of requests from the page set or partition castout owner or the group buffer pool owner to the group buffer pool to determine which pages are cached in the group buffer pool as changed pages that need to be cast out. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read Castout Stats The number of requests that the group buffer pool structure owner issues when the GBPOOLT threshold is reached to determine which castout classes have changed pages. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read Directory Information The number of requests that the group buffer pool structure owner issues for group buffer pool checkpoints to read the directory entries of all changed pages in the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read STGSTATS The number of times DB2 requested statistical information from the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Unlock Castout The number of times that DB2 issues an unlock request to the coupling facility for castout I/Os that have completed. Valid value is an integer in the range 0 - 2147483647.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.
**Number of Checkpoints** The number of times that DB2 writes the changed pages in the group buffer pool to the page set. Valid value is an integer in the range 0 - 2147483647.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of Pages Castout** The number of data pages that a member has cast out of the group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

**Number of Rebuilds** The number of times that a member has participated in rebuilding a group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Prefetch Read No Data** The number of reads to the group buffer pool for prefetch processing, where the data is not found and the member reads the page from DASD. Valid value is an integer in the range 0 - 2147483647.

**Prefetch Read With Data** The number of reads to the group buffer pool for prefetch processing, where the data is found and returned to the member. Valid value is an integer in the range 0 - 2147483647.

**Read Fails for Storage** The number of group buffer pool read requests that failed because of a shortage of coupling facility resources. Valid value is an integer in the range 0 - 2147483647.

**Register Page List Request** The number of register page list requests by prefetch. Valid value is an integer in the range 0 - 2147483647.

**Register Page Request** The number of times that DB2 requested interest to the group buffer pool for a single page. Valid value is an integer in the range 0 - 2147483647.

**RPL Reads Changed Pages** The number of group buffer pool reads by prefetch to retrieve a changed page from the group buffer pool as a result of feedback from the register page list. Valid value is an integer in the range 0 - 2147483647.

**RPL Reads Clean Pages** The number of group buffer pool reads by prefetch to retrieve a clean page from the group buffer pool as a result of feedback from the register page list. Valid value is an integer in the range 0 - 2147483647.

**Structure Name** The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDDB241G.SCA.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Unregister Page Request** The number of times that DB2 unregistered interest for a single page from the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Write Engine Not Available** The number of times a write engine was not available to write changed pages from a group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

**Write Fails for Storage** The number of group buffer pool write requests that failed because of a shortage of coupling facility resources. Valid value is an integer in the range 0 - 2147483647.

**Write System Changed Page** The number of changed pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Write System Clean Page** The number of clean pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Group Buffer Pool Statistics Attributes:**

Use Group Buffer Pool (GBP) Statistics attributes to create situations that monitor the utilization of critical group buffer pool resources.

**Castout Engine Not Available** The number of times a castout engine was not available to write changed pages from a group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

**Castout for Class Threshold** The group buffer pool castout class threshold. Castout begins when the number of changed pages for a particular castout class exceeds this threshold. Valid value is an integer in the range 0 - 2147483647.

**Castout for GBP Threshold** The group buffer pool castout threshold. Castout begins when the number of changed pages in the group buffer pool exceeds this threshold. Valid value is an integer in the range 0 - 2147483647.

**Changed Page Writes** The number of changed pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Clean Page Writes** The number of clean pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Cross Invalidate Reads No Data** The number of reads to the group buffer pool because a page in the member's buffer pool was invalidated, where the data was not found in the group buffer pool and the member read the page from DASD. Valid value is an integer in the range 0 - 2147483647.
Cross Invalidate Reads With Data The number of reads to the group buffer pool because a page in the member's buffer pool was invalidated, where the data was found and returned to the member. Valid value is an integer in the range 0 - 2147483647.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

GBP Reads No Data The number of reads to the group buffer pool where the data was not found. Valid value is an integer in the range 0 - 2147483647.

GBP Reads With Data The number of reads to the group buffer pool where the data was found. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Delete Name The number of times that DB2 issued a request to the group buffer pool to delete directory and data entries associated with a specific page set or partition. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read Castout Class The number of requests from the pageset or partition castout owner or the group buffer pool owner to the group buffer pool to determine which pages are cached in the group buffer pool as changed pages that need to be cast out. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read Castout Stats The number of requests that the group buffer pool structure owner issues when the GBPOOLT threshold is reached to determine which castout classes have changed pages. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read Directory Information The number of requests that the group buffer pool structure owner issues for group buffer pool checkpoints to read the directory entries of all changed pages in the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read STGSTATS The number of times DB2 requested statistical information from the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Unlock Castout The number of times that DB2 issues an unlock request to the coupling facility for castout I/Os that have completed. Valid value is an integer in the range 0 - 2147483647.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of Checkpoints The number of times that DB2 writes the changed pages in the group buffer pool to the pageset. Valid value is an integer in the range 0 - 2147483647.

Number of DB2 systems The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.
Number of Pages Castout The number of data pages that a member has cast out of the group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

Number of Rebuilds The number of times that a member has participated in rebuilding a group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Prefetch Read No Data The number of reads to the group buffer pool for prefetch processing, where the data is not found and the member reads the page from DASD. Valid value is an integer in the range 0 - 2147483647.

Prefetch Read With Data The number of reads to the group buffer pool for prefetch processing, where the data is found and returned to the member. Valid value is an integer in the range 0 - 2147483647.

Read Fails for Storage The number of group buffer pool read requests that failed because of a shortage of coupling facility resources. Valid value is an integer in the range 0 - 2147483647.

Register Page List Request The number of register page list requests by prefetch. Valid value is an integer in the range 0 - 2147483647.

Register Page Request The number of times that DB2 requested interest to the group buffer pool for a single page. Valid value is an integer in the range 0 - 2147483647.

RPL Reads Changed Pages The number of group buffer pool reads by prefetch to retrieve a changed page from the group buffer pool as a result of feedback from the register page list. Valid value is an integer in the range 0 - 2147483647.

RPL Reads Clean Pages The number of group buffer pool reads by prefetch to retrieve a clean page from the group buffer pool as a result of feedback from the register page list. Valid value is an integer in the range 0 - 2147483647.

Structure Name The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second
For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

For example, 07-16-12 14:58:29 indicates that data collection ended on July 16, 2012 at 14:58:29 PM.

**Unregister Page Request** The number of times that DB2 unregistered interest for a single page from the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Write Engine Not Available** The number of times a write engine was not available to perform a coupling facility write. Valid value is an integer in the range 0 - 2147483647.

**Write Fails for Storage** The number of group buffer pool write requests that failed because of a shortage of coupling facility resources. Valid value is an integer in the range 0 - 2147483647.

**Write System Changed Page** The number of changed pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Write System Clean Page** The number of clean pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Group Buffer Pool Structures Workspace:**

You can use the Group Buffer Pool (GBP) Structures workspace to verify that your group buffer pool structures are active and to track structure utilization over a period of time.

Use the structure data on the workspace to:

- Monitor the read hit percent and buffer invalidate rate for group buffer pool structures
- Identify the number of DB2 subsystems using a group buffer pool
- Monitor the ratio of directory entries to data pages allocated

**Analyzing Group Buffer Pool Connections**

You can analyze a specific group buffer pool structure to view the connection status of all connections to the structure.

1. Right-click a structure name.
2. Click **Link to --** GBP Connections.

The GBP Connections workspace is displayed showing the connection status details for your group buffer pool structure.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Object Activity Database Workspace:**

The Group Object Activity Database workspace displays information so that you can do a high-level analysis of getpage and I/O activity for a DB2 database.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Object Activity Summary Attributes:**

Use the Group Object Activity Summary attributes to create situations that monitor the I/O and getpage activity by database.

**ASYNC Write Rate** The number of asynchronous writes per second during the collection interval. Valid format is a decimal number, with 1 decimal place allowed, in the range 0.0 - 9999.9.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Database** The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

**DB2 ID** The name of a DB2 subsystem.

**Getpage Percent** The percentage of total getpage activity that is applicable to the database, space name, or thread. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.5.

**Getpage Rate** The number of getpage requests per second for the database or space name. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.3.

**Getpage RIO Ratio** The ratio of getpage requests to read I/Os for the database.

The ratio is calculated by dividing the number of getpage requests by the sum of the following values:

- Number of synchronous reads
- Number of prefetch read I/Os

Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.8.

**ID Name** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of ASYNC Writes** The number of asynchronous writes during the collection interval. Valid value is an integer in the range 0 - 2147483647.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of Getpages** The number of getpage reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

**Number of Other Writes** The number of immediate and format writes. Valid value is an integer in the range 0 - 2147483647.
**Number of Prefetch Reads** The number of prefetch read I/Os for the database. Valid value is an integer in the range 0 - 2147483647.

**Number of SYNC Reads** The number of synchronous reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Other Write Rate** The number of immediate and format writes per second. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.6.

**Percent of I/O** The percentage of the total I/O activity that is applicable to the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.0.

**Prefetch Read Rate** The number of prefetch read I/Os per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.9.

**Space Name** The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example DSNUCX01.

**SYNC Read Rate** The number of synchronous reads per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Group Object Activity by Space Name:**

The Group Object Activity by Space Name workspace displays information about the getpage and I/O activity for spaces for a selected DB2 database.

The table view shows information about the spaces that have had getpage and I/O activity during the collection period.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
**Group Object Space Name Attributes:**
Use the Group Object Space Name attributes to create situations that monitor object, volume, and extent activity for all DB2 object spaces in a data sharing group.

**Buffer Pool ID** An ID for a buffer pool.

Valid values are:
- 0 - 49
- 32K
- 32K0 - 32K9

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Database Name** The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

**DB2 ID** The name of a DB2 subsystem.

**Extents per Data Set Ratio** The average number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 100.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**Max Number of Extents per DSN** The largest number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 219.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of Data Sets** The total number of allocated data sets for the DB2 you are monitoring. Valid value is an integer in the range 0 - 10000.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of Extents** The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

**Number of Volumes** The number of volumes on which the data set resides. Valid value is an integer in the range 0 - 256.

**Object Space Name** The name of a DB2 object space. It is an alphanumeric text string, with a maximum of 8 characters; for example, DSNUCX01.

**Object Type** The type of object space name.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDX</td>
<td>Index</td>
</tr>
<tr>
<td>PTIX</td>
<td>Partitioned index</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>PTTS</td>
<td>Partitioned table space</td>
</tr>
<tr>
<td>SEGM</td>
<td>Segmented table space</td>
</tr>
<tr>
<td>TBLS</td>
<td>Simple table space</td>
</tr>
<tr>
<td>UNDT</td>
<td>Undetermined</td>
</tr>
</tbody>
</table>

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Group Object Activity by Space Name Detail Workspace:**

The Group Object Activity by Space Name Detail workspace displays detailed information about the getpage and I/O activity for spaces for each DB2.

For example, for each space name, you can display:
- The DB2 ID
- Information about the DB2 operations, such as number of getpages and synchronous reads

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Object Analysis Workspace:**

The DB2 Group Object Analysis workspaces provide detailed object analysis information about DB2 databases.

Using the Group Object Analysis workspaces, you can:
- Monitor and evaluate object allocation data for DB2 databases
- Evaluate and analyze space name allocation data for a specific DB2 database

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Object Analysis Attributes:**
Use the Group Object Analysis (GOA) attributes to create situations that monitor object volume and extent activity for all DB2 systems in a data sharing group.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDDB241G.

**Database Name** The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

**DB2 ID** The name of a DB2 subsystem.

**Extents per Data Set Ratio** The average number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 100.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDDB242G.

**Max Number of Exts per DSN** The largest number of extents per data set of space name for a DB2 database. Valid value is an integer in the range 0 - 219.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of Data Sets** The total number of allocated data sets for the DB2 you are monitoring. Valid value is an integer in the range 0 - 10000.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of Extents** The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

**Number of Indexes** The number of index spaces that the operating system currently has allocated to DB2. Valid value is an integer in the range 0 - 99999.

**Number of Spaces** The total number of index spaces and table spaces that the operating system currently has allocated to DB2. Valid value is an integer in the range 0 - 99999.

**Number of Table Spaces** The number of table spaces that the operating system currently has allocated to DB2. Valid value is an integer in the range - 10000.

**Number of Volumes** The number of volumes on which the data set resides. Valid value is an integer in the range 0 - 256.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
KD2_PF_READA_SPMON

- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Group Object Analysis Thread Database Workspace:**

The Group Object Analysis (GOA) Thread Database workspace displays information so that you can analyze which threads are generating I/O activity for a selected database.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Object Analysis Thread Activity Summary Attributes:**

Use the Group Object Analysis (GOA) Thread Activity summary attributes to create situations that monitor thread activity.

**ASYNC Write Rate** The number of asynchronous writes per second during the collection interval. Valid format is a decimal number, with one decimal place allowed.

**Authorization ID** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example, D412.

**Database** The name of a DB2 database. Valid format is alphanumeric with a maximum of 8 characters; for example, DSNDB06.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 ID** The name of a DB2 subsystem.

**Dynamic Prefetch Read Rate** The number of dynamic prefetch read I/Os made per second by the thread. Valid format is a decimal number, with one decimal place allowed.

**Getpage per Read I/O** The ratio of getpage requests to read I/Os for the database.

The ratio is calculated by dividing the number of getpage requests by the sum of the following values:

- Number of synchronous reads
- Number of prefetch read I/Os
Valid format is a decimal number, with one decimal place allowed.

**Getpage Percent** The percentage of total getpage activity that is applicable to the database, space name, or thread. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.5.

**Getpage Rate** The number of getpage requests per second for the database or space name. Valid format is a decimal number, with one decimal place allowed.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example, TDDB242G.

**List Prefetch Read Rate** The number of list prefetch I/Os made per second by the thread. Valid format is a decimal number, with one decimal place allowed.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example, SP11.

**Number of ASYNC Writes** The number of asynchronous writes during the collection interval. Valid value is an integer in the range 0 - 2147483647.

**Number of Dynamic Prefetch Reads** The number of dynamic prefetch read I/Os made by the thread. Valid value is an integer in the range 0 - 2147483647.

**Number of Getpage Reads** The number of getpage reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

**Number of List Prefetch Reads** The number of list prefetch I/Os made by the thread. Valid value is an integer in the range 0 - 2147483647.

**Number of Other Writes** The number of immediate and format writes. Valid value is an integer in the range 0 - 2147483647.

**Number of Sequential Prefetch Reads** The number of sequential prefetch reads for the thread. Valid value is an integer in the range 0 - 2147483647.

**Number of SYNC Reads** The number of synchronous reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

**Number of Threads** The total number of currently monitored threads. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Other Write Rate** The number of immediate and format writes per second. Valid format is a decimal number, with one decimal place allowed.

**Percent of I/O** The percentage of the total I/O activity that is applicable to the database or space name. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.0.

**Plan Name** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an
Sequential Prefetch Read Rate  The number of sequential prefetch read I/Os per second made by the thread. Valid format is a decimal number, with one decimal place allowed.

Space Name  The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example DSNUCX01.

SYNC Read Rate  The number of synchronous reads per second for the database or space name. Valid format is a decimal number, with one decimal place allowed.

Time Stamp  Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

Group Object Analysis Thread Space Name Workspace:

The Group Object Analysis (GOA) Thread Space Name workspace displays information so that you can analyze which threads are generating I/O activity for the space name.

The workspace displays information for each thread that generated I/O activity to the space name during the collection interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Thread Volume Summary Attributes:

Use the Group Object Analysis (GOA) Thread Volume Summary attributes to create situations that monitor the thread activity for volumes.

Authorization ID  The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

Correlation ID  The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.
**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 ID** The name of a DB2 subsystem.

**DB2 Read I/O** The number of read I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 22.

**DB2 Read I/O Rate** The read I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

**DB2 Write I/O** The number of I/O writes. Valid value is an integer in the range 0 - 2147483647; for example, 20.

**DB2 Write I/O Rate** The write I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

**Max DB2 I/O Rate** The maximum DB2 I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

**Max DB2 Read I/O Rate** The maximum DB2 read I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

**Max DB2 Write I/O Rate** The maximum write I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.0.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of Threads** The total number of currently monitored threads. Valid value is an integer in the range 0 - 999999.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Percent Volume Use** The percentage of DB2 I/O activity to the volume. The program calculates the value by dividing the total I/O rate for the database by the total I//O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

**Plan Name** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.
Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Total DB2 I/O** The total DB2 I/O count. Valid value is an integer in the range 0 - 2147483647.

**Total DB2 I/O Rate** The total I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

**Volume Name** The name of the volume that contains the DB2 objects. It is an alphanumeric text string, to a maximum of 6 characters; for example, PRI123.

**Group Object Analysis Thread Space Name Detail Workspace:**

The Group Object Analysis (GOA) Thread Space Name Detail workspace displays detailed information about the threads that are generating I/O activity for the space name.

For example, for a space name, you can display the:

- Plan name
- Authorization ID
- Correlation ID
- DB2 ID

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Object Analysis Volume Workspace:**

The Group Object Analysis (GOA) Volume workspace displays information about the performance of volumes that contain DB2 objects so that you can monitor the DASD performance by volume.

The workspace displays only the volumes that contain DB2 objects that are allocated and available for use by DB2.

Using this table view, you can:

- Display the number of DB2 systems for the volume
- Monitor for volumes with a high utilization rate
- Determine the number of data sets and extents that are allocated

To display the view:

1. Right-click a volume name.
2. Click **Link to** followed by a specific Data Sharing workspace from the pop-up menu.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Object Analysis Volume Summary Attributes:**
Use the Group Object Analysis (GOA) Volume Summary attributes to create situations that monitor DASD performance by volume.

**Data Sharing Group** The name of a data sharing group.

It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 ID** The name of a DB2 subsystem.

**DB2 I/O Percent** The percentage of total DB2 I/O that is attributable to the volume. It is calculated by dividing the volume DB2 I/O count by the total DB2 I/O count. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 24.

**Extents per Data Set Ratio** The ratio of total extents allocated to the total data set count.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of Data Sets** The total number of allocated data sets for the DB2 being monitored. Valid value is an integer in the range 0 - 10000.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of Extents** The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- **M** = Month
- **D** = Day
- **Y** = Year
- **H** = Hour
- **M** = Minute
- **S** = Second
For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Volume DB2 I/O** The total number of I/Os for the volume originating from the DB2 subsystem being monitored. Valid value is an integer in the range 0 - 2147483647.

**Volume DB2 I/O Rate** The total number of I/Os per second for the volume originating from the DB2 subsystem being monitored. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.9.

**Volume DB2 I/O Rate Max** The maximum I/O rate per second during the collection interval. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 2147483647.0; for example, 2.5.

**Volume Name** The name of the volume that contains the DB2 objects. It is an alphanumeric text string, with a maximum of 6 characters; for example, PRI123.

**Volume Service Time** The average service time for the volume since the beginning of the collection interval. This value is the sum of the average IOS pending time, the average IOS connect time, and the average IOS disconnected time for the volume. It does not include IOS queue time. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

**Volume Service Time Max** The maximum service time for the volume since the beginning of the collection interval. The value is the sum of the IOS pending time, the IOS connect time, and the IOS disconnect time for the volume. It does not include IOS queue time. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.5.

**Volume Total I/O** The total number of I/Os for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for the volume. Valid value is an integer in the range 0 - 2147483647; for example, 19.

**Volume Total I/O Rate** The total number of I/Os per second for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for the volume. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

**Volume Use Percent** The percentage of DB2 I/O activity to the volume. The program calculates the value by dividing the total I/O rate for the database by the total I/O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

**Volume Utilization** The percentage of volume utilization and represents the percentage of time the volume is in use. Valid value is an integer in the range 0 - 100; for example, 22.

**Group Object Analysis Volume Database Workspace:**

The Group Object Analysis (GOA) Volume Database workspace displays information you can use to analyze I/O activity for a single volume in a DB2 database.
The table view displays a row for each database that has I/O to the selected volume during the collection interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Object Analysis Volume Database Summary Attributes:**
Use the Group Object Analysis (GOA) Volume Database Summary attributes to create situations that monitor I/O activity for a single volume in a DB2 database.

**Database Name** The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDBDB241G.

**DB2 ID** The name of a DB2 subsystem.

**DB2 Read I/O** The number of read I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 22.

**DB2 Read I/O Rate** The read I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

**DB2 Read I/O Rate Max** The maximum DB2 read I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

**DB2 Write I/O** The number of write I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 20.

**DB2 Write I/O Rate** The write I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.0.

**DB2 Write I/O Rate Max** The maximum write I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of Data Sets** The total number of allocated data sets for the DB2 being monitored. Valid value is an integer in the range 0 - 10000.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of Extents** The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.
Originating System ID  The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Space Name  The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example DSNUCX01.

Time Stamp  Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

Total DB2 I/O  The total DB2 I/O count. Valid value is an integer in the range 0 - 2147483647.

Total DB2 I/O Rate  The total I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

Total DB2 I/O Rate Max  The maximum I/O rate per second during the collection interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.5.

Volume Name  The name of the volume that contains the DB2 objects. It is an alphanumeric text string, to a maximum of 6 characters; for example, PRI123.

Volume Use Percent  The percentage of DB2 I/O activity to the volume. The program calculates the value by dividing the total I/O rate for the database by the total I/O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

Group Object Analysis Volume Space Name Workspace:

The Group Object Analysis (GOA) Volume Space Name workspace displays information that permits you to analyze I/O activity for a single volume for a DB2 database or space name.

The table view displays information for each space name in the selected database with I/O activity to the volume during the collection interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
Group Object Analysis Volume Space Name Detail Workspace:

The Group Object Analysis (GOA) Volume Space Name workspace displays detailed information for a single volume for a DB2 database or space name.

For each space name, you can display:
- The DB2 ID
- Information about the DB2 operations (such as the number of I/O reads and I/O writes)

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Volume Thread Workspace:

The Group Object Analysis (GOA) Volume Thread workspace displays information you can use to analyze which threads are generating I/O activity for a single volume in a DB2 database.

The view shows information for each thread that generated I/O activity to the selected database during the collection interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Volume Summary Attributes:

Use the Group Object Analysis (GOA) Volume Summary attributes to create situations that monitor DASD performance by volume.

Data Sharing Group The name of a data sharing group.

It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDDB241G.

DB2 ID The name of a DB2 subsystem.

DB2 I/O Percent The percentage of total DB2 I/O that is attributable to the volume. It is calculated by dividing the volume DB2 I/O count by the total DB2 I/O count. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 24.

Extents per Data Set Ratio The ratio of total extents allocated to the total data set count.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of Data Sets The total number of allocated data sets for the DB2 being monitored. Valid value is an integer in the range 0 - 10000.
**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of Extents** The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Volume DB2 I/O** The total number of I/Os for the volume originating from the DB2 subsystem being monitored. Valid value is an integer in the range 0 - 2147483647.

**Volume DB2 I/O Rate** The total number of I/Os per second for the volume originating from the DB2 subsystem being monitored. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.9.

**Volume DB2 I/O Rate Max** The maximum I/O rate per second during the collection interval. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 2147483647.0; for example, 2.5.

**Volume Name** The name of the volume that contains the DB2 objects. It is an alphanumeric text string, with a maximum of 6 characters; for example, PRI123.

**Volume Service Time** The average service time for the volume since the beginning of the collection interval. This value is the sum of the average IOS pending time, the average IOS connect time, and the average IOS disconnected time for the volume. It does not include IOS queue time. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

**Volume Service Time Max** The maximum service time for the volume since the beginning of the collection interval. The value is the sum of the IOS pending time, the IOS connect time, and the IOS disconnect time for the volume. It does not include IOS queue time. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.5.

**Volume Total I/O** The total number of I/Os for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for the volume. Valid value is an integer in the range 0 - 2147483647; for example, 19.
**Volume Total I/O Rate** The total number of I/Os per second for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for the volume. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

**Volume Use Percent** The percentage of DB2 I/O activity to the volume. The program calculates the value by dividing the total I/O rate for the database by the total I/O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

**Volume Utilization** The percentage of volume utilization and represents the percentage of time the volume is in use. Valid value is an integer in the range 0 - 100; for example, 22.

**Group Object Analysis Volume Database Workspace:**

The Group Object Analysis (GOA) Volume Database workspace displays information you can use to analyze I/O activity for a single volume in a DB2 database.

The table view displays a row for each database that has I/O to the selected volume during the collection interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Object Analysis Volume Thread Workspace:**

The Group Object Analysis (GOA) Volume Thread workspace displays information you can use to analyze which threads are generating I/O activity for a single volume in a DB2 database.

The view shows information for each thread that generated I/O activity to the selected database during the collection interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Object Analysis Volume Thread Detail Workspace:**

The Group Object Analysis (GOA) Volume Thread Detail workspace displays detailed information about the DB2 threads that are generating I/O for the volume.

For each volume name, you can display the:

- Plan name
- Authorization ID
- Correlation ID
- DB2 ID

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
IMS Connections Workspace:

The IMS Connections workspace provides an overview of DB2 thread activity originating from connected IMS subsystems.

It provides information on a connection level about all IMS subsystems identified to DB2. This workspace is comprised of the following views:

IMS Connections (table view), which

Lists the number of active threads, unconnected regions, dependent regions currently connected to this DB2 system, and dependent regions defined for this IMS connection.

IMS Region Counts (bar chart)

Shows this information in a "graphic" form.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 IMS Connections Attributes:

Use the DB2 IMS Connections attributes to create situations to monitor DB2 thread activity originating from connected IMS subsystems.

Active Threads The count of threads currently active for this IMS region.

Connected Dependent Regions The count of dependent regions currently connected to this DB2 system.

Defined Dependent Regions The count of defined dependent regions for this IMS connection.

IMS Name The ID for this IMS connection. It is an alphanumeric text string, with a maximum length of four characters.

IMS Version The version of the IMS system. It is an alphanumeric text string, with a maximum length of four characters.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is **CYYMMDDHHMMSSmmm** (as in 1180315064501000 for 03/15/18 06:45:01) where:
- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond
Unconnected Regions The number of regions not connected.

IMS Region Information Workspace:

The IMS Region Information workspace provides detailed status information for a specific IMS dependent region.

This workspace is comprised of the following view:

IMS Region Information (table view)

Lists region identification data and region status.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 IMS Regions Attributes:
Use the DB2 IMS Regions attributes to create situations to monitor IMS dependent regions.

Application Name The PSB name active in the IMS dependent region. This field applies only to dependent regions (not to the control region). It is an alphanumeric text string, with a maximum length of eight characters.

Command Recognition Character The command recognition character used to pass commands to the external subsystem. It is an alphanumeric text string, with a maximum length of four characters.

Connection Status The region connection status.

Error Option Specification The type of error option specification in use.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>The appropriate return code is sent to the application, and the SQL code is returned.</td>
</tr>
<tr>
<td>Q</td>
<td>The application is abended. This is a PSTOP transaction type. The input transaction is re-queued for processing and new transactions are queued.</td>
</tr>
<tr>
<td>A</td>
<td>The application is abended. This is a STOP transaction type. The input transaction is discarded and new transactions are not queued.</td>
</tr>
</tbody>
</table>

It is an alphanumeric text string, with a maximum length of four characters.

IMS Name The ID for this IMS connection. Valid entry is an alphanumeric text string, with a maximum length of four characters.

IMS Version The version of the IMS system. Valid entry is an alphanumeric text string, with a maximum length of four characters.

Interface Control Module The name of the interface control module. It is an alphanumeric text string, with a maximum length of eight characters.
**Language Token Interface** The name of the language interface token. It is an alphanumeric text string, with a maximum length of four characters.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Region Name** The region started task name. It is an alphanumeric text string, with a maximum length of eight characters.

**Region Type** The type of IMS region.

**Resource Translation Table** The name of the resource translation table. This table maps the IMS application names into DB2 plan names. If this entry is omitted, the DB2 plan name is the IMS application program name. It is an alphanumeric text string, with a maximum length of eight characters.

**Status** The current DB2 status of the thread. Valid entry is an alphanumeric text string, with a maximum length of 12 characters.

Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT-AVAIL</td>
<td>The thread is not available.</td>
</tr>
<tr>
<td>IN-ABORT</td>
<td>The thread is in abort processing.</td>
</tr>
<tr>
<td>IN-ACCEL</td>
<td>The thread is executing on IBM DB2 Analytics Accelerator for z/OS.</td>
</tr>
<tr>
<td>IN-AUTO-PROC</td>
<td>The thread is processing an autonomous procedure.</td>
</tr>
<tr>
<td>IN-BIND-DYMN</td>
<td>The thread is in dynamic bind processing.</td>
</tr>
<tr>
<td>IN-BIND-STAT</td>
<td>The thread is in static bind processing.</td>
</tr>
<tr>
<td>IN-COMMAND</td>
<td>Command threads display this status when they are active in DB2 and</td>
</tr>
<tr>
<td></td>
<td>executing within the DB2 command processor. (This type of thread always</td>
</tr>
<tr>
<td></td>
<td>has a blank plan name.)</td>
</tr>
<tr>
<td>IN-COMMIT</td>
<td>The thread is in Commit processing (applies only to threads that originate</td>
</tr>
<tr>
<td></td>
<td>from an attachment that does not use two-phase-commit protocol).</td>
</tr>
<tr>
<td>IN-COMT-PHS1</td>
<td>The thread is in Commit phase 1 processing.</td>
</tr>
<tr>
<td>IN-COMT-PHS2</td>
<td>The thread is in Commit phase 2 processing.</td>
</tr>
<tr>
<td>IN-CRTE-THRD</td>
<td>The thread is in Create Thread processing.</td>
</tr>
</tbody>
</table>
IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.
WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
• Inter-system communication within the data sharing group to determine if there is lock contention.
• A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.
WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Time
The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is 

\[ \text{CY}MMDDHHMMSSmmm \]

(as in 1180315064501000 for 03/15/18 06:45:01) where:

- \( C \) = Century (0 for 20th, 1 for 21st)
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- \( D \) = Day
- \( H \) = Hour
- \( M \) = Minute
- \( S \) = Second
- \( m \) = Millisecond

IMS Thread Summary Workspace:

The IMS Thread Summary workspace provides an overview for threads originating from connected IMS subsystems.
This workspace is comprised of the following views:

**IMS Thread Summary (table view)**
Shows summary information for the IMS threads.

**In-DB2 CPU Time (bar chart)**
Shows the class 2 CPU time (in DB2) for IMS threads.

**In-DB2 Time (bar chart)**
Shows the class 2 elapsed time (in DB2) for IMS threads.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:
- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace”
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

**Installation Parameters:**

The Installation Parameters navigator item opens the DSNZPARM Thread Parameters workspace.

Select the Installation Parameters workspace to view information about DB2 parameters for a:
- Single DB2 subsystem
- Data sharing group (DSG)

**Lock Conflicts Workspace:**

The Lock Conflicts workspace provides an overview of the DB2 database lock conflicts.

This workspace is comprised of the following views:

**Lock Elapsed Time in Seconds (bar chart)**
Shows the elapsed time in seconds.
Local Lock Conflicts (table view)

Shows more information about local locking conflicts.

Thread information is not available if the thread is owned by the other member of the data sharing group.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

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- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

Local DB2 Lock Conflict Attributes:

Use Local DB2 Lock Conflict Group attributes to create situations that monitor DB2 database lock conflicts.

Authorization ID The primary authorization ID from connection or signon, that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

Authorization ID (Unicode) The primary authorization ID from connection or signon, that identifies the execution privileges an application has to a DB2 object or service. Valid format is alphanumeric with a maximum of 8 characters; for example, TRAN5.

Begin Time Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and ims wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

Local DB2 Lock Conflict Attributes Identifies the connection of an application to a DB2 system.
Local DB2 Lock Conflict Attributes  The type of connection associated with the thread.

It can be:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

Correlation ID  The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example, DLKEX212.

DB2 ID  The name of a DB2 subsystem.

Display Elapsed Time  The total amount of elapsed time since thread creation or DB2 sign-on.

IDNAME  An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

Lock Elapsed Time  The amount of time (in seconds) a waiter has been waiting for the resource.

Lock Level  Identifies the lock resource usage.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS</td>
<td>Intent share</td>
</tr>
<tr>
<td>IX</td>
<td>Intent exclusive</td>
</tr>
<tr>
<td>NSU</td>
<td>Non-shared Update</td>
</tr>
</tbody>
</table>
Lock Resource
The resource a lock owner currently has locked or the resource that caused DB2 to suspend a lock request. It is an alphanumeric text string, with a maximum of 50 characters; for example, DB=TBLBLK2 PS=PAGELK2.

Lock Status
The status of a job holding or waiting on a lock: If the status is OWN with a DB2 subsystem name, the lock is owned by another DB2 subsystem in the Data Sharing Group (DSG); for example, if lock status is OWN-DB2A, the lock is owned by DB2 subsystem DB2A.

Lock Token
Lock Token.

Lock Type
The lock type of the lock request.

Valid values are:

Table 79. Lock types

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACSC</td>
<td>The Accelerator Services commands (ACSC) lock.</td>
</tr>
<tr>
<td>ALBP</td>
<td>The Alter buffer pool (ALBP) lock indicates a lock on a buffer pool during execution of an ALTER BUFFERPOOL command.</td>
</tr>
<tr>
<td>BIND</td>
<td>The BIND lock indicates an autobind or remote bind lock.</td>
</tr>
<tr>
<td>BMBA</td>
<td>The Buffer manager SCA MBA (BMBA) L-lock.</td>
</tr>
<tr>
<td></td>
<td>The Buffer Manager (BM) gets this lock when it needs to read, insert, or update a multiple buffer pool (MBA) record in a Shared Communications Area (SCA).</td>
</tr>
<tr>
<td></td>
<td>(BMC_MBAO or BMC_MBAR)</td>
</tr>
<tr>
<td>BPPS</td>
<td>The Buffer Manager Pageset (BPPS) RR (repeatable read) P-lock:</td>
</tr>
<tr>
<td></td>
<td>• BP = buffer pool ID</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td>CCAT</td>
<td>The CATMAINT convert catalog (CCAT) lock is acquired when catalog conversion is performed.</td>
</tr>
<tr>
<td>CDBL</td>
<td>The Compress dictionary build (CDBL) lock.</td>
</tr>
<tr>
<td>CDIR</td>
<td>The CATMAINT convert directory (CDIR) lock is acquired when directory conversion is performed.</td>
</tr>
<tr>
<td>CDRN</td>
<td>The Cursor Stability drain (CDRN) lock is acquired to drain all CS read access to an object:</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PT = partition</td>
</tr>
<tr>
<td>CMDS</td>
<td>The DB2 Command Serialization (CMDS) lock.</td>
</tr>
<tr>
<td>Lock type</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>CMIG</td>
<td>The CATMAINT migration (CMIG) lock is acquired when catalog migration is performed.</td>
</tr>
<tr>
<td>COLL</td>
<td>The Collection (COLL) lock</td>
</tr>
<tr>
<td>DBDL</td>
<td>The DBD load (DBDL) lock is the database descriptor load lock.</td>
</tr>
<tr>
<td>DBEX</td>
<td>The Database exception (DBEX) lock indicates a lock on a “Logical page list” (LPL) or “Group buffer pool recovery pending” (GRECP) database exception status. This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>DBXU</td>
<td>The DB exception update lock is used for updating the database exception status.</td>
</tr>
<tr>
<td>DGTT</td>
<td>The DGTT URID lock is acquired to protect segments that belong to a Declared Global Temporary Table (DGTT). These segments are deallocated during Commit 1 by logging them and serializing them using the Unit of Recovery ID (URID) lock.</td>
</tr>
</tbody>
</table>
| DPAG      | The DB2 page (DPAG) lock in a tablespace. When programs read data or update data, they acquire a page lock containing the data.  
  - DB = database name  
  - PS = pageset name  
  - PG = page |
| DSET      | The partitioned lock.  
  A partitioned tablespace contains one or more partitions (up to 64). It is created when you create a table space using the SQL CREATE TABLESPACE statement with the NUMPARTS parameter.  
  Only one table can be stored on a partitioned tablespace. Each partition contains one part of a table. The partitioned lock only locks the partition with the data that is referenced.  
  - DB = database name  
  - PS = pageset name  
  - PT = partition number |
| DTBS      | The Database lock indicates a lock on the database.  
  - DB = database name  
  - PS = pageset name  
  - PT = partition number |
| GRBP      | The Group buffer pool (GRBP) start/stop lock.  
  BP=buffer pool ID |
| HASH      | The Hash anchor (HASH) lock.  
  - DB = database name  
  - PS = pageset name  
  - PG = page |
| HPSP      | The Header Page (HP) Bucket or Stored Procedure (SP) Command lock |
| IEOF      | The Index end of file (IEOF) lock is acquired at the index end of file.  
  - DB = database name  
  - PS = pageset name  
  - PT = partition |
Table 79. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
</table>
| IPAG      | The Index page (IPAG) lock in an index space. When application programs read or update data, they acquire a lock on the page containing the index when indexing is used.  
- DB = database name  
- PS = pageset name  
- PG = page |
| IXY      | The Index key (IXKY) lock. |
| LBLK      | The Large object (LOB) lock. |
| LPLR      | The Logical page list recovery (LPLR) lock. |
| MDEL      | The Mass delete (MDEL) lock is acquired when doing a mass delete from a table (for example, when you DELETE FROM a table) within a segmented tablespace.  
It is used to prevent another user from reusing freed segments before a delete operation is committed.  
- DB = database name  
- PS = pageset name |
| PALK      | The Partition lock.  
- DB = database name  
- PS = pageset name  
- PT = partition |
| PBPC      | The Group BP level castout (PBPC) P-lock.  
A physical lock acquired when a castout of a group buffer pool occurs. Castout is the process of writing pages in the group buffer pool out to DASD.  
This lock is only used in a data sharing environment. |
| PCDB      | The DDF CDB P-lock.  
A Distributed Data Facility communication database physical lock.  
This lock is only used in a data sharing environment. |
| PDBD      | The DBD P-lock is a database descriptor physical lock.  
This lock is only used in a data sharing environment. |
| PDSO      | The Pageset or partitioned pageset open lock.  
If the data set supporting the tablespace that is referenced by the application is not opened, the program will acquire a lock to open the data set. The data set will stay open if CLOSE=NO is defined in the SQL statement creating the tablespace.  
- DB = database name  
- PS = pageset name |
| PITT      | The Index manager tree (PITR) is a physical lock (P-lock).  
This lock is only used in a data sharing environment.  
- DB = database name  
- PS = pageset name  
- PT = partition |
Table 79. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPAG</td>
<td>The Page P-lock is a physical lock on a page. This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>PPSC</td>
<td>The Pageset/partition level castout physical lock (P-lock). This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>PPSP</td>
<td>The Pageset/partition physical lock (P-lock). This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>PRLF</td>
<td>The Resource Limit Facility (RLF) physical lock (P-lock). This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>PSET</td>
<td>The Pageset (PSET) lock can be a tablespace or indexspace. A pageset containing DB2 tables is a tablespace. A pageset containing DB2 index structure is an indexspace. A pageset can be simple or partitioned. This lock type is for the simple pageset only.</td>
</tr>
<tr>
<td>PSPI</td>
<td>The Pageset piece (PSPI) lock. A pageset is a collection of pageset pieces. Each pageset piece is a separate VSAM data set. A simple pageset contains from 1 to 32 pieces. Each piece of a simple pageset is limited to 2 GB. Whenever a simple pageset piece reaches this size, another piece is allocated and the pageset grows. This is a lock on the expanded pageset piece.</td>
</tr>
<tr>
<td>RDBD</td>
<td>The Repair DBD (RDBD) lock is acquired when REPAIR DBD REBUILD is running (test/diagnose).</td>
</tr>
<tr>
<td>RDRN</td>
<td>The Repeatable Read drain (RDRN) lock is acquired to drain all RR access to an object.</td>
</tr>
<tr>
<td>RGDA</td>
<td>The Retry Getpage During Abort (RGDA) lock.</td>
</tr>
<tr>
<td>ROW</td>
<td>The Row lock indicates a lock on a row.</td>
</tr>
<tr>
<td>RSTR</td>
<td>The Shared Communications Area (SCA) restart (RSTR) lock indicates a lock on SCA access for restart/redo information. (BMC-RSTP)</td>
</tr>
<tr>
<td>SDBA</td>
<td>The Start/stop lock on DBA (SDBA) table indicates a lock on the table, tablespace, or database when a CREATE/DROP is processed against these objects.</td>
</tr>
<tr>
<td>SENV</td>
<td>The System environment (SYSENV) serialization lock.</td>
</tr>
<tr>
<td>Lock type</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>SKCT</td>
<td>The Skeleton cursor table (SKCT) lock indicates a lock on the application plan.</td>
</tr>
<tr>
<td>SKPT</td>
<td>The Skeleton package table (SKPT) lock indicates a lock on the application package.</td>
</tr>
<tr>
<td>SPRC</td>
<td>The System level point in time (PIT) recovery lock.</td>
</tr>
<tr>
<td>SREC</td>
<td>The Log range lock.</td>
</tr>
<tr>
<td>TABL</td>
<td>The Table (TABL) lock on the table which resides in a segmented tablespace.</td>
</tr>
<tr>
<td>UIDA</td>
<td>The Util I/O Damage Assessment lock.</td>
</tr>
<tr>
<td>UNDT</td>
<td>The Undetermined (UNDT) lock indicates that this lock cannot be determined because it is not part of the other listed lock types.</td>
</tr>
<tr>
<td>UNKN</td>
<td>The Unknown (UNKN) lock indicates the resource does not exist.</td>
</tr>
<tr>
<td>UTEX</td>
<td>The Utility exclusive execution (UTEX) lock.</td>
</tr>
<tr>
<td>UTID</td>
<td>The Utility identifier (UTID) lock.</td>
</tr>
<tr>
<td>UTOB</td>
<td>The Utility object (UTOB) lock.</td>
</tr>
<tr>
<td>UTSE</td>
<td>The Utility serialization (UTSE) lock is required when running utility jobs.</td>
</tr>
<tr>
<td>Lock type</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| WDRN      | The Write drain (WDRN) lock is acquired to drain all write access to an object.  
  • DB = database name  
  • PS = pageset name  
  • PT = partition |
| XMLK      | The XML lock. |

**LUWID** The logical unit of work ID (LUWID) for a thread.

**MVS System** An ID for the MVS System Management Facility (SMF). It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Plan Name** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string with a maximum of 8 characters. For example PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Resource Name 1 (Unicode)** The resource name of type defined by type code.

**Resource Name 2 (Unicode)** The resource name of type defined by type code.

**Resource Name 3** The resource name of type defined by type code.

**Resource Name 4** The resource name of type defined by type code.

**Resource Type 1** This value indicates what is contained in Resource Name 1.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>Buffer Pool</td>
</tr>
<tr>
<td>CO</td>
<td>Collection name</td>
</tr>
<tr>
<td>DB Hash</td>
<td>Database</td>
</tr>
<tr>
<td>HC</td>
<td>Class</td>
</tr>
<tr>
<td>PL</td>
<td>Plan name</td>
</tr>
<tr>
<td>UT</td>
<td>Utility ID</td>
</tr>
</tbody>
</table>

**Resource Type 2** This value indicates what is contained in Resource Name 2.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PK</td>
<td>Package</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>PS</td>
<td>Page Set (Tablespace)</td>
</tr>
</tbody>
</table>

**Resource Type 3** This value indicates what is contained in Resource Name 3.

**Resource Type 4** This value indicates what is contained in Resource Name 4.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT</td>
<td>Partition</td>
</tr>
</tbody>
</table>

**SUBSYS** The IRLM subsystem name.

**Thread Status** The current status of a thread.

Valid values are:

**Status** Description

NOT-AVAIL
The thread is not available.

IN-ABORT
The thread is in abort processing.

IN-ACCEL
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.
INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.
WAIT-GLBLOCK
The thread is currently waiting for either:
- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.
WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Token The thread token uniquely identifies a specific thread.

Local DB2 Lock Conflict Attributes The type of thread.

It can be:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Uniqueness Value** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

**Uniqueness Value2** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: the last 2 bytes of QWHSLUUV).

**Log Manager Workspace:**

The Log Manager workspace provides an overview of the DB2 log manager active logging and archiving activity.

This workspace is comprised of the following views:

- **Archive in Progress (table view)**
  Shows details associated with the log data sets of the current archiving activity.

- **Data Set Utilization (linear gauge chart view)**
  Indicates the percent of the current data set that is in use.

- **Log Manager Statistics (table view)**
  Lists total counts, counts during the last sample period, and the “per second” count for a variety of reads, writes, and allocations associated with DB2 SRM log management.

- **Log Manager Summary (table view)**
  Shows details associated with logging and archiving activity.

- **Primary Data Set (table view)**
  Shows details associated with the data sets of the primary log activity

- **Secondary Data Set (table view)**
  Shows details associated with the data sets of the secondary log activity.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli...
Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DB2 SRM Log Manager Attributes:**
Use the DB2 SRM Log Manager attributes to create situations to monitor the DB2 log manager activity.

- **Active Log CIs Rate** The number of active log control intervals (CIs) created per second over the last sampling period.
- **Archive CIs Offloaded Rate** The number of archive log write CIs offloads per second over the last sampling period.
- **Archive Read Allocation Rate** The number of archive log read allocations per second over the last sampling period.
- **Archive Recording Mode** The recording mode for the archive can be either dual or single. It is an alphanumeric text string, with a maximum length of one character.
- **Archive Write Allocation Rate** The number of archive log write allocations per second over the last sampling period.
- **Begin RBA** The lowest Relative Byte Address (RBA) in the log of the primary data set (DB2 11).
- **BSDS Access Rate** The number of BSDS access requests per second over the last sampling period.
- **Checkpoint Frequency** The number of bytes in the output buffer before a checkpoint is performed.
- **Current RBA** The current Relative Byte Address (RBA) in the log of the primary data set (DB2 11).
  
  It is an alphanumeric text string, with a maximum length of 20 characters. For DB2 11, the RBA can consist of up to 10 bytes. For versions prior to DB2 11, the RBA can consist of up to 6 bytes.
- **Current Relative Byte Address** The current Relative Byte Address (RBA) in the log of the primary data set. It is an alphanumeric text string, with a maximum length of 12 characters.
- **Data Set Size** The size of the current logging data set.
- **Data set Utilization** The percentage of the current data that is in use. Valid entry ranges from 0.0 to 100.0.
- **Delta Active Log CIs** The number of active log CIs created during the last sampling period.
- **Delta Archive CIs Offloaded** The number of archive log CIs offloads during the last sampling period.
Delta Archive Read Allocation  The number of archive log read allocations during the last sampling period.

Delta Archive Write Allocation  The number of archive log write allocations during the last sampling period.

Delta BSDS Access  The number of BSDS access requests during the last sampling period.

Delta LookAhead Tape Failed  The number of look ahead tape mounts not satisfied during the last sampling period.

Delta LookAhead Tape Performed  The number of look ahead tape mounts performed during the last sampling period.

Delta LookAhead Tape Requests  The number of look ahead tape mounts attempted during the last sampling period.

Delta Reads Active Archive Log  The number of reads from the active archive log during the last sampling period.

Delta Reads Active Log  The number of reads from the active log during the last sampling period.

Delta Reads Delayed No Control Unit  The number of reads delayed because no tape control unit during the last sampling period.

Delta Reads Delayed Contention  The number of reads delayed as a result of the tape contention during the last sampling period.

Delta Reads Output Log Buffer  The number of reads from the output log buffer during the last sampling period.

Delta Write Active Buffer  The number of write active log buffer during the last sampling period.

Delta Write Delay No Buffer  The number of write delays as a result of no buffers during the last sampling period.

Delta Write Force  The number of write force requests during the last sampling period.

Delta Write Nowait  The number of write NOWAIT requests during the last sampling period.

Delta Write Wait  The number of write wait requests during the last sampling period.

End RBA  The highest Relative Byte Address (RBA) in the log of the primary data set (DB2 11).

It is an alphanumeric text string, with a maximum length of 20 characters. For DB2 11, the RBA can consist of up to 10 bytes. For versions prior to DB2 11, the RBA can consist of up to 6 bytes.

Filler  A placeholder to keep fullword alignment.
**High Relative Byte Address** The highest Relative Byte Address (RBA) in the log of the primary data set. It is an alphanumeric text string, with a maximum length of 12 characters.

**Input Buffer Size** The size of the log input buffer.

**Interval Time** The number of seconds since last sample.

**Log Recording Mode** The recording mode for the log, which can be either dual or single. It is an alphanumeric text string, with a maximum length of one character.

**Logs Available** The number of log data sets that are currently available.

**Logs Defined** The number of log data sets that have been defined.

**Look Ahead Tape Failed Rate** The number of look ahead tape mounts not satisfied per second over the last sampling period.

**Look Ahead Tape Performed Rate** The number of look ahead tape mounts performed per second over the last sampling period.

**Look Ahead Tape Requests Rate** The number of look ahead tape mount attempts per second over the last sampling period.

**Low Relative Byte Address** The lowest Relative Byte Address (RBA) in the log of the primary data set. It is an alphanumeric text string, with a maximum length of 12 characters.

**Next Checkpoint** The number of bytes before next checkpoint is to be performed.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Output Buffersize** The size of the log output buffer.

**Percent Logs Available** The percentage of active log data sets that are currently available.

**Primary Data Set Name** The current name of the log of the primary data set. It is an alphanumeric text string, with a maximum length of four characters.

**Read Active Archive Log Rate** The number of reads per second from the active archive log over the last sampling period.

**Read Active Archive Log Rate** The number of reads from the active log per second over the last sampling period.

**Read Output Log Buffer Rate** The number of reads from the output log buffer per second over the last sampling period.

**Reads Delayed Contention Rate** The number of reads delayed because the tape contention per second over the last sampling period.

**Reads Delayed NoCU Rate** The number of reads delayed as a result of no tape control unit per second over the last sampling period.
Secondary Data Set Name The current name of the log of the secondary data set. It is an alphanumeric text string, with a maximum length of four characters.

Time Stamp The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMSSmmm (as in 118031506450100 for 03/15/18 06:45:01) where:
• C = Century (0 for 20th, 1 for 21st)
• Y = Year
• M = Month
• D = Day
• H = Hour
• M = Minute
• S = Second
• m = Millisecond

Total Active Log CIs The total number of active log CIs created.

Total Archive CIs Offloaded The total number archive log CIs offloads.

Total Archive Read Allocation The total number of archive log read allocations.

Total Archive Write Allocation The total number of archive log write allocations.

Total BSDS Access The total number of BSDS access requests.

Total Look Ahead Tape Failed The total number of look ahead tape mounts not satisfied.

Total Look Ahead Tape Performed The total number of look ahead tape mounts performed.

Total Look Ahead Tape Requests The total number of look ahead tape mounts attempted.

Total Reads Active Archive Log The total number of reads from the active archive log.

Total Reads Active Log The total number of reads from the active log.

Total Reads Delayed Contention The total number of reads delayed as a result of tape contention.

Total Reads Delayed No Control Unit The total number of reads delayed as a result of no tape control unit.

Total Reads Output Log Buffer The total number of reads from the output log buffer.

Total Write Active Buffer The total number of write active log buffers.

Total Write Delay No Buffer The total number of writes delayed as a result of no buffer.
Total Write Force  The total number of write force requests.

Total Write Nowait  The total number of write nowait requests.

Total Write Wait  The total number of write wait requests.

Write Active Buffer Rate  The number of write active log buffers per second over the last sampling period.

Write Delay No Buffer Rate  The number of write delays per second as a result of no buffer over the last sampling period.

Write Force Rate  The number of write force requests per second over the last sampling period.

Write Nowait Rate  The number of write nowait requests per second over the last sampling period.

Write Threshold  Write threshold.

Write Wait Rate  The number of write wait requests per second over the last sampling period.

MVS Storage Above 2 GB Workspace:

The MVS Storage Above 2 GB workspace provides an overview of MVS storage above the 2 GB bar. It shows information about storage allocation within the DBM1 address space. You can view this information if DB2 10 is installed.

This workspace is comprised of the following views:
• MVS Storage Above 2 GB (table view)
• MVS Storage Above 2 GB (bar chart view)
• DBM1 MVS Storage above 2 GB (table view)
• Real and Auxiliary Storage (table view)

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can use the navigation links in the MVS Storage Above 2 GB view to open:
• “MVS Storage Below 2 GB Workspace”
• “Common Storage Workspace” on page 480

MVS Storage Below 2 GB Workspace:

The MVS Storage Below 2 GB workspace provides an overview of MVS storage below the 2 GB bar. It shows information about storage allocation within the DBM1 address space. You can view this information if DB2 10 is installed.

This workspace is comprised of the following views:
• MVS Storage Below 2 GB (table view)
• MVS Storage Below 2 GB (bar chart view)
• MVS Storage (table view)
• DBM1 MVS Storage Below 2 GB (table view)
• System Storage Engines and Thread Information (table view)
• DB2 IRLM Storage (table view) shows the usage of IRLM storage (DB2 11 or later)

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can use the navigation links in the MVS Storage view to open:
• “MVS Storage Above 2 GB Workspace” on page 750
• “Common Storage Workspace” on page 480

Object Analysis Database Workspace:

The Object Analysis Database workspace provides a global view of object allocation data for a specific data sharing group.

A consolidated list of DB2 databases is displayed on the table in ascending order by database name. Your view may sort differently if you have changed the sort field or sort order.

Use this view to:
• Evaluate DB2 database object allocations
• Track object allocation data over a period of time
• Analyze space name allocation data for a specific DB2 database

The Object Analysis Database table view only displays databases that contain spaces currently allocated to the DB2 subsystems that are part of the data sharing group you are monitoring.

Note: The Event Manager for Object Analysis must be active to allow object analysis data to be collected.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Object Analysis Space Name Workspace:

The Object Analysis Space Name workspace displays space name allocation data for a specific DB2 database.

Use this workspace to evaluate and analyze the space name allocation data that a specific DB2 database owns.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Object Analysis Space Name Detail Workspace:

The Object Analysis Space Name Detail workspace displays detail object analysis data for each DB2 object space in a DB2 database.
Use this workspace to evaluate and analyze space name allocation data for each DB2 object space in a DB2 database.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Overall Transaction Data Workspace:**

The Overall Transaction Data workspace provides information about the Database Connection Services (DCS) application at the transaction level.

This workspace is comprised of the following views:

- **Application - Network (bar chart)**
  Shows the number of data transmissions between the DB2 Connect gateway and the host database and the number of bytes sent between the client application, the DB2 Connect gateway, and the host database. This view enables you to measure the throughput between the client and the DB2 Connect gateway and between the DB2 Connect gateway and the host database.

- **Application - SQL Statement (bar chart)**
  Shows the number of SQL, SQL COMMIT, and SQL ROLLBACK statements that have been attempted and the number of SQL statements that have been attempted but have failed. This view enables you to measure the database activity for the DCS application.

- **Thread/Application ID (table view)**
  Identifies the thread and the DCS application.

- **Last Reset and Connect Timestamp (table view)**
  Shows when the monitor counters were reset for the application issuing the GET SNAPSHOT and when the first connection to the host database was initiated from the DB2 Connect gateway.

- **Network & Times (table view)**
  Provides details about the throughput, and the times for data transmissions, between the client application, the DB2 Connect gateway, and the host database.

- **Unit of Work (table view)**
  Provides details about the SQL statements and units of work performed.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Performance Workspace:**

The Performance workspace shows the information obtained by running a sample SQL statement between the DB2 Connect gateway and the host database. It enables you to detect any bottlenecks.

This workspace is comprised of the following views:

- **DB2 Connect Server - SQL Statement Time (pie chart)**
  Shows the distribution of the various amounts of time required to process the sample SQL statement.
DB2 Connect Information (table view)
   Shows key information about the selected DB2 Connect gateway.

Time for Sample SQL Statement (table view)
   Shows the various amount of time required to process the sample SQL statement.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

SQL Counts 1 Workspace:

The SQL Counts 1 workspace provides information about SQL DCL (Data Control Language) declarations, SQL DDL (Data Definition Language) statements, and SQL DML (Data Manipulation Language) statements.

This workspace is comprised of the following views:

DML (table view)
   Provides information on SQL DML (Data Manipulation Language) statements.

DCL (table view)
   Provides information on DCL (Data Control Language) declarations.

DDL Create (table view)
   Provides information on SQL DDL (Data Definition Language) statements for Create.

DDL Drop (table view)
   Provides information on SQL DDL (Data Definition Language) statements for Drop.

DDL Alter / Rename (table view)
   Provides information on SQL DDL (Data Definition Language) statements for Alter / Rename.

Note: Each table view provides the following information:

<table>
<thead>
<tr>
<th>Information</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>The total counts since the last sample period.</td>
</tr>
<tr>
<td>Delta</td>
<td>The changes since the last sample period.</td>
</tr>
<tr>
<td>Rate</td>
<td>The number of requests per second over the last sampling interval.</td>
</tr>
</tbody>
</table>

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

SQL Counts Attributes:
Use the SQL Counts attributes to create situations to monitor the SQL DCL (Data Control Language) declarations, SQL DDL (Data Definition Language) statements, and SQL DML (Data Manipulation Language) statements, associated with a DB2 subsystem. They also show information for stored procedures, user-defined functions, triggers, direct row access, parallelism, RID pool access, and prepare statements. They provide information about multi-row processing and concentrate statements.
**4K Used Instead 32K** The number of times that space in a 4 KB page table space was used because space in a 32 KB page table space was preferred but not available (Field name: QISTWFP2).

**32K Used Instead 4K** The number of times that space in a 32 KB page table space was used because space in a 4 KB page table space was preferred but not available (Field name: QISTWFP1).

**Agent Max Storage** The maximum amount of storage that can be used for each agent (Field name: QISTWMXA).

**Allocate Cursor** The number of SQL ALLOCATE CURSOR statements executed (field name: QXALOCC).

**Alter Database** The number of ALTER DATABASE statements executed (Field name: QXALDAB).

**Alter Function** The number of ALTER FUNCTION statements executed (Field name: QXALUDF).

**Alter Index** The number of ALTER INDEX statements executed (Field name: QXALTIX).

**Alter Procedure** The number of ALTER PROCEDURE statements executed (Field name: QXALPRO).

**Alter Stogroup** The number of ALTER STOGROUP statements executed (field name: QXALTST).

**Alter Table** The number of ALTER TABLE statements executed (Field name: QXALT TA).

**Alter Tablespace** The number of ALTER TABLESPACE statements executed (Field name: QXALT TS).

**Alter Trusted Context** The number of alter trusted context statements executed (Field name QXALTCTX) - not supported prior to DB2 9.

**Associate Locator** The number of SQL ASSOCIATE LOCATORS statements executed (Field name: QXALOCL).

**Close Cursor** The number of CLOSE statements executed. This number at the server location might not match the user application because of DDF’s internal processing (DB2 field name: QXCLOSE).

**Comment On** The number of COMMENT ON statements executed (Field name: QXCMTON).

**Connect (Type 1)** The number of CONNECT type 1 statements executed (Field name: QXCON1).

**Connect (Type 2)** The number of CONNECT type 2 statements executed (field name: QXCON2).

**Create Alias** The number of CREATE ALIAS statements executed (Field name: QXCRALS).
Create Database The number of CREATE DATABASE statements executed (Field name: QXCRDAB).

Create Distinct Type The number of CREATE DISTINCT TYPE statements executed (Field name: QXCDIST).

Create Function The number of CREATE FUNCTION statements executed (Field name: QXCRUDF).

Create Global Temp Table The number of CREATE GLOBAL TEMPORARY TABLE statements executed (Field name: QXCRGTT).

Create Index The number of CREATE INDEX statements executed (Field name: QXCRINDEX).

Create Procedure The number of CREATE PROCEDURE statements executed (Field name: QXCRPRO).

Create Role The number of CREATE ROLE statements executed (Field name QXCRROLE) - not supported prior to DB2 9.

Create Stogroup The number of CREATE STOGROUP statements executed (Field name: QXCRSTG).

Create Synonym The number of CREATE SYNONYM statements executed (field name: QXCRSYN).

Create Table The number of CREATE TABLE statements executed (Field name: QXCRTABLE).

Create Tablespace The number of CREATE TABLESPACE statements executed (Field name: QXCTAB).

Create Trigger The number of CREATE TRIGGER statements executed (field name: QXCTRIGGER).

Create Trusted Context The number of create trusted context statements executed (Field name QXCRTRUSTED) - not supported prior to DB2 9.

Create View The number of CREATE VIEW statements executed (Field name: QXDEFFVU).

Current Total Storage The total whole kilobytes of storage that are currently used in the workfile database (field name: QISTWCTO).

DB2 ID The DB2 subsystem ID.

Delete The number of DELETE statements executed (DB2 field name: QXDELETE).

Delete Rows Accessed The number of rows accessed by READ transactions because of uncommitted DELETE operations (using currently committed semantic for FETCH) - (Field name: QISTRCCD).

Delta The changes since the last sample period.
Describe The number of DESCRIBE, DESCRIBE CURSOR, DESCRIBE INPUT, and DESCRIBE PROCEDURE statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXDESC).

Describe Table The number of DESCRIBE TABLE statements executed (Field name: QXDSCR_TB).

Description The description of the monitored activity.

Direct Row Revert to Index The number of times that direct row access failed and an index was used to find a record (Field name: QXROIIDX).

Direct Row Revert to TS Scan The number of times that an attempt to use direct row access reverted to using a table-space scan because DB2 was not able to use a matching index scan (Field name: QXROITS).

Direct Row Successful The number of times that direct row access was successful (Field name: QXROIMAT).

Drop Alias The number of SQL DROP ALIAS statements executed (field name: QXDRPA).

Drop Database The number of DROP DATABASE statements executed (Field name: QXDRPDB).

Drop Distinct Type The number of DROP DISTINCT TYPE statements executed (Field name: QXDDIST).

Drop Function The number of DROP FUNCTION statements executed (field name: QXDRPFN).

Drop Index The number of DROP INDEX statements executed (Field name: QXDRPIX).

Drop Package The number of SQL DROP PACKAGE statements executed (field name: QXDRPPKG).

Drop Procedure The number of DROP PROCEDURE statements executed (Field name: QXDRPPR).

Drop Role The number of DROP ROLE statements executed (Field name QXDRPROL) - not supported prior to DB2 9.

Drop Stogroup The number of DROP STOGROUP statements executed (Field name: QXDRPST).

Drop Synonym The number of DROP SYNONYM statements executed (Field name: QXDRPSY).

Drop Table The number of DROP TABLE statements executed (Field name: QXDRPTA).

Drop Tablespace The number of DROP TABLESPACE statements executed (Field name: QXDRPTS).
**Drop Trigger** The number of DROP TRIGGER statements executed (Field name: QXDRPTR).

**Drop Trusted Context** The number of drop trusted context statements executed (Field name QXDRPCTX) - not supported prior to DB2 9.

**Drop View** The number of DROP VIEW statements executed (Field name: QXDRPVU).

**Fetch** The number of FETCH statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXFETCH).

**Grant** The number of GRANT statements executed (Field name: QXGRANT).

**Incremental Bind** The number of incremental binds (excluding prepare) (field name: QXINCRB).

**Insert** The number of INSERT statements executed (Field name: QXINSRT).

**Insert Rows Skipped** The number of rows skipped by READ transactions because of uncommitted INSERT operations (using currently committed semantic for FETCH) - (Field name: QISTRCCI).

**Interval Time** The number of seconds since last sample.

**Job Name** The job name that is associated with a thread.

**Label On** The number of LABEL ON statements executed (Field name: QXLABON).

**Literals Dups Created** The number of times DB2 created a duplicate STMT instance in the statement cache for a dynamic statement that had literals replaced by CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTSTCWLD). The duplicate STMT instance was needed because a cache match failed because the literal reusability criteria was not met.

**Literals Matches Found** The number of times DB2 found a matching reusable copy of a dynamic statement in cache because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTSTCWLM).

**Literals Parsed** The number of times DB2 parsed dynamic statements because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTSTCWLP).

**Literals Replaced** The number of times DB2 replaced at least one literal in a dynamic statement because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTSTCWLR).

**Lock Table** The number of LOCK TABLE statements executed (Field name: QXLOCK).

**Max Nested SQL Trigger** The maximum level of indirect SQL cascading (Field name: QXCASCSDP). This includes cascading because of triggers, UDFs, or stored procedures.
Max Total Storage The maximum total amount of storage that is used in the
workfile database (Field name QISTWMXU).

Merge The number of MERGE statements executed (DB2 field name QXMERGE) -
not supported prior to DB2 9.

MVS ID The MVS system identifier.

Number of Max Exceeded The number of times the maximum amount of storage
that an agent can use was exceeded (field name: QISTWFNE).

Open Cursor The number of OPEN statements executed (Field name: QXOPEN).

Originating System ID The managed system name of the agent. It is an
alphanumeric text string, with a maximum of 32 characters; for example,
DB91:SYS1:DB2.

Parallel Bypass DB2 (Buffers) The number of times the parallelism coordinator
had to bypass a DB2 when distributing tasks because one or more DB2 members
did not have enough buffer pool storage (Field name: QXXCSKIP). The number in
this field is only incremented at the parallelism coordinator once per parallel
group, even though more than one DB2 might have lacked buffer pool storage for
that parallel group. It is also only incremented when the buffer pool is defined to
allow for parallelism. For example, if VPXPSEQT=0 on an assistant, DB2 does not
send parallel work there and the number in this field is not incremented.

Parallel Degree Executed The total number of parallel groups that executed in the
planned parallel degree (DB2 field name: QXNORGRP). This field is incremented
by one for each parallel group that executed in the planned degree of parallelism
(as determined by DB2).

Parallel Degree Reduced (no buffer) The total number of parallel groups that did
not reach the planned parallel degree because of a lack of storage space or
contention on the buffer pool (Field name: QXREDGRP).

Parallel Failed (Cursor) The total number of parallel groups that fell back to
sequential mode because of a cursor that can be used by UPDATE or DELETE
(Field name: QXDEGCUR).

Parallel Failed (No Buffer) The total number of parallel groups that fell back to
sequential mode because of a storage shortage or contention on the buffer pool
(Field name: QXDEGBUF).

Parallel Failed (No ESA Sort) The total number of parallel groups that fell back to
sequential mode because of a lack of ESA sort support (DB2 field name:
QXDEGESA).

Parallel Failed (No Enclaves) The total number of parallel groups that executed in
sequential mode because of the unavailability of MVS/ESA enclave services (Field
name: QXDEGENC).

Parallel Grp Executed The total number of parallel groups that were executed
(Field name: QXTOTGRP).

Parallel Maximum LOB Storage The maximum storage used for LOB values (DB2
field name: QXSTLOBV).
Parallel Single DB2 (Coord=NO) The total number of parallel groups executed on a single DB2 subsystem due to the COORDINATOR subsystem value being set to NO (Field name: QXCOORNO). When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a DB2 subsystem with COORDINATOR=YES, but is run on a DB2 subsystem with COORDINATOR=NO.

Parallel Single DB2 (Cursor) The total number of parallel groups executed on a single DB2 subsystem because of a repeatable-read or read-stability isolation (Field name: QXISORR).

Parallel Sysplex Intent The total number of parallel groups that DB2 intended to run across the data sharing group (Field name: QXXCBPNX). This number is only incremented at the parallelism coordinator at run time.

Prepare The number of PREPARE statements executed. This number at the server location might not match the user application because of DDF’s internal processing (Field name: QXPREP).

Prepare Avoided KEEPDYN(YES) The number of times where no SQL PREPARE or EXECUTE IMMEDIATE was issued by the application and a copy of a prepared SQL statement was found in local dynamic SQL cache (Field name: QXSTNPRP). When an application plan or package is bound with KEEPDYNAMIC YES, a copy of each prepared SQL statement for the application thread is held in the local dynamic SQL cache and kept across a commit boundary. An application thread can save the total cost of a prepare by using a copy of the prepared statement in the local dynamic SQL cache from an earlier prepare by the same thread. To do this, the application must be modified to avoid issuing repetitive SQL PREPAREs for the same SQL statement.

Prepare Copied from Cache The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache (Field name: QXSTFND).

Prepare Discarded - MAXKEEPD The number of times statements are invalidated in the local dynamic SQL cache because the MAXKEEPD limit has been reached and prepared SQL statements in the local dynamic SQL cache have to be reclaimed (Field name: QXSTDEXP).

Prepare Implicit KEEPDYN(YES) An implicit prepare occurs when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEPDYNAMIC YES (Field name: QXSTIPRP). If the skeleton copy of the prepared SQL statement exists in the global dynamic SQL cache in the EDM pool, a short prepare is executed, otherwise a full prepare is executed.

Prepare No Match The number of times that DB2 searched the prepared statement cache but could not find a suitable prepared statement (Field name: QXSTNFND).

Prepare Purged - DROP/ALT/REV The number of times statements are invalidated in the local dynamic SQL cache because of SQL DDL or updated RUNSTATS information and prepared SQL statements in the local dynamic SQL cache have to be reclaimed (Field name: QXSTDINV).

Rate The number of requests per second over the last sampling interval.
**Release** The number of RELEASE statements executed (DB2 field name: QXREL).

**Rename Index** The number of RENAME INDEX statements executed (Field name QXRNIX) - not supported prior to DB2 9.

**Rename Table** The number of RENAME TABLE statements executed (Field name: QXRNTAB).

**Revoke** The number of REVOKE statements executed (Field name: QXREVOK).

**RID HWM** The highest number of RID blocks in use at any time since DB2 startup (Field name: QISTRHIG). This is a high-water mark.

**RID In Use** The number of RID blocks currently in use (snapshot value) (Field name: QISTRCUR).

**RID Exceeded Pool** The number of times the maximum RID pool storage was exceeded (Field name: QISTRMAX). The size is determined by the installation parameter RID POOL SIZE (DB2 install panel DSNTIPC). It can be 0, or between 128 KB and 10 GB. The general formula for calculating the RID pool size is:
(Number of concurrent RID processing activities) x (average number of RIDs) x 2 x (5 bytes per RID).

**RID Exhausted Virtual** The number of times RID pool processing was not used because DBM1 storage was exhausted (Field name: QISTRSTG).

**RID Not Used (no storage)** The number of times DB2 detected that no storage was available to hold a list of RIDs during a given RID pool process involving one index (single index access with list prefetch) or multiple indexes (multiple index access) (DB2 field name: QXNSMIAP).

**RID Not Used (Max Limit)** The number of times DB2 detected that a RID list exceeded one or more internal limits during a given RID list (or RID pool) process involving one index (single index access with list prefetch) or multiple indexes (multiple index access) (DB2 field name: QXMRMIAP). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs.

**RID Pool Used** The number of times the RID (RECORD ID) pool has been processed (Field name: QXMIAP). During RID (RECORD ID) pool (also called RID list) processing, DB2 uses an index to produce a list of candidate RIDs, which is called a RID list. The RID list can be sorted and intersected (ANDed) or unioned (ORed) with other RID lists before actually accessing the data pages. RID list processing is used for a single index (index access with list prefetch) or for multiple indexes (multiple index access), which is when the RID lists are ANDed and ORed.

**RID Terminated (> DM)** The number of times a RID pool processing operation terminated because the number of RID entries was greater than the DM limit (Field name: QISTRPLM).

**RID Terminated (> RDS)** The number of times RID pool processing terminated because the number of RIDs that can fit into the guaranteed number of RID blocks was greater than the maximum limit (25% of table size) (Field name: QISTRLLM).
Row Triggers Executed The number of times a row trigger was activated (Field name: QXROWTRG).

Rows Deleted The number of rows that have been deleted because of SQL DELETE statements (Field name: QXRWSDELETE).

Rows Fetched The number of rows that have been fetched because of SQL FETCH statements (Field name: QXRWSFETCH).

Rows Inserted The number of rows that have been inserted because of SQL INSERT statements (Field name: QXRWSINSERT).

Rows Updated The number of rows that have been updated because of SQL UPDATE statements (Field name: QXRWSUPDATE).

Select The number of SQL SELECT statements executed (Field name: QXSELECT).

Set Connection The number of SET CONNECTION statements executed (Field name: QXSETCON).

Set Current Degree The number of SET CURRENT DEGREE statements executed (field name: QXSETCDG).

Set Current Path The number of SET CURRENT PATH statements executed (Field name: QXSETPATH).

Set Current Rules The number of SET CURRENT RULES statements executed (Field name: QXSETCRL).

Set Current SQLID The number of SET CURRENT SQLID statements executed (Field name: QXSETSQL).

Set Host Variable The number of SET HOST VARIABLE statements executed. The special register that was retrieved is not tracked (Field name: QXSETHV).

SP Abended The number of times a stored procedure terminated abnormally (Field name: QXCALLAB).

SP Call Statements The number of times the SQL CALL statements executed to invoke a stored procedure (SP).

SP Rejected The number of times an SQL CALL statement was rejected because of the procedure that is in the STOP ACTION(REJECT) state (Field name: QXCALLRJ).

SP Timed-Out The number of times an SQL CALL statement timed out when waiting to be scheduled (Field name: QXCALLTO).

SQL Error in Trigger The number of times an SQL error occurred during the execution of a triggered action (Field name: QXTRGERR). This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.

Stmt Triggers Executed The number of times a statement trigger was activated (Field name: QXSTTRG).
Storage in 4K TS The total whole kilobytes of storage that were used for 4 KB table spaces (Field name: QISTW4K).

Storage in 32K TS The total whole kilobytes of storage that were used for 32 KB table spaces (Field name: QISTW32K).

Time Stamp The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:
• C = Century (0 for 20th, 1 for 21st)
• Y = Year
• M = Month
• D = Day
• H = Hour
• M = Minute
• S = Second
• m = Millisecond

Total The total count executed by the thread.

UDFs Abended The number of times a user-defined function (UDF) abended (Field name: QXCAUDAB).

UDFs Executed The number of user-defined functions (UDFs) executed (Field name: QXCAUD).

UDFs Rejected The number of times a user-defined function (UDF) was rejected (Field name: QXCAUDRJ).

UDFs Timed Out The number of times a user-defined function (UDF) timed out while waiting to be scheduled (Field name: QXCAUDTO).

Update The number of UPDATE statements executed (Field name: QXUPDTE).

Update Rows Accessed The number of rows accessed by READ transactions because of uncommitted UPDATE operations (using currently committed semantic for FETCH) - (Field name: QISTRCCU).

SQL Counts 2 Workspace:

The SQL Counts 2 workspace provides information about stored procedures, User-defined functions, triggers, direct row access, parallelism, RID pool access, and prepare statements.

This workspace is comprised of the following views:
• Stored Procedures
• User-defined functions
• Triggers
• Direct row access
• Parallelism
• RID Pool Access
• Prepare Statements.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**SQL Counts 3 Workspace:**

The SQL Counts 3 workspace provides information about currently committed rows, multi-row processing, workfile storage, and concentrate statements.

This workspace is comprised of the following views:

**Use Currently Committed**

Shows, for the selected thread, the number of rows for currently committed data that is skipped or accessed by read transactions when processing a DB2 application.

**Multi-Row Processing**

 Enables you to track performance improvements such as multi-row fetch and multi-row insert.

**Workfile Storage**

Shows the statistics on the usage and storage of DB2 workfiles.

**Concentrate Statements**

Indicates if literal constants, which are referenced in dynamic SQL statements, are replaced with special markers so that these constants are not cached with the statement in the dynamic SQL statement cache.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Statement Information Workspace:**

The Statement Information workspace provides information about the SQL statement that was last performed by the Database Connection Services (DCS) application.

It enables you to measure the throughput between the client application, the DB2 Connect gateway, and the host database and to measure the times required for processing an SQL statement.

This workspace is comprised of the following views:

**Application - Network (bar chart)**

Shows the number of data transmissions between the DB2 Connect gateway and the host database and the number of bytes sent between the client, the DB2 Connect gateway, and the host database.

**Thread/Application ID (table view)**

Identifies the thread and the DCS application.

**Statement Information (table view)**

Provides information about the SQL statement that was last performed by the DCS application.

**Time (table view)**

Shows the times required for processing an SQL statement.
Network Statistics (table view)
Shows the number of bytes exchanged between the client application, the DB2 Connect gateway, and the host database.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread DB2 Connect Statement Attributes:
Use the DB2 Connect Statement attributes to create situations to identify any statement with long elapsed time.

Ace Address The DB2 thread ACE address for internal use.

Application Creator The authorization ID of the user who precompiled the application. You can use this counter to identify the SQL statement that is processing, in conjunction with the CREATOR column of the package section information in the catalogs.

Application ID The ID that is generated when the application connects to the database at the database manager or when Distributed Database Connection Services (DDCS) receives a request to connect to a DRDA database.

It is known at both the client and the server, so you can use it to correlate the client and server parts of the application. For DDCS applications, you will also need to use the Outbound Application ID to correlate the client and server parts of the application. This ID is unique across the network. There are different formats for the application ID, which are dependent on the communication protocol between the client and the server machine on which the database manager, the DDCS, or both, are running. Each of the formats consists of three parts separated by periods.
<table>
<thead>
<tr>
<th>Protocol</th>
<th>Format</th>
<th>Example</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPC</td>
<td>Network.Logical Unit Name.Application instance</td>
<td>CAIBMTOR.OSFDBX0930131194520</td>
<td>This application ID is the displayable format of an actual SNA LUWID (logical unit-of-work ID) that flows on the network when an APPC conversation is allocated. APPC-generated application IDs are made up by concatenating the network name, the Logical Unit name, and the LUWID instance number, which create a unique label for the client/server application. The network name and Logical Unit name can each be a maximum of 8 characters. The application instance corresponds to the 12-decimal-character LUWID instance number.</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>IPAddr.Port.Application instance</td>
<td>A12CF9E8.3F0A.930131214645</td>
<td>A TCP/IP-generated application ID is made up by concatenating the IP address in hexadecimal characters, the port number (4 hexadecimal characters), and a unique ID for the instance of this application. The IP address is a 32-bit number displayed as a maximum of 8 hexadecimal characters.</td>
</tr>
<tr>
<td>Protocol</td>
<td>Format</td>
<td>Example</td>
<td>Details</td>
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</tbody>
</table>
| IPX/SPX      | Netid.nodeid.Application instance | C11A8E5C.400011528250131214645 | An IPX/SPX-generated application ID is made up by concatenating a character network ID (8 hexadecimal characters), a node ID (12 hexadecimal characters), and a unique ID for the instance of the application. The application instance corresponds to a 10-decimal-character timestamp of the form mmddhhmmss, where:  
  - M = Month  
  - D = Day  
  - H = Hour  
  - M = Minute  
  - S = Second |
| NetBIOS      | *NETBIOS.nname.Application instance | *NETBIOS.SBOIVIN.930131214645 | For nonpartitioned database systems, a NetBIOS application ID is made up by concatenating the string *NETBIOS, the NNAME defined in the database configuration file for the client, and a unique ID for the instance of this application. For partitioned database systems, a NetBIOS application ID is made up by concatenating the string N xxx etc where xxx is the partition the application is attached to. |
Application Name The name of the application running at the client as known to the database manager or DB2 Connect.

Together with the Application ID counter, it can be used to relate data items with your application.

Authorization ID The authorization ID.

Authid (Unicode) The authorization ID.

Blocking Cursor Indicates whether the statement being executed is using a blocking cursor. Using blocking for data transfer for a query can improve its performance. The SQL used for a query can affect the use of blocking and might require some modification.

Corrid The correlation ID.

Thread DB2 Connect Statement Attributes Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

DB2 ID The DB2 subsystem ID.

Gateway Snapshot Time The date and time at which the database system monitor information was collected.

Host Response Time For a DCS statement, this is the elapsed time between the time that the statement was sent from the DB2 Connect gateway to the host for processing and the time when the result was received from the host.

For a DCS database or a DCS application, it is the sum of the elapsed times for all the statements that were executed for a particular application or database. For a data transmission, this is the sum of host response times for all the statements that used this many data transmissions. Use this counter with the Network statistic - Outbound number of bytes sent and Network statistic - Outbound bytes received counters to calculate the outbound response time (transfer rate):

\[
\text{outbound number of bytes sent + outbound bytes received} / \text{host response time}
\]

Inbound Number of Bytes Received The number of bytes received by the DB2 Connect gateway from the client, excluding communication protocol overhead, for example, TCP/IP or SNA headers. Use this counter to measure the throughput from the client to the DB2 Connect gateway.

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Format</th>
<th>Example</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local applications</td>
<td>*LOCAL.DB2 instance.Application instance</td>
<td>*LOCAL.DB2INST1.930131235945</td>
<td>The application ID generated for a local application is made up by concatenating the string *LOCAL, the name of the DB2 instance, and a unique ID for the instance of this application.</td>
</tr>
</tbody>
</table>
**Inbound Number of Bytes Sent** Shows the number of bytes sent by the DB2 Connect gateway to the client, excluding communication protocol overhead, for example, TCP/IP or SNA headers. Use this counter to measure the throughput from the DB2 Connect gateway to the client.

**IP Address** The current IP address.

**Local: System CPU Time** The total system CPU time, in seconds and microseconds, used by the statement that is currently executing.

Together with the other related CPU-time counters, it can help you understand the level of activity within an application and identify applications that could benefit from additional tuning. This counter includes time spent on SQL and non-SQL statements and on any fenced user-defined functions (UDF) or stored procedures executed by the application. System CPU represents the time spent in system calls. User CPU represents time spent executing database manager code.

**Note:** If this information is not available for your operating system, this counter is set to 0.

**Local: User CPU Time** The total user CPU time, in seconds and microseconds, used by the currently executing statement. Together with the other related CPU-time counters, it can help you understand the level of activity within an application and identify applications that could benefit from additional tuning. This counter includes time spent on SQL and non-SQL statements and on any fenced user-defined functions (UDF) or stored procedures executed by the application. System CPU represents the time spent in system calls. User CPU represents time spent executing database manager code.

**Most Recent Statement Elapsed Time** The elapsed execution time of the most recently completed statement. Use this counter as an indicator of the time that it takes for a statement to complete.

**MVSID** The MVS system identifier.

**Name** The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

**Number of Successful Fetches** For statement snapshot monitoring and the statement event type, this is the number of successful fetches performed on a specific cursor. For DCS statement snapshot monitoring, this is the number of attempted physical fetches during the execution of a statement regardless of how many rows were fetched by the application. That is, this counter shows the number of times the server needed to send a reply data back to the gateway while processing a statement. You can use this counter to gain insight into the current level of activity within the database manager.

**Outbound Application ID (Internal)** This ID is generated when the application connects to the DRDA host database. It is used to connect the DB2 Connect gateway to the host, while the application ID is used to connect a client to the DB2 Connect gateway. You can use this counter in conjunction with the Application ID counter to correlate the client and server parts of the application information. This ID is unique across the network.

**Outbound Application ID** This ID is generated when the application connects to the DRDA host database. It is used to connect the DB2 Connect gateway to the
host, while the application ID is used to connect a client to the DB2 Connect gateway. You can use this counter in conjunction with the Application ID counter to correlate the client and server parts of the application information. This ID is unique across the network.

**Outbound Blocking Cursor** Indicates whether blocking is used for data transfer from the DRDA server to the DB2 Connect gateway for a particular query. Using blocking for data transfer for a query can improve its performance. The SQL used for a query can affect the use of blocking and might require some modification.

**Outbound Bytes Received** The number of bytes received by the DB2 Connect gateway from the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers.

For a data transmission, this is the number of bytes received by the DB2 Connect gateway from the host during the processing of all the statements that used this number of data transmissions.

<table>
<thead>
<tr>
<th>Format</th>
<th>Example</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network.Logical Unit Name.Application instance</td>
<td>CAIBMTO.0SFDBM0.930131</td>
<td>Application ID is the displayable format of an actual SNA LUWID (logical unit-of-work ID) that flows on the network when an APPC conversation is allocated. APPC-generated application IDs are made up by concatenating the network name, the Logical Unit name, and the LUWID instance number, which creates a unique label for the client/server application. The network name and Logical Unit name can each be a maximum of 8 characters. The application instance corresponds to the 12-decimal-character LUWID instance number.</td>
</tr>
</tbody>
</table>

**Outbound Number of Bytes Sent** The number of bytes sent by the DB2 Connect gateway to the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers. For a data transmission, this is the number of bytes sent by the DB2 Connect gateway to the host during the processing of all the statements that used this number of data transmissions. Use this counter to measure the throughput from the DB2 Connect gateway to the host database. Use this counter to measure the throughput from the host databases to the DB2 Connect gateway.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Package Name** The name of the package that contains the SQL statement that is currently executing. You can use this counter to identify the application program and the SQL statement that is executing.
**Plan** The plan name.

**Query Cost Estimate** The estimated cost, in timerons, for a query, as determined by the SQL compiler. It allows correlation of actual run-time with the compile-time estimates.

In addition, it returns information for the following SQL statements when you are monitoring DB2 Connect.

- PREPARE represents the relative cost of the prepared SQL statement.
- FETCH contains the length of the row retrieved if the DRDA server is DB2 for OS/400.

If information is not collected for a DRDA server, this counter is set to zero.

**Note:** If the DRDA server is DB2 for OS/390 and z/OS, this estimate could be higher than 2**32 - 1 (the maximum integer number that can be expressed through an unsigned long variable). In that case, the value returned by the monitor for this counter is 2**32 - 1.

**Query Number of Rows Estimate** The estimated number of rows that is returned by a query.

This estimate by the SQL compiler can be compared with the run-time actuals. This counter also returns information for the following SQL statements when you are monitoring DB2 Connect.

- INSERT, UPDATE, and DELETE indicate the number of rows affected.
- PREPARE estimates the number of rows that are returned if the DRDA server is DB2 Universal Database, DB2 for VM and VSE, or DB2 for OS/400.
- FETCH sets to the number of rows fetched if the DRDA server is DB2 for OS/400.

If information is not collected for a DRDA server, this counter is set to zero.

**Section Number** The internal section number in the package for the SQL statement that is currently processing or has processed most recently.

For a static SQL, you can use this counter together with the creator, package version, and package name to query the SYSCAT.STATEMENTS system catalog table and obtain the static SQL statement text, using the sample query as follows:

```sql
SELECT SEQNO, SUBSTR(TEXT,1,120)
FROM SYSCAT.STATEMENTS
WHERE PKGNAME = 'package_name' AND PKGSHEMA = 'creator' AND VERSION = 'package_version_id' AND SECTNO = section_number
ORDER BY SEQNO
```

**Note:** This query can cause lock contentions. Therefore, try to use it only when there is little other activity against the database.

**Server Instance Name** The name of the database manager instance for which the snapshot was taken.

**Statement Operation** The statement operation that is currently being processed or has processed most recently (if none is currently running).
You can use this counter to determine the operation that is executing or recently finished. It can be one of the following.

- For SQL operations:
  - SELECT
  - PREPARE
  - EXECUTE
  - EXECUTE IMMEDIATE
  - OPEN
  - FETCH
  - CLOSE
  - DESCRIBE
  - STATIC COMMIT
  - STATIC ROLLBACK
  - FREE LOCATOR
  - PREP_COMMIT
  - CALL
  - PREP_OPEN
  - PREP_EXEC
  - COMPIL
  - For non-SQL operations:
    - RUN STATISTICS
    - REORG
    - REBIND
    - REDISTRIBUTE
    - GET TABLE AUTHORIZATION
    - GET ADMINISTRATIVE AUTHORIZATION

**Note:** API users should refer to the sqlmon.h header file containing definitions of database system monitor constants.

**Statement Start Timestamp** The date and time at which the statement operation started executing. You can use this counter with the SQL statements - Statement operation counter to calculate the elapsed statement operation execution time.

**Statement Stop Timestamp** The date and time at which the statement operation stopped executing. You can use this counter with the SQL statements - Statement operation counter to calculate the elapsed statement operation execution time.

**Elapsed Execution Time** For a DCS statement, this is the elapsed time spent processing an SQL request on a host database server. This value is reported by this server. In contrast to the Times - Host response time counter, this counter does not include the network elapsed time between DB2 Connect and the host database server. At other levels, this value represents the sum of the host execution times for all the statements that were executed for a particular database or application, or for those statements that used a given number of data transmissions.

**No. of Statements** The number of SQL statements that have been attempted since the latter of: application startup, database activation, or last reset. For a data transmission, this is the number of SQL statements that have been attempted against this DCS database or in this DCS application since the database was
activated, the connection to it was established by the application, or RESET MONITOR was issued against the database, and that used this number of data transmissions between the DB2 Connect gateway and the host during statement processing.

**No. of Transmissions** The number of data transmissions between the DB2 Connect gateway and the host that was used to process this DCS statement. One data transmission consists of one send or one receive.

**Time Spent on Gateway Processing** The time, in seconds and microseconds, at the DB2 Connect gateway to process an application request since the connection was established, or to process a single statement. Use this counter to determine what portion of the overall processing time is because of DB2 Connect gateway processing.

**Time Stamp** The start time of this interval.

**Uniqueness Value** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

**Uniqueness Value 2** The DB2 thread uniqueness value. For internal use.

**Storage Consumption Workspace:**

The Storage Consumption workspace provides an overview of DB2 DBM1 virtual storage, MVS storage and real storage.

This workspace is comprised of the following views:

**Key Indicators (table view)**

Shows the average size of the thread footprint and the projected maximum number of threads that you can run with the current storage configuration.

**DBM1 Storage below 2 GB with Cushion (table view)**

Shows the amount of virtual storage below 2 GB that is used by the DBM1 address space.

**DBM1 Storage below 2 GB with Cushion (bar chart)**

Shows the amount of virtual storage below 2 GB that is used by the DBM1 address space.

**MVS Storage (table view)**

Shows the amount of storage used by MVS.

**MVS Storage (bar chart)**

Shows the amount of storage used by MVS.

**Real Storage (table view)**

Shows the amount of real storage used by the main storage device and by the auxiliary storage device.

**Real Storage (bar chart view)**

Shows the amount of real storage used by the main storage device and by the auxiliary storage device.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli
Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to one of the following workspaces from the DBM1 Storage Consumption workspace. In your workspace, you will only see the link that corresponds to the version of DB2 that you are monitoring.

- If DB2 10 is installed, click the navigation link DB2 10 MVS Storage in the EDM Statistics view to open the “MVS Storage Below 2 GB Workspace” on page 750 workspace.

**DB2 Memory DBM1 or DIST Attributes:**
Use the attributes to view the DB2 memory for the database address space (DBM1 or DIST).

- **24 Bit High Private (MB)** Identifies the amount of private MVS storage below the 16 MB line (DB2 field name: QW0225HI). This storage is obtained from top downward, usually for authorized programs.

- **24 Bit Low Private (MB)** Identifies the amount of private MVS storage below the 16 MB line (DB2 field name: QW0225LO). This storage is obtained from bottom upward, usually for unauthorized programs.

- **31 Bit Extended High Private (MB)** Identifies the amount of private MVS storage above the 16 MB line (DB2 field name: QW0225EH). This storage is obtained from top downward, usually for authorized programs.

- **31 Bit Extended Low Private (MB)** Identifies the amount of private MVS storage above the 16 MB line (DB2 field name: QW0225EL). This storage is obtained from bottom upward, usually for unauthorized programs.

- **31 Bit Storage Reserved for MVS** Identifies the amount of storage available for operating system activity (DB2 field name: QW0225MV).

- **64 Bit Thread and System Only Aux (MB)** Shows the amount of auxiliary storage in use for 64-bit private pools. This does not include buffer pool storage (DB2 field name: QW0225PriStg_Aux). This field only includes auxiliary slots occupied by pages that are paged out. This field is available in z/OS 1.10 (and maintenance) or later.

- **64 Bit Thread and System Only Real (MB)** Shows the number of real-storage frames (4K) in use for 64-bit private pools. This is a subset of QW0225HVPagesInReal and does not include buffer pool storage (DB2 field name: QW0225PriStg_Real). This field is available in z/OS 1.10 (and maintenance) or later.

- **Address Space Name** Shows the address space name (DBM1 or DIST) (DB2 field name: QW0225AN).

- **Aux 31 Bit in Use** Shows the amount of auxiliary storage in use for 31-bit private pools. This value is available from z/OS V1.11.
Auxiliary Slots Used Shared Storage 64 Bit Shows the number of auxiliary slots used for 64-bit shared storage for this MVS LPAR (DB2 field name: QW0225SHRAUXSLOTS).

Auxiliary Storage in Use Shows the number of auxiliary slots that are in use. Each slot is 4 KB. This value is available from z/OS V1.11.

Auxiliary 4K Slot in Use 64 Bit Identifies the number of 4 KB auxiliary slots currently in use for 64-bit private storage. This value includes reserved auxiliary slots for pages that are paged in (DB2 field name: QW0225HVAUXSLOTS). This value is available from z/OS V1.11.

Available 31-Bit Storage Shows the total amount of storage available for storage manager pools (DB2 field name: QW0225AV).

Avg Thread Footprint (MB) Shows the current average memory usage of active user threads (allied threads and DBATs).

Average Thread Footprint private real Shows the current average real storage in use for private DBM1 storage of active user threads (allied threads + active and pooled DBATs).

Average Thread Mem Usage Type 2 Shows the current average memory usage of active allied threads and the maximum number of active DBATs that existed. The formula used for this value is suited for Enterprise Resource Planning (ERP) systems.

Castout Buffers (MB) Shows the total storage for buffers needed for all castout engines. It is calculated as follows: (castout engines) * 128 * 1024.

Current Private High Addr 24 Bit Identifies the current high address of the 24-bit private region (DB2 field name: QW0225TP). It indicates the highest value (upper limit) of the private area of the DB2 database address space and the private area of the distributed data address space.

Current Private High Addr 31 Bit Identifies the current high address of the 31-bit private region (DB2 field name: QW0225EP).

Data Sharing Group The name of the DB2 data sharing group. It is an alphanumeric text string with a maximum of 8 characters.

Data Sharing Member The name of the DB2 data sharing member or the member name of the DB2 subsystem. It is an alphanumeric text string with a maximum of 8 characters.

DB2 Subsystem The name of the DB2 subsystem.

DB2 Version The version of the DB2 system.

Fixed Storage (MB) Identifies the total amount of fixed storage (DB2 field name: QW0225FX).

Fixed Storage above (MB) Identifies the total amount of fixed storage above the 2 GB bar (DB2 field name: QW0225FA).
Getmained Storage (MB) Identifies the total storage acquired by GETMAIN (DB2 field name: QW0225GM). This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, hiperpool control blocks, and data space buffer pool control blocks. This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Getmained Storage above (MB) Identifies the total storage acquired by GETMAIN (DB2 field name: QW0225GA). This includes space for the compression dictionary, and statement and DBD cache that can be used by the Environmental Descriptor Manager (EDM). This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Getmained Stack Storage (MB) Identifies the total GETMAINED storage allocated for program stack use (DB2 field name: QW0225GS). This includes total getmained stack storage, total 64-bit shared system agent stack, and total 64-bit shared non-system agent stack.

HWM Auxiliary 4K Slot in Use 64 Bit Shows the high water mark of auxiliary storage in use for 64-bit private pools. This value is available from z/OS V1.11.

HWM 64 bit real storage in use MB Shows the high water mark of real storage in use for 64-bit private pools. This value is available from z/OS V1.11.

Interval Start The start time of this interval.

Max Extended Region Size (MB) Identifies the maximum amount of MVS private storage available above the 16 MB line (DB2 field name: QW0225RG).

Max Number of Threads The maximum number of possible threads. It depends on the storage size and average memory usage of active user threads.

Max Number Possible Type 2 Threads The maximum number of possible threads. It depends on the storage size and average memory usage of active allied threads and the maximum number of active DBATs that existed.

MVS System ID The MVS system identifier.

Number of Real Frames in Use Identifies the amount of real-storage frames in use for 31-bit and 64-bit private pools (DB2 field name: QW0225RL).

Originating System ID The managed system name of the agent. It is an alphanumeric text string with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Real 31 bit in use (MB) Shows the amount of real storage in use for 31-bit private pools. This value is available from z/OS V1.11.

Real 64 bit in use (MB) Shows the amount of real storage in use for 64-bit private pools. This value is available from z/OS V1.11.

Real 4K Frame in Use Shows the amount of real storage in use for 31-bit and 64-bit private pools; prior to DB2 10, it shows the real storage used by DBM1, in megabytes.
Stack Storage In Use (MB) The amount of stack storage which is in use; this includes total stack storage in use, total 64-bit shared system agent stack in use, and total 64-bit shared non-system agent stack in use (DB2 field name: QW0225SU).

Storage Manager Control Block (MB) Identifies the total 64-bit storage allocated for storage manager control structures (DB2 field name: QW0225SM). This includes total 64-bit private storage for storage manager control structures, total 64-bit common storage for storage manager control structures, and total 64-bit shared storage for storage manager control structures.

Stor Res Must Complete Identifies the storage reserved for operation that must complete before DB2 is allowed to stop (DB2 field name: QW0225CR).

Storage Cushion Warning to Contract Storage cushion warning to contract (DB2 field name: QW0225SO).

Storage Cushion (MB) Identifies the storage reserved to allow DB2 to complete critical functions while short on storage. This includes the contract warning cushion, storage reserved for must-complete operations, and storage for MVS use.

Total 31-bit stack in use for system agents Shows the amount of 31-bit stack storage that is in use for system agents (DB2 field name: QW0225SS). This is a subset of QW0225SU.

Total Storage Below (MB) Shows the total DBM1 storage below 2 GB.

Total Storage Below (MB) Shows the total DIST storage below the bar.

Variable Storage (MB) The total variable storage available below the 31-bit bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225VR).

Variable Storage Above (MB) Identifies the total variable storage available above the 31-bit bar (DB2 field name: QW0225VA).

Storage Consumption Attributes:
Use the Storage Consumption attributes to assess storage consumption issues for your DB2 version.

Agent Local Storage (MB) The amount of storage, in MB, allocated for agent-related local storage. This storage is used for operations such as sort. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225AL).

Agent System Storage (MB) The storage used by system agents. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225AS).

Auxiliary Storage in Use (MB) The auxiliary storage used by DBM1, in megabytes. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225AX).

Average Thread Footprint (MB) The current average memory usage of active allied threads and the maximum number of existing active DBATs. It is an alphanumeric text string with a maximum of 10 characters.

It is calculated as follows:
[(total variable storage) 
- (total agent system storage) 
- (amount of storage allocated for the local cache storage pool)] 
/ [(active allied threads) + (active DBATs)]

**Buffer Manager Data Manager Trace Table (MB)** The storage used for Buffer Manager and Data Manager internal trace tables. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225TT).

**Buffer Manager Storage CNTL Blocks (MB)** The storage used for Buffer Manager Control Blocks. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225BB).

**Castout Engines** The number of engines available for data-sharing castout processing. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225CC).

**Compression Dictionary (MB)** The storage space, in megabytes, allocated for the compression dictionary. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225CD).

**DBM1 Storage (MB)** The total DBM1 storage. Valid value is an integer in the range 0 - 999999.

This includes:
- Fixed length storage use
- Getmained storage
- Save areas
- Variables

It is calculated as follows:

(total getmained storage) 
+ (total variable storage) 
+ (total fixed storage) 
+ (total getmained stack storage)

**Castout Buffers (MB)** The total storage for buffers needed for all castout engines. Valid value is an integer in the range 0 - 999999.

It is calculated as follows:

(castout engines) * 128 * 1024

**DB2ID** The name of a DB2 subsystem.

**DB2 Version** The version of the DB2 system.

**Deferred Write Engines** The number of engines used for deferred write operations. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225DW).
Extended CSA Size (MB) The size of the common storage area (CSA) above the 16 MB line. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225EC).

Fixed Storage above (MB) The total amount of fixed storage above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225FA).

Fixed Storage (MB) The total amount of fixed storage. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225FX).

Fixed Virtual 64 Bit Shared (MB) The amount of total fixed virtual shared storage above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SF).

GBP Write Engines The number of engines for group buffer pool writes. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225GW).

Getmained Stack Storage (MB) The total GETMAINEd storage allocated for program stack use. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225GS).

Getmained Storage above (MB) The total storage acquired by GETMAIN above the 2 GB bar. This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, hiperpool control blocks, and data space buffer pool control blocks. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225GA).

Getmained Storage (MB) The total storage acquired by GETMAIN. This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, hiperpool control blocks, and data space buffer pool control blocks. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225GM).

Getmained Virtual 64 Bit Shared (MB) The amount of virtual shared storage acquired by GETMAIN above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SG).

Interval Start The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Local Dynamic Statement Cache Control Blocks The storage for local dynamic statement cache blocks. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SB).

Max Extended Region Size (MB) The maximum amount of MVS private storage available above the 16 MB line. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225RG).

Maximum Number of Threads The maximum number of possible threads. This depends on the storage size, the average memory usage of active user threads, and the maximum number of existing active DBATs. It is an alphanumeric text string with a maximum of 10 characters.

It is calculated as follows:
{(extended region size) - (31 bit extended low private)
- minimum (extended region size / 8, 200 * 1024 * 1024)
- [(total getmained storage) + (total getmained stack storage) + (total fixed storage)]
/ (average thread footprint)

MVS System ID The MVS system identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Pipe Manager Subpool Storage (MB) The storage allocated to Pipe Manager for parallel query operations. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225PM).

P-Lock Notify Exit Engines The number of engines for data sharing P-lock/notify exit engines. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225PL).

Prefetch Engines The number of engines used for sequential, list, and dynamic prefetch. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225PF).

RDS OP Pool Storage (MB) The storage for RDS operations pool used for sort, prepare, and so on. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225RO).

Real Storage in Use (MB) The real storage used by DBM1, in megabytes. Valid value is an integer in the range 0 - 999999.

RID Pool Storage (MB) The storage for RID list processing, such as list prefetch, index ANDing, and ORing. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225RP).

Shared Memory Storage (MB) The amount of virtual shared memory storage above the 2 GB bar. Valid value is an integer in the range 0 - 999999.

Stack Storage In Use (MB) The amount of stack storage which is in use. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SU).

Storage Cushion (MB) The storage reserved to allow DB2 to complete critical functions while short on storage. This includes the contract warning cushion, storage reserved for must-complete operations, and storage for MVS use. Valid value is an integer in the range 0 - 999999.

Thread Copies of Cached SQL (MB) The amount of storage allocated for the local cache storage pool. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SC).

Thread Copies of Cached SQL above HWM for Allocated Statements (MB) The statistics interval high-water mark (HWM) of allocated storage for thread copies in the local cache storage pool above the 2 GB bar. This is a subset of the counter Thread Copies of Cached SQL Statement Count. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225H2).
Thread Copies of Cached SQL above In Use (MB) The amount of storage used for thread copies in the local cache storage pool above the 2 GB bar. This is a subset of the counter Thread Copies of Cached SQL Statement Count. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225L2).

Thread Copies of Cached SQL above (MB) The amount of storage allocated for the local cache storage pool above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225S2).

Thread Copies of Cached SQL Date at High Water Mark The timestamp at high-water storage (DB2 field name: QW0225HT).

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

Thread Copies of Cached SQL HWM for Allocated Statements (MB) The statistics interval high-water mark of the allocated storage for thread copies in the local cache storage pool. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225HS).

Thread Copies of Cached SQL In Use (MB) The amount of storage used for thread copies in the local cache storage pool. This is a subset of the total allocated storage for thread copies. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225LS).

Thread Copies of Cached SQL Statement Count The number of statements in the local cache storage pool. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225LC).

Thread Copies of Cached SQL Statement Count at High Water Mark The number of statements in the local cache storage pool at high storage time. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225HC).

Variable Storage (MB) The total storage used by all variable pools. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225VR).

This includes storage used by:
- System agents
- Local agents
- RID pool
- Pipe manager subpool
- Local dynamic statement cache control blocks
- Local dynamic statement cache statement pool
- Buffer and data manager trace tables
Variable Storage above (MB) The amount of variable storage available above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225VA).

Variable Virtual 64 Bit Shared (MB) The amount of virtual shared variable storage above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SV).

24 Bit High Private (MB) The amount of private MVS storage below the 16 MB line. This storage is obtained from top downward, usually for unauthorized programs. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225HI).

24 Bit Low Private (MB) The amount of private MVS storage below the 16 MB line. This storage is obtained from bottom upward, usually for unauthorized programs. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225LO).

31 Bit Extended High Private (MB) The amount of private MVS storage above the 16 MB line. This storage is obtained from top downward, usually for authorized programs. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225EH).

31 Bit Extended Low Private (MB) The amount of private MVS storage above the 16 MB line. This storage is obtained from bottom upward, usually for unauthorized programs. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225EL).

Subsystem Management Workspace:

The Subsystem Management workspace provides an overview of workload related information about the DB2 subsystem that you are monitoring.

This workspace is comprised of the following views:

Background Utilization (needle gauge)  
Shows the percentage of available threads being used for background connections.

Foreground Utilization (needle gauge)  
Shows the percentage of available threads being used for foreground connections.

Subsystem Management Statistics (table view)  
Lists total counts, counts during the last sample period, and the "per second" count for a variety of subsystem requests, abends, and thread statuses associated with the System Resource Manager (SRM) system.

Subsystem Management Summary (table view)  
Lists thread availability and usage statistics for foreground and background connections.

Thread Events Approaching Max (bar chart view)  
Shows the utilization of the thread events for foreground and background connections.

Thread Events High Water Mark (bar chart view)  
Shows the high-water marks for thread events for foreground and background connections.
Thread Events (bar chart view)
-- Shows information on the thread events for foreground and background connections.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

System Status Workspace:

The System Status workspace reflects the health of your DB2 system.

This workspace is comprised of the following views:

System Key Events (table view)
-- Shows the system key events.

System Key Events (bar chart)
-- Shows the system key events.

DDF Send Rate (needle gauge)
-- Reports the send rate of the Distributed Data Facility (DDF).

DDF Receive Rate (needle gauge)
-- Reports the receive rate of the Distributed Data Facility (DDF).

Thread Events Approaching Max (bar chart view)

EDM Utilization (needle gauge)
-- Reports the number of current EDM pages divided by total EDM pages for DB2 9 or below. For DB2 10 or later, it reports the number of current DBD pages divided by total DBD pages.

DBAT Wait Percent (needle gauge)
-- Shows the percentage of threads that are waiting for database services.

System State Information (table view)
-- Provides activity and performance details of your DB2 system.

Operating System CPU (table view)
-- Provides CPU information about the operating system.

Operating System CPU Utilization (bar chart)
-- Provides CPU information about the operating system.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
DB2 System States Attributes:
Use the DB2 System States attributes to create situations to monitor system-level performance and exception alerts.

Active Stored Procedures The number of stored procedures currently executing.

Active Triggers The number of triggers currently executing.

Active User Functions The number of user defined functions currently executing.

Allowed locks per TS The default (SYSTEM) for the LOCKMAX clause of the SQL statements CREATE TABLESPACE and ALTER TABLESPACE. Install parameter LOCKS PER TABLESPACE on panel DSNTIPJ, or ZPARM NUMLKTS in DSN6SPRM.

Archive Device The CCUU address of the device that is to be used for mounting the tape. It is an alphanumeric text string, with a maximum length of four characters.

Archive DSN The data set name of the archive file being waited on. It is an alphanumeric text string, with a maximum length of 44 characters.

Archive Volser The volser for tape volume being waited on. It is an alphanumeric text string, with a maximum length of six characters.

ASIDs Stored Procedures The number of unique active threads executing stored procedures.

ASIDs User Functions The number of ASIDs executing user functions.

Bytes written to log The log rate for the active log data sets in MB per second. This figure is valid for dual logging. If single logging is used, multiply the value shown by 2. This rate is MB/sec at which data is written to the active log data set. It was calculated by multiplying QJSTCWR (label LOG CI WRITTEN (LOG1&2)) by 4096, then dividing the result by (1024 * 1024 * statistics-interval-seconds * 2).

When the value exceeds 10MB/sec per log copy, you should examine I/O tuning of log data sets; for example, using faster log devices and/or I/O striping, using variable-length or compressed log record layouts to reduce log data size.

CF global contention The total number of suspends because of contention divided by the total number of synchronous requests that went to XES, and the lock requests that were converted from synchronous to asynchronous locks, and the locks because of child lock propagation. If multiple members from the same data sharing group run on the same LPAR, the global contention rate should be ignored for a member where the QTGSFCON flag is zero. The QTGSFCON flag indicates whether the false contention is reported at the subsystem (=1) or LPAR level (=0).

Checkpoint freq Checkpoint frequency. This shows either the number of minutes (1 through 60) or the number of DB2 log records between the start of successive checkpoints. DB2 starts a new checkpoint when this value is reached. You can use the SET LOG command to change the number of log records between checkpoints dynamically. Valid values are 1-60 when specifying a time value and 200-16000000 when specifying a number of records. Install parameter CHECKPOINT FREQ on panel DSNTIPL, ZPARM CHKFREQ in DSN6SYSP.
Class castout thresh reached The number of times group buffer pool castout was initiated because the group buffer pool class castout threshold was detected. The class castout threshold is one of two group buffer pool thresholds. In most cases the default value for the class threshold (10 percent) is a good choice. Depending on your workload, altering this value can reduce DASD contention during castout.

Current Open Data Set The current number of open data sets.

Current Thread Count The current number of active threads.

DB2 ID The name of a DB2 subsystem.

DB2 version The DB2 version.

DB Wait Percent The percentage of threads that are waiting for database services. Valid entry ranges from 0.0 to 100.0.

Deadlocks The number of times deadlocks were detected. This number should be low, ideally 0. Deadlocks occur when two or more application processes each hold locks on resources that the others need, without which they cannot proceed. Ensure that all applications accessing the same tables access them in the same order. Deadlocks can also occur through index page splits if there is high insert activity. In this case, the recommendation is to set SUBPAGES to 1 for the index. This field is incremented once for each deadlock encountered. There is no correlation between this field and the deadlock events reported in the Locking report set or the number of IFCID 172 records written. This field reports all deadlocks, regardless of how they were resolved. The locking report and record trace IFCID 172 show only those deadlocks that were resolved by DB2.

Dist DB Inactive The state will be true if this DB2 system is not enabled for the Distributed Data Facility (DDF). It is an alphanumeric text string, with a maximum length of one character.

Dist Receive Rate The DDF Receive bytes per second in units of 1,000.

Dist Send Rate The DDF Send bytes per second in units of 1,000.

DM critical thresh reached The number of times the deferred write threshold (DWTH) was reached. This threshold is a percentage of the virtual buffer pool that might be occupied by unavailable pages, including both updated pages and pages in use. DB2 checks this threshold when an update to a page is completed. If the percentage of unavailable pages in the virtual buffer pool exceeds the threshold, write operations are scheduled for enough data sets (up to 128 pages per data set) to reduce the number of unavailable buffers to 10% below the threshold.

DSC active Indicates whether prepared dynamic SQL statements are saved for later use by eligible application processes in the EDM pool. Install parameter CACHE DYNAMIC SQL on panel DSNTIP8, or ZPARM CACHEDYN in DSN6SPRM.

DSC size The size of the statement cache that can be used by the Environmental Descriptor Manager (EDM). This value is used at DB2 startup time as the minimum value. You can increase and subsequently decrease this value with the SET SYSPARM command. This value cannot be decreased below the value that is specified at DB2 startup. The CLIST calculates a statement cache size. This storage pool is located above the 2 GB bar. The value used at DB2 startup time is either
calculated by the CLIST based on input from other installation information or an
override value. For record trace, this value is shown in bytes. Install parameter
EDM STATEMENT CACHE on panel DSNTIPC, or ZP ARM EDMSTMTC in
DSN6SPRM.

**DSMAX** The maximum number of open data sets allowed to be specified in
DSNZP ARM.

**DSMAX Utilization** The number of data sets opened is approaching the maximum
number of open data sets defined by the DSMAX parameter in DSNZP ARM.

**DWQT reached** The number of times the deferred write threshold (DWTH) was
reached. This threshold is a percentage of the virtual buffer pool that might be
occupied by unavailable pages, including both updated pages and pages in use.
DB2 checks this threshold when an update to a page is completed. If the
percentage of unavailable pages in the virtual buffer pool exceeds the threshold,
write operations are scheduled for enough data sets (up to 128 pages per data set)
to reduce the number of unavailable buffers to 10% below the threshold.

**EDM Current Pages** The current number of EDM pages (DB2 9 or below) or the
current number of DBD pages (DB2 10 or later) that are used.

**EDM Pool full** The total number of failures because the EDM pool or EDM pool
was full.

**EDM Total Pages** The total number of pages allocated for the EDM pool (DB2 9 or
below) or the total number of pages allocated for the DBD pool (DB2 10 or later).

**EDM Utilization** The current EDM pages divided by total EDM pages (DB2 9 or
below) or the current DBD pages divided by total DBD pages (DB2 10 or later).

**GBP castout thresh reached** The number of times a group buffer pool castout was
initiated because the group buffer pool castout threshold was detected. The GBP
castout threshold, GBP class castout threshold, and the length of the GBP
checkpoint interval determine the castout characteristics of the group buffer pool.
You can consider this threshold a safety margin to protect the group buffer pool
from being accidentally flooded by overactive applications. In most situations, the
default value for the group buffer pool castout threshold of 50 percent is a good
choice. Use the ALTER GROUPBUFFERPOOL command to tune the group buffer
pool thresholds. A value near to 100 indicates that in most cases DB2 found
skeleton copies of prepared statements in global dynamic cache and could perform
short prepares. A value near to 0 indicates that in most cases skeleton copies of
prepared statements were not found in global dynamic cache and full prepares
were performed.

**Global cache hit ratio** The ratio of successful search requests for prepared
statements from the global dynamic SQL cache. This indicates the effectiveness of
the global dynamic SQL cache in the EDM pool.

**Global Trace Active** The state will be true if this DB2 system currently has the
global tracing active. It is an alphanumeric text string, with a maximum length of
one character.

**Group or Subsystem Name** The DB2ID or data sharing group name. It is an
alphanumeric text string with a maximum of 8 characters; for example, TDB241G.
**Group Object Analysis Status** The status of the Event Manager for Object Analysis.

Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIX</td>
<td>Some Event Managers are active</td>
</tr>
<tr>
<td>NO</td>
<td>Event Manager is not active</td>
</tr>
<tr>
<td>YES</td>
<td>Event Manager is active</td>
</tr>
</tbody>
</table>

**Group or Subsystem Type** Indicates whether a group or subsystem is a DB2 or a data sharing group.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>DB2 subsystem</td>
</tr>
<tr>
<td>DSGRP</td>
<td>Data sharing group</td>
</tr>
</tbody>
</table>

**Incomp retained locks** The number of global lock or change requests denied or suspended due to an incompatible retained lock.

**In Doubt Threads** The number of threads that are in an INDOUBT status.

**Indoubt-URs** The number of indoubt units of recovery. A unit of recovery is indoubt when a failure occurs after a successful prepare but before a successful commit. The failure can occur in the address space of the application, the transaction manager, DB2, or all of these. IMS and CICS applications use the prepare and commit sequence to commit work. Ideally, this value should be 0.

**Interval Time** The number of seconds since last sample.

**Lock Conflict Count** The total number of owners and waiters that are in lock conflict. Valid value is an integer in the range 0 - 99999999.

**Lock Escalations** Number of all types of lock escalations.

**Lock Escalation Exclusive** The number of times that the allowable number of locks per table space was exceeded resulting in page (IX) lock to escalate to table or table space lock in exclusive mode.

**Lock Escalation Rate** The number of lock escalations (exclusive and shared) per second in this interval.

**Lock Escalation Shared** The number of times that the allowable number of locks per table space was exceeded, resulting in page (IS) lock to escalate to table or table space lock in shared mode.

**Max active DBATs** The maximum number of database access threads (DBATs) that can be active concurrently. The maximum number of database access threads (DBATs) that can be active concurrently. When this limit has been reached, DB2 uses the value of DDF THREADS on panel DSNTIPR to decide how to handle a new allocation request. When DDF THREADS is ACTIVE and MAX REMOTE
CONNECTED has not been reached, the allocation request is allowed but any further processing for the connection is queued waiting for an active database access thread to terminate. When DDF THREADS is INACTIVE and MAX REMOTE CONNECTED has not been reached, the allocation request is allowed and is processed when DB2 can assign an unused database access thread slot to the connection. The total number of threads accessing data concurrently is the sum of MAX USERS and MAX REMOTE ACTIVE. The maximum allowable value for this sum is 2000. Install parameter MAX REMOTE ACTIVE on panel DSNTIPE, or ZPARM MAXDBA in DSN6SYSP.

**Max Batch users** The maximum allowed number of concurrent connections for batch jobs and utilities. This includes:

- All batch jobs using QMF.
- All batch jobs using the DSN command processor.
- All tasks connected to DB2 through call attach facility (CAF) running in batch.
  - This can include:
    1. Batch jobs using QMF
    2. APPC applications
    3. TCP/IP FTP connections

Install parameter MAX USERS on panel DSNTIPE, or ZPARM CTHREAD in DSN6SYSP.

**Max DB2 allied users** The maximum number of allied threads (threads started at the local subsystem) that can be allocated concurrently. Separate threads are created for each occurrence of the following:

- TSO user (whether running a DSN command or a DB2 request from QMF)
- Batch job (whether running a DSN command or a DB2 utility)
- IMS region that can access DB2
- Active CICS transaction that can access DB2
- Task connected to DB2 through the call attachment facility

Install parameter MAX USERS on panel DSNTIPE, or ZPARM CTHREAD in DSN6SYSP.

**Max degree** Indicates the upper limit on the degree of parallelism for a parallel group. This field has a value of 0. This means PARAMDEG is not set and DB2 can set a default maximum degree of parallelism based on the system configuration.

Install parameter MAX DEGREE on panel DSNTIP8, or ZPARM PARAMDEG in DSN6SPRM.

**Max opened DS** The maximum number of data sets that can be open at one time. The practical limit can be less than the MVS limit of 32727, depending on available storage below the line. Install parameter DSMAX on panel DSNTIPC, or ZPARM DSMAX in DSN6SPRM.

**Max kept dyn stmt** Shows the total number of prepared dynamic SQL statements that are saved past a commit point. 0 means that prepared dynamic SQL statements are not saved past commit points. Install parameter MAX KEPT DYN STMTS on panel DSNTIPE, or ZPARM MAXKEEPD in DSN6SPRM.

**Max size of EDM Pool** The size (in kilobytes) of the environmental descriptor manager (EDM) pool. This can be the value calculated by the CLIST, based on
input from previous panels, or the value entered in the Override column at installation time. Install parameter EDMPOOL STORAGE SIZE on panel DSNTIPC, or ZPARM EDMPOOL in DSN6SPRM.

**Max TSO users** The maximum number of concurrent TSO foreground connections (QMF, DSN, DB2I, and SPUFI). Each of the following is a separate user:
- Each TSO foreground user executing a DSN command.
- Each TSO foreground user connected to DB2 through the call attachment facility (CAF). This can include QMF users running in TSO foreground or user-written CAF applications running in TSO foreground.

When the number of TSO users attempting to access DB2 exceeds this limit, connection requests are rejected. There is no subsystem parameter to control the maximum concurrent connections for IMS and CICS. These are controlled by using IMS and CICS facilities. For CICS attachment, the maximum number of connections to DB2 can be controlled using the resource control table (RCT) TYPE=INIT THRDMAX value. Install parameter MAX TSO CONNECT on panel DSNTIPE, or ZPARM IDFORE in DSN6SYSP.

**Merge error BP shortage** The total number of work files that were rejected during all merge passes because of insufficient buffer resources. This field and the degraded low buffers field determine the average number of work files that cannot be honored at each merge pass because of insufficient buffer pool space. Ideally, the number in this field should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are too many concurrent work files. For example, there could be a number of concurrently open cursors that require sorting. Consider increasing the size of the buffer pool using the ALTER BUFFERPOOL command. Note that, when there are many concurrent sorts or large sorts, it is a good idea to dedicate a separate buffer pool for sort work files. This will greatly facilitate work-file performance tuning.

**Migrated DS timed out** The number of recall timeouts.

**MVS System** An ID for the MVS System Management Facility (SMF). It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**No QP BP shortage** The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool.

**No QP no MVS enclave serv** The total number of parallel groups that executed in sequential mode due to the unavailability of MVS/ESA enclave services.

**Nonstealable pages** Percentage of non-stealable pages in use.

**Number of Active DBATs** The current number of active and disconnected (pooled) DBATs.

**Number of batch users** The number of connections to a single instance from batch or TSO background tasks.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of GBP Connections** The total number of Group Buffer Pool (GBP) Connections.
**Number of TSO users** The number of connections to a single instance from TSO foreground tasks.

**Object Analysis DB Count** The total number of monitored databases in a specific data sharing group that are participating in object analysis. Valid value is an integer in the range 0 - 4999.

**Open DS thresh reached** The number of data sets that were closed because the total number of open data sets reached the deferred close threshold value. The deferred close value is based on the value of DSMAX or the MVS DD limit (whichever is smaller).

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Output buffer full** The number of waits caused by an unavailable output log buffer. When DB2 wants to write a log record and the log buffer is not available, DB2 and the application must wait for an available log buffer.

**Output buffer size** The output log buffer size in kilobytes. There is only one output log buffer per DB2 subsystem. Increasing this parameter reduces BSDS I/O updates when there is a buffer wraparound. Frequent wraparounds are likely in LOAD or REORG with logging, and mass insert operations. Increasing this parameter also helps avoid log write waits for an available buffer during heavy update workload. When the specified size is not a 4KB multiple, it is rounded up to the next 4 KB multiple. Install parameter OUTPUT BUFFER on DSNTIPL, or ZPARM OUTBUFF in DSN6LOGP.

**Pages castout** The number of times a group buffer pool castout was initiated because the group buffer pool castout threshold was detected. The GBP castout threshold, GBP class castout threshold, and the length of the GBP checkpoint interval determine the castout characteristics of the group buffer pool. You can consider this threshold a safety margin to protect the group buffer pool from being accidentally flooded by overactive applications. In most situations, the default value for the group buffer pool castout threshold of 50 percent is a good choice. Use the ALTER GROUPBUFFERPOOL command to tune the group buffer pool thresholds.

**Pages read from BPs** The number of Getpage requests including conditional and unconditional requests.

**Pages read from DASD** The number of synchronous read I/O operations performed by DB2 for applications and utilities. This number includes both Synchronous Reads Sequential Access Only (QBSTSIO) and synchronous read operations for non-sequential access. You can use this value and the value of Synchronous Reads Sequential Access Only to calculate the number of Non-Sequential Synchronous Reads. Check the buffer pool hit ratio if the number of non-sequential synchronous reads is larger than expected.

**Resource Timeout** The number of seconds before a timeout is detected. This is an integer multiple of DEADLOCK TIME on panel DSNTIPJ. Timeout means that a lock request has waited for a resource (or for claims on a resource for a particular claim class to be released) longer than this time. For data sharing, the actual timeout period is longer than the timeout value. Install parameter RESOURCE TIMEOUT on panel DSNTIPL, or ZPARM IRLMRWT in DSN6SPRM.
Resource unavailable The number of read accesses delayed due to unavailable resources. Generally, this can be due to insufficient tape units allocated. If this is so, reissue the SET ARCHIVE command and use a higher value for the count parameter. Another (although unlikely) cause is insufficient archive log read service task availability.

Resync attempted The number of resynchronization connections attempted with all remote locations (two-phase commit operations only). A large value can indicate network or system problems.

RID Pool size The size of the RID pool in bytes.

RID Pool size too small The number of times the maximum RID pool storage was exceeded. The size is determined by the installation parameter RID POOL SIZE (DB2 install panel DSNTIPC). It can be 0, or between 128 KB and 10 GB. The general formula for calculating the RID pool size is: (Number of concurrent RID processing activities) x (average number of RIDs) x 2 x (5 bytes per RID).

RIDPool Fail No Storage Due to insufficient storage for the candidate RID lists, DB2 was unable to use more than one index when accessing a DB2 table.

RIDPool Fail No Storage Rate The number of RIDPOOL fallbacks per second in this interval.

SMF overruns The total number of SMF buffer overruns. Ideally, this field should be 0 or very small.

Sort degraded BP too small The number of times that a merge pass was not efficiently performed due to a shortage of space in the buffer pool. The number in this field is incremented for each merge pass where the maximum number of work files allowed is less than the number of work-files requested. The maximum number of work files allowed is calculated as follows: Buffers consumed = 2*(work files already allocated); Buffers available = (sequential steal threshold * buffer pool size - buffers consumed); Maximum work files allowed = buffers available / (2 * 8); Ideally, the number in this field should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are too many concurrent work files. For example, there could be a number of concurrently open cursors that require sorting. Consider increasing the buffer pool size using the ALTER BUFFERPOOL command.

Sort error BP shortage The number of times a work file could not be created due to insufficient buffer resources. It indicates that a sort is in progress and limited in regard to the number of work files it can use. Ideally, this should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are many concurrent work files. For example, there could be a number of open cursors that require sorting. Generally, sorts are performed more efficiently with additional work files, but there are internal DB2 limits on the number of work files a transaction can have. It is possible that at run time a transaction cannot use as many work files as it had planned. You can control this by increasing the buffer pool size (ALTER BUFFERPOOL), or changing the transaction so it requires fewer concurrent work files.

SP abends The number of times a stored procedure terminated abnormally.

SP start failed/rejected The number of times an SQL CALL statement was rejected due to the procedure being in the STOP ACTION(REJECT) state.
**SP timed out** The number of times an SQL call timed out waiting to be scheduled.

**Status** Indicates whether a DB2 subsystem or data sharing group for a monitored entity is operational. Valid values are OFFLINE or ONLINE.

**Tape volume contention** The number of read accesses that were delayed because of a tape volume contention when only one reader per tape is possible.

**Threads Wait Limit** The number of inactive connections waiting because the system thread limit (MAXDBAT) has been reached: If CONQUED is less than or equal to DSCDBAT and CONQUED is less than or equal to (MDBAT-ADBAT), inactive connections waiting equals to 0, otherwise inactive connections waiting equals to CONQUED - (MDBAT-ADBAT+DSCDBAT); refer to the DB2 DISPLAY DDF DETAIL command for the field names.

**Threads Wait Lock** The number of threads in a suspend state because they are waiting to obtain a lock.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is **CYYMMDDHHMSSmmm** (as in 1180315064501000 for 03/15/18 06:45:01) where:
- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

**Timeouts** The number of times a unit of work was suspended for a time exceeding the timeout value. This number should be low, ideally 0.

**Transactions per second** The number of successful requests for commit phase 1 in a two-phase commit environment such as CICS or IMS. It includes successfully prepared agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF). It does not include successful single-phase commits or distributed two-phase commits. IMS and CICS applications use the PREPARE and COMMIT sequence to commit work.

**Trigger Depth** The depth of the largest trigger stack.

**UDF abended** The number of times a user-defined function abended.

**UDF start failed/rejected** The number of times a user-defined function was rejected.

**UDF timed out** The number of times a user-defined function timed out while waiting to be scheduled.

**Users Waiting Threads** The count of users waiting for threads.
**Wait Tape Mount** The state will be true if the DB2 system is waiting on a tape mount to recover from an archive log. It is an alphanumeric text string, with a maximum length of one character.

**Write failed no storage** The number of coupling facility write requests that could not complete due to a lack of coupling facility storage resources. It is an alphanumeric text string, with a maximum length of one character.

**ZOS CPU Utilization Attributes:**
Use the ZOS CPU Utilization attributes to determine how much of your processor is used by DB2.

**Note:** Parameter ZOSMETRICS must be set to YES for enabling DB2 to retrieve data from the RMF interface. If ZOSMETRICS is not set to YES, you might see negative Operating System CPU data. ZPARM ZOSMETRICS in DSN6SPRM.

**CPU Utilization DB2** The percentage of the processor used by the DB2 subsystem; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

**CPU Utilization DB2 DBM1** The percentage of the processor used by the DB2 DBM1 address space; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

**CPU Utilization DB2 MSTR** The percentage of the processor used by the DB2 MSTR address space; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

**CPU Utilization LPAR** The average processor usage per LPAR; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

**DB2ID** The name of a DB2 subsystem.

**DB2 Version** The version of the DB2 system.

**Free Real Storage LPAR (MB)** The free real storage on the logical partition (LPAR), in MB.

**Free Virtual Storage LPAR (MB)** The free virtual storage on the LPAR, in MB.

**Interval Start** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

**MVS System ID** The MVS system identifier.

**Number of CPU on LPAR** The number of processors on the LPAR; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.
Page-in Rate LPAR The Page-in Rate in percents for the LPAR.

Page-in Rate DB2 The Page-in Rate in percents for the DB2 subsystem.

Real Storage non LPAR (MB) The total real storage on the LPAR, in MB.

RMF API Reason Code The reason code from the RMF API call.

RMF API Return Code The return code from the RMF API call.

RMF API Status Flag The status flag for the Resource Measurement Facility (RMF) API call.

Unreferenced Interval Count The unreferenced interval count.

Used Free Real DB2 (MB) The real storage used by the DB2 subsystem, in MB.

Used Virtual Storage DB2 (MB) The virtual storage used by the DB2 subsystem, in MB.

Virtual Storage LPAR (MB) The total virtual storage on the LPAR, in MB.

Tasks List Workspace:

The Tasks List workspace provides statistics about the processes at the selected DB2 Connect gateway, such as the CPU and the working set. It enables you to determine if the DB2 Connect gateway is overloaded by DB2 Connect or any other allocation application.

This workspace is comprised of the following views:

**DB2 Connect Server - Process Memory Usage (bar chart)**
Shows the current working set of a process. The current working set is the number of pages that are currently resident in memory.

**DB2 Connect Information (table view)**
Shows key information about the selected DB2 Connect gateway.

**Tasks List (table view)**
Provides details on the processes.

**Process CPU % (bar chart)**
Shows the percentage of time that a process used the CPU since the last update.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DB2 Connect Server Tasklist Attributes:**
Use DB2 Connect Server Tasklist attributes to create situations that identify any process using too much CPU time or memory.

**CPU Usage Per Process** The percentage of time that a process used the CPU since the last update.

**DB2 ID** The DB2 subsystem ID.
**Gateway Process ID** The numerical ID that uniquely distinguishes a process while it runs.

**Gateway Snapshot Time** The date and time at which the database system monitor information was collected.

**IP Address** The current IP address.

**Memory Usage by Process** The current working set of a process, in kilobytes. The current working set is the number of pages currently resident in memory.

**MVSID** The MVS system identifier.

**Name** The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

**Node Name** The name of the node being monitored by the database system monitor. It identifies the database server node you are monitoring.

This information can be useful if you are saving your monitor output in a file or database for later analysis and you need to differentiate the data from different database server nodes. This node name is determined based on the NNAME configuration parameter.

**Node Number** The number assigned to the node in the file with filename db2nodes and file type cfg. (db2nodes.cfg).

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Overall Process Time** The sum of the times contained in the System Process Time and User Process Time columns.

**Process Name** The name of the process.

**Process Owner Name** The session ID that owns the process.

**Server Instance Name** The name of the database manager instance for which the snapshot was taken.

If a system contains more than one instance of the database manager, this name is used to uniquely identify the instance for which the snapshot call was issued. Along with configuration NNAME at monitoring (server) node, this information can be useful if you are saving your monitor output in a file or database for later analysis, and you need to differentiate the data from different instances of the database manager.

**Server Product Version ID** The product and version that is running on the server in the form pppvvrrm.

In this case pppvvrrm represents:
- **ppp** stands for SQL
- **vv** identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
• \( rr \) identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
• \( m \) identifies a 1-digit modification level

**Server Status** Shows whether the server is active or inactive.

**Server Version** The version of the server returning the information.

**System Process Time** The total system CPU time, in seconds and microseconds, used by the database manager agent process, the unit of work, or the statement.

**Time Stamp** The start time of this interval.

**Time Zone Displacement** The number of hours that the local time zone is displaced from Greenwich Mean Time (GMT).

**User Process Time** The total user CPU time, in seconds and microseconds, used by the database manager agent process, the unit of work, or the statement.

**Threads Workspaces:**

The DB2 Threads workspaces provide detailed thread activity information about your DB2 threads.

Using the Thread workspaces, you can:
• Identify all active threads within a data sharing group
• Evaluate and analyze thread activity for application threads
• Monitor and track thread activity over a period of time
• View statistics for an application thread
• View claim or locks owned by threads

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Thread Activity Workspace:**

The Thread Activity workspace provides a global view of thread activity for a specific DB2 subsystem. A consolidated list of DB2 threads displays on the table view in alphabetical order by plan name. Your table view may sort differently if you have changed the sort field or sort order.

Use the Thread Activity table view to:
• Identify all active threads
• Track thread activity for specific threads
• Analyze thread data when a thread evaluates to true
• View thread SQL counts 1, 2, or 3

**Monitoring Thread Activity**

You can view the Top Ten In-DB2 CPU Time threads from a bar chart as well as from the table view. You can use the thread data to:
• Monitor critical application threads
• Evaluate the thread elapsed and wait times for critical threads

Analyzing Specific Threads

You can analyze a specific application thread from the Thread Activity table view by viewing the thread detail.
1. Right-click a row on the Thread Activity table view.
2. Click Link to --> Thread Detail.

The Thread Detail workspace displays detailed information about a specific thread including the thread ID, thread activity, triggers, user-defined functions, and stored procedures.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread Detail Attributes (Data Sharing):
Use Thread Detail attributes to create situations that monitor DB2 threads. This information is used locally for data sharing.

Authorization ID The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Authorization ID (Unicode) The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Collection ID The collection ID.

This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 18 characters

Thread Detail Attributes (Data Sharing) Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Thread Detail Attributes (Data Sharing) The type of connection associated with the thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
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<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example DLKEX212.

**CPU Rate** The thread CPU rate.

**DB2 ID** The name of a DB2 subsystem.

**Display CPU Time** The total amount of CPU time that DB2 has accumulated for a thread.

Valid format is HH:MM:SS:mmm, where:
- **H** = Hour
- **M** = Minute
- **S** = Second
- **m** = Millisecond

If the time goes over 24 hours, the format is DD-HH:MM where:
- **D** = Day
- **H** = Hour
- **M** = Minute

For example, 00:14:59 indicates that the display CPU time is 14 minutes and 59 seconds.

**Display Elapsed Time** The total amount of elapsed time since thread creation or DB2 sign-on.

Valid format is DD-HH:MM:SS, where:
- **D** = Day
- **H** = Hour
- **M** = Minute
- **S** = Second

For example, 00-20:16:18 indicates that the display elapsed time is 20 hours, 16 minutes, and 18 seconds.

**Display Wait Time** The total amount of thread wait time. The collection of thread wait time requires activation of Accounting Class 2 in the monitored DB2 subsystem.

Valid format is HH:MM:SS:mmm, where:
KD2_PF_READA_SPMON

- H = Hour
- M = Minute
- S = Second
- m = Millisecond

If the time goes over 24 hours, the format is DD-HH:MM where:
- D = Day
- H = Hour
- M = Minute

For example, 00:14:59 indicates that the display CPU time is 14 minutes and 59 seconds.

**ID Name** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**IIP CPU** The accumulated CPU time consumed while executing on an IBM zIIP in all environments.

**In DB2 CP CPU Time** The CP CPU time accumulated in DB2 include the current in-DB2 CPU time for the SQL statement in progress.

**In DB2 Elapsed Time** The elapsed time accumulated in DB2 include the current in-DB2 time for the SQL statement in progress.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example, SP11.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Package Name** Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

**Plan Name** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Thread CPU Time** The total amount of CPU time that DB2 has accumulated for a thread. Valid value is an integer in the range 0 - 99999999 seconds.

**Thread Elapsed Time** The total amount of elapsed time since thread creation or DB2 sign-on. Valid value is an integer in the range 0 - 99999999 seconds.

**Thread Group Name** The name of a data sharing group for a thread. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDDB241G.

**Thread Group Member Name** The name of the member within a data sharing group for a thread.

**Thread Status** The current status of a thread.
Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT-AVAIL</td>
<td>The thread is not available.</td>
</tr>
<tr>
<td>IN-ABORT</td>
<td>The thread is in abort processing.</td>
</tr>
<tr>
<td>IN-ACCEL</td>
<td>The thread is executing on IBM DB2 Analytics Accelerator for z/OS.</td>
</tr>
<tr>
<td>IN-AUTO-PROC</td>
<td>The thread is processing an autonomous procedure.</td>
</tr>
<tr>
<td>IN-BIND-DYNM</td>
<td>The thread is in dynamic bind processing.</td>
</tr>
<tr>
<td>IN-BIND-STAT</td>
<td>The thread is in static bind processing.</td>
</tr>
<tr>
<td>IN-COMMAND</td>
<td>Command threads display this status when they are active in DB2 and</td>
</tr>
<tr>
<td></td>
<td>executing within the DB2 command processor. (This type of thread always</td>
</tr>
<tr>
<td></td>
<td>has a blank plan name.)</td>
</tr>
<tr>
<td>IN-COMMIT</td>
<td>The thread is in Commit processing (applies only to threads that originate</td>
</tr>
<tr>
<td></td>
<td>from an attachment that does not use two-phase-commit protocol).</td>
</tr>
<tr>
<td>IN-COMT-PHS1</td>
<td>The thread is in Commit phase 1 processing.</td>
</tr>
<tr>
<td>IN-COMT-PHS2</td>
<td>The thread is in Commit phase 2 processing.</td>
</tr>
<tr>
<td>IN-CRTE-THRD</td>
<td>The thread is in Create Thread processing.</td>
</tr>
<tr>
<td>IN-DB2</td>
<td>The thread is executing in DB2. A more descriptive status could not be</td>
</tr>
<tr>
<td></td>
<td>determined.</td>
</tr>
<tr>
<td>INDOUBT</td>
<td>The thread is in doubt.</td>
</tr>
<tr>
<td>IN-SIGNON</td>
<td>The thread is in signon processing. This status applies only to threads</td>
</tr>
<tr>
<td></td>
<td>originating from CICS or IMS attachments.</td>
</tr>
<tr>
<td>IN-SQL-CALL</td>
<td>The thread is processing an SQL call.</td>
</tr>
<tr>
<td>IN-SQL-SORT</td>
<td>The thread is executing an SQL call and is doing the sort processing</td>
</tr>
<tr>
<td></td>
<td>required to satisfy the call’s request.</td>
</tr>
<tr>
<td>IN-STOR-PROC</td>
<td>The thread is currently running in a stored procedure.</td>
</tr>
<tr>
<td>IN-TERM-THRD</td>
<td>The thread is in termination as a result of allied task termination. This</td>
</tr>
<tr>
<td></td>
<td>status corresponds to DB2 DISPLAY THREAD=D status.</td>
</tr>
</tbody>
</table>
IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
• Inter-system communication within the data sharing group to determine if there is lock contention.
• A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).
WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.
WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Stored Procedure Name The name of the stored procedure that a thread invokes. It is an alphanumeric text string, with a maximum of 18 characters; for example, SPCALC_TAX.

Thread Detail Attributes (Data Sharing) The type of thread.

It can be:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
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<tbody>
<tr>
<td>BATCH</td>
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</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
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<td>Distributed Allied thread</td>
</tr>
<tr>
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<td>DB2 Resource Recovery Services attach</td>
</tr>
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<td>SYSTEM</td>
<td>System directed access</td>
</tr>
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<td>TSO foreground and background</td>
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<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

Thread Wait Time The total amount of thread wait time. It is an integer in the range 09 - 99999999 seconds. Note: collection of thread time requires activation of Accounting Class 2 in the Monitored DB2 subsystem.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

The timestamp format for SCAN and STR functions is CYYMDDHHMMSSmmm (as in 118031506450100 for 03/15/18 06:45:01) where:
- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
Thread Activity by Package Workspace:

The Thread Activity by Package workspace provides an overview of the activity of the ten threads, sorted by package name, that use the most class 2 CPU and elapsed time (in DB2).

This workspace is comprised of the following views:

**Top Ten In-DB2 CPU Time Threads (bar chart)**
Shows the class 2 CPU time (in DB2) for the ten threads that use the most class 2 CPU time.

**Top Ten In-DB2 Time Threads (bar chart)**
Shows the class 2 elapsed time (in DB2) for the ten threads that use the most class 2 elapsed time.

**Top Ten In-DB2 CP CPU Time Threads (table view)**
Provides key data for the ten threads, sorted by package name, that use the most class 2 CPU time (in DB2).

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace”
- “Thread Activity by Plan Workspace”
- “Utility Jobs Workspace” on page 831

Thread Activity by Plan Workspace:

The Thread Activity by Plan workspace provides an overview of the activity of the top ten threads, sorted by plan name, that use the most class 2 CPU and elapsed time (in DB2).
This workspace is comprised of the following views:

**Top Ten In-DB2 CP CPU Time Threads (bar chart)**
Shows the class 2 CPU time (in DB2) for the ten threads that use the most class 2 CPU time.

**Top Ten In-DB2 Time Threads (bar chart)**
Shows the class 2 elapsed time (in DB2) for the ten threads that use the most class 2 elapsed time.

**Top Ten In-DB2 CP CPU Time Threads (table view)**
Provides key data for the ten threads, sorted by plan name, that use the most class 2 CPU time (in DB2).

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- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

You can also link to:
- OMEGAMON XE for NetView DVIPA Definition and Status, if installed
- OMEGAMON XE for Mainframe Networks Applications, if installed

**Thread Detail Workspace:**

The Thread Detail workspace provides detailed information about the activity of an individual thread.

This workspace is comprised of the following views:
- Thread ID (table view), which identifies the thread.
- Accounting Time (chart view)
- In-DB2 Times (table view), which shows class 2 CPU time (in DB2).
- Triggers (table view)
- Thread Activity (table view), which provides information about the status of the thread, the CPU, and parallel tasks.
KD2_PF_READA_SPMON

- User-Defined Functions (table view)
- Stored Procedures (table view)
- Savepoints (table view)
- Thread SQL counts 1 (table view), which provides information associated with a thread:
  - SQL DCL (Data Control Language) declarations
  - SQL DDL (Data Definition Language) statements
  - SQL DML (Data Manipulation Language) statements
- Thread SQL counts 2 (table view), which provides information on:
  - Stored Procedures
  - User-Defined Functions
  - Triggers
  - Direct Row Access
  - Parallelism
  - RID Pool Access
  - Prepare Statements
- Thread SQL counts 3 (table view), which provides information on:
  - Multi-Row Processing
  - Concentrate Statements

All other tables provide details on the named activities.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Thread Enclave Detail Workspace:**

The Thread Enclave workspace provides detailed information about the attributes of an enclave.

This workspace is comprised of the following views:
- Thread ID (table view)
- General Information (table view)
- Performance Index Input Data for Velocity Goal (table view)
- Service Period Information (table view)
- Classification Work Qualifiers (table view)
- Service Class Information (table view)
- WLM Application Environment (table view)
- zIIP Information (table view)

The Thread ID table identifies the thread. The General Information table shows details about the enclave token and the CPU. All other tables provide details on the named activities.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Thread Enclave Service Period Information Workspace:**

The Thread Enclave Service Period Information workspace provides detailed information about the service periods for the current service class.

This workspace is comprised of the following views:

**Thread ID (table view)**
Identifies the thread.

**Current Period (table view)**
Provides the service class name and current period information.

**First Four Periods (table view)**
Provides information about the first four entries of period. If the period is not defined, a zero or no data is shown.

**Next Four Periods (table view)**
Provides information about the next four entries of period. If the period is not defined, a zero or no data is shown.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Thread Locks Owned Workspace:**

The Thread Locks Owned workspace provides detailed information about all the locks and claims owned by an individual thread.

This workspace is comprised of the following views:

**Thread ID (table view)**
Identifies the thread.

**Locks Ownership Information (table view)**
Provides totals of all the types of locks owned by the thread, as well as the percentage of total locks allowed that are currently held (the percent of the DB2 parameter NUMLKUS).

**Locks Owned (table view)**
Shows all the locks owned by this thread.

**Claims Owned (table view)**
Shows all the claims owned by this thread.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli
Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Thread Locks Owned Attributes:**
Use Thread Locks Owned attributes to view detailed information about all the locks and claims owned by an individual thread.

**AGNT ASID** The address space ID (ASID) of the agent.

**Authorization ID** The authorization ID.

**Authorization ID (Unicode)** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 128 characters.

**Claim Class** The type of claim class. Possible claim classes are:
- CS  Cursor stability
- RR  Repeatable read
- Write  Write access

**Claim Type** The type of object that is claimed. Possible claim types are:
- TS  Tablespace
- TS LPRT  Tablespace logical partition
- TS PART  Tablespace partition
- IX  Index space
- IX LPRT  Index space logical partition
- IX PART  Index partition

**Collection ID (Unicode)** The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

**Thread Locks Owned Attributes** Connection ID. Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**Thread Locks Owned Attributes** The type of connection associated with the thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
</tbody>
</table>
KD2_PF_READA_SPMON

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Correlation ID** The DB2 Correlation ID.

**DB2 ID** The name of a DB2 subsystem.

**Elapsed time** Shows the elapsed time in milliseconds.

**End User ID** The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (DB2 field name: QWHCEUID).

**Job Name** The job name that is associated with a thread.

**Lock Claim Resource** The name of the object which is locked or claimed. The resource name can include the database name, pageset name, partition number, page number, record id (RID), collection ID, package name, or plan name:
- DB=database name can be represented as DBID=identifier.
- PS=pageset name can be represented as PSID=identifier.
- DBID represents the decimal identifier of the database.
- PSID represents the decimal identifier of the table space or index space.

**Lock Level** The level or mode of the lock request. This information describes the level of resource access demanded by the lock request. Possible lock levels are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS</td>
<td>Intent share</td>
</tr>
<tr>
<td>IX</td>
<td>Intent exclusive</td>
</tr>
<tr>
<td>NSU</td>
<td>Non-shared Update</td>
</tr>
<tr>
<td>S</td>
<td>Share</td>
</tr>
<tr>
<td>SIX</td>
<td>Share intent exclusive</td>
</tr>
<tr>
<td>U</td>
<td>Update</td>
</tr>
<tr>
<td>UNS</td>
<td>Unprotected shared</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>X</td>
<td>Exclusive</td>
</tr>
</tbody>
</table>

**Lock Type** The lock type of the lock request. Possible lock types are:

*Table 80. Lock types*

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACSC</td>
<td>The Accelerator Services commands (ACSC) lock.</td>
</tr>
<tr>
<td>ALBP</td>
<td>The Alter buffer pool (ALBP) lock indicates a lock on a buffer pool during execution of an ALTER BUFFERPOOL command.</td>
</tr>
<tr>
<td>BIND</td>
<td>The BIND lock indicates an autobind or remote bind lock.</td>
</tr>
</tbody>
</table>
| BMBA      | The Buffer manager SCA MBA (BMBA) L-lock.  
            The Buffer Manager (BM) gets this lock when it needs to read, insert, or update a multiple buffer pool (MBA) record in a Shared Communications Area (SCA).  
            (BMC_MBAO or BMC_MBAR) |
| BPPS      | The Buffer Manager Pageset (BPPS) RR (repeatable read) P-lock:  
            • BP = buffer pool ID  
            • DB = database name  
            • PS = pageset name |
| CCAT      | The CATMAINT convert catalog (CCAT) lock is acquired when catalog conversion is performed. |
| CDBL      | The Compress dictionary build (CDBL) lock. |
| CDIR      | The CATMAINT convert directory (CDIR) lock is acquired when directory conversion is performed. |
| CDRN      | The Cursor Stability drain (CDRN) lock is acquired to drain all CS read access to an object:  
            • DB = database name  
            • PS = pageset name  
            • PT = partition |
| CMDS      | The DB2 Command Serialization (CMDS) lock. |
| CMIG      | The CATMAINT migration (CMIG) lock is acquired when catalog migration is performed. |
| COLL      | The Collection (COLL) lock |
| DBDL      | The DBD load (DBDL) lock is the database descriptor load lock. |
| DBEX      | The Database exception (DBEX) lock indicates a lock on a “Logical page list” (LPL) or “Group buffer pool recovery pending” (GRECP) database exception status.  
            This lock is only used in a data sharing environment. |
| DBXU      | The DB exception update lock is used for updating the database exception status. |
| DGTT      | The DGTT URID lock is acquired to protect segments that belong to a Declared Global Temporary Table (DGTT). These segments are deallocated during Commit 1 by logging them and serializing them using the Unit of Recovery ID (URID) lock. |
### Table 80. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DPAG</strong></td>
<td>The DB2 page (DPAG) lock in a tablespace. When programs read data or update data, they acquire a page lock containing the data.</td>
</tr>
<tr>
<td></td>
<td>- DB = database name</td>
</tr>
<tr>
<td></td>
<td>- PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>- PG = page</td>
</tr>
<tr>
<td><strong>DSET</strong></td>
<td>The partitioned lock.</td>
</tr>
<tr>
<td></td>
<td>A partitioned tablespace contains one or more partitions (up to 64). It is created when you create a table space using the SQL CREATE TABLESPACE statement with the NUMPARTS parameter.</td>
</tr>
<tr>
<td></td>
<td>Only one table can be stored on a partitioned tablespace. Each partition contains one part of a table. The partitioned lock only locks the partition with the data that is referenced.</td>
</tr>
<tr>
<td></td>
<td>- DB = database name</td>
</tr>
<tr>
<td></td>
<td>- PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>- PT = partition number</td>
</tr>
<tr>
<td><strong>DTBS</strong></td>
<td>The Database lock indicates a lock on the database.</td>
</tr>
<tr>
<td></td>
<td>- DB = database name</td>
</tr>
<tr>
<td></td>
<td>- PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>- PT = partition number</td>
</tr>
<tr>
<td><strong>GRBP</strong></td>
<td>The Group buffer pool (GRBP) start/stop lock.</td>
</tr>
<tr>
<td></td>
<td>BP=buffer pool ID</td>
</tr>
<tr>
<td><strong>HASH</strong></td>
<td>The Hash anchor (HASH) lock.</td>
</tr>
<tr>
<td></td>
<td>- DB = database name</td>
</tr>
<tr>
<td></td>
<td>- PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>- PG = page</td>
</tr>
<tr>
<td><strong>HPSP</strong></td>
<td>The Header Page (HP) Bucket or Stored Procedure (SP) Command lock.</td>
</tr>
<tr>
<td><strong>IEOF</strong></td>
<td>The Index end of file (IEOF) lock is acquired at the index end of file.</td>
</tr>
<tr>
<td></td>
<td>- DB = database name</td>
</tr>
<tr>
<td></td>
<td>- PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>- PT = partition</td>
</tr>
<tr>
<td><strong>IPAG</strong></td>
<td>The Index page (IPAG) lock in an index space. When application programs read or update data, they acquire a lock on the page containing the index when indexing is used.</td>
</tr>
<tr>
<td></td>
<td>- DB = database name</td>
</tr>
<tr>
<td></td>
<td>- PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>- PG = page</td>
</tr>
<tr>
<td><strong>IXKY</strong></td>
<td>The Index key (IXKY) lock.</td>
</tr>
<tr>
<td><strong>LBLK</strong></td>
<td>The Logical object (LOB) lock.</td>
</tr>
<tr>
<td><strong>LPLR</strong></td>
<td>The Logical page list recovery (LPLR) lock.</td>
</tr>
</tbody>
</table>
### Table 80. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MDEL</strong></td>
<td>The Mass delete (MDEL) lock is acquired when doing a mass delete from a table (for example, when you DELETE FROM a table) within a segmented tablespace. It is used to prevent another user from reusing freed segments before a delete operation is committed.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td><strong>PALK</strong></td>
<td>The Partition lock.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PT = partition</td>
</tr>
<tr>
<td><strong>PBPC</strong></td>
<td>The Group BP level castout (PBPC) P-lock. A physical lock acquired when a castout of a group buffer pool occurs. Castout is the process of writing pages in the group buffer pool out to DASD. This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td><strong>PCDB</strong></td>
<td>The DDF CDB P-lock. A Distributed Data Facility communication database physical lock. This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td><strong>PDBD</strong></td>
<td>The DBD P-lock is a database descriptor physical lock. This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td><strong>PDSO</strong></td>
<td>The Pageset or partitioned pageset open lock. If the data set supporting the tablespace that is referenced by the application is not opened, the program will acquire a lock to open the data set. The data set will stay open if CLOSE=NO is defined in the SQL statement creating the tablespace.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td><strong>PITR</strong></td>
<td>The Index manager tree (PITR) is a physical lock (P-lock). This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PT = partition</td>
</tr>
<tr>
<td><strong>PPAG</strong></td>
<td>The Page P-lock is a physical lock on a page. This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td><strong>PPSC</strong></td>
<td>The Pageset/partition level castout physical lock (P-lock). This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td><strong>PPSP</strong></td>
<td>The Pageset/partition physical lock (P-lock). This lock is only used in a data sharing environment.</td>
</tr>
</tbody>
</table>
### Table 80. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRLF</strong></td>
<td>The Resource Limit Facility (RLF) physical lock (P-lock). This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td><strong>PSET</strong></td>
<td>The Pageset (PSET) lock can be a tablespace or indexspace. A pageset containing DB2 tables is a tablespace. A pageset containing DB2 index structure is an indexspace. A pageset can be simple or partitioned. This lock type is for the simple pageset only.</td>
</tr>
</tbody>
</table>
|           | • DB = database name  
|           | • PS = pageset name |
| **PSPI**  | The Pageset piece (PSPI) lock. A pageset is a collection of pageset pieces. Each pageset piece is a separate VSAM data set. A simple pageset contains from 1 to 32 pieces. Each piece of a simple pageset is limited to 2 GB. Whenever a simple pageset piece reaches this size, another piece is allocated and the pageset grows. This is a lock on the expanded pageset piece. |
| **RDBD**  | The Repair DBD (RDBD) lock is acquired when REPAIR DBD REBUILD is running (test/diagnose). |
| **RDRN**  | The Repeatable Read drain (RDRN) lock is acquired to drain all RR access to an object. |
|           | • DB = database name  
|           | • PS = pageset name  
|           | • PT = partition |
| **RGDA**  | The Retry Getpage During Abort (RGDA) lock. |
| **ROW**   | The Row lock indicates a lock on a row. |
| **RSTR**  | The Shared Communications Area (SCA) restart (RSTR) lock indicates a lock on SCA access for restart/redo information. (BMC-RSTP) |
| **SDBA**  | The Start/stop lock on DBA (SDBA) table indicates a lock on the table, tablespace, or database when a CREATE/DROP is processed against these objects. |
|           | • DB = database name  
|           | • PS = pageset name |
| **SENV**  | The System environment (SYSENV) serialization lock. |
| **SKCT**  | The Skeleton cursor table (SKCT) lock indicates a lock on the application plan. |
|           | PLAN= plan name |
| **SKPT**  | The Skeleton package table (SKPT) lock indicates a lock on the application package. |
|           | TOKEN= the consistency token (CONTOKEN) column from SYSIBM.SYSPACKAGE. |
Table 80. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPRC</td>
<td>The System level point in time (PIT) recovery lock. &lt;br&gt;SYS_PITR</td>
</tr>
<tr>
<td>SREC</td>
<td>The Log range lock. &lt;br&gt;DB2 writes a record in the log range tablespace (SYSLGRNG) every time a tablespace is opened and updated, and updates SYSLGRNG whenever that tablespace is closed. &lt;br&gt;The record contains the opening and/or closing log RBA (relative byte address) for the tablespace. When DB2 writes to SYSLGRNG, the program acquires a lock on the tablespace with updates. &lt;br&gt;• DB = database name &lt;br&gt;• TS = tablespace name</td>
</tr>
<tr>
<td>TABL</td>
<td>The Table (TABL) lock on the table which resides in a segmented tablespace. &lt;br&gt;• DBID = DBid &lt;br&gt;• TABL = Tableid</td>
</tr>
<tr>
<td>UIDA</td>
<td>The Util I/O Damage Assessment lock.</td>
</tr>
<tr>
<td>UNDT</td>
<td>The Undetermined (UNDT) lock indicates that this lock cannot be determined because it is not part of the other listed lock types. &lt;br&gt;Resource ID (in hexadecimal).</td>
</tr>
<tr>
<td>UNKN</td>
<td>The Unknown (UNKN) lock indicates the resource does not exist.</td>
</tr>
<tr>
<td>UTEX</td>
<td>The Utility exclusive execution (UTEX) lock. &lt;br&gt;UTEXEC</td>
</tr>
<tr>
<td>UTID</td>
<td>The Utility identifier (UTID) lock. &lt;br&gt;UID=utility id</td>
</tr>
<tr>
<td>UTOB</td>
<td>The Utility object (UTOB) lock. &lt;br&gt;• DB = database name &lt;br&gt;• PS = pageset name &lt;br&gt;• PT = partition</td>
</tr>
<tr>
<td>UTSE</td>
<td>The Utility serialization (UTSE) lock is required when running utility jobs. &lt;br&gt;UTSERIAL</td>
</tr>
<tr>
<td>WDRN</td>
<td>The Write drain (WDRN) lock is acquired to drain all write access to an object. &lt;br&gt;• DB = database name &lt;br&gt;• PS = pageset name &lt;br&gt;• PT = partition</td>
</tr>
<tr>
<td>XMLK</td>
<td>The XML lock.</td>
</tr>
</tbody>
</table>

**LUWID** The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:
USCAC001.020222.A1FE8E048904+8

MVSID The MVS system identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package DBRM (Unicode) The package DBRM name.

Plan The plan name.

Resource Type The type of resource can be Lock or Claim.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

Total Locks The number of locks of the same lock type owned by the thread.

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

Thread Locks Owned Summary Attributes:
Use Thread Locks Owned Summary attributes to view a summary of all locks and claims owned by a thread.

AGNT ASID The address space ID (ASID) of the agent.

Authorization ID The authorization ID.

Authorization ID (Unicode) The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 128 characters.

Bind ACQUIRE Option The ACQUIRE option specified at BIND time: ALLOCATE or USE. This allows you to control when the allocation of tablespace locks is to
occur. If ACQUIRE(USE) is specified, tablespace locks will be acquired when the
resource is used by the application. If ACQUIRE(ALLOCATE) is specified, all
tablespace locks will be obtained at plan allocation time. Dynamic SQL users
(QMF, SPUFI) always execute with the ACQUIRE(USE) option.

**Bind RELEASE Option** The RELEASE option specified at BIND time: COMMIT or
DEALLOCATE. The RELEASE option controls when tablespace and SKCT locks
are freed. RELEASE(COMMIT) causes these locks to be released at each commit
point. RELEASE(DEALLOCATE) causes these locks to be freed at application
termination. Page locks are always released at commit time, regardless of the
release option.

**Catalog Locks** The total number of all catalog locks owned. This number includes
any locks owned on a page or tablespace in database DSNDB06. This is the total of
the catalog pageset and page locks.

**Catalog Page Row Locks** The total number of page and row locks on the catalog
(DSNDB06) database. This includes data page (DPAG), index page (IPAG), and
row (ROW) locks.

**Catalog Pageset Locks** The total number of pageset locks in which the object of the
lock is a pageset owned by the catalog (DSNDB06) database (PSET).

**Collection ID (Unicode)** The collection ID. This field is blank for DBRM. It is an
alphanumeric text string, with a maximum of 128 characters.

**Thread Locks Owned Summary Attributes** Connection ID.Identifies the
connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**Thread Locks Owned Summary Attributes** The type of connection associated with
the thread.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
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<td>------------------</td>
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</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Correlation ID** The DB2 Correlation ID.

**DB2 ID** The name of a DB2 subsystem.

**Directory and Other Locks** The total number of directory and other locks owned by the thread. Directory locks are issued against resources contained in the DSNDB01 directory database.

**Elapsed time** Shows the elapsed time in milliseconds.

**End User ID** The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (DB2 field name: QWHCEUID).

**ISOLATION Option** The ISOLATION option specifies when the plan is bound. The isolation parameter allows you to control the data consistency in the pages that the plan accesses. It has an effect on the number of page or row locks held concurrently by an application.

The available options are:

**Cursor Stability (CS or CURSOR)**
Causes a page lock acquired for read processing to be released when the application subsequently accesses data contained on another data page. (Page locks acquired as a result of update activity are always retained until commit.)

**Read Stability (RS or READ)**
Is similar to Repeatable Read but this isolation option allows to insert new rows or update rows that did not satisfy the original search condition of the application.

**Repeatable Read (RR or REPEAT)**
Causes all application locks obtained for read processing to be retained until application commit time.

**RR with X-lock (REPEATX)**
Means Repeatable Read with X-lock.

**RS with X-lock (READX)**
Means Read Stability with X-lock.

**Uncommitted Read (UR or UNCOMMIT)**
Causes data to be read without acquiring locks. This can result in accessing data that has been updated but not yet committed. It applies only to read-only operations: SELECT, SELECT INTO, or FETCH from a read-only result table. Use this isolation level only when:
- Data consistency is not necessary or inconsistencies already exist
- Errors cannot occur with its use, such as with a reference table that is rarely updated

**Job Name** The job name that is associated with a thread.
Locks Owned The total number of all locks owned by the thread. This includes all lock types.

LUWID The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:
USCACO01.02D22A.A1FE8E0489D4=8

MVSID The MVS system identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package DBRM (Unicode) The package DBRM name.

Page Row Lock Total number of page and row locks owned by the thread. It includes data page locks (DPAG), index page locks (IPAG), and row locks (ROW). It excludes any locks in which the lock object is owned by the catalog database or the directory database.

Pageset and Dataset Locks The total number of pageset locks held. This excludes pageset locks in which the lock object is a pageset owned by the catalog database or the directory database. Lock types included are PSET and DSET.

Percent NUMLKUS The current percentage of NUMLKUS reached by the thread. NUMLKUS is an installation parameter in DSNZPARM that specifies the maximum number of page, row, LOB, or XML locks that can be held by a single process at any one time. It includes locks for both, the DB2 catalog and directory and for user data.

Plan The plan name.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
• M = Month
• D = Day
• Y = Year
• H = Hour
• M = Minute
• S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.
Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

Thread SQL Counts 1 Workspace:

The Thread SQL Counts 1 workspace provides information about SQL DCL (Data Control Language) declarations, SQL DDL (Data Definition Language) statements, and SQL DML (Data Manipulation Language) statements.

This workspace is comprised of the following views:

Thread ID (table view)
List the thread IDs.

DML (table view)
Provides information on SQL DML (Data Manipulation Language) statements.

DCL (table view)
Provides information on DCL (Data Control Language) declarations.

DDL Create (table view)
Provides information on SQL DDL (Data Definition Language) statements for Create.

DDL Drop (table view)
Provides information on SQL DDL (Data Definition Language) statements for Drop.

DDL Alter / Rename (table view)
Provides information on SQL DDL (Data Definition Language) statements for Alter / Rename.

Note: For DML, DCL, and DDL, each table view provides total counts since the last sample period.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread SQL Counts Attributes:
Use the Thread SQL Counts attributes to create situations to monitor the SQL DCL (Data Control Language) declarations, SQL DDL (Data Definition Language) statements, and SQL DML (Data Manipulation Language) statements, associated with a thread. These attributes also list information for stored procedures, user-defined functions, triggers, direct row access, parallelism, RID pool access, and prepare statements. They also show information for currently committed rows, multi-row processing, workfile storage, and concentrate statements.

Abort The number of times the thread has rolled back uncommitted data (Field name QWACCOMM).

AGNT ASID The address space ID (ASID) of the agent.

Allocate Cursor The number of SQL ALLOCATE CURSOR statements executed (Field name: QXALOCC).
Alter Database  The number of ALTER DATABASE statements executed (Field name: QXALDAB).

Alter Function  The number of ALTER FUNCTION statements executed (Field name: QXALUDF).

Alter Index  The number of ALTER INDEX statements executed (Field name: QXALTIX).

Alter Procedure  The number of ALTER PROCEDURE statements executed (Field name: QXALPRO).

Alter Stogroup  The number of ALTER STOGROUP statements executed (Field name: QXALTST).

Alter Table  The number of ALTER TABLE statements executed (Field name: QXALTTA).

Alter Tablespace  The number of ALTER TABLESPACE statements executed (Field name: QXALTTS).

Alter Trusted Context  The number of alter trusted context statements executed (Field name QXALTCTX) - not supported prior to DB2 9.

Associate Locator  The number of SQL ASSOCIATE LOCATORS statements executed (Field name: QXALOCL).

Authorization ID  The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Authorization ID (Unicode)  The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 128 characters.

Close Cursor  The number of CLOSE statements executed. This number at the server location might not match the user application because of DDF’s internal processing (DB2 field name: QXCLOSE).

Collection ID (Unicode)  The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

Comment On  The number of COMMENT ON statements executed (Field name: QXCMTON).

Commit  The number of times the thread successfully concluded commit phase 2 processing (Field name QWACABRT).

Connect (Type 1)  The number of CONNECT type 1 statements executed (Field name: QXCON1).

Connect (Type 2)  The number of CONNECT type 2 statements executed (Field name: QXCON2).

Thread SQL Counts Attributes  Connection ID. Identifies the connection of an application to a DB2 system.
Thread SQL Counts Attributes The type of connection associated with the thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
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<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
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<td>TSO foreground and background</td>
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<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example DLKEX212.

Create Alias The number of CREATE ALIAS statements executed (Field name: QXCRALS).

Create Database The number of CREATE DATABASE statements executed (Field name: QXCRDAB).

Create Distinct Type The number of CREATE DISTINCT TYPE statements executed (Field name: QXCDIST).

Create Function The number of CREATE FUNCTION statements executed (field name: QXCRUDF).

Create Global Temp Table The number of CREATE GLOBAL TEMPORARY TABLE statements executed (field name: QXCRGTT).

Create Index The number of CREATE INDEX statements executed (Field name: QXCRINX).

Create Procedure The number of CREATE PROCEDURE statements executed (Field name: QXCRPRO).

Create Role The number of CREATE ROLE statements executed (Field name QXCRROL) - not supported prior to DB2 9.
**Create Stogroup** The number of CREATE STOGROUP statements executed (field name: QXCRSTG).

**Create Synonym** The number of CREATE SYNONYM statements executed (Field name: QXCRSYN).

**Create Table** The number of CREATE TABLE statements executed (Field name: QXCRTAB).

**Create Tablespace** The number of CREATE TABLESPACE statements executed (Field name: QXCTABS).

**Create Trigger** The number of CREATE TRIGGER statements executed (Field name: QXCTRIG).

**Create Trusted Context** The number of create trusted context statements executed (Field name: QXCRCTX) - not supported prior to DB2 9.

**Create View** The number of CREATE VIEW statements executed (Field name: QXDEFVU).

**DB2 ID** The DB2 subsystem ID.

**Delete** The number of DELETE statements executed (DB2 field name: QXDELET).

**Describe** The number of DESCRIBE, DESCRIBE CURSOR, DESCRIBE INPUT, and DESCRIBE PROCEDURE statements executed. This number at the server location might not match the user application because of DDF’s internal processing (Field name: QXDESC).

**Describe Table** The number of DESCRIBE TABLE statements executed (Field name: QXDSCR_TB).

**Description** The description of the monitored activity.

**Direct Row Revert to Index** The number of times that direct row access failed and an index was used to find a record (Field name: QXROIIDX).

**Direct Row Revert to TS Scan** The number of times that an attempt to use direct row access reverted to using a table-space scan because DB2 was not able to use a matching index scan (Field name: QXROITS).

**Direct Row Successful** The number of times that direct row access was successful (Field name: QXROIMAT).

**Drop Alias** The number of SQL DROP ALIAS statements executed (Field name: QXDRPAL).

**Drop Database** The number of DROP DATABASE statements executed (field name: QXDRPDB).

**Drop Distinct Type** The number of DROP DISTINCT TYPE statements executed (Field name: QXDDIST).

**Drop Function** The number of DROP FUNCTION statements executed (Field name: QXDRPFN).
**Drop Index** The number of DROP INDEX statements executed (Field name: QXDRPIX).

**Drop Package** The number of SQL DROP PACKAGE statements executed (Field name: QXDRPPKG).

**Drop Procedure** The number of DROP PROCEDURE statements executed (Field name: QXDRPPR).

**Drop Role** The number of DROP ROLE statements executed (Field name QXDRPROL) - not supported prior to DB2 9.

**Drop Stogroup** The number of DROP STOGROUP statements executed (Field name: QXDRPS).

**Drop Synonym** The number of DROP SYNONYM statements executed (Field name: QXDRPSY).

**Drop Table** The number of DROP TABLE statements executed (Field name: QXDRPTA).

**Drop Tablespace** The number of DROP TABLESPACE statements executed (Field name: QXDRPTS).

**Drop Trigger** The number of DROP TRIGGER statements executed (Field name: QXDRPTR).

**Drop Trusted Context** The number of drop trusted context statements executed (Field name QXDRPCTX) - not supported prior to DB2 9.

**Drop View** The number of DROP VIEW statements executed (Field name: QXDRPVU).

**End User ID** The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (Field name: QWHCEUID).

**Fetch** The number of FETCH statements executed. This number at the server location might not match the user application because of DDF’s internal processing (Field name: QXFETCH).

**Grant** The number of GRANT statements executed (Field name: QXGRANT).

**Incremental Bind** The number of incremental binds (excluding prepare) (Field name: QXINCRB).

**Insert** The number of INSERT statements executed (Field name: QXINSRT).

**Interval Start** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

**Job Name** The job name that is associated with a thread.

**Label On** The number of LABEL ON statements executed (Field name: QXLABON).
Literals Dups Created The number of times DB2 created a duplicate STMT instance in the statement cache for a dynamic statement that had literals replaced by CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLDP). The duplicate STMT instance was needed because a cache match failed because the literal reusability criteria was not met.

Literals Matches Found The number of times DB2 found a matching reusable copy of a dynamic statement in cache because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLMP).

Literals Parsed The number of times DB2 parsed dynamic statements because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLPLP).

Literals Replaced The number of times DB2 replaced at least one literal in a dynamic statement because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLRLR).

Lock Table The number of LOCK TABLE statements executed (Field name: QXLOCK).

LUWID The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:

USCAC001.02022A.A1FE8E9489D4=8

Max Nested SQL Trigger The maximum level of indirect SQL cascading (Field name: QXCASCDP). This includes cascading because of triggers, UDFs, or stored procedures.

Max Parallel Degree The maximum degree of parallel query processing executed among all parallel groups to indicate the extent to which queries were processed in parallel (Field name: QXMAXDEG).

Merge The number of MERGE statements executed (DB2 field name QXMERGE) - not supported prior to DB2 9.

MVS ID The MVS system identifier.

Open Cursor The number of OPEN statements executed (Field name: QXOPEN).

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package DBRM (Unicode) The package name of the database request module (DBRM) with which a thread is associated. It is an alphanumeric text string with a maximum of 128 characters.
Parallel Bypass DB2 (Buffers) The number of times the parallelism coordinator had to bypass a DB2 when distributing tasks because one or more DB2 members did not have enough buffer pool storage (Field name: QXXCSKIP). The number in this field is only incremented at the parallelism coordinator once per parallel group, even though more than one DB2 might have lacked buffer pool storage for that parallel group. It is also only incremented when the buffer pool is defined to allow for parallelism. For example, if VXPSEQT=0 on an assistant, DB2 does not send parallel work there and the number in this field is not incremented.

Parallel Degree Executed The total number of parallel groups that executed in the planned parallel degree (Field name: QXNORGRP). This field is incremented by one for each parallel group that executed in the planned degree of parallelism (as determined by DB2).

Parallel Degree Reduced (no buffer) The total number of parallel groups that did not reach the planned parallel degree because of a lack of storage space or contention on the buffer pool (Field name: QXREDGRP).

Parallel Failed (Cursor) The total number of parallel groups that fell back to sequential mode because of a cursor that can be used by UPDATE or DELETE (Field name: QXDEGCUR).

Parallel Failed (No Buffer) The total number of parallel groups that fell back to sequential mode because of a storage shortage or contention on the buffer pool (Field name: QXDEGBUF).

Parallel Failed (No ESA Sort) The total number of parallel groups that fell back to sequential mode because of a lack of ESA sort support (Field name: QXDEGESA).

Parallel Failed (No Enclaves) The total number of parallel groups that executed in sequential mode because of the unavailability of MVS/ESA enclave services (Field name: QXDEGENC).

Parallel Grp Executed The total number of parallel groups that were executed (Field name: QXTOTGRP).

Parallel Maximum LOB Storage The maximum storage used for LOB values (DB2 field name: QXSTLOBV).

Parallel Single DB2 (Coord=NO) The total number of parallel groups executed on a single DB2 subsystem due to the COORDINATOR subsystem value being set to NO (Field name: QXCOORNO). When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a DB2 subsystem with COORDINATOR=YES, but is run on a DB2 subsystem with COORDINATOR=NO.

Parallel Single DB2 (Cursor) The total number of parallel groups executed on a single DB2 subsystem because of a repeatable-read or read-stability isolation (Field name: QXISORR).

Parallel Sysplex Intent The total number of parallel groups that DB2 intended to run across the data sharing group (Field name: QXXCBPNX). This number is only incremented at the parallelism coordinator at run time.

Parallelism Disabled YES indicates that query parallelism is disabled by the Resource Limit Facility for at least one dynamic SQL SELECT statement.
Plan Name: The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Prepare: The number of PREPARE statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXPREP).

Prepare Avoided KEEPDYN(YES): The number of times where no SQL PREPARE or EXECUTE IMMEDIATE was issued by the application and a copy of a prepared SQL statement was found in local dynamic SQL cache (Field name: QXSTNPRP). When an application plan or package is bound with KEEPDYNAMIC YES, a copy of each prepared SQL statement for the application thread is held in the local dynamic SQL cache and kept across a commit boundary. An application thread can save the total cost of a prepare by using a copy of the prepared statement in the local dynamic SQL cache from an earlier prepare by the same thread. To do this, the application must be modified to avoid issuing repetitive SQL PREPAREs for the same SQL statement.

Prepare Copied from Cache: The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache (Field name: QXSTFND).

Prepare Discarded - MAXKEEPD: The number of times statements are invalidated in the local dynamic SQL cache because the MAXKEEPD limit has been reached and prepared SQL statements in the local dynamic SQL cache have to be reclaimed (Field name: QXSTDEXP).

Prepare Implicit KEEPDYN(YES): An implicit prepare occurs when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEPDYNAMIC YES (Field name: QXSTIPRP). If the skeleton copy of the prepared SQL statement exists in the global dynamic SQL cache in the EDM pool, a short prepare is executed, otherwise a full prepare is executed.

Prepare No Match: The number of times that DB2 searched the prepared statement cache but could not find a suitable prepared statement (Field name: QXSTNFND).

Prepare Purged - DROP/ALT/REV: The number of times statements are invalidated in the local dynamic SQL cache because of SQL DDL or updated RUNSTATS information and prepared SQL statements in the local dynamic SQL cache have to be reclaimed (Field name: QXSTDINV).

Release: The number of RELEASE statements executed (DB2 field name: QXREL).

Rename Index: The number of RENAME INDEX statements executed (Field name QXRNIX) - not supported prior to DB2 9.

Rename Table: The number of RENAME TABLE statements executed (Field name: QXRNTAB).

Revoke: The number of REVOKE statements executed (Field name: QXREVOK).
RID HWM  The highest number of RID blocks in use at any time since DB2 startup (Field name: QISTRHIG). This is a high-water mark.

RID In Use  The number of RID blocks currently in use (snapshot value) (Field name: QISTRCUR).

RID Exceeded Pool  The number of times the maximum RID pool storage was exceeded (Field name: QISTRMAX). The size is determined by the installation parameter RID POOL SIZE (DB2 install panel DSNTIPC). It can be 0, or between 128 KB and 10 GB. The general formula for calculating the RID pool size is:
Number of concurrent RID processing activities x average number of RIDs x 2 x 5 bytes per RID.

RID Exhausted Virtual  The number of times RID pool processing was not used because DBM1 storage was exhausted (Field name: QISTRSTG).

RID Not Used (no storage)  The number of times DB2 detected that no storage was available to hold a list of RIDs during a given RID pool process involving one index (single index access with list prefetch) or multiple indexes (multiple index access) (DB2 field name: QXNSMIAP).

RID Not Used (Max Limit)  The number of times DB2 detected that a RID list exceeded one or more internal limits during a given RID list (or RID pool) process involving one index (single index access with list prefetch) or multiple indexes (multiple index access) (DB2 field name: QXMRIAP). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs.

RID Pool Used  The number of times the RID (RECORD ID) pool has been processed (Field name: QXMIAP). During RID (RECORD ID) pool (also called RID list) processing, DB2 uses an index to produce a list of candidate RIDs, which is called a RID list. The RID list can be sorted and intersected (ANDed) or unioned (OREd) with other RID lists before actually accessing the data pages. RID list processing is used for a single index (index access with list prefetch) or for multiple indexes (multiple index access), which is when the RID lists are ANDed and ORed.

RID Terminated (> DM)  The number of times a RID pool processing operation terminated because the number of RID entries was greater than the DM limit (Field name: QISTRPLM).

RID Terminated (> RDS)  The number of times RID pool processing terminated because the number of RIDs that can fit into the guaranteed number of RID blocks was greater than the maximum limit (25% of table size) (Field name: QISTRLLM).

Row Triggers Executed  The number of times a row trigger was activated (Field name: QXROWTRG).

Rows Deleted  The number of rows that have been deleted because of SQL DELETE statements (Field name: QXRWSDELETE). 

Rows Fetched  The number of rows that have been fetched because of SQL FETCH statements (Field name: QXRWSFETCH).

Rows Inserted  The number of rows that have been inserted because of SQL INSERT statements (Field name: QXRWSINSERT).
**Rows Updated** The number of rows that have been updated because of SQL UPDATE statements (Field name: QXRWSUPDTD).

**Select** The number of SQL SELECT statements executed (Field name: QXSELECT).

**Set Connection** The number of SET CONNECTION statements executed (Field name: QXSETCON).

**Set Current Degree** The number of SET CURRENT DEGREE statements executed (Field name: QXSETCDG).

**Set Current Path** The number of SET CURRENT PATH statements executed (Field name: QXSETPTH).

**Set Current Rules** The number of SET CURRENT RULES statements executed (Field name: QXSETCRL).

**Set Current SQLID** The number of SET CURRENT SQLID statements executed (Field name: QXSETPSQL).

**Set Host Variable** The number of SET HOST VARIABLE statements executed. The special register that was retrieved is not tracked (Field name: QXSETHV).

**SP Abended** The number of times a stored procedure terminated abnormally (Field name: QXCALLAB).

**SP Call Statements** The number of times the SQL CALL statements executed to invoke a stored procedure (SP).

**SP Rejected** The number of times an SQL CALL statement was rejected because of the procedure that is in the STOP ACTION(REJECT) state (Field name: QXCALLRJ).

**SP Timed-Out** The number of times an SQL CALL statement timed out when waiting to be scheduled (Field name: QXCALLTO).

**SQL Error in Trigger** The number of times an SQL error occurred during the execution of a triggered action (Field name: QXTRGERR). This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.

**Stmt Triggers Executed** The number of times a statement trigger was activated (Field name: QXSTTRG).

**Total** The total count executed by the thread.

**UDFs Abended** The number of times a user-defined function (UDF) abended (Field name: QXCAUDAB).

**UDFs Executed** The number of user-defined functions (UDFs) executed (Field name: QXCAUD).

**UDFs Rejected** The number of times a user-defined function (UDF) was rejected (Field name: QXCAUDRJ).
UDFs Timed Out The number of times a user-defined function (UDF) timed out while waiting to be scheduled (Field name: QXCAUDT).

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (Field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

Update The number of UPDATE statements executed (Field name: QXUPDTE).

Thread SQL Counts 2 Workspace:

The Thread SQL Counts 2 workspace provides information about stored procedures, user-defined functions, triggers, direct row access, parallelism, RID pool access, and prepare statements.

This workspace is comprised of the following views:
  • Thread ID (table view)
  • Stored Procedures
  • User-Defined Functions
  • Triggers
  • Parallelism
  • RID Pool Access
  • Prepare Statements
  • Direct Row Access

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread SQL Counts 3 Workspace:

The Thread SQL Counts 3 workspace provides information about multi-row processing and concentrate statements.

This workspace is comprised of the following views:

Thread ID (table view)
Lists the thread IDs.

Multi-Row Processing
Enables you to track performance improvements such as multi-row fetch and multi-row insert.

Concentrate Statements
Indicates if literal constants, which are referenced in dynamic SQL statements, are replaced with special markers so that these constants are not cached with the statement in the dynamic SQL statement cache.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
Thread Statistics Workspace:

The Thread Statistics workspace displays thread statistics for a specific application thread. If the application thread is a parallel thread, the table view displays thread statistics for all the associated parallel threads.

Viewing Additional Thread Information

You can use the Tivoli Enterprise Portal terminal emulator adapter to access an OMEGAMON host session to investigate a thread with excessive elapsed time. For information about using this feature, see the Tivoli Enterprise Portal online help.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread Statistics Attributes:
Use Thread Statistics attributes to create situations that determine the usage of parallel threads.

Asynchronous Page Reads The number of asynchronous page reads for prefetch. Valid value is an integer in the range 0 - 2147483647.

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

Dynamic Prefetch The number of dynamic prefetch requests. Valid value is an integer in the range 0 - 2147483647.

Get Page Requests The number of thread getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. Valid value is an integer in the range 0 - 2147483647.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

Immediate Write I/O The number of synchronous write I/O requests that DB2 issues on behalf of a thread. Valid value is an integer in the range 0 - 2147483647.

List Prefetch The number of list prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of SETW The number of set write requests to write a page out to DASD. Valid value is an integer in the range 0 - 2147483647.
Originating System ID  The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Plan Name  The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Sequential Prefetch  The number of sequential prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

Synchronous Read I/O  The number of synchronous read I/O requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

Time Stamp  Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

Type Indicator  Indicates the type of parallel thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>blank</td>
<td>Not a parallel thread</td>
</tr>
<tr>
<td>Parent</td>
<td>Parallel thread is a parent</td>
</tr>
<tr>
<td>Child</td>
<td>Parallel thread is a child</td>
</tr>
<tr>
<td>Autonomous SP</td>
<td>Originating thread who invoked autonomous stored procedures</td>
</tr>
</tbody>
</table>

Unsuccessful Get Page Operation  The number of conditional getpage requests that failed. Valid value is an integer in the range 0 - 2147483647.

Thread Wait Events Workspace:

The Thread Wait Events workspace provides wait time and counts on events that the thread waited on.

This workspace is comprised of the following views:

- Thread ID (table view)
- Archive Log Wait Events (table view)
The Thread ID table identifies the thread. All other tables provide time information and counts with regard to the named events.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Utility Jobs Workspace:**

The Utility Jobs workspace provides an overview of all active utilities. Workspace monitoring includes utilities that because of abnormal termination, have not yet completed their run.

This workspace is comprised of the following view:

**Notepad (notepad view)**

Is a simple text editor for writing notes about the workspace.

**Utility Jobs (table view)**

Lists the phase, record counts, and status of DB2 utility jobs.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
DB2 SRM UTL Attributes:
Use the DB2 SRM UTL attributes to create situations to monitor all active utilities. Monitoring also includes utilities that due to abnormal termination, have not yet completed their run.

**ID** The utility qualifier. It is an alphanumeric text string, with a maximum length of eight characters.

**Job Name** The utility job name. It is an alphanumeric text string, with a maximum length of eight characters.

**Name** The utility name. It is an alphanumeric text string, with a maximum length of eight characters.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Phase** The utility phase. It is an alphanumeric text string, with a maximum length of eight characters.

**Record Count** The number of records/pages processed.

**Run Date** The date the job was run (if available).

The timestamp format for SCAN and STR functions is \texttt{CYYMMDDHHMMSSmmm}
(as in 1180315064501000 for 03/15/18 06:45:01) where:

- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

**Stat** A for Active, S for stopped.

**Status** The utility status. It is an alphanumeric text string, with a maximum length of 12 characters.

**Statement** The statement number.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is \texttt{CYYMMDDHHMMSSmmm}
(as in 1180315064501000 for 03/15/18 06:45:01) where:

- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
User The user ID. It is an alphanumeric text string, with a maximum length of eight characters.

Utilid The utility qualifier. It is an alphanumeric text string, with a maximum length of 16 characters.

Volume Activity Workspace:

The Volume Activity workspace provides an overview of the performance of volumes that contain DB2 objects in order to evaluate DASD performance by volume.

This workspace is comprised of the following views:

Service Time (bar chart)
Shows the average service time for the volume since the beginning of the collection interval.

Volume Activity (table view)
Includes data that allows you to monitor I/O activity for individual volumes.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Volume Activity Attributes:
Use the DB2 Volume Activity attributes to create situations to monitor the status and performance of DB2 volume activity.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum length of eight characters.

DB2 IO Percent The percentage of DB2 I/O activity to the volume. Valid entry ranges from 0.0 to 100.0.

DB2 ID The name of the DB2 subsystem. It is an alphanumeric text string, with a maximum length of four characters.

Extents per Data Set Ratio The ratio of total extents allocated to the total data set count.

Filler A placeholder to keep fullword alignment.

IDNAME An internal attribute used for navigation, it contains either the data sharing group name or the DB2ID. It is an alphanumeric text string, with a maximum length of eight characters.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string, with a maximum length of four characters.
**Number of Data Sets** The total number of allocated data sets for the DB2 subsystem being monitored.

**Number of DB2 systems** The total number of monitored DB2 systems that are sharing this volume.

**Number of Extents** The number of extents the operating system has allocated for a data set.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:
- **C** = Century (0 for 20th, 1 for 21st)
- **Y** = Year
- **M** = Month
- **D** = Day
- **H** = Hour
- **M** = Minute
- **S** = Second
- **m** = Millisecond

**Volume DB2 IO** The total number of I/Os for this volume originating from the DB2 system being monitored.

**Volume DB2 IO Rate** The total number of I/Os per second for the volume originating from the DB2 subsystem being monitored.

**Volume DB2 IO Rate MAX** The maximum I/O rate per second during the collection period.

**Volume Name** The name of the volume that contains the DB2 objects. It is an alphanumeric text string, with a maximum length of six characters.

**Volume Service Time** The average service time for the volume since the beginning of the collection interval.

**Volume Service Time MAX** The maximum service time for the volume since the beginning of the collection interval.

**Volume Total IO** The total number of I/Os for this volume.

**Volume Total IO Rate** The total number of I/Os per second for the volume.

**Volume Use Percent** The percentage of DB2 I/O activity to the volume that is attributable to the database, computed by dividing the total I/O rate for the database by the total DB2 I/O rate to the volume. Valid entry ranges from 0.0 to 100.0.
Volume Utilization  The percentage of volume utilization, which represents the percent of time the volume is in use. Valid entry ranges from 0.0 to 100.0.

Data Sharing Status Attributes:
Use the Data Sharing Status attributes to create situations that monitor the status of a specific DB2 system or data sharing group.

DB2 ID  The name of a DB2 subsystem.

Group Object Analysis Status  The status of the Event Manager for Object Analysis.

Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIX</td>
<td>Some Event Managers are active</td>
</tr>
<tr>
<td>NO</td>
<td>Event Manager is not active</td>
</tr>
<tr>
<td>YES</td>
<td>Event Manager is active</td>
</tr>
</tbody>
</table>

Group or Subsystem Name  An internal attribute used for navigation. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

Group or Subsystem Type  Indicates whether a group or subsystem is a DB2 or a data sharing group.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>DB2 subsystem</td>
</tr>
<tr>
<td>DSGRP</td>
<td>Data sharing group</td>
</tr>
</tbody>
</table>

Lock Conflict Count  The total number of owners and waiters that are in lock conflict. Valid value is an integer in the range 0 - 99999999.

MVS Subsystem  The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of DB2 systems  The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

Number of GBP Connections  The total number of Group Buffer Pool (GBP) Connections.

Number of Threads  The total number of currently monitored threads. Valid value is an integer in the range 0 - 99999999.

Object Analysis DB Count  The total number of monitored databases in a specific data sharing group that are participating in object analysis. Valid value is an integer in the range 0 - 4999.

Originating System ID  The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.
**Status** Indicates whether a DB2 subsystem or data sharing group for a monitored entity is operational. Valid values are OFFLINE or ONLINE.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Local Group Object Analysis Thread Volume Attributes:**
Use the Local Group Object Analysis (GOA) Thread Volume attributes to create situations that monitor the thread activity for volumes.

**Authorization ID** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 ID** The name of a DB2 subsystem.

**DB2 Read I/O** The number of read I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 22.

**DB2 Read I/O Rate** The read I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

**DB2 Write I/O** The number of I/O writes. Valid value is an integer in the range 0 - 2147483647; for example, 20.

**DB2 Write I/O Rate** The write I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDB242G.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.
**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Percent Volume Use** The percentage of DB2 I/O activity to the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 5.0.

**Plan Name** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Total DB2 I/O** The total I/O count. Valid value is an integer in the range 0 - 2147483647; for example, 22.

**Total DB2 I/O Rate** The total I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

**Volume Name** The name of the volume that contains the DB2 objects. It is an alphanumeric text string, with a maximum of 6 characters; for example, PRI123.

**Local Group Object Analysis Volume Group Attributes:**
Use the Local Group Object Analysis (GOA) Volume Group attributes to create situations that monitor DASD performance by volume.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 ID** The name of a DB2 subsystem.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

**MVS System** The MVS System Management Facility (SMF) ID. Valid format is alphanumeric with a maximum of 4 characters; for example SP11.

**Number of Data Sets** The total number of allocated data sets for the DB2 being monitored. Valid value is an integer in the range 0 - 10000.
**Number of Extents** The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

**Originating System ID** The managed system name of the agent. Valid format is alphanumeric, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Volume DB2 I/O** The total number of I/Os for the volume originating from the DB2 subsystem being monitored. Valid value is an integer in the range 0 - 2147483647.

**Volume DB2 I/O Rate** The total number of I/Os per second for the volume originating from the DB2 subsystem being monitored. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.9.

**Volume Name** The name of the volume that contains the DB2 objects. It is an alphanumeric text string, with a maximum of 6 characters; for example, PRI123.

**Volume Service Time** The average service time for the volume since the beginning of the collection interval. This value is the sum of the average I/Os pending time, the average I/Os connect time, and the average I/Os disconnected time for the volume. It does not include I/Os queue time. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

**Volume Total I/O** The total number of I/Os for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for the volume. Valid value is an integer in the range 0 - 2147483647; for example, 19.

**Volume Total I/O Rate** The total number of I/Os per second for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for the volume. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

**Volume Use Percent** The percentage of DB2 I/O activity to the volume. The program calculates the value by dividing the total I/O rate for the database by the total I/O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.
**Volume Utilization** The percentage of volume utilization. The value represents a percentage of time the volume is in use. Valid value is an integer in the range 0 - 100; for example, 22.

**Local Group Object Analysis Volume Database Attributes:**
Use the Local Group Object Analysis (GOA) Volume Database attributes to create situations that monitor I/O activity for a single volume in a DB2 database.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Database** The name of a DB2 database. Valid format is alphanumeric with a maximum of 8 characters; for example, DSNDB06.

**DB2 ID** The name of a DB2 subsystem. It is an alphanumeric text string with a maximum of 4 characters.

**DB2 Read I/O** The number of read I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 22.

**DB2 Read I/O Rate** The read I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

**DB2 Write I/O** The number of write I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 20.

**DB2 Write I/O Rate** The write I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example, TDDB242G.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example, SP11.

**Number of Data Sets** The total number of allocated data sets for the DB2 being monitored. Valid value is an integer in the range 0 - 10000.

**Number of Extents** The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Space Name** The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example, DSNUCX01.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
• Y = Year
• H = Hour
• M = Minute
• S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Total DB2 I/O** The total I/O count. Valid value is an integer in the range 0 - 2147483647.

**Total DB2 I/O Rate** The total I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

**Volume Name** The name of the volume that contains the DB2 objects. It is an alphanumeric text string, to a maximum of 6 characters; for example, PRI123.

**Volume Use Percent** The percentage of DB2 I/O activity to the volume. The value is calculated by dividing the total I/O rate for the database by the total I/O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

**Local Object Activity Attributes:**
Use the Local Object Activity attributes to create situations that you can use to monitor the I/O and getpage activity by database.

**ASYNC Write Rate** The number of asynchronous writes per second during the collection interval. Valid format is a decimal number, with 1 decimal place allowed, in the range 0.0 - 9999.9; for example, 2.1.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Database** The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

**DB2 ID** The name of a DB2 subsystem.

**Getpage Rate** The number of getpage requests per second for the database or space name. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.3.

**Getpage RIO Ratio** The ratio of getpage requests to read I/Os for the database.

The ratio is calculated by dividing the number of getpage requests by the sum of the following values:
• Number of synchronous reads
• Number of prefetch read I/Os

Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.8.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.
MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example, SP11.

Number of ASYNC Writes The number of asynchronous writes during the collection interval. Valid value is an integer in the range 0 - 2147483647.

Number of Getpages The number of getpage requests for the database or space name. Valid value is an integer in the range 0 - 2147483647.

Number of Other Writes The number of immediate and format writes. Valid value is an integer in the range 0 - 2147483647.

Number of Prefetch Reads The number of prefetch read I/Os for the database. Valid value is an integer in the range 0 - 2147483647.

Number of SYNC Reads The number of synchronous reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Other Write Rate The number of immediate and format writes per second. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.6.

Percent of Getpage Activity The percentage of total getpage activity that is applicable to the database, space name, or thread. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.6.

Percent of I/O The percentage of total I/O activity that is applicable to the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.0.

Prefetch Read Rate The number of prefetch read I/Os per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.9.

Space Name The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example, DSNUCX01.

SYNC Read Rate The number of synchronous reads per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
• S = Second
For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

Local Object Space Name Attributes:
Use the Local Object Space Name attributes to create situations that monitor object, volume, and extent activity for a specific DB2 object space.

Buffer Pool ID The ID for a buffer pool. Valid values are:
• 32K = 80
• 32K1 = 81
• 32K2 = 82
• 32K3 = 83
• 32K4 = 84
• 32K5 = 85
• 32K6 = 86
• 32K7 = 87
• 32K8 = 88
• 32K9 = 89

Database Name The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum length of eight characters.

DB2 ID The name of a DB2 subsystem.

Extents per Data Set Ratio The average number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 100.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

Max Number of Extents per DSN The largest number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 219.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example, SP11.

Number of Data Sets The total number of allocated data sets for the DB2 you are monitoring. Valid value is an integer in the range 0 - 10000.

Number of Extents The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

Number of Volumes The number of volumes on which the data set resides. Valid value is an integer in the range 0 - 256.

Object Space Name The name of a DB2 object space. It is an alphanumeric text string, with a maximum of 8 characters; for example, DSNUCX01.

Object Type The type of object space name.
Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDX</td>
<td>Index</td>
</tr>
<tr>
<td>PTIX</td>
<td>Partitioned index</td>
</tr>
<tr>
<td>PTTS</td>
<td>Partitioned table space</td>
</tr>
<tr>
<td>SEGM</td>
<td>Segmented table space</td>
</tr>
<tr>
<td>TBLSS</td>
<td>Simple table space</td>
</tr>
<tr>
<td>UNDT</td>
<td>Undetermined</td>
</tr>
</tbody>
</table>

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Accessing an OMEGAMON Host Session**

When researching the cause of an alert, you may want to review conditions raised by an OMEGAMON product.

To access an OMEGAMON host session, use the *terminal emulator adapter* feature of Tivoli Enterprise Portal.

The terminal emulator adapter turns a view into a 3270 or 5270 interface so you can connect to any TN3270 or TN5250 host system (such as MVS or OS/400) using TCP/IP. The terminal emulator adaptor provides for simple terminal emulation. It also provides a scripting language interface that:
- Allows you to record (capture) a host session. As you interact with a host session, the session is recorded as a set of script commands that can be saved under a name you specify and played back at a later time. This allows you to automate navigation to a specific set of panels.
- Allows you to author complex scripts containing custom functions for manipulating host sessions.

**The Summarization and Pruning Feature**

Use the Summarization and Pruning feature to customize the time required for saving data (*pruning*) and how often to compress data (*summarization*) in the Tivoli Data Warehouse.
OMEGAMON XE for DB2 PE supports configurable data summarization and data pruning. With summarized data, the performance of queries can be improved considerably. In addition, with data summarization and data pruning working together, the amount of disk space utilized can be better managed.

The Summarization and Pruning feature uses information that is stored in the data warehouse to generate, store, and prune data. The data in the data warehouse is a historical record of activity and conditions in your enterprise. Summarizing the data is the process of aggregating your historical data into time-based categories such as hourly, daily, weekly, and so on. You can summarize your data to perform historical analysis of the data over time.

Pruning data means that old data is deleted automatically, rather than manually. You can set pruning criteria to remove old data from the data warehouse to limit the size of your database tables.

Conﬁguring Summarization and Pruning:

Summarization and Pruning allows you to customize the length of time for which to save data and how often to compress data. You can see and maintain the historical collections that have been conﬁgured for a monitored application and conﬁgure new collections.

Before you begin

Before you begin, ensure that you have started the following items:

• Tivoli Enterprise Monitoring Server
• Tivoli Enterprise Portal Server
• Tivoli Enterprise Portal
• Tivoli Enterprise Monitoring Agent

About this task

Configure the supported workspaces for summarization and pruning.

Procedure

1. From the Edit menu of the Tivoli Enterprise Portal, select History Configuration. The History Collection Configuration window opens.
2. In the Monitored Applications pane, select OMEGAMON XE for DB2 PE and PM on z/OS. The Select Attribute Groups pane opens.
3. From the Select Attribute Groups column, select the name of the attribute group that you want to configure.
4. In the Configuration and Controls section, set the Summarization and Pruning options.
   a. In the Summarization section, set the time period for data aggregation.
   b. In the Pruning section, set the time period to prune data.
5. Click OK to save your changes and close the window.

Summarization and Pruning Workspaces:

Certain workspaces in OMEGAMON XE for DB2 PE allow data to be aggregated and pruned. This feature is called summarization and pruning.
The following workspaces support summarization and pruning:

<table>
<thead>
<tr>
<th>Workspace</th>
<th>View</th>
<th>Attribute Group Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Buffer Pool Details Workspace” on page 471</td>
<td>Status, Thresholds, Ratio</td>
<td>DB2_SRM_BPD</td>
</tr>
<tr>
<td>“Buffer Pool Management Workspace” on page 475</td>
<td>Buffer Pool Management</td>
<td>DB2_SRM_BPM</td>
</tr>
<tr>
<td>“CICS Connections Workspace” on page 476</td>
<td>CICS Connection Summary</td>
<td>DB2_CICS_Exceptions</td>
</tr>
<tr>
<td>“CICS Threads Workspace” on page 478</td>
<td>CICS Threads</td>
<td>DB2_CICS_Threads</td>
</tr>
<tr>
<td>“DB2 Connect Server Workspace” on page 526</td>
<td>DB2 Connect Server</td>
<td>DB2_CONNECT_SERVER</td>
</tr>
<tr>
<td>“DDF Conversations Workspace” on page 549</td>
<td>DDF Conversation</td>
<td>DB2_DDF_CONV</td>
</tr>
<tr>
<td>“IMS Connections Workspace” on page 726</td>
<td>IMS Connections</td>
<td>DB2_IMS_Connections</td>
</tr>
<tr>
<td>“Package Statistics Workspace” on page 528</td>
<td>Package Statistics</td>
<td>DB2_CONNECT_PACKAGE</td>
</tr>
<tr>
<td>System Resource Manager (“EDM Pool Workspace” on page 672)</td>
<td>EDM Statistics</td>
<td>DB2_SRM_EDM_Statistics</td>
</tr>
<tr>
<td></td>
<td>EDM Summary</td>
<td>DB2_SRM_EDM</td>
</tr>
<tr>
<td>System Resource Manager (“Log Manager Workspace” on page 745)</td>
<td>Log Manager Statistics</td>
<td>DB2_SRM_Log_Statistics</td>
</tr>
<tr>
<td></td>
<td>Log Manager Summary</td>
<td>DB2_SRM_Log_Manager</td>
</tr>
<tr>
<td></td>
<td>Log_Detail</td>
<td>DB2_SRM_Log_Manager</td>
</tr>
<tr>
<td>System Resource Manager (“Subsystem Management Workspace” on page 781)</td>
<td>Subsystem Management Statistics</td>
<td>DB2_SRM_Subsystem_Statistics</td>
</tr>
<tr>
<td></td>
<td>Subsystem Management Summary</td>
<td>DB2_SRM_Subsystem</td>
</tr>
<tr>
<td>“System Status Workspace” on page 782</td>
<td>System State Information</td>
<td>DB2_System_States</td>
</tr>
</tbody>
</table>

To use the summarization and pruning feature, you must also specify the behavior and summary type as follows:

<table>
<thead>
<tr>
<th>Type of data</th>
<th>Behavior</th>
<th>Summary Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate, Ratio, Percent data</td>
<td>GAUGE</td>
<td>AVG</td>
</tr>
<tr>
<td>Delta data</td>
<td>PDEL</td>
<td>SUM</td>
</tr>
<tr>
<td>Maximum data</td>
<td>PEAK</td>
<td>MAX</td>
</tr>
<tr>
<td>Minimum data</td>
<td>LOW</td>
<td>MIN</td>
</tr>
<tr>
<td>Size data</td>
<td>PROPERTY</td>
<td>LAT (latest)</td>
</tr>
<tr>
<td>Total, Accumulative data</td>
<td>COUNT</td>
<td>LAT</td>
</tr>
<tr>
<td>Current data</td>
<td>GAUGE (apply to counter as well)</td>
<td>AVG</td>
</tr>
</tbody>
</table>

**History Configuration**

Use the History Configuration window to configure history collection for OMEGAMON XE for DB2 PE.
The Collection Location must be set to TEMA for the following attribute groups:

- All threads
- Thread details
- Distributed thread details
- Thread enclave
- Detailed thread exception
- MVS storage

For more information, refer to Historical data collection configuration

**HTML Navigation**

The HTML navigation allows you to navigate from one workspace to another, while passing context information to the next workspace.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

The workspaces have been grouped into following functional units:

1. Thread Summary workspaces:
   - “All Threads Connected to DB2 Workspace” on page 451
   - “CICS Thread Summary Workspace” on page 479
   - “Detailed Thread Exception Workspace” on page 554
   - “Distributed Allied Thread Summary Workspace” on page 564
   - “DBAT End-to-End SQL Monitoring Workspace” on page 544
   - “Enclave Thread Summary Workspace” on page 677
   - “IMS Thread Summary Workspace” on page 731
   - “Lock Conflicts Workspace” on page 732
   - “Thread Activity by Package Workspace” on page 803
   - “Thread Activity by Plan Workspace” on page 803
   - “Utility Jobs Workspace” on page 831

2. Thread Detail workspaces:
   - “Thread Activity by Plan Workspace” on page 803
   - “Thread Detail Workspace” on page 804
   - “Distributed Thread Detail Workspace” on page 565
   - “Thread Enclave Detail Workspace” on page 805
   - “Thread Locks Owned Workspace” on page 806
   - “Thread SQL Counts 1 Workspace” on page 818
   - “Thread SQL Counts 2 Workspace” on page 828
   - “Thread SQL Counts 3 Workspace” on page 828
   - “Thread Wait Events Workspace” on page 830

3. Statistic workspaces
   - “Buffer Pool Management Workspace” on page 475
   - “DB2 Connect Server Workspace” on page 528
   - “EDM Pool Workspace” on page 672 (System Resource Manager)
   - “EDM Pool (DB2 10) Workspace” on page 676 (System Resource Manager)
Adding HTML Links to the Existing HTML Navigation Structure:

You can add new HTML links to the existing HTML navigation structure.

About this task

Add a new HTML link to the existing HTML navigation structure.

Procedure

1. Determine the name of the customized workspace that you want to add to the existing navigation structure. You find the workspace name in the title bar of the Tivoli Enterprise Portal window.

2. Determine the workspace ID that uniquely identifies the customized workspace. Enter the following SQL statement on the Tivoli Enterprise Portal Server database: `select OBJECTID from <TEPS database name>.KFWORKSPACE where "NAME" like '<name of the new user-defined workspace>'` In this SQL statement `<TEPS database name>` is the database name of Tivoli Enterprise Portal Server. Make a note of the OBJECTID, as it is needed later.

3. Choose a navigation category that you would like to add the new workspace link to. The available navigation categories are:
   - Statistic_Navigation
   - Thread_Detail_Navigation
   - Thread_Summary_Navigation

4. Open the file with file extension XML that defines all HTML links for the chosen navigation category. The name of the file is `<navigation category>.xml`. The path for this file is the following: `ITM base directory\CNB\classes\candle\kdp\resources\help\language locale\HTML_BrowserNavigation\version where:

   - *ITM base directory* Identifies the base directory of IBM Tivoli Monitoring
   - *language locale* Identifies the language that is used. An empty language locale string represents the English language locale.
   - *version* Identifies the current version: V540

5. Add a new `first_level_navigator` node. You can add the new node between any other existing `first_level_navigator` nodes. If you add the new node at the bottom of the file with file extension XML, the new HTML link shows up at the end of the HTML links list.

6. Make the following changes to the added `first_level_navigator` node: Set the name of your customized workspace as the new `caption_EN_US` value. Set the name of your customized workspace as the new `caption_NLS` value. Set the `target_workspace_objectid` to the OBJECTID that you have determined in Step 2. Parameter details:
KD2_PF_READA_SPMON

a. caption_EN_US: This property must be unique in the file with file extension XML. Therefore, choose a caption_EN_US name that does not exist yet in this file.

b. caption_NLS: This xml node contains the link caption. The new workspace link gets its caption from here.

c. target_workspace_objectid: This xml node defines the target workspace for the HTML link.

d. keep_symbols: This parameter is important for context-sensitive navigation. keep_symbols set to 'true' specifies that there is context information that must be passed along when linking to the workspace. keep_symbols set to 'false' specifies that no context information that must be passed along when linking to the workspace. Do not change this parameter.

7. To generate the files with file extension XML that are required for the HTML navigation in Tivoli Enterprise Portal, browse to the following directory: ITM base directory\CNB\classes\candle\kdp\resources\help\language locale\HTML_BrowserNavigation\version where:

ITM base directory
Identifies the base directory of IBM Tivoli Monitoring

language locale
Identifies the language that is used. An empty language locale string represents the English language locale.

version Identifies the current version: V540


10. Use the added HTML link to navigate to your customized workspace. The new customized workspace is displayed. But in the HTML navigation the wrong navigator item is highlighted. The new customized workspace is displayed and that navigator item should be the one that is highlighted.

a. To correct this, open the Properties dialog for the HTML navigation. In the "HOME" text field, change the file name of the file with file extension XML to the caption_EN_US value that you specified for the added HTML link.

b. In the file name, replace all blanks by underscores.

c. Click OK.

11. Click on the added HTML link again, and click OK when you are asked to save the workspace changes. Now the correct navigator item is highlighted when the new customized workspace is displayed in Tivoli Enterprise Portal.

Exception paths:
About this task

One exception path is that you enter a wrong OBJECTID into the file with file extension XML (see Step 5 on page 847). This means that the identifier for the workspace that Tivoli Enterprise Portal should navigate to is wrong. The effect in Tivoli Enterprise Portal is that nothing happens when you click on that workspace link with the wrong OBJECTID in the HTML navigation view. There is no error message displayed on the Tivoli Enterprise Portal GUI, but Tivoli Enterprise Portal provides a trace log. You can navigate to the trace log using the Manage Tivoli Enterprise Monitoring Services dialog.

Results

In the trace log you find the following error messages that indicate the problem:
An error occurred requesting the workspace record for: REPORT, 117cae1a3ad

No workspace group was found for the given workspace type and id
At least one invalid parameter found, request has failed.

Here 117cae1a3ad is the wrong OBJECTID.

What to do next

You can correct the OBJECTID by either removing a typo or by determining the correct workspace ID of the new customized workspace (Step 2 on page 847).

Changing HTML Links to Point to User-Defined Workspaces:

You can customize workspaces and change the corresponding HTML link to point to the user-defined workspace.

About this task

Alter an HTML link to link to a different workspace.

Procedure

1. Determine the name of the workspace link that you want to use in order to point to a user-defined workspace. For example, you have created a customized Thread Wait Events workspace. Now you want to change the default Thread Wait Events HTML link to point to your customized Thread Wait Events workspace. In this case, the name of the workspace link that you want to change is Thread Wait Events.

2. Open the Properties dialog of the browser view of the HTML navigation browser and determine the navigation category that the workspace link belongs to. The available navigation categories are:
   - Statistic_Navigation
   - Thread_Detail_Navigation
   - Thread_Summary_Navigation

3. Navigate to your custom workspace that should become the new target of the HTML link. Determine the name of the new user-defined workspace that should be the new target for the link. You find the workspace name in the title bar of the Tivoli Enterprise Portal window.

4. Determine the workspace ID that uniquely identifies the new customized workspace. Enter the following SQL statement on the Tivoli Enterprise Portal Server database: select OBJECTID from <TEPS database name>.KFWWORKSPACE where "NAME" like '%<name of the new user-defined workspace>' In this SQL statement <TEPS database name> is the database name of Tivoli Enterprise Portal Server. Make a note of the OBJECTID, as it is needed later.

5. Open the XML file that defines all HTML links for the chosen navigation category. The name of the XML file is <navigation category>.xml. The path for this XML file is the following: <ITM base directory>\CNB\classes\candle\kdp\resources\help\<language locale>\HTML_BrowserNavigation\V420 where <ITM base directory> is the base directory of IBM Tivoli Monitoring.

Remark: An empty language locale string represents the English language locale.
6. Search for the `caption_NLS` element that contains the name of the workspace link that you want to change. You have determined the workspace name in Step 1 on page 849.

```xml
<first_level_navigator>
  <caption_EN_US>Thread Wait Events</caption_EN_US>
  <caption_NLS>Thread Wait Events</caption_NLS>
  <target_workspace_objectid>1013a039535:420</target_workspace_objectid>
  <keep_symbols>true</keep_symbols>
</first_level_navigator>
```

7. Make the following changes: Set the `caption_NLS` to the name of your customized workspace that you have determined in Step 3 on page 849. Set the `target_workspace_objectid` to the OBJECTID that you have determined in Step 4 on page 849. Parameter details:
   a. `caption_EN_US`: Do not change the text in this node as it is important for the proper function of the HTML navigation.
   b. `caption_NLS`: This xml node contains the link caption.
   c. `target_workspace_objectid`: This xml node defines the target workspace for the HTML link. Set it to the OBJECTID determined in Step 3 on page 849.
   d. `keep_symbols`: This parameter is important for context-sensitive navigation. `keep_symbols` set to 'true' specifies that there is context information that must be passed along when linking to the workspace. `keep_symbols` set to 'false' specifies that no context information that must be passed along when linking to the workspace. Do not change this parameter.

8. XML files that are required for the HTML navigation in Tivoli Enterprise Portal are generated in this step. To generate these XML files, browse to the following directory: `<ITM base directory>\CNB\classes\candle\kdp\resources\help\<language locale>\HTML_BrowserNavigation\V420` where `<ITM base directory>` is the base directory of IBM Tivoli Monitoring.

11. The old HTML link caption has changed to the caption of the new customized workspace. When clicking on that customized workspace HTML link, Tivoli Enterprise Portal links to this new workspace.

**Exception paths:**

**About this task**

One exception path is that you enter a wrong OBJECTID into the XML file (see Step 5 on page 849). This means that the identifier for the workspace that Tivoli Enterprise Portal should navigate to is wrong. The effect in Tivoli Enterprise Portal is that nothing happens when you click on that workspace link with the wrong OBJECTID in the HTML navigation view. There is no error message displayed on the Tivoli Enterprise Portal GUI, but Tivoli Enterprise Portal provides a trace log. You can navigate to the trace log using the Manage Tivoli Enterprise Monitoring Services dialog.

**Results**

In the trace log you find the following error messages that indicate the problem:
An error occurred requesting the workspace record for: REPORT, 117cael1a3ad

No workspace group was found for the given workspace type and id
At least one invalid parameter found, request has failed.

Here 117cael1a3ad is the wrong OBJECTID.

What to do next

You can correct the OBJECTID by either removing a typo or by determining the correct workspace ID of the new customized workspace (Step 3 on page 849).

Installing and configuring Tivoli Enterprise Portal

In this step, you install and configure Tivoli Enterprise Portal, Tivoli Enterprise Portal Server, and IBM Eclipse Help Server on the workstation.

Before you begin

You must install and configure the IBM Tivoli Monitoring components on z/OS before installing and configuring Tivoli Enterprise Portal. See “Enabling IBM Tivoli Monitoring” on page 374 for more information.

About this task

The entire OMEGAMON family of products uses the Tivoli Enterprise Portal, so the installation and configuration are not explained here. For detailed instructions, see the Tivoli Monitoring in the IBM Knowledge Center.

Adding Tivoli Data Warehouse

The configuration of your Tivoli Data Warehouse will vary, depending on the size of the environment, which database management systems you use, and which operating systems you use.

Before you begin

You must install and configure the IBM Tivoli Monitoring components on z/OS before adding Tivoli Data Warehouse. See “Enabling IBM Tivoli Monitoring” on page 374 for more information.

About this task

You can use the Tivoli Data Warehouse to store collected performance information for a long time. This is helpful when you want to compare DB2 activity that occurred in the past or when you want to review trends.

For detailed installation and configuration instructions, see Setting up data warehousing in the Monitoring section of the Tivoli Monitoring in the IBM Knowledge Center.

Installing and configuring end-to-end SQL or stored procedure monitoring

In this step, you install and configure end-to-end SQL or stored procedure monitoring on the workstation.
Before you begin

1. You must add end-to-end SQL or stored procedure monitoring support before installing and configuring end-to-end SQL or stored procedure monitoring. See "Enabling Performance Expert Client support, SQL Dashboard, or end-to-end SQL or stored procedure monitoring support" on page 373 for more information.

2. You must add port information for end-to-end SQL or stored procedure monitoring before installing and configuring end-to-end SQL or stored procedure monitoring. See “Specifying the port information for Performance Expert Client and/or end-to-end SQL or stored procedure monitoring” on page 394 for more information.

3. You must add additional DB2 traces before installing and configuring end-to-end SQL or stored procedure monitoring. See “Starting Additional DB2 Traces” on page 393 for more information.

4. In order to use stored procedure monitoring, you must enable it separately. See “Configuring Additional Monitoring Features” on page 394 for more information.

About this task

Installation and configuration of the InfoSphere Optim Performance Manager including the end-to-end SQL or stored procedure monitoring feature is documented in the InfoSphere Optim Performance Manager Installation Guide, Version 5.1.1 or higher. For more information on configuring the stored procedure monitoring feature, refer to the InfoSphere Optim Performance Manager Installation Guide, Version 5.1.1.1. For detailed instructions, see the IBM InfoSphere Optim Performance Manager in the Knowledge Center.

About this information

This information describes how to configure the component Buffer Pool Analyzer for z/OS (hereafter abbreviated to Buffer Pool Analyzer).

Always check the IBM DB2 and IMS Tools Library web page and the Tivoli library page for the most current version of this information:

- OMEGAMON for Db2 Performance Expert on z/OS (PDFs and Techdocs on Db2 Tools Product Page)
- OMEGAMON for Db2 Performance Monitor on z/OS (PDFs and Techdocs on Db2 Tools Product Page)

Who should read this information

This information is written for database administrators (DBAs), system programmers, and system operators who are responsible for configuring Buffer Pool Analyzer.

To configure this program you should have a working knowledge of:

- Multiple Virtual Storage (MVS)
- Time Sharing Option (TSO)
- Interactive System Productivity Facility (ISPF)
- Job control language (JCL)
- Structured Query Language (SQL)
- z/OS
Installing Buffer Pool Analyzer Client

This topic describes how to install Buffer Pool Analyzer Client. It also explains how to start it. Buffer Pool Analyzer Client is required if you want to use the graphical user interface (GUI) of Buffer Pool Analyzer Client.

Note: IBM OMEGAMON for Db2 Performance Monitor on z/OS: From Version 5.4.0 Buffer Pool Analyzer is no longer a standalone option, it is only delivered as part of IBM OMEGAMON for Db2 Performance Expert on z/OS. If you want to update your client you must select IBM OMEGAMON for Db2 Performance Expert on z/OS.

Hardware requirements
The minimum hardware requirements to install and run Performance Expert Client are:

- A personal computer with Intel-based processor architecture, 400 MHz Pentium
- 512 MB RAM
- 390 MB (Windows 64-bit) disk space in the installation directory for the installation files
- 350 MB temporary space for running the installation program
- A high-resolution display unit of 1024 x 768 or higher
- For object placement, the following free memory:
  - 60 MB for up to 1000 objects
  - 220 MB for up to 100 000 objects
  - 500 MB for up to 200 000 objects
  where objects are table spaces and index spaces.

Recommendation: If you have installed only the minimum requirements, you should not run other applications at the same time.

Software requirements
The minimum software requirements to install and run Buffer Pool Analyzer Client are:

- One of the following Windows (x86, x86-64) versions:
  - Windows XP Professional Edition with Service Pack 2, including XP FDCC
  - Windows 7 Professional Edition and Ultimate Edition including FDCC
  - Optimization Service Center for DB2 for z/OS V1.1 or Optimization Service Center for DB2 for z/OS V1.2
  - TCP/IP installed on the workstation
  - One of the following web browsers:
    - Microsoft Internet Explorer V5 or later
- Netscape Navigator V7 or later
- Mozilla V1.5 or later
- Software programs to download files or code from z/OS, such as File Transfer Protocol (FTP) or IBM Personal Communications

**Installing the program files**

**About this task**

**Requirement:** You must have administration privileges to install Buffer Pool Analyzer Client.

After the installation completes successfully, you can start Buffer Pool Analyzer Client and use its functions from the DB2 Control Center.

**Downloading the program files of Buffer Pool Analyzer Client:** Both the initial version and later fixes for the program files for Buffer Pool Analyzer Client are available online. For download instructions, refer to the technote “OMPE: web-based delivery of updates for PE Workstation Client and PE Agent” on the IBM Software Support website. If needed, a direct link to the technote is included in the hold instructions of every PE Client PTF on the host. The available program build levels and fix descriptions are documented in the technote.

**Note:** The technote and website refer to the Performance Expert Client rather than the Buffer Pool Analyzer Client. However, these are the same. You chose at installation which product you want to install.

**Installing Buffer Pool Analyzer Client:**

After downloading the program files of Buffer Pool Analyzer Client, you can install them using the InstallAnywhere Wizard.

To begin installation, follow these steps:
- Verify that you have administration privileges.
- Download the program files of Buffer Pool Analyzer Client. See “Downloading the program files of Buffer Pool Analyzer Client” for more information.
- Close the DB2 Control Center before installing the Buffer Pool Analyzer Client program files.

To install the program files, follow these steps:
1. Verify that you have closed the DB2 Control Center. The DB2 Control Center must be closed before you start the client installation in order for the Control Center plugin to be installed properly.
2. Extract the files and directories from the compressed file(s) into the installation directory, for example, C:\PROGRAMS\IBM\BPACLIENT.
   The archives contain the following files and directories:
   - db2pe.client.*.exe
   - iehs*win.jar
   The InstallAnywhere Wizard starts, and the IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS V5 Setup window opens.
   If you did not close the DB2 Control Center before installing the plug-in then you might not be able to access the Buffer Pool Analyzer Client from the DB2 Control Center.
4. Click Next.
   The next IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS V5 Setup window shows the License Agreement.

5. To install Buffer Pool Analyzer Client, select I accept the terms of the license agreement, then click Next.
   The next IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS V5 Setup window opens. It lets you select the different clients.

6. Click Buffer Pool Analyzer Client, then click Next.
   The IBM DB2 Buffer Pool Analyzer V5 Setup window opens. It lets you specify the installation path.

7. To install the program files to the default destination folder, click Next. To install the program files to a different folder, click Browse and select another folder.
   The next IBM DB2 Buffer Pool Analyzer V5 Setup window opens.

8. Select the setup type that you prefer, then click Next.
   The next IBM DB2 Buffer Pool Analyzer V5 Setup window opens.

9. Check the summary information, then click Install.
   The program files are copied to the specified destination folder and the next IBM DB2 Buffer Pool Analyzer V5 Setup window opens. It shows summary information about the installation. It also shows the location of the log file.

10. Click Finish to exit the InstallAnywhere Wizard.

Starting Buffer Pool Analyzer Client

About this task

To start Buffer Pool Analyzer Client, follow one of these options:

- Click Start → Programs → IBM DB2 Buffer Pool Analyzer for z/OS → IBM DB2 Buffer Pool Analyzer for z/OS.
- Double-click the IBM DB2 Buffer Pool Analyzer for z/OS icon on your desktop.

Buffer Pool Analyzer Client is then started.

Related reading: For information about how to work with Buffer Pool Analyzer Client, refer to Buffer Pool Analyzer User’s Guide.

Configuration summary for Buffer Pool Analyzer

Follow the installation instructions in the Program Directory that is included with Buffer Pool Analyzer. After you install Buffer Pool Analyzer, you must configure the tool by using the instructions in this topic.

The SMP/E installation of Buffer Pool Analyzer is described in Program Directory for IBM OMEGAMON for Db2 Performance Expert on z/OS.

This topic describes how to configure the setup of Buffer Pool Analyzer. It also explains the mandatory or optional setup steps, and shows the corresponding authorizations that you need to perform each step.

Recommendation: The product image is installed from tape to the high-level qualifier hlqdb2pe. Before you start the configuration, you should create other data sets to which sample members are to be copied and where sample members are to be changed. This prevents your sample members from being overwritten, for example, when you install a program temporary fix (PTF).
Overview of the setup procedure for Buffer Pool Analyzer

The table in this section shows a typical configuration procedure for Buffer Pool Analyzer.

Table 81. Typical configuration procedure for Buffer Pool Analyzer

<table>
<thead>
<tr>
<th>Step</th>
<th>Mandatory or Optional</th>
<th>Step description</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mandatory</td>
<td>“Step 1: Granting DB2 privileges for Buffer Pool Analyzer” on page 857</td>
<td>Run section 1 of BPOYAUTH.</td>
</tr>
<tr>
<td>2</td>
<td>Mandatory</td>
<td>“Step 2: Binding Buffer Pool Analyzer packages for DB2” on page 858</td>
<td>Run BPOYBIND.</td>
</tr>
<tr>
<td>3</td>
<td>Mandatory</td>
<td>“Step 3: Binding DB2 plan” on page 858</td>
<td>Run BPOYPLAN with the plan name for Buffer Pool Analyzer.</td>
</tr>
<tr>
<td>4</td>
<td>Mandatory</td>
<td>“Step 4: Reviewing security requirements for Buffer Pool Analyzer” on page 858</td>
<td>Run section 2 of BPOYAUTH.</td>
</tr>
<tr>
<td>5</td>
<td>Mandatory</td>
<td>“Step 5: Changing the FPEJINIT EXEC” on page 858</td>
<td>Run FPEJINIT.</td>
</tr>
<tr>
<td>6</td>
<td>Mandatory</td>
<td>“Step 6: Configuring ISPF defaults” on page 859</td>
<td>Run BPOJVARS.</td>
</tr>
<tr>
<td>7</td>
<td>Mandatory</td>
<td>“Step 7: Adding Buffer Pool Analyzer to your ISPF environment” on page 860</td>
<td>Add Buffer Pool Analyzer to the ISPF menu.</td>
</tr>
<tr>
<td>8</td>
<td>Optional</td>
<td>“Step 8: Optional. Adding Buffer Pool Analyzer to the DB2 Administration Tool launchpad” on page 860</td>
<td>Add Buffer Pool Analyzer to the DB2 Administration Tool launchpad.</td>
</tr>
<tr>
<td>9</td>
<td>Optional</td>
<td>“Step 9: Optional. Installing Buffer Pool Analyzer Client” on page 861</td>
<td>To use the graphical user interface (GUI), you must install Buffer Pool Analyzer Client. See “Installing Buffer Pool Analyzer Client” on page 853 for more information.</td>
</tr>
</tbody>
</table>

Note: The library TKO2SAMP contains the members.

For more information about the jobs that you have to run, refer to “Summary of configuration and verification jobs” on page 861.

Overview of setup steps and authorizations

This topic gives an overview of the setup steps and required authorizations to configure Buffer Pool Analyzer.

The following table lists the setup steps and the authorizations that are required to perform the steps.

Table 82. Required authorizations for setup steps

<table>
<thead>
<tr>
<th>Step</th>
<th>Authorization</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Step 1: Granting DB2 privileges for Buffer Pool Analyzer” on page 857</td>
<td>GRANT privileges and DB2 administration rights</td>
</tr>
</tbody>
</table>
### Table 82. Required authorizations for setup steps (continued)

<table>
<thead>
<tr>
<th>Step</th>
<th>Authorization</th>
</tr>
</thead>
</table>
| “Step 2: Binding Buffer Pool Analyzer packages for DB2” on page 858 | The following DB2 privileges:  
  - BINDADD  
  - PACKADM on collection BPO540  
  - SELECT on the following catalog tables:  
    – SYSIBM.SYSINDEXES  
    – SYSIBM.SYSTABLESPACE  
  GRANT statements to support these authorizations are included in section 1 of the DDL member BPOAUTH. |
| “Step 3: Binding DB2 plan” on page 858 | The DB2 privilege BINDADD |
| “Step 4: Reviewing security requirements for Buffer Pool Analyzer” on page 858 | The following DB2 privileges:  
  - EXECUTE on the Buffer Pool Analyzer plan (K02PLAN)  
  - MONITOR1 privilege  
  - MONITOR2 privilege  
  - TRACE and DISPLAY privilege  
  - Resource Access Control Facility (RACF) administrator  
  - PCF administrator  
  GRANT statements to support these authorizations are included in section 2 of the DDL member BPOAUTH. |
| “Step 5: Changing the FPEJINIT EXEC” on page 858 | Authorizations required for these steps. |
| “Step 6: Configuring ISPF defaults” on page 859 |  |
| “Step 7: Adding Buffer Pool Analyzer to your ISPF environment” on page 860 |  |

### Step 1: Granting DB2 privileges for Buffer Pool Analyzer

This section explains how to grant DB2 privileges for Buffer Pool Analyzer.

**About this task**

You must perform this step for each DB2 subsystem for which you want to use Buffer Pool Analyzer.

To grant DB2 privileges, follow these steps:

**Procedure**

1. Run section 1 of the DDL member BPOAUTH.
2. Run the DDL member by using SQL Processor Using File Input (SPUFI) or an equivalent.

**What to do next**

Ensure that the SQL return code is 0 and that a commit is performed.
Step 2: Binding Buffer Pool Analyzer packages for DB2

This section explains how to bind Buffer Pool Analyzer packages for DB2.

About this task

You must perform this step for each DB2 subsystem for which you want to use Buffer Pool Analyzer.
1. Change the DB2 subsystem ID.
2. Change the DB2 high-level qualifier in the job BPOYBIND.
3. Run the job BPOYBIND.
4. Repeat this step.

Step 3: Binding DB2 plan

In this step you bind the plan for Buffer Pool Analyzer.

About this task

To bind the plan for Buffer Pool Analyzer, run the job BPOYPLAN for each DB2 subsystem for which you want to use Buffer Pool Analyzer.

Step 4: Reviewing security requirements for Buffer Pool Analyzer

Depending on your system software and the functions that you plan to use, you might have to change the existing security definitions.

About this task

To work with the Host Online Monitor, users need the following DB2 privileges:

EXECUTE
On the host online monitor plan (K02PLAN).

MONITOR1
Grants the privilege to obtain IFC data classified as serviceability data, statistics, accounting, and other performance data that does not contain potentially sensitive data.

MONITOR2
Grants the privilege to obtain IFC data classified as containing potentially sensitive data, such as SQL statement text and audit data. Note that users with MONITOR2 privileges have also MONITOR1 privileges.

TRACE and DISPLAY
For users who have to use the CRD function.

GRANT statements to support these authorizations are included in section 2 of the DDL member BPOYAUTH.

Step 5: Changing the FPEJINIT EXEC

About this task

To change the FPEJINIT EXEC, follow these steps:

Procedure
1. Copy the FPEJINIT EXEC from the target library hlqdb2pe.TKO2SAMP into a library that is in your EXEC library concatenation.
2. Change the corresponding lines in this EXEC. They are at the beginning of the
EXEC and are delimited by comments. These comments indicate the start and
the end of the section that you can change.

   checks = 1;
   rte_mode = 0;
   smpe_mode = 1;
   hlq2.1 = "hlq of SMP/E data sets";
   sclm_mode = 0;

where "hlq of SMP/E data sets" denote the names that you choose for the
SMP/E target libraries.

For example, if the libraries start with SYS1.DB2BPA, change the statement in
the following way:

   hlq2.1 = "SYS1.DB2BPA"

3. Save the updated FPEJINIT EXEC.

4. Optionally change the FPEJINIT EXEC after the installation verification
   procedure (IVP) completes successfully from checks = 1 to checks = 0.

What to do next

Requirement: If you want to use the Host Online Monitor, you must do the
following before you start your ISPF session:

- Allocate the DB2 load library corresponding to the version and release number
  of the DB2 subsystem to be monitored to ISPLLIB. You can also have the library
  in a STEPLIB, JOBLIB, or the system LNKLST concatenation.
- To test this EXEC, perform the installation verification procedures as described
  in “Verifying configuration and setup of Buffer Pool Analyzer” on page 861.

Step 6: Configuring ISPF defaults

BPOJVARs is a REXX EXEC in the library hlqdb2pe.TKO2SAMP that you can use
to configure defaults for the ISPF dialog.

About this task

To run this EXEC and configure ISPF defaults for Buffer Pool Analyzer, follow
these steps:

Procedure

1. Enter the following command in ISPF option 6 (TSO Command Processor) to
run the EXEC:

   EXEC 'hlqdb2pe.TKO2SAMP(BPOJVARs)'

   The following panel shows the parameters.

```
BPOJOPTS   IBM DB2 Buffer Pool Analyzer Customization

Complete fields as indicated, then press Enter.

Type requested names
z/OS subsystem name . . . DGOV
Load library . . . . . . . 'BP0540.TKANMOD'

Select option with '/'
/ Load library is in the system LNKLST concatenation

F1=Help  F2=Split  F9=Swap  F12=Cancel
```
2. Check the following parameters and configure them according to your needs:
   - z/OS subsystem name
   - Load library name
   - Load library in the system LNKLST concatenation

3. Complete the panel fields and press Enter.
   Message BPOJ0008 is displayed.
   In the following example, the name of the load library is changed. It is also specified that the load library is in the system LNKLST concatenation.

```
BPOJOPTS IBM DB2 Buffer Pool Analyzer Customization
Complete fields as indicated, then press Enter.

Type requested names
z/OS subsystem name ... DGOV
Load library ... 'SYS1.TKANMOD'

Select option with '/'
/ Load library is in the system LNKLST concatenation
```

F1=Help  F2=Split  F9=Swap  F12=Cancel

---

**Step 7: Adding Buffer Pool Analyzer to your ISPF environment**

This topic is intended primarily for DBAs working with ISPF and TSO systems.

**About this task**

You can add Buffer Pool Analyzer as an ISPF application to your environment.

To update the corresponding panels so that this ISPF application can be started, follow these steps:

**Procedure**

1. Select a panel that is available to all users, for example, the ISPF/PDF main menu ISR@PRIM.
2. Change the panel for the application.
   The associated ZSEL variable value for the application is CMD(%FPEJINIT).
3. Ensure that the new version of the FPEJINIT EXEC is available in the active EXEC library. FPEJINIT uses the TSO ALTLIB command to allocate and deallocate the EXEC library dynamically.

**Step 8: Optional. Adding Buffer Pool Analyzer to the DB2 Administration Tool launchpad**

**About this task**

**Requirement:** You must have system administrator privileges to perform this step.

To add Buffer Pool Analyzer to the DB2 Administration Tool launchpad, follow these steps:

**Procedure**

1. Edit the sample EXEC BPOADBI in the library hlqdb2pe.TKO2SAMP in the following way:
   a. Set the high-level qualifier of DB2 Admin data sets.
b. Set the name of the CLSIT/EXEC library, which contains the ADBDMTI exec.

c. Specify the ISPF statement to invoke Buffer Pool Analyzer.

2. Execute the EXEC BPOADBI.

Buffer Pool Analyzer is added to the launchpad.

Related reading: For more information about how to add an IBM DB2 tool for the launchpad, refer to DB2 Universal Database™ for z/OS Administration Guide.

Step 9: Optional. Installing Buffer Pool Analyzer Client

About this task

To use the graphical user interface (GUI), you must install Buffer Pool Analyzer Client. How to do this is described in “Installing Buffer Pool Analyzer Client” on page 853.

Verifying configuration and setup of Buffer Pool Analyzer

This topic contains a summary of the configuration and verification jobs. It also shows how to run a sample job to verify the configuration of Buffer Pool Analyzer.

Summary of configuration and verification jobs

The following table shows the configuration jobs that you can edit and run after the SMP/E installation is finished.

The SMP/E installation is described in Program Directory for IBM DB2 Buffer Pool Analyzer for z/OS.

<table>
<thead>
<tr>
<th>Job</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPOYAUTH</td>
<td>Grant DB2 privileges for Buffer Pool Analyzer. Use the DDL member.</td>
</tr>
<tr>
<td>BPOYBIND</td>
<td>DB2 bind packages for Buffer Pool Analyzer.</td>
</tr>
<tr>
<td>BPOYPLAN</td>
<td>DB2 bind plan for Buffer Pool Analyzer.</td>
</tr>
<tr>
<td>BPOYAUTH</td>
<td>Review security requirements. Use the DDL member.</td>
</tr>
<tr>
<td>BPOJIVPA</td>
<td>Verifies the configuration of Buffer Pool Analyzer.</td>
</tr>
</tbody>
</table>

Running the sample verification job

You can run the verification job BPOJIVPA after the configuration is finished.

About this task

Data set hlqdb2pe.TKO2SAMP contains the sample job BPOJIVPA to help you verify the configuration.

Submit the job BPOJIVPA. This procedure causes the production of a report file. The expected return code is zero.

Final step

Verification of the configuration is now complete.

About this task

After the IVP completes successfully, move the updated FPEJINIT to a system EXEC or CLIST library so that the users can access it.
Chapter 4. Migrating

Migration considerations

Before migrating to OMEGAMON for DB2 PE V5.4.0, familiarize yourself with changed values for certain parameters.

This information applies to both migration scenarios, migrating from the Configuration Tool and migrating in PARMGEN. Values have changed for the following parameters in the PARMGEN profile for V5.4.0:

Table 84. Changed parameter values

<table>
<thead>
<tr>
<th>Parameter</th>
<th>V5.1.0/V5.1.1 values</th>
<th>V5.2.0 values</th>
<th>V5.3.0 values</th>
<th>V5.4.0 values</th>
</tr>
</thead>
<tbody>
<tr>
<td>KD2_DBxx_DB2_VER</td>
<td>81, 91, 10</td>
<td>91, 10, 11</td>
<td>10, 11</td>
<td>10, 11, 12</td>
</tr>
<tr>
<td>KD2_PFxx_SQLPA_VERSION</td>
<td>3.1, 3.2, 4.1</td>
<td>4.1, 4.2</td>
<td>4.1, 4.2, 5.1</td>
<td>4.2, 5.1</td>
</tr>
<tr>
<td>KD2_PFxx_SQLPA_CF_ENBL</td>
<td>Y, N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>GBL_DSN_DB2_LOADLIB_V10</td>
<td>N/A</td>
<td>DB2 load and run libraries</td>
<td>DB2 load and run libraries</td>
<td>DB2 load and run libraries</td>
</tr>
<tr>
<td>GBL_DSN_DB2_RUNLIB_V10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GBL_DSN_DB2_LOADLIB_V11</td>
<td>N/A</td>
<td>DB2 load and run libraries</td>
<td>DB2 load and run libraries</td>
<td>DB2 load and run libraries</td>
</tr>
<tr>
<td>GBL_DSN_DB2_RUNLIB_V11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GBL_DSN_DB2_LOADLIB_V12</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>DB2 load and run libraries</td>
</tr>
<tr>
<td>GBL_DSN_DB2_RUNLIB_V12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With OMEGAMON for DB2 PE V5.2.0, support for DB2 8 is dropped and support for DB2 11 is added. Thus, 81 is not a valid value anymore. With OMEGAMON for DB2 PE V5.3.0, support for DB2 9 is dropped. With OMEGAMON for DB2 PE V5.4.0, support for DB2 12 is added.

With OMEGAMON for DB2 PE V5.2.0, support for SQL Performance Analyzer (SQLPA) for V3.2 and V3.1 is dropped and support for V4.2 is added. Thus, 4.1 and 4.2 are the only valid values for this parameter. With OMEGAMON for DB2 PE V5.4.0, support for V4.1 is dropped. Thus, 4.2 and 5.1 are the only valid values for this parameter.

With OMEGAMON for DB2 PE V5.2.0, configuration support for SQLPA as part of OMEGAMON for DB2 PE configuration is dropped. Hence, you need to enable the use of an existing configuration with this parameter. You then need to specify the ANLP and ANLC members that you configured in SQLPA.

To configure the load and run libraries for DB2 10 monitoring, you need to specify them with these parameters. You find these parameters in the global parameter configuration profile $GBL$USR. If you do not see these parameters in this profile, then you can add them to the already existing LOADLIB and RUNLIB parameters for the other DB2 versions.

To configure the load and run libraries for DB2 11 monitoring, you need to specify them with these parameters. You find these parameters in the global parameter configuration profile $GBL$USR. If you do not see these parameters in this profile, then you can add them to the already existing LOADLIB and RUNLIB parameters for the other DB2 versions.

To configure the load and run libraries for DB2 12 monitoring, you need to specify them with these parameters. You find these parameters in the global parameter configuration profile $GBL$USR. If you do not see these parameters in this profile, then you can add them to the already existing LOADLIB and RUNLIB parameters for the other DB2 versions.
Table 84. Changed parameter values (continued)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>V5.1.0/V5.1.1 values</th>
<th>V5.2.0 values</th>
<th>V5.3.0 values</th>
<th>V5.4.0 values</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBL_DSN_DB2_LOADLIB_V8</td>
<td>DB2 load and run libraries</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>GBL_DSN_DB2_RUNLIB_V8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With OMEGAMON for DB2 PE V5.2.0, monitoring support for DB2 8 is dropped. Thus, these parameters are ignored during configuration.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>V5.1.0/V5.1.1 values</th>
<th>V5.2.0 values</th>
<th>V5.3.0 values</th>
<th>V5.4.0 values</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBL_DSN_DB2_LOADLIB_V9</td>
<td>DB2 load and run libraries</td>
<td>DB2 load and run libraries</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>GBL_DSN_DB2_RUNLIB_V9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With OMEGAMON for DB2 PE V5.3.0, monitoring support for DB2 9 is dropped. Thus, these parameters are ignored during configuration.

Migrating from OMEGAMON for DB2 PE version 5.2.0 to version 5.4.0

Migrating from OMEGAMON for DB2 PE V5.2.0 to OMEGAMON for DB2 PE V5.4.0 requires you to upgrade several components by following these steps:

- “Installing the SMP/E”
- “Upgrading the runtime environment in PARMGEN” on page 873

The following steps must also be performed if you have installed the components:

- “Upgrading Tivoli Enterprise Monitoring Agent” on page 867
- “Upgrading the Performance Database” on page 868
- “Upgrading the Performance Expert Client” on page 870
- “Upgrading the Performance Expert Agent for DB2 Connect Monitoring” on page 870
- “Upgrading IBM Tivoli Monitoring components” on page 870
- “Migrating user-tailored report (UTR) layouts” on page 871

Installing the SMP/E

You can use a separate SMP/E CSI zone for the new version of OMEGAMON for DB2 PE, or you can use the same SMP/E CSI zone for both, the old and the new versions.

When installing the SMP/E, do the following:

- Follow the instructions in the program directory and check the PSP bucket for additional information. You find the program directory in the Knowledge Center of your product.
- Install the latest PTF for OMEGAMON for DB2 PE V5.4.0.

Using a separate SMP/E CSI zone for OMEGAMON for DB2 PE V5.1.0/V5.1.1 and OMEGAMON for DB2 PE V5.4.0

Install the SMP/E as you would for a new installation.

For more information, see migration scenario in the Common PARMGEN - Implementation scenarios.
Using the same SMP/E CSI zone for OMEGAMON for DB2 PE V5.1.0/V5.1.1 and OMEGAMON for DB2 PE V5.4.0

Use the instructions in the program directory, but consider that the SMP/E control statements of each FMID will control their acceptance and installation rules. For information about the FMIDs, see the following table:

*Table 85. Differences in the FMIDs in version 5.1.0, the FMIDs in version 5.1.1, and the FMIDs in version V5.4.0*

<table>
<thead>
<tr>
<th>V5.1.0 FMID</th>
<th>V5.1.1 FMID</th>
<th>V5.4.0 FMID</th>
<th>OMEGAMON XE for DB2 PE component affected</th>
<th>Changed since last version?</th>
<th>Other OMEGAMON products shared with</th>
</tr>
</thead>
<tbody>
<tr>
<td>HKDB51X</td>
<td>HKDB51T</td>
<td>HKDB54X</td>
<td>OMEGAMON XE for DB2 (License key)</td>
<td>Yes. Addition of new functions.</td>
<td>None</td>
</tr>
<tr>
<td>HKDB510</td>
<td>HKDB511</td>
<td>HKDB540</td>
<td>OMEGAMON XE for DB2</td>
<td>Yes. Addition of new functions.</td>
<td>None</td>
</tr>
<tr>
<td>HKDS621</td>
<td>HKDS623</td>
<td>HKDS630</td>
<td>Tivoli Enterprise Monitoring Server</td>
<td>Yes. Integration with IBM Tivoli Monitoring.</td>
<td>IBM Tivoli Monitoring</td>
</tr>
<tr>
<td>HKCI310</td>
<td>HKCI310</td>
<td>HKCI310</td>
<td>The Configuration Tool</td>
<td>No.</td>
<td>All OMEGAMON products</td>
</tr>
<tr>
<td>HKLV621</td>
<td>HKLV623</td>
<td>HKLV630</td>
<td>CT/Engine</td>
<td>Yes. Integration with IBM Tivoli Monitoring.</td>
<td>IBM Tivoli Monitoring</td>
</tr>
<tr>
<td>HKOB620</td>
<td>HKOB700</td>
<td>HKOB730</td>
<td>OMNIBASE</td>
<td>Yes. Addition of new functions.</td>
<td>All OMEGAMON products</td>
</tr>
<tr>
<td>N/A</td>
<td>HPMZ511</td>
<td>HPMZ540</td>
<td>Optim Performance Manager</td>
<td>No.</td>
<td>None</td>
</tr>
</tbody>
</table>

As a result of these FMID changes, the following will occur:

- FMID HKDB54X deletes the license keys for versions 4.1.0, 4.2.0, 5.1.0, or 5.1.1, 5.2.0 and 5.3.0 respectively.
- FMID HKDB540 deletes versions 4.1.0, 4.2.0, 5.1.0, 5.1.1, 5.2.0 and 5.3.0 respectively. HKDB540 cannot be installed in parallel in the same CSI.
- HKDS630, HKCI310, HKLV630, and HKOB730 delete earlier versions of the product. These FMIDs are shared with other OMEGAMON products. Consider the following overlapping activities:
  - You might have already installed some of the prerequisite PTFs. Identify which of the PTFs are prerequisites and check to see if they are installed.
  - These FMIDs will not reinstall if they were already installed with a different OMEGAMON product.
  - FMIDs HKDS630 and HKLV630 are shared with IBM Tivoli Monitoring V6.3.0. As a result, upgrades to IBM Tivoli Monitoring V6.3.0 can cause some upgrade activities to occur in some of the OMEGAMON components on the distributed side. Shared components such as Tivoli Enterprise Portal Server and Tivoli Enterprise Portal might be affected.
You might have already upgraded to IBM Tivoli Monitoring V6.3.0 if you have several OMEGAMON components installed. OMEGAMON for DB2 PE V5.3.0 and OMEGAMON DB2PM V5.3.0 also work with IBM Tivoli Monitoring V6.3.0.

Related information:
- IBM DB2 and IMS Tools PTF Listing
- New package versioning technote
- Tivoli Monitoring and OMEGAMON XE knowledge centers

Upgrading the runtime environment in PARMGEN

You need to upgrade your runtime environments so that they can be used in the new version.

About this task

For more information, see migration scenario in the Common PARMGEN - Implementation scenarios.

Note: Only valid for migration from V5.1.0 to V5.4.0: The Near-Term History Data Collector does not issue a START TRACE command to start flag IFCID 318 anymore. If you rely on this, you have to explicitly add this START TRACE command to option Specify Additional Traces when configuring your DB2 monitoring profile. See "Configuring Additional DB2 Traces" on page 393 for more information.

Note: For DB2 12, you must provide corresponding load and run libraries for using the version-specific libraries. As $GBL$USR is not updated during migration, you need to add the corresponding parameters manually. Add GBL_DSN_DB2_LOADLIB_V12 and GBL_DSN_DB2_RUNLIB_V12 to the list of DB2 system libraries, as shown below.

```
GBL_DSN_DB2_SDSNLOAD  "DSN.VAR1M0.SDSNLOAD"
GBL_DSN_DB2_LOADLIB_V8  "DSN.V8R1M0.SDSNLOAD"
GBL_DSN_DB2_LOADLIB_V9  "DSN.V9R1M0.SDSNLOAD"
GBL_DSN_DB2_LOADLIB_V10  "DSN.VAR1M0.SDSNLOAD"
GBL_DSN_DB2_LOADLIB_V11  "DSN.VBR1M0.SDSNLOAD"
GBL_DSN_DB2_LOADLIB_V12  "DSN.VCR1M0.SDSNLOAD"
GBL_DSN_DB2_RUNLIB_V8  "DSN.V8R1M0.RUNLIB"
GBL_DSN_DB2_RUNLIB_V9  "DSN.V9R1M0.RUNLIB"
GBL_DSN_DB2_RUNLIB_V10  "DSN.VAR1M0.RUNLIB"
GBL_DSN_DB2_RUNLIB_V11  "DSN.VBR1M0.RUNLIB"
GBL_DSN_DB2_RUNLIB_V12  "DSN.VCR1M0.RUNLIB"
GBL_DSN_DB2_DSNEXIT  "DSN.VAR1M0.DSNEXIT"
```

Procedure

1. Alternative for recreating the BIND jobs:
   a. Copy the BIND sample jobs FPEVOMBD and FPEVOMBP from the $shilev.TKO2SAMP library to the $shilev.RKD2PRF library of the RTE.
   b. Rename the sample job FPEVOMBD to OMBDBID, and rename the sample job FPEVOMBP to OMBPDBID.
c. Submit the `&rhilev:RKD2PRF(CRTDB2M)` job. This will recreate all configured DB2 subsystem-related runtime members. This means that a BIND job for each configured DB2 subsystem will be created.

d. Continue with this step for both alternatives: For each DB2 subsystem you want to monitor, submit the BIND jobs `OMBP<ssid>` and `OMBD<ssid>` where `<ssid>` is the DB2 subsystem ID. If EXPLAIN is used, for each DB2 subsystem for which you want to use EXPLAIN, submit the BIND jobs `EXBP<ssid>` and `EXBD<ssid>` where `<ssid>` is the DB2 subsystem ID. For more information, see the [PARMGEN Alternative Configuration for IBM OMEGAMON and other Tivoli Management Services technote](#).

2. Repeat the above steps for each runtime environment.

**Related information:**

[New package versioning technote](#)

## Upgrading Tivoli Enterprise Monitoring Agent

If the upgraded runtime environment has a Tivoli Enterprise Monitoring Agent, you must also upgrade the Tivoli Enterprise Monitoring Agent.

### Procedure

Refer to the migration scenario in the [Common PARMGEN - Implementation scenarios](#).

## Upgrading the Performance Warehouse

If you created a Performance Warehouse for the earlier version, you must manually upgrade it for V5.4.0.

### Before you begin

If you start with the new version 5.4.0 of Performance Warehouse, you do not have to upgrade. Instead, do the following:

- Delete the existing Performance Warehouse database DB2PM from the old version and drop the plan DB2PM with its packages.
- If Performance Warehouse is enabled in the configuration, the OMEGAMON Collector of the new version automatically manages the bind of its packages in the plan DB2PM and creates the Performance Warehouse tables.

If you created a Performance Warehouse for the earlier version and want to use existing process definitions and executions, queries and rules of thumb, and data in Accounting tables you must manually upgrade it for V5.4.0.

**Note:** Data stored in Statistics tables cannot be migrated to the new version 5.4.0 due to major data model changes.

If Performance Warehouse is enabled, the new OMEGAMON Collector automatically detects that an old Performance Warehouse is in place and the task of the Performance Warehouse server is stopped.

### About this task

For upgrading Performance Warehouse, do the following:

1. Disconnect all workstation clients and stop the old or new OMEGAMON Collector, for which the Performance Warehouse is enabled.
2. Drop the table space STAT in the database DB2PM.
3. Start the new OMEGAMON Collector with newly created Performance Warehouse configuration and Performance Warehouse response file. The Collector should re-create the table space STAT (default: 32K table space; must be greater than 4K) and create the new Statistics tables. If this step fails, continue with step 5 otherwise continue with step 4.
4. Stop the task of the Performance Warehouse server by using the following console command: /F <started task>,F PESERVER,F <db2ssid>, PWH=N
5. Restart the task of the Performance Warehouse server in FORCE mode by using the following console command: /F <started task>,F PESERVER,F <db2ssid>, PWH=F.

What to do next

Note: After creation or upgrade of the Performance Warehouse tables, the table space STAT may be placed by DB2 in advisory REORG-pending (AREO*) status because of ALTER TABLE statements executed by the OMEGAMON Collector. A table space is in AREO* status because existing data is not immediately converted to its new definition. Reorganizing the table space prevents possible performance degradation.

Recommendation: When data is in REORG-pending or AREO* status, use the REORG utility with the SCOPE PENDING option to automatically reorganize partitions. With this option, you do not need to first identify which partitions need to be reorganized, or to customize the REORG control statement.

Related information:

Migrating statistics SQL queries
If you have created SQL queries they may not work anymore if they refer to storage-related data in the previous statistics GENERAL data. This data have been removed from the GENERAL table and can be accessed now in the statistics STORAGE table of the Performance Database. The queries must be rewritten according to the new data model.

Migrating statistics rules of thumb
If you have created rules of thumb they may not work anymore if they refer to storage-related data in the previous statistics GENERAL data. This data have been removed from the GENERAL table and can be accessed now in the statistics STORAGE table of the Performance Database. The rules of thumb must be rewritten according to the new data model.

Upgrading the Performance Database
If you created a Performance Database for the earlier version, you can partially upgrade it for V5.4.0.

About this task

Note: If possible, start with the new V5.4.0 of Performance Database tables, because many changes were applied to the data model between version V5.2.0 and V5.4.0.
If you start with V5.4.0 Performance Database tables, you do not have to upgrade the Performance Database. Instead, do the following:
- Use the sample CREATE and LOAD parts in library RKO2SAMP (RTE) and customize them according to your needs.
- If you work with Accounting and Statistics SAVE tables, use the SAVE file conversion utility that is shipped with version 5.4.0.

If you created a Performance Database for the earlier version and want to use the data stored in tables in the new version, you must manually upgrade it for version V5.4.0 by following these steps:

1. Request the current V5.3.0 library RKO2SAMP (RTE) library from IBM support.
2. Apply the migration steps of version V5.2.0 to version V5.3.0 as described in sub-chapter "Upgrading the Performance Database" of "Chapter 20. Migrating from OMEGAMON XE for DB2 PE version 5.2.0 to version 5.3.0" in IBM OMEGAMON for DB2 Performance Expert on z/OS IBM / OMEGAMON for DB2 Performance Monitor on z/OS Version 5.3.0 Configuration and Customization. Note that two new LOAD members DGOSLMGE and DGOSLMST are available in V5.3.0 library RKO2SAMP (RTE), that support the split and migration of statistics tables DB2PM_STAT_GENERAL and DB2PM_STAT_STORAGE.
3. Execute the ALTER TABLE statements (that apply to version V5.3.0) to add columns as listed in members (DGO*UPDB) in the V5.3.0 library RKO2SAMP (RTE).
4. Execute the ALTER TABLE statements (that apply to version V5.4.0) to add or drop columns as listed in members (DGO*UPDB) in the V5.4.0 library RKO2SAMP (RTE).
5. To populate the modified tables with new data, do the following:
   - Use the LOAD parts of the new version and change them according to your needs.
   - If you work with Accounting and Statistics SAVE tables, use the SAVE file conversion utility that is shipped with the new version.

Migrating data to new statistics tables
If you created a Performance Database for the earlier versions 5.1.0/5.1.1 and want to use the data stored in Accounting and Statistics tables in the new version, you must manually upgrade it for V5.3.0.

You do this by performing the migration steps for upgrading from versions 5.1.0/5.1.1 to V5.2.0 as documented in the Configuration and Customization Version 5.2.0 and performing the migration steps from V5.2.0 to V5.3.0 as described in the next chapter of this book.

Migrating statistics SQL queries
If you have tailored SQL queries they may no longer work if they refer to storage-related data in the previous statistics GENERAL data. This data resides now in the statistics STORAGE table. The queries must be rewritten according to the new data model.

Migrating statistics field selection lists of the Spreadsheet Input Data Generator
OMEGAMON for DB2 PE users can tailor the field selection lists delivered with the Spreadsheet Input Data Generator. V5.3.0 introduces a new table DB2PM_STAT_STORAGE which contains data that was previously stored in columns of table DB2PM_STAT_GENERAL. Accordingly, new field selection lists
for the spreadsheet utility are delivered for statistics general- and storage-related data. If you want to use your old field selection lists, they must be adjusted to the new data model.

It is strongly recommended to recreate the user-tailored field selection lists based on the sample lists delivered as members RKANSAMF/TKANSAMF(FPEP*) in the product library. Note that RKANSAMF/TKANSAMF is a new product library such the sample lists in this library can be used now as input by the Spreadsheet Input Data Generator (without copy step) if you do not want to customize the lists.

**Updating the Performance Expert Client**

You must upgrade to the new Performance Expert Client when you upgrade the server. The old Performance Expert Client does not work with the new server.

Follow the instructions for installing the Performance Expert Client. For detailed instructions for installing the Performance Expert Client, see ”Installing and configuring Performance Expert Client” on page 436.

When you double-click the .exe icon, you will be prompted to upgrade. Follow the prompts in the wizard. You do not need to uninstall the old version before beginning because the new version overwrites the old version. Subsystem definitions in the old Performance Expert Client are automatically imported into the new Performance Expert Client. You do not need to manually export and then import the definitions.

**Upgrading the Performance Expert Agent for DB2 Connect Monitoring**

Performance Expert Agent for DB2 Connect Monitoring must be updated manually to version V5.4.0 on each system.

**Before you begin**

**Note:** Configuration entries containing the DB2 Performance Expert for Linux, UNIX, and Windows server version 3.2.0 or later are still possible, but are no longer supported. They will be set to paused status during runtime.

**Procedure**

Manually upgrade the Performance Expert Agent for DB2 Connect Monitoring on each system. For detailed instructions, see ”Installing and configuring Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 408 or ”Installing and configuring Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux” on page 422.

**Upgrading IBM Tivoli Monitoring components**

IBM Tivoli Monitoring components such as Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal, and Tivoli Enterprise Portal Server must be upgraded so that the OMEGAMON for DB2 PE V5.4.0 Application Support works.
**Procedure**

1. Upgrade each of the IBM Tivoli Monitoring framework components to IBM Tivoli Monitoring V6.3.0. Personalized workspaces are automatically migrated during the upgrade. See the [Tivoli Monitoring in the IBM Knowledge Center](https://www.ibm.com/support/knowledgecenter) for detailed instructions.

2. If you do not have self-describing agent capability configured, upgrade OMEGAMON for DB2 PE Application Support by using the V5.1.0 Consolidated DVD image. For detailed instructions, refer to the IBM Tivoli OMEGAMON XE Monitoring Agents on z/OS Quick Start Guide in the [Tivoli Monitoring in the IBM Knowledge Center](https://www.ibm.com/support/knowledgecenter).

3. Set the attribute Product (two-letter code of a monitoring agent) to D5 or DP if necessary.
   
   a. In V5.1.1, the attribute Product in Tivoli Enterprise Monitoring Server table INODESTS has a value of DP for OMEGAMON for DB2 PE. In V5.1.0 and V4.2.0, this two-letter product code is D5. If you have a customized workspace or situation on Tivoli Enterprise Monitoring Server table INODESTS and filtering on the attribute Product that is set to D5, then you need to set the filtering to D5 or DP. If you only use OMEGAMON for DB2 PE V5.1.1, and neither V5.1.0 nor V4.2.0, this migration will not apply to you.
   
   b. The attribute Product in workspace Managed System Status will have a value of DP for OMEGAMON for DB2 PE V5.1.1, and D5 for V5.1.0 and V4.2.0. You can navigate to workspace Managed System Status from navigator item Enterprise. If you have a customized workspace based from workspace Managed System Status and filtering on the attribute Product set to D5, then you need to set it to D5 or DP.
   
   c. If you have a customized situation based from product-provided situation MS_Offline from All Managed Systems, and filtering on attribute Product set to D5, then you need to set it to D5 or DP.

**What to do next**

If you are upgrading from OMEGAMON for DB2 PE V5.1.0, V4.2.0, V4.1.0, or V3.1.0 and you want to run the OMEGAMON enhanced 3270 user interface, you need to re-configure the Tivoli Enterprise Monitoring Server.

**Related information:**

- [Tivoli Monitoring and OMEGAMON XE Knowledge Center](https://www.ibm.com/support/knowledgecenter)
- [IBM DB2 Tools Product Page](https://www.ibm.com/support/knowledgecenter)

**Migrating user-tailored report (UTR) layouts**

OMEGAMON for DB2 PE users can create and tailor their own accounting and statistics report layouts with the User-Tailored Reporting feature (UTR).

They can add and remove report blocks and fields within blocks and can change block and field labels according to their needs. The UTR functionality is described in the [Reporting User’s Guide](https://www.ibm.com/support/knowledgecenter) Customizing OMEGAMON XE for DB2 PE functions.

OMEGAMON for DB2 PE supports the migration of accounting and statistics report layouts created with previous releases. This means that ‘old’ layouts are identified and mapped to the internal representation of the new version such that a user-defined report is externalized similarly in version 5.4.0. **However, it is**
strongly recommended to recreate a user-tailored report layout always within the new version to avoid report mismatches due to semantic changes in the new version.

Migrating from OMEGAMON for DB2 PE version 5.3.0 to version 5.4.0

Migrating from OMEGAMON for DB2 PE V5.3.0 to V5.4.0 requires you to upgrade several components:

- "Installing the SMP/E"
- "Upgrading the runtime environment in PARMGEN" on page 873

The following steps must also be performed if you have installed the components:

- "Upgrading Tivoli Enterprise Monitoring Agent" on page 867
- "Upgrading the Performance Database" on page 876
- "Upgrading the Performance Expert Client" on page 870
- "Upgrading the Performance Expert Agent for DB2 Connect Monitoring" on page 870
- "Upgrading IBM Tivoli Monitoring components" on page 870
- "Migrating user-tailored report (UTR) layouts" on page 871

Installing the SMP/E

You can use a separate SMP/E CSI zone for the new version of OMEGAMON for DB2 PE, or you can use the same SMP/E CSI zone for both, the old and the new versions.

When installing the SMP/E, you must do the following:

- Follow the instructions in the program directory and check the PSP bucket for additional information. You can find the program directory in the Knowledge Center of your product.
- Install the latest PTF for OMEGAMON for DB2 PE V5.3.0.

Using a separate SMP/E CSI zone for OMEGAMON for DB2 PE V5.3.0 and OMEGAMON for DB2 PE V5.4.0

Install the SMP/E as you would for a new installation.

For more information, see migration scenario in the Common PARMGEN - Implementation scenarios.

Using the same SMP/E CSI zone for OMEGAMON for DB2 PE V5.3.0 and OMEGAMON for DB2 PE V5.4.0

You can use the instructions in the program directory, but consider that the SMP/E control statements of each FMID will control their acceptance and installation rules. For information about the FMIDs, see the following table.

Table 86. Differences in the FMIDs in version 5.3.0 and the FMIDs in version 5.4.0

<table>
<thead>
<tr>
<th>V5.3.0 FMID</th>
<th>V5.4.0 FMID</th>
<th>OMEGAMON XE for DB2 PE component affected</th>
<th>Changed since last version?</th>
<th>Other OMEGAMON products shared with</th>
</tr>
</thead>
<tbody>
<tr>
<td>HKDB53X</td>
<td>HKDB54X</td>
<td>OMEGAMON for DB2 PE (License key)</td>
<td>Yes. Addition of new functions.</td>
<td>None.</td>
</tr>
</tbody>
</table>
Table 86. Differences in the FMIDs in version 5.3.0 and the FMIDs in version 5.4.0 (continued)

<table>
<thead>
<tr>
<th>V5.3.0 FMID</th>
<th>V5.4.0 FMID</th>
<th>OMEGAMON XE for DB2 PE component affected</th>
<th>Changed since last version?</th>
<th>Other OMEGAMON products shared with</th>
</tr>
</thead>
<tbody>
<tr>
<td>HKDB530</td>
<td>HKDB540</td>
<td>OMEGAMON for DB2 PE</td>
<td>Yes. Addition of new functions.</td>
<td>None.</td>
</tr>
<tr>
<td>HKDS623</td>
<td>HKDS630</td>
<td>Tivoli Enterprise Monitoring Server</td>
<td>Yes. Integration with IBM Tivoli Monitoring.</td>
<td>IBM Tivoli Monitoring.</td>
</tr>
<tr>
<td>HKCI310</td>
<td>HKCI310</td>
<td>The Configuration Tool</td>
<td>No.</td>
<td>All OMEGAMON products</td>
</tr>
<tr>
<td>HKLV623</td>
<td>HKLV630</td>
<td>CT/Engine</td>
<td>Yes. Integration with IBM Tivoli Monitoring.</td>
<td>IBM Tivoli Monitoring.</td>
</tr>
<tr>
<td>HKOB623</td>
<td>HKOB730</td>
<td>OMNIBASE</td>
<td>Yes. Addition of new functions.</td>
<td>All OMEGAMON products</td>
</tr>
</tbody>
</table>

As a result of these FMID changes, the following will occur:

- FMID HKDB54X deletes the license keys for versions 4.1.0, 4.2.0, 5.1.0, or 5.1.1, 5.2.0 and 5.3.0 respectively.
- FMID HKDB540 deletes versions 4.1.0, 4.2.0, 5.1.0, 5.1.1, 5.2.0 and 5.3.0 respectively. HKDB530 cannot be installed in parallel in the same CSI.
- HKDS630, HKCI310, HKLV630, and HKOB730 delete earlier versions of the product. These FMIDs are shared with other OMEGAMON products. Consider the following overlapping activities:
  - You might have already installed some of the prerequisite PTFs. Identify which of the PTFs are prerequisites and check to see if they are installed.
  - These FMIDs will not reinstall if they were already installed with a different OMEGAMON product.
  - FMIDs HKDS630 and HKLV630 are shared with IBM Tivoli Monitoring V6.3.0. As a result, upgrades to IBM Tivoli Monitoring V6.3.0 can cause some upgrade activities to occur in some of the OMEGAMON components on the distributed side. Shared components such as Tivoli Enterprise Portal Server and Tivoli Enterprise Portal might be affected.
  - You might have already upgraded to IBM Tivoli Monitoring V6.3.0 if you have several OMEGAMON components installed. OMEGAMON for DB2 PE V5.3.0 and OMEGAMON DB2PM V5.3.0 also work with IBM Tivoli Monitoring V6.3.0.

Related information:

- [IBM DB2 and IMS Tools PTF Listing](#)
- [New package versioning technote](#)
- [Tivoli Monitoring and OMEGAMON XE knowledge center](#)

**Upgrading the runtime environment in PARMGEN**

You need to upgrade your runtime environments so that they can be used in the new version.
About this task

For more information, see the migration scenario in the [Common PARMGEN - Implementation scenarios](#).

**Note:** For DB2 12, you must provide corresponding load and run libraries for using the version-specific libraries. As $GBL$USR is not updated during migration, you need to add the corresponding parameters manually. Add `GBL_DSN_DB2_LOADLIB_V12` and `GBL_DSN_DB2_RUNLIB_V12` to the list of DB2 system libraries, as shown below.

GBL_DSN_DB2_SDSNLOAD "DSN.VAR1M0.SDSNLOAD"
GBL_DSN_DB2_LOADLIB_V8 "DSN.V8R1M0.SDSNLOAD"
GBL_DSN_DB2_LOADLIB_V9 "DSN.V9R1M0.SDSNLOAD"
GBL_DSN_DB2_LOADLIB_V10 "DSN.VAR1M0.SDSNLOAD"
GBL_DSN_DB2_LOADLIB_V11 "DSN.VBR1M0.SDSNLOAD"
GBL_DSN_DB2_LOADLIB_V12 "DSN.VCR1M0.SDSNLOAD"
GBL_DSN_DB2_RUNLIB_V8 "DSN.V8R1M0.RUNLIB"
GBL_DSN_DB2_RUNLIB_V9 "DSN.V9R1M0.RUNLIB"
GBL_DSN_DB2_RUNLIB_V10 "DSN.VAR1M0.RUNLIB"
GBL_DSN_DB2_RUNLIB_V11 "DSN.VBR1M0.RUNLIB"
GBL_DSN_DB2_RUNLIB_V12 "DSN.VCR1M0.RUNLIB"
GBL_DSN_DB2_DSNEXIT "DSN.VAR1M0.DSNEXIT"

**Procedure**

1. **Alternative for recreating the BIND jobs:**
   a. Copy the BIND sample jobs FPEVOMB and FPEVOMP from the `&shilev:TKO2SAMP` library to the `&rhlxv.RKDO2PRF` library of the RTE.
   b. Rename the sample job FPEVOMB to OMBDDBID, and rename the sample job FPEVOMP to OMBPDBID.
   c. Submit the `&rhlxv.RKDO2PRF(CRTDB2M)` job. This will recreate all configured DB2 subsystem-related runtime members. This means that a BIND job for each configured DB2 subsystem will be created.
   d. Continue with this step for both alternatives: For each DB2 subsystem you want to monitor, submit the BIND jobs OMBP<ssid> and OMBD<ssid> where `<ssid>` is the DB2 subsystem ID. If EXPLAIN is used, for each DB2 subsystem for which you want to use EXPLAIN, submit the BIND jobs EXBP<ssid> and EXBD<ssid> where `<ssid>` is the DB2 subsystem ID. For more information, see the [PARMGEN Alternative Configuration for IBM OMEGAMON and other Tivoli Management Services technote](#).

2. Repeat the steps above for each runtime environment.

**Related information:**

[New package versioning technote](#)

**Upgrading Tivoli Enterprise Monitoring Agent**

If the upgraded runtime environment has a Tivoli Enterprise Monitoring Agent, you must also upgrade the Tivoli Enterprise Monitoring Agent.

**Procedure**

Refer to the migration scenario in the [Common PARMGEN - Implementation scenarios](#).
Upgrading the Performance Warehouse

If you created a Performance Warehouse for the earlier version, you must manually upgrade it for V5.4.0.

Before you begin

If you start with the new version 5.4.0 of Performance Warehouse, you do not have to upgrade. Instead, do the following:

- Delete the existing Performance Warehouse database DB2PM from the old version and drop the plan DB2PM with its packages.
- If Performance Warehouse is enabled in the configuration, the OMEGAMON Collector of the new version automatically manages the bind of its packages in the plan DB2PM and creates the Performance Warehouse tables.

If you created a Performance Warehouse for the earlier version and want to use existing process definitions and executions, queries and rules of thumb, and data in Accounting tables you must manually upgrade it for V5.4.0.

Note: Data stored in Statistics tables cannot be migrated to the new version 5.4.0 due to major data model changes.

If Performance Warehouse is enabled, the new OMEGAMON Collector automatically detects that an old Performance Warehouse is in place and the task of the Performance Warehouse server is stopped.

About this task

For upgrading Performance Warehouse, do the following:

1. Disconnect all workstation clients and stop the old or new OMEGAMON Collector, for which the Performance Warehouse is enabled.
2. Drop the table space STAT in the database DB2PM.
3. Start the new OMEGAMON Collector with newly created Performance Warehouse configuration and Performance Warehouse response file. The Collector should re-create the table space STAT (default: 32K table space; must be greater than 4K) and create the new Statistics tables. If this step fails, continue with step 5 otherwise continue with step 4.
4. Stop the task of the Performance Warehouse server by using the following console command: /F <started task>, F PESERVER, F <db2ssid>, PWH=N
5. Restart the task of the Performance Warehouse server in FORCE mode by using the following console command: /F <started task>, F PESERVER, F <db2ssid>, PWH=F.

What to do next

Note: After creation or upgrade of the Performance Warehouse tables, the table space STAT may be placed by DB2 in advisory REORG-pending (AREO*) status because of ALTER TABLE statements executed by the OMEGAMON Collector. A table space is in AREO* status because existing data is not immediately converted to its new definition. Reorganizing the table space prevents possible performance degradation.

Recommendation: When data is in REORG-pending or AREO* status, use the REORG utility with the SCOPE PENDING option to automatically reorganize partitions. With this option, you do not need to first identify which partitions need
to be reorganized, or to customize the REORG control statement.

**Related information:**

[New package versioning technote](#)

**Migrating statistics SQL queries**
If you have created SQL queries they may not work anymore if they refer to storage-related data in the previous statistics GENERAL data. This data have been removed from the GENERAL table and can be accessed now in the statistics STORAGE table of the Performance Database. The queries must be rewritten according to the new data model.

**Migrating statistics rules of thumb**
If you have created rules of thumb they may not work anymore if they refer to storage-related data in the previous statistics GENERAL data. This data have been removed from the GENERAL table and can be accessed now in the statistics STORAGE table of the Performance Database. The rules of thumb must be rewritten according to the new data model.

**Upgrading the Performance Database**
If you created a Performance Database for version V5.3.0, you can partially upgrade it for V5.4.0.

**About this task**

If you start with the V5.4.0 version of Performance Database tables, you do not have to upgrade the Performance Database. Instead, follow these steps:

- Use the sample CREATE and LOAD parts in library RKO2SAMP (RTE) and customize them according to your needs.
- If you work with Accounting and Statistics SAVE tables, use the SAVE file conversion utility that is shipped with the new version of OMEGAMON for DB2 PE.

If you created a Performance Database for the earlier version and want to use the data stored in tables in the new version, you must manually upgrade it for version V5.4.0:

1. Request the current V5.3.0 library RKO2SAMP (RTE) library from IBM support.
2. Execute the ALTER TABLE statements (that apply to version V5.3.0 and have not been executed so far) to add columns as listed in members (DGO*UPDB) in the V5.3.0 library RKO2SAMP (RTE).
3. Execute the ALTER TABLE statements (that apply to version V5.4.0) to add or drop columns as listed in members (DGO*UPDB) in the V5.4.0 library RKO2SAMP (RTE).
4. To populate the modified tables with new data, do the following:
   - Use the LOAD parts of the new version and change them according to your needs.
   - If you work with Accounting and Statistics SAVE tables, use the SAVE file conversion utility that is shipped with the new version.

**Migrating data to new statistics tables**
If you created a Performance Database for the earlier V5.2.0 and want to use the data stored in Statistics tables in the new version, you must manually upgrade it for V5.3.0.
• You do this by executing the ALTER TABLE statements to add new columns to statistics tables as listed in the member RKO2SAMP(DGOSUPDB) (RTE).

• V5.3.0 introduces a new table DB2PM_STAT_STORAGE which contains data that was previously stored in columns of table DB2PM_STAT_GENERAL. Old general data can be migrated to the new tables by unloading the data and modifying the load statement generated by the UNLOAD utility. The load statement must be split into two statements which populate the new tables according to your customized table definitions.

To populate the new tables with new data, do the following:

• Use the LOAD parts of the new version and change them according to your needs.

• If you work with Statistics SAVE tables, use the SAVE file conversion utility that is shipped with the new V5.3.0 or convert the SAVE data directly with the SAVE CONVERT command.

During the life cycle of V5.3.0, new columns might be added to the Performance Database tables. Corresponding ALTER TABLE statements would be delivered in the DGO*UPDB members of the sample library RKO2SAMP (RTE) where * is A for Accounting, S for Statistics, W for System Parameters, and X for Audit.

Note: After execution of ALTER TABLE statements, DB2 might place the table space that contains the modified data in advisory REORG-pending (AREO*) status. A table space is in AREO* status because existing data is not immediately converted to its new definition. Reorganizing the table space prevents possible performance degradation.

When data is in REORG-pending or AREO* status, use the REORG utility with the SCOPE PENDING option to automatically reorganize partitions. With this option, you do not need to first identify which partitions need to be reorganized, or to customize the REORG control statement.

Migrating statistics SQL queries

If you have tailored SQL queries they may no longer work if they refer to storage-related data in the previous statistics GENERAL data. This data resides now in the STORAGE table. The queries must be rewritten according to the new data model.

Migrating statistics field selection lists of the Spreadsheet Input Data Generator

OMEGAMON for DB2 PE users can tailor the field selection lists delivered with the Spreadsheet Input Data Generator. V5.3.0 introduces a new table DB2PM_STAT_STORAGE which contains data that was previously stored in columns of table DB2PM_STAT_GENERAL. Accordingly, new field selection lists for the spreadsheet utility are delivered for statistics general- and storage-related data. If you want to use your old field selection lists, they must be adjusted to the new data model.

It is strongly recommended to recreate the user-tailored field selection lists based on the sample lists delivered as members RKANSAMF/TKANSAMF(FPEP*) in the product library. Note that RKANSAMF/TKANSAMF is a new product library such the sample lists in this library can be used now as
input by the Spreadsheet Input Data Generator (without copy step) if you do not want to customize the lists.

**Updating the Performance Expert Client**
You must upgrade to the new Performance Expert Client when you upgrade the server. The old Performance Expert Client does not work with the new server.

Follow the instructions for installing the Performance Expert Client. For detailed instructions for installing the Performance Expert Client, see [“Installing and configuring Performance Expert Client” on page 436](#).

When you double-click the .exe icon, you will be prompted to upgrade. Follow the prompts in the wizard. You do not need to uninstall the old version before beginning because the new version overwrites the old version. Subsystem definitions in the old Performance Expert Client are automatically imported into the new Performance Expert Client. You do not need to manually export and then import the definitions.

**Upgrading the Performance Expert Agent for DB2 Connect Monitoring**
Performance Expert Agent for DB2 Connect Monitoring must be updated manually to version V5.4.0 on each system.

**Before you begin**

*Note:* Configuration entries containing the DB2 Performance Expert for Linux, UNIX, and Windows server version 3.2.0 or later are still possible, but are no longer supported. They will be set to *paused* status during runtime.

**Procedure**

Manually upgrade the Performance Expert Agent for DB2 Connect Monitoring on each system. For detailed instructions, see [“Installing and configuring Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 408](#) or [“Installing and configuring Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux” on page 422](#).

**Upgrading IBM Tivoli Monitoring components**
IBM Tivoli Monitoring components such as Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal, and Tivoli Enterprise Portal Server must be upgraded so that the OMEGAMON for DB2 PE V5.4.0 Application Support works.

**Procedure**

1. Upgrade each of the IBM Tivoli Monitoring framework components to IBM Tivoli Monitoring V6.3.0. [Personalized workspaces are automatically migrated during the upgrade. See the Tivoli Monitoring in the IBM Knowledge Center](#) for detailed instructions.
2. If you do not have self-describing agent capability configured, upgrade OMEGAMON for DB2 PE Application Support by using the V5.1.0 Consolidated DVD image. For detailed instructions, refer to the IBM Tivoli OMEGAMON XE Monitoring Agents on z/OS Quick Start Guide in the Tivoli Monitoring in the IBM Knowledge Center.
3. Set the attribute Product (two-letter code of a monitoring agent) to D5 or DP if necessary.
   
a. In V5.1.1, the attribute Product in Tivoli Enterprise Monitoring Server table INODESTS has a value of DP for OMEGAMON for DB2 PE. In V5.1.0 and V4.2.0, this two-letter product code is D5. If you have a customized workspace or situation on Tivoli Enterprise Monitoring Server table INODESTS and filtering on the attribute Product that is set to D5, then you need to set the filtering to D5 or DP. If you only use OMEGAMON for DB2 PE V5.1.1, and neither V5.1.0 nor V4.2.0, this migration will not apply to you.

b. The attribute Product in workspace Managed System Status will have a value of DP for OMEGAMON for DB2 PE V5.1.1, and D5 for V5.1.0 and V4.2.0. You can navigate to workspace Managed System Status from navigator item Enterprise. If you have a customized workspace based from workspace Managed System Status and filtering on the attribute Product set to D5, then you need to set it to D5 or DP.

c. If you have a customized situation based from product-provided situation MS_Offline from All Managed Systems, and filtering on attribute Product set to D5, then you need to set it to D5 or DP.

What to do next

If you are upgrading from OMEGAMON for DB2 PE V5.1.0, V4.2.0, V4.1.0, or V3.1.0 and you want to run the OMEGAMON enhanced 3270 user interface, you need to re-configure the Tivoli Enterprise Monitoring Server.

Related information:

- [Tivoli Monitoring and OMEGAMON XE Knowledge Center](#)
- [IBM DB2 Tools Product Page](#)

Migrating user-tailored report (UTR) layouts

OMEGAMON for DB2 PE users can create and tailor their own accounting and statistics report layouts with the User-Tailored Reporting feature (UTR).

They can add and remove report blocks and fields within blocks and can change block and field labels according to their needs. The UTR functionality is described in the [Reporting User’s Guide](#) Customizing OMEGAMON XE for DB2 PE functions.

OMEGAMON for DB2 PE supports the migration of accounting and statistics report layouts created with previous releases. This means that ‘old’ layouts are identified and mapped to the internal representation of the new version such that a user-defined report is externalized similarly in version 5.4.0. However, it is strongly recommended to recreate a user-tailored report layout always within the new version to avoid report mismatches due to semantic changes in the new version.

The Accounting Save-File Utility

Use the Save-File utility to migrate and convert Accounting Save data sets into a format suitable for OMEGAMON for Db2 PE V5.4.0.

The function performed is specified in a parameter on the EXEC command.
Migrating Data Sets

This topic describes how to migrate Accounting Save data sets created by OMEGAMON for Db2 PE V5.2.0 or V5.3.0 into the record format of OMEGAMON for Db2 PE V5.4.0.

To migrate Accounting Save data sets:
1. Create a VSAM data set for V520 or V530.
2. Define an OMEGAMON for Db2 PE V5.4.0 VSAM data set using IDCAMS as output.
3. Use the MIGRATE function of the Save-File utility to migrate the data sets of OMEGAMON for Db2 PE V5.2.0 or V5.3.0.
4. Restore the migrated VSAM data sets in V540 and compare the reports.

The RKO2SAMP library provides the sample job DGOPJAMI, which you can modify to suit your installation.

Note:
- You can only process VSAM data sets in the same version of OMEGAMON for Db2 PE as they have been created. For example, if you create a SAVE data set in version 530, it can only be RESTORED in version 530.
  To use a SAVE data set in a higher version, you must migrate the SAVE data set using a migration utility.
- Before you restore or convert SAVE data sets from V5.2.0 or V5.3.0, you must first migrate this data to OMEGAMON for Db2 PE V5.4.0 format.
- Restored reports only show fields that are supported by the current version of OMEGAMON for Db2 PE.

Converting Data Sets

To store performance data in Performance Database tables or spreadsheets, you must first convert Accounting Save data sets of OMEGAMON for Db2 PE V5.4.0 into sequential data sets that can be used by the DB2 load utility or the Spreadsheet Input-Data Generator of OMEGAMON for Db2 PE.

You can use the CONVERT function of the Accounting Save-File Utility to convert Accounting Save data sets of OMEGAMON for Db2 PE V5.4.0 into sequential data sets. The RKO2SAMP library provides the sample job DGOPJACO, which you can modify to suit your installation.

You can also use the ACCOUNTING SAVE subcommand with the CONVERT option to convert and save reduced data into a sequential data set. The output of this subcommand option is a sequential data set, that is specified and requested in SYSIN. The data set attributes are:

**Organization**
- PS

**Record format**
- VB

**Record length**
- 9072

**Block size**
- 9076
For more information about the ACCOUNTING SAVE subcommand refer to Report Command Reference.

The following list shows the types of records that are created by the CONVERT function (or CONVERT command option) and where to find their layout descriptions in the sample library RKO2SAMP:

- General data records (DGOADSGE)
- Buffer pool data records (DGOADSBU)
- Distributed Data Facility (DDF) data records (DGOADSDF)
- Group buffer pool records (DGOADSGP)
- Package records (DGOADSPK)
- Resource Limit Facility (RLF) records (DGOADSRF)
- Accelerator records (DGOADSXC)

For more information about the Spreadsheet Input-Data Generator refer to Reporting User’s Guide.

Save-File Utility DD Statements

This topic lists the DD statements needed for migration and conversion. All of the DD statements described here are required.

**Input**

The DDNAME of the input data set. This can be an OMEGAMON for Db2 PE V5.2.0 or V5.3.0 Accounting SAVE data set for the MIGRATE function, or an OMEGAMON for Db2 PE V5.4.0 Accounting VSAM Save data set for the CONVERT function.

**Output**

The DDNAME of the output data set.

For CONVERT, allocate the data set with the following characteristics:

RECFM  
  VB  
LRECL  
  9072  
BLKSIZE  
  9076

Refer to “OMEGAMON for Db2 PE VSAM Data Sets” on page 4647 for details on how to specify the allocated data sets to migrate to OMEGAMON for Db2 PE V5.4.0.

**DPMLOG**

OMEGAMON for Db2 PE command processor messages and messages indicating exceptional processing conditions are written to DPMLOG. If DPMLOG is not specified, it is dynamically allocated to the SYSOUT message class of the job. Allocate the data set with the following attributes:

RECFM  
  FBA
The Statistics Save-File Utility

Use the Save-File utility to migrate and convert Statistics Save data sets into a format suitable for OMEGAMON for Db2 PE V5.4.0.

The function performed is specified in a parameter on the EXEC command.

Migrating Data Sets

This topic describes how to migrate Statistics Save data sets created by OMEGAMON for Db2 PE V5.2.0 or V5.3.0 into the record format of OMEGAMON for Db2 PE V5.4.0.

To migrate Statistics Save data sets:
1. Create a VSAM data set for V520 or V530.
2. Define an OMEGAMON for Db2 PE V5.4.0 VSAM data set using IDCAMS as output.
3. Use the MIGRATE function of the Save-File utility to migrate the data sets of OMEGAMON for Db2 PE V5.2.0 or V5.3.0.
4. Restore the migrated VSAM data sets in V540 and compare the reports.

The RKO2SAMP library provides the sample job DGOPJSMI, which you can modify to suit your installation.

Note:
- You can only process VSAM data sets in the same version of OMEGAMON for Db2 PE as they have been created. For example, if you create a SAVE data set in version 530, it can only be RESTORED in version 530.

To use a SAVE data set in a higher version, you must migrate the SAVE data set using a migration utility.
- Before you restore or convert SAVE data sets from V5.2.0 or V5.3.0, you must first migrate this data to OMEGAMON for Db2 PE V5.4.0 format.
- Restored reports only show fields that are supported by the current version of OMEGAMON for Db2 PE.

Converting Data Sets

To store performance data in Performance Database tables or spreadsheets, you must first convert Statistics Save data sets of OMEGAMON for Db2 PE V5.4.0 into sequential data sets that can be used by the DB2 load utility or the Spreadsheet Input-Data Generator of OMEGAMON for Db2 PE.

You can use the CONVERT function of the Statistics Save-File Utility to convert Statistics Save data sets of OMEGAMON for Db2 PE V5.4.0 into sequential data sets. The RKO2SAMP library provides the sample job DGOPJSCO, which you can modify to suit your installation.
You can also use the STATISTICS SAVE subcommand with the CONVERT option to convert and save reduced data into a sequential data set. The output of this subcommand option is a sequential data set, that is specified and requested in SYSIN. The data set attributes are:

**Organization**
- PS

**Record format**
- VB

**Record length**
- 9072

**Block size**
- 9076

For more information about the STATISTICS SAVE subcommand refer to Report

Command Reference

The following list shows the types of records that are created by the CONVERT function (or CONVERT command option) and where to find their layout descriptions in the sample library RKO2SAMP:
- General data records (DGOSDGEN)
- Buffer Pool data records (DGOSDBUF)
- DDF data records (DGOSDDDF)
- Group Buffer Pool records (DGOSDGBP)
- Buffer Pool data set records (DGOSDSET)
- Accelerator data records (DGOSDXCL)
- Aggregated Accounting data records (DGOSDACC)
- Storage data records (DGOSDSTG)

For more information of the Spreadsheet Input-Data Generator refer to Reporting

User’s Guide

**Save-File Utility DD Statements**

This topic lists the DD statements needed for migration and conversion. All of the DD statements described here are required.

**Input**

The DDNAME of the input data set. This can be an OMEGAMON for Db2 PE V5.2.0 or V5.3.0 Statistics Save data set for the MIGRATE function, or an OMEGAMON for Db2 PE V5.4.0 Statistics VSAM Save data set for the CONVERT function.

**Output**

The DDNAME of the output data set.

For CONVERT, allocate the data set with the following characteristics:

RECFM
- VB

LRECL
- 9072
Refer to "OMEGAMON for Db2 PE VSAM Data Sets" on page 4647 for details on how to specify the allocated data sets to migrate to OMEGAMON for Db2 PE V5.4.0.

**DPMLOG**

OMEGAMON for Db2 PE command processor messages and messages indicating exceptional processing conditions are written to DPMLOG. If DPMLOG is not specified, it is dynamically allocated to the SYSOUT message class of the job. Allocate the data set with the following attributes:

**RECFM**
- FBA

**LRECL**
- 133

**BLKSIZE**
- 6251
Chapter 5. Monitoring

This section provides information about the monitoring components.

Classic interface

This information describes the real time online monitor of the following products:
- IBM OMEGAMON for Db2 Performance Expert on z/OS
- IBM OMEGAMON for Db2 Performance Monitor on z/OS

It contains illustrations and descriptions of the real time panels of the product's classic interface. This includes the Application Trace Facility panels and the panels that display near-term history data information.

Note: This information describes the online monitoring functions that are accessible through the OMEGAMON classic user interface (also called the VTAM interface). Until equivalent functions become accessible through the OMEGAMON classic user interface, you might still have to refer to Monitoring Performance from ISPF.

For the most current version of this publication, always check the following websites:
- OMEGAMON for Db2 Performance Expert on z/OS (PDFs and Techdocs on Db2 Tools Product Page)
- OMEGAMON for Db2 Performance Monitor on z/OS (PDFs and Techdocs on Db2 Tools Product Page)

The product often provides context-related online help information that can be invoked from menus, panels, and windows by using the F1 key or the Help button. Online help information is not necessarily repeated in this information, especially if it is very detailed information that is of interest only when you actively work with a function. You are encouraged to use F1 or Help to see the entire available information.

Who should read this information

This information is intended for IBM data server professionals who want to analyze and tune the performance of a Db2 database management system.

Product overview

OMEGAMON XE for DB2 PE is a software performance monitor for the IBM product Database 2 (DB2). It includes a realtime and a near-term history monitoring component to give you a comprehensive view of your DB2 subsystem.

Realtime component

The realtime component consists of a realtime monitor that you can use to monitor DB2.

It provides a classic user interface, with conventional menus and panels to facilitate navigation through the product. Through these menus and panels you
can access the most current DB2 performance data, like thread use, locking conflicts, SQL calls, and so on. They also enable you to start and view an application trace to obtain realtime information about application flow and resource consumption.

**Near-term history component**

The near-term history component consists of the Near-Term History Data Collector, which gathers statistical and accounting information (including distributed database information), and limited performance information from a DB2 subsystem and stores it in VSAM data sets or sequential files, as the activities occur.

Use the near-term history panels to view statistics and thread information that was gathered a few minutes or a few hours ago and to view the current Near-Term History Data Collector specifications.

**Introduction to product main menus and options**

This topic introduces the OMEGAMON XE for DB2 PE menus and options.

OMEGAMON XE for DB2 PE provides access to its realtime and near-term history functions through menus. The menus described in this topic are the ones you see when you start OMEGAMON XE for DB2 PE.

You can always press F1 (Help) on the menus and panels to obtain detailed information about the subject currently displayed.

When you start OMEGAMON XE for DB2 PE from ISPF (start EXEC FPEJINIT), you are presented with the following main menu:

```
FPEFMENU       IBM OMEGAMON for DB2 Performance Expert on z/OS

Select one of the following.

1. Create and execute reporting commands
2. View online DB2 activity - Classic Interface
3. View online DB2 activity - PE ISPF OLM
4. Maintain parameter data sets
5. Customize report and trace layouts
6. Exception profiling

Command ===>  F1=Help   F2=Split   F3=Exit   F9=Swap   F12=Cancel
```

This menu provides access to the OMEGAMON XE for DB2 PE functions. The following topics briefly describe the available options.

**Note:** The following remarks apply to most menus and panels:

- Some menu options or panels might not be available, depending on the installation and configuration options that were chosen at your location.
- The command line and PF keys usage follows usual ISPF conventions and is not described in this information. For more information, see Monitoring Performance from ISPF.
- If the PF key F11 (Zoom) is indicated in the upper right corner of a panel, you can usually select a particular listed item (by positioning the cursor on the corresponding line) and press F11, which then displays additional or detail information about the selected item.
• Several panels can highlight information to raise your attention to important information, for example, to thresholds that exceed predefined values. If panels provide highlighting capabilities, the potentially highlighted fields are described, together with reasons, in the relevant topics under the heading “Highlighting”. If this heading is not shown in a panel description, the panel does not provide highlighting.

• OMEGAMON XE for DB2 PE supports 64-bit integers. A number can have one of the following suffixes:
  - **K** Represents 1000 or 1024.
  - **M** Represents 1000 x 1000, or 1024 x 1024.
  - **G** Represents 1000 x 1000 x 1000, or 1024 x 1024 x 1024.
  - **T** Represents 1000 x 1000 x 1000 x 1000, or 1024 x 1024 x 1024 x 1024.
  - **?** Indicates that the number is larger than T.

**Create and execute reporting commands**

This menu option navigates to the Interactive Report Facility (IRF), where you can interactively specify reports and create and execute the corresponding batch report command stream, which then generate the requested report.

The Interactive Report Facility (IRF) is an alternative to creating batch report command streams by using the ISPF editor. The IRF is described in the *Reporting User’s Guide*.

**View online DB2 activity - Classic Interface**

Select this menu option to navigate to the OMEGAMON XE for DB2 PE Classic Interface panel, where you can specify certain parameters and log on to the Classic Interface Realtime Monitor.

**Logging on to the Classic Interface:**

Before you can log on to the Classic Interface Realtime Monitor, you must specify or change several parameters.

If you have selected the View online DB2 activity - Classic Interface menu option, the following panel is displayed:

```plaintext
-KO2MPSPF------ Invoke OMEGAMON XE for DB2 PE Classic Interface -------------------

Specify Classic Interface parameters:

DB2 subsystem ID ===> SDAZ  VTAM APPLID ===> IPAUD2C
User profile ===> #P  Logical rows ===> 999 (24-9999)

Optionally, specify an immediate RETURN PF key to immediately close the Classic Interface Realtime Monitor and return to the OMEGAMON XE for DB2 PE main menu. This overrides the default (00) Classic Interface PF key.

RETURN PF key ===> 00

Enter L to Logon to Classic Interface Realtime Monitor. Enter END to exit.

Command ===> F1=Help  F3=Exit  F12=Cancel
```
Before you can log on to the Classic Interface Realtime Monitor, you must specify or change the following parameters.

**DB2 subsystem ID**
The identifier of the DB2 subsystem to be monitored.

**VTAM APPLID**
The VTAM application ID to be used for the session.

**User profile**
The member of the user profile to be used for the session.

**Logical rows**
The number of logical rows to be used for the session.
If you encounter problems when browsing larger data sets, increase this value.

**RETURN PF key**
You can specify a PF key to immediately close the Classic Interface Realtime Monitor and return to the OMEGAMON XE for DB2 PE main menu. This PF key can be used from any of the following VTAM session panels, regardless of the menu depth. The default definition (00) requires that you close each VTAM session panel separately with F3 (Exit).

Type L on the command line and press Enter to log on.

**Directly logging on to the Classic Interface from native VTAM:**

You can also log on to the Classic Interface Realtime Monitor from native VTAM.

If you prefer to start an OMEGAMON session directly from native VTAM, you can enter the following logon command, including parameters, in a VTAM panel.

```
LOGON APPLID(applid)
```

```
LOGON APPLID(applid)
```

```
DATA(DB2=ssid, LROWS=log_rows, USER=profile)
```

**applid**
The VTAM APPLID specified to OBVTAM when it was started.

**ssid**
The identifier of the DB2 subsystem to be monitored. If not specified, the subsystem identifier that was established during configuration is used.
If NONE is specified instead of a ssid identifier, or if the specified or default DB2 subsystem is not up or does not exist, you are navigated to the Redirect Monitoring to Another DB2 panel; in this panel, you can view the status of available subsystems and choose a different one.

**log_rows**
The number of logical rows to be used for the session. If not specified, the default number is 255.

**profile**
The member of the user profile to be used. If not specified, the default profile is #P.
The Classic Interface main menu:

After a successful log on, use the Classic Interface main menu to select a function and navigate through subsequent menus and panels.

After a successful log on, the following menu is displayed:

```
ZMENU  VTM  02  V540.4P DA41 S 11/04/13 8:57:28 2
> Help/News/Index PF1  Exit PF3  PF Keys PF5
> Type a selection letter at the left end of the top line and press ENTER.

===============================================================================
MENU  OMEGAMON CLASSIC INTERFACE -- REALTIME MAIN MENU
  S  SUMMARY  ............  Summary of DB2 activity
  E  EXCEPTIONS  ..........  Current or potential system problems
  T  THREAD ACTIVITY ......  Thread activity information
  U  THREAD ACTIVITY ......  Thread activity information by package
  L  LOCKING CONFLICTS ....  Locking conflict information
  R  RESOURCE MANAGERS ....  Resource manager, other DB2 subsystem information
  A  APPLICATION TRACE ....  Trace and view application activity
  D  DISTRIBUTED DATA ......  Distributed database system information
  O  OBJECT ANALYSIS ......  Object and volume information
  G  DB2 CONNECT SERVER ...  DB2 Connect/Gateways with connection to DB2
  C  MVS CONSOLE ...........  MVS console to issue commands and view messages
  B  DB2 CONSOLE ...........  DB2 console to issue commands and view messages
  M  MISCELLANEOUS .........  Address space information, OMEGAMON commands, etc.
  P  PROFILE ...............  Customize OMEGAMON session and exception settings
  H  HISTORY ...............  Near-Term History information
  V  SQL PA REPORTS........  View SQL PA reports
  Z  OTHER DB2 .............  Redirect monitoring to another DB2
===============================================================================
```

The following options are available from this menu:

**SUMMARY**

This option displays a summary of critical system-wide DB2 activity and resource utilization.

For more information, see “Summary” on page 896.

**EXCEPTIONS**

This option lists current exceptions that have exceeded their threshold conditions and might indicate a current or potential system problem.

For more information, see “Exceptions” on page 902.

**THREAD ACTIVITY (by plan time)**

This option lists activity information of all threads with non-blank plan name (ordered by thread plan time).

For more information, see “Thread Activity” on page 921.

**THREAD ACTIVITY (by package)**

This option lists activity information of threads with non-blank packages only that are currently connected to DB2 (ordered by thread elapsed time).

For more information, see “Thread Activity” on page 921.

**LOCKING CONFLICTS**

This option lists existing locking contentions.

For more information, see “Locking Conflicts” on page 1086.

**RESOURCE MANAGERS**

This option provides access to information about resource managers, such as Buffer Manager, Log Manager, Bind Statistics, and others.
APPLICATION TRACE
This option provides access to the Application Trace Facility (ATF).
For more information, see “Application Trace Facility (ATF)” on page 1341.

DISTRIBUTED DATA
This option lists Distributed Data Facility (DDF) related information.
For more information, see “Distributed Data Facility” on page 1388.

OBJECT ANALYSIS
This option lists allocation-related object and volume information at the database level.
For more information, see “Object Analysis” on page 1394.

DB2 CONNECT SERVER
This option lists DB2 Connect Servers that serve as DB2 Connect gateways to the selected DB2 subsystem.
For more information, see “DB2 Connect Server” on page 1430.

MVS CONSOLE
This option provides access to the MVS system console, where you can issue commands and view messages.
For more information, see “MVS System Console and Message Traffic” on page 899.

DB2 CONSOLE
This option provides access to the DB2 system console, where you can issue commands and view messages.
For more information, see “DB2 System Console and Message Traffic” on page 1024.

MISCELLANEOUS
This option provides access to information about address spaces and permits to issue OMEGAMON commands.
For more information, see “Address Space Information” on page 1439 and “OMEGAMON Commands” on page 1452.

PROFILE
This option provides access to the Profile Maintenance Menu, where you can customize sessions, set exception thresholds, and maintain installation- and user-specific profiles.
For more information, see “Profile Maintenance Facility” on page 1486.

HISTORY
This option navigates to the Near-Term History Information menu, where you can work with near-term history statistics information and near-term thread information. You can also view the current specifications about the Near-Term History Data Collector.
For more information, see “Near-term history information” on page 1518.

SQL PA REPORTS
This option provides access to various SQL Performance Analyzer (SQL PA) reports about current SQL performance.
For more information, see “SQL Performance Analyzer Reports” on page 1703.

OTHER DB2
This option permits to redirect monitoring to another DB2 subsystem.
For more information, see “Redirect Monitoring to Another DB2” on page 900.

For detailed information about this panel and on subsequent panels, press F1 (Help). If applicable, place the cursor in an entry field for specific field help.

Switching among DB2 subsystems and data sharing group members:

It is often necessary to monitor a subsystem that is different from the one you specified when you logged on to the Classic Interface Realtime Monitor. Several panels in the Classic Interface are enabled to switch the subsystem, the member of a data sharing group, or even a data sharing group without the necessity for leaving the Classic interface for a re-logon to a different subsystem.

On panels that are enabled for switching, the top row provides a slightly modified layout, with two fields serving as input fields. The following Thread Activity panel is an example. The two fields of interest are emphasized for the discussion.

<table>
<thead>
<tr>
<th>Meanings and usages of the input fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>The field showing the currently monitored DB2 subsystem (here DA41) allows for switching to a different subsystem by entering a different DB2 subsystem name.</td>
</tr>
<tr>
<td>The accompanying indicator shows S for a single DB2 subsystem or a member of a data sharing group, or G for a data sharing group.</td>
</tr>
<tr>
<td>Invalid DB2 subsystem or data sharing group names cause an error message.</td>
</tr>
<tr>
<td>The 3270 Tab key can be used to navigate the cursor from the command area to the DB2 subsystem field.</td>
</tr>
</tbody>
</table>
If a panel is not enabled for switching, both fields serve as display fields. No input is possible.

**View online DB2 activity - PE ISPF OLM**

This menu option navigates to the Online Monitor Main Menu, where you can access the IBM DB2 Performance Expert ISPF Online Monitor.

**Note:** The IBM DB2 Performance Expert ISPF Online Monitor is described in *Monitoring Performance from ISPF*. It is kept available until an equivalent function is provided by the OMEGAMON XE for DB2 PE Classic Interface.

**Maintain parameter data sets**

This menu option navigates to the Data Set Maintenance menu, where you can maintain exception thresholds, correlation translations, time zone information, and MAINPACK definitions.

If this option is selected, the following menu is displayed:

```
Data Set Maintenance Menu
Select one of the following.
  1. Maintain exception thresholds
  2. Maintain correlation translations
  3. Maintain time zone information
  4. Maintain MAINPACK definitions

Exception data set

DPMPARMS data set

Command ===>
F1=Help    F2=Split    F3=Exit    F6=History    F9=Swap    F12=Cancel
```

On this menu, you can customize certain DB2 monitoring parameters by modifying parameters in an Exception Threshold data set and in defined members of the DPMPARMS data set. These data sets must be allocated before they can be edited.

**Maintain exception thresholds**

Use this option to edit exception thresholds in the Exception Threshold data set.

Exception reporting identifies DB2 threads and statistics intervals that have fields with values outside the thresholds specified in the Exception Threshold data set. Exception processing is available in batch Accounting and Statistics report sets and in the Online Monitor thread and statistics functions.

**Maintain correlation translations**

Use this option to edit correlation translation data in the CORRDATA member of the DPMPARMS data set.

The correlation ID is a 12-byte field within the DB2 correlation header of the instrumentation trace records that is used to identify the task being executed by DB2.

The correlation ID contains different information about the task depending on the type of connection. For this reason, OMEGAMON XE for DB2 PE
provides a correlation translation data set, which is used to divide the correlation ID into a correlation name and a correlation number as follows:

**CORRNAME**
Correlation name, which translates to the first eight bytes of the correlation ID.

**CORRNMBR**
Correlation number, which translates to the last four bytes of the correlation ID, padded out with 4 blanks.

**Note:** The correlation translation data set is only required for two-phase-commit environments such as CICS and IMS.

**Maintain time zone information**
Use this option to edit the time zone information in the LOCDATA member of the DPMPARMS data set member.

The time zone information is used to adjust differences in the times of the data to be reported. Adjust the times if:
- The CPU clock of your MVS system is not set to the local time, but you want to use the local time in your reports.
- You want to generate reports or traces that show activity at more than one location and the CPU clock settings of the locations are different.
  This is often the case when the locations are in different time zones.

When you have entered the time zone information to the DPMPARMS data set member, you can use the TIMEZONE option of the GLOBAL command to adjust the times used in reporting.

**Maintain MAINPACK definitions**
Use this option to edit MAINPACK definitions in the MAINPACK member of the DPMPARMS data set member.

In the Accounting report set you can use the MAINPACK identifier to distinguish plans according to the packages they contain. You can define certain aspects of the MAINPACK identifier:
- Whether the first or the last package executed within a plan is used as the MAINPACK.
- Whether you want to use the package ID, the collection ID, or the location name of the package as the value of the identifier. In the case of a DBRM, the program name is always used.

You can specify different MAINPACK definitions for data from different environments and from different plans.

**Exception data set**
Use this field to specify the name of your Exception Threshold data set. The data set must be preallocated and cataloged before you can edit it.

To specify the data set, enter any fully qualified name by enclosing it in apostrophes. If you omit the apostrophes, your TSO prefix is appended to the data set name.

If you want to use a new Exception Threshold data set, it must be allocated using the following attributes:

**DSORG**
A data set organization of PS (sequential).

**RECFM**
A record format of VB or V.
LRECL
A record size of at least 255.
BLKSIZE
The block size must be at least 4 bytes more than LRECL.

DPMPARMS data set
Use this field to specify the name of your DPMPARMS data set. Any modifications you make to time zone specifications, correlation translation, or to the MAINPACK identifier definition are recorded in the individual members of the DPMPARMS data set.

The data set must be preallocated and cataloged before you can edit it.

To specify the data set, enter any fully qualified name by enclosing it in apostrophes. If you omit the apostrophes, your TSO prefix is appended to the data set name.

If you want to use a new DPMPARMS data set, it should be allocated using the following attributes:

DSORG
A data set organization of PO (partitioned).
RECFM
A record format of FB or F.
LRECL
A record size of 80.
BLKSIZE
A block size that can be any multiple of LRECL.

For detailed information about this panel and on subsequent panels, press F1 (Help). If applicable, place the cursor in an entry field for specific field help.

Customize report and trace layouts
This menu option navigates to the User-Tailored Reporting Layout Generation panel, where you can tailor Accounting and Statistics report and trace layouts.

If this option is selected, the User-Tailored Reporting Layout Generation panel is displayed:

```
User-Tailored Reporting Layout Generation

Select one of the following report set functions and then enter the DPMPARMS data set to be used.

1. Accounting report
2. Statistics report
3. Accounting trace
4. Statistics trace

DPMPARMS data set

Command ==> F1=Help  F2=Split  F3=Exit  F6=History  F9=Swap  F12=Cancel
```

In this panel, you can choose one of the sample layouts to be used as a basis for your own Accounting or Statistics report or trace layout. All layouts must be based on the sample layouts. For example, to tailor your own Accounting report layout, select Accounting report from this panel. In the subsequent panels, you can choose whether you want to base your report on the short or long sample layout and
define blocks of information and individual fields to be added on your layout. You can also delete blocks of information and fields from the sample layout and change the labels of fields.

When you have finished customizing your report or trace layout, it is saved to the DPMPARMS data set that you specify in this panel.

For detailed information about this panel and on subsequent panels, press F1 (Help). If applicable, place the cursor in an entry field for specific field help.

**Exception Profiling**
This menu option navigates to the Exception Profiling panel, where you profile exception settings, such as thresholds settings, input data sets to be used, and reports to be generated.

If this option is selected, the Exception Profiling panel is displayed:

```
Exception Profiling

Complete the following control information, then press Enter.

Warning exceptions . . . . . . . . . . . . . . . ( % of input data)
Problem exceptions . . . . . . . . . . . . . . . ( % of input data)
Produce profile report . . . . . . . . . . . . . (1=yes 2=no)

Input data set
______________________________________________
Input threshold data set
______________________________________________
Output threshold data set
______________________________________________
Output report data set
______________________________________________

Command =>>>  F1=Help  F2=Split  F3=Exit  F6=History  F9=Swap  F12=Cancel
```

In this panel, you can specify the required data sets and profiling criteria that are required to calculate the thresholds in an Exception Threshold data set. A report that shows the details of the distribution and the expected number of exceptions for each field can also be produced. The panel contains the following fields:

- **Warning exceptions**
  You can specify the percentage of input data that is to trigger a warning.

- **Problem exceptions**
  You can specify the percentage of input data that is to trigger a problem.

- **Produce profile report**
  You can specify whether you want to produce a profile report containing details about each field. The profile report includes a table of expected number of exceptions for various threshold entries.

- **Input data set**
  Specify the name of the data set containing data from your DB2 subsystem. The data set can be a GTF, SMF, or DPMOUT data set. The records in this data set should be representative of the type of data that you usually monitor. The input data should also contain a sufficient number of records
to enable the profiling to be performed with reasonable accuracy. The data should also cover an appropriate span of time.

**Input threshold data set**
Specify the name of the data set that contains entries for the fields you want checked. It can be one of the Exception Threshold data sets provided in SDGOSAMP or your own data set.

**Output threshold data set**
Specify the name of the data set that the calculated threshold values are to be written to.

**Output report data set**
Specify the name of the data set that will contain the profile report (if requested).

**Summary**
Select this main menu option for summary and overview information of current DB2 activity and DB2 connections.

For more system-related information, see “Resource Managers and Other DB2 Subsystem Information menu” on page 1110.

**Summary of DB2 Activity**
This panel provides an overview of current DB2 activities and resource utilization, along with summaries of DB2 connection activities (grouped by connection types IMS, CICS, TSO, batch, utilities, distributed, and stored procedures).

<table>
<thead>
<tr>
<th>Connection Type</th>
<th>Connections</th>
<th>Threads</th>
<th>CPU</th>
<th>GetPage Rate</th>
<th>Elapsed Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMS</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td>.0/sec</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>CICS</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td>.0/sec</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>TSO Foreground</td>
<td>1</td>
<td>2</td>
<td>05.3%</td>
<td>3024.3/sec</td>
<td>00:01:05.8</td>
</tr>
<tr>
<td>Batch</td>
<td>3</td>
<td>7</td>
<td>00.2%</td>
<td>.0/sec</td>
<td>03:02:02</td>
</tr>
<tr>
<td>Utilities</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td>.0/sec</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>Distributed</td>
<td>1</td>
<td>0</td>
<td>0.0%</td>
<td>.0/sec</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>Stored Procedures</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td>.0/sec</td>
<td>00:00:00:00</td>
</tr>
<tr>
<td>All Connections</td>
<td>5</td>
<td>9</td>
<td>05.5%</td>
<td>3024.3/sec</td>
<td>02-09:35</td>
</tr>
</tbody>
</table>

If in data sharing group mode or if monitoring a remote DB2, N/A is displayed for some of the fields.

**Highlighting**

The following table shows the fields that might be highlighted in the panel above to indicate that an exception that is related to this field exceeded its threshold value:
Table 87. Highlighted fields on Summary of DB2 Activity panel

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synch Read I/O Rate</td>
<td>RIO</td>
<td>The synchronous RIO rate is high.</td>
</tr>
<tr>
<td>Prefetch Req Rate</td>
<td>PREF</td>
<td>The asynchronous prefetch request rate is high. Includes sequential, dynamic, and List Prefetch.</td>
</tr>
<tr>
<td>Current Lock Suspensions</td>
<td>SUSL</td>
<td>The total number of threads suspended waiting for locks is high.</td>
</tr>
<tr>
<td>Connections</td>
<td>IDFR</td>
<td>The total number of IDFORE connections is high.</td>
</tr>
<tr>
<td></td>
<td>IDBK</td>
<td>The total number of IDBACK connections is high.</td>
</tr>
<tr>
<td>Threads</td>
<td>TMAX</td>
<td>Number of active threads is high.</td>
</tr>
<tr>
<td>CPU</td>
<td>TCPU</td>
<td>CPU rate for threads in the connection type is high.</td>
</tr>
<tr>
<td>Getpage Rate</td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td>Utilities</td>
<td>UTIS</td>
<td>One or more utilities were started but did not complete running due to abnormal termination.</td>
</tr>
</tbody>
</table>

Navigation

For additional information about
- a connection type, move the cursor to the connection line and press F11 (Zoom).
- other topics, use the PF keys.

Fields

**DB2 summary information**: All rate information is computed by dividing the reported value by the elapsed time since the previous OMEGAMON XE for DB2 PE cycle. For example, OMEGAMON XE for DB2 PE computes the synchronous Read I/O rate by dividing the number of synchronous Read requests since the previous OMEGAMON XE for DB2 PE cycle by the elapsed time since the previous cycle.

**SSAS+DBAS+ IRLM+DIST CPU**

The CPU rate (percent) used by these DB2 address spaces. It includes both TCB and SRB time. DB2 use of cross memory services causes the majority of DB2 CPU time to be attributed (by SRM) to the user’s address space. Therefore, the CPU value does not include DB2 CPU time attributed to the user’s address space as a result of cross memory services use. For more information, see "Analyzing DB2 CPU Usage".

**Thread Commit Rate**

The number of Commits per second.
Create Thread Rate
The number of Create Thread requests per second.

Thread Signon Rate
The number of Thread Signon requests per second. Thread signon processing is only applicable in the CICS and IMS DB2 attachment environments.

Synch Read I/O Rate
The number of synchronous Read I/Os per second.

Prefetch Req Rate
The number of Sequential Prefetch and List Prefetch requests per second.

Update Request Rate
The number of Update requests per second. The Update count is incremented each time a row in a page is updated.

Write I/O Rate
The number of Write I/Os per second. Write I/O is normally performed asynchronously. Updated pages are queued by the data set until written. Updated pages are physically written using the DB2 Deferred Write algorithm.

Getpages/Read I/O
The Getpage to Read I/O ratio. This value helps in measuring read and buffer pool efficiency. The value is computed by dividing the total number of Getpage requests by the total number of synchronous read I/O requests since the last OMEGAMON XE for DB2 PE cycle.

Pages/Write I/O
The average number of pages written per Write I/O. This value is computed by dividing the number of pages written by the number of Write I/Os since the last OMEGAMON XE for DB2 PE cycle.

Current Lock Suspensions
The current number of threads that are waiting because of a lock request issued for a resource that is unavailable.

Locking Timeouts
The number of locking timeouts since DB2 was started. Timeouts occur because lock requests were suspended for a time in excess of the locking timeout value.

Locking Deadlocks
The number of locking deadlocks that occurred since DB2 was started. Deadlocks are a result of locking contention.

Locking Escalations
The number of lock escalations that occurred since DB2 was started. This count includes the number of escalations to both shared and exclusive modes.

DB2 connection information: A summary of connection information by DB2 connection type.

Connection Type
A single line is displayed for each DB2 connection type.

Connections
The number of active connections originating from the connection type. For
Distributed, it is the count of remote DB2 connections in which the DB2 subsystem being monitored has active DB2-to-DB2 system conversations. For remote DB2 subsystems and in Data Sharing Group mode, this field is marked as not available (N/A).

**Threads**
The number of active threads that are originating from the connection type. This number includes active parallel task threads that are initiated by threads that are originating from the connection type. For Distributed, it is the number of active database access threads that are active on the DB2 subsystem being monitored.

**CPU**
The total CPU rate (percent) attributable to the connection type. For non-CICS connection types, this value is the total CPU rate of all address spaces within the connection type with active threads. For CICS connections, this value is the total CPU rate attributable to all active threads originating from CICS connections. For more information about CPU use, see "Analyzing DB2 CPU Usage". For remote DB2 subsystems and in Data Sharing Group mode, this field is marked as not available (N/A).

**Getpage Rate**
The total Getpage rate per second for active threads originating from the connection type.

**Elapsed Time**
The average elapsed time for an active thread within the connection type. This value is computed by adding the elapsed time of all active threads within the connection type and dividing it by the total number of active threads.

**MVS System Console and Message Traffic**
Use this panel to issue MVS commands and to display MVS console messages.
This panel might require special authorization before you can enter DB2
commands. Type /PWD on the top line of the panel, enter a valid password when
requested, then press Enter. Then follow the instructions to issue DB2 commands.

Navigation

For additional information about other topics, use the PF keys.

Commands

OCMD

After you type an MVS command and press Enter, OMEGAMON XE for
DB2 PE displays a message that indicates whether the command was
issued successfully. See the output of the MVS messages below CONS to
see the results of the command you issued. For information about valid
MVS commands, see z/OS MVS System Commands.

CONS Determines the ID of the console buffer to display.

line10 Displays the last nn lines of the output buffer for the MVS operator
console. Here, it displays the last 10 lines.

Redirect Monitoring to Another DB2

Use this panel to change the DB2 system you are monitoring or to redirect
OMEGAMON XE for DB2 PE to a restarted DB2 system.

In this panel you can redirect OMEGAMON to another DB2 subsystem in one of
the following ways:

- Place the cursor on the line of the DB2 subsystem that you want to monitor and
  press F11.
- Enter the name of the DB2 subsystem after RL06.

The OMEGAMON logon panel is displayed. Press ENTER to start a new session.
For the new session, the current user profile is used.
If you do not want to redirect to another DB2 system, press PF3 to return to the Main Menu.

**Navigation**

For additional information about

- A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.
- other topics, use the PF keys.

**Fields**

**Name**  The name of the DB2 subsystem.

**Command Prefix**  The name of the DB2 command prefix.

**Scope**  The scope for the command prefix. Possible values are:

- **S**  The indicated DB2 subsystem is a single subsystem that is not a member of a data sharing group.
- **M**  The indicated DB2 subsystem is a member of a data sharing group.
- **M***  The indicated DB2 subsystem is a member of a data sharing group and controls the DB2 Connect monitoring for the group (the subsystem is the current DB2 Connect group-scope monitoring master, abbreviated as “DB2C Master”).

When the PE Server subtask acting as DB2C Master terminates, the value changes from M* to M and DB2 Connect data is no longer monitored.

If another PE Server subtask in the data sharing group takes over DB2 Connect monitoring and becomes the new DB2C Master:

- The value changes from M to M*.
- The name of the DB2 subsystem now acting as the new DB2C Master is shown on the corresponding DB2 Connect panels.

**Note:** During the transition of the DB2C Master role (which might take several minutes) DB2 Connect data cannot be monitored, no DB2 subsystem is marked as DB2C Master, and on corresponding DB2 Connect panels the name of the DB2C Master is shown as N/A.

**Group Attach**  The group attachment name, used for data sharing. This field is blank if the DB2 subsystem is not defined as a member of a data sharing group.

**Ver**  The version of the DB2 subsystem is displayed if the DB2 subsystem is active.

**Status**  The following values are possible

- **Active**  DB2 subsystem is active.
- **Not Active**  DB2 subsystem is not active.
- **Unreachable**  Unable to connect to the DB2 subsystem.
Unsupported
DB2 lower than version 10 or higher than version 12 is not supported.

Restricted
DB2 is in restricted access mode.

Wait RRS
DB2 is waiting for RRS connection.

LPAR The logical partition (LPAR) defined for your system.

Usable
An indication whether the resources defined for your system can be used.
If a DB2 subsystem has not been fully configured for monitoring or is not active, it will be indicated as No.

Exceptions
Select this main menu option for exception information of thread, CICS, IMS, and DB2 system activity that OMEGAMON XE for DB2 PE has found to be outside specified thresholds.

OMEGAMON XE for DB2 PE continually monitors the system for problems related to threads, CICS, IMS, and DB2 system operation. If a condition goes above or below a user-specified threshold or if an unexpected condition occurs (an exception is said to have tripped), OMEGAMON XE for DB2 PE displays a corresponding message. You can access online recommendations for tripped exceptions by using F10 (Recommendations).

Because each system is different, adjust the exception thresholds to reflect potential DB2 performance problems for your site. For more information, see "Profile Maintenance Facility" on page 1486.

Exception Messages
These panels show exception information about a selected group of exceptions. Use these panels to select a different exception group (All, Thread, CICS, IMS, or DB2 System) or to obtain information about the status of the currently selected exception group. Online recommendations for exceptions are accessible through F10 (Recommendation).

The following Exception Messages panel is an example for all exceptions. The panels for Thread, CICS, IMS, or DB2 System exceptions look similar.
You can select a different exception group as required.

- **Option A (All exceptions)** displays all groups (Thread, CICS, IMS, System) alphabetically, ordered by group. Groups are separated by headers.

- If you select option **B (Thread exceptions)**, OMEGAMON XE for DB2 PE identifies the thread to which the exceptions apply, and displays all exceptions that have been tripped for that thread.

- If option **C (CICS exceptions)** is selected, OMEGAMON XE for DB2 PE provides information about exceptional conditions occurring within the CICS/DB2 attachment of CICS regions connected to DB2.

- If you select option **D (IMS exceptions)**, OMEGAMON XE for DB2 PE provides information about exceptional conditions occurring within the IMS/DB2 attachment of IMS dependent and control regions connected to DB2.

- If you select option **E (DB2 System)**, OMEGAMON XE for DB2 PE provides information about the current condition of DB2 system resources and functions, including DB2 connections and threads, buffer management, log management, and locking.

If you select **F (Status)**, OMEGAMON XE for DB2 PE displays the Current Status for Exceptions panel for the currently selected exception group (the group displayed in Exception Messages panel). For more information, see the description of panel "Current Status for Exceptions".
Navigation

For additional information about
• an exception, move the cursor to the exception line and press F11 (Zoom).
• exception recommendations, move the cursor to the exception line and press F10 (Recommendation).
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

Each of the exceptions on the Exception Messages panel has the following default characteristics:
• Bell=OFF
• Boxchar=NO BOX
• Boxclr=NONE
• Boxattr=NONE
• Display=CLR3
• Attribute=NONE
• ExNcyc=0
• Stop=0
• Cumulative=0
• Auto=OFF
• Log=OFF
• Limit=200
• Repeat=YES
• Persist=1

To change a characteristic of any exception, see "Profile Maintenance Facility".

A description of possible exceptions (arranged in alphabetical order) follows:

ARCM
Thread backout processing is waiting for an archive tape mount.

OMEGAMON XE for DB2 PE displays the ARCM exception when a thread is waiting for a tape mount. DB2 requires the archive tape mount during abort processing to backout changes made in the current unit of recovery. The thread does not do any processing until the tape is mounted, and holds DB2 resources until the abort request is complete.

ARCM is a member of the thread (TH) exception group. This exception monitors an action, not a value; its threshold is always N/A. The default state for ARCM is ON. If State is ON and a DB2 thread is waiting for a tape mount of an archive log, OMEGAMON XE for DB2 PE displays the exception.

ARCV
A DB2 recovery log archive is currently waiting for a tape mount.

A tape mount is necessary if DB2 recovery log archiving is to tape. Log data set archiving is an automatic feature of the DB2 log manager. Log archiving is initiated internally by DB2 when an active log is full. It runs as a subtask within the DB2 subsystem, and as a result, no job or started task is initiated.
ARCV is a member of the DB2 system (SY) exception group. This exception monitors an action, not a value; its threshold is always N/A. The default state for ARCV is ON. If State is ON and an archive is waiting for a tape mount, OMEGAMON XE for DB2 PE displays the exception.

BMTH

Warns that a particular buffer pool has exceeded a user-specified percentage of its capacity. This exception can also warn that use of the buffer pool has reached one of three DB2 buffer manager thresholds: SPTH, DMTH, or IWTH.

When the percentage is below 90%, you get the basic exception message, assuming that you have set the threshold at 90% or lower. This message simply reports the percentage of use for any buffer pool that has reached the threshold value.

When the buffer pool used percentage is between 90% and 94.9%, inclusive, the exception message will include the information that the buffer pool has reached the Sequential Prefetch threshold (SPTH).

When the buffer pool used percentage is between 95% and 97.5%, inclusive, the exception message will include the information that the buffer pool has reached the Data Manager threshold (DMTH).

When the buffer pool used percentage exceeds 97.5%, the exception message will include the information that the buffer pool has reached the Immediate Write threshold (IWTH).

BMTH is a member of the system (SY) exception group. The default threshold is 90%.

Note: To be notified when each of the buffer manager thresholds is reached, set the BMTH threshold to 90% or less.

CICT

Provides thread use information for an individual CICS region.

CICT is a member of the CICS (CI) exception group. The default threshold for CICT is 80% of the THRDMAX value in the Resource Control Table (RCT). The threshold can be any value from 1% through 100%. If the ratio of active CICS threads to the THRDMAX value exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

COMT

Ratio of updates to commits is greater than \textit{nnn:n}.

OMEGAMON XE for DB2 PE displays the COMT exception when the number of system page updates per Commit exceeds the installation-defined threshold.

The update count used in the rate calculation is incremented each time a row in a page is updated.

COMT is a member of the thread (TH) exception group. Default threshold for COMT is 100 page updates to 1 commit. The threshold can be any value from 1 through 10,000. If the ratio of updates to commits exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

CTHD

Application is waiting for thread creation.

This is caused when the system maximum thread limit is reached (CTHREAD parameter). CTHD is a member of the thread (TH) exception group. This exception monitors an action, not a value; its threshold is
always N/A. If State is ON and a user is waiting for thread creation, OMEGAMON XE for DB2 PE displays the exception.

**DDFS** Reports when DDF is not active.

OMEGAMON XE for DB2 PE displays the DDFS exception when it detects that the Distributed Database Facility (DDF) is not active in the DB2 subsystem being monitored. This might be because DSNZPARM specifies that DDF must be started manually; it might also reflect an abnormal termination of the distributed database facility.

DDFS is a member of the system (SY) exception group. This exception monitors an action, not a value; its threshold is always N/A.

**DRCV**

Monitors the VTAM APPC receive rate.

OMEGAMON XE for DB2 PE displays the DRCV exception when the DDF VTAM receive data rate exceeds the exception threshold.

DRCV is a member of the system (SY) exception group. The exception threshold rate is expressed as KB per second. The default threshold for DRCV is 1000 KB per second.

**DSND**

Monitors the VTAM APPC send rate.

OMEGAMON XE for DB2 PE displays the DSND exception when the DDF VTAM APPC send data rate exceeds the exception threshold.

DSND is a member of the system (SY) exception group. The exception threshold rate is expressed as KB per second. The default threshold for DSND is 1000 KB per second.

**DWAT**

Monitors the time a distributed allied thread has been waiting for a response to a remote SQL request.

OMEGAMON XE for DB2 PE displays the DWAT exception when it detects that a distributed allied thread has been waiting for a response to a remote SQL request for a period of time greater than the exception threshold.

DWAT is a member of the thread (TH) exception group. The exception threshold is expressed as an integer, that is, the number of seconds that can elapse before the exception will trip. The default threshold for DWAT is 120 seconds.

**EDMU**

EDMU is a member of the DB2 system (SY) exception group. The default threshold for EDMU is 90% of the pool size. The threshold can be any value between 1% to 100%. If the ratio of the pool in use to total pool size exceeds this threshold, OMEGAMON XE for DB2 PE displays an exception message.

EDMU provides information about EDM pool utilization.

DB2 uses the environmental descriptor management (EDM) pool to manage and contain the following features:
- Database descriptors (DBDs)
- Cursor tables (CTs)
- Skeleton cursor tables (SKCTs)
• Package tables (PTs)
• Skeleton package tables (SKPTs)
• Dynamic SQL caches (DSCs)

The size of each pool is defined by its individual installation parameter.

To compute the EDM-in-use-ratio for DB2 10.1 and higher, OMEGAMON XE for DB2 PE totals the EDM pages in use by database descriptors (DBDs) and divides this number by the total DBD pool size.

**ENTO** Provides information about POOL thread use originating from CICS transactions that were diverted to the pool because all ENTRY threads for the requested DB2 plan are in use.

ENTO does not analyze ENTRY definitions with a THRDA value of zero because these threads automatically use the buffer pool and are considered legitimate POOL thread users.

ENTO analyzes all ENTRY thread definitions with TWAIT=POOL and THRDA>0 specified. As a result, it can trip and display multiple times on one OMEGAMON XE for DB2 PE cycle for the same CICS region. The Plan=cccccccc displays the DB2 plan name assigned to the entry threads. If the DB2 plan name is ********, the entry definition is using the CICS dynamic plan exit. The variable aaaa is the first CICS transaction defined to the plan. The CICS transaction ID is needed because the same DB2 plan can be defined to multiple ENTRY definitions. A CICS transaction can only be defined to a single DB2 plan. Therefore, the transaction ID in the exception output provides a unique identifier of which ENTRY definition is overflowing if the DB2 plan is defined to multiple ENTRY definitions.

ENTO is a member of the CICS (CI) exception group. The default threshold for ENTO is three transactions. The threshold can be any value from 1 through 100 transactions. If the number of transactions using a POOL thread due to an overflow exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**ENTU** Provides information about CICS ENTRY thread use.

The definition of ENTRY threads (in the RCT) is optional. The definition and use of ENTRY threads enables the DB2 user to assign one or more DB2 threads to a single DB2 plan. You can also define one or more transactions that might use the plan.

ENTU analyzes all ENTRY thread definitions. As a result, it can trip and display multiple times on one OMEGAMON XE for DB2 PE cycle for the same CICS region. The Plan=cccccccc displays the DB2 plan name assigned to the entry threads. If the DB2 plan name is ********, the entry definition is using the CICS dynamic plan exit. The variable aaaa is the first CICS transaction defined to the plan. The CICS transaction ID is needed because the same DB2 plan can be defined to multiple ENTRY definitions. A CICS transaction can only be defined to a single DB2 plan. Therefore, the transaction ID in the exception output provides a unique identifier of which ENTRY definition is incurring the thread use reported by the exception.

ENTU ignores all ENTRY definitions with a THRDA value of zero and TWAIT=POOL. It also ignores any ENTRY definitions in which THRDA is set to one, regardless of the TWAIT operand in use.

ENTU is a member of the CICS (CI) exception group. The default threshold for ENTU is 95% of the THRDA value. The threshold can be any value from 1% through 100%. If the ratio of active threads originating from an
ENTRY definition to the ENTRY definition’s THRDA value exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**ENTW**

Provides information about CICS transactions waiting for ENTRY threads.

The definition of ENTRY threads (in the RCT) is optional. By using ENTRY threads, you can assign one or more DB2 threads to a single DB2 plan. You can also define one or more transactions which might use the plan. Other options are available when defining ENTRY threads, one of it is TWAIT. TWAIT is used to govern the required processing when all DB2 threads associated with an ENTRY definition (plan) are in use. If TWAIT is YES specified and no ENTRY thread is available, the request is queued and waits for a thread assigned to the ENTRY definition to become available. This exception is tripped and displayed when the number of transactions waiting for an ENTRY thread exceeds the exception threshold.

The exception routine analyzes all ENTRY thread definitions with TWAIT is YES specified. As a result, the exception can trip and display multiple times on one OMEGAMON XE for DB2 PE cycle for the same CICS region. The Plan=cccccccc is the DB2 plan name assigned to the ENTRY threads. The variable aaaa is the first CICS transaction defined to the plan. The CICS transaction ID is needed because the same DB2 plan can be defined to multiple ENTRY definitions. A CICS transaction can only be defined to a single DB2 plan. The transaction ID in the exception output provides a unique identifier of which ENTRY definition is incurring the waits if the DB2 plan is defined to multiple ENTRY definitions.

ENTW is a member of the CICS (CI) exception group. The default threshold for ENTW is two transactions. The threshold can be any value between 1 and 100 transactions. If the number of transactions waiting for an ENTRY thread exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**ETIM**

Monitors the elapsed time for a DB2 thread (from Signon or Create Thread).

ETIM displays the wall clock time that the plan has been actively holding thread resources. This might indicate that service level commitments have been exceeded.

ETIM is a member of the thread (TH) exception group. The default threshold for ETIM is 600 seconds. The threshold can be any value between 1 and 999999.99 seconds. If the thread elapsed time exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**GETP**

Provides information about Getpage requests per Read I/O.

The counters which DB2 maintains for this activity are updated throughout the life of the thread, and are reset when DB2 signon occurs.

GETP is a member of the thread (TH) exception group. The default threshold for GETP is 15 (1.5 Getpages to Read I/Os). The threshold can be any value between 0 and 100. Specify the threshold as an integer, where 1 equals 0.1 Getpages to Read I/Os. For example, OMEGAMON XE for DB2 PE sets a threshold specified as 20 equal to a ratio of 2.0 Getpages to Read I/Os. If the ratio of the Getpage rate to Read I/Os falls below the threshold, OMEGAMON XE for DB2 PE displays the exception.

**GTRC**

Indicates that the DB2 global trace is currently active.
GTRC is a member of the DB2 system (SY) exception group. This exception monitors an action, not a value; its threshold is always N/A. If State is ON and the global trace is active, OMEGAMON XE for DB2 PE displays the exception.

IDBC Provides information about the CPU time used by DB2 to process this thread.

IDBC is a member of the thread (TH) exception group. The default threshold for IDBC is 0.7 seconds. The threshold can be any value between 0.00 and 999999.99 seconds. The threshold is specified in 100ths of seconds. For example, to set a threshold of 0.7, specify a value of 70. If the total In-DB2 CPU time exceeds the threshold value, OMEGAMON XE for DB2 PE displays the exception.

IDBK Provides information about how close DB2 is to the maximum number of allowed background connections.

IDBK is a member of the DB2 system (SY) exception group. The default threshold for IDBK is 90% of the IDBACK installation parameter. The threshold can be any value between 1% and 100%. If the ratio of active background connections to the IDBACK value in use exceeds the threshold value, OMEGAMON XE for DB2 PE displays the exception.

IDBT Provides information about how long DB2 has been processing this thread.

IDBT is a member of the thread (TH) exception group. The default threshold for IDBT is 5 seconds. The threshold can be any value between 1 and 999999.99 seconds. If the total In-DB2 time exceeds the threshold value, OMEGAMON XE for DB2 PE displays the exception.

IDFR Provides information about how close DB2 is to the maximum number of allowed foreground connections.

IDFR is a member of the DB2 system (SY) exception group. The default threshold for IDFR is 85% of the IDFORE installation parameter. The threshold can be any value between 1% and 100%. If the ratio of active foreground connections to the IDFORE value in use exceeds the threshold value, OMEGAMON XE for DB2 PE displays the exception.

IMCN Warns when an IMS region is defined to DB2, but the connection failed.

IMCN is a member of the IMS (IM) exception group. This exception monitors an action, not a value; its threshold is always N/A. If State is ON and a region is defined but not connected to DB2, OMEGAMON XE for DB2 PE displays the exception.

IMND Warns when no IMS dependent region is defined to DB2.

IMND is a member of the IMS (IM) exception group. This exception monitors an action, not a value; its threshold is always N/A. If State=ON and no dependent region is defined to DB2, OMEGAMON XE for DB2 PE displays the exception.

INDB Provides information about individual threads that are in indoubt status. These threads might cause DB2 resources to be unavailable to other active threads until either restart or RECOVER INDOUBT processing occurs.
INDB is a member of the thread (TH) exception group. This exception monitors an action, not a value; its threshold is always N/A. If State=ON and a thread is in doubt, OMEGAMON XE for DB2 PE displays the exception.

**INDT**

Provides information about the number of indoubt threads in the DB2 system.

INDT is a member of the DB2 system (SY) exception group. The default threshold for IND is one indoubt thread. The threshold is a value between 1 and 100 threads. If the number of indoubt threads exceeds the threshold value, OMEGAMON XE for DB2 PE displays the exception.

**LKUS**

Provides information about the number of locks owned by an individual thread. If the thread reaches 100% of NUMLKUS, DB2 terminates the thread.

LKUS is a member of the thread (TH) exception group. The default threshold for LKUS is 80% of the NUMLKUS parameter defined by the installation. The threshold can be any value between 1% and 100%. If an active thread exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**LOGN**

Provides information about the availability of primary active logs.

Active log data sets are allocated to DB2 during startup processing. When an active log data set is full, it is automatically archived by DB2 to an archive log. When an active log is successfully archived, it is available for reuse. The availability of active logs is critical to the functioning of DB2. If no active log is available, the DB2 subsystem will hang until one becomes available. The lack of an active log could be caused by an insufficient number of logs defined when DB2 was installed, too small log data set size, or possibly due to problems encountered during the archive process.

LOGN is a member of the DB2 system (SY) exception group. The default threshold for LOGN is two available logs. The threshold is a value between 1 and 100 logs. If the number of available primary active logs is less than or equal to the threshold value, OMEGAMON XE for DB2 PE displays the exception.

**MCNV**

Monitors the percentage of the maximum number of allowed conversations for each logmode and the number of threads that are waiting (if any).

OMEGAMON XE for DB2 PE displays the MCNV exception when the number of conversations in use constitutes a specified percentage of the preset maximum for a given logmode. In addition, when the percentage reaches 100%, the exception displays the number of threads waiting because the preset maximum was exceeded.

MCNV is a member of the system (SY) exception group. The exception threshold is expressed as a percentage (0-100). For example, if you want OMEGAMON XE for DB2 PE to notify you when any logmode has started 80% of its allotment of conversations, set the threshold to 80. The default threshold for MCNV is 80%.

**MDBT**

Monitors the percentage of maximum number of allowed database access threads that are in use.
OMEGAMON XE for DB2 PE displays the MDBT exception when the number of distributed database access threads in use constitutes a specified percentage of the preset maximum. The maximum is set in DSNZPARM by the MAXDBAT parameter.

MDBT is a member of the system (SY) exception group. The exception threshold is expressed as a percentage (0-100). For example, if you want OMEGAMON XE for DB2 PE to notify you when an application has used 80% of its allotment of database access threads, set the threshold to 80. The default threshold for MDBT is 85%.

**MDBW**

Monitors the number of database access threads that are waiting because MAXDBAT was reached.

OMEGAMON XE for DB2 PE displays the MDBW exception when the number of distributed database access threads waiting because the maximum has been reached exceeds the exception threshold. The maximum is set in DSNZPARM by the MAXDBAT parameter.

MDBW is a member of the system (SY) exception group. The exception threshold is expressed as an integer, that is, the number of threads waiting because MAXDBAT was reached. The default threshold for MDBW is 2.

**MSGE**

Displays DB2 and Internal Resource Lock Manager (IRLM) messages that were generated since the last OMEGAMON XE for DB2 PE cycle.

OMEGAMON XE for DB2 PE displays the DB2 and IRLM messages that have been written to the system log since the last OMEGAMON XE for DB2 PE cycle, or as many of the messages as the LROWS parameter for the terminal allows, whichever is less. To control which DB2 and IRLM messages the MSGE exception displays, see "Set DB2/IRLM Messages that MSGE Exception Monitors".

MSGE is a member of the DB2 system (SY) exception group. The default threshold for MSGE is N/A. If State is ON and new messages exist, OMEGAMON XE for DB2 PE displays the messages.

**PGUP**

Monitors the number of Page Update requests per second made by a thread.

The update count reflected in this exception is incremented each time a row in a page is updated. Updated pages are not necessarily written at commit, but rather later, asynchronously as determined by the DB2 Deferred Write algorithm. There is no direct immediate relationship between page updates and page writes.

The counters which DB2 maintains for this activity are updated throughout the life of the thread, and are reset at DB2 signon if the thread is reused.

PGUP is a member of the thread (TH) exception group. The default threshold for PGUP is 10 updates per second. The threshold can be any value between 1 and 1000 updates per second. If the active thread exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**POLU**

Provides information about POOL threads in use.

POLU is a member of the CICS (CI) exception group. The default threshold for POLU is 90% of the total number of POOL threads allowed. The
threshold can be any value between 1% and 100%. If the percentage of
POOL threads exceeds the threshold, OMEGAMON XE for DB2 PE
displays the exception.

**POLW** Provides information about CICS transactions waiting for a POOL thread.

POLW is a member of the CICS (CI) exception group. The default
threshold for POLW is two transactions. The threshold can be any value
between 1 and 99 transactions. If the number of transactions waiting for a
POOL thread exceeds the threshold, OMEGAMON XE for DB2 PE displays
the exception.

**PREF** Provides information about Sequential Prefetch read activity.

Unlike normal Read I/O, Sequential Prefetch Read I/O is performed
asynchronously with the user's request. It provides a read-ahead capability.
A single Sequential Prefetch I/O results in multiple pages being read.
Threads with excessive sequential prefetch rates might cause reduced
overall DB2 performance.

The counters which DB2 maintains for this activity are updated throughout
the life of the thread, and are reset during DB2 signon if the thread is
reused.

PREF is a member of the thread (TH) exception group. The default
threshold for PREF is 10 Prefetch requests per second. The threshold can be
any value between 1 and 100 Sequential Prefetch requests per second. If
the prefetch rate exceeds the threshold, OMEGAMON XE for DB2 PE
displays the exception.

**RELM** Provides information about the resource limit facility.

This exception analyzes the ratio of the resource limit high-water mark
(CPU seconds) to the current resource limit.

RELM is a member of the thread (TH) exception group. The default
threshold for RELM is 85 percent of the resource high-water mark (CPU
seconds). The threshold can be any value between 1 and 100 percent of the
resource limit. If the resource limit exceeds the threshold, OMEGAMON
XE for DB2 PE displays the exception.

**RIO** Provides information about the thread synchronous Read I/O rate.

Generally, this exception indicates excessive physical Read I/O on behalf of
a thread. Although a single SELECT might return a limited number of
rows, the pages searched might be enormous. I/O might be caused by
access path selection changes which occurred due to object changes
(indexes dropped or no longer clustered), or by inadvertent use of stage 2
(non-sargable) predicates. It might simply result from the fact that the SQL
is a set-oriented language, which operates on sets of data, rather than on
individual rows (records).

The counters which DB2 maintains for this activity are updated throughout
the life of the thread, and are reset during DB2 signon if the thread is
reused.

RIO is a member of the thread (TH) exception group. The default threshold
for RIO is 10 Read requests per second. The threshold can be any value
between 1 and 1000 synchronous Read requests per second. If the Read
I/O rate per second exceeds the threshold, OMEGAMON XE for DB2 PE
displays the exception.

**SPAC** Indicates that the number of ASIDs executing stored procedures exceeds
the threshold. The threshold is expressed as a count of address spaces capable of executing stored procedures. It can be an integer from 0 to 99. Stored procedures can be executed in any WLM-managed stored procedure address space. SPAC is a member of the DB2 system (SY) group. The default threshold is 3 and the default state is ON.

**STPE** Indicates that the number of stored procedures executing exceeds the threshold. The threshold is expressed as a count of stored procedures currently executing. It can be an integer from 0 to 99. STPE is a member of the DB2 system (SY) group. The default threshold is 10 and the default state is ON.

**SUSL** Detects the number of threads that could not continue execution and are suspended due to a locking conflict.

SUSL is a member of the DB2 system (SY) exception group. The default threshold for SUSL is five suspended threads. The threshold can be any value between 1 and 100 suspended threads. If the number of lock suspensions exceeds the threshold value, OMEGAMON XE for DB2 PE displays the exception.

**TCPU** Monitors the CPU rate (percent) of active threads.

For non-CICS threads, this is the CPU rate of the address space from which the thread originates. It includes both TCB and SRB time. For CICS threads, this is the CPU rate attributable to the thread originating from the CICS connection. It includes only TCB time incurred by the thread.

This exception limits its analysis of CPU use to DB2 connections that contain active threads. This exception does not report CPU use for connections with no active threads.

TCPU is a member of the thread (TH) exception group. The default threshold for TCPU is 20% of total processor utilization. The threshold can be any value between 1% and 100%. If CPU utilization exceeds the threshold value, OMEGAMON XE for DB2 PE displays the exception.

**THDQ** Detects users waiting for thread creation to occur.

OMEGAMON XE for DB2 PE displays this exception when the number of users queued and waiting for create-thread processing exceeds the exception threshold.

This exception might indicate that DB2 reached the CTHREAD value that controls the number of active threads.

THDQ is a member of the DB2 system (SY) exception group. The default threshold for THDQ is 2. The threshold is a value between 1 and 100 requests. If the number of requests queued and waiting for Create Thread processing exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**TMAX** Indicates when the number of active threads is approaching the maximum number allowed.

DB2 thread concurrency can be controlled by the CTHREAD value. CTHREAD defines the maximum number of concurrent threads allowed.

TMAX is a member of the DB2 system (SY) exception group. The default threshold for TMAX is 85% of the CTHREAD installation parameter. The threshold can be any value between 1 and 100%. If the ratio of active
threads to the CTHREAD parameter exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**TRCV**
Monitors the amount of data received by distributed threads from a remote DB2 subsystem.
OMEGAMON XE for DB2 PE displays the TRCV exception when it detects that a distributed thread has received an amount of data greater than the exception threshold.

TRCV is a member of the thread (TH) exception group. The exception threshold is expressed in KB. The default threshold for TRCV is 1000 KB.

**TRGD**
Indicates that the depth of the largest trigger stack exceeds the threshold. The threshold is expressed as the number of triggers in the largest trigger stack. It can be an integer from 0 to 99. TRGD is a member of the DB2 system (SY) group. The default is 1 and the default state is ON.

**TRGE**
Indicates that the number of triggers executing exceeds the threshold. The threshold is expressed as a count of triggers currently executing. It can be an integer from 0 to 99. TRGE is a member of the DB2 system (SY) group. The default threshold is 10 and the default state is ON.

**TSND**
Monitors the amount of data sent by distributed threads to a remote DB2 subsystem.
OMEGAMON XE for DB2 PE displays the TSND exception when it detects that a distributed thread has sent an amount of data greater than the exception threshold.

TSND is a member of the thread (TH) exception group. The exception threshold is expressed in KB. The default threshold for TSND is 1000 KB.

**UDFE**
Indicates that the number of user-defined functions executing exceeds the threshold. The threshold is expressed as a count of user functions currently executing. It can be an integer from 0 to 99. UDFE is a member of the DB2 system (SY) group. The default threshold is 10 and the default state is ON.

**UFAC**
Indicates that the number of ASIDs executing user functions exceeds the threshold. The threshold is expressed as a count of address spaces capable of executing user-defined functions. It can be an integer from 0 to 99. User-defined functions can be executed only from WLM-managed stored procedure address spaces. UFAC is a member of the DB2 system (SY) group. The default threshold is 3 and the default state is ON.

**UTIS**
 Warns when a DB2 utility was started but did not finish running due to abnormal termination. User should restart the utility with the corresponding phase.

UTIS is a member of the system (SY) exception group. The default state for UTIS is OFF. If State is ON and a DB2 utility has been started but has not yet completed running due to abnormal termination, OMEGAMON XE for DB2 PE displays the exception.

The next group of exceptions (VDIO, VEDR, VSRV, VTIO, and VUTL) share the following characteristics:
- They are in effect only when the object analysis collector is active.
- The collector will collect data from volumes that contain DB2 data sets that are currently MVS-allocated to the monitored DB2 subsystem.
All rates and ratios used in setting the exception thresholds are calculated using the object analysis collection interval elapsed time. For example, the total volume I/O rate is calculated by dividing the number of volume I/Os that occurred during the current collection interval by the elapsed time during the collection interval.

They are tripped only if there is I/O within the current collection interval from the DB2 being monitored.

**VDIO** Monitors volume DB2 I/O rate activity.

This exception warns you when a volume's DB2 I/O rate per second has reached a user-specified threshold. The threshold is expressed as the number of DB2 I/Os per second. It must be an integer between 0 and 9999.

VDIO is a member of the DB2 system (SY) exception group. The default threshold is 50, and the default state is ON.

**VEDR** Monitors volume data set extend activity.

This exception warns you when the data set-to-data set extent ratio of a volume reaches the user-specified threshold. The threshold is expressed as a ratio that represents the number of DB2 extents on the volume divided by the number of DB2 data sets. It must be an integer between 0 and 123.

VEDR is a member of the DB2 system (SY) exception group. The default threshold is 5, and the default state is ON.

**VSRV** Monitors volume service time.

This exception warns you when a volume's service time has reached a user-specified threshold. The threshold is expressed in milliseconds, and it must be an integer between 0 and 9999.

VSRV is a member of the DB2 system (SY) exception group. The default threshold is 30, and the default state is ON.

**VTIO** Monitors volume total I/O rate activity.

This exception warns you when a volume's total I/O rate per second has reached a user-specified threshold. The threshold is expressed as the total number of I/Os per second. It must be an integer between 0 and 9999.

VTIO is a member of the DB2 system (SY) exception group. The default threshold is 50, and the default state is ON.

**VUTL** Monitors volume utilization.

This exception warns you when a volume's utilization percentage has reached a user-specified threshold. The threshold is expressed as a percentage, and it must be an integer between 0 and 100.

VUTL is a member of the DB2 system (SY) exception group. The default threshold is 30, and the default state is ON.

**WCLM** Indicates when a thread has been waiting for more than the specified time for a resource to be drained of claimers.

WCLM is a member of the thread (TH) exception group. The default threshold for WCLM is 60 seconds. The threshold can be any value between 0 and 999999.99 seconds. If the time the thread is waiting exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.
**WDLK**
Indicates when a thread has been waiting for more than the specified time to acquire a drain lock.

WDLK is a member of the thread (TH) exception group. The default threshold for WDLK is 60 seconds. The threshold can be any value between 0 and 999999.99 seconds. If the time the thread is waiting exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**WGLK**
Wait for global lock time.
Indicates when a thread has been waiting for more than the specified time to acquire a global lock in a data sharing environment.

WGLK is a member of the thread (TH) exception group. The default threshold for WGLK is 60 seconds. The threshold can be any value between 0 and 999999.99 seconds. If the length of time the thread is waiting exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**WLGQ**
Indicates when a thread has been waiting for more than the specified time for an ARCHIVE LOG MODE(QUIESCE) command to complete.

WLGQ is a member of the thread (TH) exception group. The default threshold for WLGQ is 60 seconds. The threshold can be any value between 0 and 999999.99 seconds. If the time the thread is waiting exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**WSPS**
Stored procedure wait time.
Indicates when a thread has been waiting for more than the specified time for the stored procedures address space to become available in order for a stored procedure to be scheduled.

WSPS is a member of the thread (TH) exception group. The default threshold for WSPS is 100 seconds. The threshold can be any value between 0 and 999999.99 seconds. If the time the thread is waiting exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**WSRV**
Indicates when a thread has been waiting for more than the specified time for a DB2 service. DB2 service waits include
- Open/close data set
- SYSLGRNG update
- DFHSM recall
- Dataspace Manager services
- Define/Delete/Extend data set

WSRV is a member of the thread (TH) exception group. The default threshold for WSRV is 30 seconds. The threshold can be any value between 0 and 999999.99 seconds. If the time the thread is waiting exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**WTRE**
Indicates when a thread has been waiting for more than the specified time. This exception waits for 1 IRLM deadlock cycle before tripping.

WTRE is a member of the thread (TH) exception group. The default threshold for WTRE is 100 seconds. The threshold can be any value

*Note:* Stored procedure wait time is reported under class 1 time.
between 0 and 999999.99 seconds. If the length of time the thread is waiting exceeds the threshold, OMEGAMON XE for DB2 PE displays the exception.

**Current Status for Exceptions**

This panel provides information about the current characteristics of the selected exception group, their last and worst values, and the time when those values occurred.

<table>
<thead>
<tr>
<th>ZSUM</th>
<th>VTM</th>
<th>02</th>
<th>V540./C DA41 11/04/13 9:06:50</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Help PF1 Back PF3 Up PF7 Down PF8 Recommendation PF10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E.F.A</td>
<td></td>
<td>EXCEPTION STATUS: Enter a selection letter on the top line.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CURRENT STATUS: +-ALL B-THREAD C-CICS D-IMS E-SYSTEM</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TRIPPED STATUS: F-ALL G-THREAD H-CICS I-IMS J-SYSTEM</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RESET LAST/WORST: K-ALL L-THREAD M-CICS N-IMS O-SYSTEM</td>
<td></td>
</tr>
</tbody>
</table>

From this panel, you can perform the following actions:

1. You can select the current status of a different exception group (All, Thread, CICS, IMS, or DB2 System).
2. You can select the status of tripped exceptions for a specific exception group (All, Thread, CICS, IMS, or DB2 System). For more information, see the description of panel “Status for Tripped Exceptions” on page 918.
3. You can reset the last or worst exceptions for a specific exception group (All, Thread, CICS, IMS, or DB2 System). For more information, see the description of panel “Reset Last and Worst Values” on page 920.

To change a characteristic of any exception in this panel, see “Profile Maintenance Facility”. 

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Chapter 5. Monitoring 917
Navigation

For additional information about
• exception recommendations, move the cursor to the exception line and press F10 (Recommendation).
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

ARCM
   The name of the exception. (Here, ARCM.)

Threshold
   The current threshold value set for this exception.

Trip Value
   The value that caused this exception to trip.

Time Occurred
   The date and time the exception last exceeded its threshold.

Total Trips
   The number of times this exception exceeded its threshold during the current session.

Trips Since Reset
   The number of times this exception exceeded its threshold since the last and worst values were reset.

State
   The current state of the exception. OMEGAMON XE for DB2 PE is currently monitoring this exception (ON), not monitoring this exception (OFF), or testing this exception (TEST).

Last
   The value of the exception the last time it exceeded its threshold.

Worst
   The worst value the exception has reached during the current OMEGAMON XE for DB2 PE session.

Group
   The 2-character group to which this exception belongs (CI, CICS; IM, IMS; SY, DB2 system; or TH, thread).

Status for Tripped Exceptions
This panel displays the status of the selected OMEGAMON XE for DB2 PE exceptions that have tripped and the time when those values occurred.
To change a characteristic of any exception in this panel, see "Profile Maintenance Facility".

**Navigation**

For additional information about

- exception recommendations, move the cursor to the exception line and press F10.
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

**COMT**

The name of the exception. (In this case, COMT.)

**Threshold**

The current threshold value set for this exception.

**Trip Value**

The value that caused the exception to trip.
Time Occurred
The date and time the exception last exceeded its threshold.

Total Trips
The number of times this exception exceeded its threshold during the current session.

Trips Since Reset
The number of times this exception exceeded its threshold since the last and worst values were reset.

State
The current state of the exception. OMEGAMON XE for DB2 PE is currently monitoring this exception (ON), not monitoring this exception (OFF), or testing this exception (TEST).

Last
The value of the exception the last time it exceeded its threshold.

Worst
The worst value the exception has reached during the current OMEGAMON XE for DB2 PE session.

Group
The 2-character group to which this exception belongs (CI, CICS; IM, IMS; SY, DB2 system; or TH, thread).

Reset Last and Worst Values
Use this panel to reset the values displayed on the Current Tripped Exceptions panel for the exception group specified below the title line (all, thread, CICS, IMS, or system). In particular, the last and worst values and the time that they occurred are reset for each tripped exception.

Navigation
For additional information about other topics, use the PF keys.

Fields
After you remove the comment character, the Reset Last and Worst Values panel displays the message:

Last, Worst, and Trip Counter Values Are Reset

This message confirms that OMEGAMON XE for DB2 PE has reset the last and worst values for all tripped exceptions.
Thread Activity

Select this main menu option for summary and detail information about threads connected to DB2.

To view detail information of a specific thread, select a thread in one of the summary panels by placing the cursor on the appropriate line and pressing F11 (Zoom).

Threads Summary Excluding Idle Threads

This panel shows an overview of the activity of all active threads (excluding idle threads) that are connected to DB2.

<table>
<thead>
<tr>
<th></th>
<th>ZALLT</th>
<th>VTM</th>
<th>02</th>
<th>V5401P DC11 S 07/01/16 14:22:24 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T.A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;</td>
<td>Help PF1</td>
<td>Back PF3</td>
<td>Up PF7</td>
<td>Down PF8</td>
</tr>
</tbody>
</table>

Thread Activity: Enter a selection letter on the top line.

- *-All-Idle
- B-TSO
- C-CICS
- D-IMS
- E-Background
- F-Dist Allied
- G-Dist DBAC
- H-Util
- I-Inact
- J-Filter
- K-Functions
- L-Stored Proc
- M-Triggers
- N-Sysplex
- O-Enclaves
- P-Worksta
- Q-All+Idle

Each row provides information about an individual thread. Each column provides information about thread elapsed time, DB2 and MVS resource consumption, and DB2 activity.

Highlighting

The following table shows the fields that might be highlighted in the panel above to indicate that an exception that is related to this field exceeded its threshold value:

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed</td>
<td>ETIM</td>
<td>This thread has reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td>CPU</td>
<td>TCPU</td>
<td>The thread address space has excessive CPU utilization.</td>
</tr>
<tr>
<td>GetPg</td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
</tbody>
</table>
Table 88. Highlighted fields in All Threads Connected to DB2 panel (continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Update</td>
<td>PGUP</td>
<td>The rate for system page updates is high.</td>
</tr>
<tr>
<td>Commit</td>
<td>COMT</td>
<td>The ratio of Commits to Updates indicates a low Commit frequency.</td>
</tr>
</tbody>
</table>

Navigation

For additional information about:
- the IMS connection, move the cursor to the IMS ID line and press F11 (Zoom). IMS releases V10, 11, 12, 13, 14, and 15 are supported.
- A particular thread, move the cursor to the thread information line and press F11 (Zoom).
- A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.
- Related topics, select one of the options on the top of the panel.
- Other topics, use the PF keys.

Fields

Elapsed

The elapsed time since thread creation, or since DB2 signon if the thread is reused. When the elapsed time of the thread exceeds 24 hours, the format is dd-hh:mm.

If this thread is involved in parallel processing or if it invoked autonomous procedures, one of the following identifiers is displayed after the elapsed time:

* This thread is a parallel task that is initiated on behalf of another (originating) thread to process a query request in parallel.

O This thread is the originating thread that invoked autonomous procedures.

P This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity performed for this (originating) thread is reflected under the parallel tasks.

X This thread is a parallel task that is initiated on behalf of another (originating) thread on another DB2 for sysplex parallelism.

Planname or Package

The DB2 plan name (or package name) of the active thread. If you selected option T from the Realtime Main Menu, this panel shows the information by plan. If you selected option U, this panel shows the information by package.
CPU (if monitoring a local DB2 subsystem, or data sharing group with XCF component activated for remote CPU)
The CPU rate (percent) associated with the thread.

For non-CICS threads, this is the CPU rate of the address space from which the thread originates. For CICS threads, this is the CPU rate attributable to the thread originating from the CICS connection. For more information, see "Analyzing DB2 CPU Usage".

DB2 (if monitoring a data sharing group or remote DB2 subsystem while XCF component is not activated for remote CPU)
The DB2 subsystem name of the data sharing group member that is currently monitored.

You can use the Tab key to move to a detail line and to select this detail line for drill down.

**Status**
The current DB2 status of the thread. For definitions of all possible status values, see "DB2 Thread Status".

**GetPg**
The number of thread Getpage requests. Getpage requests are logical Read requests that might not actually result in physical I/O if the requested page is currently in the buffer pool.

DB2 resets the Getpage count at Create Thread and Signon. If Signon is not driven, the Getpage count is cumulative.

**Update**
The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2's internal Deferred Write algorithm, not immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative.

**Commit**
The number of times the thread successfully completed Commit processing.

DB2 resets the Commit count at Create Thread and Signon. If Signon is not driven, the count is cumulative.

**CORRID/JOBN**
This field is customizable by means of user mod TKANSAM(KO2M0002) and shows either:

**CORRID**
The correlation ID of the thread.

**JOBN**
The jobname of the thread.

For remote DB2 subsystems, the correlation ID is displayed instead of the job name.

**Thread Detail:**
This panel provides detailed information about the activity of a selected thread or parallel task.
A parallel task is created from an originating thread to process a part of a query. Thread activity is broken down into general status and resource consumption information, and buffer manager activity.

<table>
<thead>
<tr>
<th>THREAD DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLAN</td>
</tr>
<tr>
<td>Thread: Plan=DISTSERV Connid=SERVER Corrid=db2jcc_appli Authid=TS5787</td>
</tr>
<tr>
<td>Dist : Type=DATABASE ACCESS, LuwId=GA053D54.F022.D3C2079269BC=4263</td>
</tr>
<tr>
<td>Location : ::FFFF:10.5.61.84</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>THREAD INFORMATION: Enter a selection letter on the top line.</th>
</tr>
</thead>
<tbody>
<tr>
<td>*-THREAD DETAIL B-LOCK COUNTS C-LOCK WAITS D-LOCKS OWNED E-GLOBAL LOCKS</td>
</tr>
<tr>
<td>F-CURRENT SQL G-SQL COUNTS H-DISTRIBUTED I-BUFFER POOL J-GROUP BP</td>
</tr>
<tr>
<td>K-PACKAGES L-RES LIMIT M-PARALLEL TASKS N-UTILITY O-OBJECTS</td>
</tr>
<tr>
<td>P-CANCEL THREAD Q-DB2 CONSOLE R-DSN ACTIVITY S-APPL TRACE T-ENCLAVE</td>
</tr>
<tr>
<td>U-LONG NAMES W-ACCEL ACTIVITY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>THREAD DETAIL PLAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2 Status = IN-SQL-CALL TCB Time (SQL) = 00:00:00.000000</td>
</tr>
<tr>
<td>MVS Status = Wait for TCB Time = 00:00:00.000000</td>
</tr>
<tr>
<td>Total Elapsed Time = 00:00:09.846946 Elapsed Time = 00:00:00.000000</td>
</tr>
<tr>
<td>CP CPU Utilization = 00.0% Elapsed Time (SQL) = 00:00:00.000000</td>
</tr>
<tr>
<td>Total CP CPU Time = 00:00:00.000000 SQL Events = 0</td>
</tr>
<tr>
<td>SE CPU Time = 00:00:00.000404</td>
</tr>
<tr>
<td>Total Parallel Tasks = 0</td>
</tr>
<tr>
<td>Current Parallel Tasks = 0</td>
</tr>
<tr>
<td>Thread Status = T</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>In-DB2 Times</th>
<th>Total</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed Time</td>
<td>00:00:00.007</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>CP CPU Time</td>
<td>00:00:00.005</td>
<td>N/A</td>
</tr>
<tr>
<td>IIP CPU Time</td>
<td>00:00:00.000</td>
<td>N/A</td>
</tr>
<tr>
<td>Stored Procedure CPU Time</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>STP CP CPU Time</td>
<td>00:00:00.000</td>
<td>N/A</td>
</tr>
<tr>
<td>STP IIP CPU Time</td>
<td>00:00:00.000</td>
<td>N/A</td>
</tr>
<tr>
<td>STP Elapsed Time Main</td>
<td>00:00:00.000</td>
<td>N/A</td>
</tr>
<tr>
<td>UDF CP CPU Time</td>
<td>00:00:00.000</td>
<td>N/A</td>
</tr>
<tr>
<td>UDF IIP CPU Time</td>
<td>00:00:00.000</td>
<td>N/A</td>
</tr>
<tr>
<td>UDF Elapsed Time Main</td>
<td>00:00:00.000</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stored Procedures</th>
<th>Triggers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CPU = 00:00:00.000</td>
<td>TCB not in Enclave = 00:00:00.000</td>
</tr>
<tr>
<td>Elapsed time = 00:00:00.000</td>
<td>Elapsed not in Enclave = 00:00:00.000</td>
</tr>
<tr>
<td>Elapsed Time (SQL) = 00:00:00.000</td>
<td>TCB prior to Enclave = 00:00:00.000</td>
</tr>
<tr>
<td>Wait for TCB Time = 00:00:00.000</td>
<td></td>
</tr>
<tr>
<td>Wait Event Count = 0</td>
<td></td>
</tr>
<tr>
<td>Curr Wait TCB Time = 00:00:00.000</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SavePoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savepoint Requests = 0</td>
</tr>
<tr>
<td>Release Savepoints = 0</td>
</tr>
<tr>
<td>Rollback Savepoints = 0</td>
</tr>
</tbody>
</table>
### Workfile

- Workfile Max Blocks = 691200
- Workfile Curr Blocks = 691200

### Waits

<table>
<thead>
<tr>
<th>Wait Type</th>
<th>Count</th>
<th>Total</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synchronous I/O Wait</td>
<td>4</td>
<td>00:00:00.001</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Asynchronous Read I/O Wait</td>
<td>5752</td>
<td>00:00:05.189</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Asynchronous Write I/O Wait</td>
<td>423</td>
<td>00:00:00.474</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Local Lock/Latch Wait</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Page Latch Wait</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Drain Lock Wait</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Drain of Claims Wait</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Archive Log Mode (Quiesce) Wait</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Archive Read from Tape Wait</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Switch to Open/Close Wait</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Switch to SYSLGRNG Service Wait</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Switch to DMS Waits</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Other Service Waits</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Force at Commit Waits</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Log Write I/O Wait</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Sync EX Unit Sw-com/abort/dealloc</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>LOB Materialization</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Latch Contention Wait</td>
<td>461</td>
<td>00:00:00.040</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Autonomous Proc Wait</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Parallel Query Sync Wait</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Asynch IXLCACHE/IXLFCOMP</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Fast Insert Pipe Wait</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Accelerator Wait</td>
<td>0</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
</tr>
</tbody>
</table>

### Total Class 3 Wait Time

6640 00:00:05.705

---

### Highlighting

The following table shows the fields that might be highlighted in the panel above to indicate that an exception that is related to this field exceeded its threshold value:

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>ARCM</td>
<td>Backout requires an archive tape log mount.</td>
</tr>
<tr>
<td></td>
<td>ETIM</td>
<td>This thread has reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td></td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td></td>
<td>INDB</td>
<td>The thread is indoubt and terminated.</td>
</tr>
<tr>
<td></td>
<td>PREF</td>
<td>The thread Sequential Prefetch rate is high.</td>
</tr>
<tr>
<td></td>
<td>RIO</td>
<td>The synchronous Read I/O rate is high.</td>
</tr>
<tr>
<td></td>
<td>PGUP</td>
<td>The rate for system page updates is high.</td>
</tr>
</tbody>
</table>
Table 89. Highlighted fields in Thread Detail panel (continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Elapsed Time</td>
<td>ETIM</td>
<td>This thread reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td>CPU Utilization</td>
<td>TCPU</td>
<td>The CPU utilization associated with the thread is high.</td>
</tr>
<tr>
<td>Current Drain Lock Wait</td>
<td>WDLK</td>
<td>The thread reached drain lock wait threshold.</td>
</tr>
<tr>
<td>Current Drain of Claims Wait</td>
<td>WCLM</td>
<td>The thread reached wait for drain of claims threshold.</td>
</tr>
<tr>
<td>Current Service Task Wait</td>
<td>WSRV</td>
<td>The thread reached Db2 service wait threshold.</td>
</tr>
<tr>
<td>Current Archive Log Mode (Quiesce) Wait</td>
<td>WLGQ</td>
<td>The thread reached Archive Log Mode (Quiesce) wait threshold.</td>
</tr>
<tr>
<td>Current Stored Procedure Schedule Wait</td>
<td>WSPS</td>
<td>The thread reached stored procedure schedule wait threshold.</td>
</tr>
<tr>
<td>Total elapsed time</td>
<td>IDBT</td>
<td>In-Db2 Times - Total elapsed time.</td>
</tr>
<tr>
<td>Total CP CPU wait</td>
<td>IDBC</td>
<td>In Db2-Times - Total CP CPU wait.</td>
</tr>
<tr>
<td>Current global parent L-lock wait</td>
<td>WGLK</td>
<td>The thread reached the global lock wait threshold.</td>
</tr>
</tbody>
</table>

Navigation

You can scroll through the information using F7 and F8.

For additional information about
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

If the accounting trace classes are not active, the fields show N/A (not applicable) instead of a value.

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.
Attach: Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Connection Type

Batch: The MVS jobname and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

CICS: The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

- Pool: The thread in use is a pool thread.
- Entry: The thread in use is a nonprotected entry thread.
- Prot: The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

IMS: The IMS region number, transaction name, region name, and terminal ID (LTERM).

RRSAF: The MVS job name and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

System: The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

TSO: The TSO user ID and region ASID.

Utility: No additional information.

Db2: The Db2 subsystem identifier.

MVS: The MVS system identifier.

ORIGAUTH: The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Package identifier: This information identifies the package to which the information in this panel applies.

Package: The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

Collection: The package collection identifier. This field is displayed only if a package is being used.

Distributed thread identifier: The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

Type: The distributed thread type.
Distributed Allied
A requesting thread; one that has issued an SQL call to a remote Db2 location.

Database Access
A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

Db2=
The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

Luwid
This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:
USCAC001.02022A.A1FE8E04B9D4=8

System
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

Thread Activity:

Db2 Status
For definitions of all possible status values, see “DB2 Thread Status”.

MVS Status
The current MVS status of the thread:

Asid Notdisp
The address space in which the active task is not available for dispatch.

Db2 I/O Wait
The thread is waiting for the completion of Db2 database I/O.

Logical Swap
The address space is currently logically swapped out.

Swapped Out
The memory is physically swapped out.

Using CPU
The thread is currently using CPU cycles.

Wait-Dispatch
The task is waiting on the active CPU dispatching queue. It is available for use, but is not yet running on a processor.

WAIT-MISC
The thread is waiting for some other reason and is not on the available dispatch queue.

Note: If the panel displays a distributed database access thread, this field is blank.
Total Elapsed Time
The total elapsed time for the thread, in the format hh:mm:ss.th. Elapsed time is the time which has elapsed since thread creation or Db2 signon.

CP CPU Utilization
The central processor CPU rate (percent) associated with the thread.
For non-CICS threads, this is the central processor CPU rate of the address space from which the thread originates. For CICS threads, this is the central processor CPU rate attributable to the thread originating from the CICS connection. For more information about central processor CPU use, see "Analyzing Db2 CPU Usage".

Total CP CPU Time
The total central processor CPU time accumulated for the thread. This value includes only MVS TCB time. SRB time is not included.

SE CPU Time
The accumulated class 2 CPU time consumed while executing on an IBM specialty engine.

Total Parallel Tasks
The total number of parallel tasks that were created on behalf of this thread.

Current Parallel Tasks
The number of parallel tasks currently executing. To see information about these tasks, select option M-PARALLEL TASKS.

Thread Status
Valid values:
AC Execute in accelerator
AT Process autonomous procedure
D Termination due to allied task’s termination
DA DBaccess thread slot is available for new connection
DI Disconnected, no TCB associated with the Db2 thread. (Available for reuse.)
N In IDENTIFY or SIGNON status
ND IN IDENTIFY or SIGNON status with no TCB associated
PT Parallel task thread
QD Queued for termination due to allied task’s termination
QT CREATE THREAD request is queued
R2 Type2 inactive thread waiting for agent to become available
RA Active distributed thread performing remote access
RK Distributed thread invokes Kerberos services
RN Distributed thread waits for system conversation service task
RQ Distributed thread waits for dbaccess agent, due to MAXDBAT or DSN_PROFILE_ATTRIBUTES_TABLE
RX Distributed thread executes XA transaction
SP In stored procedure
SW Wait for a stored procedure to be scheduled
T Non-distributed allied thread
TD An allied thread is not associated with TCB
TN An allied thread is waiting for system conversation service task
TR An allied thread is active
N/A QW0148ST is not populated

User-Defined Functions:

TCB Time (SQL)
The accumulated CPU time consumed executing user-defined functions. This time does not include CPU time consumed on an IBM specialty engine. It consists of following parts:
- The accumulated CPU time consumed in Db2 when processing SQL statements that were issued by UDFs in a Db2 stored procedure or WLM address space. This time also includes the Db2 time required to connect or disconnect the UDF task. It is only calculated if accounting class 2 is active.
- The accumulated CPU time consumed executing user-defined functions on the main application execution unit. This time represents class 1 and class 2 time, because these UDFs run entirely within Db2.

Wait for TCB Time
Total elapsed time spent waiting for an available TCB before the user-defined function could be scheduled.

Elapsed Time
Total elapsed time spent in user-defined functions, including time executing SQL statements.

Elapsed Time (SQL)
Total elapsed time spent in user-defined functions executing SQL statements.

SQL Events
Number of SQL entry/exit events performed by user-defined functions.

In-Db2 Times

Elapsed Time (Total)
The accumulated CPU time consumed executing user-defined functions. This time does not include CPU consumed on an IBM specialty engine. It consists of following parts:
- The accumulated CPU time used to satisfy UDF requests processed in a Db2 stored procedure or WLM address space. This time is only calculated if accounting class 1 is active.
- The accumulated CPU time consumed executing user-defined functions on the main application execution unit. This time represents class 1 and class 2 time, because these UDFs run entirely within Db2.

Elapsed Time (Current)
The total amount of time spent executing the currently active SQL statement. It is only calculated if monitor class 9 is activated.

CP CPU Time (Total)
The class 2 CPU time (in Db2). It indicates:

- The class 2 CPU time for the allied agent. This includes the accumulated class 2 TCB time for processing any stored procedures, user-defined functions, and triggers.
- The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks generated by utilities. Only CPU times of parallel tasks, running on the same member of the sysplex group as the originating task, are included. This CPU time does not include time that is consumed on an IBM specialty engine.

**CP CPU Time (Current)**

CPU time consumed for execution of the SQL statement. This value is not available for SQL statements that run under an SRB. Therefore, this value does not include time that is consumed on an IBM specialty engine. It is only calculated if monitor class 9 is activated.

**SE CPU Time (Total)**

The accumulated and consumed class 2 time on an IBM specialty engine (SE) that consists of times for non-nested, stored procedures, user-defined functions, triggers, and parallel tasks.

**SE CPU Time (Current)**

The total SE CPU time used by the currently active SQL statement. The value is always zero for database access threads.

**Stored Procedure CPU Time (Total)**

The accumulated CPU time that is used for executing stored procedure requests on the main application execution unit. This time does not include the time that is consumed on an IBM specialty engine. As these stored procedures run entirely in Db2, this time represents class 1 and class 2 time.

**UDF CP CPU Time (Total)**

Accumulated CPU time consumed executing user defined functions on the main application execution unit. This time does not include CPU consumed on an IBM specialty engine. Because these UDFs run entirely within Db2, this time represents class 1 and class 2 time. No current value will be provided.

**UDF IIP CPU Time (Total)**

Accumulated CPU time consumed executing user defined functions on the main application execution unit on an IBM specialty engine. Because these UDFs run entirely within Db2, this time represents class 1 and class 2 time. No current value will be provided.

**UDF Elapsed Time Main (Total)**

The accumulated CPU time consumed executing user-defined functions. This time does not include CPU consumed on an IBM specialty engine. It consists of following parts:

- The accumulated CPU time used to satisfy UDF requests processed in a Db2 stored procedure or WLM address space. This time is only calculated if accounting class 1 is active.
• The accumulated CPU time consumed executing user-defined functions
  on the main application execution unit. This time represents class 1 and
  class 2 time, because these UDFs run entirely within Db2.

Stored Procedures:

Total CPU
The CPU time (TCB time) spent in Db2 processing SQL statements issued
by stored procedures for this thread. This is an accumulated and consumed
time for stored procedures that consists of the following information:
• The CPU time accumulated in Db2 for processing SQL statements issued
  by stored procedures processed in a Db2 stored procedure or WLM
  address space. This time is only calculated if accounting class 2 is active
• In-Db2 time needed to connect and disconnect the SP task for non-SQL
  procedure stored procedures
• SQL procedure times are included in this time if the SQL procedure was
called on a nested task and was not invoked by the main application
  execution unit
• CPU time that is consumed when running stored procedure requests on
  the main application execution unit. This time does not include the CPU
time consumed on an IBM specialty engine.

Elapsed Time
Total elapsed time spent in stored procedures including time executing
SQL statements. This is an accumulated and consumed time for stored
procedures that consists of the following parts:
• The CPU time accumulated in Db2 for processing SQL CALL statements
  in the stored procedures or WLM address space. This time is only
calculated if accounting class 1 is active.
• The accumulated CPU time consumed when running stored procedure
  requests on the main application execution unit. This time does not
  include CPU time consumed on an IBM specialty engine. As these stored
  procedures run entirely within Db2, this time represents class 1 and class
  2 time.

Elapsed Time (SQL)
Total elapsed time spent for stored procedures executing SQL statements.

Wait for TCB Time
The total time waiting for an available TCB to schedule a stored procedure.

Wait Event Count
The number of wait trace events processed for an available TCB that are
needed in order to schedule a stored procedure.

Curr Wait TCB Time
The current time waiting for an available TCB to schedule a stored
procedure.

Triggers:

Trigger CPU Time
The accumulated CPU time consumed while executing under the control of
triggers. For triggers there is no distinction between class 1 and class 2
CPU time. All processing controlled by a trigger is within Db2.

Elapsed not in Enclave
The accumulated elapsed time used when executing under the control of a
trigger. This does not include the time used while in user-defined function
or stored procedures that are called from the trigger not under an enclave.

**TCB prior to Enclave**

The accumulated TCB time consumed before enclave creation time.

**SavePoints:**

**Savepoint Requests**

The number of savepoints set.

**Release Savepoints**

The number of savepoints deleted.

**Rollback Savepoints**

The number of rollback-to-savepoint requests issued.

**WorkFile:**

**Workfile Max Blocks**

Maximum number of workfile blocks being used by this agent at any
given point in time (traditional workfile use, DGTT and DGTT indexes).
DB2 12 and later.

**Workfile Curr Blocks**

Current number of workfile blocks being used by this agent (traditional
workfile use, DGTT and DGTT indexes). DB2 12 and later.

**In-Db2 Times:** In-Db2 times require an Accounting trace class 2. If this trace was
not active, N/A is displayed.

**Elapsed Time (Total)**

The total In-Db2 elapsed time for the thread, in the format *hh:mm:ss.tht*.

**Elapsed Time (Current)**

The total time spent executing the currently active SQL statement.

**CP CPU Time (Total)**

The total In-Db2 central processor CPU time for the thread. This includes
MVS TCB time only. SRB time is not included.

**CP CPU Time (Current)**

The total central processor CPU time used by the currently active SQL
statement, in the format *hh:mm:ss.tht*. The value is always zero for database
access threads.

**IIP CPU Time (Total)**

The total In-Db2 SE (Specialty Engine) CPU time for the thread.

**IIP CPU Time (Current)**

The total SE (Specialty Engine) CPU time used by the currently active SQL
statement in seconds. The value is always zero for database access threads.

**Stored Procedure CPU Time (Total)**

The CPU time (TCB time) spent in Db2 processing SQL statements issued
by Db2 stored procedures for this thread.

**Stored Procedure CPU Time (Current)**

The CPU time (TCB time) spent in Db2 processing SQL statements issued
by Db2 stored procedure that is currently active.

**UDF CP CPU Time (Total)**

The CPU time spent in Db2 processing SQL statements issued by user
defined functions for this thread. This time represents central processor
time only and does not include SE (Specialty Engine) time.

**UDF IIP CPU Time (Total)**
The amount of SE (Specialty Engine) CPU time spent in Db2 processing
SQL statements issued from user defined functions for this thread.

**UDF Elapsed Time Main (Total)**
The elapsed time by the user defined functions for this thread in the
format **hh:mm:ss.**

**Waits (Class 3):** Wait times require an Accounting trace class 3. If this trace is not
active, **N/A** is displayed. For each field described below the following statistics are
provided:
- **Count** is the total number of waits.
- **Total** is the total wait time that has elapsed.
- **Current** is the elapsed time waiting for the current event to complete.

**Synchronous I/O Wait**
Waits for synchronous I/O reads or writes.

**Asynchronous Read I/O Wait**
Waits for Read I/O performed under another thread (for example, list or
Sequential Prefetch).

**Asynchronous Write I/O Wait**
Waits for Write I/O performed under another thread (for example,
deferred writes).

**Local Lock/Latch Wait**
Waits for locks or latches.

**Page Latch Wait**
Waits for page latch.

**Drain Lock Wait**
Waits to acquire drain lock.

**Drain of Claims Wait**
Waits for claims to be released after acquiring drain lock.

**Archive Log Mode (Quiesce) Wait**
Wait for ARCHIVE LOG MODE(QUIESCE) command to complete.

**Archive Read from Tape Wait**
Waits for read of archive log from tape.

**Switch to Open/Close Wait**
Wait for switches to the OPEN/CLOSE service.

**Switch to SYSLGRNG Service Wait**
Wait for switches to the SYSLGRNG recording service.

**Switch to DMS Waits**
Wait for switches to the database-managed space (DMS).

**Other Service Waits**
Wait for switches to other Db2 service tasks.

**Force at Commit Waits**
Wait for force-at-commit Db2 service tasks.

**Log Write I/O Wait**
Waits due to Log write I/O.
Sync EX Unit Sw-com/abort/dealloc
Waits due to synchronous execution switch for Db2 commit, abort, or deallocation processing.

LOB Materialization
Waits for TCP/IP LOB and XML materialization.

Latch Contention Wait
Waits due to page latch contention.

Autonomous STP Wait (QWAC_AT_WAIT QWAC_AT_COUNT)
The amount of waits that are due to autonomous procedures.
This applies to Db2 11 and higher.

Parallel Query Sync Wait (QPAC_PQS_WAIT QPAC_PQS_COUNT)
The amount of waits after parallel query processing suspended waiting for parent/child to be synchronized.
This applies to DB2 11 and higher.

Asynch IXLCACHE/IXLFCOMP (QWAXIXLT)
The accumulated wait time for IXLCACHE and IXLFCOMP requests.

Fast Insert Pipe Wait
The accumulated wait time for a pipe wait. DB2 12 and later.

Accelerator Wait (QWACAACW QPACAACC)
The accumulated wait time for requests to an accelerator. DB2 11 and later.

Total Class 3 Wait Time
The total class 3 wait time.

For Data Sharing Group members, the following waits are also displayed:

Global Child L-Locks (QWACAWTK QWACARNK)
Waits because of global contention for child L-locks.

Global Other L-Locks (QWACAWTM QWACARNM)
Waits because of global contention for other L-locks.

Global Pageset/Partition P-Locks (QWACAWTN QWACARNN)
Waits because of global contention for Pageset/Partition P-locks.

Global Page P-Locks (QWACAQTO QWACARNO)
Waits because of global contention for Page P-locks.

Global Other P-Locks (QWACAQTQ QWACARNQ)
Waits because of global contention for other P-locks.

Thread Lock/Claim/Drain Activity:
This panel provides detail information about current lock, claim, and drain activity of a selected thread.
Navigation

You can scroll through the information using F7 and F8.

For additional information about

- Related topics, select one of the options at the top of the panel.
- Other topics, use the PF keys.

Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.

Attach Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Connection Type

Batch The MVS jobname and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.
CICS  The CICS jobname, task name, task number, terminal ID, and
thread type. The thread type is:
   Pool   The thread in use is a pool thread.
   Entry  The thread in use is a nonprotected entry thread.
   Prot   The thread in use is a protected thread. Protected threads
are defined in an RCT entry definition using the THRDS
operand.

IMS   The IMS region number, transaction name, region name, and
terminal ID (LTERM).

RRSAF  The MVS job name and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

System  The originating Db2 job name and the resource manager that is the
source of the thread. An additional line below the Attach line
identifies the user thread, if any, being served by the system
thread.

TSO   The TSO user ID and region ASID.

Utility  No additional information.

Db2   The Db2 subsystem identifier.

MVS   The MVS system identifier.

ORIGAUTH  The original (primary) Db2 authorization identifier of the thread. This field
displays only when the original identifier is different from the Authid.

Package identifier: This information identifies the package to which the
information in this panel applies.

Package  The Db2 package name of the active thread. Up to 18 characters of the
package name are returned.

Collection   The package collection identifier. This field is displayed only if a package
is being used.

Distributed thread identifier: The following fields are displayed if the thread has
a distributed relationship with a remote Db2 subsystem.

Type  The distributed thread type.

Distributed Allied    A requesting thread; one that has issued an SQL call to a remote
Db2 location.

Database Access    A responding thread; one that is serving a remote Db2 location by
responding to an SQL call.

Db2=   The Db2 subsystem ID, indicating the member of the data sharing group of
this thread.
Luwid  This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:

USCAC001.02D22A.A1FE8E04B9D4=8

System

The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

Lock count information:

Lock Requests

Requests to Internal Resource Lock Manager (IRLM) to obtain a lock on a resource.

Deadlocks Detected

The number of deadlocks detected.

Unlock Requests

Requests to IRLM to unlock a resource.

Timeouts Detected

The number of times that the suspension of a unit of work lasted longer than the IRLM timeout value.

Query Requests

Requests to IRLM to query a lock.

Suspends - Lock Only

Suspensions of a unit of work because a lock could not be obtained.

Change Requests

Requests to IRLM to change a lock.

Suspends - Latch Only

DB2 internal latch suspensions.

Other IRLM Requests

Requests to IRLM to perform a function other than those listed before.

Suspends - Other

Suspensions caused by something other than locks and latches.

Escalations to Shared

Occasions when the allowable number of locks per tablespace was exceeded, causing a page (IS) lock to escalate to a shared (S) lock.

Escalations to Exclusive

Occasions when the allowable number of locks per tablespace was exceeded, causing a page (IX) lock to escalate to an exclusive (X) lock.

Maximum Page/Row Locks

The maximum number of page or row locks held concurrently. This count cannot exceed the value of the NUMLKUS (locks per user) installation parameter.
Claim Requests
The number of claim requests.

Claims Failed
The number of unsuccessful claim requests.

Drain Requests
The number of drain requests.

Drains Failed
The number of unsuccessful drain requests.

Lock/Claims Causing a Thread to Wait:

This panel shows detail information about current locks that cause a selected thread to wait. It helps to determine if a thread is suspended and waiting because of a locking conflict.

When a thread is suspended, this panel provides the name of the lock/claim request causing the suspension. It also provides a list of all locks/claims currently held by other threads causing the thread to be suspended.

If accounting class 2 and class 3 are not available, N/A is displayed.

The locking information is divided into the following categories:
1. The name of the lock request causing the suspension.
2. A list of all locks which are causing the thread to wait.

HEX values are displayed for lock resources, if the resource is owned by a thread on a remote LPAR, and no OMPE task is available from that LPAR, or XCF is not setup correctly.

<table>
<thead>
<tr>
<th>PLAN</th>
<th>LOCKS/CLAIMS CAUSING A THREAD TO WAIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Thread: Plan=DSNBIND Connid=BATCH Corrid=HONGAZ91 Authid=HONG</td>
<td></td>
</tr>
<tr>
<td>+ Attach: BATCH Job Name=HONGAZ91 JOB Asid= 56</td>
<td></td>
</tr>
<tr>
<td>+ Luwid=DEIBMIPS.IPSASN13.CBA4B01943B3=5791</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>wait</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Thread Is Currently Suspended Waiting To Obtain The Following Lock</td>
</tr>
<tr>
<td>+ Type=COLL Level=X Resource = Coll=KOZ20M520</td>
</tr>
<tr>
<td>+ Wait For Lock Time = 10 Seconds # to repeat lock timeout = 3</td>
</tr>
<tr>
<td>+ IRLM Time Out Value = 60 Seconds</td>
</tr>
<tr>
<td>+ The Lock Being Waited On Is Owned By The Following User(s)</td>
</tr>
<tr>
<td>+ Plan Connid Corrid Lvl</td>
</tr>
<tr>
<td>+ -------------- ------</td>
</tr>
<tr>
<td>+ DSNBIND BATCH HONGAZ91 X</td>
</tr>
</tbody>
</table>

Highlighting

Highlighted fields indicate that an exception relating to that field is tripped.
To display the Exception Messages for Thread Exceptions panel, type E.A. On this panel, you can determine the exceptions that have tripped.

**Table 90. Highlighted fields on Locks/Claims Causing a Thread to Wait panel**

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>ARCM</td>
<td>Backout requires an archive tape log mount.</td>
</tr>
<tr>
<td></td>
<td>ETIM</td>
<td>This thread has reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td></td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td></td>
<td>INDB</td>
<td>The thread is indoubt and terminated.</td>
</tr>
<tr>
<td></td>
<td>PREF</td>
<td>The Sequential Prefetch rate is high.</td>
</tr>
<tr>
<td></td>
<td>RIO</td>
<td>The synchronous Read I/O rate is high.</td>
</tr>
<tr>
<td></td>
<td>PGUP</td>
<td>The rate for system page updates is high.</td>
</tr>
<tr>
<td></td>
<td>WTRE</td>
<td>The lock has been waiting for a resource for too long.</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about

- about the locks that are owned by a thread, an SQL activity, a general thread activity, or a resource limit activity, or to go to the Db2 system console, type the appropriate option letter on the top line and press ENTER.
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Navigation**

You can scroll through the information using F7 and F8.

For additional information about

- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

**Fields**

**Thread identifier:** This information identifies the thread to which the information in this panel applies.

**Plan**  The Db2 plan name of the active thread.

**Connid**  The Db2 connection identifier of the active thread.

**Corrid**  The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.
**Authid**
The Db2 authorization identifier of the active thread.

**Attach**
Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Connection Type**

- **Batch**
The MVS jobname and ASID.

  **Note:** For threads from remote Db2, the MVS job name is N/A.

- **CICS**
The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:
  - **Pool**
The thread in use is a pool thread.
  - **Entry**
The thread in use is a nonprotected entry thread.
  - **Prot**
The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

- **IMS**
The IMS region number, transaction name, region name, and terminal ID (LTERM).

- **RRSAF**
The MVS job name and ASID.

  **Note:** For threads from remote Db2, the MVS job name is N/A.

- **System**
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the **Attach** line identifies the user thread, if any, being served by the system thread.

- **TSO**
The TSO user ID and region ASID.

- **Utility**
No additional information.

- **Db2**
The Db2 subsystem identifier.

- **MVS**
The MVS system identifier.

- **ORIGAUTH**
The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

**Package identifier**: This information identifies the package to which the information in this panel applies.

**Package**
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

**Collection**
The package collection identifier. This field is displayed only if a package is being used.

**Distributed thread identifier**: The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.
Type  The distributed thread type.

Distributed Allied
  A requesting thread; one that has issued an SQL call to a remote DB2 location.

Database Access
  A responding thread; one that is serving a remote DB2 location by responding to an SQL call.

Luwid  This value consists of two parts: the logical unit-of-work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:
  luw-id=token

  The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:
  USCA001.02D22A.A1FE80489D4=8

Drain information:

Type  The type of object being drained. Possible object types are:
  TS  Tablespace
  TS PART  Data Partition
  IX  Indexspace
  IX PART  Index Partition

Class  The drain class. Possible classes are:
  CS  Drain all CS read access to object.
  RR  Drain all RR access to object.
  Write  Drain all write access to object.

Resource
  The name of the resource being drained. This includes the database name, pageset name, and the partition number (if any).

Claim information:

Plan  The planname of the thread claiming the resource.

Connid
  The connection identifier of the thread claiming the resource.

Corrid  The correlation identifier of the thread claiming the resource.

Class  The claim class. Possible classes are:
  CS  Cursor Stability
  RR  Repeatable Read
  Write  Write access

Lock wait information:
**Type**  The lock type on which the thread is waiting. For more information about lock types, see "Lock Types and Lock Levels".

**Level**  The level or state (mode) of the lock request. This information describes the level of resource access demanded by the lock request. For more information about lock levels, see "Lock Types and Lock Levels".

**Resource**  The resource for which the user is waiting. The content of the Resource field is dependent on lock type.

The resource varies depending upon the type of lock held. This field displays the following resources:

<table>
<thead>
<tr>
<th>Lock Type</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALBP</td>
<td>BP=buffer pool ID</td>
</tr>
<tr>
<td>BIND</td>
<td>COLL=collection ID PKG=package name</td>
</tr>
<tr>
<td>BMBA</td>
<td>BMC_MBAO or BMC MBAR</td>
</tr>
<tr>
<td>BPPS</td>
<td>BP=buffer pool ID, DB=database name, PS=pageset name</td>
</tr>
<tr>
<td>CDRN</td>
<td>DB=database name PS=pageset name PT=partition</td>
</tr>
<tr>
<td>COLL</td>
<td>COLL=collection ID</td>
</tr>
<tr>
<td>DBEX</td>
<td>DB=database name PS=pageset name PT=partition</td>
</tr>
<tr>
<td>DBXU</td>
<td>HASH CLASS=class number</td>
</tr>
<tr>
<td>DGTT</td>
<td>URID=unit of recovery ID</td>
</tr>
<tr>
<td>DPAG</td>
<td>DB=database name PS=pageset name PG=page</td>
</tr>
<tr>
<td>DSET</td>
<td>DB=database name PS=pageset name PT=partition</td>
</tr>
<tr>
<td>DTBS</td>
<td>DB=database name</td>
</tr>
<tr>
<td>GRBP</td>
<td>BP=buffer pool ID</td>
</tr>
<tr>
<td>HASH</td>
<td>DB=database name PS=pageset name PG=page</td>
</tr>
<tr>
<td>IEOF</td>
<td>DB=database name PS=pageset name PT=partition</td>
</tr>
<tr>
<td>IPAG</td>
<td>DB=database name PS=pageset name PG=page</td>
</tr>
<tr>
<td>LBLK</td>
<td>DB=database name PS=pageset name</td>
</tr>
<tr>
<td>MDEL</td>
<td>DB=database name PS=pageset name</td>
</tr>
<tr>
<td>PALK</td>
<td>DB=database name PS=pageset name PT=partition</td>
</tr>
<tr>
<td>PBPC</td>
<td>BP=buffer pool ID</td>
</tr>
<tr>
<td>PCDB</td>
<td>DB=database name</td>
</tr>
<tr>
<td>PDBD</td>
<td>DB=database name</td>
</tr>
<tr>
<td>PDSO</td>
<td>DB=database name PS=pageset name</td>
</tr>
<tr>
<td>PITR</td>
<td>DB=database name PS=pageset name PT=partition</td>
</tr>
<tr>
<td>PPAG</td>
<td>DB=database name PS=pageset name PG=page</td>
</tr>
</tbody>
</table>
PPSC  DB=database name PS=pageset name PT=partition
PPSP  DB=database name PS=pageset name PT=partition
PRLF  DB=database name PS=pageset name PT=partition
PSET  DB=database name PS=pageset name
PSPI  DB=dataset name PS=pageset name
RDRN  DB=dataset name PS=pageset name PT=partition
RGDA  DB=database name PS=pageset name PG=page
ROW   DB=database name PS=pageset name PG=page
RSTR  BMC-RSTP
SDBA  DB=dataset name PS=pageset name
SKCT  PLAN=plan name
SKPT  TOKEN is the consistency token (CONTOKEN) column from SYSIBM.SYSPACKAGE. Token=token
SPRC  SYS_PITR
SREC  DB=database name TS=tablespace name
TABL  DB=database name PS=pageset name
UNDT  Resource ID (in hexadecimal)
UTEX  UTEXEC
UTID  UID=utility identifier
UTOB  DB=database name PS=pageset name PT=partition
UTSE  UTSERIAL
WDRN  DB=database name PS=pageset name PT=partition

Note: DB=database name can be represented as a DBID=identifier, which is the decimal identifier of the database. PSID=identifier can be represented as PSID=identifier, which is the decimal identifier of the table space or index space.

For more information about lock resources, see "Lock Types and Lock Levels".

Wait For Lock Time
The time that DB2 has been waiting for the locked resource.

# To Repeat Lock Timeout
The number of times DB2 repeats the lock timeout.

IRLM Time Out Value
The maximum time that DB2 waits for a locked resource. When DB2 reaches the maximum value, it rolls back the unit of work.

Level The level or state (mode) of the lock request. This information describes
the level of resource access demanded by the lock request. For more information about lock levels, see "Tablespace lock levels" on page 1723.

Lock owner information:

Plan      The DB2 plan name of the active thread.
Connid    The DB2 connection identifier of the active thread.
Corrid    The DB2 correlation identifier of the active thread.
Lvl       The lock level owned.

Locks/Claims Owned By a Thread:

This panel provides detail information about all current locks and claims that are owned by a selected thread.

Fields

The fields are described in "Locking Conflicts" on page 1086, pane "Locks/Claims Owned by a Thread" on page 1090.

Thread Global Lock Activity:

This panel provides detail information about current locking activity of a selected thread in a data sharing environment.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>DISTSERV</td>
</tr>
<tr>
<td>Connid</td>
<td>SERVER</td>
</tr>
<tr>
<td>Corrid</td>
<td>db2jcc_appli</td>
</tr>
<tr>
<td>Authid</td>
<td>HONG</td>
</tr>
<tr>
<td>Location</td>
<td>9.65.76.229,Host Name=sig-9-65-76-229.mts.ibm.com</td>
</tr>
<tr>
<td>gloc</td>
<td></td>
</tr>
<tr>
<td>+ P-lock Lock Requests</td>
<td>0</td>
</tr>
<tr>
<td>+ P-lock Unlock Requests</td>
<td>0</td>
</tr>
<tr>
<td>+ P-lock Change Requests</td>
<td>0</td>
</tr>
<tr>
<td>+ Suspends - IRLM Global Cont</td>
<td>0</td>
</tr>
<tr>
<td>+ Suspends - XES Global Cont</td>
<td>0</td>
</tr>
<tr>
<td>+ Suspends - False (and Conv)</td>
<td>0</td>
</tr>
<tr>
<td>+ Notify Messages Sent</td>
<td>0</td>
</tr>
<tr>
<td>XES Lock Requests</td>
<td>2</td>
</tr>
<tr>
<td>XES Unlock Requests</td>
<td>0</td>
</tr>
<tr>
<td>XES Change Requests</td>
<td>0</td>
</tr>
<tr>
<td>Total L-lock Requests</td>
<td>6</td>
</tr>
<tr>
<td>XES L-lock Req Percentage</td>
<td>66.6%</td>
</tr>
<tr>
<td>Incompatible Retained Locks</td>
<td>0</td>
</tr>
<tr>
<td>Total Number False Content</td>
<td>0</td>
</tr>
</tbody>
</table>

Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan      The Db2 plan name of the active thread.
Connid    The Db2 connection identifier of the active thread.
**Corrid**  The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

**Authid**  
The Db2 authorization identifier of the active thread.

**Attach**  
Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Connection Type**

**Batch**  
The MVS jobname and ASID.

*Note:* For threads from remote Db2, the MVS job name is N/A.

**CICS**  
The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

- **Pool**  
The thread in use is a pool thread.

- **Entry**  
The thread in use is a nonprotected entry thread.

- **Prot**  
The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

**IMS**  
The IMS region number, transaction name, region name, and terminal ID (LTERM).

**RRSAF**  
The MVS job name and ASID.

*Note:* For threads from remote Db2, the MVS job name is N/A.

**System**  
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

**TSO**  
The TSO user ID and region ASID.

**Utility**  
No additional information.

**Db2**  
The Db2 subsystem identifier.

**MVS**  
The MVS system identifier.

**ORIGAUTH**  
The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

**Package identifier:** This information identifies the package to which the information in this panel applies.

**Package**  
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

**Collection**  
The package collection identifier. This field is displayed only if a package is being used.
Distributed thread identifier: The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

**Type**  The distributed thread type.

**Distributed Allied**
A requesting thread; one that has issued an SQL call to a remote Db2 location.

**Database Access**
A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

**Db2=**  The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

**Luwid**
This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:

USCAC001.02D22A.A1FE8E04B9D4=8

**System**
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the *Attach* line identifies the user thread, if any, being served by the system thread.

Global lock information:

**P-lock Lock Requests**
Number of lock requests for P-locks. A P-lock is a physical lock used only in a data sharing environment to provide consistency of data cached in different DB2 subsystems.

**P-lock Unlock Requests**
Number of unlock requests for P-locks.

**P-lock Change Requests**
Number of change requests for P-locks.

**XES Lock Requests**
The number of lock requests (both logical and physical) that were propagated to MVS XES synchronously under the caller's execution unit. This count does not include suspended requests. Only the most restrictive lock for a particular resource is propagated to XES and the coupling facility.

**XES Unlock Requests**
The number of unlock requests (both logical and physical) that are propagated to MVS XES synchronously under the caller's execution unit. This count does not include suspended requests.

**XES Change Requests**
The number of change requests (both logical and physical) that were propagated to MVS XES synchronously under the caller's execution unit. This count does not include suspended requests.
Suspends - IRLM Global Cont
The number of suspends due to Internal Resource Lock Manager (IRLM) global resource contentions. IRLM lock states were in conflict and inter-system communication is required to resolve the conflict.

Suspends - XES Global Cont
The number of suspends due to MVS XES global resource contentions that were not IRLM-level contentions. The XES lock states were in conflict, but the IRLM lock states were not.

Suspends - False (and Conv)
Summation of false contentions and sync-to-async heuristic conversions. XES detects hash class contention when two different locks on different resources hash to the same entry in the coupling facility lock table. The requester is suspended until it is determined that no real lock contention exists.

Sync-to-async heuristic conversions are done when the XES determines that it is more efficient to drive the request asynchronously to the coupling facility.

Total L-lock Requests
The total number of L-lock requests. An L-lock is a logical lock used to control intra- and inter-DB2 data concurrency between transactions.

XES L-lock Req Percentage
The percentage of total L-lock requests that were propagated to MVS XES synchronously.

Incompatible Retained Locks
The number of global lock or change requests that failed because of an incompatible retained lock. Certain P-locks can be retained because of a system failure. Another DB2 member cannot access the data that the retained P-lock is protecting unless it requests a P-lock in a compatible state.

Notify Messages Sent
The number of notify messages sent.

Total Number False Cont
The total number of false contentions for LOCK and UNLOCK requests. A false contention occurs when different resource names hash to the same entry in the coupling facility (CF) lock table. The CF detects contention within the hash entry, and XES uses intersystem messaging to determine that no actual resource contention exists.

SQL Call Being Executed:
This panel shows the current SQL statement that a DB2 thread is executing. OMEGAMON XE for DB2 PE automatically determines whether the SQL statement is dynamic or static and displays appropriate text to that effect.
Navigation

For additional information about
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

Thread identifier: OMEGAMON XE for DB2 PE identifies the thread to which the information in this panel applies.

Plan The DB2 plan name of the active thread.

Connid The DB2 connection identifier of the active thread.

Corrid The DB2 correlation identifier of the active thread.

Authid The DB2 authorization identifier of the active thread.

Package identifier: This information identifies the package to which the information in this panel applies.

Package The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

Collection The package collection identifier. This field is displayed only if a package is being used.

Connection Type

Batch The MVS jobname and ASID.
Note: For threads from remote Db2, the MVS job name is N/A.

CICS
The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:
- **Pool** The thread in use is a pool thread.
- **Entry** The thread in use is a nonprotected entry thread.
- **Prot** The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

IMS
The IMS region number, transaction name, region name, and terminal ID (LTERM).

RRSAF
The MVS job name and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

System
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

TSO
The TSO user ID and region ASID.

Utility
No additional information.

Db2
The Db2 subsystem identifier.

MVS
The MVS system identifier.

ORIGAUTH
The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

**Distributed thread identifier**: The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.

- **Type** The distributed thread type.
- **Distributed Allied** A requesting thread; one that has issued an SQL call to a remote DB2 location.
- **Database Access** A responding thread; one that is serving a remote DB2 location by responding to an SQL call.
- **Luwid** This value consists of two parts: the logical unit-of-work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:
  \[luw-id=token\]

  The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:
  \[USCAC001.02D22A.A1FE8E0489D4=8\]

**SQL call information**: The information that OMEGAMON XE for DB2 PE displays in this area varies slightly, depending on whether the SQL call is active or not. If
the call is active, OMEGAMON XE for DB2 PE displays the information described below with the actual text of the SQL call. If the call is not active, OMEGAMON XE for DB2 PE displays only the information described below.

**Thread Status**
The current DB2 status of the thread. For definitions of all possible status values, see "DB2 Thread Status".

**SQL Request Type**
The type of the SQL request: dynamic SQL or static SQL.

**Total SQL Reqs**
The total number of SQL requests issued by the thread.

**SQL Call Type**
The SQL call type of the currently or previously active SQL call. This is the specific activity that DB2 is performing. For example, a dynamic SQL call can indicate PREPARE, EXECUTE, or OPEN CURSOR even though the original SQL statement might have been an SQL SELECT. A static SQL call can indicate OPEN CURSOR, CLOSE CURSOR, or FETCH even though the originating SQL statement was an SQL DECLARE CURSOR.

**SQL DBRM Name**
The database request module name containing the active call. The DBRM name is usually set to the application program name. It helps you to locate the program that is issuing the call if diagnosis is necessary.

**SQL Statement Number**
The DB2 precompiler statement number of the active SQL statement. The statement number, when used together with the DBRM name, helps you easily locate the specific SQL call for diagnostic purposes.

**Collection ID**
The Collection ID of the currently executing statement. This field is displayed only if the currently executing statement is contained in a package.

**Current SQL Counts:**
This panel provides counts of the various SQL activities, RID pool activities, and Parallel activities of an individual thread.

With this information, you can determine the activities that are using resources excessively. For example, a single SELECT command might result in many physical FETCH activities.

This information includes data definition statements and data manipulation statements. DB2 control counts are also supplied.

The panel also displays counts related to RID pool usage and parallel I/O activity.
> THREAD INFORMATION: Enter a selection letter on the top line.

> A-THREAD DETAIL B-LOCK COUNTS C-LOCK WAITS D-LOCKS OWNED E-GLOBAL LOCKS
> F-CURRENT SQL +-SQL COUNTS H-DISTRIBUTED I-BUFFER POOL J-GROUP BP
> K-PACKAGES L-RES LIMIT M-PARALLEL TASKS N-UTILITY O-OBJECTS
> P-CANCEL THREAD Q-DB2 CONSOLE R-DSN ACTIVITY S-TRACE T-ENCLAVE
> U-LONG NAMES W-ACCEL ACTIVITY

===============================================================================

> CURRENT SQL COUNTS

PLAN

Thread: Plan=K02PLAN Cond=RRSAF Corrid= Authid=OMPEUSER
+ Attach: RRSAF JOB=DA31DMS JOB Asid= 169
+ Luuid=DBMIP5.IPASANJ.CDFB0F7D8658=12

sqls
+ Commit = 7 Abort = 0 Select = 5
+ Open Cursor = 3 Close Cursor = 3 Fetch = 9443
+ Insert = 0 Delete = 0 Update = 1
+ Describe = 0 Lock Table = 0 Prepare = 1
+ Grant = 0 Revoke = 0 Set Rules = 0
+ Incrm Bind = 0 Label/Comm On = 0 Set SQLID = 0
+ Set Host Var = 0 Set Connection = 0 Set Degree = 0
+ Conn Type 1 = 0 Conn Type 2 = 0 Set Path = 0
+ Rename Table = 0 Hold Locator = 0 Free Locator = 0
+ Release = 0 Assoc Locator = 0 Alloc Cursor = 0
+ Merge = 0 Rename Index = 0 Truncate Table = 0
+ Refresh Table = 1 Transfer Owner = 2

+ Creates: Drops: Alters:
+ Table = 0 Table = 0 Table = 0
+ Index = 0 Index = 0 Index = 0
+ Table Space = 0 Table Space = 0 Table Space = 0
+ Data Base = 0 Data Base = 0 Data Base = 0
+ Storage Group = 0 Storage Group = 0 Storage Group = 0
+ Synonym = 0 Synonym = 0
+ View = 0 View = 0 View = 0
+ Alias = 0 Alias = 0
+ Function = 0 Function = 0 Function = 0
+ Procedure = 0 Procedure = 0 Procedure = 0
+ Sequence = 0 Sequence = 0 Sequence = 0
+ Role = 0 Role = 0
+ Trusted CTX = 0 Trusted CTX = 0 Trusted CTX = 0
+ Mask/Perm = 0 Mask/Perm = 0 Mask/Perm = 0
+ Variable = N/A Variable = N/A
+ Trigger = 0 Trigger = 0
+ Dist Type = 0 Dist Type = 0
+ Aux Table = 0 Package = 0 Jar = 0
+ Glob Temp Tab = 0 Declare GTT = 0

> Help PF1 Back PF3
Highlighting

The following table shows the fields that might be highlighted in the panel above to indicate that an exception that is related to this field exceeded its threshold value:
Table 91. Highlighted fields in Current SQL Counts panel

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>ARCM</td>
<td>Backout requires an archive tape log mount.</td>
</tr>
<tr>
<td></td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td></td>
<td>INDB</td>
<td>The thread is indoubt and terminated.</td>
</tr>
<tr>
<td></td>
<td>PREF</td>
<td>The Sequential Prefetch rate is high.</td>
</tr>
<tr>
<td></td>
<td>RIO</td>
<td>The synchronous Read I/O rate is high.</td>
</tr>
<tr>
<td></td>
<td>ETIM</td>
<td>This thread has reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td></td>
<td>PGUP</td>
<td>The rate for system page updates is high.</td>
</tr>
<tr>
<td></td>
<td>WTRE</td>
<td>The wait resource time is high.</td>
</tr>
<tr>
<td>Commit</td>
<td>COMT</td>
<td>The ratio of Commits to Updates indicates a low Commit frequency.</td>
</tr>
<tr>
<td>Abort</td>
<td>COMT</td>
<td>Backout processing caused by aborts might have reduced the Commit rate.</td>
</tr>
</tbody>
</table>

Navigation

For additional information about
- an individual thread, for example, the locking activity or SQL activity of a thread, or the resource limit activity, type the appropriate option letter on the top line and press Enter.
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.

Attach Depending on the type of connection, the appropriate information is displayed.
Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Package identifier:** This information identifies the package to which the information in this panel applies.

**Package**
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

**Collection**
The package collection identifier. This field is displayed only if a package is being used.

**Distributed thread identifier:** The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.

**Type**
The distributed thread type.

- **Distributed Allied**
  A requesting thread; one that has issued an SQL call to a remote DB2 location.

- **Database Access**
  A responding thread; one that is serving a remote DB2 location by responding to an SQL call.

**Luwid**
This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

```
luw-id=token
```

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the **Luwid** field displays data such as the following:

```
USCAC001.02022A.A1FE8E0489D4=8
```

**SQL counts fields:**

- **Commit**
The number of times the thread successfully concluded Commit phase 2 processing.

- **Abort**
  A count of the number of times the thread has rolled back uncommitted data.

- **Select**
The number of SELECT requests.

- **Open Cursor**
The number of OPEN cursor statements issued by a thread.

- **Close Cursor**
The number of CLOSE cursor statements issued by a thread.

- **Fetch**
The number of FETCH requests.

- **Insert**
The number of INSERT statements executed by the thread.

- **Delete**
The number of DELETE statements issued by the thread.

- **Update**
The number of UPDATE statements executed by the thread.
Describe
The number of DESCRIBE statements issued by the thread.

Lock Table
A count of the number of LOCK TABLE statements issued by the application (not the total number of tables locked by the thread).

Prepare
The number of PREPARE statements issued by a thread.

Grant
The total number of times SQL GRANT requests were issued from within the program.

Revoke
The total number of times SQL REVOKE requests were issued from within the program.

Set Rules
The number of SET CURRENT RULES statements executed by the thread.

Increm Bind
A count of the number of times the plan active in the thread was rebound. PREPARES are not included. This value should be zero in a production environment. The plan can be rebound with VALIDATE(BIND) to prevent incremental binds.

Label/Comm On
The number of LABEL ON and COMMENT ON statements issued by the thread.

Set SQLID
The number of SET SQLID requests issued by the thread.

Set Host Var
The number of SET host variable requests executed by the thread.

Set Connection
The number of SET CONNECTION statements executed by the thread.

Set Degree
The number of SET CURRENT DEGREE statements executed by the thread.

Connect Type 1
The number of CONNECT type 1 statements executed by the thread.

Connect Type 2
The number of CONNECT type 2 statements executed by the thread.

Set Path
The number of SET CURRENT PATH statements executed by the thread.

Rename table
The number of RENAME TABLE statements executed by the thread.

Hold Locator
The number of HOLD LOCATOR statements executed by the thread.

Free Locator
The number of FREE LOCATOR statements executed by the thread.

Release
The number of RELEASE statements executed by the thread.
Assoc Locator
The number of ASSOCIATE LOCATOR statements executed by the thread.

Alloc Cursor
The number of ALLOCATE CURSOR statements executed by the thread.

Merge
The number of MERGE statements executed by the thread.

Rename Index
The number of RENAME INDEX statements executed by the thread.

Truncate Table
The number of TRUNCATE TABLE statements executed by the thread.

Refresh Table
Number of refresh table statements. DB2 12 and later. (Field name: QXTREFTBL)

Transfer Owner
Number of transfer ownership statements. DB2 12 and later. (Field name: QXTRNOWN)

Creates, Drops, Alters:

Table
The number of CREATE, DROP, or ALTER TABLE statements executed by the thread.

Index
The number of CREATE, DROP, or ALTER INDEX statements executed by the thread.

Table Space
The number of CREATE, DROP, or ALTER TABLESPACE statements executed by the thread.

Data Base
The number of CREATE, DROP, or ALTER DATABASE statements executed by the thread.

Storage Group
The number of CREATE, DROP, or ALTER STOGROUP statements executed by the thread.

Synonym
The number of CREATE or DROP SYNONYM statements executed by the thread.

View
The number of CREATE or DROP VIEW statements executed by the thread.

Alias
The number of CREATE or DROP ALIAS statements executed by the thread.

Function
The number of CREATE, DROP, or ALTER FUNCTION statements executed by the thread.

Procedure
The number of CREATE, DROP, or ALTER PROCEDURE statements executed by the thread.

Sequence
The number of CREATE, DROP, or ALTER PROCEDURE statements executed by the thread.
Role  The number of CREATE, DROP, or ROLE statements executed by the thread.

Trusted CTX  The number of CREATE, DROP, or ALTER TRUSTED CONTENT statements executed by the thread.

Mask/Perm  The number of CREATE, DROP, or ALTER MASK/PERM statements executed by the thread.

Variable  The number of CREATE, or DROP Variable statements executed by the thread. DB2 11 and above.

Trigger  The number of CREATE or DROP DISTINCT TRIGGER statements executed by the thread.

Dist Type  The number of CREATE or DROP DISTINCT TYPE statements executed by the thread.

Aux Table  The number of CREATE AUXILIARY TABLE statements executed by the thread.

Package  The number of the DROP PACKAGE statements executed by the thread.

JAR  The number of ALTER JAR statements executed by the thread.

Glob Temp Tab  The number of CREATE GLOBAL TEMPORARY TABLE statements executed by the thread.

Declare GTT  The number of DECLARE GLOBAL TEMPORARY TABLE statements executed by the thread.

RID List:

Successful  The number of times RID list processing used. This field is incremented once for a given table access for Index Access with list prefetch and for Multiple Index Access.

To Workfile (No Storage)  The number of times a RID list was overflowed to a work file because no RIDPOOL storage was available to hold the list of RIDs. DB2 10 and above.

Not Used (No Storage)  The number of times a RID list was not used for a given RID list process involving one index (Index Access with list prefetch) or involving multiple indexes (Multiple Index Access) because no storage was available to hold the list of RIDs.

To Workfile (Max Limit)  The number of times a RID list was overflowed to a work file because the number of RIDs exceeded one or more internal limits. DB2 10 and above.
Not Used (Max Limit)
The number of times one or more RID lists were not used for a given RID list process involving one index (Index Access with list prefetch) or involving multiple indexes (Multiple Index Access) because the number of RIDs exceeded one or more internal limits.

Interrupted (No Storage)
The number of times a RID list append for a Hybrid Join was interrupted because no RIDPOOL storage was available to hold the list of RIDs (that is, number of times DB2 interrupted the RID phase and switched to the Data phase). DB2 10 and above.

Skipped (Index Known)
The number of times a RID list retrieval for multiple index access was skipped because it was not necessary due to DB2 being able to predetermine the outcome of index ANDing or ORing. DB2 10 and above.

Interrupted (Max Limit)
The number of times a RID list append for a Hybrid Join was interrupted because the number of RIDs exceeded one or more internal limits (that is, number of times DB2 interrupted the RID phase and switched to the Data phase). DB2 10 and above.

Skipped (Adaptive IX)
The number of times a DM is not called for RID list retrieval for multiple index access or LPF because it was not necessary due to Runtime Adaptive Index processing being able to predetermine the outcome. DB2 12 and later. (Field name: QXRSDMAD)

Query Parallelism fields:

Max Degree (Planned)
The planned maximum degree of parallelism for a parallel group. This value is the optimal degree of parallelism that can be obtained at execution time, after host variables or parameter markers are resolved, and before buffer pool negotiation and system negotiation are performed. DB2 11 and above.

Parallel Group Degenerated
Total number of parallel groups that changed to sequential mode during optimization, for reasons such as, the result of evaluation of a parallel group is that zero rows are returned, or a parallel group is partitioned on a single record. DB2 11 and above.

Max Degree (Estimated)
The estimated maximum degree of parallelism for a parallel group. This value is estimated at bind time, based on the cost formula. If a parallel group contains a host variable or parameter marker, the estimate is based on assumed values. DB2 11 and above.

Reform Parallelism (Config Chg)
The total number of parallel groups for which DB2 reformulated the parallel portion of the access path because the sysplex configuration was different from the sysplex configuration at bind time. This counter is only incremented by the parallelism coordinator at run time.

Max Degree (Executed)
Maximum degree of parallelism among the parallel groups to indicate the extent to which query parallelism applies.

Reform Parallelism (No Buf)
The total number of parallel groups for which DB2 reformulated the
parallel portion of the access path because there was not enough buffer pool resource. This counter is only incremented by the parallelism coordinator at run time.

**Ran Planned**
The total number of parallel groups that have a planned degree greater than one at run time, and were executed to the same degree because of sufficient storage on the buffer pool.

**Total Parallel Groups**
The total number of parallel groups executed.

**Ran Reduced (Storage)**
The total number of parallel groups that have a planned degree greater than one at run time, but were processed to a parallel degree less than planned because of a storage shortage or contention on the buffer pool.

**Groups Intended**
The total number of parallel groups that were intended to run across the data sharing group. This count is only incremented on the parallelism coordinator at run time.

**Ran Reduced (Negot)**
The total number of parallel groups for which the degree of parallelism was reduced as a result of parallel system negotiation because system resources were constrained. DB2 11 and above.

**Members Skipped**
The number of times that the parallelism coordinator had to bypass a DB2 when distributing tasks because there was not enough buffer pool storage on one or more DB2 members. This field is incremented only on the parallelism coordinator, and it is only incremented once per parallel group, even though it is possible that more than one DB2 had a buffer pool shortage for that parallel group. The purpose of this count is to indicate when there are not enough buffers on a member. Therefore, this count is incremented only when the buffer pool is defined to allow parallelism. For example, if VPXPSEQT = 0 on an assistant, DB2 does not send parallel work there, but this count is not incremented.

**Ran Seq (Cursor)**
The total number of parallel groups which fell back to sequential mode because the cursor may be used in UPDATE/DELETE.

**One DB2 (Coord=NO)**
The total number of parallel groups executed on a single DB2 due to the COORDINATOR subsystem parameter being set to NO. When the statement was bound, the COORDINATOR subsystem parameter was set to YES. This situation can also occur when a plan or package is bound on one DB2 where COORDINATOR=YES but is run on a DB2 where COORDINATOR=NO.

**Ran Seq (No Buffer)**
The total number of parallel groups that have a planned degree greater than one at run time, but fell back to sequential mode because of storage shortage or contention on the buffer pool.

**One DB2 (Isolation)**
The total number of parallel groups executed on a single DB2 due to repeatable-read or read-stability isolation.
Ran Seq (No ESA Sort)
The total number of parallel groups that fell back to sequential operation because of a lack of ESA sort support.

One DB2 (DCL GTT)
The total number of parallel groups that are part of a query block using a UDF and executed on a single DB2 due to the existence of a Declared Temporary Table in the application process. Neither the query block nor the parallel group references a Declared Temporary Table, and a parallel group may or may not use a UDF.

Ran Seq (Autonomous)
The total number of parallel groups that changed to sequential mode because they were executing under an autonomous procedure. DB2 11 and above.

Ran Seq (Negotiate)
The total number of parallel groups that changed to sequential mode as a result of parallel system negotiation because system resources were constrained. DB2 11 and above.

Ran Seq (No ESA Enc)
The total number of parallel groups executed in sequential because Z/OS enclave services were unavailable. DB2 9 only.

Miscellaneous fields:
Maximum LOB Storage
The maximum storage used for LOB values, in Megabytes.

Maximum XML Storage
The maximum storage used for XML values.

Maximum Nested SQL
Maximum level of nested SQL cascading because of Triggers, User-Defined Functions, or Stored Procedures.

Array Expansions
The number of times an array variable was expanded to be larger than 32KB. DB2 11 and above.

Sparse IX (Disabled)
The number of times that sparse index was disabled because of insufficient storage. DB2 11 and above.

Sparse IX (Built WF)
The number of times that sparse index built a physical work file for probing. DB2 11 and above.

Fetched 1 Block Only (QXR1BOAD)
The number of times 1 block is fetched and there were no further fetches. DB2 12 and later.

Trigger fields:
Statement Trigger
Number of times a Statement Trigger is activated.

Row Trigger
Number of times a Row Trigger is activated.
SQL Errors
Number of times an SQL error occurred during execution of a triggered action.

Stored procedures:
Executed
The number of CALL statements executed by the thread.

Timed Out
The number of times an SQL CALL timed out waiting to be scheduled. No TCB was available in the stored procedures address space or the procedure was in the STOP ACTION(QUEUE) state.

Rejected
The number of times an SQL CALL was rejected because the procedure was in the STOP ACTION(REJECT) state.

Abended
The number of times a stored procedure terminated abnormally.

User-defined functions (UDF) fields:
Executed
The number of user-defined functions (UDFs) executed.

Abended
The number of times a UDF abended.

Timed Out
The number of times a UDF timed out when waiting to be scheduled.

Rejected
The number of times a UDF was rejected.

Prepare Statistics:
Prepares (Copy Found)
The number of times that DB2 satisfied a prepare request by making a copy of a statement in the Prepared Statement Cache.

Prepare (Copy Not Found)
The number of times that DB2 searched the Prepared Statement Cache but could not find a suitable prepared statement.

Prepares (Catalog Found)
The number of times a PREPARE request is satisfied by making a copy from the stabilized statement in SYSIBM.SYSDYNQRY catalog table. The stabilized statement search is done only when no matching statement is found in the prepared statement cache. DB2 12 and later. (Field name: QXSTSFND)

Prepare (Restrict IX)
The number of prepare statements for which the use of indexes was restricted because the indexes were in a pending state.

Literals (Parsed)
Number of times DB2 parsed dynamic statements because of CONCENTRATE STATEMENTS WITH LITERALS behaviour.

Literals (Replaced)
Number of times DB2 replaced at least one literal in a dynamic statement because of CONCENTRATE STATEMENTS WITH LITERALS behaviour.
Literals (Matched)
Number of times DB2 found a matching reusable copy of a dynamic statement in cache because of CONCENTRATE STATEMENTS WITH LITERALS behaviour.

Literals (Duplicated)
Number of times DB2 created a duplicate stmt instance in the statement cache because of CONCENTRATE STATEMENTS WITH LITERALS behaviour.

KeepDyn (Prepared)
The number of times that DB2 did an implicit prepare for a statement bound with KEEPDYNAMIC(YES), because the Prepared Statement Cache did not contain a valid copy of the prepared statement.

KeepDyn (Avoided)
The number of times that DB2 did not prepare a statement bound with KEEPDYNAMIC(YES), because the Prepared Statement Cache contained a valid copy of the prepared statement.

KeepDyn (Exceed Limit)
The number of times that DB2 discarded a prepared statement from the Prepared Statement Cache, because the number of prepared statements in the cache exceeded the value of subsystem parameter MAXKEEPD.

KeepDyn (Invalidated)
The number of times that DB2 discarded a prepared statement from the Prepared Statement Cache, because a program executed a DROP, ALTER, or REVOKE statement against a dependent object.

Direct Row Access fields:

Direct Access
The number of times that DB2 used Direct Row Access to locate a record.

Index Used
The number of times that DB2 attempted to use Direct Row Access but reverted to using an Index to locate a record.

TS Scan Used
The number of times that DB2 attempted to use Direct row Access but reverted to using a Table Space scan to locate a record.

Row Processing:

Rows Fetched
The number of rows fetched.

Rows Inserted
The number of rows inserted.

Rows Updated
The number of rows updated.

Rows Deleted
The number of rows deleted.
Distributed Thread Detail (VTAM and TCP/IP Connections):

This panel provides information about VTAM APPC threads, TCP/IP threads, or RRSAF threads of an individual distributed thread. For VTAM APPC and TCP/IP conversations, it additionally includes statistics about the distributed activity of the thread.

VTAM APPC threads

The thread subtype determines the data that is displayed with the RSUM minor command.

This panel provides information about VTAM APPC conversations.

```plaintext
> Help PF1
> THREAD INFORMATION: Enter a selection letter on the top line.
> A-THREAD DETAIL B-LOCK COUNTS C-LOCK WAITS D-LOCKS OWNED E-GLOBAL LOCKS
> F-CURRENT SQL G-SQL COUNTS H-DISTRIBUTED I-BUFFER POOL J-GROUP BP
> K-PACKAGES L-RES LIMIT M-PARALLEL TASKS N-UTILITY O-OBJECTS
> P-CANCEL THREAD Q-DB2 CONSOLE R-DSN ACTIVITY S-APPL TRACE T-ENCLAVE
> U-LONG NAMES V-DB2 CON SRV W-ACCEL ACTIVITY
> DISTRIBUTED THREAD DETAIL
PLAN
+ Thread: Plan=DSNESPRR Connid=TSO Corrid=HONG Authid=HONG
+ Attach: TSO Userid=HONG Region asid= 151
+ Dist : Type=DISTRIBUTED ALLIED, Luwid=DEIBMIPS.IPSAQB11.CBE010B90BCE=3620
+ Location : PMODE1
rsum
+ Distributed VTAM APPC Conversations
+ VTAM VTAM Last VTAM Last VTAM Time Since Conv VTAM
+ Luname Modeuname Appc Req Appc Qual Last Req Status Session ID
+ IPSASE11 IBMDB UNKNOWN DATAFLU 06:23:48.6 NOT-ACTIVE C0CF16A0F5ECEF
+ IPSARA21 IBMDB UNKNOWN DATAFLU 06:23:48.8 NOT-ACTIVE E4CF19C081F5ABA7
+ IPSASB31 IBMDB UNKNOWN DATAFLU 06:23:48.5 IN-VTAM E8CF19C083FB5F9E
```
Distributed SQL Statistics

Remote Location Name = PMODE1
Remote Location Luname = IPSASE11

Protocol Used = SYSTEM
Conversations Queued = 0
Conv Deallocated = 0
Indoubt/Remote = 0
Dist Local Elapsed = 06:23:48.809

Sent
---
SQL  Row Message  Byte  Commit  Abort  Conv  Blocks
---
  2  0  5  1202  0  0  0  0

Recv
  0  1  5  988  0  0  0  1

Remote Location Name = PMODA21
Remote Location Luname = IPSARA21

Protocol Used = SYSTEM
Conversations Queued = 0
Conv Deallocated = 0
Indoubt/Remote = 0
Dist Local Elapsed = 00:00:00.126

Sent
---
SQL  Row Message  Byte  Commit  Abort  Conv  Blocks
---
  2  0  5  1193  0  0  0  0

Recv
  0  1  5  954  0  0  0  1

Remote Location Name = PMODB31
Remote Location Luname = IPSASB31

Protocol Used = SYSTEM
Conversations Queued = 0
Conv Deallocated = 0
Indoubt/Remote = 0
Dist Local Elapsed = 00:00:00.311

Sent
---
SQL  Row Message  Byte  Commit  Abort  Conv  Blocks
---
  3  0  7  1777  0  0  0  0

Recv
  0  1  6  1154  0  0  0  1

Remote Location Name = ALL LOCATIONS

Protocol Used = SYSTEM
Conversations Queued = 0
Conv Deallocated = 0
Indoubt/Remote = 0
Dist Local Elapsed = 00:00:00.552

Sent
---
SQL  Row Message  Byte  Commit  Abort  Conv  Blocks
---
  7  0  17  4172  0  0  0  0

Recv
  0  3  16  3096  0  0  0  3

=========================================================

Fields

Distributed VTAM APPC Conversations

The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem. One line of output is displayed for each active conversation.

VTAM Luname

The VTAM logical unit name of the remote DB2 subsystem that is the partner on this VTAM APPC conversation.
VTAM Modename
The VTAM logmode in use by the APPC conversation. For database access threads, the logmode name exists and originates on the MVS system of the remote requester.

Last VTAM APPC Req
The most recent VTAM APPC request that was issued on the conversation.

Last VTAM APPC Qual
The most recent VTAM APPC qualifier that was issued on the conversation.

Time Since Last Req
The elapsed time since the last APPC command was issued on the conversation.

Conv Status
The status of the conversation.

WAIT-VTAM
The conversation is suspended and waiting for a VTAM response.

IN-VTAM
The conversation is active within VTAM.

NOT-ACTIVE
The conversation is inactive—neither waiting for a VTAM response nor active in VTAM.

VTAM Session ID
The VTAM session identifier in use by the conversation.

Distributed SQL statistics
The following group of fields occurs for each remote DB2 location with which the thread has communicated, either as a requester or a server. Each sent/received field generates two rows of output; the top row is the sent value, and the bottom row is the received value.

Remote Location Name
The name of a remote location with which the local DB2 has communicated.

Remote Location Luname
The logical unit name of the location specified in the “Remote Location Name” field. This field is not displayed for distributed TCP/IP threads.

Protocol Used
The type of distributed protocol being used. The values are SYSTEM, APPLICATION, or BOTH, depending on whether system directed access, application directed access, or both are being used.

Conversations Queued
The number of conversation requests queued by DDF waiting for allocation.

Conv Deallocated
The number of conversations deallocated.

Indoubt/Remote
The number of threads that went indoubt with the remote location as coordinator.
Dist Local Elapsed
The time the thread has spent waiting for a response to a remote SQL request (includes remote DB2 processing time, VTAM processing time, and network time). The time is calculated from the point of thread creation (or DB2 signon if the thread is reused). This field is displayed only for distributed allied threads.

SQL Sent/Recv
The number of SQL calls sent to and from the remote location since thread creation or DB2 signon.

Row Sent/Recv
The number of rows sent to and from the remote location since thread creation or DB2 signon.

Message Sent/Recv
The number of VTAM messages sent to and from the remote location since thread creation or DB2 signon.

Byte Sent/Recv
The number of bytes sent to and from the remote location since thread creation or DB2 signon.

Commit Sent/Recv
The number of Commits sent to and from the remote location since thread creation or DB2 signon.

Abort Sent/Recv
The number of aborts sent to and from the remote location since thread creation or DB2 signon.

Conv Sent/Recv
The number of conversations sent to and from the remote location since thread creation or DB2 signon.

Blocks Sent/Recv
The number of blocks sent and received using block fetch.
Distributed TCP/IP threads

This panel provides information about TCP/IP conversations.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISTRIBUTED THREAD DETAIL</td>
<td></td>
</tr>
<tr>
<td>PLAN</td>
<td></td>
</tr>
<tr>
<td>+Thread: Plan=DISTSERV Connid=.SERVER Corrid=db2bp.exe Authid=HONG</td>
<td></td>
</tr>
<tr>
<td>+Host Name: sig-9.65-84.59.mts.ibm.com</td>
<td></td>
</tr>
<tr>
<td>+Location: ::FFFF:9.65.84.59</td>
<td></td>
</tr>
<tr>
<td>+End User ID: hong</td>
<td></td>
</tr>
<tr>
<td>+Transaction Name: db2bp.exe</td>
<td></td>
</tr>
<tr>
<td>+Workstation Name: IBM-6719346851</td>
<td></td>
</tr>
<tr>
<td>+Account Loc Name: N/P</td>
<td></td>
</tr>
<tr>
<td>+Account Suffix: N/P</td>
<td></td>
</tr>
<tr>
<td>+Account String: N/P</td>
<td></td>
</tr>
<tr>
<td>+Distributed SQL Statistics</td>
<td></td>
</tr>
<tr>
<td>+Remote Location Name: ::FFFF:9.65.84.59</td>
<td></td>
</tr>
<tr>
<td>+Protocol Used: SYSTEM Conversations Queued: 0 Conv Deallocated: 0 Indoubt/Remote: 0</td>
<td></td>
</tr>
<tr>
<td>+SQL Message: Sent 0 815 21 474788 0 0 0 0 0 14</td>
<td></td>
</tr>
<tr>
<td>+Recv: 17 0 21 2302 0 0 1 0</td>
<td></td>
</tr>
</tbody>
</table>

Fields

**Distributed TCP/IP Data:** The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem. One line of output is displayed for each active conversation. TCP/IP activity is grouped by remote TCP/IP locations. The following fields are shown for each remote location with which this thread has communicated, as either a remote requestor (if a distributed allied thread) or server (if a database access thread).
Location
The IP address in dotted decimal notation.

PORT
The IP port number used in the connection.

Ctbuser
The binder’s AuthID.

Srvclsnam
The service class name as taken from the Accounting Record MVS Account Code and DDF Information Data Section (QMDA).

Prod ID
The Product ID parameter having the form PPPVVRRM, where PPP is the Product, VV is the Version, RR is the Release, and M is the Modification.

IP Addr
The IP address in Hexadecimal notation.

Workstation name
The end user's workstation name.

Account Loc Name
The DB2 LOCATION name for the DB2 system that created the QMDAINFO values if QMDALOCN is truncated.

Account Suffix
One of the following items apply:
• The MVS accounting string that is associated with the MVS address space of the DB2 SQL application.
• The account suffix. The maximum length of this field is 200 bytes. This environment variable is the user-supplied portion (suffix) of the accounting string.

Account String
The extended accounting string area.
• If QMDAASTR is defined by QMDAINFO, this area contains all the remaining bytes beyond position 142 for QMDAACCT.
• If QMDAASTR is defined by QMDASQLI, this area contains all the remaining bytes beyond position 200 for QMDASUFX.
• Otherwise, this area contains all bytes beyond position 247 for QMDAASTR.

This applies to DB2 11 or higher.

Transaction name
The name of the transaction.

TCP/IP Userid
The TCP/IP user ID.
Distributed RRSAF threads

This panel provides information about RRSAF conversations.

Distributed RRSAF Data: The Resource Recovery Services attachment facility (RRSAF) is a DB2 attachment facility that relies on a z/OS component called Resource Recovery Services (z/OS RRS). z/OS RRS provides system-wide services for coordinating two-phase commit operations across z/OS subsystems.

RRSAF information is limited to the following fields:

Ctbuser
The binder’s AuthID.

Workstation name
The end user’s workstation name. DB2 applications which use the RRSAF interface can invoke the DB2 DSNLI function SET_CLIENT_ID to pass this value.
**UserID**

The end user’s User ID. DB2 applications which use the RRSAF interface can invoke the DB2 DSNRLI function SET_CLIENT_ID to pass this value.

**Transaction name**

The name of the transaction. DB2 applications which use the RRSAF interface can invoke the DB2 DSNRLI function SET_CLIENT_ID to pass this value.

**Navigation**

For additional information about

* related topics, select one of the options at the top of the panel.
* other topics, use the PF keys.

**Fields**

**Thread identifier:** This information identifies the thread to which the information in this panel applies.

**Plan** The Db2 plan name of the active thread.

**Connid**

The Db2 connection identifier of the active thread.

**Corrid** The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

**Authid**

The Db2 authorization identifier of the active thread.

**Attach** Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Package identifier:** This information identifies the package to which the information in this panel applies.

**Package** The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

**Collection**

The package collection identifier. This field is displayed only if a package is being used.

**Distributed thread identifier:** The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.

**Type** The distributed thread type:

**Distributed Allied** A requesting thread that has issued an SQL call to a remote DB2 location.

**Database Access** A responding thread that is serving a remote DB2 location by responding to an SQL call.
Location
The remote location name.

Luwid  Logical unit of work indicator for the distributed thread. It has the following format (separated by periods):

network-name.originating-VTAM-luname.unique-identifier=token

**network-name**  
The network name

**originating-VTAM-luname**  
The originating VTAM LUNAME

**unique-identifier**  
The unique identifier

**token**  
You can use the token instead of luwid in any DB2 command that accepts luwid as input.

Threads with DB2 Connect gateway connections:

OMEGAMON XE for DB2 PE provides information about DB2 Connect Servers through a variety of panels. Some of these panels are documented in this topic.

Other DB2 Connect Server information is shown in panels that are documented in "DB2 Connect Server" on page 1430.

For a selected distributed database access thread (DBAT) the Distributed Thread Detail panel shows thread details. If the selected thread is currently inactive, the message THREAD NOT FOUND is displayed.

**DB2 Connect Server:**

This panel shows information about a DB2 Connect server that is related to the previously selected Distributed Database Access Thread (DBAT).

If the distributed thread does not have a connection through a DB2 Connect gateway, or if the Performance Expert Agent for DB2 Connect Monitoring (PE Agent) is not installed or not running on the DB2 Connect Server, the message No DB2 Connect server data available is displayed.
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.

Attach Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Connection Type

Batch The MVS jobname and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

CICS The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:
Pool  The thread in use is a pool thread.

Entry  The thread in use is a nonprotected entry thread.

Prot  The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

IMS  The IMS region number, transaction name, region name, and terminal ID (LTERM).

RRSAF  The MVS job name and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

System  The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

TSO  The TSO user ID and region ASID.

Utility  No additional information.

Db2  The Db2 subsystem identifier.

MVS  The MVS system identifier.

ORIGAUTH  The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Package identifier: This information identifies the package to which the information in this panel applies.

Package  The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

Collection  The package collection identifier. This field is displayed only if a package is being used.

Distributed thread identifier: The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

Type  The distributed thread type.

Distributed Allied  A requesting thread; one that has issued an SQL call to a remote Db2 location.

Database Access  A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

Db2=  The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

Luwid  This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:
The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the *Luwid* field displays data like in the following example:

```
USCAC001.02D22A.A1FE8E04B9D4=8
```

**System**

The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the *Attach* line identifies the user thread, if any, being served by the system thread.

**DB2C Master**

Shows the name of the member of the data sharing group that controls DB2 Connect monitoring for the group. If N/A is shown, the DB2C Master is currently being changed. For more information, see the description of panel “Redirect Monitoring to Another DB2” on page 900.

**DB2 Connect Server Information:**

**Name**

Shows the name in the database manager configuration file at the client node. It identifies the client node that is running the application.

**IP Address**

Shows the current IP address.

**Node Name**

Shows the name of the node being monitored by the database system monitor. It identifies the database server node being monitored.

**Node Number**

Shows the number assigned to the node in the db2nodes.cfg file.

**Server Product/Version ID**

Shows the product and version that is running on the DB2 data server in the form *pppvvrrm*, where:

- *ppp* stands for SQL
- *vv* identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- *rr* identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- *m* identifies a 1-digit modification level

**Server Instance Name**

Shows the name of the database manager instance for which the snapshot was taken.

**Server Version**

Shows the version of the DB2 data server returning the information.

**Time Zone Displacement**

Shows the number of hours and minutes that the local time zone is displaced from Greenwich Mean Time (GMT).

**DB2 Connect Server - Overview:**

This panel shows application-, client-, and DB2 host-related information for the previously selected Distributed Database Access Thread (DBAT).

If the distributed thread does not have a connection through a DB2 Connect gateway, or if the Performance Expert Agent for DB2 Connect Monitoring (PE
Agent) is not installed or not running on the DB2 Connect Server, the message No DB2 Connect server data available is displayed.

<table>
<thead>
<tr>
<th>Product/Version</th>
<th>Database Name</th>
<th>Plan</th>
<th>Host Coded Character Set ID</th>
<th>Configuration Name of Client</th>
<th>Client Product/Version ID</th>
<th>SQL Stmt</th>
<th>Failed Stmt %</th>
<th>Open Cursor</th>
<th>Rollback</th>
<th>Transmissions</th>
</tr>
</thead>
<tbody>
<tr>
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976 IBM Db2 Performance Expert on z/OS
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.

Attach Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Connection Type

Batch The MVS jobname and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

CICS The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

Pool The thread in use is a pool thread.

Entry The thread in use is a nonprotected entry thread.

Prot The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

IMS The IMS region number, transaction name, region name, and terminal ID (LTERM).

RRSAF The MVS job name and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

System The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

TSO The TSO user ID and region ASID.

Utility No additional information.

Db2 The Db2 subsystem identifier.
### MVS
The MVS system identifier.

### ORIGAUTH
The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

### Package identifier:
This information identifies the package to which the information in this panel applies.

#### Package
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

#### Collection
The package collection identifier. This field is displayed only if a package is being used.

### Distributed thread identifier:
The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

#### Type
The distributed thread type.

- **Distributed Allied**
  A requesting thread; one that has issued an SQL call to a remote Db2 location.

- **Database Access**
  A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

- **Db2=**
The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

- **Luwid**
  This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:
  \[\text{luw-id}=\text{token}\]
  The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the *Luwid* field displays data like in the following example:
  \[\text{USCACO01.O2D22A.A1FE8E04B9D4}=8\]

- **System**
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the *Attach* line identifies the user thread, if any, being served by the system thread.

- **DB2C Master**
  Shows the name of the member of the data sharing group that controls DB2 Connect monitoring for the group. If N/A is shown, the DB2C Master is currently being changed. For more information, see the description of panel *Redirect Monitoring to Another DB2* on page 900.

### Application information:

#### Application Handle (agent ID)
Shows the system-wide unique ID for the application.

#### Application Name
Shows the name of the application running at the client as known to the DB2 Connect.
Application ID
Shows the identifier that is generated when the application connects to the database manager or when Distributed Database Connection Server (DDCS) receives a request to connect to a DRDA database.

Transaction ID
Shows the unique transaction identifier across all databases generated by a transaction manager in a two-phase-commit transaction.

Authorization ID
Shows the authorization ID of the user who invoked the application.

Code Page Used by Application
Shows the code page identifier.

Client Process ID
Shows the process ID of the client application that made the connection to the database.

Client Operation Platform
Shows the operating system on which the client application is running.

Client Communication Protocol
Shows the communication protocol that the client application is using to communicate with the server.

Host Coded Character Set ID
Shows the coded character set identifier (CCSID) of the host database.

Configuration Name of Client
Shows the NNAME in the database manager configuration file at the client node.

Client Product/Version ID
Shows the communication address of the client. It could be an SNA net ID and LU partner name, or an IP address and port number for TCP/IP.

Inbound Communication Address
Shows the product and version that is running on the client.

DCS Application Status
Shows the current status of the application.

Application Status Change Time
Shows the date and time the application entered its current status.

User Login ID
Shows the ID that the user specified when logging in to the operating system.

Sequence Number
Increments whenever a unit of work ends, that is, when a COMMIT or ROLLBACK terminates a unit of work.

Database Alias at Gateway
Shows the alias used at the DB2 Connect gateway to connect to the host database.

DCS Database Name
Shows the name of the remote database as cataloged in the DCS directory.

Outbound Application ID
Is generated when the application connects the DRDA host database.
Outbound Sequence Number
Is generated when the application connects the DRDA host database.

Outbound Communication Address
Shows the communication address of the target database.

Outbound Communication Protocol
Shows the communication protocol used between the DB2 Connect gateway and host.

Last Reset Timestamp
Shows the date and time that the monitor counters were reset for the application issuing the GET SNAPSHOT.

Application Idle Time
Shows the number of seconds since an application issued any requests to the server.

SQL Stmt
Shows the number of SQL statements that have been attempted since the latter of: application startup, database activation, or last reset.

Failed Stmt
Shows the number of SQL statements that were attempted, but failed.

Failed Stmt %
Shows the percentage of failed statements versus all SQL statements.

Open Cursor
Shows the number of cursors currently open for an application.

Commit
Shows the total number of SQL COMMIT statements that have been attempted.

Rollback
Shows the total number of SQL ROLLBACK statements that have been attempted.

Row
Shows the number of rows that have been selected and returned to the application.

Transmissions
Shows the number of data transmissions between DB2 Connect gateway and host that was used to process this DCS statement. (One data transmission consists of one send or one receive).

Client fields:

DB2 Connect First Connection
Shows the date and time at which the first connection to the host database was initiated from the DB2 Connect gateway.

Unit of Work Start Timestamp
Shows the date and time at which the unit of work first required database resources.

Unit of Work Stop Timestamp
Shows the date and time at which the most recent unit of work completed which occurs when database changes are committed or rolled back.

Previous UOW Completion Timestamp
Shows the time the unit of work completed.
**Unit of Work Completion Status**
Shows the status of the unit of work and how it stopped. It can have:
- Committed because of a COMMIT statement
- Rolled back because of a ROLLBACK statement
- Rolled back because of a deadlock
- Rolled back due to an abnormal termination
- Committed at normal application termination
- Unknown as a result of a FLUSH EVENT MONITOR command for which units of work were in progress.

**Elapsed Time DB2CONN Execution**
Shows the time, in seconds and microseconds, at the DB2 Connect gateway to process an application request (since the connection was established), or to process a single statement.

**Most Recent UOW Elapsed Time**
Shows the elapsed execution time of the most recently completed unit of work.

**DB2 Host fields:**

**Database Name**
Shows the real name of the host database for which information is being collected or to which the application is connected. This is the name that was given to the database when it is created.

**Product/Version ID**
Shows the product and version that is running on the DB2 data server in the form pppvvvrmm, where:
- ppp stands for SQL
- vv identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- rr identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- mm identifies a 1-digit modification level

**Response Time**
For a DCS statement, this is the elapsed time between the time that the statement was sent from the DB2 Connect gateway to the host for processing and the time when the result was received from the host.

**Stmt Execution Elapsed Time**
For a DCS statement, this is the elapsed time spent processing an SQL request on a host database server.

**Inbound Byte Sent**
Shows the number of bytes sent by the DB2 Connect gateway to the client, excluding communication protocol overhead (for example, TCP/IP or SNA headers).

**Inbound Byte Received**
Shows the number of bytes received by the DB2 Connect gateway from the client, excluding communication protocol overhead (for example, TCP/IP or SNA headers).

**Outbound Byte Sent**
Shows the number of bytes sent by the DB2 Connect gateway to the host excluding communication protocol overhead (for example, TCP/IP or SNA headers).
Outbound Byte Received

Shows the number of bytes received by the DB2 Connect gateway from the host, excluding communication protocol overhead (for example, TCP/IP or SNA headers).

DB2 Connect Server - Statement Information:

This panel shows SQL statement-, time-, and network traffic-related information for the previously selected Distributed Database Access Thread (DBAT).

If the distributed thread does not have a connection through a DB2 Connect gateway, or if the Performance Expert Agent for DB2 Connect Monitoring (PE Agent) is not installed or not running on the DB2 Connect Server, the message No DB2 Connect server data available is displayed.
Navigation

For additional information about
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.

Attach Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Connection Type

Batch The MVS jobname and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

CICS The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

Pool The thread in use is a pool thread.

Entry The thread in use is a nonprotected entry thread.

Prot The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

IMS The IMS region number, transaction name, region name, and terminal ID (LTERM).

RRSAF The MVS job name and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

System The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

TSO The TSO user ID and region ASID.

Utility No additional information.

Db2 The Db2 subsystem identifier.
MVS  The MVS system identifier.

ORIGAUTH  
The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Package identifier:  This information identifies the package to which the information in this panel applies.

Package  
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

Collection  
The package collection identifier. This field is displayed only if a package is being used.

Distributed thread identifier:  The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

Type  
The distributed thread type.

Distributed Allied  
A requesting thread; one that has issued an SQL call to a remote Db2 location.

Database Access  
A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

Db2=  
The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

Luwid  
This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:  

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:

USCAC001.02D22A.A1FE8E94B9D4=8

System  
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

DB2C Master  
Shows the name of the member of the data sharing group that controls DB2 Connect monitoring for the group. If N/A is shown, the DB2C Master is currently being changed. For more information, see the description of panel "Redirect Monitoring to Another DB2" on page 900.

SQL statements:

Section Number  
Shows the internal section number in the package for the SQL statement that is currently processing or has processed most recently.
**Query Cost Estimate**
Shows the estimated cost, in “timerons”, for a query, as determined by the SQL compiler.

**Query Number of Rows Estimate**
Shows the estimated number of rows that is returned by a query.

**Statement Operation**
Shows the statement operation that is currently being processed or has processed most recently (if none is currently running).

**Number of Successful Fetches**
For statement snapshot monitoring and statement event type, this is the number of successful fetches performed on a specific cursor.

**Blocking Cursor**
Indicates whether the statement being executed is using a blocking cursor.

**Outbound Blocking Cursor**
Indicates whether blocking is used for data transfer from DRDA server to the DB2 Connect gateway for a particular query.

**Application Creator**
Shows the authorization ID of the user who precompiled the application.

**Package Name**
Shows the name of the package that contains the SQL statement that is currently executing.

**Stmt Trans: No of Transmissions**
Shows the number of data transmissions between the DB2 Connect gateway and the host that was used to process this DCS statement.

**Stmt Trans: No of Statements**
Shows the number of SQL statements that have been attempted since the latter of: application startup, database activation, or last reset.

**Time fields:**

**Statement Start Timestamp**
Shows the date and time at which the statement operation started execution.

**Statement Stop Timestamp**
Shows the date and time at which the statement operation stopped execution.

**Time Spent on Gateway Processing**
Shows the time, in seconds and microseconds, at the DB2 Connect gateway to process an application request (since the connection was established), or to process a single statement.

**Host Response Time**
For a DCS statement, this is the elapsed time between the time that the statement was sent from the DB2 Connect gateway to the host for processing and the time when the result was received from the host.

**Most Recent Stmt Elapsed Time**
Shows the elapsed execution time of the most recently completed statement.
Stmt Elapsed Execution Time
For a DCS statement, this is the elapsed time spent processing an SQL request on a host database server.

Local: System CPU Time
Shows the total system CPU time, in seconds and microseconds, used by the statement that is currently executing.

Local: User CPU Time
Shows the total user CPU time, in seconds and microseconds, used by the statement that is currently executing.

Network Statistics fields:
Inbound Number of Bytes Sent
Shows the number of bytes sent by the DB2 Connect gateway to the client, excluding communication protocol overhead, for example, TCP/IP or SNA headers.

Inbound Number of Bytes Received
Shows the number of bytes received by the DB2 Connect gateway from the client, excluding communication protocol overhead, such as TCP/IP or SNA headers.

Outbound Number of Bytes Sent
Shows the number of bytes sent by the DB2 Connect gateway to the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers.

Outbound Number of Bytes Received
Shows the number of bytes received by the DB2 Connect gateway from the host, excluding communication protocol overhead, such as TCP/IP or SNA headers.

DB2 Connect Server - Package Statistics:
This panel shows package statistics for the previously selected Distributed Database Access Thread (DBAT).

If the distributed thread does not have a connection through a DB2 Connect gateway, or if the Performance Expert Agent for DB2 Connect Monitoring (PE Agent) is not installed or not running on the DB2 Connect Server, the message No DB2 Connect server data available is displayed.
### Navigation

For additional information about
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

### Fields

**Thread identifier:** This information identifies the thread to which the information in this panel applies.

**Plan**  The Db2 plan name of the active thread.

**Connid**  The Db2 connection identifier of the active thread.

**Corrid**  The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

**Authid**  The Db2 authorization identifier of the active thread.

**Attach** Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

---

<table>
<thead>
<tr>
<th>Thread identifier:</th>
<th>This information identifies the thread to which the information in this panel applies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>The Db2 plan name of the active thread.</td>
</tr>
<tr>
<td>Connid</td>
<td>The Db2 connection identifier of the active thread.</td>
</tr>
<tr>
<td>Corrid</td>
<td>The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.</td>
</tr>
<tr>
<td>Authid</td>
<td>The Db2 authorization identifier of the active thread.</td>
</tr>
</tbody>
</table>

| Attach              | Depending on the type of connection, the appropriate information is displayed.         |
|                    | Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads). |
Connection Type

**Batch**  The MVS jobname and ASID.

*Note:* For threads from remote Db2, the MVS job name is N/A.

**CICS**  The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:
- **Pool**  The thread in use is a pool thread.
- **Entry**  The thread in use is a nonprotected entry thread.
- **Prot**  The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

**IMS**  The IMS region number, transaction name, region name, and terminal ID (LTERM).

**RRSAF**  The MVS job name and ASID.

*Note:* For threads from remote Db2, the MVS job name is N/A.

**System**  The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

**TSO**  The TSO user ID and region ASID.

**Utility**  No additional information.

**Db2**  The Db2 subsystem identifier.

**MVS**  The MVS system identifier.

**ORIGAUTH**  The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

**Package identifier:** This information identifies the package to which the information in this panel applies.

**Package**  The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

**Collection**  The package collection identifier. This field is displayed only if a package is being used.

**Distributed thread identifier:** The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

**Type**  The distributed thread type.

**Distributed Allied**  A requesting thread; one that has issued an SQL call to a remote Db2 location.
Database Access
A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

Db2= The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

Luwid This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:
USCACO01.02022A.A1FE8E0489D4=8

System The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

DB2C Master Shows the name of the member of the data sharing group that controls DB2 Connect monitoring for the group. If N/A is shown, the DB2C Master is currently being changed. For more information, see the description of panel "Redirect Monitoring to Another DB2" on page 900.

Outbound data fields:

Outbound Data Sent Shows the number of bytes sent by the DB2 Connect gateway to the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers.

Outbound Data Received Shows the number of bytes received by the DB2 Connect gateway from the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers.

Outbound Data Sent Top Shows the maximum number of bytes sent by the DB2 Connect gateway to the host.

On statement level, this is the maximum value on a per statement base measured during the processing of all statements against the Database Connection Services (DCS) database.

On data transmission level, this is the maximum value occurring in the DCS application during the processing of all statements that used the displayed number of data transmissions.

Outbound Data Received Top Shows the maximum number of bytes received per statement by the DB2 Connect gateway from the host during the processing of all statements against this DCS database, or in this DCS application, that used this number of data transmissions.

Outbound Data Sent Bottom Shows the lowest number of bytes sent per statement by the DB2 Connect
gateway to the host during the processing of all statements against this DCS database, or in this DCS application, that used this number of data transmissions.

**Outbound Data Received Bottom**
Shows the lowest number of bytes received per statement by the DB2 Connect gateway from the host during the processing of all statements against this DCS database, or in this DCS application, that used this number of data transmissions.

**Outbound data sent/received fields:**

**Statement Transaction: max data sent/received 128**
Shows the number of statements with outbound bytes sent/received from 1 through 128.

**Statement Transaction: max data sent/received 256**
Shows the number of statements with outbound bytes sent/received from 129 through 256.

**Statement Transaction: max data sent/received 512**
Shows the number of statements with outbound bytes sent/received from 257 through 512.

**Statement Transaction: max data sent/received 1024**
Shows the number of statements with outbound bytes sent/received from 513 through 1024.

**Statement Transaction: max data sent/received 2048**
Shows the number of statements with outbound bytes sent/received from 1025 through 2048.

**Statement Transaction: max data sent/received 4096**
Shows the number of statements with outbound bytes sent/received from 2049 through 4096.

**Statement Transaction: max data sent/received 8192**
Shows the number of statements with outbound bytes sent/received from 4097 through 8192.

**Statement Transaction: max data sent/received 16384**
Shows the number of statements with outbound bytes sent/received from 8193 through 16384.

**Statement Transaction: max data sent/received 31999**
Shows the number of statements with outbound bytes sent/received from 16385 through 31999.

**Statement Transaction: max data sent/received 64000**
Shows the number of statements with outbound bytes sent/received from 32000 through 64000.

**Statement Transaction: max data sent/received GT64K**
Shows the number of statements with outbound bytes sent/received greater than 64000.

**Network time fields:**

**Statement Transaction: max time 2ms**
Shows the number of statements whose network time was less then, or equal to, 2 milliseconds.
**Statement Transaction: max time 4ms**
Shows the number of statements whose network time was greater than 2 milliseconds but less than, or equal to, 4 milliseconds.

**Statement Transaction: max time 8ms**
Shows the number of statements whose network time was greater than 4 milliseconds but less than, or equal to, 8 milliseconds.

**Statement Transaction: max time 16ms**
Shows the number of statements whose network time was greater than 8 milliseconds but less than, or equal to, 16 milliseconds.

**Statement Transaction: max time 32ms**
Shows the number of statements whose network time was greater than 16 milliseconds but less than, or equal to, 32 milliseconds.

**Statement Transaction: max time GT32ms**
Shows the number of statements whose network time was greater than 32 milliseconds.

**Thread Buffer Pool Activity:**

This panel provides detailed information about buffer manager activity at the buffer pool level for an individual thread.
### Highlighting

The following table shows the fields that might be highlighted in the panel above to indicate that an exception that is related to this field exceeded its threshold value:
Table 92. Highlighted fields in Thread Buffer Pool Activity panel.

This table shows the fields and the exceptions these fields are related to. It also shows the reason for the corresponding exception.

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>Any</td>
<td>Same as other thread detail panels.</td>
</tr>
<tr>
<td>Getpage Requests</td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td>Getpage/Read I/O</td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td>Synchronous Reads</td>
<td>RIO</td>
<td>The synchronous Read I/O rate is high.</td>
</tr>
<tr>
<td>Page Updates</td>
<td>PGUP</td>
<td>The rate for system page updates is high.</td>
</tr>
<tr>
<td>Sequential Prefetch Reqs</td>
<td>PREF</td>
<td>The thread Sequential Prefetch rate is high.</td>
</tr>
</tbody>
</table>

**Fields**

**Thread identifier**: This information identifies the thread to which the information in this panel applies.

**Plan**  The Db2 plan name of the active thread.

**Connid**  The Db2 connection identifier of the active thread.

**Corrid**  The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

**Authid**  The Db2 authorization identifier of the active thread.

**Attach**  Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Connection Type**

**Batch**  The MVS jobname and ASID.

**Note**: For threads from remote Db2, the MVS job name is N/A.

**CICS**  The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

- **Pool**  The thread in use is a pool thread.
- **Entry**  The thread in use is a nonprotected entry thread.
- **Prot**  The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.
| **IMS** | The IMS region number, transaction name, region name, and terminal ID (LTERM). |
| **RRSAF** | The MVS job name and ASID.  
*Note:* For threads from remote Db2, the MVS job name is N/A. |
| **System** | The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the *Attach* line identifies the user thread, if any, being served by the system thread. |
| **TSO** | The TSO user ID and region ASID. |
| **Utility** | No additional information. |
| **Db2** | The Db2 subsystem identifier. |
| **MVS** | The MVS system identifier. |
| **ORIGAUTH** | The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid. |

**Package identifier:** This information identifies the package to which the information in this panel applies.

**Package**  
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

**Collection**  
The package collection identifier. This field is displayed only if a package is being used.

**Distributed thread identifier:** The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.

**Type**  
The distributed thread type.

**Distributed Allied**  
A requesting thread; one that has issued an SQL call to a remote DB2 location.

**Database Access**  
A responding thread; one that is serving a remote DB2 location by responding to an SQL call.

**Luwid**  
This value consists of two parts: the logical unit-of-work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:  

\[ \text{luw-id=token} \]

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the *Luwid* field displays data such as the following:  

\text{USCACO01.02D22A.A1FE8E0489D4*8}  

**System**  
The originating DB2 job name and the resource manager that is the source of the thread.
An additional line below the attachment identifier displays the user thread, if any, that is served by the system thread.

**Thread status:** The totals for all of the buffer pools in use by the thread are displayed, followed by the values for each individual buffer pool in use.

**Getpage Requests**
- The number of thread Getpage requests. The value includes conditional, unconditional, successful, and unsuccessful requests. This logical read request might not actually result in physical I/O of the page request currently in the buffer pool.

**Failed Getpage Requests**
- The number of times a conditional Getpage request could not be satisfied. Conditional Getpage, used only with queries being processed in parallel, will not wait for a page that is not currently in the buffer pool.

**Synchronous Read I/O**
- The number of synchronous Read I/O requests issued by the thread.

**Getpage/Read I/O**
- The number of Getpage requests divided by the number of synchronous Read I/Os. This value does not include Prefetch requests, because each prefetch request can return a variable number of pages (from one to 16).

**Page Updates**
- The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2's internal Deferred Write algorithm, not immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative.

**Seq Prefetch Requests**
- The number of Prefetch requests issued by the thread.
  - Unlike normal Read I/O, Sequential Prefetch Read I/O is performed asynchronously with the user's request. It provides a read-ahead capability. A single sequential prefetch I/O results in multiple pages being read. Threads with excessive Sequential Prefetch rates can cause reduced overall DB2 performance.

**List Prefetch Requests**
- The number of List Prefetch requests issued by the thread.

**Dynamic Prefetch Requests**
- The number of Dynamic Prefetch requests made.

**Prefetch Pages Read**
- The number of pages read asynchronously for prefetch.

**Immediate Writes**
- The number of immediate (synchronous) writes to DASD.

**BP Hit Percentage**
- The percentage of Getpage requests issued by the thread for which the data was already in the buffer pool.
Thread Group Buffer Pool Activity:

This panel provides a summary of group buffer pool usage for an individual thread.

This panel is only available in a data sharing environment.

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>Any</td>
<td>Same as other thread detail panels.</td>
</tr>
</tbody>
</table>
Navigation

For additional information about
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

**Thread identifier:** This information identifies the thread to which the information in this panel applies.

**Plan**  The Db2 plan name of the active thread.

**Connid**  The Db2 connection identifier of the active thread.

**Corrid**  The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

**Authid**  The Db2 authorization identifier of the active thread.

**Attach**  Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Connection Type**

**Batch**  The MVS jobname and ASID.

**Note:** For threads from remote Db2, the MVS job name is N/A.

**CICS**  The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

- **Pool**  The thread in use is a pool thread.
- **Entry**  The thread in use is a nonprotected entry thread.
- **Prot**  The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

**IMS**  The IMS region number, transaction name, region name, and terminal ID (LTERM).

**RRSAF**  The MVS job name and ASID.

**Note:** For threads from remote Db2, the MVS job name is N/A.

**System**

The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the **Attach** line identifies the user thread, if any, being served by the system thread.

**TSO**  The TSO user ID and region ASID.

**Utility**  No additional information.

**Db2**  The Db2 subsystem identifier.
MVS  The MVS system identifier.

ORIGAUTH  
The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Package identifier: This information identifies the package to which the information in this panel applies.

Package  
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

Collection  
The package collection identifier. This field is displayed only if a package is being used.

Distributed thread identifier: The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

Type  
The distributed thread type.

Distributed Allied  
A requesting thread; one that has issued an SQL call to a remote Db2 location.

Database Access  
A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

Db2=  
The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

Luwid  
This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format: 

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:

USCAC001.02D22A.A1FE8E9489D4=8

System  
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

Group buffer pool information:

Group Buffer Pool  
The group buffer pool ID.

Reads - Cross-Invalidation: Data Returned  
The number of reads to the group buffer pool required because the page in the member’s buffer pool was invalidated, where the data was found and returned to the member.

Reads - Page Not Found: Data Returned  
The number of reads to the group buffer pool required because the page was not in the member’s buffer pool, where the data was found and returned to the member.
Reads - Cross-Invalidation: Data not in GBP-R/W Int
The number of reads to the group buffer pool required because the page in the member's buffer pool was invalidated, where
- the data was not found in the group buffer pool and the member had to go to DASD to read the page, and
- other members had read/write interest in the pageset, so DB2 created a directory entry for this page if it did not already exist.

Reads - Page Not Found: Data not in GBP-R/W Int
The number of reads to the group buffer pool required because the page was not in the member's buffer pool, where
- the data was not found in the group buffer pool and the member had to go to DASD to read the page, and
- other members had read/write interest in the pageset, so DB2 created a directory entry for this page if it did not already exist.

Reads - Cross-Invalidation: Data not in GBP-No R/W Int
The number of reads to the group buffer pool required because the page in the member's buffer pool was invalidated, where
- the data was not found in the group buffer pool and the member had to go to DASD to read the page, and
- no other member had read/write interest in the pageset, so DB2 did not have to register the page, since another member cannot cause a cross-invalidation by updating a page.

Reads - Page Not Found: Data not in GBP-No R/W Int
The number of reads to the group buffer pool required because the page was not in the member's buffer pool, where
- the data was not found in the group buffer pool and the member had to go to DASD to read the page, and
- no other member had read/write interest in the pageset, so DB2 did not have to register the page, since another member cannot cause a cross-invalidation by updating a page.

Read Hit Percentage
The percentage of all Reads to the group buffer pool for which the needed data was found and returned to the member.

Read-to-Write Percentage
The ratio of reads to writes expressed as a percentage for the group buffer pool.

Changed Pages Written
The number of changed pages written to the group buffer pool. Pages can be forced out before the application commits if a buffer pool threshold is reached, or when P-lock negotiation forces the pages on the vertical Deferred Write queue to be written to the group buffer pool.

Clean Pages Written
The number of clean pages written to the group buffer pool. DB2 writes clean pages for pagesets and partitions defined with GBPCACHE ALL.

Thread Package Summary:
This panel shows a summary of activity that has occurred for all packages/DBRMs that have been executed by this thread.
It provides information collected for Accounting trace classes 7 and 8. If these DB2 traces are not active, this information is not available.

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>Any</td>
<td>Same as other thread detail panels.</td>
</tr>
</tbody>
</table>

Navigation

For additional information about
- a specific package/DBRM, move the cursor to the required line and press F11 (Zoom). For more information, see the description of panel “Package Detail” on page 1003.
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

Fields

**Thread identifier**: This information identifies the thread to which the information in this panel applies.

**Plan**  The Db2 plan name of the active thread.

**Connid**  The Db2 connection identifier of the active thread.

**Corrid**  The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.
Authid
The Db2 authorization identifier of the active thread.

Attach
Depending on the type of connection, the appropriate information is displayed.
Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Connection Type
Batch
The MVS jobname and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

CICS
The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:
- Pool The thread in use is a pool thread.
- Entry The thread in use is a nonprotected entry thread.
- Prot The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

IMS
The IMS region number, transaction name, region name, and terminal ID (LTERM).

RRSAF
The MVS job name and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

System
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

TSO
The TSO user ID and region ASID.

Utility
No additional information.

Db2
The Db2 subsystem identifier.

MVS
The MVS system identifier.

ORIGAUTH
The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Package identifier: This information identifies the package to which the information in this panel applies.

Package
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

Collection
The package collection identifier. This field is displayed only if a package is being used.

Distributed thread identifier: The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.
Type  The distributed thread type.

**Distributed Allied**
A requesting thread; one that has issued an SQL call to a remote DB2 location.

**Database Access**
A responding thread; one that is serving a remote DB2 location by responding to an SQL call.

**Luwig**
This value consists of two parts: the logical unit-of-work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

```
luw-id=token
```

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the *Luwig* field displays data such as the following:

```
USCAC001.02D22A.A1FE8E94B9D4=8
```

**Package list:** For each entry in the package list, the display indicates the location, collection, and package that were bound into the plan.

**Location**
The name of the location where the package was bound. For remote packages, times displayed represent the time spent locally to execute the remote package.

**Collection**
The package collection identifier. This field is displayed only if a package is being used.

**Package**
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

**Package/DBRM information:**

**Program**
Program filtering input field. You can enter a specific package or DBRM that you want to display in the panel. You can use wildcard characters in this field. For example, enter `DSNESM*` to display all packages or DBRMs that begin with DSNESM.

**Package/DBRM**
The name of the program for which data is reported. Up to 18 characters of the package name are returned. An asterisk (*) is displayed after the program name of the last executed program.

**SQL Requests**
The number of SQL statements issued in this package or DBRM.

**Total Elapsed Time**
The total elapsed time while executing in this package or DBRM. This field requires an Accounting trace class 7. If this trace is not active, N/A is displayed.

**Total CPU Time**
The total CPU time used while executing in this package or DBRM. This field requires an Accounting trace class 7. If this trace is not active, N/A is displayed.
Waits  The total number of times that the thread had to wait for a class 8 event to complete while executing in this package or DBRM. This field requires an Accounting trace class 8. If this trace is not active, N/A is displayed.

Total Wait Time  The total time spent waiting for a class 8 event to complete while executing in this package or DBRM. This field requires an Accounting trace class 8. If this trace is not active, N/A is displayed.

Package Detail:

This panel provides detailed information about the activity that has occurred for specific packages/DBRMs that have been executed by a particular thread.

It provides information collected for accounting classes 7 and 8. If these DB2 traces are not active, this information is not available.
Highlighting

The following table shows the fields that might be highlighted in the panel above to indicate that an exception that is related to this field exceeded its threshold value:

Table 95. Highlighted fields in Package Detail panel.

This table shows the fields and the exceptions these fields are related to. It also shows the reason for the corresponding exception.

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>Any</td>
<td>Same as other thread detail panels.</td>
</tr>
<tr>
<td>Current Drain Lock Wait</td>
<td>WDLK</td>
<td>The thread reached drain lock wait threshold.</td>
</tr>
<tr>
<td>Current Drain of Claims Wait</td>
<td>WCLM</td>
<td>The thread reached wait for drain of claims threshold.</td>
</tr>
<tr>
<td>Current Service Task Wait</td>
<td>WSRV</td>
<td>The thread reached DB2 service wait threshold.</td>
</tr>
<tr>
<td>Current Archive Log Mode (Quiesce) Wait</td>
<td>WLGQ</td>
<td>The thread reached ARCHIVE LOG MODE(QUIESCE) wait threshold.</td>
</tr>
<tr>
<td>Current Stored Procedure Schedule Wait</td>
<td>WSPS</td>
<td>The thread reached the wait for stored procedure schedule threshold.</td>
</tr>
<tr>
<td>Current Global Lock Wait</td>
<td>WGLK</td>
<td>The thread reached the global lock wait threshold.</td>
</tr>
</tbody>
</table>

Navigation

To return to the Thread Package Summary panel, press F3.

Fields

**Thread identifier**: This information identifies the thread to which the information in this panel applies.

**Plan**  
The Db2 plan name of the active thread.

**Connid**  
The Db2 connection identifier of the active thread.

**Corrid**  
The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

**Authid**  
The Db2 authorization identifier of the active thread.

**Attach**  
Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Connection Type**

**Batch**  
The MVS jobname and ASID.
Note: For threads from remote Db2, the MVS job name is N/A.

<table>
<thead>
<tr>
<th>CICS</th>
<th>The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pool The thread in use is a pool thread.</td>
</tr>
<tr>
<td></td>
<td>Entry The thread in use is a nonprotected entry thread.</td>
</tr>
<tr>
<td></td>
<td>Prot The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.</td>
</tr>
</tbody>
</table>

| IMS  | The IMS region number, transaction name, region name, and terminal ID (LTERM).             |

| RRSAF | The MVS job name and ASID.                                                               |

Note: For threads from remote Db2, the MVS job name is N/A.

| System | The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread. |

| TSO    | The TSO user ID and region ASID.                                                        |

| Utility | No additional information.                                                               |

| Db2    | The Db2 subsystem identifier.                                                            |
|        | MVS The MVS system identifier.                                                           |

| ORIGAUTH | The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid. |

**Package identifier:** This information identifies the package to which the information in this panel applies.

| Package | The Db2 package name of the active thread. Up to 18 characters of the package name are returned. |

| Collection | The package collection identifier. This field is displayed only if a package is being used. |

**Distributed thread identifier:** The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

<table>
<thead>
<tr>
<th>Type</th>
<th>The distributed thread type.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Distributed Allied</td>
</tr>
<tr>
<td></td>
<td>Database Access</td>
</tr>
<tr>
<td></td>
<td>Db2</td>
</tr>
</tbody>
</table>

A requesting thread; one that has issued an SQL call to a remote Db2 location.

A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

The Db2 subsystem ID, indicating the member of the data sharing group of this thread.
Luwid  This value consists of two parts: the logical unit of work ID (luw-id) and a
token. The token can be used in place of the luw-id in any Db2 command
that accepts luw-id as input. Format:
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME,
and a unique identifier (separated by periods). Thus, the Luwid field
displays data like in the following example:
USCACO01.02D22A.A1FE6E04B9D4=8

System  The originating Db2 job name and the resource manager that is the source
of the thread. An additional line below the Attach line identifies the user
thread, if any, being served by the system thread.

Package information:

Program  The program name for which data is reported. Up to 18 characters of the
package name are returned.

Type  The program type can be:
• PACKAGE
• DBRM
• PACKAGE-STORPROC, which means that the program is a package that
was loaded by a stored procedure.

Location  The name of the location where the package is executed. For remote
packages, times displayed represent the time spent locally to execute the
remote package.

Token  The consistency token.

Collection  The package collection ID. This field is displayed only if the program type
is PACKAGE.

SQL Request Count  The number of SQL statements issued. All DCL, DDL, and DML SQL
statements as well as some Statistic Counters from DSNDQXST are
included. COMMIT and ROLLBACK/ABORT are not included.

In-DB2 Times: In-DB2 times require an Accounting trace class 7. If this trace is not
active, N/A is displayed.

In-DB2 elapsed time  The elapsed time while processing this package or DBRM:
Total  The total time the thread spends processing this package or DBRM.
Current  The total time spent processing the currently active SQL statement.

In-DB2 CPU time  The CPU time spent processing this package or DBRM.
Total  The total time the thread spends processing this package or DBRM.
Current  The total time spent processing the currently active SQL statement.
Waits: Wait times require an Accounting trace class 8. If this trace is not active, N/A is displayed. The following Statistics information is provided for each field described below:

**Count**  The total number of waits.
**Total**  The total wait time.
**Current**  The elapsed time waiting for the current event to complete.

**Synchronous I/O Wait**
Waits for synchronous I/O reads or writes.

**Asynchronous Read I/O Wait**
Waits for Read I/O performed under another thread (for example, list or Sequential Prefetch).

**Asynchronous Write I/O Wait**
Waits for Write I/O performed under another thread (for example, deferred writes).

**Local Lock/Latch Wait**
Waits for locks or latches.

**Page Latch Wait**
Waits for page latch.

**Drain Lock Wait**
Waits to acquire drain lock.

**Drain of Claims Wait**
Waits for claims to be released after acquiring drain lock.

**Global Lock Wait**
Waits for global locks in a data sharing environment.

**Global Parent L-Lock Wait**
Waits for global parent L-locks in a data sharing environment.

**Global Child L-Locks (QWACAWTK QWACARNK)**
Waits because of global contention for child L-locks.

**Global Other L-Locks (QWACAWTM QWACARNM)**
Waits because of global contention for other L-locks.

**Global Pageset/Partition P-Locks (QWACAWTN QWACARNN)**
Waits because of global contention for Pageset/Partition P-locks.

**Global Page P-Locks (QWACAQTO QWACARNO)**
Waits because of global contention for Page P-locks.

**Global Other P-Locks (QWACAQTQ QWACARNQ)**
Waits because of global contention for other P-locks.

**Inter-System Message Send Wait**
Waits for sending messages to other members in the data sharing group.

**DB2 Service Task Wait**
Waits for DB2 services. The following types of DB2 services are included:
- Open/close of data set
- DFHSM recall of a data set
- SYSLGRNG update
- Define/extend/delete of data set
• Commit phase 2 for read only threads.
Starting from DB2 11, waits that are associated with autonomous procedures are also included.

Archive Log Mode(Quiesce) Wait
Wait for ARCHIVE LOG MODE(QUIESCE) command to complete.

Archive Read from Tape Wait
Waits for read of archive log from tape.

Current I/O Wait Resource
If the thread is currently waiting for an I/O to complete, the resource will be identified here.

Parallel Query Sync Wait (QPAC_PQS_WAIT QPAC_PQS_COUNT)
The amount of waits after parallel query processing suspended waiting for parent/child to be synchronized.
This applies to DB2 11 and higher.

LOB Materialization Wait (QPACALBW QPACALBC)
Waits for TCP/IP LOB and XML materialization.

Accelerator Wait (QWACAACW QPACAACC)
The accumulated wait time for requests to an accelerator. DB2 11 and later.

Pipe Wait (QOAC_PIPE_WAIT QPACPIPEWAIT_COUNT)
The accumulated wait time for a pipe while this package is being executed. DB2 12 and later.

Total Class 3 Wait Time
The total class 3 wait time.

Thread Resource Limit Statistics:

This panel shows information about the parameters that control and administer the thread resource limit facility (governor). This DB2 governor facility applies to dynamic SQL calls only.
Highlighting

The following table shows the fields that might be highlighted in the panel above to indicate that an exception that is related to this field exceeded its threshold value:

Table 96. Highlighted fields on Thread Resource Limit Statistics panel

<table>
<thead>
<tr>
<th>Fields</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>ARCM</td>
<td>Backout requires an archive tape log mount.</td>
</tr>
<tr>
<td></td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td></td>
<td>INDB</td>
<td>The thread is indoubt and terminated.</td>
</tr>
<tr>
<td></td>
<td>PREF</td>
<td>The Sequential Prefetch rate is high.</td>
</tr>
<tr>
<td></td>
<td>RIO</td>
<td>The synchronous Read I/O rate is high.</td>
</tr>
<tr>
<td></td>
<td>ETIM</td>
<td>This thread has reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td></td>
<td>PGUP</td>
<td>The rate for system page updates is high.</td>
</tr>
</tbody>
</table>
Table 96. Highlighted fields on Thread Resource Limit Statistics panel (continued)

<table>
<thead>
<tr>
<th>Fields</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Limit High Water Mark (CPU)</td>
<td>RELM</td>
<td>The ratio of CPU consumption to the resource limit indicates a high resource usage.</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

**Thread identifier:** This information identifies the thread to which the information in this panel applies.

**Plan** The Db2 plan name of the active thread.

**Connid**

The Db2 connection identifier of the active thread.

**Corrid** The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

**Authid**

The Db2 authorization identifier of the active thread.

**Attach** Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Connection Type**

**Batch** The MVS jobname and ASID.

*Note:* For threads from remote Db2, the MVS job name is N/A.

**CICS** The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

- **Pool** The thread in use is a pool thread.
- **Entry** The thread in use is a nonprotected entry thread.
- **Prot** The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

**IMS** The IMS region number, transaction name, region name, and terminal ID (LTERM).

**RRSAF** The MVS job name and ASID.

*Note:* For threads from remote Db2, the MVS job name is N/A.

**System** The originating Db2 job name and the resource manager that is the
source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

**TSO**  The TSO user ID and region ASID.

**Utility**  No additional information.

**Db2**  The Db2 subsystem identifier.

**MVS**  The MVS system identifier.

**ORIGAUTH**  The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

**Package identifier:** This information identifies the package to which the information in this panel applies.

**Package**  The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

**Collection**  The package collection identifier. This field is displayed only if a package is being used.

**Distributed thread identifier:** The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.

**Type**  The distributed thread type.

**Distributed Allied**  A requesting thread; one that has issued an SQL call to a remote DB2 location.

**Database Access**  A responding thread; one that is serving a remote DB2 location by responding to an SQL call.

**Luwid**  This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

\[
\text{luw-id}=\text{token}
\]

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:

```
USCAC001.02D22A.A1FE8E04B9D4=8
```

**Resource limit information:**

**Resource Limit Table Name in Use**  The name of the DB2 resource limit specification table (RLST) currently in use by the DB2 subsystem.

**Resource Limit Origin**  The origin of the resource limit in effect for this thread, if resource limiting is active. The origin is determined by the hierarchical precedence order within the resource limit specification table (RLST). The possible origins are:

**Auth/Plan**  Table entry containing matching authid and plan name.
Authid
Table entry containing matching authid, and plan name was blank.

Planname
Table entry containing matching plan name, and authid was blank.

Blank Entry
Table entry containing blank plan name and authid.

Install
No table entry exists; the value in effect was determined from the RLFERR/RLFERRD parameter of the DSNZPARM module.

I/O Error
Resource limit table I/O error; the value in effect was determined from the RLFERR/RLFERRD parameter of the DSNZPARM module.

Sysadm/Sysopr
Table entry is install SYSADM or SYSOPR. No limits apply to these authorization groups.

Auth/Coll/Pkg
Table entry containing matching authid, collection and package.

Auth Any Pkg
Table entry containing matching authid and collection, and blank package.

Auth any Coll
Table entry containing matching authid and package, and blank collection.

Auth Any Pkg/Coll
Table entry containing matching authid and blank collection and package.

Pkg/Coll Any Auth
Table entry containing matching package and collection.

Any Auth/Pkg
Table entry containing matching collection and blank authid and package.

Any Auth/Coll
Table entry containing matching package and blank authid and collection.

Any Auth/Coll/Pkg
Table entry containing blank authid, collection and package.

Resource Limit in Effect (SUs)
The resource limit in MVS service units for the thread. Express® DB2 limits in service units. If the origin is Sysadm/Sysopr or the ASUTIME parameter is NULL, no limits apply.

Resource Limit CPU Time per SU
The number of CPU seconds per service unit. The number of CPU seconds per service unit depends upon the CPU model in use. This is helpful in understanding the actual CPU time allowed by the resource limit specified (in SUs). This value is expressed in seconds.

Resource Limit in Effect (CPU secs)
The resource limit in effect in CPU seconds. This is the actual CPU time allowed, based on the service units limit specified in the DB2 resource limit
table. This value is expressed in seconds. If the origin is Sysadm/Sysopr or the ASUTIME parameter is NULL, no limits apply.

**Resource Limit High Water Mark (CPU)**

The highest CPU time used for a single dynamic request since thread creation. This value is expressed in seconds. This value can be higher than the value of Resource Limit in Effect (CPU secs) because of the logic for checking the high-water mark of the DB2 subsystem. This field will display a high-water mark value even if the thread is not governed by the Resource Limit Facility. (In that case, the Ratio of HWM to Resource Limit will be No Limit.)

**Ratio of HWM to Resource Limit (CPU)**

The ratio/percentage of the CPU high-water mark (HWM) to the CPU resource limit in effect. This value can be higher than 100% because of the logic for checking the high-water mark of the DB2 subsystem.

**Current Parallel Task Summary:**

This panel provides information about the activity of parallel tasks that are executing on behalf of a thread.

Parallel tasks are created when CPU parallelism is selected as the method for processing an SQL query. Internally, parallel tasks are displayed as DB2 system threads.

---

**Navigation**

For more information about

- A particular parallel task, move the cursor to the task information line and press F11 (Zoom). For more information, see the description of panel “Thread Detail” on page 923.
- Exceptions that have tripped, type E.A on the top line of the panel.
- Related topics, select one of the options at the top of the panel.
- Other topics, use the PF keys.
Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.

Attach Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Connection Type

Batch The MVS jobname and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

CICS The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

Pool The thread in use is a pool thread.

Entry The thread in use is a nonprotected entry thread.

Prot The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

IMS The IMS region number, transaction name, region name, and terminal ID (LTERM).

RRSAF The MVS job name and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

System The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

TSO The TSO user ID and region ASID.

Utility No additional information.

Db2 The Db2 subsystem identifier.

MVS The MVS system identifier.

ORIGAUTH The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.
**Package identifier:** This information identifies the package to which the information in this panel applies.

**Package**
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

**Collection**
The package collection identifier. This field is displayed only if a package is being used.

**Elapsed**
The time elapsed since the parallel task was created. When the task’s elapsed time exceeds 24 hours, the format is *dd-hh:mm*.

**CPU Time**
The total central processor CPU time accumulated for the thread. This value includes only MVS TCB time. SRB time is not included.

**Status**
The current DB2 status of the parallel task. For definitions of all possible status values, see "DB2 Thread Status".

**GetPg**
The number of Getpage requests for the parallel task.

Getpage requests are logical Read requests that might not actually result in physical I/O if the requested page is currently in the buffer pool. DB2 resets this count at Create Thread and Signon.

**Read I/O**
The number of synchronous Read I/O requests.

**Prefetch**
The number of Sequential, List, and Dynamic Prefetch requests.

**Waits**
The total number of times that the parallel task had to wait for a class 3 event to complete. If Accounting trace class 3 is not active, N/A is displayed.

**Wait Time**
The total elapsed time that the parallel task had to wait for a class 3 event to complete.

**Utility Detail Information:**

This panel provides detailed information about the activity of an individual utility. The information includes the relative utility statement position, the contents of the currently executing utility statement, and data specific to a particular utility.

For detailed information about a utility that has been started but not completed because of an abnormal termination (status UTIL-STOP on the Utility Summary panel), the "Stopped Utility Detail Information" on page 1018 panel is displayed.
Navigation

For additional information about
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.

Attach Depending on the type of connection, the appropriate information is displayed.

Connection Type

Batch The MVS jobname and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

CICS The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

Pool The thread in use is a pool thread.

Entry The thread in use is a nonprotected entry thread.
Prot  The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

IMS  The IMS region number, transaction name, region name, and terminal ID (LTERM).

RRSAF  The MVS job name and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

System  The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

TSO  The TSO user ID and region ASID.

Utility  No additional information.

Db2  The Db2 subsystem identifier.

MVS  The MVS system identifier.

ORIGAUTH  The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Package identifier: This information identifies the package to which the information in this panel applies.

Package  The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

Collection  The package collection identifier. This field is displayed only if a package is being used.

Utility information:

Utility  The name of the DB2 utility.

UtilID  The identifier that defines the utility to DB2. Each utility that has been started and is not yet terminated must have a unique utility ID.

UserID  The authorization ID of the invoker of the DB2 utility.

Phase  The executing phase of the DB2 utility.

Count  The total number of items (such as records or pages) that have been processed. The type of item depends on the utility and its phase.

Share Level  The share level of the tablespace accessed by utilities. The share level can be exclusive control, share read access, or share write access.

Output data set  The name of the output data set currently in use. If the utility is not MERGECOPY or COPY, this field is not displayed.
Input data set
The name of the input data set currently referenced by the utility. If the utility is not LOAD, this field is not displayed.

Loading data records into table
The name of the table into which the data records are being loaded. If the utility is not LOAD, this field is not displayed.

Current utility statement in SYSIN
The utility statement that is currently in execution.

Utility statement
The contents of the executing utility statement.

Stopped Utility Detail Information:
This panel provides detailed information about a utility that was started but has not yet completed running because of abnormal termination.

The output on the display identifies the stopped utility. Furthermore, the utility name, the utility ID, the last executed utility phase, pages or record count that is processed, utility job name, utility start time, and the current utility statement position in SYSIN are displayed.

In this panel, there are no highlighted fields.

---

**STOPPED UTILITY INFORMATION**

UTST
+ Plan = DSNUTIL Connid = DB2CALL Corrid = BENUTIL Authid = BEN
+ Job Name = BENUTIL Userid = BEN
+ Utility = REORG Utilid = REORGPAUL802
+ Phase = UNLOAD Count = 500000
+ Time Started = 2013-06-11-16:45:26
+ Current Utility Statement in Sysin = 1

---

Navigation
For additional information about
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

Fields

**Thread identifier:** OMEGAMON XE for DB2 PE identifies the thread to which the information in this panel applies.

**Plan** The plan name of the stopped utility. It is always DSNUTIL.

**Connid** The connection identifier of the invoker of the stopped utility.

**Corrid** The correlation identifier of the invoker of the stopped utility.
Authid
The authorization identifier of the invoker of the stopped utility.

Job Name
The job name of the stopped utility.
This applies only to DB2 11 or higher.

UserId
The authorization identifier of the invoker of the stopped utility.

Utility information:
Utility The name of the DB2 utility.
UtilID The identifier that defines the utility to DB2. Each utility that has been started and is not yet terminated must have a unique utility ID.
Phase The executing phase of the DB2 utility.
Count The total number of items (such as records or pages) that have been processed. The type of item depends on the utility and its phase.

Current utility statement in SYSIN
The utility statement position that is currently in execution.

Objects Used By Thread:
This panel shows Getpage and I/O activity for the DB2 objects used by the selected thread.

<table>
<thead>
<tr>
<th>Database</th>
<th>Spacename</th>
<th>Dsn</th>
<th>Volume</th>
<th>Getpage</th>
<th>Sync</th>
<th>Prefetch</th>
<th>I/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2PM</td>
<td>IXRPIEMV</td>
<td>001</td>
<td>BP0</td>
<td>87</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>DB2PM</td>
<td>PROCESS</td>
<td>001</td>
<td>BP0</td>
<td>783</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Navigation
For additional information about
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.
Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.

Attach Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Connection Type

Batch The MVS jobname and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

CICS The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

Pool The thread in use is a pool thread.

Entry The thread in use is a nonprotected entry thread.

Prot The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

IMS The IMS region number, transaction name, region name, and terminal ID (LTERM).

RRSAF The MVS job name and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

System The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

TSO The TSO user ID and region ASID.

Utility No additional information.

Db2 The Db2 subsystem identifier.

MVS The MVS system identifier.

ORIGAUTH The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.
**Package identifier:** This information identifies the package to which the information in this panel applies.

**Package**
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

**Collection**
The package collection identifier. This field is displayed only if a package is being used.

**Object information:**

**Database**
The name of the database for which thread activity has occurred.

**Spacename**
The name of the space for which thread activity has occurred.

**Dsn**
The sequence number of the data set for which thread activity has occurred.

**Volume**
The name of the volume that contains the DB2 object if the thread is performing I/O on that database/space. If OMEGAMON detects that the values for “Sync Read”, “Sequential Prefetch”, “List Prefetch” or “Dynamic Prefetch” are zero, the name of the buffer pool assigned to the object will be displayed instead, indicating the data was available without performing any I/O.

**Getpage**
The number of Getpage requests made by the thread.

**Sync Read**
The number of synchronous reads made by the thread.

**Sequential Prefetch**
The number of Sequential Prefetch Read I/Os made by the thread.

**List Prefetch**
The number of List Prefetch Read I/Os made by the thread.

**Dynamic Prefetch**
The number of Dynamic Prefetch Read I/Os made by the thread.
Cancel Thread:

Use this panel to cancel an individual DB2 thread.

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>Any</td>
<td>Same as other thread detail panels.</td>
</tr>
</tbody>
</table>

Highlighting

The following table shows the field that might be highlighted in the panel above to indicate that an exception that is related to this field exceeded its threshold value:

Table 97. Highlighted fields in Cancel Thread panel.

This table shows the field and the exception this field is related to. It also shows the reason for the exception.

Navigation

For additional information about
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan  The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.
Attach  Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Connection Type**

**Batch**  The MVS jobname and ASID.

*Note:* For threads from remote Db2, the MVS job name is N/A.

**CICS**  The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

- **Pool**  The thread in use is a pool thread.
- **Entry**  The thread in use is a nonprotected entry thread.
- **Prot**  The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

**IMS**  The IMS region number, transaction name, region name, and terminal ID (LTERM).

**RRSAF**  The MVS job name and ASID.

*Note:* For threads from remote Db2, the MVS job name is N/A.

**System**  The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

**TSO**  The TSO user ID and region ASID.

**Utility**  No additional information.

**Db2**  The Db2 subsystem identifier.

**MVS**  The MVS system identifier.

**ORIGAUTH**  The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

**Package identifier:** This information identifies the package to which the information in this panel applies.

**Package**  The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

**Collection**  The package collection identifier. This field is displayed only if a package is being used.

**Distributed thread identifier:** The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

**Type**  The distributed thread type.
Distributed Allied
A requesting thread; one that has issued an SQL call to a remote Db2 location.

Database Access
A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

Db2=
The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

Luwid
This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the LuwId field displays data like in the following example:
USCAC001.02D22A.A1FE8E0489D4=8

System
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

Cancel fields:

CANCEL
The type of cancel command to be performed. You can specify the following values:

TOKEN
The token shown will be used to issue the cancel command:
CANCEL THREAD(token).

LUWID
The luwid shown will be used to issue the cancel command:
CANCEL DDF THREAD(luwid) for all DB2 versions.

Token
The token of the specific thread to be canceled. It is unique for the DB2 subsystem.

Luwid
The logical unit of work identifier of the thread to be canceled. Two or more distributed threads can have the same luwid.

DB2 System Console and Message Traffic:

This panel shows Db2 subsystem console messages and Internal Resource Lock Manager (IRLM) messages. You can also issue Db2 commands from this panel.

Note: If MGSUBSYS=ACTIVE is defined in the OMEGAMON XE for DB2 PE Collector Realtime Customer Options (OMPEOPTS) during configuration and customization, you can view messages when you select the DB2 CONSOLE option on the OMEGAMON Classic Interface Realtime main menu.
This panel might require special authorization before you can enter DB2 commands. Type /PWD on the top line of the panel, enter a valid password when requested, then press Enter. Then follow the instructions to issue DB2 commands.

Navigation

For additional information about

- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

Commands

DCMD

When you type a DB2 command and press Enter, OMEGAMON XE for DB2 PE displays a message that indicates whether the command was issued successfully. (Do not include the subsystem recognition character in the DB2 command. OMEGAMON XE for DB2 PE does this for you automatically.) When OMEGAMON XE for DB2 PE executes DCMD, it comments out the DCMD command to prevent accidental re-execution. To issue another DB2 command, replace the comment character (>) with a hyphen (-) and enter the command as described before.
DCNS10
Displays the last $nn$ DB2 and IRLM messages. In this case, it displays the last 10 messages.

Data Sets Used by Thread:
This panel shows data set I/O activity for the DB2 objects used by the selected thread.

<table>
<thead>
<tr>
<th>Dataset Name</th>
<th>--Synch I/O--</th>
<th>Asynch I/O--</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Delay</td>
<td>Count</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNADH01.10001.A001</td>
<td>1.2</td>
<td>8</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNAGH01.10001.A001</td>
<td>2.5</td>
<td>6</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNDCX01.10001.A001</td>
<td>2.9</td>
<td>71</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNDDH01.10001.A001</td>
<td>1.2</td>
<td>7</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNDFX01.10001.A001</td>
<td>2.0</td>
<td>4</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNFX01.10001.A001</td>
<td>9.9</td>
<td>11</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNPXD01.10001.A001</td>
<td>1.1</td>
<td>11</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNPX03.10001.A001</td>
<td>2.0</td>
<td>8</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNPX01.10001.A001</td>
<td>2.1</td>
<td>23</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNX01.10001.A001</td>
<td>1.2</td>
<td>18</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNY01.10001.A001</td>
<td>131.4</td>
<td>5</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNX01.10001.A001</td>
<td>2.5</td>
<td>4</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNRX01.10001.A001</td>
<td>1.0</td>
<td>9</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNRX01.10001.A001</td>
<td>2.8</td>
<td>7</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSNTF01.10001.A001</td>
<td>1.1</td>
<td>12</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSYTSCL.10001.A001</td>
<td>1.4</td>
<td>10</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSYTSCL.10001.A001</td>
<td>8.0</td>
<td>3</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSYTSCL.10001.A001</td>
<td>2.2</td>
<td>5</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSYTSDB.10001.A001</td>
<td>4.0</td>
<td>15</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSYTSFLD.10001.A001</td>
<td>3.0</td>
<td>2</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSYTSPEN.10001.A001</td>
<td>1.0</td>
<td>2</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSYTSYIN.10001.A001</td>
<td>5.0</td>
<td>5</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSYTSYIN.10001.A001</td>
<td>1.7</td>
<td>29</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSYTSYP.10001.A001</td>
<td>1.5</td>
<td>12</td>
</tr>
<tr>
<td>DSN41.DSNDBC.DSNDB06.DSYTSYSP.10001.A001</td>
<td>1.6</td>
<td>13</td>
</tr>
</tbody>
</table>

Navigation
You can scroll through the information using F7 and F8.

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

**Thread identifier**: This information identifies the thread to which the information in this panel applies.

**Plan** The Db2 plan name of the active thread.

**Connid** The Db2 connection identifier of the active thread.

**Corrid** The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

**Authid** The Db2 authorization identifier of the active thread.

**Attach** Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Connection Type**

- **Batch** The MVS jobname and ASID.
  - **Note:** For threads from remote Db2, the MVS job name is N/A.

- **CICS** The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:
  - **Pool** The thread in use is a pool thread.
  - **Entry** The thread in use is a nonprotected entry thread.
  - **Prot** The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

- **IMS** The IMS region number, transaction name, region name, and terminal ID (LTERM).

- **RRSAF** The MVS job name and ASID.
  - **Note:** For threads from remote Db2, the MVS job name is N/A.

- **System** The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the **Attach** line identifies the user thread, if any, being served by the system thread.

- **TSO** The TSO user ID and region ASID.

- **Utility** No additional information.

- **Db2** The Db2 subsystem identifier.

- **MVS** The MVS system identifier.

- **ORIGAUTH** The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.
**Package identifier:** This information identifies the package to which the information in this panel applies.

**Package**
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

**Collection**
The package collection identifier. This field is displayed only if a package is being used.

**Database**
The name of the database for which thread activity has occurred.

**Spacename**
The name of the table space for which thread activity has occurred.

**Dsn**
The name of the data set for which thread activity has occurred.

**Sync I/O delay**
The average I/O delay (in milliseconds) for synchronous I/O.

**Sync I/O count**
The number of synchronous reads made by the thread.

**Async I/O delay**
The average I/O delay (in milliseconds) for asynchronous I/O.

**Async I/O count**
The number of asynchronous read requests made by the thread.

**Usage with Remote Threads (DSG)**
To retrieve I/O data from remote threads, the following conditions must be met:
- XCF must be active. To activate XCF, update RKD2PAR(OMPEOPTS) and add option XCFMODE=ACTIVE.
- An OMEGAMON XE server must be running on every LPAR in the Data Sharing Group.
- All OMEGAMON XE servers must use the same XCF group name.
- The remote DB2 I/O access must be activated. To activate DB2 remote I/O, update RKD2PAR(OMPEOPTS) and add option DB2REMIO=YES.

The maximum number for retrieving data sets for remote threads is 695. If this number is exceeded, the list of data sets is preceded by a message indicating the total number that is allocated.

**Specify Application Trace:**
Use this panel to specify the trace criteria for the application to be traced and to specify a data set where trace data will be stored so that you can analyze it later.
Navigation

You can scroll through the information using F7 and F8.

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

The fields are described in “Application Trace Facility (ATF)” on page 1341, panel “Specify Application Trace” on page 1343.

Enclave Detail Information:

This panel provides detailed information about the attributes of a thread running under an individual enclave. This information includes the information provided by the PLAN major command. It also provides information provided by the "enc" minor command.
HELP
PF1
Back PF3

> THREAD INFORMATION: Enter a selection letter on the top line.

A-THREAD DETAIL B-LOCK COUNTS C-LOCK WAITS D-LOCKS OWNED E-GLOBAL LOCKS
F-CURRENT SQL G-SQL COUNTS H-DISTRIBUTED I-BUFFER POOL J-GROUP BP
K-PACKAGES L-RES LIMIT M-PARALLEL TASKS N-UTILITY O-OBJECTS
P-CANCEL THREAD Q-DB2 CONSOLE R-DSN ACTIVITY S-APPL TRACE **-ENCLAVE
U-LONG NAMES W-ACCEL ACTIVITY

> ENCLAVE DETAIL INFORMATION

PLAN
+ Thread: Plan=DISTSERV Connid=SERVER Corrid=db2bp.exe Authid=MIS
+ Dist : Type=DATABASE ACCESS, Luwid=G99D84D9.C0BF.CC37C54DF5CD=1765
+ Location : ::FFFF:9.157.132.217

enc
+ Initial Enclave:
  + ENCLAVE TOKEN: 8C0000426C Enclave Type: Original Indep
  + Owning System: PMO4 Owning Job: DA41DIST
  + WLM Mode: Goal Enclave CPU Time 00:00:03.716

+ SERVICE PERIOD INFORMATION
  + Period(s) for Service Class STCCMD: 1
  + Current Period for This Thread: 1
  + Performance Index This Period: .63

  + ----------------------------- Period Number
  + ----------------------------- Importance
  + ----------------------------- Duration in Service Units
  + ----------------------------- Percentile
  + ++ Response Time Goal or Velocity
  + ++ Response Time Unit
  + ++ Goal Description
  + 1 3 .40 Velocity Goal

+ SERVICE CLASS INFORMATION
  + CPU Critical: No Storage Protection: No
  + Name Description
  + ------------------ -------------------------
  + Service Class: STCCMD STC, medium priority
  + Workload: STC STC
  + Resource Group: BATCHVEL Velocity and resptime batch work
  + Report Class:

  + WLM APPLICATION ENVIRONMENT
  + Application Environment Name: NO WLM ENVIRONMENT
  + Description:
  + Subsystem Type:
  + WLM Started Task Procedure Name:
  + Start Parameters:

  + CLASSIFICATION WORK QUALIFIERS
  + Subsystem Type: DDF Correlation: db2bp.exe
  + Proc Name: Trans Program Name:
  + User Id: MIS Transaction Class:
  + Network Id: Logical Unit Name:
  + Plan Name: DISTSERV Package Name: SQLC2FDA
  + Connection: SERVER Collection: NULLID
  + Function Name: DB2_DKDA Subsystem Name: DA41
  + Accounting Info: SQL09013NT Subsystem Parm: mis
  + Perform: Subsystem Priority: N/A
  + Scheduling Env: Subsys Coll Name:
  + Process Name: db2bp.exe

+ Performance Index Input Data for Velocity Goal
+ Total Usings: 538354 Total Delays: 314798

===============================================================================

1030 IBM Db2 Performance Expert on z/OS
The first few lines identify the thread. This information is issued by the PLAN major command. The help panel for the ZTDTL panel contains detailed information about this display. The data displayed by the "enc" minor command is detailed below.

If a remote DB2 is being monitored, enclave information is not available. Message Enclave information not available from remote DB2 is displayed instead of the information following the "enc" minor command.

**Navigation**

You can scroll through the information using F7 and F8.

For additional information about.
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

**Fields**

**Thread identifier:** This information identifies the thread to which the information in this panel applies.

**Plan** The Db2 plan name of the active thread.

**Connid**
The Db2 connection identifier of the active thread.

**Corrid** The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

**Authid**
The Db2 authorization identifier of the active thread.

**Attach** Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Connection Type**

**Batch** The MVS jobname and ASID.

**Note:** For threads from remote Db, the MVS job name is N/A.

**CICS** The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

**Pool** The thread in use is a pool thread.

**Entry** The thread in use is a nonprotected entry thread.

**Prot** The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

**IMS** The IMS region number, transaction name, region name, and terminal ID (LTERM).

**RRSAF**
The MVS job name and ASID.
Note: For threads from remote Db2, the MVS job name is N/A.

System
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

TSO The TSO user ID and region ASID.

Utility No additional information.

Db2 The Db2 subsystem identifier.

MVS The MVS system identifier.

ORIGAUTH The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Package identifier: This information identifies the package to which the information in this panel applies.

Package The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

Collection The package collection identifier. This field is displayed only if a package is being used.

Initial Enclave After applying the DB2 APARs PM12256 and PM28626 and the z/OS APAR OA35146, more than one enclave can be used by DB2 for the same Distributed Thread. The initial enclave is shown.

Enclave Token This is the hexadecimal representation of an 8-byte field. An enclave is an anchor for a transaction that can be spread across multiple dispatchable units in multiple address spaces.

Enclave Type The enclave type describes the condition of an enclave. An enclave can be of one of the following types:

Dependent This enclave is created by IWMECREA. It is a continuation of the transaction for the owning address space.

Original Independent This enclave is created by IWMECREA. It is an independent transaction.

Foreign Independent This enclave is created by IWMIMPT. It is a continuation of an independent enclave on another system.

Foreign Dependent This enclave is created by IWMIMPT. It is a continuation of a dependent enclave on another system.

Inactive Enclave This enclave is currently in an inactive enclave queue because SRM
did not find any work unit that is associated with the enclave. When a work unit joins the enclave, it is moved back to the active queue.

**Currently Promoted**
This enclave is currently promoted due to a chronic resource contention.

**Continuation Independent**
This enclave is a continuation of an independent enclave.

**Owning System**
The originating system for the enclave.

**Owning Job**
The originating jobname for the enclave.

**WLM Mode**

- **Goal** - Workload manager is monitoring and classifying work. It is periodically adjusting dispatching priorities to meet the service policies (Goals) associated with that work.
- **Compatibility** - Workload manager is monitoring and classifying work. However the dispatching priorities are set according to values in IEAIPSxx member of SYS1.PARMLIB.

**Enclave CPU Time**
Total CPU time associated with the Enclave.

**Service period information:** For more information, see “Defining Service Classes and Performance Goals” in z/OS MVS Planning: Workload Management.

**Service Period(s) This Class**
A 1-character number ranging from 1 to 8. This is the number of service periods which have been defined for this service class.

**Current Period for This Thread**
A 1-character number ranging from 1 to 8. This is the current service period definition that is controlling the work.

**Performance Index This Period**
A number computed to two decimal places.

A Performance Index less than one is an indication that the goal for this service class period is being exceeded. The service class period might be considered as a "donor", giving up CPU or pageable storage for other more important service class periods on the system.

A Performance Index greater than one is an indication that the goal for this service class period is not being met. Depending on the importance, this Service class period might be considered for additional services to meet the defined goal.

**Period Number**
A 1-character column ranging from 1 to 8.

**Importance**
A 1-character column ranging from 1 to 5. The importance level 1 is most important. This indicates to WLM how important it is to meet this performance period goal.

**Duration in Service Units**
A numeric column. All defined periods except the last period have a
duration. The duration is expressed in service units so as to be portable among different processor speeds. After the work has used the service units defined for that period, WLM switches to the goals defined in the next period.

**Percentile**
A numeric percentage column. This column is only valid for a percentile response time goal.

**Response Time Goal or Velocity %**
A numeric column. This column is only valid for percentile response time goals, average response time goals or velocity goals. For response time goals, this is the time value. For Velocity goals, this is the acceptable amount of delay for work when work is ready to run.

**Response Time Unit**
A character column. This column contains the time unit that the response time goals are expressed in. Possible values are: blank, Millisecs, Seconds, Minutes and Hours.

**Goal Description**
A character column. This column describes the type of goal set for this service period. Possible values are:
- Percentile response time goal
- Average response time goal
- Velocity goal
- Discretionary goal
- System goal

**Service class information:** For more information, see “Defining Service Classes and Performance Goals” in z/OS MVS Planning: Workload Management.

**CPU Critical**
A Yes or No value indicates whether long term CPU protection is assigned to this class.

**Storage Protection**
A Yes or No value indicates whether long term storage protection is assigned to this class.

**Service Class Name**
An eight character name for a group of work within a workload having similar performance characteristics.

**Service Class Description**
A 32-character field that describes the service class.

**Workload Name**
An 8-character field that contains the name of the workload associated with this service class.

**Workload Description**
A 32-character field that describes the workload associated with this service class.

**Resource Group Name**
An 8-character field that contains the name of the resource group associated with this service class.
Resource Group Description
A 32-character field that describes the resource group associated with this service class.

Report Class Name
An 8-character field that contains the name of the report class associated with this service class.

Report Class Description
A 32-character field that describes the report class associated with this Service Class.

WLM application environment:

Application Environment Name
A 32-character field that contains the name assigned to the environment. This name can be the WLM ENVIRONMENT specified as part of the SQL CREATE PROCEDURE syntax.

Description
A 32-character field that describes the WLM ENVIRONMENT

Subsystem Type
For DB2 threads, this value is always DB2.

WLM Started Task Procedure Name
An 8-character field that contains the name of the server address space in which this enclave is executing.

Start Parameters
A 115-character field that contains any parameters to be passed to the stored procedure.

Classification work qualifiers:

Subsystem Type
The primary qualifier used to classify work on the system. Examples are JES, ASCH, OMVS, STC, TSO, and DDF.

Correlation
A name associated with the user/program creating the work request.

Proc Name
An 18-character field that contains the DB2 stored SQL procedure name associated with the work request.

Trans Program Name
An 8-character field that contains the transaction name for the work request, as known by the work manager.

Userld
An 8-character field that contains the User ID associated with the work request.

Transaction Class
An 8-character field that contains a class name within a subsystem. This can be any meaningful value that the installation can recognize and specify to match the value presented by the work manager.

Network ID
An 8-character field that contains the network identifier associated with the requestor.
Logical Unit Name
An 8-character field that contains the local LU name associated with the requestor.

Plan Name
An 8-character field that contains the DB2 plan name associated with the requestor.

Package Name
An 8-character field that contains the DB2 package name associated with the requestor.

Connection
An 8-character field that contains the connection type associated with the requestor.

Collection
An 18-character field that contains the collection name associated with the requestor.

Function Name
An 8-character field that contains the function name associated with the requestor.

Subsystem Name
An 8-character field that contains the subsystem name associated with the requestor.

Accounting Info
The first sixteen characters passed as accounting information on the batch jobcard.

Subsystem Parm
The first sixteen characters passed as a subsystem parameter. This is site defined information.

Perform
An eight-character field that contains the performance group number (PGN) associated with the request. The number can be 1 - 999.

Subsystem Priority
An numeric field that contains the priority associated with the request.

Scheduling Env
A 16-character field that contains the scheduling environment associated with the work request.

Subsys Coll Name
An 8-character field that contains the subsystem collection name associated with the request. A subsystem collection is a named group of related subsystem address spaces.

Process Name
A 32-character field that contains the process name associated with the work request.

Performance index input data: Depending on the type of performance goal for the current period, Certain input numbers are used to compute the performance index.

Velocity Goal
Total Usings (U) - This is a sum of the number of times the work for the service class period is allowed to use WLM managed resources.
Total Delays (D) - This is a sum of the number of times the work for the service class period is delayed for lack of WLM managed resources.

The formula for Actual Velocity (V) is:
\[ V = \frac{U}{U + D} \]

Compute Performance Index (PI) using the goal velocity (G)
\[ PI = \frac{G}{V} \]

**Average Response Time Goal**
Completed Trans (C) - This is a count of all completed transactions that have run for this Service Class Period.

Total Elapsed Seconds (T) - This is a sum of the time used to complete the transactions which have run for this Service Class Period.

Average Response Time (A) - \[ A = \frac{T}{C} \]

Compute Performance Index (PI) using the Goal Response Time (G) - \[ PI = \frac{A}{G} \]

**Percentile Response Time Goal**
Percentile Performance Index is found by examining the distribution of response times in the percentage array (PA).

Total Transactions (TT) - \[ TT = \text{Sum}(PA) \]

Compute Goal (G) Using the Goal Percentile (GP) - \[ G = TT \times GP \]

Sum the array again, until you reach or surpass the Goal (G). The corresponding percentage is the Performance Index (PI) to two decimal places.

**Long Names:**

This panel shows the long names for the connection ID and the package name of a selected thread.

With this information, you can uniquely identify the individual owners of the various threads.

On the display, the first few lines of output identify the thread. This information is issued by using the PLAN major command.

By using the *lnam* minor command, the information on the following panel is displayed.
Navigation

You can scroll through the information using F7 and F8.

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.
Fields

Collection ID
The name of the collection ID.

Package name
The name of the package.

End User ID
The name of the end user.

End User TXID
The transaction name of the end user.

End User WS Name
The workstation name of the end user.

Trusted Context
The name of the trusted context.

Role Name
The name of the role that is associated to the author ID.

Original Appl ID
The authorization ID.

Original OPID
The original operator ID.

Authorization ID
Original application user ID.

Correlation Token
The correlation token.

Account Location
The DB2 LOCATION name of the DB2 system that creates the QMDAINFO values if QMDALOCN is truncated.

Account Information
The maximum length of this field is 200 bytes. You can specify this suffix for the accounting string.

Account String
The extended accounting string area.
- If QMDAASTR is defined by QMDAINFO, this area contains all the remaining bytes beyond position 142 for QMDAACCT.
- If QMDAASTR is defined by QMDASQLI, this area contains all the remaining bytes beyond position 200 for QMDASUFX.
- Otherwise, this area contains all bytes beyond position 247.
Thread Accelerator Detail:

This panel formats Accelerator activity for the selected thread.

---

**Navigation**

For additional information about
- a particular thread, move the cursor to the thread information line and press F11 (Zoom).
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

**Fields**

**Number of Accelerators accessed**

The number of Accelerators that are utilized by this thread. This is followed by a list of information for each Accelerator.

**Name** The name of the Accelerator.

**CPU Times**

The CPU time that is consumed within the Accelerator device.

**Elapsed Times**

---
TCP/IP Services
The total elapsed time from the time DB2 started processing requests until the requests are complete.

Accelerator
The total elapsed time that the thread is processed on the Accelerator. The Accelerator time is a subset of the TCP/IP time.

Accumulated Wait
The total wait time within the Accelerator.

Connects
The number of times the DB2 thread connected to the Accelerator.

Requests
The number of requests this thread made to the Accelerator.

Timeouts
The number of requests that failed due to a timeout while waiting for the Accelerator.

Failures
The total number of failed Accelerator requests. This number includes any timeout errors.

The following fields are related to data transfer between DB2 and the Accelerator.

Bytes Sent
The count of bytes of data that is sent to the Accelerator.

Bytes Received
The count of bytes of data that is received from the Accelerator.

Messages Sent
The count of messages that are sent to the Accelerator.

Messages Received
The count of messages that are received from the Accelerator.

Blocks Sent
The count of blocks that are sent to the Accelerator.

Blocks Received
The count of blocks that are received from the Accelerator.

Rows Sent
The count of data rows that are sent to the Accelerator.

Rows Received
The count of data rows that are received from the Accelerator.

TSO Thread Summary
This panel provides an overview of the activity of all foreground TSO threads connected to DB2.

Each row provides information about an individual thread, including information about thread response time, DB2 and MVS resource consumption, and DB2 activity.
Highlighting

The following table shows the fields that might be highlighted in the panel above to indicate that an exception that is related to this field exceeded its threshold value:

Table 98. Highlighted fields in TSO Thread Summary panel. This table shows the fields and the exceptions these fields are related to. It also shows the reason for the corresponding exception.

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed</td>
<td>ETIM</td>
<td>This thread has reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td>CPU</td>
<td>TCPU</td>
<td>The thread address space has excessive CPU utilization.</td>
</tr>
<tr>
<td>GetPg</td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td>Update</td>
<td>PGUP</td>
<td>The rate for system page updates is high.</td>
</tr>
<tr>
<td>Commit</td>
<td>COMT</td>
<td>The number of updates since the last successful commit is high.</td>
</tr>
</tbody>
</table>

Navigation

For additional information about

* a particular thread, move the cursor to the thread information line and press F11 (Zoom).
* A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.
* related topics, select one of the options on the top of the panel.
* other topics, use the PF keys.
Fields

Elapsed
The elapsed time since thread creation, or since DB2 signon if the thread is reused. When the elapsed time of the thread exceeds 24 hours, the format is dd-hh:mm.

If this thread is involved in parallel processing or if it invoked autonomous procedures, one of the following identifiers is displayed after the elapsed time:

* This thread is a parallel task that is initiated on behalf of another (originating) thread to process a query request in parallel.
O This thread is the originating thread that invoked autonomous procedures.
P This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity performed for this (originating) thread is reflected under the parallel tasks.
X This thread is a parallel task that is initiated on behalf of another (originating) thread on another DB2 for sysplex parallelism.

Planname or Package
The DB2 plan name (or package name) of the active thread. If you selected option T from the Realtime Main Menu, this panel shows the information by plan. If you selected option U, this panel shows the information by package.

CPU (if monitoring a local DB2 subsystem or a data sharing group with XCF component activated for remote CPU)
The CPU rate (percent) that is associated with the thread. Database access threads run in MVS SRB mode. The displayed rate is SRB time (no TCB time).

DB2 (if monitoring a data sharing group or remote DB2 subsystem while XCF component is not activated for remote CPU)
The DB2 subsystem name of the data sharing group member that is currently monitored.

You can use the Tab key to move to a detail line and to select this detail line for drill down.

Status
The current DB2 status of the thread. For definitions of all possible status values, see “DB2 Thread Status”.

GetPg
The number of thread Getpage requests.

This logical read request might not actually result in physical I/O if the requested page is currently in the buffer pool.

Update
The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2's internal Deferred Write algorithm, not...
immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative.

**Commit**

The number of times the thread successfully completed commit processing.

If a QMF thread user exits from a query panel to other than the home panel, tablespace locks defined with DEALLOCATE(COMMIT) will be retained until Commit is effected. This is also true of SPUFI users who do not specify AUTOCOMMIT, or who specify DEFER on completion of a transaction.

**Userid**

The TSO user ID of the active thread user.

**CICS Thread Summary**

This panel provides an overview of DB2 thread activity that is originating from connected CICS regions.

It provides information about the activity of each CICS region attached to DB2. It also presents information about individual CICS threads that are active in DB2. The display lines are ordered by thread elapsed time (total time since thread creation or reuse) and include information about the DB2 activity.

If monitoring a single remote DB2, the CICA command cannot display the information in this panel. The message Remote DB2 is not supported for this command is displayed.

---

### CICS Thread Summary

<table>
<thead>
<tr>
<th>CICA</th>
<th>CICS Thread Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ CICS</td>
<td>Total DB2 Pct. of Active Commit RO Commit</td>
</tr>
<tr>
<td>+ RELS Jobname</td>
<td>CPU</td>
</tr>
<tr>
<td>+ -----</td>
<td>-----</td>
</tr>
<tr>
<td>+ 6.8.0 CICSP042</td>
<td>31.3%</td>
</tr>
</tbody>
</table>

---

### Highlighting

The following table shows the fields that might be highlighted in the panel above to indicate that an exception that is related to this field exceeded its threshold value:
Table 99. Highlighted fields on CICS Thread Summary panel

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jobname</td>
<td>ENTO</td>
<td>The number of transactions defined as ENTRY threads, overflowed, and waiting for POOL threads is high.</td>
</tr>
<tr>
<td></td>
<td>ENTU</td>
<td>The percentage of available ENTRY threads is low.</td>
</tr>
<tr>
<td></td>
<td>ENTW</td>
<td>The number of transactions waiting for ENTRY threads is high.</td>
</tr>
<tr>
<td></td>
<td>POLU</td>
<td>The percentage of available POOL threads is low.</td>
</tr>
<tr>
<td></td>
<td>POLW</td>
<td>The number of transactions waiting for POOL threads is high.</td>
</tr>
<tr>
<td>Total CPU</td>
<td>TCPU</td>
<td>The address space has excessive CPU utilization.</td>
</tr>
<tr>
<td>DB2 CPU</td>
<td>TCPU</td>
<td>The address space has excessive CPU utilization.</td>
</tr>
<tr>
<td>Pct. of THRDMAX</td>
<td>CICT</td>
<td>The number of threads active has reached the threshold percentage of the THRDMAX value.</td>
</tr>
<tr>
<td>Elapsed</td>
<td>ETIM</td>
<td>This thread has reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td>GetPg</td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td>Update</td>
<td>PGUP</td>
<td>The rate for system page updates is high.</td>
</tr>
<tr>
<td>Commit</td>
<td>COMT</td>
<td>The ratio of Commits to Updates indicates a low Commit frequency.</td>
</tr>
</tbody>
</table>

Navigation

For additional information about:

- Which exceptions have tripped, type E.C to find out details.
- The resource control table (RCT) for a specific CICS region, move the cursor to a CICS job name and press F11 (Zoom).
- A particular thread, move the cursor to the thread information line and press F11 (Zoom).
- A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.
- Related topics, select one of the options on the top of the panel.
- Other topics, use the PF keys.

Fields

CICS connection information:

CICS RELS

The CICS release of the connected CICS region:

- 6.4.0 For CICS Transaction Server 3.1
- 6.5.0 For CICS Transaction Server 3.2
- 6.6.0 For CICS Transaction Server 4.1
- 6.7.0 For CICS Transaction Server 4.2
- 6.8.0 For CICS Transaction Server 5.1
- 6.9.0 For CICS Transaction Server 5.2
Jobname
The job name of the connected CICS region.
For remote threads, this fields displays the correlation ID up to 8 characters.

Total CPU
The total CPU rate (percent) of the CICS region connected to DB2. This includes both TCB and SRB time. For more information about CPU use, see "Analyzing DB2 CPU Usage".

Note: The following fields do not include data of parallel task threads that is initiated by another thread that is originating from the CICS connection:
- Total CPU
- DB2 CPU
- Pct. of THRDMAX
- Active Threads

DB2 CPU
The total CPU rate (percent) that is attributable to active threads originating from the CICS connection. This value is a subset of the total CICS region CPU utilization. For more information about CPU use, see "Analyzing DB2 CPU Usage".

Pct. of THRDMAX
The percentage of THRDMAX (CICS maximum threads) that the current threads have reached.

Active Threads
The number of active threads originating from the CICS connection. This value includes outstanding Create Thread requests not yet satisfied by DB2. This value excludes threads originating from the CICS connection that are waiting for reuse.

Commit Rate/Sec
The number of DB2 Commits per second originating from the CICS connection.

The Commit rate is computed by determining the number of commits that occurred since the previous OMEGAMON cycle divided by the elapsed time since the previous cycle.

RO Commit Rate/Sec
The number of DB2 read-only Commits per second originating from the CICS connection.

This rate is computed by determining the number of read-only Commits that occurred since the previous OMEGAMON cycle divided by the elapsed time since the previous cycle.

Note: The following fields do not include data of parallel task threads that is initiated by another thread that is originating from the CICS connection:
- Total CPU
- DB2 CPU
- Pct. of THRDMAX
- Active Threads

CICS thread information:
Elapsed
The elapsed time since thread creation, or since DB2 signon if the thread is reused. When the elapsed time of the thread exceeds 24 hours, the format is *dd-hh:mm*.

If this thread is involved in parallel processing or if it invoked autonomous procedures, one of the following identifiers is displayed after the elapsed time:

- **T**  This thread is a parallel task that is initiated on behalf of another (originating) thread to process a query request in parallel.
- **O**  This thread is the originating thread that invoked autonomous procedures.
- **P**  This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity performed for this (originating) thread is reflected under the parallel tasks.
- **X**  This thread is a parallel task that is initiated on behalf of another (originating) thread on another DB2 for sysplex parallelism.

Plannname
The DB2 plan name of the active thread.

Tran  The CICS transaction identifier active in the thread.

CPU (if monitoring a DB2 subsystem or a data sharing group member)
The CPU rate (percent) attributable to the thread.

For more information about CPU use, see "Analyzing DB2 CPU Usage".

DB2 (if monitoring a data sharing group or remote DB2 subsystem while XCF component is not activated for remote CPU)
The DB2 subsystem name of the data sharing group member that is currently monitored.

You can use the Tab key to move to a detail line and to select this detail line for drill down.

Status  The current DB2 status of the thread. For definitions of all possible status values, see "DB2 Thread Status".

GetPg  The number of thread Getpage requests. This logical read request might not actually result in physical I/O if the requested page is currently in the buffer pool.

Update  The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2’s internal Deferred Write algorithm, not immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative.

Commit  The number of times the thread successfully completed Commit processing.
Jobname | Corrid
You can customize this field by using the OMPEOPTS option CICSCORR. It shows one of the following field names:

**Jobname**
The jobname of the connected CICS region (by default).
For remote threads, this field shows the correlation ID up to 8 characters.

**Corrid**
The correlation ID of the CICS thread if OMPEOPTS member in RKD2PAR has the following setting: CICSCORR=YES.

**CICS RCT Summary**:
This panel provides summary information about the CICS-DB2 connection, as defined in the CICS resource control table (RCT), for the attached CICS region job name.

---

**Navigation**

For additional information about:
- **How to limit the RCT entries displayed:**
  - To display all CICS DB2ENTRYs starting with VX, enter DB2ENTRY=VX* which shows VX01, VX05, VXAA, VXZ, and so on.
  - To display all plan names with any character in the third position, enter PLANNAME=YZ?PLAN which shows YZAPLAN, YZ2PLAN, YZQPLAN, and so on.
• An RCT entry definition, move the cursor to one of the lines under DB2ENTRY and press F11 (Zoom). By default, all RCT entries for the region are displayed. For more information, see the description of panel “CICS RCT Detail” on page 1051.

• Other topics, use the PF keys.

Fields

CICS  The CICS job name. If you enter a different job name, the corresponding RCT summary information is displayed.

RELEASE
Identifies the internal release number of the CICS system:

6.4.0  For CICS Transaction Server 3.1
6.5.0  For CICS Transaction Server 3.2
6.6.0  For CICS Transaction Server 4.1
6.7.0  For CICS Transaction Server 4.2
6.8.0  For CICS Transaction Server 5.1
6.9.0  For CICS Transaction Server 5.2

DB2CONN Name
The RCT name in use by the CICS jobname.

Statistics Dest (SHDDEST)
The transient data destination used for the shutdown statistics when the attachment facility is stopped.

Error MSG Dest 1, 2, or 3 (ERRDEST)
The identifier of the DFHDCT destination for unsolicited error messages. As many as three destination IDs can be assigned.

Attachment Standby Mode
The attachment standby mode for this CICS region. Possible values are: STANDBY, CEX2STRT, CEX2TERM, DB2MAINT, MSBACTIV, RESYNC, or N/A.

CICS Auth Name (SIGNID)
The authorization ID used when the attachment connects to DB2.

THRD Purge Time Interval
Specifies the length of the protected thread purge cycle in the format: MINUTES : SECONDS.

Tasks on Ready Queue
The number of tasks that are on ready queue (waiting to be scheduled).

Maximum Threads (THRDMAX)
The maximum number of threads that can be created between CICS and DB2 within this RCT.

HWM Tasks on Ready Queue
The high-water mark (HWM) of tasks on ready queue.

Active MVS Subtasks
The number of MVS subtasks that are active.

Number of Free Connections
The number of free connections available.
HWM Active MVS Subtasks
The high-water mark (HWM) of MVS subtasks that are active.

Thread Error Action
The action that will be taken when thread is in error condition. Possible values: ABEND, N906D, N906, or N/A.

Connect Error Action
The action that will be taken when connection is failed. Possible values ABEND, SQLCODE, or N/A.

Thread Reuse Limit
The REUSELIMIT parameter specifies the maximum number of times a thread can be reused before it is terminated. This limit applies to all DB2 threads whether they are protected or unprotected. CICS42 and above.

Total Threads in POOL/ENT
Total threads in POOL and DB2ENTRYs. CICS52 and above.

DB2ENTRY
The identifier of a classification of transactions within this CICS job. When there are multiple transactions with the same RCT definition, this field will display the ID of the first transaction.

PLANNAME
The name of the specific plan for which you want to display statistical information. Use this field to reduce the number of lines displayed at the bottom of the panel.

The following fields are displayed for each command, entry, and pool RCT definition that exists within the resource control table.

DB2ENTRY
The identifier of a classification of transactions within this CICS job. When there are multiple transactions with the same RCT definition, this field displays the ID of the first transaction.

Calls
The number of DB2 calls generated by transactions that share an RCT definition since the attach facility was started.

Waits
The number of DB2 waits experienced by transactions that share an RCT definition since the attach facility was started.

Aborts
The number of aborts experienced by transactions that share an RCT definition since the attach facility was started.

THRDA
The maximum number of active threads for this RCT entry.

THRDS
The number of MVS TCBs that will be attached (for use by the RCT definition) to the transactions when the attach facility is started.

TCB Time
The CPU time (in seconds) used by transactions originating from this RCT definition. This time represents CP time only and does not include zIIP time.

REUSE
The number of times CICS transactions using DB2ENTRY were able to reuse an already created DB2 thread.
CICS RCT Detail:

This panel provides information about the CICS resource control table (RCT) entry definition selected from the CICS RCT Summary panel.

The output includes RCT entry parameters in use, thread information, and miscellaneous statistics.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS</td>
<td>CICSP042 (Release 6.8.0)</td>
</tr>
<tr>
<td>TXID</td>
<td>N044</td>
</tr>
<tr>
<td>Plan Name (PLAN)</td>
<td>NPGM044</td>
</tr>
<tr>
<td>DPMODE</td>
<td>High</td>
</tr>
<tr>
<td>PLNEXIT</td>
<td>N/A</td>
</tr>
<tr>
<td>UserID</td>
<td>Yes</td>
</tr>
<tr>
<td>TWAIT</td>
<td>Yes</td>
</tr>
<tr>
<td>THRDS</td>
<td>5</td>
</tr>
<tr>
<td>THRDA</td>
<td>5</td>
</tr>
<tr>
<td>TXID AUTHID</td>
<td>N044ENT</td>
</tr>
<tr>
<td>N044ENT Plan Name</td>
<td>N044</td>
</tr>
</tbody>
</table>

Navigation

For additional information about other topics, use the PF keys.

Fields

CICS The CICS job name and the release number of the CICS system.

<table>
<thead>
<tr>
<th>Version</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.4.0</td>
<td>For CICS Transaction Server 3.1</td>
</tr>
<tr>
<td>6.5.0</td>
<td>For CICS Transaction Server 3.2</td>
</tr>
<tr>
<td>6.6.0</td>
<td>For CICS Transaction Server 4.1</td>
</tr>
<tr>
<td>6.7.0</td>
<td>For CICS Transaction Server 4.2</td>
</tr>
<tr>
<td>6.8.0</td>
<td>For CICS Transaction Server 5.1</td>
</tr>
<tr>
<td>6.9.0</td>
<td>For CICS Transaction Server 5.2</td>
</tr>
</tbody>
</table>

Transaction ID (TXID)
The transaction IDs of all CICS transactions that are defined in the RCT entry definition being viewed.

DB2ENTRY Name
The identifier of the transaction or transaction group being viewed.

Plan Name (PLAN)
The name of the plan assigned to the transactions.
Thread TCB Prty (DPMODE)
The MVS dispatching priority of thread TCBs relative to the CICS main TCB. Possible values: High or Low.

Plan Alloc Exit (PLNEXIT)
The name of the exit program that can dynamically allocate the planname for the transaction ID when the first SQL call is issued.

Rollbck on Deadlok (ROLBE)
Determine whether CICS issues a syncpoint rollback when the transaction experiences an Internal Resource Lock Manager (IRLM)-detected deadlock or timeout.

Yes  CICS will roll back all DB2 work and all CICS-protected resources to the last syncpoint.
No   CICS will roll back only the incomplete SQL call that was involved in the deadlock/timeout.

Thread Wait (TWAIT)
The action to take if no thread is available to execute a DB2-CICS transaction.

Pool  If all threads are in use, DB2 places this transaction in the pool; if all pool threads are in use, DB2 places this transaction in a queue.
Yes  If all threads are in use, the transaction waits until a thread is available.
No   If all threads are in use, the transaction abends.

DB2 Accounting Reason
The reason for DB2 Accounting. DB2 accounting is done by one of the following:

UOW  Account for each unit of work (UOW)
TASK Account for each task
TXID  Account for each Transaction ID change
NONE  No accounting

AUTHID
The authorization identifier if used by transaction(s).

Thread Limit (THRDA)
The maximum number of active threads for this RCT entry.

Prot Thread Limit (THRDS)
The number of MVS TCBs that will be attached (for use by the RCT definition) to the transactions when the attach facility is started.

Authorization Opt. (AUTH)
The type of authorization ID required to execute the DB2 plan for transactions that are originating from the RCT definition.

Group
The group

OPID  A sign-on operator ID
SignID  A sign-on ID
Term  The terminal ID
TxID  The transaction ID
Userid
The user's sign-on ID
xxxxxx  A character string
*  Indicates a null value

Statistics information:

Count of Calls
The number of DB2 calls generated by the transactions since the CICS-DB2
attach was started.

Current Free TCBs
The number of currently free task control blocks (TCBs) to be reconnected
with threads.

Count of Commits
The number of Commits completed since the attach facility was started.

Current Active TCBs
The number of currently active threads.

Count of Authorizations
The number of times authorization has been invoked for the threads
defined to the transactions.

Current Total TCB Time
The CP time (in seconds) used by currently active threads. This time
represents CP time only and does not include zIIP time.

Count of Aborts
The number of aborts experienced by the transactions since the attach
facility was started.

Current Active Threads
The number of transactions that are currently active in DB2 or are waiting
for a thread (TWAIT=YES).

Count of RO Commits
The number of read-only Commits since the attach facility was started.

Highwater Active Thread
The high-water mark of active threads.

Count of Waits/Ovflw Pool
The number of transactions that are waiting for a thread, or that have
overflowed into the pool.

Current Waits/Ovflw Pool
The number of times that all available threads for the entry were busy, and
the transaction had to wait or be diverted to the pool. This condition
depends on the setting of the Thread Wait (TWAIT) field.

Count of Tasks
The total number of tasks using this DB2ENTRY.

Current Protected Thread
The currently protected thread count.
Count of Partial SignOns
The total count of signons.

Highwater Protected Thread
The high-water mark of protected threads.

Count of Thread Terminates
The number of times a thread terminated.

Current ReadyQue Thread
The number of threads waiting to be executed.

Count of Thread Creates
The number of times a thread is created.

Highwater ReadyQue Thread
High-water mark of threads waiting to be executed.

Count of Thread Reuse
The number of times CICS transactions using the DB2ENTRY were able to reuse an already created DB2 thread.

Current User Request
The total count of user requests.

Count of Thread Limit Hits
The number of times the thread reuse limit is hit.

Highwater User Request
High-water mark of user requests.

**IMS Thread Summary**
This panel provides an overview of DB2 thread activity originating from connected IMS subsystems.

It provides information about a connection level about all IMS subsystems identified to DB2. This panel also presents information about individual IMS threads (such as thread elapsed time, DB2 and MVS resource consumption, and DB2 activity).
**Highlighting**

The following table shows the fields that might be highlighted in the panel above to indicate that an exception that is related to this field exceeded its threshold value:

*Table 100. Highlighted fields in IMS Thread Summary panel.*

This table shows the fields and the exceptions these fields are related to. It also shows the reason for the corresponding exception.

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed</td>
<td>ETIM</td>
<td>This thread has reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td>CPU</td>
<td>TCPU</td>
<td>The thread address space has excessive CPU utilization.</td>
</tr>
<tr>
<td>GetPg</td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td>Update</td>
<td>PGUP</td>
<td>The rate for system page updates is high.</td>
</tr>
<tr>
<td>Commit</td>
<td>COMT</td>
<td>The ratio of Commits to Updates indicates a low Commit frequency.</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about

- the IMS connection, move the cursor to the IMS ID line and press F11 (Zoom). For more information, see the description of panel “IMS Connection Detail Information” on page 1057.
- a particular thread, move the cursor to the thread line and press F11 (Zoom).
- A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.

**Fields**

IMS connection information:
IMS ID
The name of the IMS subsystem connected to DB2. If the IMS subsystem is DL/I batch, OMEGAMON XE for DB2 PE displays the characters DLIBATCH.

CPU%
The total CPU rate (percent) of IMS regions within the IMS subsystem that have active threads to DB2.

This value excludes data of parallel task threads that are initiated by another thread that is originating from the IMS connection.

For more information about CPU use, see "Analyzing DB2 CPU Usage."

Connection
The total number of regions from the IMS subsystem connected to DB2 (dependent and control).

Threads
The total number of threads connected from the IMS subsystem.

This value excludes data of parallel task threads that are initiated by another thread that is originating from the IMS connection.

IMS thread information:

Elapsed
The elapsed time since thread creation, or since DB2 signon if the thread is reused. When the elapsed time of the thread exceeds 24 hours, the format is dd-hh:mm.

If this thread is involved in parallel processing or if it invoked autonomous procedures, one of the following identifiers is displayed after the elapsed time:

* This thread is a parallel task that is initiated on behalf of another (originating) thread to process a query request in parallel.

O This thread is the originating thread that invoked autonomous procedures.

P This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity performed for this (originating) thread is reflected under the parallel tasks.

X This thread is a parallel task that is initiated on behalf of another (originating) thread on another DB2 for sysplex parallelism.

Because SQL calls might be interspersed with IMS DLI calls and other activity, this wall clock time value need not solely reflect DB2 processing.

Planname or Package
The DB2 plan name (or package name) of the active thread. If you selected option T from the Realtime Main Menu, this panel shows the information by plan. If you selected option U, this panel shows the information by package.

Jobid
The name of the dependent or control region in which the thread is active.

For remote DB2 subsystems, the correlation ID is displayed instead of the name of the dependent or control region.
CPU (if monitoring a DB2 subsystem or data sharing group member)

The current CPU rate (percent) of the IMS region in which the thread is active.

This might include non-DB2 TCB activity. For more information about CPU use, see "Analyzing DB2 CPU Usage".

DB2 (if monitoring a data sharing group or remote DB2 subsystem while XCF component is not activated for remote CPU)

The DB2 subsystem name of the data sharing group member that is currently monitored.

You can use the Tab key to move to a detail line and to select this detail line for drill down.

Status

The current DB2 status of the thread. For definitions of all possible status values, see "DB2 Thread Status".

GetPg

The number of thread Getpage requests. This logical read request might not actually result in physical I/O if the requested page is currently in the buffer pool.

Update

The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2's internal Deferred Write algorithm, not immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative.

Commit

The number of times the thread successfully completed commit processing. If MODE is MULT is specified on the IMS TRANSACT macro which defines the transaction or a WFI region is used, multiple messages might be processed before a commit point is reached, and page locks and DEALLOCATE(COMMIT) tablespace and SKCT locks are released.

Connid

The DB2 connection identifier of the active thread. The connection ID is the same as the IMS ID. It is used to relate an individual thread to the IMS system specified by the IMS ID under IMS Connection Information above.

IMS Connection Detail Information:

This panel provides information about the IMS control region and all dependent regions active with DB2, including the IMS region type, the program name active in the region, the contents of the subsystem member (SSM) and the status of the dependent region.

This panel does not apply to DLIBATCH jobs.
Navigation

For additional information about
• the thread, move the cursor to the dependent region name and press F11 (Zoom).
• other topics, use the PF keys.

Fields

Region
The name of the IMS control or dependent region.

Type
The IMS region type:
- BMP  Message-driven batch region
- CNTL Control region
- FP   Fast Path region
- MPP  Message processing region

Crc
The command recognition character used to pass commands to the external subsystem.

Lit
The name of the language interface token.

Rtt
The name of the resource translation table. This table maps the IMS application names to DB2 plan names. If this entry is omitted, the DB2 plan name is the IMS application program name.

Module
The name of the interface control module

Err
The type of error option specification in use.

Psb
The PSB name active in the IMS dependent region. This field applies only to dependent regions (not to the control region).

Status
The current DB2 status of the thread. For definitions of all possible status values, see [DB2 Thread Status]

Background Thread Summary
This panel provides an overview of the activity of all background threads connected to DB2.
The top part of the panel summarizes all background jobs currently connected to DB2. The bottom part of the panel summarizes the activity of each background thread (ordered by elapsed time since thread creation or reuse).

**Highlighting**

The following table shows the fields that might be highlighted in the panel above to indicate that an exception that is related to this field exceeded its threshold value:

*Table 101. Highlighted fields in Background Thread Summary panel.*

This table shows the fields and the exceptions these fields are related to. It also shows the reason for the corresponding exception.

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed</td>
<td>ETIM</td>
<td>This thread has reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td>CPU</td>
<td>TCPU</td>
<td>The thread address space has excessive CPU utilization.</td>
</tr>
<tr>
<td>GetPg</td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td>Update</td>
<td>PGUP</td>
<td>The rate for system page updates is high.</td>
</tr>
<tr>
<td>Commit</td>
<td>COMT</td>
<td>The ratio of Commits to Updates indicates a low Commit frequency.</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about

- summary information about individual threads that originated from a particular background job, place the cursor to the line that contains that job and press F11 (Zoom).
The information might not be displayed if individual threads do not work the address space of the background job, for example, if threads work inside of a DB2 address space.

- detail information about a particular thread, place the cursor to the line that contains that thread and press F1 (Zoom).
- A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

**Background connection information:**

**Job Name**

The name of the background job connected to DB2.

**CPU %**

The total CPU usage rate (percent) of background jobs that have active threads to DB2. For more information, see “Analyzing DB2 CPU Usage”.

**Connection**

The number of connections to DB2 that originated from this background thread.

**Active Threads**

The number of active threads that originated from the background connection.

This value excludes parallel task threads that are initiated by another thread that is originating from the background connection.

**Background thread information:**

**Elapsed**

The elapsed time since thread creation, or since DB2 signon if the thread is reused. When the elapsed time of the thread exceeds 24 hours, the format is *dd-hh:mm*.

If this thread is involved in parallel processing or if it invoked autonomous procedures, one of the following identifiers is displayed after the elapsed time:

* This thread is a parallel task that is initiated on behalf of another (originating) thread to process a query request in parallel.

O This thread is the originating thread that invoked autonomous procedures.

P This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity performed for this (originating) thread is reflected under the parallel tasks.

X This thread is a parallel task that is initiated on behalf of another (originating) thread on another DB2 for sysplex parallelism.

**Planname**

or
Package
The DB2 plan name (or package name) of the active thread. If you selected option T from the Realtime Main Menu, this panel shows the information by plan. If you selected option U, this panel shows the information by package.

CPU (if monitoring a DB2 subsystem or a data sharing group member)
The current CPU rate (percent) of the batch or utility region from which the active thread originates. This includes both TCB and SRB time.

DB2 (if monitoring a data sharing group or remote DB2 subsystem while XCF component is not activated for remote CPU)
The DB2 subsystem name of the data sharing group member that is currently monitored.

You can use the Tab key to move to a detail line and to select this detail line for drill down.

Status
The current DB2 status of the thread. For definitions of all possible status values, see "DB2 Thread Status".

GetPg
The number of thread Getpage requests.

Getpage requests are logical Read requests that might not actually result in physical I/O if the requested page is currently in the buffer pool. DB2 resets this count at thread creation and signon.

Update
The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2's internal Deferred Write algorithm, not immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative.

Commit
The number of times the thread successfully completed Commit processing.

DB2 resets the Commit count at thread creation and signon. If Signon is not driven, the count is cumulative.

Jobname
The name of the connected batch job or utility.

For remote DB2 subsystems, the correlation ID is displayed instead of the job name.

Distributed Allied Thread Summary
This panel is one of two summary displays that provide performance information related to Distributed Data Facility (DDF) thread activity. Use this information to identify excessive resource use by distributed allied threads (those used to issue SQL requests to a remote DB2 location).
Navigation

For additional information about
• a particular thread, move the cursor to the required line and press F11 (Zoom).
• A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Plannname or Package

The DB2 plan name of the active thread. If you selected option T from the Realtime Main Menu, this panel shows the information by plan. If you selected option U, this panel shows the information by package.

If a thread accesses multiple remote locations, it will generate a line of output for each location.

If this thread is involved in parallel processing or if it invoked autonomous procedures, one of the following identifiers is displayed after the elapsed time:

* This thread is a parallel task that is initiated on behalf of another (originating) thread to process a query request in parallel.
O This thread is the originating thread that invoked autonomous procedures.
P This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity performed for this (originating) thread is reflected under the parallel tasks.
X This thread is a parallel task that is initiated on behalf of another (originating) thread on another DB2 for sysplex parallelism.

Status The current DB2 status of the thread. For definitions of all possible status values, see "DB2 Thread Status"
Remote Luname
The VTAM logical unit name of the remote DB2 subsystem to which the thread has issued an SQL request.

Cv
The number of VTAM APPC allocate conversation requests that have been issued to the remote DB2 subsystem since thread creation (or DB2 signon if the thread is reused).

SQL Sent
The number of SQL calls sent to the remote location since thread creation or DB2 signon.

Dist Local Elapsed
The total time the thread has spent waiting for responses to remote SQL requests since thread creation or DB2 signon (includes remote DB2 processing time, VTAM processing time, and network time).

Remote CPU
The CPU time in seconds that has been used in processing the thread's SQL requests at the remote location since thread creation or DB2 signon.

This field applies only to system directed access (private protocols). If application directed access (DRDA protocols) is used, this field will be 0.

For DB2 10 and above, N/A is displayed.

Distributed Database Access Thread Summary
This panel is one of two summary displays that provide performance information related to Distributed Data Facility (DDF) activity. Use this information to identify excessive resource use by distributed database access threads (server threads responding to SQL requests from a remote DB2 location).

<table>
<thead>
<tr>
<th>THDR</th>
<th>ZDBACT</th>
<th>VTM</th>
<th>O2</th>
<th>V540/.I</th>
<th>SE11</th>
<th>S 07/10/13 16:05:06 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Help PF1</td>
<td>Back PF3</td>
<td>Up PF7</td>
<td>Down PF8</td>
<td>Sort PF10</td>
<td>Zoom PF11</td>
<td></td>
</tr>
<tr>
<td>&gt; T.G</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thread Activity: Enter a selection letter on the top line.

| > A-All-Idle | B-TSO | C-CICS | D-IMS | E-Background | F-Dist Allied |
| > x-Dist DBAC | H-Util | I-Inact | J-Filter | K-Functions | L-StorePro |
| > M-Triggers | N-Sysplex | O-Enclaves | P-Worksta | Q-All+Idle |

Distributed Database Access Thread Summary

<table>
<thead>
<tr>
<th>Elapsed</th>
<th>WrkSta or Pln/Ath</th>
<th>CPU Status</th>
<th>Remote LuName</th>
<th>GetPg</th>
<th>SQL Rows</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ 01:35:04</td>
<td>MyWorkstationName-</td>
<td>08.5% IN-SQL-CALL</td>
<td>G542</td>
<td>55355K</td>
<td>8</td>
</tr>
<tr>
<td>+ 01:34:17</td>
<td>IBM-67119346851</td>
<td>00.0% WAIT-REMREQ</td>
<td>K305</td>
<td>3551</td>
<td>1183</td>
</tr>
</tbody>
</table>

Navigation
For additional information about

- a particular thread, move the cursor to the thread line and press F11 (Zoom).
- A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.
Fields

Elapsed
The elapsed time since thread creation, or since DB2 signon if the thread is reused. When the elapsed time of the thread exceeds 24 hours, the format is dd-hh:mm.

If this thread is involved in parallel processing or if it invoked autonomous procedures, one of the following identifiers is displayed after the elapsed time:

* This thread is a parallel task that is initiated on behalf of another (originating) thread to process a query request in parallel.

O This thread is the originating thread that invoked autonomous procedures.

P This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity performed for this (originating) thread is reflected under the parallel tasks.

X This thread is a parallel task that is initiated on behalf of another (originating) thread on another DB2 for sysplex parallelism.

WrkSta or Pln/Ath or Pkg/Ath
One of following information is displayed:

WrkSta
The name of the workstation, if it is set by the application.

Pln/Ath or Pkg/Ath
The DB2 plan (Pln) or package (Pkg) name of the active thread, if an optional USERMOD is applied to your system. (see member rhilev.TKANSAM(KQ2MOD02). This USERMOD can control whether the workstation name is displayed on the summary screen. The plan or package name is followed by a slash (/) and the DB2 thread authorization identifier (Ath) of the active thread.

CPU (if monitoring a local DB2 subsystem or a data sharing group with XCF component activated for remote CPU)
The CPU rate (percent) that is associated with the thread. Database access threads run in MVS SRB mode. The displayed rate is SRB time (no TCB time).

DB2 (if monitoring a data sharing group or remote DB2 subsystem while XCF component is not activated for remote CPU)
The DB2 subsystem name of the data sharing group member that is currently monitored.

You can use the Tab key to move to a detail line and to select this detail line for drill down.

Status The current DB2 status of the thread. For definitions of all possible status values, see "DB2 Thread Status".

Remote Luname
The VTAM logical unit name of the requesting DB2 subsystem whose SQL request is being serviced by the thread.

GetPg The number of Getpage requests issued by the thread since thread creation.
SQL Recv

The number of SQL calls received from the requesting location since thread creation.

Rows Sent

The number of rows sent to the requesting location since thread creation.

Utility Summary

This panel provides information about all active utilities and utilities that have been started but have not yet completed because of abnormal termination.

If monitoring a remote DB2, this utility is not supported. The message UTIL Remote DB2 is not supported for this command is displayed.

<table>
<thead>
<tr>
<th>Utility Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Elapsed</td>
</tr>
<tr>
<td>+ 00:01:05.8</td>
</tr>
<tr>
<td>+ 00:00:48.8</td>
</tr>
</tbody>
</table>

Each row provides information about an individual utility (information such as thread elapsed time, utility phase, and record count).

Highlighting

OMEGAMON XE for DB2 PE highlights the following fields when any of the exceptions described below tripped in this cycle:

**Table 102. Highlighted fields in Utility Summary panel**

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed</td>
<td>ETIM</td>
<td>This thread has reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td>CPU</td>
<td>TCPU</td>
<td>This thread address space has excessive CPU utilization.</td>
</tr>
<tr>
<td>Status</td>
<td>UTIS</td>
<td>This utility has been started but has not completed running due to abnormal termination.</td>
</tr>
</tbody>
</table>

Navigation

For additional information about
- a particular DB2 utility, move the cursor to the utility information line and press F11 (Zoom). The "Utility Detail Information" panel is displayed (or the "Stopped Utility Detail Information" panel for utilities whose status is UTIL-STOP).
- A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see "Switching among DB2 subsystems and data sharing group members" on page 891.
- related topics, select one of the options on the top of the panel.

**Fields**

**Elapsed**

The elapsed time since thread creation, or since DB2 signon if the thread is reused. When the elapsed time of the thread exceeds 24 hours, the format is *dd-hh:mm*.

If this thread is involved in parallel processing or if it invoked autonomous procedures, one of the following identifiers is displayed after the elapsed time:

* This thread is a parallel task that is initiated on behalf of another (originating) thread to process a query request in parallel.

O This thread is the originating thread that invoked autonomous procedures.

P This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity performed for this (originating) thread is reflected under the parallel tasks.

X This thread is a parallel task that is initiated on behalf of another (originating) thread on another DB2 for sysplex parallelism.

When status field displays UTIL-STOP, this field is N/A (not applicable).

**Utility** The name of the DB2 utility.

**Utilid** The identifier that defines the utility to DB2. Each utility that has been started and is not yet terminated must have a unique utility ID.

**Phase** The executing phase of the DB2 utility. If the utility is stopped, you must specify this phase when you restart it.

**Count** The total number of items (such as records or pages) that have been processed. The type of item depends on the utility and its phase.

**Status** The status of the DB2 utility. The status is UTIL-STOP if the DB2 utility has been started but has not yet completed running because of abnormal termination. For more information, refer to "DB2 Thread Status".

**CPU** The current CPU rate of the DB2 utility job. When status field displays UTIL-STOP, this field is not applicable.

**Inactive Threads**

This panel shows information about inactive threads. The information is collected from a DB2 display thread command.

A distributed thread is accessing a remote site on behalf of a request from another location. The thread is currently an inactive connection (type 2 inactive thread). It is waiting for an agent to become available.
Each row displays information about an individual inactive thread. The columns are ordered by location name initially.

<table>
<thead>
<tr>
<th>Location</th>
<th>Authid</th>
<th>Corrid</th>
<th>Plan</th>
<th>Token</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZINU VTM 02 V540./C SZ11 G 08/31/13 13:40:59 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thread Activity: Enter a selection letter on the top line.

A-All-Idle B-TSO C-CICS D-IMS E-Background F-Dist Allied
G-Dist DBAC H-Util I-Inact J-Filter K-Functions L-Stored Proc
M-Triggers N-Sysplex O-Enclaves P-Worksta Q-All+Idle

Navigation

For additional information about a different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see "Switching among DB2 subsystems and data sharing group members" on page 891.

other types of threads, select one of the options at the top of the panel.
other other topics, use the PF keys.

Fields

Location

The network address of the remote location. This value might be blank.

If the connection with the requester is through SNA, this field contains the relational database name of the requester or the VTAM LU name of the requester, a dash (-) delimiter, and the LU name of the requester.
If the connection with the requester is through TCP/IP, this field contains the IP address of the requester.

**Authid**
The authorization identifier that is associated with a signed-on connection.

**Corrid**
The correlation identifier.

If the application requester is a DB2 system, this is the same correlation ID assigned at the requestor.

If the application requester is not DB2, this is the name of the job, task, or process that is being serviced.

**Plan**
The plan name that is associated with the thread. For distributed database access threads, this field contains one of the following values:

- **DISTSERV**
  For threads that use application-directed access from a non-DB2 requester, a plan name is not identified.

**requester-value**
For threads that use system-directed access or application-directed access from a DB2 requester, this value is the plan name that is being executed at the requesting location.

**Token**
The thread token that is assigned to the thread.

**LUW ID**
The output is in the format of text=num

- **text**
The global logical unit of work ID (LUWID).

- **num**
The local token that identifies the thread. This token can be used in place of the LUWID in any DB2 command that accepts LUWID as input.

**Member**
The data sharing group member name for this DB2 subsystem. For DB2 subsystems that do not belong to a data sharing group, N/P is displayed.

**Connection Name**
The connection name that is used to establish the thread. For distributed database access threads, this field contains the following information:

**requester-value**
For threads that access the server from a DB2 for z/OS requester, this value is the connection name of the thread at the requesting location.

**SERVER**
For threads that access the server from a non-DB2 for z/OS requester, a connection name is not identified.

**blank**
For threads where the originating task is running on the same DB2 subsystem, this value is blank.

**End User ID**
The user ID of the end user.

**Workstation ID**
The name of the workstation.

**Transaction ID**
The name of the client application.
Correlation TKN
The correlation token consists of the following components:

- **ip-address**
  The length of the IP address can be from 3 to 39 characters.

- **port-address**
  The length of the port address can be from 1 to 8 characters.

- **unique-id**
  The length of the unique ID is 12 characters.

Accounting Text
The client end-user accounting information. This information is provided if the appropriate information is provided by the client system and if DB2 recognizes the format of the information.

Filter Options For Thread Activity Displays
Use this panel to save filter criteria to a specified profile, to activate a different profile, or to specify filter criteria that you want to use in the thread activity panels for the remainder of the session. You can use these filtering options together with the thread commands. If more than one parameter is specified, the requests are connected using a logical AND operator. To specify a reset, type character R in column 1 in front of THFL.

**Note:** You cannot use filtering criteria for the Utility panel (option: H-UTILITY).

To view this panel select option J on a thread activity panel such as "Threads Summary Excluding Idle Threads" on page 921. The content of this panel is identical to panel "Filter Options For Thread Activity Displays" on page 1514.
Thread Activity: Enter a selection letter on the top line.

Filter Options For Thread Activity Displays

To save filters in the user profile remove the > from the PPRF command and optionally add a 2 character profile suffix. Use IPRF for install profile

To change profiles remove the > from the CPRF command and enter the 2 character suffix. Use CPFI to switch to installation profile

A-All-Idle B-TSO C-CICS D-IMS E-Background F-Dist Allied
G-Dist DBAC H-Util I-Inact *-Filter K-Functions L-Stored Proc
M-Triggers N-Sysplex O-Enclaves P-Worksta Q-All+Idle

To specify the values to be used as filtering criteria for Thread Activity displays. Wildcard values * (multiple characters) or +? (single character) may be specified for character values.

SHORTCUT TO SPECIFY FILTER CRITERIA ON THREAD ACTIVITY PANELS

If you already know the available filter criteria, you can bypass the Filter Options panel and enter the criteria directly on any thread activity panel. The following example shows a partial Threads Summary Excluding Idle Threads panel. The criteria (here: PLAN=KO2PLAN) is entered on the “command line” following the (panel-specific) identifier THDA. To remove the criteria, overtype them with space characters and press Enter.

Note the status information about filtering and the profile in use.
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Note: For details about operators and wildcard characters use online help F1 (Help). Most fields are only applicable for active threads.

The following fields enable OMEGAMON XE for DB2 PE to send filters to DB2 as well as to apply “post-filtering” of data returned from DB2. These filters can improve the performance in your environment.

The following fields provide filtering within DB2:

PLAN  The DB2 plan name of the active thread. You can specify up to 8 characters.

AUTHID

The DB2 thread authorization identifier of the active thread. You can specify up to 8 characters.

CONNID

The DB2 connection identifier of the active thread. You can specify up to 8 characters.

LOCATION

The name of the location requesting information. You can specify up to 16 characters. The field will either filter on the requesting location (QW01488L, for example, for distributed database access threads), or the DB2 location (QW01488L) if the requesting location field is not filled by DB2.

PARENTACE

The agent control element (ACE) token. Specify the parent ACE for the parallel task. You can specify up to 8 digits. A value of 0 filters out child parallel tasks from the Thread Activity displays.
CORRID
The correlation identifier. You can specify up to 12 characters. If the application requestor is a DB2 system, this is the same correlation ID assigned at the requestor. If the application requestor is not DB2, this is the name of the job, task, or process that is being serviced.

Note: This field is case sensitive. It is not converted to uppercase.

ENDUSERID
The end user’s work station user ID. You can specify up to 16 characters. This can be different from the authorization ID used to connect to DB2. It contains blanks if the client does not supply this information.

Note: This field is case sensitive. It is not converted to uppercase.

WORKSTATION
The workstation identifier. You can specify up to 18 characters. It contains blanks if the client does not supply this information.

Note: This field is case sensitive. It is not converted to uppercase.

TRANSACTIONID
The name of the transaction or application that the end user is running. It identifies the application that is currently running, not the product that is used to run the application. You can specify up to 32 characters. This field contains blanks if the client does not supply this information.

Note: This field is case sensitive. It is not converted to uppercase.

The following fields enable filtering of the data returned from DB2 and are applied by OMEGAMON XE for DB2 PE:

PACKAGE/DBRM
The DB2 package name or DBRM name of the active thread. You can specify up to 8 characters.

COLLECTION
The package collection identifier of the active thread. You can specify up to 18 characters.

DB2STAT
The DB2 status. You can specify up to 12 characters. For definitions of all possible status values, see "DB2 Thread Status".

GETPAGES
The number of Getpage requests issued by the active thread since thread creation. You can specify up to 9 digits.

UPDATES
The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2’s internal Deferred Write algorithm, not immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative. This file is applicable for active threads only. You can specify up to 9 digits.
COMMTS
The number of times the thread successfully completed commit processing.
DB2 resets the commit count at thread create and signon. If signon is not
driven, the count is cumulative. You can specify up to 9 digits.

ELAPTIME
The elapsed time since thread creation. You can specify up to 9 digits.

ELAPTIME/COMMIT
Average elapsed time between commits. If the number of commits is zero
this field is the same as ELAPTIME. You can specify up to 9 digits.

DB2TIME
The total In-DB2 elapsed time in seconds for an active thread. You can
specify up to 9 digits.

DB2TIME/COMMIT
Average In-DB2 elapsed time between commits. If the number of commits
is zero this field is the same as DB2TIME. You can specify up to 9 digits.

PROCESSING-IN-DB2
Values YES, NO or blank.

YES Only threads that are in a status that is active in DB2 are shown. If
a thread is executing in the application it is not shown. The
following thread statuses are processing in DB2:
• IN-DB2
• IN-TRIGGER
• IN-COMMAND
• IN-STOR-PROC
• IN-USER-FUNC
• IN-TERM-THRD
• WAIT-LOCK
• WAIT-GLBLOCK
• WAIT-MSGSENQ
• WAIT-ARCHIVE
• WAIT-REMSQL
• WAIT-CONVLRM
• WAIT-TERM-TH
• WAIT-SP-STOP
• WAIT-SP-SCHD
• SP/UDF-INACT
• WAIT-SYNC-IO
• WAIT-SERVICE
• WAIT-ASYNCRD
• WAIT-ASYNCWR
• WAIT-LOGQSCE
• WAIT-PGLATCH
• WAIT-DRNLLOCK
• WAIT-CLAIMER
• WAIT-ARCREAD
• WAIT-LOCKPIP
• WAIT-LOCKPQS
• WAIT-SWITCH
• WAIT-ACCEL
• WAIT-LOB
• WAIT-COMMIT
• WAIT-CL3LOCK
• IN-SQL-SORT
- IN-SQL-CALL
- WAIT-REMREQ
- IN-BIND-DYNM
- IN-ACCEL
- IN-AUTO-PROC

**NO** Only threads that are not in an active status in DB2 are shown.

**Blank** This filter is not used.

Threads accelerated by the IBM Db2 Analytics Accelerator for z/OS are considered as being processed in DB2.

**THREADLIM**

A numeric value causing OMEGAMON XE for DB2 PE to stop retrieving instrumentation records from DB2. This field can have a positive impact on realtime and system performance, but can also result in an incomplete thread list if it is less than the number of threads actually running in DB2 at the time the list is retrieved. The default setting (blank or 0) allows all records retrieved by DB2 to flow to OMEGAMON XE for DB2 PE. You can specify up to 9 digits.

**Functions Thread Summary**

This panel provides information about threads that are executing user-defined functions.

Each row provides information about an individual thread, including information about jobname, ASID, CPU utilization, number of connections and number of threads.

```
<table>
<thead>
<tr>
<th></th>
<th>ZRRSAT</th>
<th>VTM</th>
<th>02</th>
<th>V540./C</th>
<th>SN12 S</th>
<th>07/25/13 10:37:59 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Help</td>
<td>PF1</td>
<td>Back</td>
<td>PF3</td>
<td>Up</td>
<td>PF7</td>
<td>Down PF8</td>
</tr>
<tr>
<td>T.K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thread</td>
<td>Activity: Enter a selection letter on the top line.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>-----</td>
<td>----</td>
<td>---------</td>
<td>--------</td>
<td>---------------------</td>
</tr>
<tr>
<td>A-All-Idle</td>
<td>B-TSO</td>
<td>C-CICS</td>
<td>D-IMS</td>
<td>E-Background</td>
<td>F-Dist Allied</td>
<td></td>
</tr>
<tr>
<td>G-Dist DBAC</td>
<td>H-Util</td>
<td>I-Inact</td>
<td>J-Filter</td>
<td>-<em>Functions</em></td>
<td>L-Stored Proc</td>
<td></td>
</tr>
<tr>
<td>M-Triggers</td>
<td>N-Sysplex</td>
<td>O-Enclaves</td>
<td>P-Worksta</td>
<td>Q-All+Idle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RRSA</td>
<td>Functions Thread Summary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>Job Name</td>
<td>ASID</td>
<td>CPU%</td>
<td>Connection</td>
<td>Threads</td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>--------</td>
<td>----</td>
<td>----</td>
<td>----------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>SN11STP1</td>
<td>0118</td>
<td>00.8</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>THDY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>Elapsed</td>
<td>Planname</td>
<td>Schema</td>
<td>Function</td>
<td>CPU</td>
<td>ASID</td>
</tr>
<tr>
<td>+</td>
<td>00:01:58.3</td>
<td>TDKUFUN</td>
<td>DMSYSWLD</td>
<td>FUN1</td>
<td>00.3%</td>
<td>0118</td>
</tr>
<tr>
<td>+</td>
<td>00:01:32.0</td>
<td>TDKUFUN</td>
<td>DMSYSWLD</td>
<td>FUN1</td>
<td>00.2%</td>
<td>0118</td>
</tr>
</tbody>
</table>
```

**Highlighting**

The following table shows the fields that might be highlighted in the panel above to indicate that an exception exceeded its threshold value.

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed</td>
<td>ETIM</td>
<td>This thread has reached Elapsed Time threshold value.</td>
</tr>
</tbody>
</table>
Table 103. Highlighted fields in the Functions Thread Summary panel (continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>TCPU</td>
<td>The thread address space has excessive CPU utilization.</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about

- A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

**Fields**

**Job Name**

The name of the WLM stored procedure address space.

**ASID**

The address space identifier of the WLM stored procedure address space.

**CPU%**

The percentage of CPU time utilized.

**Connection**

The number of connections.

**Threads**

The number of threads.

**Elapsed**

The elapsed time since the function thread was created or reused.

**Planname or Package**

The DB2 plan name (or package name) of the active thread. If you selected option T from the Realtime Main Menu, this panel shows the information by plan. If you selected option U, this panel shows the information by package.

**Schema**

The schema name of the user-defined function.

**Function**

The name of the user-defined function.

**CPU**

This field is displayed if you are monitoring a DB2 subsystem or a data sharing member.

The CPU rate in percent that is attributable to the user-defined function thread.

For more information about CPU use, see "Analyzing DB2 CPU Usage".

**DB2**

This field is displayed if you are monitoring a data sharing group.

The name of the DB2 subsystem that is currently monitored.

**ASID**

The ASID of the WLM stored procedure address space in which the user-defined function is executing.
CORRID

The correlation ID of the user-defined function.

**Stored Procedures Thread Summary**

This panel provides information about threads that are executing stored procedures.

Each row provides information about an individual thread, including information about jobname, ASID, CPU utilization, number of connections and number of threads.

**Note:** To display WLM address spaces, the OMEGAMON XE for DB2 PE started task must have been given Read access authority in the RACF profile MVSADMIN.WLM.POLICY for the general resource class FACILITY. If the OMEGAMON XE for DB2 PE started task has a user ID associated with it, use that user ID instead of the started task name. The following RACF commands show an example:

```
PERMIT MVSADMIN.WLM.POLICY CLASS(FACILITY) ID(user_id) ACCESS(READ)
SETROPTS RACLIST(FACILITY) REFRESH
ALTUSER user_id OMVS(UID(0))
```

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed</td>
<td>ETIM</td>
<td>This thread has reached Elapsed Time threshold value.</td>
</tr>
<tr>
<td>CPU</td>
<td>TCPU</td>
<td>The thread address space has excessive CPU utilization.</td>
</tr>
</tbody>
</table>

**Highlighting**

The following table shows the fields that might be highlighted in the panel above to indicate that an exception exceeded its threshold value.

**Table 104. Highlighted fields in the Stored Procedures Thread Summary panel**

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed</td>
<td>ETIM</td>
<td>This thread has reached Elapsed Time threshold value.</td>
</tr>
<tr>
<td>CPU</td>
<td>TCPU</td>
<td>The thread address space has excessive CPU utilization.</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about

- A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost
row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.

- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

Fields

**Job Name**
The name of the job executing the stored procedure.

**ASID**
The address space identifier of the stored procedure.

**CPU%**
The percentage of CPU time utilized.

**Connection**
The number of connections.

**Threads**
The number of threads.

**Elapsed**
The elapsed time since the stored procedure was executed.

**Plannname or Package**
The DB2 plan name (or package name) of the active thread. If you selected option T from the Realtime Main Menu, this panel shows the information by plan. If you selected option U, this panel shows the information by package.

**Schema**
The schema name of the stored procedure.

**Store Proc Name**
The name of the stored procedure.

**CPU**
This field is displayed if you are monitoring a DB2 subsystem or a data sharing member.
The CPU rate in percent that is attributable to the user-defined function thread.

For more information about CPU use, see "Analyzing DB2 CPU Usage".

**DB2**
This field is displayed if you are monitoring a data sharing group.
The name of the DB2 subsystem that is currently monitored.

**ASID**
The ASID of the stored procedure address space.

**CORRID**
The correlation ID of the job running the stored procedure.

**Triggers Thread Summary**
This panel provides an overview of the activity of all threads that are currently connected to DB2 and that are running a trigger. Each row of the display relates to an individual trigger thread.
Navigation

For additional information about

- A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

Fields

Trigger Name
The name of the job executing the trigger.

In DB2 Elapsed
The total In-DB2 elapsed time in seconds for the triggers.

In DB2 CPU
The total In-DB2 CPU time in seconds for the trigger.

SQL Requests
The number of SQL statements issued in the trigger.

Waits
The total number of times that the thread had to wait for a class 8 event to complete while executing the trigger. This field requires an Accounting trace class 8. If this trace is not active, N/A is displayed.

In DB2 Wait Time
The total time that the thread waited.

Plannname

or

Package
The DB2 plan name (or package name) of the active thread. If you selected option T from the Realtime Main Menu, this panel shows the information by plan. If you selected option U, this panel shows the information by package.

Jobname
The name of the job that is executing the trigger.

For remote DB2 subsystems, the correlation ID is displayed instead of the job name.
Sysplex Parallel Thread Summary
This panel shows an overview of the activity of all parallel tasks with an originating thread on another DB2 in the data sharing group.

Each row provides information about an individual thread, including information about thread response time, DB2 and MVS resource consumption, and DB2 activity.

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed</td>
<td>ETIM</td>
<td>This thread has reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td>CPU</td>
<td>TCPU</td>
<td>The thread address space has excessive CPU utilization.</td>
</tr>
<tr>
<td>GetPg</td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td>Update</td>
<td>PGUP</td>
<td>The rate for system page updates is high.</td>
</tr>
<tr>
<td>Commit</td>
<td>COMT</td>
<td>The number of updates since the last successful commit is high.</td>
</tr>
</tbody>
</table>
Navigation

For additional information about
• a particular thread, move the cursor to the thread information line and press F11 (Zoom).
• A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

Elapsed
The elapsed time since thread creation, or since DB2 signon if the thread is reused. When the elapsed time of the thread exceeds 24 hours, the format is dd-hh:mm.

If this thread is involved in parallel processing or if it invoked autonomous procedures, one of the following identifiers is displayed after the elapsed time:

* This thread is a parallel task that is initiated on behalf of another (originating) thread to process a query request in parallel.

O This thread is the originating thread that invoked autonomous procedures.

P This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity performed for this (originating) thread is reflected under the parallel tasks.

X This thread is a parallel task that is initiated on behalf of another (originating) thread on another DB2 for sysplex parallelism.

Plannname
or Package
The DB2 plan name (or package name) of the active thread. If you selected option T from the Realtime Main Menu, this panel shows the information by plan. If you selected option U, this panel shows the information by package.

CPU (if monitoring a DB2 subsystem or a data sharing group member)
The current CPU rate (percent) of the TSO address space from which the thread originates. This includes both TCB and SRB time. For more information about CPU use, see “Analyzing DB2 CPU Usage”

DB2 (if monitoring a data sharing group or remote DB2 subsystem while XCF component is not activated for remote CPU)
The DB2 subsystem name of the data sharing group member that is currently monitored.

You can use the Tab key to move to a detail line and to select this detail line for drill down.

Status The current DB2 status of the thread. For definitions of all possible status values, see “DB2 Thread Status”
**GetPg**  The number of thread Getpage requests.

This logical read request might not actually result in physical I/O if the requested page is currently in the buffer pool.

**Update**

The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2’s internal Deferred Write algorithm, not immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative.

**Commit**

The number of times the thread successfully completed commit processing.

If a QMF thread user exits from a query panel to other than the home panel, tablespace locks defined with DEALLOCATE(COMMIT) will be retained until Commit is effected. This is also true of SPUFI users who do not specify AUTOCOMMIT, or who specify DEFER on completion of a transaction.

**Userid**

The TSO user ID of the active thread user.

**Enclave Thread Summary**

This panel provides an overview of the activity of all threads connected to DB2 having an associated enclave token.

The enclave token is associated with an individual thread. In DB2, stored procedure and DDF threads are classified into a Workload Manager (WLM) service class and assigned an enclave token. After the thread has been associated with a service class, it begins to receive resources according to the service class periods defined for the service class.

WLM makes "give" and "take" decisions about resources according to two things:
1. The defined importance for the service class period.
2. The computed performance index (PI) for the service class period.

The service class periods that have low importance and a low number for PI are likely to be considered as "DONORS" for WLM resources on a heavily loaded system.
Each row displays information about an individual thread. The columns are ordered by Thread Elapsed Time (total time since thread creation or reuse), and includes information about the Elapsed Time, Plan Name, Jobname, AuthID, CPU%, Performance Index for the Service Class Period, Service Class Name, Service Class Period Number and Thread Status.

**Highlighting**

Highlighted fields indicate that exceptions related to those fields have tripped. To determine which exceptions have tripped, type E.A on the top line of the panel to display the Exception Messages for Thread Exceptions panel.

**Navigation**

For additional information about

- detailed information about a thread, place the cursor anywhere on the data for that thread and press F11 (Zoom). This will display the Enclave Detail panel.
- A different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

**Elapsed**

The elapsed time since thread creation, or since DB2 signon if the thread is reused. When the elapsed time of the thread exceeds 24 hours, the format is \textit{dd-hh:mm}.

If this thread is involved in parallel processing or if it invoked autonomous procedures, one of the following identifiers is displayed after the elapsed time:

* This thread is a parallel task that is initiated on behalf of another (originating) thread to process a query request in parallel.

O This thread is the originating thread that invoked autonomous procedures.
This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity performed for this (originating) thread is reflected under the parallel tasks.

This thread is a parallel task that is initiated on behalf of another (originating) thread on another DB2 for sysplex parallelism.

**Planname or Package**
The DB2 plan name (or package name) of the active thread. If you selected option T from the Realtime Main Menu, this panel shows the information by plan. If you selected option U, this panel shows the information by package.

**Jobname**
The name of the active job. For Distributed threads, this column might contain other identifying data, such as an executable program name.

For remote DB2 subsystems, the correlation ID is displayed instead of the job name.

**AuthID**
The DB2 thread authorization identifier of the active thread.

**CPU (if monitoring a DB2 subsystem or a data sharing group member)**
The CPU rate (percent) associated with the database access thread. For non-CICS threads, this is the CPU rate of the address space from which the thread originates. For CICS threads, this is the CPU rate attributable to the thread originating from the CICS connection.

**DB2 (if monitoring a data sharing group or remote DB2 subsystem while XCF component is not activated for remote CPU)**
The DB2 subsystem name of the data sharing group member that is currently monitored.

You can use the Tab key to move to a detail line and to select this detail line for drill down.

**P/I**
The computed Performance Index for the Service Class Period. N/A in compatibility mode.

**SvcClass**
The Service Class name the enclave work has been classified into. N/A in compatibility mode.

**Pd#**
The Service Class Period Number for the enclave. N/A in Compatibility mode.

**Status**
The current DB2 status of the thread.

**Threads Having Remote ID Information**
This panel provides an overview of the activity of all threads connected to DB2 having an associated Workstation ID, End User User ID or End User Transaction ID.
Thread Activity: Enter a selection letter on the top line.

A-All-Idle  B-TOSO  C-CICS  D-IMS  E-Background  F-Dist Allied
>  G-Dist DBAC  H-Util  I-Inact  J-Filter  K-Functions  L-Stored Proc
>  M-Triggers  N-Sysplex  O-Enclaves  **-Worksta  Q-All+Idle

Threads Having Remote ID Information

<table>
<thead>
<tr>
<th>THDP</th>
<th>Elapsed</th>
<th>WorkStation ID</th>
<th>End User UserID</th>
<th>End User Transaction Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>01:44:03.1</td>
<td>RRSAF</td>
<td>OMPEUSER</td>
<td>OMEGANON</td>
</tr>
<tr>
<td>+</td>
<td>01:43:50.3</td>
<td>MyWorkstationName</td>
<td>MyUserID</td>
<td>this is MyApplicationInformation-als</td>
</tr>
<tr>
<td>+</td>
<td>01:43:48.6</td>
<td>LW-LONG-WORKSTATIO</td>
<td>LU-LONG-USER-ID</td>
<td>LP-LONG-APPLICATION-NAME-THA</td>
</tr>
<tr>
<td>+</td>
<td>01:43:03.9</td>
<td>IBM-67119346851</td>
<td>hong1</td>
<td>db2bp.exe</td>
</tr>
<tr>
<td>+</td>
<td>01:36:00.5</td>
<td>LW-LRSF1-WORKSTATIO</td>
<td>LU-LRSF1-USER-ID</td>
<td>LP-LRSF1-APPLICATION-NAME-TH</td>
</tr>
<tr>
<td>+</td>
<td>01:18:53.8</td>
<td>P BATCH</td>
<td>HONG</td>
<td>HONGPTS1</td>
</tr>
<tr>
<td>+</td>
<td>01:18:52.8</td>
<td>P BATCH</td>
<td>HONG</td>
<td>HONGPTS1</td>
</tr>
</tbody>
</table>

Each row provides information about an individual thread, including information about thread response time, DB2 and MVS resource consumption, and DB2 activity. The columns are ordered by Thread Elapsed Time (total time since thread creation or reuse).

**Navigation**

For additional information about:

- a particular thread, move the cursor to the thread information line and press F11 (Zoom).
- exceptions that have tripped, type E.A on the top of the panel.
- a different DB2 subsystem, data sharing group, or member of a data sharing group, enter the name of a DB2 subsystem, group, or member in the topmost row and press Enter. For more information, see “Switching among DB2 subsystems and data sharing group members” on page 891.
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

**Fields**

**Elapsed**

The elapsed time since thread creation, or since DB2 signon if the thread is reused. When the elapsed time of the thread exceeds 24 hours, the format is *dd-hh:mm*.

If this thread is involved in parallel processing or if it invoked autonomous procedures, one of the following identifiers is displayed after the elapsed time:

- **O** This thread is the originating thread that invoked autonomous procedures.
- **P** This thread is the parent or the originating thread of the parallel...
tasks that are created to process a query request in parallel.
Activity performed for this (originating) thread is reflected under
the parallel tasks.

X This thread is a parallel task that is initiated on behalf of another
(originating) thread on another DB2 for sysplex parallelism.

Workstation ID
The end user's workstation name. This field contains blanks if the client
did not supply this information.

End User UserID
The end user's workstation user ID. This can be different from the
authorization ID used to connect to DB2. This field contains blanks if the
client did not supply this information.

End User Transaction Name
The transaction or application name that the end user is running. This
identifies the application that is currently running, not the product that is
used to run the application. This field contains blanks if the client did not
supply this information.

Threads Summary Including Idle Threads
This panel shows an overview of the activity of all threads (including idle threads)
that are connected to DB2.
Locking Conflicts

Select this main menu option for information about locking conflicts.

**Locking Conflicts panel**

This panel shows existing DB2 locking contentions. It provides information about the owners and waiters currently involved in locking conflicts.

A locking conflict exists when a DB2 thread owning a resource causes another DB2 thread to wait. In general, when DB2 cannot satisfy a request for the resource, the requester will be suspended.

A suspended lock resource always has an owning thread. Multiple threads may be waiting for the same resource. It may also have one or more global owners that have global interest in the resource.
When **S** mode is used in data sharing environment, lock resources that are waited by a local thread will be displayed. All global owners and all local threads that are involved in this locking conflict are displayed.

When **G** mode is used in data sharing environment, lock resources that are waited by a local or remote thread will be displayed. All the global owners and all local and remote threads that are involved in the locking conflict are displayed.

The plan names of all threads for which the elapsed time exception has tripped are highlighted. For more information about current thread exceptions, type **E.A** on the top line of the panel to display the Exception Messages for Thread Exceptions panel.

```
+OWN DSNESPCS MIS ROW U DB=DSNDB04 PS=RLOCKTSG PG=00000002/01
```

For more information about lock resources, see "Lock Types and Lock Levels".

### Highlighting

OMEGAMON XE for DB2 PE highlights some fields in this panel to draw your attention to their current status:

**Table 106. Highlighted fields in Locking Conflicts panel**

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>ETIM</td>
<td>Elapsed time is high.</td>
</tr>
</tbody>
</table>

### Navigation

For additional information about
- a lock owner, move the cursor to the lock owner line and press F11 (Zoom).
- a lock waiter, move the cursor to the lock waiter line and press F11 (Zoom).
- other topics, use the PF keys.

**Note:** Thread information is not available if the thread is owned by the other member of the data sharing group.

### Fields

The output lines are displayed in descending order, with those reflecting the greatest degree of conflict displayed first.

**Stat** The status of the thread can be one of the following:
- **OWN** indicates that the thread is a lock owner.
- WAIT indicates that the thread is suspended because the lock it requested is owned by another thread.

**Plan**  
The name of the DB2 plan that is currently active in this thread.

**Corrid**  
The DB2 correlation identifier for the thread involved in the locking conflict.

**Type**  
The type of lock that is owned or requested and is unavailable. For more information about lock types, see "Lock Types and Lock Levels".

**Lvl**  
The level at which the lock is owned or was requested. The level of a lock requested is frequently the reason for lock suspensions. For more information about lock levels, see "Lock Types and Lock Levels".

**Resource**  
Identifies the resource that is currently locked by the lock owner, or the lock resource causing the lock to be suspended. The resource varies depending upon the type of lock held.

**Note:** DB=database name can be represented as a DBID=identifier, which is the decimal identifier of the database. PSID=identifier can be represented as PSID=identifier, which is the decimal identifier of the table space. HEX values are displayed for lock resources if the resource is owned by a thread on a remote LPAR, and no OMPE task is available from that LPAR, or XCF is not set up correctly. If the owner is a thread running on some other member of the data sharing group, the DB2 subsystem name is displayed.

This field displays the following resources:

<table>
<thead>
<tr>
<th>Lock Type</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACSC</td>
<td>Accelerator Services commands lock</td>
</tr>
<tr>
<td>ALBP</td>
<td>Alter buffer pool lock</td>
</tr>
<tr>
<td>BIND</td>
<td>Autobind/remote bind lock</td>
</tr>
<tr>
<td>BMBA</td>
<td>Buffer manager SCA MBA L-lock</td>
</tr>
<tr>
<td>BPPS</td>
<td>Buffer manager pageset RP P-lock</td>
</tr>
<tr>
<td>CCAT</td>
<td>CATMAINT convert catalog lock</td>
</tr>
<tr>
<td>CDBL</td>
<td>Compress dictionary build lock</td>
</tr>
<tr>
<td>CDIR</td>
<td>CATMAINT convert directory lock</td>
</tr>
<tr>
<td>CDRN</td>
<td>Cursor Stability drain lock</td>
</tr>
<tr>
<td>CMDS</td>
<td>DB2 Command Serialization lock</td>
</tr>
<tr>
<td>CMIG</td>
<td>CATMAINT migration lock</td>
</tr>
<tr>
<td>COLL</td>
<td>Collection lock</td>
</tr>
<tr>
<td>DBEX</td>
<td>Database exception LPL/GRECP lock</td>
</tr>
<tr>
<td>DBXU</td>
<td>Database exception update lock</td>
</tr>
<tr>
<td>DGTT</td>
<td>DGTT URID lock</td>
</tr>
<tr>
<td>DPAG</td>
<td>DB2 pageset page lock</td>
</tr>
</tbody>
</table>
DPLK 32 K Desperation Pool lock
DSET Partitioned lock
DTBS Database lock
GRBP Group buffer pool start/stop lock
HASH Hash anchor lock
IEOF Index end of file lock
IPAG Index page lock
LBLK LOB lock
LPLR LPL Recovery lock
MDEL Mass delete lock
PALK Partition lock
PBPC Group buffer pool castout P-lock
PCDB DDF CDB P-lock
PDBD DBD P-lock
PDSO Pageset or partition pageset open lock
PITR Index manager tree P-lock
PPAG Page P-lock
PPSC Pageset/partition level castout P-lock
PPSP Pageset/partition P-lock
PRLF RLF P-lock
PSET Pageset lock
PSPI Pageset piece lock
RDBD Repair DBD Test/Diagnoes lock
RDRN Repeatable Read drain lock
RGDA Retry Getpg During Abort
ROW Row lock
RSTR SCA access for restart/redolock
SDBA Start/stop lock on DBA tabs
SENV SYSENV serialization lock
SKCT Skeleton cursor table lock
SKPT Skeleton package table lock
SPRC Sys Level PIT Recovery lock
SREC Log range lock
TABL Table lock
UIDA  Util I/O Damage Assessment
UNDT  Undetermined lock
UTEX  Utility exclusive execution lock
UTID  Utility UID lock
UTSE  Utility serialization lock
WDRN  Write drain lock
XMLK  XML lock
UTOB  Utility object lock
DBDL  DBD load lock
IXKY  Index key lock
HPSP  Header page bucket or Stored Proc Cmd lock

**Locks/Claims Owned by a Thread**
This panel shows lock and claim information of a specific thread. Use this information to analyze locks and claims, for example, the number of locks owned, the type and level of the locks, and the object of the locks.

The locking information is divided into the following categories:
1. The totals of all the types of locks owned by the thread, as well as the percentage of total locks allowed that are currently held (the percent of the DB2 parameter NUMLKUS).
2. The type, level and object of each lock. HEX values are displayed for lock resources, if the resource is owned by a thread on a remote LPAR, and no OMPE task is available from that LPAR, or XCF is not setup correctly.

The claim information displays all of the claims currently owned by the thread. Claims are used to inform DB2 that an object is being accessed.
### LOCKS/CLAIMS OWNED BY A THREAD

**PLAN**
- **Thread:** Plan=DISTSERV Connid=SERVER Corrid=db2jcc_appli Authid=HONG
- **Location:** 9.65.76.229, Host Name=sig-9-65-76-229.mts.ibm.com

**Lock Ownership Information**
- **Percent NUMLKUS:** .00
- **Total Locks Owned:** 3
- **Total Catalog Locks:** 0
- **Catalog Pageset Locks:** 0
- **Catalog Page/Row Locks:** 0
- **Directory and Other Locks:** 2
- **Bind ACQUIRE option:** ALLOCATE
- **Bind RELEASE option:** COMMIT
- **ISOLATION option:** Cursor Stability

**Type** | **Level** | **Resource** | **Number**
--- | --- | --- | ---
PSET | IS | DB=HONGLTB0 PS=HONGLTBS | 1
TABL | IS | DB=HONGLTB0 PS=HONGLTBS | 1
SKPT | S | N/A | 1

**Total = 3**

**Claim Information**
- **Type** | **Class** | **Resource** | **Number**
--- | --- | --- | ---
IX | CS | DB=DSND06 PS=DSN100 | 1
TS | CS | DB=DSND06 PS=SYSTAB | 1
IX | CS | DB=HONGLTB0 PS=HONGLTBK | 1
TS | CS | DB=HONGLTB0 PS=HONGLTBS | 1

---

### Highlighting

OMEGAMON XE for DB2 PE highlights some fields in this panel to draw your attention to their current status:
Table 107. Highlighted fields in Locks/Claims Owned by a Thread panel

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>ARCM</td>
<td>Backout requires an archive tape log mount.</td>
</tr>
<tr>
<td></td>
<td>ETIM</td>
<td>This thread has reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td></td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td></td>
<td>INDB</td>
<td>The thread is indoubt and terminated.</td>
</tr>
<tr>
<td></td>
<td>PREF</td>
<td>The Sequential Prefetch rate is high.</td>
</tr>
<tr>
<td></td>
<td>RIO</td>
<td>The synchronous Read I/O rate is high.</td>
</tr>
<tr>
<td></td>
<td>PGUP</td>
<td>The rate for system page updates is high.</td>
</tr>
<tr>
<td></td>
<td>LKUS</td>
<td>The ratio of data locks owned to NUMLKUS is high.</td>
</tr>
</tbody>
</table>

Navigation

For additional information about
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

**Thread identifier**: This information identifies the thread to which the information in this panel applies.

**Plan**  The Db2 plan name of the active thread.

**Connid**  The Db2 connection identifier of the active thread.

**Corrid**  The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

**Authid**  The Db2 authorization identifier of the active thread.

**Attach**  Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Connection Type**

**Batch**  The MVS jobname and ASID.

**Note**: For threads from remote Db2, the MVS job name is N/A.
### CICS
The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

- **Pool**: The thread in use is a pool thread.
- **Entry**: The thread in use is a nonprotected entry thread.
- **Prot**: The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

### IMS
The IMS region number, transaction name, region name, and terminal ID (LTERM).

### RRSAF
The MVS job name and ASID.

**Note**: For threads from remote Db2, the MVS job name is N/A.

### System
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the **Attach** line identifies the user thread, if any, being served by the system thread.

### TSO
The TSO user ID and region ASID.

### Utility
No additional information.

### Db2
The Db2 subsystem identifier.

### MVS
The MVS system identifier.

### ORIGAUTH
The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

### Package identifier: This information identifies the package to which the information in this panel applies.

### Package
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

### Collection
The package collection identifier. This field is displayed only if a package is being used.

### Distributed thread identifier: The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.

### Type
The distributed thread type.

- **Distributed Allied**: A requesting thread; one that has issued an SQL call to a remote DB2 location.

- **Database Access**: A responding thread; one that is serving a remote DB2 location by responding to an SQL call.

- **Luwid**: This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:
The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:
USCAC001.02D22A.A1FE8E0489D4=8

System
The originating DB2 job name and the resource manager that is the source of the thread.

An additional line below the attachment identifier displays the user thread, if any, that is served by the system thread.

Lock ownership information: The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.

Percent NUMLKUS
The current percentage of NUMLKUS reached by the thread. NUMLKUS is an installation parameter in DSNZPARM that specifies the maximum number of page, row, LOB, or XML locks that can be held by a single process at any one time. It includes locks for both, the DB2 catalog and directory and for user data.

Total Locks Owned
The total number of all locks owned by the thread. This includes all lock types.

Total Catalog Locks
Total of all catalog locks owned. This number includes any locks owned on a page or tablespace in database DSNDB06. This is the total of the catalog pageset and page locks.

Pageset and Dataset Locks
The total number of pageset locks held. This excludes pageset locks in which the lock object is a pageset owned by the catalog database or the directory database. Lock types included are PSET and DSET.

Catalog Pageset Locks
The total number of pageset locks in which the object of the lock is a pageset owned by the catalog (DSNDB06) database (PSET).

Page/Row Locks
Total number of page, row, LOB, and XML locks owned by the thread. It includes DPAG, IPAG, ROW, LOB, and XML locks. It includes any of the listed locks in which the lock object is owned by the catalog database or the directory database.

Catalog Page/Row Locks
The total number of page and row locks on the catalog (DSNDB06) database. This includes data page (DPAG), index page (IPAG), and row (ROW) locks.

Directory and Other Locks
The total number of directory and other locks owned by the thread. Directory locks are issued against resources contained in the DSNDB01 directory database.

Bind ACQUIRE Option
The ACQUIRE option specified at BIND time: ALLOCATE or USE. This allows you to control when the allocation of tablespace locks is to occur. If
ACQUIRE(USE) is specified, tablespace locks will be acquired when the resource is used by the application. When ACQUIRE(ALLOCATE) is specified, all tablespace locks will be obtained at plan allocation time. Dynamic SQL users (QMF, SPUFI) always execute with the ACQUIRE(USE) option.

Bind RELEASE Option (Static) (QW01243F)

The RELEASE option specified at BIND time: COMMIT or DEALLOCATE.

The RELEASE option controls when tablespace and SKCT locks are freed. RELEASE(COMMIT) causes these locks to be released at each commit point. RELEASE(DEALLOCATE) causes these locks to be freed at application termination. Page locks are always released at commit time, regardless of the release option.

ISOLATION Option

The ISOLATION option specifies when the plan is bound.

The isolation parameter allows you to control the data consistency in the pages that the plan accesses. It has an effect on the number of page or row locks held concurrently by an application. The available options are:

Cursor Stability (CS)

Causes a page lock acquired for read processing to be released when the application subsequently accesses data contained on another data page. (Page locks acquired as a result of update activity are always retained until commit.)

Read Stability (RS)

Is similar to Repeatable Read but this isolation option allows to insert new rows or update rows that did not satisfy the original search condition of the application.

Repeatable Read (RR)

Causes all application locks obtained for read processing to be retained until application commit time.

RR with X-lock

Means Repeatable Read with X-lock.

RS with X-lock

Means Read Stability with X-lock.

Uncommitted Read (UR)

Causes data to be read without acquiring locks. This can result in accessing data that has been updated but not yet committed. It applies only to read-only operations: SELECT, SELECT INTO, or FETCH from a read-only result table. Use this isolation level only when:

- Data consistency is not necessary or inconsistencies already exist
- Errors cannot occur with its use, such as with a reference table that is rarely updated

Type

The lock type owned. Every lock type owned by the thread will be displayed. For more information about lock types, lock levels, and lock resources, see "Lock Types and Lock Levels".

Level

The lock levels of the various lock types owned. All lock levels owned within a lock type will be listed. Lock levels can occur repetitively for a single lock type due to the different resources owned by the locks.
**Resource**
The resource that is the object of the lock. The content of this field is dependent on lock type. For data page (DPAG) and index page (IPAG) locks, the resource does not contain the actual data page number that is locked; it lists the database and pageset owning the data or index page lock. The **Number** field then displays how many data or index page locks exist within the resource (pageset) listed.

**Number**
The number of locks meeting the type, level, and resource description of the lock.

**Claim information:**

**Type**
The type of object being claimed. Possible object types are:
- **TS** Tablespace
- **TS LPRT** Tablespace logical partition
- **TS PART** Data Partition
- **IX** Indexspace
- **IX LPRT** Indexspace logical partition
- **IX PART** Index Partition

**Class**
The claim class. Possible claim classes are:
- **CS** Cursor Stability
- **RR** Repeatable Read
- **WRITE** Write access

**Resource**
The name of the object which is locked or claimed. The resource name can include the database name, the pageset name, the partition number, the page number, the record ID, the collection ID, the package name, or the plan name.

**Note:** DB=database name and PS=pageset name can be represented as a DBID=identifier or PSID=identifier correspondingly. DBID represents the decimal identifier of the database. PSID represents the decimal identifier of the table space or the index space.
Thread Lock/Claim/Drain Activity
This panel provides a summary of lock related activity for an individual thread.

---

Highlighting
OMEGAMON XE for DB2 PE highlights some fields in this panel to draw your attention to their current status:

Table 108. Highlighted fields in Thread Lock/Claim/Drain Activity panel

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>Any</td>
<td>Same as the other thread</td>
</tr>
<tr>
<td></td>
<td></td>
<td>detail panels.</td>
</tr>
</tbody>
</table>

Navigation
For additional information about
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.
Authid
The Db2 authorization identifier of the active thread.

Attach Depending on the type of connection, the appropriate information is displayed.
Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Connection Type
Batch The MVS jobname and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

CICS The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:
Pool The thread in use is a pool thread.
Entry The thread in use is a nonprotected entry thread.
Prot The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

IMS The IMS region number, transaction name, region name, and terminal ID (LTERM).

RRSAF The MVS job name and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

System The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

TSO The TSO user ID and region ASID.

Utility No additional information.

Db2 The Db2 subsystem identifier.

MVS The MVS system identifier.

ORIGAUTH The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Package identifier: This information identifies the package to which the information in this panel applies.

Package The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

Collection The package collection identifier. This field is displayed only if a package is being used.

Distributed thread identifier: The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.
Type  The distributed thread type.

**Distributed Allied**
A requesting thread; one that has issued an SQL call to a remote Db2 location.

**Database Access**
A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

Db2=  The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

Luwid  This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format: 

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:

USCACO01.02D22A.A1FEBE0489D4=8

System  The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the **Attach** line identifies the user thread, if any, being served by the system thread.

**Lock count information:**

**Lock Requests**
Requests to Internal Resource Lock Manager (IRLM) to obtain a lock on a resource.

**Deadlocks Detected**
The number of deadlocks detected.

**Unlock Requests**
Requests to IRLM to unlock a resource.

**Timeouts Detected**
The number of times that the suspension of a unit of work lasted longer than the IRLM timeout value.

**Query Requests**
Requests to IRLM to query a lock.

**Suspends - Lock Only**
Suspensions of a unit of work because a lock could not be obtained.

**Change Requests**
Requests to IRLM to change a lock.

**Suspends - Latch Only**
DB2 internal latch suspensions.

**Other IRLM Requests**
Requests to IRLM to perform a function other than those listed before.

**Suspends - Other**
Suspensions caused by something other than locks and latches.
Escalations to Shared
Occasions when the allowable number of locks per tablespace was exceeded, causing a page (IS) lock to escalate to a shared (S) lock.

Escalations to Exclusive
Occasions when the allowable number of locks per tablespace was exceeded, causing a page (IX) lock to escalate to an exclusive (X) lock.

Maximum Page/Row Locks
The maximum number of page or row locks held concurrently. This count cannot exceed the value of the NUMLKUS (locks per user) installation parameter.

Claim Requests
The number of claim requests.

Claims Failed
The number of unsuccessful claim requests.

Drain Requests
The number of drain requests.

Drains Failed
The number of unsuccessful drain requests.

Thread activity: Locks/Claims causing a thread to wait
This panel shows information about the locks that cause a thread to wait. You can use this information to determine whether a selected thread is suspended and waiting because of a locking conflict.

When a thread is suspended, this panel provides the name of the lock/claim request causing the suspension. It also provides a list of all locks/claims currently held by other threads causing the thread to be suspended.

If accounting class 2 and class 3 are not available, N/A is displayed.

The locking information is divided into the following categories:
1. The name of the lock request causing the suspension.
2. A list of all locks which are causing the thread to wait.

HEX values are displayed for lock resources, if the resource is owned by a thread on a remote LPAR, and no OMPE task is available from that LPAR, or XCF is not setup correctly.
Highlighting

Highlighted fields indicate that an exception relating to that field is tripped.

To display the Exception Messages for Thread Exceptions panel, type E.A. On this panel, you can determine the exceptions that have tripped.

Table 109. Highlighted fields on Locks/Claims Causing a Thread to Wait panel

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>ARCM</td>
<td>Backout requires an archive tape log mount.</td>
</tr>
<tr>
<td></td>
<td>ETIM</td>
<td>This thread has reached the Elapsed Time threshold value.</td>
</tr>
<tr>
<td></td>
<td>GETP</td>
<td>The Getpage to Read I/O ratio indicates poor read efficiency.</td>
</tr>
<tr>
<td></td>
<td>INDB</td>
<td>The thread is indoubt and terminated.</td>
</tr>
<tr>
<td></td>
<td>PREF</td>
<td>The Sequential Prefetch rate is high.</td>
</tr>
<tr>
<td></td>
<td>RIO</td>
<td>The synchronous Read I/O rate is high.</td>
</tr>
<tr>
<td></td>
<td>PGUP</td>
<td>The rate for system page updates is high.</td>
</tr>
<tr>
<td></td>
<td>WTRE</td>
<td>The lock has been waiting for a resource for too long.</td>
</tr>
</tbody>
</table>
**Navigation**

For additional information about

- about the locks that are owned by a thread, an SQL activity, a general thread activity, or a resource limit activity, or to go to the Db2 system console, type the appropriate option letter on the top line and press ENTER.
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

**Thread identifier:** This information identifies the thread to which the information in this panel applies.

**Plan**  The Db2 plan name of the active thread.

**Connid**  The Db2 connection identifier of the active thread.

**Corrid**  The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

**Authid**  The Db2 authorization identifier of the active thread.

**Attach**  Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Connection Type**

**Batch**  The MVS jobname and ASID.

*Note:* For threads from remote Db2, the MVS job name is N/A.

**CICS**  The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:

- **Pool**  The thread in use is a pool thread.
- **Entry**  The thread in use is a nonprotected entry thread.
- **Prot**  The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

**IMS**  The IMS region number, transaction name, region name, and terminal ID (LTERM).

**RRSAF**  The MVS job name and ASID.

*Note:* For threads from remote Db2, the MVS job name is N/A.

**System**  The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

**TSO**  The TSO user ID and region ASID.
Utility  No additional information.

Db2  The Db2 subsystem identifier.

MVS  The MVS system identifier.

ORIGAUTH
The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Package identifier: This information identifies the package to which the information in this panel applies.

Package
The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

Collection
The package collection identifier. This field is displayed only if a package is being used.

Distributed thread identifier: The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.

Type  The distributed thread type.

Distributed Allied
A requesting thread; one that has issued an SQL call to a remote DB2 location.

Database Access
A responding thread; one that is serving a remote DB2 location by responding to an SQL call.

Luwig
This value consists of two parts: the logical unit-of-work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format: 
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwig field displays data such as the following:
USCAC001.02D22A.A1FE8E04B9D4=8

Drain information:

Type  The type of object being drained. Possible object types are:

TS  Tablespace

TS PART  Data Partition

IX  Indexspace

IX PART  Index Partition

Class  The drain class. Possible classes are:

CS  Drain all CS read access to object.

RR  Drain all RR access to object.

Write  Drain all write access to object.
Resource
The name of the resource being drained. This includes the database name, pageset name, and the partition number (if any).

Claim information:
Plan The planname of the thread claiming the resource.
Connid The connection identifier of the thread claiming the resource.
Corrid The correlation identifier of the thread claiming the resource.
Class The claim class. Possible classes are:
   CS  Cursor Stability
   RR  Repeatable Read
   Write  Write access

Lock wait information:
Type The lock type on which the thread is waiting. For more information about lock types, see "Lock Types and Lock Levels".
Level The level or state (mode) of the lock request. This information describes the level of resource access demanded by the lock request. For more information about lock levels, see "Lock Types and Lock Levels".
Resource The resource for which the user is waiting. The content of the Resource field is dependent on lock type.
The resource varies depending upon the type of lock held. This field displays the following resources:

<table>
<thead>
<tr>
<th>Lock Type</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALBP</td>
<td>BP=buffer pool ID</td>
</tr>
<tr>
<td>BIND</td>
<td>COLL=collection ID PKG=package name</td>
</tr>
<tr>
<td>BMBA</td>
<td>BMC_MBAO or BMC_MBAR</td>
</tr>
<tr>
<td>BPPS</td>
<td>BP=buffer pool ID, DB=database name, PS=pageset name</td>
</tr>
<tr>
<td>CDRN</td>
<td>DB=database name PS=pageset name PT=partition</td>
</tr>
<tr>
<td>COLL</td>
<td>COLL=collection ID</td>
</tr>
<tr>
<td>DBEX</td>
<td>DB=database name PS=pageset name PT=partition</td>
</tr>
<tr>
<td>DBXU</td>
<td>HASH CLASS=class number</td>
</tr>
<tr>
<td>DGTT</td>
<td>URID=unit of recovery ID</td>
</tr>
<tr>
<td>DPAG</td>
<td>DB=database name PS=pageset name PG=page</td>
</tr>
<tr>
<td>DSET</td>
<td>DB=database name PS=pageset name PT=partition</td>
</tr>
<tr>
<td>DTBS</td>
<td>DB=database name</td>
</tr>
<tr>
<td>GRBP</td>
<td>BP=buffer pool ID</td>
</tr>
</tbody>
</table>
HASH
DB=database name PS=pageset name PG=page
IEOF DB=database name PS=pageset name PT=partition
IPAG DB=database name PS=pageset name PG=page
LBLK DB=database name PS=pageset name
MDEL  DB=database name PS=pageset name
PALK  DB=database name PS=pageset name PT=partition
PBPC BP=buffer pool ID
PCDB DB=database name
PDBD DB=database name
PDSO DB=database name PS=pageset name
PITR DB=database name PS=pageset name PT=partition
PPAG DB=database name PS=pageset name PG=page
PPSC DB=database name PS=pageset name PT=partition
PPSP DB=database name PS=pageset name PT=partition
PRLF DB=database name PS=pageset name PT=partition
PSET DB=database name PS=pageset name
PSPI DB=dataset name PS=pageset name
RDRN  DB=dataset name PS=pageset name PT=partition
RGDA DB=database name PS=pageset name PG=page
ROW DB=database name PS=pageset name PG=page
RSTR BMC-RSTP
SDBA DB=dataset name PS=pageset name
SKCT PLAN=plan name
SKPT
TOKEN is the consistency token (CONTOKEN) column from SYSIBM.SYSPACKAGE. Token=token
SPRC SYS_PITR
SREC DB=database name TS=tablespace name
TABL DB=database name PS=pageset name
UNDT Resource ID (in hexadecimal)
UTEX UTEXEC
UTID UID=utility identifier
UTOB DB=database name PS=pageset name PT=partition
UTSE UTSEPARATOR
WDRN

DB=database name PS=pageset name PT=partition

Note: DB=database name can be represented as a DBID=identifier, which is the decimal identifier of the database. PSID=identifier can be represented as PSID=identifier, which is the decimal identifier of the table space or index space.

For more information about lock resources, see “Lock Types and Lock Levels”.

Wait For Lock Time
The time that DB2 has been waiting for the locked resource.

# To Repeat Lock Timeout
The number of times DB2 repeats the lock timeout.

IRLM Time Out Value
The maximum time that DB2 waits for a locked resource. When DB2 reaches the maximum value, it rolls back the unit of work.

Level
The level or state (mode) of the lock request. This information describes the level of resource access demanded by the lock request. For more information about lock levels, see “Tablespace lock levels” on page 1723.

Lock owner information:

Plan
The DB2 plan name of the active thread.

Connid
The DB2 connection identifier of the active thread.

Corrid
The DB2 correlation identifier of the active thread.

Lvl
The lock level owned.

Thread Global Lock Activity
This panel provides a summary of global locking activity for an individual thread.

This panel is only available in a data sharing environment. The information provided by this panel can help you in properly sizing the coupling facility lock structure and reducing global lock contentions for transactions.
Highlighting

OMEGAMON XE for DB2 PE highlights some fields in this panel to draw your attention to their current status:

Table 110. Highlighted fields on Thread Global Lock Activity panel

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>Any</td>
<td>Same as the other thread detail panels.</td>
</tr>
</tbody>
</table>

Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan    The Db2 plan name of the active thread.

Connid  The Db2 connection identifier of the active thread.

Corrid  The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid  The Db2 authorization identifier of the active thread.

Attach  Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Connection Type

Batch    The MVS jobname and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.
CICS  The CICS jobname, task name, task number, terminal ID, and thread type. The thread type is:
  Pool   The thread in use is a pool thread.
  Entry  The thread in use is a nonprotected entry thread.
  Prot   The thread in use is a protected thread. Protected threads are defined in an RCT entry definition using the THRDS operand.

IMS    The IMS region number, transaction name, region name, and terminal ID (LTERM).

RRSAF  The MVS job name and ASID.

Note: For threads from remote Db2, the MVS job name is N/A.

System The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

TSO    The TSO user ID and region ASID.

Utility No additional information.

Db2    The Db2 subsystem identifier.

MVS    The MVS system identifier.

ORIGAUTH The original (primary) Db2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Package identifier: This information identifies the package to which the information in this panel applies.

Package The Db2 package name of the active thread. Up to 18 characters of the package name are returned.

Collection The package collection identifier. This field is displayed only if a package is being used.

Distributed thread identifier: The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

Type    The distributed thread type.

Distributed Allied A requesting thread; one that has issued an SQL call to a remote Db2 location.

Database Access A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

Db2=    The Db2 subsystem ID, indicating the member of the data sharing group of this thread.
**Luwid**  This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:

USCAC001.02D22A.A1FE8E0489D4=8

**System**

The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

**Global lock information:**

**P-lock Lock Requests**

Number of lock requests for P-locks. A P-lock is a physical lock used only in a data sharing environment to provide consistency of data cached in different DB2 subsystems.

**P-lock Unlock Requests**

Number of unlock requests for P-locks.

**P-lock Change Requests**

Number of change requests for P-locks.

**XES Lock Requests**

The number of lock requests (both logical and physical) that were propagated to MVS XES synchronously under the caller’s execution unit. This count does not include suspended requests. Only the most restrictive lock for a particular resource is propagated to XES and the coupling facility.

**XES Unlock Requests**

The number of unlock requests (both logical and physical) that are propagated to MVS XES synchronously under the caller’s execution unit. This count does not include suspended requests.

**XES Change Requests**

The number of change requests (both logical and physical) that were propagated to MVS XES synchronously under the caller’s execution unit. This count does not include suspended requests.

**Suspends - IRLM Global Cont**

The number of suspends due to Internal Resource Lock Manager (IRLM) global resource contentions. IRLM lock states were in conflict and inter-system communication is required to resolve the conflict.

**Suspends - XES Global Cont**

The number of suspends due to MVS XES global resource contentions that were not IRLM-level contentions. The XES lock states were in conflict, but the IRLM lock states were not.

**Suspends - False (and Conv)**

Summation of false contentions and sync-to-async heuristic conversions.
XES detects hash class contention when two different locks on different resources hash to the same entry in the coupling facility lock table. The requester is suspended until it is determined that no real lock contention exists.

Sync-to-async heuristic conversions are done when the XES determines that it is more efficient to drive the request asynchronously to the coupling facility.

**Total L-lock Requests**
The total number of L-lock requests. An L-lock is a logical lock used to control intra- and inter-DB2 data concurrency between transactions.

**XES L-lock Req Percentage**
The percentage of total L-lock requests that were propagated to MVS XES synchronously.

**Incompatible Retained Locks**
The number of global lock or change requests that failed because of an incompatible retained lock. Certain P-locks can be retained because of a system failure. Another DB2 member cannot access the data that the retained P-lock is protecting unless it requests a P-lock in a compatible state.

**Notify Messages Sent**
The number of notify messages sent.

**Total Number False Content.**
The total number of false contentions for LOCK and UNLOCK requests. A false contention occurs when different resource names hash to the same entry in the coupling facility (CF) lock table. The CF detects contention within the hash entry, and XES uses intersystem messaging to determine that no actual resource contention exists.

**Resource Managers and Other DB2 Subsystem Information menu**
Select this main menu option for information about the DB2 resource managers and other system-related information.

This menu provides access to the panels that display subsystem level information about DB2. The information covers DB2 resource managers, current trace activity, DSNZPARM parameters, and DBM1 storage management statistics.
Navigation

The following menu options are available:

BUFFER MANAGER
Provides information about the performance of the DB2 buffer manager and the activity in each of the buffer pools.

For more information, see the description of panel “Buffer Manager Information” on page 1113.

For more information, see the description of panel “Group Buffer Pool Information” on page 1125.

LOG MANAGER
Provides information about the active logging and archival activity of the DB2 log manager.

For more information, see the description of panel “DB2 Log Manager Information” on page 1129.

EDM POOL
Provides information about the activity in and performance of the EDM pool.

For more information, see the description of panel “EDM Pool Information” on page 1136.

BIND STATISTICS
Displays bind operation counts.

For more information, see the description of panel “Bind Statistics” on page 1177.

SUBSYSTEM MANAGER
Displays workload-related information about the monitored DB2 subsystem.

For more information, see the description of panel “DB2 Subsystem Support Manager Statistics” on page 1180.
ACTIVE TRACES
Displays summary and detail information about the DB2 traces that are currently active.
For more information, see the description of panel “Active Trace Summary” on page 1183.

DSNZP ARM
Displays the settings of the installation options in the DSNZP ARM module.
For more information, see the description of panel “DSNZP ARM Parameters” on page 1188 and subsequent DSNZPARM-related panels.

LOCK/CLAIM/DRAIN
Displays information about current locking activity and claim and drain statistics.
For more information, see the description of panel “Lock Manager Information” on page 1278.
For more information, see the description of panel “Global Lock Statistics” on page 1280.

SQL/RID POOL/PARALLEL
Displays information about current SQL activity, RID pool accesses, parallelism, and stored procedure information.
For more information, see the description of panel “SQL/RID Pool/Parallelism/Stored Procedure Information” on page 1283.

OPEN/CLOSE STATISTICS
Provides information about open and close data set activity occurring within the DB2 subsystem.
For more information, see the description of panel “Open/Close Statistics” on page 1303.

DB2 COMMANDS
Provides information about DB2 command activity.
For more information, see the description of panel “DB2 Command Statistics” on page 1305.

DB2 Storage
Provides statistics information about DBM1 (DB2 database services address space) virtual and real storage and MVS storage performance.
For more information, see the description of panel “DB2 Storage” on page 1309.

Accelerator
Displays a list of the available accelerators. You can sort this list.
For more information, see the description of panel “Accelerator Statistics Overview” on page 1327.

GBP Cache Struct
Provides information about a group buffer pool across all DB2 members in the data sharing group.
For more information, see the description of panel “GBP Coupling Facility Cache Structure Statistics Summary” on page 1322 and “GBP Coupling Facility Cache Structure Statistics” on page 1324.
**Buffer Manager Information**

This panel provides information about the performance of the DB2 buffer manager and the activity in each of the buffer pools.

This information helps you analyze buffer pool utilization.

<table>
<thead>
<tr>
<th>ZBMGR</th>
<th>VTM</th>
<th>O2</th>
<th>V540.4P</th>
<th>SN12</th>
<th>11/05/13 14:05:45</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Help PF1</td>
<td>Back PF3</td>
<td>Up PF7</td>
<td>Down PF8</td>
<td>Sort PF10</td>
<td>Zoom PF11</td>
<td></td>
</tr>
<tr>
<td>&gt; R.A.A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; */BUFFER POOL</td>
<td>B-GROUP BUFFER POOL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;=BUFFER MANAGER INFORMATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### BMGR

+ Current Number Open Datasets = 197
+ High Water Mark Open Datasets = 197
+ Maximum Number Open Datasets Allowed = 10000
+ Open Dataset Count In Active Pools = 250
+ *
+ **Pool** | **VP** | **Pages** | **Pages Getp** | **Read I/O Rate** | **Prefetch Req Rate** | **Write I/O Rate** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>+ BP0</td>
<td>5000</td>
<td>5000</td>
<td>29</td>
<td>138.00</td>
<td>7.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ BP1</td>
<td>2000</td>
<td>2000</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ BP2</td>
<td>2000</td>
<td>2000</td>
<td>1</td>
<td>6.00</td>
<td>1.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ BP3</td>
<td>2000</td>
<td>2000</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ BP4</td>
<td>2000</td>
<td>2000</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ BP7</td>
<td>1000</td>
<td>1000</td>
<td>3</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ BP32K</td>
<td>250</td>
<td>250</td>
<td>2</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ BP8K0</td>
<td>10000</td>
<td>10000</td>
<td>2</td>
<td>10.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ BP16K0</td>
<td>500</td>
<td>500</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
</tbody>
</table>

### Highlighting

OMEGAMON XE for DB2 PE highlights some fields in this panel to draw your attention to their current status.

**Table 111. Highlighted fields on Buffer Manager Information panel**

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pages In Use</td>
<td>BMTH</td>
<td>The percentage of pages in use has reached the predetermined threshold.</td>
</tr>
</tbody>
</table>

### Navigation

For additional information about

- a buffer pool, move the cursor to the buffer pool line and press F11 (Zoom). For more information, see the description of panel "Buffer Pool Detail" on page 1114.
- other topics, use the PF keys.

### Fields

**Current Number Open Datasets**

The number of data sets that are currently open in DB2.

**High Water Mark Open Datasets**

The largest number of data sets that were open simultaneously in DB2 since DB2 started.
Maximum Number Open Datasets Allowed
Determined how much initial memory to allocate for the data sets at
startup time (defined by DSNZPARM DSNLX). The maximum number of
data sets that can be open at one time is determined by TION SIZE, which
is specified in SYS1.PARMLIB(ALLOCxx).

Open Dataset Count in Active Pools
The total number of opens issued for the buffer pools that are currently
active. This value represents the number of times the data sets have been
opened (and reopened) since DB2 started. (Buffer pools not currently in
use might have issued opens that are not reflected in this count.)

Pool ID
The ID of the buffer pool.

VP Size
The number of buffers allocated for an active virtual buffer pool.

Pages Alloc
The number of pages currently allocated to the buffer pool. If a buffer pool
is in use, Pages Alloc will be between the minimum and maximum values.
Otherwise, it will be zero.

Pages In Use
The number of 4K, 8K, 16K, or 32K pages that are currently in use by the
buffer pool.

Getp Rate
The number of Getpage requests per second made by the buffer pool.

Read I/O Rate
The total number of Read I/Os per second made by the buffer pool.

Prefetch Req Rate
The number of Sequential Prefetch and List Prefetch requests per second
made by the buffer pool.

Write I/O Rate
The number of Write I/Os per second.

Buffer Pool Detail
This panel provides detailed information about the current activity in the specified
DB2 buffer pool.

If a buffer pool is defined but currently not used by DB2, the value 0 is displayed
for all fields 0 except for the field VP Sizew. If the buffer pool is used by DB2, the
accumulated counts are displayed.
### BUFFER POOL DETAIL

<table>
<thead>
<tr>
<th>BP</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Collection Interval: REALTIME</td>
<td>Start: 06/25 16:55:03</td>
</tr>
<tr>
<td>+ Report Interval: 5 min</td>
<td>End: 06/25 17:00:13</td>
</tr>
<tr>
<td>+ Virtual Buffer Pool Size</td>
<td>5000 VPOOL Frame Size = 4K</td>
</tr>
<tr>
<td>+ VPOOL Buffers Allocated</td>
<td>5000 Minimum VPOOL Size = 0</td>
</tr>
<tr>
<td>+ VPOOL Buffers in Use</td>
<td>130 Maximum VPOOL Size = 0</td>
</tr>
<tr>
<td>+ VPOOL Buffers to be Del</td>
<td>0 Auto Size = N</td>
</tr>
<tr>
<td>+ Use Count</td>
<td>216 Page Fix = N</td>
</tr>
<tr>
<td>+ VP Sequential Thresh</td>
<td>80%</td>
</tr>
<tr>
<td>+ Deferred Write Thresh</td>
<td>30% Vert Deferred Write Thresh = 5%</td>
</tr>
<tr>
<td>+ VP Parallel Seq Thresh</td>
<td>50% Sysplex Parallel Thresh = 0%</td>
</tr>
<tr>
<td>+</td>
<td>Getpages per Sync I/O = 453195.61 Pages Written per Write I/O = 7.79</td>
</tr>
<tr>
<td>+</td>
<td>Prefetch per I/O = 511.92 Pages Read per Prefetch = 0.05</td>
</tr>
<tr>
<td>+</td>
<td>Seq Prefetch per I/O = 2.99 Pages Read per Seq Prefetch = 18.65</td>
</tr>
<tr>
<td>+</td>
<td>List Prefetch per I/O = 1.33 Pages Read per List Prefetch = 5.03</td>
</tr>
<tr>
<td>+</td>
<td>Dyn Prefetch per I/O = 726.59 Pages Read per Dyn Prefetch = 0.02</td>
</tr>
<tr>
<td>+</td>
<td>Max Concur Prefetch</td>
</tr>
<tr>
<td>+</td>
<td>BP Hit % - Random</td>
</tr>
<tr>
<td>+</td>
<td>BP Hit % - Sequential</td>
</tr>
<tr>
<td>+</td>
<td>LWM Buffers on SLRU</td>
</tr>
</tbody>
</table>

| + | TOTAL QUANTITY | INTERVAL QUANTITY | /SECOND | /THREAD | /COMMIT |
| + | ( 310) | ( 3) | ( 0) |
| + Getpage Requests | 144935K | 30 | 0.09 | 10.00 | 0.0 |
| + Getpage Requests - Sequential | 144758K | 0 | 0.00 | 0.00 | 0.0 |
| + Getpage Request - Seq Ovfl | 144758K | 0 | 0.00 | 0.00 | 0.0 |
| + Getpage Requests - Random | 176553 | 30 | 0.09 | 10.00 | 0.0 |
| + Getpage Request - Random Ovfl | 144935K | 0 | 0.00 | 0.00 | 0.0 |
| + Getpage Failed - VPOOL Full | 0 | 0 | 0.00 | 0.00 | 0.0 |
| + Getpage Failed - Cond Request | 0 | 0 | 0.00 | 0.00 | 0.0 |
| + Getpage Failed - Cond SeqReq | 0 | 0 | 0.00 | 0.00 | 0.0 |
| + Sync Read I/O Operations | 18592 | 11 | 0.03 | 3.66 | 0.0 |
| + Sync Read I/O - Sequential | 337 | 0 | 0.00 | 0.00 | 0.0 |
| + Sync Read I/O - Seq Ovfl | 337 | 0 | 0.00 | 0.00 | 0.0 |
| + Sync Read I/O - Random | 18255 | 11 | 0.03 | 3.66 | 0.0 |
| + Sync Read I/O - Random Ovfl | 18255 | 0 | 0.00 | 0.00 | 0.0 |
| + Pages Read via Seq Prefetch | 14569 | 0 | 0.00 | 0.00 | 0.0 |
| + Seq Prefetch I/O Operations | 261 | 0 | 0.00 | 0.00 | 0.0 |
| + Sequential Prefetch Requests | 781 | 0 | 0.00 | 0.00 | 0.0 |
| + Pages Read via List Prefetch | 181 | 0 | 0.00 | 0.00 | 0.0 |
| + List Prefetch I/O Operations | 27 | 0 | 0.00 | 0.00 | 0.0 |
| + List Prefetch Requests | 36 | 0 | 0.00 | 0.00 | 0.0 |
| + Pages Read via Dyn Prefetch | 10447 | 0 | 0.00 | 0.00 | 0.0 |
| + Dyn Prefetch I/O Operations | 683 | 0 | 0.00 | 0.00 | 0.0 |
| + Dyn Prefetch Requests | 492260 | 0 | 0.00 | 0.00 | 0.0 |
| + Prefetch Failed - No Buffer | 0 | 0 | 0.00 | 0.00 | 0.0 |
| + Prefetch Failed - No Engine | 0 | 0 | 0.00 | 0.00 | 0.0 |
Highlighting

OMEGAMON XE for DB2 PE highlights some fields in this panel to draw your attention to their current status.

Table 112. Highlighted fields in Buffer Pool Detail panel

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Pages in Use</td>
<td>BMTH</td>
<td>The percentage of pages in use has reached the predetermined threshold.</td>
</tr>
</tbody>
</table>

Navigation

For additional information about

- buffer pool contents, select option A-BUFFER POOL at the top of the panel.
- pageset information about the selected buffer pool, select option C-Buffer Pool Snapshot. For more information, see the description of panel “Buffer Pool Snapshot Open Pagesets” on page 1123.
- near-term history activity, select option H-HISTORICAL at the top of the panel.
- other topics, use the PF keys.

Fields

Collection Interval

This field displays REALTIME to indicate that you are looking at the realtime
version of this panel and not at the corresponding near-term history panel. The collection interval and the report interval are the same in this panel.

**Start**
The start time of the report interval currently displayed.

**Report Interval**
The time in the last cycle (for example, between two presses of the Enter key).

**End**
The end time of the current report interval is displayed.

**Virtual Buffer Pool Size**
The number of buffers that are allocated for an active virtual buffer pool.

**VPOOL Frame Size (QDBPFRAM)**
For the Frame Size attribute, you can specify the values 4K, 1M, or 2G.
This applies to DB2 11 and higher.

**VPOOL Buffers Allocated**
The number of virtual buffer pool pages that are allocated at the end of the interval.

**Minimum VPOOL Size (QDBPVPMI)**
The VPSIZEMIN attribute.
This applies to DB2 11 and higher.

**VPOOL Buffers in Use**
The number of virtual buffer pool pages that are used at the end of the interval. This value is a snapshot value of the current number of non-stealable buffers. A buffer is called non-stealable, if one of the following conditions apply:
- It has an outstanding GETPAGE. This means that someone is currently looking at this page.
- It is updated, however, it is not yet written to DASD.

**Maximum VPOOL Size (QDBPVPMA)**
The VPSIZEMAX attribute.
This applies to DB2 11 and higher.

**VPOOL Buffers to be Del**
The number of pages that can be deleted from an active virtual buffer pool as a result of pool contraction.

**Auto Size**
Determines whether Auto Size is used. You can specify Y (YES) or N (NO).

**Use Count**
The number of open tablespaces or indexspaces in this buffer pool.

**Page Fix**
Determines whether a page is fixed in real storage when it is first used. You can specify Y (YES) or N (NO).

**VP Sequential Thresh**
Sequential Steal threshold for the virtual buffer pool VPSEQT. The percentage of the virtual buffer pool that can be occupied by sequentially accessed pages. If set to zero, prefetch is disabled.

**Deferred Write Thresh**
Deferred Write threshold for the virtual buffer pool DWQT. Write
operations are scheduled when the percentage of unavailable pages in the virtual buffer pool exceeds this threshold to decrease the unavailable pages to 10% below the threshold.

**Vert Deferred Write Thresh**
Vertical Deferred Write threshold for the virtual buffer pool VDWQT. The percentage of the buffer pool that might be occupied by updated pages from a single data set.

**VP Parallel Seq Thresh**
Parallel I/O sequential threshold VPPSEQT. This threshold determines how much of the virtual buffer pool might be used for parallel I/O operations. It is expressed as a percentage of VPSEQT. If set to zero, I/O parallelism is disabled.

**Sysplex Parallel Thresh**
Virtual buffer pool assisting parallel sequential threshold. This threshold determines how much of the virtual buffer pool might support parallel I/O operations from another DB2 in a data sharing group.

**Getpages per Sync I/O**
The ratio of Getpage requests to Read I/Os.

**Pages Written per Write I/O**
The ratio of pages written to physical I/Os.

**Prefetch per I/O**
The ratio of Prefetch requests to physical I/Os.

**Pages Read per Prefetch**
The ratio of pages read by Prefetch processing to total Prefetch requests.

**Seq Prefetch per I/O**
The ratio of pages read by Sequential Prefetch to Sequential Prefetch I/O.

**Pages Read per Seq Prefetch**
The ratio of pages read by Sequential Prefetch to Sequential Prefetch requests.

**List Prefetch per I/O**
The ratio of List Prefetch requests to List Prefetch I/Os.

**Pages Read per List Prefetch**
The ratio of pages read by List Prefetch to List Prefetch requests.

**Dyn Prefetch per I/O**
The ratio of Dynamic Prefetch request to Dynamic Prefetch I/Os.

**Pages Read per Dyn Prefetch**
The ratio of pages read by Dynamic Prefetch to Dynamic Prefetch request.

**Max Concur Prefetch I/O**
The highest number of concurrent prefetch I/O streams that were allocated to support I/O parallelism.

**Workfile Maximum**
The maximum number of work files that are allocated during sort/merge processing during the current statistics period.

**BP Hit % - Random**
The percentage of times that DB2 performed a Getpage operation with a random request and the page was already in the buffer pool. A DASD read was not required.
BP Hit % - Sequential
The percentage of times that DB2 performed a Getpage operation with a sequential request and the page was already in the buffer pool. A DASD read was not required.

Virtual Page Steal Method
Determines when and whether performance-critical objects in buffer pools are removed from buffer pools when the space is needed by other objects. Valid values:

- LRU  “Least Recently Used” objects are removed first.
- FIFO Oldest objects are removed first (First-In-First-Out).
- NONE Objects are not removed from buffer pool (no page stealing). This setting provides the highest availability for business-critical objects.

Random Getpage Buffer Hit
The number of times that the random Getpage request has a buffer hit and the buffer is on the least-recently-used (SLRU) chain. DB2 11.1 and later. (Field name: QBSTRHS)

LWM Buffers on SLRU
The minimum number of buffers on the sequential least-recently-used (SLRU) chain in the last statistical period. This is the low-water mark (LWM) within an interval. DB2 11.1 and later. (Field name: QBSTSMIN)

HWM Buffers on SLRU
The maximum number of buffers on the sequential least-recently-used (SLRU) chain in the last statistical period. This is the low water mark (LWM) within an interval. DB2 11.1 and later. (Field name: QBSTSMAX)

For each of the following fields, the following statistics values are provided:

TOTAL QUANTITY
Total quantity, which reflects the amount of activities since DB2 was started.

INTERVAL QUANTITY
Interval quantity, which reflects the amount of activities during the last cycle.

/SECOND
Rate per second during the last cycle. The number under /SECOND (in parentheses) is the number of seconds in the interval.

/THREAD
Rate per thread during the last cycle. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.

/COMMIT
Rate per Commit during the last cycle. The number under /COMMIT (in parentheses) is the number of commit requests (including abort requests) during the interval.

Getpage Requests
The number of Getpage requests for the buffer pool.

Getpage Requests - Sequential
The number of Getpage requests issued by sequential access requestors.
Getpage Requests - Random
The number of Getpage requests issued by random access requestors.

Getpage Requests - Seq Ovfl
The number of sequential GETPAGE requests using overflowed buffers. DB2 12 and later.

Getpage Requests - Random Ovfl
The number of non-sequential GETPAGE requests using overflowed buffers. DB2 12 and later.

Getpage Failed - VPOOL Full
The number of Getpage failures due to unavailable buffers because the virtual buffer pool is full.

Getpage Failed - Cond Request
The number of conditional getpage requests that cannot be satisfied for this buffer pool. A conditional getpage is used with parallel I/O processing only.

Getpage Failed - Cond SeqReq
The number of conditional sequential getpage requests that failed because the page is not in the buffer pool.
This applies to DB2 9 or higher.

Sync Read I/O Operations
Synchronous read operations done by DB2.

Sync Read I/Os - Sequential
The number of synchronous Read I/O operations performed by sequential requests.

Sync Read I/Os - Random
The number of synchronous Read I/O operations performed by random requests.

Sync Read I/Os - Seq Ovfl
The number of synchronous Read I/O operations performed for sequential GETPAGE requests using overflowed buffers. DB2 12 and later.

Sync Read I/Os - Random Ovfl
The number of synchronous Read I/O operations performed for non-sequential GETPAGE requests using overflowed buffers. DB2 12 and later.

Pages Read via Seq Prefetch
The pages that are read as a result of sequential prefetch requests.

Seq Prefetch I/O Operations
The number of asynchronous read I/Os that are caused by sequential prefetch.

Sequential Prefetch Requests
Sequential prefetch requests for the buffer pool.

Pages Read via List Prefetch
The pages read as a result of list prefetch requests.

List Prefetch I/O Operations
The number of asynchronous read I/Os caused by list prefetch.

List Prefetch Requests
The List prefetch requests for the buffer pool.
Pages Read via Dyn Prefetch
The pages read as a result of dynamic prefetch requests. Dynamic prefetch is triggered because of sequential detection.

Dyn Prefetch I/O Operations
The number of asynchronous read I/Os caused by dynamic prefetch.

Dyn Prefetch Requests
The number of dynamic prefetch requests for the buffer pool.

Prefetch Failed - No Buffer
Failures of prefetch because the sequential prefetch threshold (SPTH) is reached.

Prefetch Failed - No Engine
Failures of prefetch because the maximum number of concurrent prefetches is reached. You cannot change this maximum value.

Parallel Group Requests
The number of requests made for processing queries in parallel.

Prefetch I/O Streams Reduced
The number of requested prefetch I/O streams that are denied because of a buffer pool shortage. This applies only for non-work file pagesets for queries that are processed in parallel.

Parallelism Downgraded
The number of times the requested number of buffers to allow a parallel group to run to the planned degree cannot be allocated because of a buffer pool shortage.

Prefetch Quan Reduced to 1/2
The number of times the sequential prefetch quantity is reduced from normal to one-half of normal. This is done to continue to allow execution concurrently with parallel I/O.

Prefetch Quan Reduced to 1/4
The number of times the sequential prefetch quantity is reduced from one-half to one-quarter of normal.

Pages Added to LPL
The number of times one or more pages are added to logical page lists (LPL). (Field name: QBSTLPL)

Length of SLRU=VPSEQT
The number of times when the length of the sequential least-recently-used (SLRU) chain equals the sequential steal threshold VPSEQT. DB11 and later. (Field name: QBSTHST)

Pages Updated
The number of updates to pages in the buffer pool.

Pages Written
The number of buffer pool pages written to DASD.

Page-in Required for Write I/O
The number of page-ins that are required for write I/O operations.

Write I/O Operations
The number of Write operations performed by media manager for both synchronous and asynchronous I/O.

Immediate (Sync) Writes
Immediate writes to DASD. This value is incremented when 97.5% of the
buffer pool pages are used. In addition, DB2 might flag buffer pool pages for immediate write during checkpoint processing and when a database is stopped.

Consider the value of Data Manager Threshold Reached (DMTH) when interpreting this value. If DMTH is zero, this value is probably insignificant.

**Vert Defer Wrt Threshold Reached**
The number of times the vertical write threshold is hit.

**Deferred Write Threshold Reached**
The Deferred Write Threshold (DWTH) is reached. This occurs in the following situations:
- If DB2 uses 50% of the buffer pool.
- If a data set has updated 10% of the buffer pool pages or 64 pages. At this threshold, DB2 forces writes to free pool space.

**Data Manager Threshold Reached**
Data manager threshold (DMTH) is reached. This occurs when DB2 uses 95% of the buffer pool minimum value and begins to operate at the row level instead of the page level. When this occurs, CPU usage increases considerably.

**Successful VPOOL Expand/Contract**
The number of successful virtual pool expansions or contractions because of the ALTER BUFFERPOOL command.

**VPOOL Expand Failed**
The number of virtual buffer pool expansion failures.

**Successful Dataset Opens**
The number of data set open operations that are successful.

**DFHSM Recall**
Attempts to access data sets that are migrated by DFHSM.

**DFHSM Recall Timeouts**
Unsuccessful attempts to recall data sets because the timeout threshold (DSNZPARM RECALLD) is exceeded.

**Sort Merge Passes**
The number of merge passes for DB2 sort/merge processing.

**Sort/Merge Workfile Requests**
The number of work files requested during sort/merge processing.

**Sort/Merge Workfile Requests Denied**
The number of requests for work files that are denied during merge processing because of insufficient buffer resources.

**Sort Merge Pass - Buff Short**
The number of times that sort/merge cannot efficiently perform because of insufficient buffer resources. This field is incremented when the number of work files allowed is less than the number of work files requested.

**Workfile Prefetch Disabled**
The number of times a workfile prefetch is not scheduled because the prefetch quantity is zero.

**Workfile Create Failed - No Buff**
The number of times a work file is not created because of insufficient buffers (MVS/XA only).
**Destructive Read Requests**

The number of pages that are requested for destructive read processing.

**Destructive Read Page Dequeue**

The number of pages that are dequeued for destructive read processing.

**Buffer Pool Snapshot Open Pagesets**

This panel shows pageset information about specified buffer pools.

```
+-----------------+---------------+----------+----------+----------+----------+--------+
<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Use Count</th>
<th>Open VP Pgs</th>
<th>VP Pgs Current</th>
<th>VP Pgs Changed</th>
<th>Grp Dep</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSNDB01.SPT01</td>
<td>TABLESPACE</td>
<td>2</td>
<td>1</td>
<td>4720</td>
<td>0</td>
<td>Y</td>
</tr>
<tr>
<td>DSNDB06.SYSBASE</td>
<td>TABLESPACE</td>
<td>1</td>
<td>1</td>
<td>5152</td>
<td>2</td>
<td>Y</td>
</tr>
<tr>
<td>DSNDB06.SYSHIST</td>
<td>TABLESPACE</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N</td>
</tr>
<tr>
<td>DSNDB06.SYSSTR</td>
<td>TABLESPACE</td>
<td>1</td>
<td>1</td>
<td>9</td>
<td>0</td>
<td>N</td>
</tr>
<tr>
<td>DSNDB06.SYSVIEWS</td>
<td>TABLESPACE</td>
<td>1</td>
<td>1</td>
<td>117</td>
<td>0</td>
<td>Y</td>
</tr>
<tr>
<td>DSNDB06.SYSXML</td>
<td>TABLESPACE</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>N</td>
</tr>
</tbody>
</table>
```

**Navigation**

For additional information about:

- a particular pageset, move the cursor to the required pageset name line and press F1 (Zoom). For more information, see the "Buffer Pool Snapshot Datasets" on page 1124 panel.
- other topics, use the PF keys.

**Fields**

**Pageset Name**

Name of open pagesets in the buffer pool. The pageset name consists of DBname.TSname for a tablespace, or DBname.ISname for an indexspace.

**Pageset Type**

Pageset type, which is either tablespace or indexspace.

**Use Count**

Number of applications currently accessing the pageset.

**Open DS**

Number of data sets open for the pageset.

**VP Pgs Current**

Number of pages currently in the virtual buffer pool for this data set.

**VP Pgs Changed**

Number of dirty pages currently in the virtual buffer pool for this data set.

**GRP Dep**

Indicates whether the object is group buffer pool dependent.
**Buffer Pool Snapshot Datasets**

This panel provides detailed information for each open data set in the buffer pool.

---

**Navigating**

For additional information about other topics, use the PF keys.

**Fields**

**BP**  
Buffer pool name.

**Pageset Name**  
Name of the pageset. The pageset name comprises DBname.TSname for a tablespace, or DBname.ISname for an indexspace.

**Type**  
Pageset type, either tablespace or indexspace.

**Open Datasets**  
Number of data sets open for the pageset.

The following fields below are displayed for each open data set:

**Dataset Name**  
The name of the data set associated with this pageset piece.

**VP Pages Current**  
Number of pages currently in the virtual buffer pool for this data set.

**VP Pages Maximum**  
Maximum number of pages concurrently in the virtual buffer pool for this data set - high-water mark since the last **DISPLAY BUFFERPOOL** command with the LSTATS option was issued.

**VP Pages Changed**  
Number of dirty pages currently in the virtual buffer pool for this data set.

**VP Pages Changed Maximum**  
Maximum number of dirty pages concurrently in the virtual buffer pool for this data set - high-water mark since the last **DISPLAY BUFFERPOOL** command with the LSTATS option was issued.

The following data set statistics are available only if there was activity for the data set since it was last displayed using the **DISPLAY BUFFERPOOL** command. These
values match the data set statistics kept by DB2, which are incremented since the
data set was last displayed using the DISPLAY BUFFERPOOL command. If all values
are zero, N/A is displayed for these fields.

**Sync I/O Total Pages**
Total number of pages read or written synchronously for the data set.

**Sync I/O Average Delay**
Average synchronous I/O delay in milliseconds for pages in the data set.

**Sync I/O Maximum Delay**
Maximum synchronous I/O delay in milliseconds for pages in the data set.

**Async I/O Average Delay**
Average asynchronous I/O delay in milliseconds for pages in the data set.

**Async I/O Maximum Delay**
Maximum asynchronous I/O delay in milliseconds for pages in the data set.

**Async I/O Total Pages**
Total number of pages read or written asynchronously for the data set.

**Async I/O Total I/O Count**
Total number of asynchronous I/Os issued for the data set.

**Group BP Dependent**
Indicates whether the pageset or partition is dependent upon the group
buffer pool from either
- active inter-DB2 read/write interest
- changed pages in the group buffer pool that have not yet been castout to
  DASD

This field applies only in a data sharing environment.

**Group Interest Level**
The highest interest level of all data sharing group members interested in a
pageset or partition that is in the group buffer pool. This field applies only
in a data sharing environment. Possible values:

- **R/O**  Read-only interest
- **R/W**  Read/write interest (higher)

**Group BP Cache Level**
Displays the default GBPCACHE option specified on CREATE
TABLESPACE SQL statement. The default is CHANGED, which specifies
that only updated pages are written to the group buffer pool. ALL specifies
that pages are to be cached in the group buffer pool as they are read from
DASD. This field applies only to a data sharing environment.

**Group Buffer Pool Information**
This panel provides information about group buffer pools that a DB2 member
connected to.

This panel is only available in a data sharing environment.
### Navigation

For additional information about

- a group buffer pool, move the cursor to the buffer pool line and press F11 (Zoom). For more information, see the description of panel “Group Buffer Pool Detail” on page 1127.
- buffer pools, enter A in the top line.
- other topics, use the PF keys.

### Fields

**Pool ID**

The group buffer pool identifier.

**Read Rate**

The number of reads per second to the group buffer pool.

**Read Hit %**

The percentage of all Reads to the group buffer pool for which the needed data was found and returned to the member.

**Pages Not Returned - R/W Int %**

The percentage of all Reads to the group buffer pool where

- the data was not found in the group buffer pool and the member had to go to DASD to read the page, and
- other members had read/write interest in the pageset, so DB2 created a directory entry for this page if it did not already exist.

**Read/Write Failed**

The number of Read or Write requests to the group buffer pool that failed because of a lack of storage resources.

**Write Rate**

The number of Writes per second to the group buffer pool.

**Pages Castout**

The number of pages that this member has castout to DASD from the group buffer pool.

### Group Buffer Pool Information

<table>
<thead>
<tr>
<th>Pool ID</th>
<th>Rate</th>
<th>Hit %</th>
<th>Pages Not Returned</th>
<th>Read/Write Failed</th>
<th>Write Rate</th>
<th>Pages Castout</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBP0</td>
<td>13.00</td>
<td>54.1</td>
<td>45.9</td>
<td>0</td>
<td>98.00</td>
<td>13717</td>
</tr>
<tr>
<td>GBP16K0</td>
<td>.00</td>
<td>.0</td>
<td>.0</td>
<td>0</td>
<td>.00</td>
<td>5</td>
</tr>
<tr>
<td>GBP2</td>
<td>.00</td>
<td>.0</td>
<td>.0</td>
<td>0</td>
<td>.00</td>
<td>381</td>
</tr>
<tr>
<td>GBP3</td>
<td>.00</td>
<td>56.0</td>
<td>44.0</td>
<td>0</td>
<td>.00</td>
<td>960</td>
</tr>
<tr>
<td>GBP32K</td>
<td>.00</td>
<td>.0</td>
<td>100.0</td>
<td>0</td>
<td>.00</td>
<td>5</td>
</tr>
<tr>
<td>GBP8K0</td>
<td>.33</td>
<td>.0</td>
<td>100.0</td>
<td>34</td>
<td>5.33</td>
<td>8573</td>
</tr>
</tbody>
</table>
**Group Buffer Pool Detail**

This panel provides detailed information about the current activity in the specified DB2 group buffer pool or summarized information for all group buffer pools.

<table>
<thead>
<tr>
<th>GBP</th>
<th>VTM</th>
<th>O2</th>
<th>VS40.4P SN12</th>
<th>11/05/13 14:08:43</th>
<th>2</th>
</tr>
</thead>
</table>
| > Help PF1 | Back PF3 | Up PF7 | Down PF8 | > |}

For additional information about:
- Buffer pool contents, select option **A-BUFFER POOL** at the top of the panel.
- Near-term history activity, select option **H-HISTORICAL** at the top of the panel.
- Other topics, use the PF keys.

**Fields**

If a group buffer pool is not currently in use by DB2, all fields are zero. OMEGAMON XE for DB2 PE displays accumulated counts again when DB2 is using the group buffer pool.

**Collection Interval**

This field displays **REALTIME** to indicate that you are looking at the realtime version of this panel and not at the corresponding near-term history panel. The collection interval and the report interval are the same in this panel.

**Start**

The start time of the report interval currently displayed.

**Report Interval**

The time in the last cycle (for example, between two presses of the Enter key).
End  The end time of the report interval currently displayed.

Read Hit %
The percentage of all Reads to the group buffer pool for which the needed data was found and returned to the member.

For each of the following fields, the following statistics values are provided:

**TOTAL QUANTITY**
Total quantity, which reflects the amount of activities since DB2 was started.

**INTERVAL QUANTITY**
Interval quantity, which reflects the amount of activities during the last cycle.

/SECOND
Rate per second during the last cycle. The number under /SECOND (in parentheses) is the number of seconds in the interval.

/THREAD
Rate per thread during the last cycle. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.

/COMMIT
Rate per Commit during the last cycle. The number under /COMMIT (in parentheses) is the number of commit requests (including abort requests) during the interval.

**Reads - Cross Invalidation: Data Returned**
The number of reads to the group buffer pool required because the page in the member’s buffer pool was invalidated, where the data was found and returned to the member.

**Reads - Cross Invalidation: Data not in GBP-R/W Interest**
The number of reads to the group buffer pool required because the page in the member’s buffer pool was invalidated, where:
- The data was not found in the group buffer pool and the member had to go to DASD to read the page
- Other members had read/write interest in the pageset, so DB2 created a directory entry for this page if it did not already exist.

**Reads - Page Not Found: Data Returned**
The number of reads to the group buffer pool required because the page was not in the member’s buffer pool where the data was found and returned to the member.

**Reads - Page Not Found: Data not in GBP-R/W Interest**
The number of reads to the group buffer pool required because the page was not in the member’s buffer pool, where:
- The data was not found in the group buffer pool and the member had to go to DASD to read the page
- Other members had read/write interest in the pageset, so DB2 created a directory entry for this page if it did not already exist.

**Writes - Synchronous: Changed Pages**
The number of changed pages that are synchronously written to the group buffer pool. Pages can be forced out before the application commits if a
buffer pool threshold is reached, or when P-lock negotiation forces the pages on the Vertical Deferred Write queue to be written to the group buffer pool.

**Writes - Synchronous: Clean Pages**
The number of clean pages that are synchronously written to the group buffer pool. DB2 writes clean pages for pagesets and partitions defined with GBPCACHE ALL.

**Writes - Asynchronous: Changed Pages**
The number of changed pages asynchronously written to the group buffer pool. Pages can be forced out before the application commits if a buffer pool threshold is reached, or when P-lock negotiation forces the pages on the Vertical Deferred Write queue to be written to the group buffer pool.

**Writes - Asynchronous: Clean Pages**
The number of clean pages asynchronously written to the group buffer pool. DB2 writes clean pages for pagesets and partitions defined with GBPCACHE ALL.

**Write Failed - No Storage**
The number of group buffer pool write requests that failed because of a shortage of coupling facility resources.

**Pages Castout to DASD**
The number of pages that this member has castout to DASD from the group buffer pool.

**GBP Castout Threshold Reached**
The number of times that castout was initiated because the group buffer pool castout threshold was reached.

**Castout Class Threshold Reached**
The number of times that castout was initiated because the castout class threshold was reached.

**Other Requests**
The number of other requests.

**DB2 Log Manager Information**
This panel shows information about the active logging and archiving activity of the DB2 log manager.

The panel shows current statistics about log read and write activity and read and write log allocations. The panel also provides information regarding where DB2 is in the checkpoint cycle.
OMEGAMON XE for DB2 PE highlights some fields in this panel to draw your attention to their current status:

<table>
<thead>
<tr>
<th>LOGM</th>
<th>TOTAL</th>
<th>INTERVAL</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>QUANTITY</td>
<td>QUANTITY</td>
<td>(4)</td>
<td>(0)</td>
<td>(0)</td>
</tr>
<tr>
<td>+ Reads from Output Buffers</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Reads from Active Log</td>
<td>357</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Reads from Archive Log</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Reads Delayed - Tape Contention</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Reads Delayed - No Tape Unit</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Look-Ahead TapeMounts Attempted</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Look-Ahead TapeMounts Performed</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Write NOWAIT Requests</td>
<td>496</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Write FORCE Requests</td>
<td>54</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Write Delayed - No Buffer</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Write Active Log Buffers</td>
<td>87</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Active Log CIs Created</td>
<td>23</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Archive Log Read Allocations</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Archive Log Write Allocations</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Archive Log CIs Offloaded</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ BDS Access Requests</td>
<td>106</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Checkpoints</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ IFI Abends</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ IFI Unrecog Func</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ IFI Command Reqs</td>
<td>15</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ IFI READA Reqs</td>
<td>325</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ IFI READS Reqs</td>
<td>33</td>
<td>3</td>
<td>.75</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ IFI WRITE Reqs</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Data Capture Invoked</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Data Capture READS</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Data Capture Rec Returned</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Data Capture Row Returned</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Data Capture Desc Returned</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Data Capture Desc Performed</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Data Capture Table Returned</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Rollup (Threshold)</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Rollup (Storage)</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Rollup (Stallness)</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>+ Rollup (Non Qual)</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
<td>.00</td>
</tr>
</tbody>
</table>
Table 113. Highlighted fields in Log Manager Information panel

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logs Available</td>
<td>LOGN</td>
<td>The number of log data sets available.</td>
</tr>
<tr>
<td>Archive In Progress</td>
<td>ARCV</td>
<td>The archive log is waiting for a tape mount.</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about

- a particular log data set, move the cursor to the log data set name line and press F11 (Zoom). For more information, see the description of panel “DB2 Log Dataset Information” on page 1134.
- Near-term history activity, select option H-HISTORICAL at the top of the panel.
- other topics, use the PF keys.

**Fields**

**Collection Interval**

This field displays REALTIME to indicate that you are looking at the real-time version of this panel and not at the corresponding near-term history panel. The collection interval and the report interval are the same in this panel.

**Start**

The start time of the report interval currently displayed.

**Report Interval**

The time in the last cycle (for example, between two presses of the Enter key).

**End**

The end time of the report interval currently displayed.

**Logging Mode**

The logging mode in use: DUAL or SINGLE. The logging mode is specified in the TWOACTV parameter of the DSNZPARM module.

**Archiving Mode**

The archiving mode: DUAL or SINGLE. The archiving mode is specified in the TWOARCH parameter of the DSNZPARM module.

**Number of Logs Defined**

The number of logs defined to DB2 at installation.

**Number of Logs Available**

The number of logs available that are not archived, that is, the number that are ready for use.

**Checkpoint Frequency**

The number of log records DB2 will write between checkpoints.

**Records until Checkpoint**

The number of log records to write until the next checkpoint.

**Input Buffer Size**

The size of the log buffer for reading. The buffer size is specified in the INBUFF parameter of the DSNZPARM module.

**Output Buffer Size**

The size of the log buffer for writing. The buffer size is specified in the OUTBUFF parameter of the DSNZPARM module.
Write Threshold
The number of 4K buffers that would normally be filled before a physical I/O is performed. This number is specified in the WRTHRSH parameter of the DSNZPARM module.

Current Log Record RBA
The relative byte address (RBA) of the record that was being logged at the end of the interval.

Primary Active Log
The data set name of the primary log.

Secondary Active Log
The data set name of the second copy of a dual logged log.

Archive in Progress
The data set name of the active archive log, if an archive is in progress.

For each of the following fields, the following statistics values are provided:

TOTAL QUANTITY
Total quantity, which reflects the amount of activities since DB2 was started.

INTERVAL QUANTITY
Interval quantity, which reflects the amount of activities during the last cycle.

/SECOND
Rate per second during the last cycle. The number under /SECOND (in parentheses) is the number of seconds in the interval.

/THREAD
Rate per thread during the last cycle. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.

/COMMIT
Rate per Commit during the last cycle. The number under /COMMIT (in parentheses) is the number of commit requests (including abort requests) during the interval.

Reads from Output Buffers
The Reads that were satisfied from the output buffers.

Reads from Active Log
The Reads that were satisfied from the active log.

Reads from Archive Log
The Reads that were satisfied from the archive log.

Reads Delayed - Tape Contention
The number of reads delayed because a tape volume was already in use.

Reads Delayed - No Tape Unit
Number of archive log reads that were delayed because of unavailable tape units, or because the maximum amount of read parallelism is being used (not likely).

Look-Ahead Tape Mounts Attempted
Number of look-ahead tape mounts attempted.

Look-Ahead Tape Mounts Performed
Number of successful look-ahead tape mounts.
Write NOWAIT Requests
   The times DB2 externalized log records asynchronously.

Write FORCE Requests
   The times DB2 externalized log records synchronously.

Write Delayed - No Buffer
   DB2 attempts to place log records in the output buffer when no log buffer could be found.

Write Active Log Buffers
   Calls to the log write routine.

Active Log CIs Created
   Active log control intervals created.

Archive Log Read Allocations
   Archive read allocations, which reflect archive log open/close activity.

Archive Log Write Allocations
   Archive write allocations, which reflect archive log open/close activity.

Archive Log CIs Offloaded
   Number of active log control intervals offloaded to archive data sets.

BSDS Access Requests
   Calls to the bootstrap data set access routine.

Checkpoints
   The number of checkpoints DB2 takes since startup.

IFI Abends
   The count of IFI abends.

IFI Unrecog Func
   The count of IFI unrecognized functions.

IFI Command Reqs
   The count of IFI command requests.

IFI READA Reqs
   The count of IFI READA requests.

IFI READS Reqs
   The count of IFI READS requests.

IFI WRITE Reqs
   The count of IFI WRITE requests.

Data Capture Invoked
   The number of log records retrieved for which data capture processing is invoked.

Data Capture READS
   The number of data capture log reads for processing IFI requests for IFCID 0185.

Data Capture Rec Returned
   The number of data capture log records returned.

Data Capture Row Returned
   The number of data capture data rows returned.

Data Capture Desc Returned
   The number of data capture data descriptions returned.
Data Capture Desc Performed
The number of data capture descriptors performed.

Data Capture Table Returned
The number of data capture tables returned.

Rollup (Threshold)
The number of rollup accounting records that are written because the rollup threshold is exceeded.

Rollup (Storage)
The number of rollup accounting records that are written because the rollup accounting storage threshold is exceeded.

Rollup (Stallness)
The number of rollup accounting records that are written because the staleness threshold is exceeded.

Rollup (Non Qual)
The number of records that failed to qualify for accounting rollup because all rollup key fields are NULL, or NULL values are not permitted.

DB2 Log Dataset Information
This panel shows information about the activity of the DB2 log manager in the area of active logging and archival.

The current statistics about log read and write activity and read and write log allocations are shown. In addition, information where DB2 is in the checkpoint cycle is shown.

<table>
<thead>
<tr>
<th>LOGD</th>
<th>VTM</th>
<th>O2</th>
<th>V540.HZ</th>
<th>SE11</th>
<th>06/24/13</th>
<th>19:12:39</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Help PF1</td>
<td>Back PF3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;</td>
<td>DB2 LOG DATASET INFORMATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOGD</td>
<td>+</td>
<td>Primary Active Log Is DBN1.SE11.LOGCOPY1.DS03</td>
<td>+</td>
<td>Log Percent Used = 0%</td>
<td>+</td>
<td>Log Dataset Size = 73727999</td>
<td>+</td>
</tr>
</tbody>
</table>

| + | Secondary Active Log Is DBN1.SE11.LOGCOPY2.DS02 | + | Log Percent Used = 0% | + | Log Dataset Size = 73727999 | + | Beginning Log RBA = 00000000012BCDF2F000 | + | Ending Log RBA = 00000000012BCDF2EFFF | + | Current Log RBA = 00000000012BCDF5A868 | + | Log Volser = PM05D2 |

| + | Archive In Progress For DBN1.SE11.ARCHLOG1.D13038.T1912386.A0018799 | + | Percent Archive Complete = 38% | + | Begin RBA = 00000000012BC9BDF000 | + | End RBA to Archive = 00000000012BCDF2EFFF | + | High RBA Archived = 00000000012BC83A4000 | + | Output Device Type = DASD | + | Output Volser = PM05M4 |

Highlighting
OMEGAMON XE for DB2 PE highlights some fields in this panel to draw your attention to their current status:
Table 114. Highlighted fields in Log Dataset Information panel

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archive In Progress For</td>
<td>ARCV</td>
<td>The archive log is waiting for a tape mount.</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about other topics, use the PF keys.

**Fields**

**Primary Active Log Is**
   The data set name of the active log.

**Log Percent Used**
   The percentage of the active log that has been filled.

**Log Dataset Size**
   The number of bytes in the log data set.

**Beginning Log RBA**
   The beginning RBA address of the active log data set.

**Ending Log RBA**
   The ending RBA address of the active log data set.

**Current Log RBA**
   The current RBA address of the active log data set.

**Log Volser**
   The volume serial(s) of the active log data set.

**Secondary Active Log Is**
   The data set name of the secondary log.

**Log Percent Used**
   The percentage of the secondary log that has been filled.

**Log Dataset Size**
   The number of bytes in the secondary log data set.

**Beginning Log RBA**
   The beginning RBA address of the secondary log data set.

**Ending Log RBA**
   The ending RBA address of the secondary log data set.

**Current Log RBA**
   The current RBA address of the secondary log data set.

**Log Volser**
   The volume serial(s) of the secondary log data set.

**Archive In Progress For**
   The data set name of the active archive log.

**Begin RBA**
   The beginning RBA of the archive log.

**End RBA to Archive**
   The last RBA to be archived.
**High RBA Archived**
The last RBA written to the archive log.

**Percent Archive Complete**
The amount of the archival that has completed.

**Output Device Type**
The device type of the archive log.

**Output Volser**
The volser(s) of the archive log.

**EDM Pool Information**
This panel provides information about the activity in the EDM pool and its performance.

Depending on the DB2 version that is used, the content of this panel is different.

The following panel shows the display of DB2 10:

```
<table>
<thead>
<tr>
<th>Collection Interval: REALTIME</th>
<th>Start: 07/30 02:04:09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report Interval: 1 sec</td>
<td>End: 07/30 02:04:12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pool Usage</th>
<th>Pages Pct</th>
<th>Percent of Total EDM Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ DBD Pool:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Total</td>
<td>25600 100%</td>
<td></td>
</tr>
<tr>
<td>+ Held</td>
<td>169 1%</td>
<td></td>
</tr>
<tr>
<td>+ Stealable</td>
<td>83 0%</td>
<td></td>
</tr>
<tr>
<td>+ Free</td>
<td>25431 99%</td>
<td></td>
</tr>
<tr>
<td>+ In Use</td>
<td>86 0%</td>
<td></td>
</tr>
</tbody>
</table>

| + SKEL Pool: |           |                           |
| + Total      | 25600 100%|                           |
| + Held       | 1 0%      |                           |
| + Stealable  | 22 0%     |                           |
| + Free       | 25577 100%|                           |
| + In Use     | 0 0%      |                           |

| + STMT Pool: |           |                           |
| + Total      | 28346 100%|                           |
| + Held       | 4 0%      |                           |
| + Free       | 28342 100%|                           |

| xProc Request | 0          |
| xProc Total Allocation | 0          |
| Plan Below the Bar Allocation | 0          |
| Package Below the Bar Allocation | 0          |
| Plan Above the Bar Allocation | 16896      |
| Package Above the Bar Allocation | 0          |
```

IBM Db2 Performance Expert on z/OS
The following panel shows the display of DB2 11 and later versions:
**EDM Pool Information**

**Collection Interval:** REALTIME  
**Start:** 07/30 01:41:19

**Report Interval:** 4 sec  
**End:** 07/30 01:53:27

### Pool Usage

<table>
<thead>
<tr>
<th>Pages</th>
<th>Pct</th>
<th>Percent of Total EDM Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBD Pool:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>25600</td>
<td>100%</td>
</tr>
<tr>
<td>Held</td>
<td>108</td>
<td>0%</td>
</tr>
<tr>
<td>Stealable</td>
<td>13</td>
<td>0%</td>
</tr>
<tr>
<td>Free</td>
<td>25492</td>
<td>100%</td>
</tr>
<tr>
<td>In Use</td>
<td>95</td>
<td>0%</td>
</tr>
</tbody>
</table>

| SKEL Pool: | | |
| Total | 25600 | 100% |
| SKCT Held | 8 | 0% |
| SKPT Held | 124 | 0% |
| Stealable | 132 | 1% |
| Free | 25468 | 99% |
| In Use | 0 | 0% |

| STMT Pool: | | |
| Total | 28346 | 100% |
| STMT Held | 28338 | 100% |
| Free | 8 | 0% |

### Shareable Static SQL Requests
- Total Allocation for Shareable Static SQL: 23624
- Plan Below the Bar Allocation: 0
- Package Below the Bar Allocation: 0
- Plan Above the Bar Allocation: 21120
- Package Above the Bar Allocation: 0

---

---
### Highlighting

OMEGAMON XE for DB2 PE highlights some fields in this panel to draw your attention to their current status:

**Table 115. Highlighted fields in EDM Pool Information panel**

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pages In Use</td>
<td>EDMU</td>
<td>The utilization of the EDM pool has reached or exceeded its threshold.</td>
</tr>
<tr>
<td>Pct In Use</td>
<td>EDMU</td>
<td>The utilization of the EDM pool has reached or exceeded its threshold.</td>
</tr>
</tbody>
</table>

### Navigation

For additional information about

- the contents of the EDM pool, select option **A-EDM Pool Snapshot**. For more information, see the description of panel "EDM Pool Snapshot Summary" on page 1143.
- the corresponding near-term history display, enter H on the top line and press Enter.
- other topics, use the PF keys.

**Fields**

Collection Interval

In this field, always REALTIME is displayed to indicate that you are...
looking at the realtime version of this panel instead of the corresponding near-term history panel. On the EDM Pool Information panel, the collection interval and the report interval are the same.

**Start**  The start time of the report interval that is currently displayed.

**Report Interval**  The amount of time in the last cycle, for example, the time between two presses of the Enter key.

**End**  The end time of the report interval that is currently displayed.

**Pool Usage**  The following types of EDM pools are available:

- EDM Database Descriptor (DBD) Pool
- EDM Statement (STMT) Pool
- EDM Skeleton (SKEL) Pool

For the above pool types, the following information is displayed. It is based on a snapshot of the data that is taken at the end of the report interval.

**Pages**  The number of pages that is dedicated to a particular type of pool usage.

**PCT**  The percentage of the EDM pool dedicated to that type of usage.

**Total**  The total number of pages in this type of type of EDM pool. For DB2 12 the Total Pages is based on DSNZPARM configured Maximum.

**Held**  The number of pages held in this type of type of EDM pool.

**CT Held**  Pages held in RDS pool for the cursor tables. This applies only to DB2 9, below and above the bar usage.

**PT Held**  Pages held in RDS pool for the package tables. This applies only to DB2 9, below and above the bar usage.

**SKCT Held**  Pages held in SKEL pool for skeleton cursor tables.

**DBD Held**  Pages held in DBD pool.

**STMT Held**  Pages held in STMT pool.

**Stealable**  The total number of pages that can be reused.

**Free**  The number of pages currently not used by any object in this type of EDM pool.

**In Use**  The number of pages that are used in this type of EDM pool. This applies only to DBD and SKEL pools.

The percentage of DBD In Use is calculated like this:

\[ \frac{(\text{In Use} - \text{Stealable/Reusable})}{\text{Total}} \times 100 \]
The percentage of SKEL in Use is calculated like this:

\[
\frac{(SKCTs + SKPTs) - Stealable/Reusable}{Total} \times 100
\]

**xProc Request (QISEKSPG)**
The total number of requests for PROCS.
This applies to DB2 10.

**xProc Total Allocation (QISEKSPA)**
The total number of pages that are allocated for xPROCS.
This applies to DB2 10.

**Shareable Static SQL Requests (QISEKSPG)**
The number of shareable static SQL statement requests.
This applies to DB2 11 or higher.

**Total Allocation Shareable Static SQL (QISEKSPA8)**
The total storage that is allocated to shareable static SQL statements.
This applies to DB2 11 or higher.

**SKEL Reusable (QISEKLRU)**
The total number of SKPT and SKCT pages that can be reused.
This applies to DB2 10 or higher.

**DBD Reusable (QISEDRLRU)**
The total number of DBD pages that can be reused.
This applies to DB2 10 or higher.

**Plan Below the Bar Allocation (QISESQCB)**
The amount of storage below the bar that is allocated for plans.
This applies to DB2 10 or higher.

**Package Below the Bar Allocation (QISESQKB)**
The amount of storage below the bar that is allocated for packages.
This applies to DB2 10 or higher.

**Plan Above the Bar Allocation (QISESQCA)**
The amount of storage above the bar that is allocated for plans.
This applies to DB2 10 or higher.

**Package Above the Bar Allocation (QISESQKA)**
The amount of storage above the bar that is allocated for packages.
This applies to DB2 10 or higher.

For each of the following fields, the following statistics are provided:

**TOTAL QUANTITY**
The amount of activities that occurred since DB2 is started.

**INTERVAL QUANTITY**
The amount of activities that occur during the interval.

/SECOND
Rate per second. The number under /SECOND (in parentheses) is the number of seconds in the interval.

/THREAD
Rate per thread. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.
/COMMIT
Rate per Commit. The number under /COMMIT (in parentheses) is the number of Commit requests (including abort requests) during the interval.

Failures due to DBD Pool Full
Failures that occurred because the DBD pool is full. DB2 10 and DB2 11 only.

Failures due to STMT Pool Full
Failures that occurred because the STMT pool is full. DB2 10 and DB2 11 only.

Failures due to SKEL Pool Full
Failures that occurred because the SKEL pool is full. DB2 10 and DB2 11 only.

Database Descriptor (DBD) Reqs
Requests for database descriptors.

DBD Loads
Database descriptors that have to be loaded from DASD.

% of DBD Loads from DASD
The percentage of DBD requests that result in DT loads from DASD.
This value should be kept low. 20% or lower is considered acceptable.

Cursor Table (CT) Reqs
Requests for cursor tables.

CT Loads
Cursor tables that have to be loaded from DASD.

% of CT Loads from DASD
The percentage of CT requests that resulted in CT loads from DASD.
This value should be kept low. 20% or lower is considered acceptable.

Package Table (PT) Reqs
Requests for package tables.

PT Loads
Package tables that had to be loaded from DASD.

% of PT Loads from DASD
The percentage of PT requests that result in PT loads from DASD.
This value should be kept low. 20% or lower is considered acceptable.

Dynamic SQL (DSC) Reqs
Requests to cache dynamic SQL.

DSC Loads
Dynamic SQL caches that had to be loaded from DASD.

CATALOG Loads
Dynamic SQL cache statements that had to be loaded from CATALOG. DB2 12 and later. (Field name: QISEDPSF)

% of CATALOG Loads into Pool
The percentage of dynamic SQL cache requests that resulted in CATALOG loads into the EDMpool. The higher the value, the more stabilized queries from catalog are used to avoid full prepare. Formula for calculation: QISEDPSF/QISEDSG. DB2 12 and later.
% of DSC Loads into pool
The percentage of dynamic SQL cache requests that result in DSC loads into the EDM pool.

This value should be kept low. 40% or lower is considered acceptable.

Number of Statements
The number of statements in the EDM pool.

EDM Pool Snapshot Summary
This panel provides information about the contents of the EDM pool.

This information is summarized into the following categories:
• Database descriptors (DBDs)
• Cursor tables (CTs)
• Package tables (PTs)
• Skeleton cursor tables (SKCTs)
• Authorization caching (CACHE)
• Skeleton package tables (SKPTs)
• Dynamic SQL caching (SQL CACHE)
• Static SQL caching (SSC)
• Free storage (FREE).

The following panel applies to version 10 and version 11 of OMEGAMON for Db2 PE.

<table>
<thead>
<tr>
<th>Storage Type</th>
<th>% of EDM Entries</th>
<th>Count of Entries</th>
<th>Avg Pages Entry</th>
<th>Max Pages Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBDs</td>
<td>1.6%</td>
<td>95.0</td>
<td>14</td>
<td>6.7</td>
</tr>
<tr>
<td>FREEDBD</td>
<td>98.4%</td>
<td>5755.0</td>
<td>1</td>
<td>5755.0</td>
</tr>
<tr>
<td>CACHE</td>
<td>.1%</td>
<td>3.0</td>
<td>3</td>
<td>1.0</td>
</tr>
<tr>
<td>SKCTs</td>
<td>.0%</td>
<td>1.0</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>SKPTs</td>
<td>1.3%</td>
<td>33.0</td>
<td>5</td>
<td>6.6</td>
</tr>
<tr>
<td>FREESKEL</td>
<td>98.6%</td>
<td>2523.0</td>
<td>1</td>
<td>2523.0</td>
</tr>
<tr>
<td>SQL CACHE</td>
<td>.0%</td>
<td>4.0</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>Static SQL Cache</td>
<td>N/A</td>
<td>20.0</td>
<td>13</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Navigation

For additional information about
• a particular EDM pool, move the cursor to the required line and press F11 (Zoom).
• other topics, use the PF keys.
Fields

Each field reflects the data that was available when collection was executed. OMEGAMON XE for DB2 PE collects data and refreshes the panel each time you navigate to the panel and each time you reinitiate collection by entering a hyphen (-) to the left of the EDSN command.

EDM Storage Type

A type of EDM storage. Possible values:

- **DBDs**  Database descriptors
- **FREEDBD**  Free database descriptors.
- **CACHE**  Authorization cache storage
- **SKCTs**  Skeleton cursor tables
- **SKPTs**  Skeleton package tables

**Static SQL Cache**  
Static SQL cache storage

EDM Snapshot Database Descriptors

This panel provides information about the database descriptors (DBDs) that are using some portion of the EDM pool.

One line of output is produced for each DBD that was residing in the pool when the displayed data was collected.

<table>
<thead>
<tr>
<th>DBD Name</th>
<th>Pages</th>
<th>Alloc</th>
<th>DBD Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2PM</td>
<td>53</td>
<td>214004</td>
<td></td>
</tr>
<tr>
<td>DMSYSWLD</td>
<td>6</td>
<td>24218</td>
<td></td>
</tr>
<tr>
<td>DSMDB06</td>
<td>60</td>
<td>242270</td>
<td></td>
</tr>
<tr>
<td>DSNRLST</td>
<td>1</td>
<td>4028</td>
<td></td>
</tr>
<tr>
<td>DSN32037</td>
<td>1</td>
<td>4012</td>
<td></td>
</tr>
<tr>
<td>WRKSN12</td>
<td>1</td>
<td>4028</td>
<td></td>
</tr>
</tbody>
</table>

Navigation

For additional information about other topics, use the PF keys.

**Fields**

Each field reflects the data that was available when collection was executed. OMEGAMON XE for DB2 PE collects data and refreshes the panel each time you navigate to the panel.
**DBD Name**
The name of a DBD that resided in the EDM pool when the displayed data was collected.

**Pages Alloc**
The number of pages allocated for the DBD.

**DBD Size**
The actual size (in bytes) of the DBD.

**EDM Snapshot Cursor Tables**
This panel provides information about the cursor tables (CTs) that are using some portion of the EDM pool.

One line of output is produced for each CT that was residing in the pool when the displayed data was collected.

<table>
<thead>
<tr>
<th>Planname</th>
<th>Connid</th>
<th>Corrid</th>
<th>Authid</th>
<th>Pages Alloc</th>
<th>Bytes Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADB</td>
<td>TSO</td>
<td>MIS</td>
<td>MIS</td>
<td>1</td>
<td>3560</td>
</tr>
<tr>
<td>DSNESPCS</td>
<td>TSO</td>
<td>MIS</td>
<td>MIS</td>
<td>1</td>
<td>3584</td>
</tr>
<tr>
<td>KO2PLAN</td>
<td>RRSAF</td>
<td>OMEGAMON</td>
<td>OMPEUSER</td>
<td>1</td>
<td>3696</td>
</tr>
<tr>
<td>KO2PLAN</td>
<td>RRSAF</td>
<td>OMEGAMON</td>
<td>OMPEUSER</td>
<td>1</td>
<td>3696</td>
</tr>
<tr>
<td>KO2PLAN</td>
<td>RRSAF</td>
<td>OMEGAMON</td>
<td>OMPEUSER</td>
<td>1</td>
<td>3696</td>
</tr>
</tbody>
</table>

**Navigation**
For additional information about other topics, use the PF keys.

**Fields**
Each field reflects the data that was available when collection was executed. OMEGAMON XE for DB2 PE collects data and refreshes the panel each time you navigate to the panel.

**Plannname**
The name of a plan that owns a CT that resides in the EDM pool.

**Connid**
The connection ID of a thread that owns a CT.

**Corrid**
The correlation ID of a thread that owns a CT.

**Authid**
The authorization ID of a thread that owns a CT.

**Pages Alloc**
The number of CT pages allocated for the thread.

**Bytes Used**
The number of bytes actually in use by the CTs that are owned by the thread.
EDM Snapshot Package Table Summary

This panel provides summary information for package tables (PTs) that are using some portion of the EDM pool.

One line of output is produced for each active thread located that is using PT storage.

To sort output by display column move the cursor under the display column headings you want to sort and press the sort key (PF10).

<table>
<thead>
<tr>
<th>Package</th>
<th>Pages Alloc</th>
<th>Avg Pages Package</th>
<th>Max Pages Package</th>
<th>Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSNESPCS TSO MIS</td>
<td>1</td>
<td>1.0</td>
<td>1</td>
<td>4044</td>
</tr>
</tbody>
</table>

Navigation

For additional information about
• package tables in use by the thread, move the cursor to the line you want and press F11 (Zoom).
• other topics, use the PF keys.

Fields

Each field reflects the data that was available when collection was executed. OMEGAMON XE for DB2 PE collects data and refreshes the panel each time you navigate to the panel.

Planname
The thread planname that owns package table storage within the EDM pool.

Connid
The thread connection identifier that owns package table storage within the EDM pool.

Corrid
The thread correlation identifier that owns package table storage within the EDM pool.

Package Count
The number of package tables in use by the thread at time of collection.

Pages Alloc
The number of EDM pages allocated for package tables in use by the thread.

Avg Pages Package
The average number of EDM pages used by a single package table in use by the thread.
Max Pages Package
The maximum number of EDM pages used by a single package table in use by the thread.

Bytes Used
The number of bytes actually used within the EDM pages allocated for package tables in use by the thread.

EDM Snapshot Package Table Detail
This panel provides detailed information for package tables (PTs) that are used by an active thread. For each package table, one line of output is produced.

To sort the output by display column, move the cursor under the heading of the display column of your choice and press the sort key (PF10).

<table>
<thead>
<tr>
<th>ZEDP2</th>
<th>VTM</th>
<th>O2</th>
<th>VS40.4P</th>
<th>SNJ2</th>
<th>11/05/13</th>
<th>14:11:37</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;</td>
<td>Help PF1</td>
<td>Back PF3</td>
<td>Up PF7</td>
<td>Down PF8</td>
<td>Sort PF10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;</td>
<td>EDM SNAPSHOT PACKAGE TABLE DETAIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;</td>
<td>EDP2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>Planname=DSNESPCS Connid=TSO Corrid=MIS Authid=MIS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ *</td>
<td>Collection ID Package ID Pages Alloc Bytes Used</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>DSNESM68 DSNESPCS 1 4044</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>===============================================================================</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fields
Each field reflects the data that is available when the collection is started. Each time you are navigating to the panel from the EDM Snapshot Summary display, data is collected by OMEGAMON for Db2 PE and PM and the panel is refreshed.

Plannname
The plan name of the thread that is using the package tables.

Connid
The connection ID of the thread that is using the package tables.

Corrid
The correlation ID of the thread that is using the package tables.

Authid
The authentication ID of the thread that is using the package tables.

Collection ID
The collection identifier of the package table that is specified during the bind of the plan.

Package ID
The identifier of the package table that is specified during the bind of the plan.

Pages Alloc
The number of EDM pages that is allocated for the package table.

Bytes used
The number of bytes that is actually used within the EDM pages that are allocated for the package table.
EDM Snapshot Skeleton Cursor Tables
This panel provides information about the skeleton cursor tables (SKCTs) that are using some portion of the EDM pool.

One line of output is produced for each SKCT that was residing in the pool when the displayed data was collected.

<table>
<thead>
<tr>
<th>Planname</th>
<th>Pages Alloc</th>
<th>Bytes Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADB</td>
<td>1</td>
<td>3096</td>
</tr>
<tr>
<td>DB2PM</td>
<td>1</td>
<td>3096</td>
</tr>
<tr>
<td>DSNESPCS</td>
<td>1</td>
<td>3096</td>
</tr>
<tr>
<td>DSNESPRR</td>
<td>1</td>
<td>3096</td>
</tr>
<tr>
<td>DSNTIA91</td>
<td>2</td>
<td>7688</td>
</tr>
<tr>
<td>K02PLAN</td>
<td>4</td>
<td>14040</td>
</tr>
<tr>
<td>MISPOLY</td>
<td>2</td>
<td>6640</td>
</tr>
</tbody>
</table>

Navigation
For additional information about other topics, use the PF keys.

Fields
Each field reflects the data that was available when collection was executed. OMEGAMON XE for DB2 PE collects data and refreshes the panel each time you navigate to the panel.

Planname
The name of a plan that owns an SKCT that resides in the EDM pool.

Pages Alloc
The number of SKCT pages that are allocated for the plan.

Bytes Used
The number of bytes actually in use by the SKCT that is owned by the plan.

EDM Snapshot Authorization Cache Storage
This panel provides information about DB2 authorization cache storage residing in the EDM pool.

One line of output is produced for each planname which has authorization cache storage allocated at the time the display data was collected. DB2 uses authorization cache storage to cache frequently used authorization identifiers, thus enabling authorization processing to be bypassed. As a result, processing costs associated with signon processing can be minimized. The size of cache storage might be specified when a plan is bound.

To sort output by display column move the cursor under the display column heading you want to sort and press the sort key (PF10).
Navigation

For additional information about other topics, use the PF keys.

Fields

Each field reflects the data that was available when collection was executed. OMEGAMON collects data and refreshes the panel each time you navigate to the panel.

Total Cache Pages Allocated
The total number of cache pages allocated in the EDM pool.

Total Cache Pages Used
The total number of cache pages that contain authorization data enabling authorization to be bypassed.

Total Number of Plans Cached
The total number of plans that have cache storage allocated.

Percent of Cache Used
The percentage of total cache storage containing authorization ID information.

Planname
The planname that has cache storage allocated in the EDM pool.

Cache Size
The number of EDM bytes allocated for cache storage for the plan.

% Used
The percentage of cache storage for the plan in use that contains authorization ID information.

EDM Snapshot Skeleton Package Table Summary
This panel provides information about the skeleton package tables (SKPTs that are using some portion of the EDM pool).

One line of output is produced for each SKPT collection identifier located in the pool when the display data was collected.
To sort output by display column move the cursor under the display column heading you want to sort and press the sort key (PF10).

<table>
<thead>
<tr>
<th>Collection ID</th>
<th>Package Count</th>
<th>Pages Alloc</th>
<th>Avg Pages Package</th>
<th>Max Pages Package</th>
<th>Bytes Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADBL</td>
<td>2</td>
<td>5</td>
<td>2.5</td>
<td>4</td>
<td>15256</td>
</tr>
<tr>
<td>DSNESPCS</td>
<td>1</td>
<td>2</td>
<td>2.0</td>
<td>2</td>
<td>4280</td>
</tr>
<tr>
<td>DSNTEP2</td>
<td>1</td>
<td>5</td>
<td>5.0</td>
<td>5</td>
<td>17424</td>
</tr>
<tr>
<td>DSNTIA11</td>
<td>1</td>
<td>2</td>
<td>2.0</td>
<td>2</td>
<td>4280</td>
</tr>
<tr>
<td>DSNTHAP</td>
<td>1</td>
<td>4</td>
<td>4.0</td>
<td>4</td>
<td>13744</td>
</tr>
<tr>
<td>HONG</td>
<td>2</td>
<td>15</td>
<td>7.5</td>
<td>8</td>
<td>53148</td>
</tr>
<tr>
<td>HONGRSP2</td>
<td>1</td>
<td>4</td>
<td>4.0</td>
<td>4</td>
<td>11352</td>
</tr>
<tr>
<td>HONGRSP3</td>
<td>1</td>
<td>10</td>
<td>10.0</td>
<td>10</td>
<td>29500</td>
</tr>
<tr>
<td>KOZOMS20</td>
<td>3</td>
<td>34</td>
<td>11.3</td>
<td>22</td>
<td>104892</td>
</tr>
<tr>
<td>NULLID</td>
<td>4</td>
<td>84</td>
<td>21.0</td>
<td>27</td>
<td>328768</td>
</tr>
</tbody>
</table>

Navigation

For additional information about detailed skeleton package table information, move the cursor to the line you want and press F11 (Zoom).
- other topics, use the PF keys.

Fields

Each field reflects the data that was available when collection was executed. OMEGAMON XE for DB2 PE collects data and refreshes the panel each time you navigate to the panel.

Collection ID

The collection identifier located in the pool. This value was specified when the package tables were bound.

Package Count

The number of skeleton package tables located in the pool containing the collection identifier.

Pages Alloc

The total number of EDM pool pages allocated for skeleton package tables containing the collection identifier.

Avg Pages Package

The average number of EDM pages per skeleton package table for the collection identifier.

Max Pages Package

The size of the largest skeleton package table in the EDM pool for the collection identifier.

Bytes Used

The number of bytes actually in use by skeleton package table information within the EDM pool pages allocated for the collection identifier.
**EDM Snapshot Skeleton Package Table Detail**

This panel provides detailed information for skeleton package tables (SKPTs) that are owned by a single collection identifier that is using some portion of the EDM pool. For each skeleton package table, one line of output is produced.

To sort the output by display column, move the cursor under the heading of the display column of your choice and press the sort key (PF10).

<table>
<thead>
<tr>
<th>Collection ID</th>
<th>Package ID</th>
<th>Pages Alloc</th>
<th>Bytes Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMSYSWLD</td>
<td>DPTADD</td>
<td>14</td>
<td>47128</td>
</tr>
<tr>
<td></td>
<td>DPTANO</td>
<td>4</td>
<td>14996</td>
</tr>
<tr>
<td></td>
<td>DPTDEL</td>
<td>14</td>
<td>42780</td>
</tr>
<tr>
<td></td>
<td>DPTMGR</td>
<td>12</td>
<td>35940</td>
</tr>
<tr>
<td></td>
<td>DPTSEL</td>
<td>13</td>
<td>37228</td>
</tr>
<tr>
<td></td>
<td>DPTUPD</td>
<td>14</td>
<td>44524</td>
</tr>
<tr>
<td></td>
<td>DPTUPR</td>
<td>17</td>
<td>54872</td>
</tr>
<tr>
<td></td>
<td>EMPADD</td>
<td>32</td>
<td>99776</td>
</tr>
<tr>
<td></td>
<td>EMPANO</td>
<td>4</td>
<td>14996</td>
</tr>
<tr>
<td></td>
<td>EMPORY</td>
<td>32</td>
<td>96040</td>
</tr>
<tr>
<td></td>
<td>EMPSEL</td>
<td>12</td>
<td>34012</td>
</tr>
<tr>
<td></td>
<td>EMPUPD</td>
<td>13</td>
<td>40760</td>
</tr>
<tr>
<td></td>
<td>JBSSEL</td>
<td>19</td>
<td>61732</td>
</tr>
<tr>
<td></td>
<td>LCNSEL</td>
<td>10</td>
<td>27608</td>
</tr>
<tr>
<td></td>
<td>PRJADD</td>
<td>43</td>
<td>137328</td>
</tr>
<tr>
<td></td>
<td>PRJANO</td>
<td>4</td>
<td>14996</td>
</tr>
<tr>
<td></td>
<td>PRJSEL</td>
<td>12</td>
<td>33148</td>
</tr>
<tr>
<td></td>
<td>PRJUPD</td>
<td>10</td>
<td>30260</td>
</tr>
<tr>
<td></td>
<td>SFNSEL</td>
<td>20</td>
<td>66336</td>
</tr>
<tr>
<td></td>
<td>WLDJEMP1</td>
<td>5</td>
<td>27278</td>
</tr>
<tr>
<td></td>
<td>WLDJEMP3</td>
<td>7</td>
<td>20776</td>
</tr>
</tbody>
</table>

**Fields**

Each field reflects the data that is available when the collection is started. Each time you are navigating to the EDM Snapshot Skeleton Package Table Summary display, data is collected by OMEGAMON for Db2 PE and PM and the panel is refreshed.

**Collection ID**

The identifier of the collection that owns the skeleton package tables that are located in the pool.

**Package ID**

The identifier of the skeleton package table.

**Pages Alloc**

The total number of EDM pool pages that are allocated for the skeleton package table.

**Bytes Used**

The number of bytes that is actually used by the skeleton package table information within the EDM pool pages that are allocated for the skeleton package table.
**Dynamic SQL Cache by Authid**

This panel provides information about the dynamic SQL cache by Authid. You can also look at the dynamic SQL cache by end user ID, transaction ID, or by workstation name.

With this panel, you can identify problem statements in the dynamic SQL cache.

One line of output is produced for each authorization identifier (Auth ID) that is located in the cache when the displayed data is collected.

To sort the output by column, move the cursor under a column heading and press the sort key (PF10).

<table>
<thead>
<tr>
<th>Authorization id</th>
<th>Entries</th>
<th>CPU Time</th>
<th>Elapsed Time</th>
<th>Wait Time</th>
<th>GetPages</th>
</tr>
</thead>
<tbody>
<tr>
<td>HONG</td>
<td>14</td>
<td>01:18:08</td>
<td>03:01:35</td>
<td>00:00:01:759</td>
<td>2989115K</td>
</tr>
<tr>
<td>HONG1</td>
<td>14</td>
<td>00:00:15:384</td>
<td>00:00:23:059</td>
<td>00:00:00:013</td>
<td>22068</td>
</tr>
<tr>
<td>TAM</td>
<td>1</td>
<td>00:00:18:860</td>
<td>00:00:20:390</td>
<td>00:00:00:037</td>
<td>48078</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about

- detailed dynamic SQL cache information for an authorization ID, move the cursor to the required line and press F11 (Zoom).
- other topics, use the PF keys.

**Fields**

Each field reflects the data that was available when collection was executed. OMEGAMON XE for DB2 PE collects data and refreshes the panel each time you navigate to the panel.

**Authorization ID**

The current SQLID of the user who did the initial PREPARE.

**Entries**

The number of dynamic SQL statements that are cached for each authorization ID.

**CPU Time**

The accumulated CPU time of all statements that are associated with the authorization ID. This time includes CPU that is consumed on an IBM specialty engine for all statements associated with this authorization ID.

**Elapsed Time**

The accumulated elapsed time that is used for all statements that are associated with this authorization ID.

**Wait Time**

The accumulated wait time that is used for all statements that are associated with the authorization ID including the following items:
GetPages

The accumulated GET PAGES for all statements that are associated with the authorization ID.

Dynamic SQL Cache by Transaction ID

This panel provides information about the dynamic SQL cache by transaction ID. You can also look at the dynamic SQL cache by authid, end user ID, or workstation name.

With this panel, you can identify problem statements in the dynamic SQL cache.

One line of output is produced for each transaction identifier that owns the SQL cache storage when the displayed data is collected.

To sort output by display column, move the cursor under the column heading you want and press the sort key (PF10).

<table>
<thead>
<tr>
<th>Transaction Id</th>
<th>Entries</th>
<th>CPU Time</th>
<th>Elapsed Time</th>
<th>Wait Time</th>
<th>GetPages</th>
</tr>
</thead>
<tbody>
<tr>
<td>db2jcc_application</td>
<td>1</td>
<td>00:00:53.401</td>
<td>00:00:54.933</td>
<td>00:00:00.001</td>
<td>1186932</td>
</tr>
<tr>
<td>myApplicationInfor</td>
<td>1</td>
<td>00:00:17.612</td>
<td>00:00:18.155</td>
<td>00:00:00.000</td>
<td>395644</td>
</tr>
<tr>
<td>HONG</td>
<td>4</td>
<td>00:00:00.000</td>
<td>00:00:00.001</td>
<td>00:00:00.000</td>
<td>6</td>
</tr>
<tr>
<td>HONGFE11</td>
<td>2571</td>
<td>00:00:00.145</td>
<td>00:00:00.150</td>
<td>00:00:00.000</td>
<td>5142</td>
</tr>
<tr>
<td>HONGSE10</td>
<td>1</td>
<td>00:00:00.000</td>
<td>00:00:00.002</td>
<td>00:00:00.000</td>
<td>6</td>
</tr>
<tr>
<td>HONGSE11</td>
<td>1</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
<td>6</td>
</tr>
<tr>
<td>HONGSE12</td>
<td>1</td>
<td>00:00:00.000</td>
<td>00:00:00.055</td>
<td>00:00:00.010</td>
<td>7</td>
</tr>
<tr>
<td>HONGSE13</td>
<td>1</td>
<td>00:00:00.000</td>
<td>00:00:00.055</td>
<td>00:00:00.054</td>
<td>5</td>
</tr>
<tr>
<td>HONG1</td>
<td>2</td>
<td>00:00:00.004</td>
<td>00:00:00.037</td>
<td>00:00:00.013</td>
<td>19</td>
</tr>
</tbody>
</table>

Navigation

For additional information about
- detailed dynamic SQL cache information for an transaction ID, move the cursor to the line you want and press F11 (Zoom).
- other topics, use the PF keys.

**Fields**

**Transaction Id**
The transaction ID that is used to execute the dynamic SQL statement. Only the first 18-bytes of the transaction ID are displayed.

**Entries**
The number of dynamic SQL statements that are cached for each transaction ID.

**CPU Time**
The accumulated CPU time of all statements that are associated with the transaction ID. This time includes CPU that is consumed on an IBM specialty engine for all statements that are associated with this transaction ID.

**Elapsed Time**
The accumulated elapsed time that is used for all statements that are associated with this transaction ID.

**Wait Time**
The accumulated wait time that is used for all statements that are associated with the authorization ID including the following items:
- Wait for Synch I/O (QW0316W1)
- Wait for Lock/Latch (QW0316W2)
- Wait Synch Exec Switch (QW0316W3)
- Wait for Global Locks (QW0316W4)
- Wait Other Thread Read (QW0316W5)
- Wait Other Thread Write (QW0316W6)
- Wait for Latch Req (QW0316W7)
- Wait Time Page Latch (QW0316W8)
- Wait for Drain Lock (QW0316W9)
- Wait for Drain/Claim (QW0316WA)
- Wait for Log Writer (QW0316WB)
- Wait global child L-Locks (QW0316WC)
- Wait global other L-Locks (QW0316WD)
- Wait global P/P P-Locks (QW0316WE)
- Wait global page P-Locks (QW0316WF)
- Wait global other P-Locks (QW0316WG)
- Wait for PQS (QW0316_PQS_WAIT)
- Wait for PIPE (QW0316_PIPE_WAIT)

**GetPages**
The accumulated GET PAGES for all statements that are associated with the transaction ID.

**Dynamic SQL Cache Statistics by Workstation Name**
This panel provides information about the dynamic SQL cache by workstation name. You can also look at the dynamic SQL cache by authid, end user ID, or transaction ID.

With this panel, you can identify problem statements in the dynamic SQL cache.

One line of output is produced for each workstation name that owns the SQL cache storage when the displayed data is collected.
To sort output by display column, move the cursor under the column heading you want and press the sort key (PF10).

<table>
<thead>
<tr>
<th>Workstation ID</th>
<th>Entries</th>
<th>CPU Time</th>
<th>Elapsed Time</th>
<th>Wait Time</th>
<th>GetPages</th>
</tr>
</thead>
<tbody>
<tr>
<td>myWorkStation-this</td>
<td>1</td>
<td>00:00:17.612</td>
<td>00:00:18.155</td>
<td>00:00:00.000</td>
<td>395644</td>
</tr>
<tr>
<td>BATCH</td>
<td>4</td>
<td>00:00:00.001</td>
<td>00:00:00.113</td>
<td>00:00:00.064</td>
<td>24</td>
</tr>
<tr>
<td>IBM-67119346B51</td>
<td>1</td>
<td>00:00:53.401</td>
<td>00:00:54.933</td>
<td>00:00:00.001</td>
<td>1186932</td>
</tr>
<tr>
<td>RRSAF</td>
<td>2571</td>
<td>00:00:00.145</td>
<td>00:00:00.150</td>
<td>00:00:00.000</td>
<td>5142</td>
</tr>
<tr>
<td>TSO</td>
<td>6</td>
<td>00:00:00.004</td>
<td>00:00:00.038</td>
<td>00:00:00.013</td>
<td>25</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about

- detailed dynamic SQL cache information for a workstation name, move the cursor to the line you want and press F11 (Zoom).
- other topics, use the PF keys.

**Fields**

**Workstation ID**

The workstation name that is used to execute the dynamic SQL statement.

**Entries**

The number of dynamic SQL statements that are cached for each workstation name.

**CPU Time**

The accumulated CPU time of all statements that are associated with the workstation name. This time includes CPU that is consumed on an IBM specialty engine for all statements that are associated with this workstation name.

**Elapsed Time**

The accumulated elapsed time that is used for all statements that are associated with this workstation name.

**Wait Time**

The accumulated wait time that is used for all statements that are associated with the authorization ID including the following items:
- Wait for Synch I/O (QW0316W1)
- Wait for Lock/Latch (QW0316W2)
- Wait Synch Exec Switch (QW0316W3)
- Wait for Global Locks (QW0316W4)
- Wait Other Thread Read (QW0316W5)
- Wait Other Thread Write (QW0316W6)
- Wait for Latch Req (QW0316W7)
- Wait Time Page Latch (QW0316W8)
- Wait for Drain Lock (QW0316W9)
- Wait for Drain/Claim (QW0316WA)
- Wait for Log Writer (QW0316WB)
Wait global child L-Locks (QW0316WC)
Wait global other L-Locks (QW0316WD)
Wait global P/P P-Locks (QW0316WE)
Wait global page P-Locks (QW0316WF)
Wait global other P-Locks (QW0316WG)
Wait for PQS (QW0316_PQS_WAIT)
Wait for PIPE (QW0316_PIPE_WAIT)

GetPages
The accumulated GET PAGES for all statements that are associated with
the workstation name.

Dynamic SQL Cache Statistics by End User ID
This panel provides information about the dynamic SQL cache by end user ID. You
can also look at the dynamic SQL cache by authid, end user ID, or transaction ID.

With this panel, you can identify problem statements in the dynamic SQL cache.

One line of output is produced for each end user ID that owns the SQL cache
storage when the displayed data is collected.

To sort the output by column, move the cursor under a column heading and press
the sort key (PF10).

<table>
<thead>
<tr>
<th>End User id</th>
<th>Entries</th>
<th>CPU Time</th>
<th>Elasped Time</th>
<th>Wait Time</th>
<th>GetPages</th>
</tr>
</thead>
<tbody>
<tr>
<td>myUserID-this is</td>
<td>1</td>
<td>00:00:17.612</td>
<td>00:00:18.155</td>
<td>00:00:00.000</td>
<td>395644</td>
</tr>
<tr>
<td>HONG</td>
<td>2576</td>
<td>00:00:53.547</td>
<td>00:00:55.084</td>
<td>00:00:00.001</td>
<td>1192080</td>
</tr>
<tr>
<td>HONG1</td>
<td>6</td>
<td>00:00:00.005</td>
<td>00:00:00.150</td>
<td>00:00:00.078</td>
<td>43</td>
</tr>
</tbody>
</table>

Navigation
For additional information about
detailed dynamic SQL cache information for an end user ID, move the cursor to
the line you want and press F11 (Zoom).
other topics, use the PF keys.

Fields
End user ID
The end user ID that is used to execute the dynamic SQL statement.
Entries
The number of dynamic SQL statements that are cached for each end user ID.
CPU Time
The accumulated CPU time of all statements that are associated with the
end user ID. This time includes CPU that is consumed on an IBM specialty
engine for all statements that are associated with this end user ID.
**Elapsed Time**
The accumulated elapsed time that is used for all statements that are associated with this end user ID.

**Wait Time**
The accumulated wait time that is used for all statements that are associated with the authorization ID including the following items:
- Wait for Synch I/O (QW0316W1)
- Wait for Lock/Latch (QW0316W2)
- Wait Synch Exec Switch (QW0316W3)
- Wait for Global Locks (QW0316W4)
- Wait Other Thread Read (QW0316W5)
- Wait Other Thread Write (QW0316W6)
- Wait for Latch Req (QW0316W7)
- Wait Time Page Latch (QW0316W8)
- Wait for Drain Lock (QW0316W9)
- Wait for Drain/Claim (QW0316WA)
- Wait for Log Writer (QW0316WB)
- Wait global child L-Locks (QW0316WC)
- Wait global other L-Locks (QW0316WD)
- Wait global P/P P-Locks (QW0316WE)
- Wait global page P-Locks (QW0316WF)
- Wait global other P-Locks (QW0316WG)
- Wait for PQS (QW0316_PQS_WAIT)
- Wait for PIPE (QW0316_PIPE_WAIT)

**GetPages**
The accumulated GET PAGES for all statements that are associated with the end user ID.

**Dynamic SQL Cache Statement Summary by Key Field**
This panel displays the statements in dynamic SQL cache that belong to a specific key value. The key type and the key value are displayed in the heading like this: key_type : key_value.

The following key types are supported:

**Key type**
- **Key value**

<table>
<thead>
<tr>
<th>Key type</th>
<th>Key value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorization ID</td>
<td>QW0316X4</td>
</tr>
<tr>
<td>Transaction ID</td>
<td>QW0316T2</td>
</tr>
<tr>
<td>Workstation Name</td>
<td>QW0316XF</td>
</tr>
<tr>
<td>End User ID</td>
<td>QW0316XE</td>
</tr>
</tbody>
</table>

With this panel, you can identify problem statements in the dynamic SQL cache.

To sort the output by column, move the cursor under a column heading and press the sort key (PF10).
Navigation

For additional information about

- detailed dynamic SQL cache information for an transaction ID, move the cursor
to the line you want and press F11 (Zoom).
- the statistics detail for a particular statement, place the cursor on the row that
contains the statement and press PF11.
- other topics, use the PF keys.

Fields

Each field reflects the data that is available when collection is executed.

Length

The statement length of the SQL text in dynamic SQL cache.

CPU Time

The accumulated CPU time. This time includes CPU time that is consumed
on an IBM specialty engine.

SQL text

The first 60 bytes of the SQL text of the statement.

ACEL

IDAA flag.

DPS

Dynamic Plan Stability flag (dynamic SQL only). DB2 12 only.

Dynamic SQL Cache Statistics

This panel provides additional details about the dynamic SQL cache.

The statistical data requires that monitor class 1 and IFCID 318 are started. This
might be accomplished by starting the Near Term History collector.

With this panel, you can identify problem statements in the dynamic SQL cache.

One line of output is produced for each unique dynamic SQL statement.

To sort output by display column move the cursor under the display column
heading you want and press the sort key (PF10).
### Navigation

For additional information about
- the dynamic SQL statement and statistics, move the cursor to the required line and press F11 (Zoom).
- other topics, use the PF keys.

### Fields

Each field reflects the data that was available when collection was executed. OMEGAMON XE for DB2 PE collects data and refreshes the panel each time you navigate to the panel.

**Times Exec.**

The number of times that an SQL statement in cache was executed. For a cursor statement, this number represents the number of OPENs.

**CPU Time**

The accumulated CPU time used while executing in DB2.

**Elapsed Time**

The accumulated elapsed time for the SQL statement.

**Wait Time**

The accumulated time spent waiting in DB2 for all causes.

**Get - Pages**

The number of Getpage requests performed for the SQL statement.

**Sync Reads**

The number of synchronous Buffer Read operations performed for the SQL statement.

**Sync Writes**

The number of synchronous Buffer Write operations performed for the SQL statement.

---

<table>
<thead>
<tr>
<th>Times</th>
<th>CPU</th>
<th>Elapsed</th>
<th>Wait</th>
<th>Get-</th>
<th>Sync</th>
<th>Sync</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exec.</td>
<td>Time</td>
<td>Time</td>
<td>Time</td>
<td>Pages</td>
<td>Reads</td>
<td>Writes</td>
</tr>
<tr>
<td>-------</td>
<td>-----</td>
<td>---------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>+</td>
<td>4 00:00:00.000 00:00:00.111 00:03:14.729</td>
<td>32</td>
<td>8</td>
<td>0</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>+</td>
<td>4 00:00:00.000 00:00:00.078 00:01:29.502</td>
<td>24</td>
<td>6</td>
<td>0</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>+</td>
<td>3 00:00:00.017 00:00:00.000 14:07:15</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>+</td>
<td>2 00:00:44.894 00:00:00.009 37:13:32</td>
<td>42</td>
<td>2</td>
<td>0</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>+</td>
<td>1 00:00:00.019 00:00:00.000 60:18:57</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>+</td>
<td>2 00:00:40.278 00:00:00.010 37:13:32</td>
<td>42</td>
<td>2</td>
<td>0</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>+</td>
<td>1 00:00:00.000 00:00:00.001 00:00:04.539</td>
<td>9</td>
<td>1</td>
<td>0</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>+</td>
<td>0 00:00:00.000 00:00:00.000 00:00:00.000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>+</td>
<td>1 00:00:00.000 00:00:00.000 00:00:00.000</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>+</td>
<td>1 00:00:00.000 00:00:00.010 00:00:43.591</td>
<td>38</td>
<td>2</td>
<td>0</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>+</td>
<td>1 00:00:00.000 00:00:00.000 00:00:02.725</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>+</td>
<td>1 00:00:00.000 00:00:00.000 00:00:00.000</td>
<td>38</td>
<td>0</td>
<td>0</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

Chapter 5. Monitoring 1159
ACEL  IDAA flag.

DPS  Dynamic Plan Stability flag (dynamic SQL only). DB2 12 only.

**Static SQL Cache Statistics**
This panel provides additional details about the static SQL cache.

The statistical data requires that monitor class 1 and ifcid 400 are started.

One line of output is produced for each unique static SQL statement.

The following panel shows the display of DB2 11 and DB2 12:

<table>
<thead>
<tr>
<th>Time</th>
<th>CPU</th>
<th>Elapsed</th>
<th>Wait</th>
<th>Get</th>
<th>Sync</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:00:00.048</td>
<td>00:00:01.827</td>
<td>00:00:00.002</td>
<td>1815</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>00:00:00.005</td>
<td>00:00:01.390</td>
<td>00:00:00.003</td>
<td>294</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>00:00:00.015</td>
<td>00:00:01.948</td>
<td>00:00:00.000</td>
<td>294</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>00:00:00.021</td>
<td>00:00:01.726</td>
<td>00:00:00.003</td>
<td>688</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>00:00:00.005</td>
<td>00:00:01.293</td>
<td>00:00:00.000</td>
<td>150</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>00:00:00.009</td>
<td>00:00:01.583</td>
<td>00:00:00.001</td>
<td>248</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>00:00:00.000</td>
<td>00:00:00.022</td>
<td>00:00:00.000</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>00:00:00.000</td>
<td>00:00:00.027</td>
<td>00:00:00.000</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>00:00:00.013</td>
<td>00:00:00.000</td>
<td>00:00:00.000</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>00:00:00.000</td>
<td>00:00:00.005</td>
<td>00:00:00.000</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The following panel shows the display of DB2 10:
Navigation

You can scroll through the information using F7 and F8 (if the information requires more than one panel).

For more information about

- a particular static SQL cache, move the cursor to the respective information line and press F11 (Zoom). For more information, see the description of panel "EDM Snapshot Static SQL Cache Statement Detail" on page 1165.
Fields

Total 31-bit xPROC storage for static SQL Statements
Total 31-bit xPROC storage that is used for static SQL statements (31-bit DBM1private variable pool).
This applies to DB10.

Total Allocation for Shareable Static SQL
The total allocated shareable storage for static SQL statements.
This applies to DB2 11 or higher.

Total number of statements in static SQL Cache
The count of SQL statements in the static SQL cache.

Times Exec.
The number of times that an SQL statement in cache was executed.

CPU Time
The accumulated CPU time used while executing in DB2. This time includes CPU that is consumed on an IBM specialty engine.

Elapsed Time
The accumulated elapsed time for the SQL statement.

Wait Time (Derived)
The accumulated time spent waiting in DB2 for all causes.

QPW0401SI Accumulated wait for synchronous I/O
QPW0401LK Accumulated wait for lock
QPW0401EU Accumulated wait for synchronous execution unit switch
QPW0401GL Accumulated wait time for global locks
QPW0401OR Accumulated wait time for read activity done by another thread
QPW0401OW Accumulated wait time for write activity done by another thread
QPW0401LH Accumulated wait time for latch req
QPW0401PL Accumulated wait for page latch
QPW0401DL Accumulated wait for drain lock
QPW0401CM Accumulated wait for drain lock waiting for for claims to be released
QPW0401LW Accumulated wait for log writer
QPW0401WC Accumulated wait for global child L-Locks. DB2 12 and later..
QPW0401WD Accumulated wait for global other L-Locks. DB2 12 and later.
QPW0401WE Accumulated wait for global P/P P-Locks. DB2 12 and later.
QPW0401WF Accumulated wait for global page P-Locks. DB2 12 and later.
QPW0401WG Accumulated wait for global other P-Locks. DB2 12 and later.
QPW0401WH Accumulated wait for PIPE locks. DB2 12 and later.
QPW0401WPQS Accumulated wait for PQS locks. DB2 12 and later.
GetPages

The number of Getpage requests performed for the SQL statement.

Sync Reads

The number of synchronous Buffer Read operations performed for the SQL statement.

Static SQL Cache Statistics with Package Information

The statistical data requires that monitor class 1 and icid 400 are started.

This panel organizes static SQL cache data by key fields. You can sort the fields to group similar SQL records together.

For the package and collection IDs, only the first 17-bytes are displayed. If the data is longer than 17 bytes, a plus (+) sign is shown to indicate that the actual data is longer than the data that is displayed in the panel. For an example, see the following panel.

With the information on this panel, database administrators can locate particular ZPARMS according to DB2 installation panels, so they can view related ZPARMS of the DB2 subsystem.

The following panel shows the display of DB2 10:

<table>
<thead>
<tr>
<th></th>
<th>ZESSK</th>
<th>VTM</th>
<th>O2</th>
<th>V540.AP</th>
<th>SZ22</th>
<th>07/07/16 14:46:14 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Help PF1</td>
<td>Back PF3</td>
<td>Up PF7</td>
<td>Down PF8</td>
<td>Sort PF10</td>
<td>Zoom PF11</td>
<td></td>
</tr>
<tr>
<td>&gt;</td>
<td>* - Packages</td>
<td>B - All Stmts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

=================================================================================================

<table>
<thead>
<tr>
<th>StmtID</th>
<th>Static SQL Cache Statistics with Package Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistics require that monitor class 29 or icid 400 be started</td>
</tr>
<tr>
<td></td>
<td>ESSK</td>
</tr>
<tr>
<td></td>
<td>+ Total 31-bit xPROC Storage for Static SQL Statements</td>
</tr>
<tr>
<td></td>
<td>+ Total Number of Statements in Static SQL Cache</td>
</tr>
<tr>
<td></td>
<td>+ *</td>
</tr>
<tr>
<td></td>
<td>+ Exacs StmtID CPU Time Elapsed Time Package Collection ID ACCEL</td>
</tr>
<tr>
<td>+</td>
<td>5553</td>
</tr>
<tr>
<td>+</td>
<td>1676</td>
</tr>
<tr>
<td>+</td>
<td>1676</td>
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<tr>
<td>+</td>
<td>162</td>
</tr>
<tr>
<td>+</td>
<td>123</td>
</tr>
<tr>
<td>+</td>
<td>4</td>
</tr>
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<tr>
<td>+</td>
<td>1</td>
</tr>
</tbody>
</table>

=================================================================================================

The following panel shows the display of DB2 11 and later.
Navigation

For additional information about

• the statistics detail for a particular statement, place the cursor on the row that contains the statement and press PF1.
• other topics, use the PF keys.

Fields

The following fields are displayed for Static SQL cache:

**Total 31-bit xPROC Storage for Static SQL Statements**

The total 31-bit xPROC storage for static SQL statements (31-bit DBM1 private variable pool).

This applies to DB2 10.

**Total Allocation for Shareable Static SQL**

The total allocated shareable storage for static SQL statements.

This applies to DB2 11 and higher.

**Total Number of Statements in Static SQL Cache**

The count of static SQL statements in cache.

The following fields are displayed for each static SQL statement:

**Execs**   The number of executions.

**StmtID**  The statement identifier.

**CPU Time**

The accumulated in-DB2 CPU time. This time includes CPU that is consumed on an IBM specialty engine.
Elapsed Time
The accumulated in-DB2 elapsed time.

Package
The first 17 bytes of the package ID.

Collection ID
The first 17 bytes of the collection ID.

ACEL
IDAA flag.

EDM Snapshot Static SQL Cache Statement Detail
This panel provides static SQL cache statement detail.

The statistical data requires that monitor class 1 and ifcid 400 are started.

<table>
<thead>
<tr>
<th></th>
<th>ZESS3</th>
<th>VTM</th>
<th>02</th>
<th>V540./I SE11 04/02/16 15:08:18</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Help PF1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Back PF3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Up PF7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Down PF8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

===============================================================================
> EDM Snapshot static SQL cache statement detail
> statistics require that monitor class 29 or ifcid 400 be started
>
ESS3
+
+ Insert Date 2013-03-26 Insert Time 09.53.53.42663
+ Update Date 2013-03-26 Update Time 09.53.53.45808
+
+ Statement Number 5300 Times Executed 4792
+ Getpages 21 Rows Examined 0
+ Rows Processed 0 Sorts Performed 0
+ Index Scans 0 Tablespace Scans 0
+ Buffer Writes 0 Buffer Reads 1
+ Parallel Groups Created 0 AVG Actual Degree 0
+ AVG Estimated Degree 0 AVG Planned Degree 0
+
+ #RIDs Not Used/Storage 0 #RIDs Not Used/Limits 0
+ #RIDs Overflow/Storage 0 #RIDs Overflow/Limit 0
+ #RIDs HB Join/Storage 0 #RIDs HB Join/Limit 0
+ #RIDs No IX Access 0
+
+ Elapsed Time 00:00:00.014 CPU Time 00:00:00.004
+
+ Wait for Synch I/O 00:00:00.017 Wait for Lock 00:00:00.000
+ Synch Exec Switch 00:00:00.000 Wait time Log Writer 00:00:00.000
+ Wait Other Thread Read 00:00:00.000 Wait Other Thread Write 00:00:00.000
+ Wait time for Latches 00:00:00.000 Wait Time Page Latch 00:00:00.000
+ Wait for Drain Lock 00:00:00.000 Wait for Drain/Claim 00:00:00.000
+ Wait Glb L-Locks 00:00:00.000 Wait Glb P/P P-Locks 00:00:00.000
+ Wait Glb Child L-Locks 00:00:00.000 Wait Glb Page P-Locks 00:00:00.000
+ Wait Glb Other L-Locks 00:00:00.000 Wait Glb other P-Locks 00:00:00.000
+ Wait for PIPE lock 00:00:00.000 Wait for PQS Lock 00:00:00.000
+ Total Wait Time 00:00:00.000
+
+ Expansion Reason ACCEL Eligible NO
+ Consistency token 0E5F1FID09F140400154015E20130326
+ Collection DSNUTILS
+ Package DSNUTILS
+
+ INSERT INTO SYSIBM.SYSPRINT ( SEQNO, TEXT ) VALUES ( :H , :H )

===============================================================================

Navigation
You can scroll through the information using F7 and F8 (if the information requires more than one panel).
For additional options
• select one of the options from the panel
• use the PF keys.

**Fields**

**Insert Date / Insert Time**
The date and the time when the SQL statement is inserted in the EDM pool.

**Update Date / Update Time**
The date and the time when the SQL statement is last updated.

**Statement Number**
The number of the statement from the DB2 catalog.

**Times Executed**
The number of times this static SQL statement is executed.

**Getpages**
The number of pages that are returned.

**Rows Examined**
The number of rows that are examined.

**Rows Processed**
The number of rows that are processed.

**Sorts Performed**
The number of rows that are sorted.

**Index Scans**
The number of index scans that are performed.

**Tablespace Scans**
The number of tablespace scans that are performed.

**Buffer Writes**
The number of Buffer Write operations that are performed.

**Parallel Groups Created**
The number of parallel groups that are created.

**AVG Actual Degree**
The average actual degree of parallelism for all parallel groups. This value is calculated at execution time after buffer pool negotiation and system negotiation are taken into account.

This applies to DB2 11 and higher.

**AVG Estimated Degree**
The average estimated degree of parallelism for all parallel groups. The values for the estimated degree are calculated at bind time. They are based on the cost formula. The value for the average estimated degree is calculated at execution time.

This applies to DB2 11 and higher.

**AVG Planned Degree**
The average planned maximum degree of parallelism for all parallel groups. This value is calculated at execution time. It is the optimal degree of parallelism that can be obtained at execution time after host variables or parameter markers are resolved and before buffer pool negotiation and system negotiation are performed.
This applies to DB2 11 and higher.

# RIDs Not Used/Storage
The number of times a RID list is not used because there is not enough storage available to hold the list of RIDs.

# RIDs Not Used/Limit
The number of times a RID list is not used because the number of RIDs exceeds the DB2 limits.

# RIDs Overflow/Storage
The number of times that a RID list overflows to a work file because a RID pool storage is not available to hold the list of RIDs.

This applies to DB2 11 and higher.

# RIDs Overflow/Limit
The number of times that a RID list overflows to a work file because the number of RIDs exceeds internal limits.

This applies to DB2 11 and higher.

# RIDs HB Join/Storage
The number of times that appending to a RID list for a hybrid join is interrupted because a RID pool storage is not available to hold the list of RIDs.

This applies to DB2 11 and higher.

# RIDs HB Join/Limit
The number of times that appending to a RID list for a hybrid join is interrupted because the number of RIDs exceeds internal limits.

This applies to DB2 11 and higher.

# RIDs No IX Access
The number of times that RID list retrieval for multiple index access is not done because DB2 cannot determine the outcome of index ANDing or ORing.

This applies to DB2 11 and higher.

Elapsed Time
The accumulated In-DB2 elapsed time.

CPU Time
The accumulated In-DB2 CPU time. This time includes CPU consumed on a Specialty Engine (SE).

Wait for Sync I/O
The accumulated waiting time for synchronous I/O.

Wait for Lock
The accumulated waiting time for lock.

Sync Exec Switch
The accumulated waiting time for a synchronous execution unit switch.

Wait time Log writer
The accumulated waiting time for log writers.

Wait Othr Thread Read
The accumulated wait time for read activity done by another thread.
Wait Othr Thread Write
The accumulated waiting time for writing activity that is done by another thread.

Wait time for Latches
The accumulated waiting time for latch requests.

Wait time Page Latch
The accumulated waiting time for page latches.

Wait time Drain Lock
The accumulated waiting time for drain locks.

Wait time drain/claim
The accumulated waiting time for drain locks that are waiting for claims to be released.

Wait Glb L-Locks
The accumulated waiting time for global locks.

Wait Glb P/P P-Locks
Accumulated wait for global P/P P-Locks for the statement. DB2 12 or later.

Wait Glb Child L-Locks
Accumulated wait for global child L-Locks for the statement. DB2 12 or later.

Wait Glb Page P-Locks
Accumulated wait for global page P-Locks for the statement. DB2 12 or later.

Wait Glb Other L-Locks
Accumulated wait for global other L-Locks for the statement. DB2 12 or later.

Wait Glb Other P-Locks
Accumulated wait for global other P-Locks for the statement. DB2 12 or later.

Wait for PIPE lock
Accumulated wait for pipe wait. DB2 12 or later.

Wait for PQS lock
Accumulated time waiting for parallel queries to synchronize between parent and child tasks. DB2 12 or later.

Total Wait Time
A summary of all waiting times.

Expansion Reason
The reason that caused the expansion. The query contains an implicit query transformation that is caused by one of the following items:

A  The SYSIBMADM.GET_ARCHIVE built-in global variable.
B  The current temporal BUSINESS_TIME special register.
S  The current temporal SYSTEM_TIME special register.
SB The current temporal BUSINESS_TIME special register and the current temporal SYSTEM_TIME special register.
  The query does not contain an implicit query transformation that is caused by the current temporal BUSINESS_TIME special register,
the current temporal SYSTEM_TIME special register, or the SYSIBMADM.GET_ARCHIVE built-in global variable.

N/A No data available.

**ACCEL Eligible**
Statement is eligible to run on an accelerator. DB2 11 or later.

**Consistency token**
The consistency token of the package for this static SQL statement.

**Collection**
The collection ID of the package for this static SQL statement.

**Package**
The package ID for this static SQL statement.

**SQL Text**
If it can be found in the DB2 catalog tables for this statement, the SQL text is displayed.
EDM Snapshot Dynamic SQL Cache Statement Statistics Detail
This panel provides additional details about a particular SQL statement.

<table>
<thead>
<tr>
<th>Authorization Id: HONG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert Date</td>
</tr>
<tr>
<td>Update Date</td>
</tr>
<tr>
<td>Collection Began Date</td>
</tr>
<tr>
<td>Statement Token</td>
</tr>
<tr>
<td>Getpages</td>
</tr>
<tr>
<td>Rows Processed</td>
</tr>
<tr>
<td>Index Scans</td>
</tr>
<tr>
<td>Synchronous Buffer Reads</td>
</tr>
<tr>
<td>Number of Current Users</td>
</tr>
<tr>
<td>Parallel Groups Created</td>
</tr>
<tr>
<td>AVG Estimated Degree</td>
</tr>
<tr>
<td>#RIDs Not Used/Storage</td>
</tr>
<tr>
<td>#RIDs Overflow/Storage</td>
</tr>
<tr>
<td>#RIDs HB Join/Storage</td>
</tr>
<tr>
<td>#RIDs No IX Access</td>
</tr>
<tr>
<td>Elapsed Time</td>
</tr>
<tr>
<td>Wait for Synch I/O</td>
</tr>
<tr>
<td>Synch Exec Switch</td>
</tr>
<tr>
<td>Wait Othr Thread Read</td>
</tr>
<tr>
<td>Wait for Latch Req</td>
</tr>
<tr>
<td>Wait for Drain Lock</td>
</tr>
<tr>
<td>Wait Glb L-locks</td>
</tr>
<tr>
<td>Wait Glb Child L-locks</td>
</tr>
<tr>
<td>Wait Glb Other L-locks</td>
</tr>
<tr>
<td>Wait for PIPE lock</td>
</tr>
<tr>
<td>Isolation Bind</td>
</tr>
<tr>
<td>Dynamic rules Bind</td>
</tr>
<tr>
<td>Current Rules</td>
</tr>
<tr>
<td>Cursor Hold</td>
</tr>
<tr>
<td>Status of Statement</td>
</tr>
<tr>
<td>ACCEL Eligible</td>
</tr>
<tr>
<td>StabilizedStmt ID</td>
</tr>
<tr>
<td>Query Hash ID</td>
</tr>
<tr>
<td>DSG Member</td>
</tr>
<tr>
<td>Stabilization Grp</td>
</tr>
<tr>
<td>Transaction Name</td>
</tr>
<tr>
<td>Workstation Name</td>
</tr>
<tr>
<td>End User ID</td>
</tr>
<tr>
<td>Program Name</td>
</tr>
<tr>
<td>Prepare ID</td>
</tr>
<tr>
<td>HONG</td>
</tr>
</tbody>
</table>
Navigation

For additional information about other topics, use the PF keys.

Fields

Each field reflects the data that was available when collection was executed. OMEGAMON XE for DB2 PE collects data and refreshes the panel each time you navigate to the panel.

Insert Date/Time
The date and the time when the statement is inserted into the cache.

Update Date/Time
The date and the time when the statement is updated in the cache.

Collection Began Date/Time
The date and the time when the dynamic SQL cache statistics collection begins.

Statement Token
Unique statement identifier generated for uniquely identifying a statement in the prepared statement cache.

Times Executed
The number of times the SQL statement has been executed. For a cursor statement, this number represents the number of OPENs.

Getpages
The number of Getpage requests performed for the SQL statement.

Rows Examined
The number of rows examined for the SQL statement.

Rows Processed
The number of rows processed for the SQL statement. For example, the number of rows returned for a SELECT, or the number of rows affected by an INSERT, UPDATE, or DELETE.

Sorts Performed
The number of sorts performed for the SQL statement.
Index Scans
The number of index scans performed for the SQL statement.

Tablespace Scans
The number of tablespace scans performed for the SQL statement.

Synchronous Buffer Reads
The number of synchronous Buffer Read operations performed for the SQL statement.

Synchronous Writes
The number of synchronous Buffer Write operations performed for the SQL statement.

Number of Current Users
The number of current users of the statement. Current users have prepared or executed the statement during their current unit of work.

Copies of Statement
The number of copies of the statement that is owned by all threads in the system.

Parallel Groups Created
The number of parallel groups created for the SQL statement.

AVG Actual Degree
The average parallel group actual degree. It is obtained at execution time after considering the buffer pool negotiation and the system negotiation.

AVG Estimated Degree
The average parallel group estimated degree. This is the bind time estimated parallel group degree that is based on the cost formula. If the parallel group contains a host variable or a parameter marker, the bind time estimates the parallel group degree based on a valid assumption value.

AVG Planned Degree
The average parallel group plan degree. This is the ideal parallel group degree that is obtained at execution time after the host variable or the parameter marker value is plug-in and before buffer pool negotiation and system negotiation are performed.

# RIDs Not Used/Storage
The number of times that a RID list is not used because enough storage is not available to hold the list of RIDs.

# RIDs not Used/Limit
The number of times that a RID list is not used because the number of RIDs exceeded one or more internal DB2 limits.

# RIDs Overflow/Storage
The number of times a RID list is overflowed to a work file because a RIDPOOL storage is not available to hold the list of the RIDs.

# RIDs Overflow/Limit
The number of times a RID list is overflowed to a work file because the number of RIDs exceeded one or more internal limits.
This applies to DB2 11 and higher.

# RIDs HB Join/Storage
The number of times a RID list append for a Hybrid Join is interrupted
because a RIDPOOL storage is not available to hold the list of RIDs, for example, the number of times DB2 interrupts the RID phase and switches to the Data phase.

This applies to DB2 11 and higher.

# RIDs HB Join/Limit
The number of times a RID list append for a Hybrid Join is interrupted because the number of RIDs exceeded one or more internal limits, for example, the number of times DB2 interrupts the RID phase and switches to the Data phase.

This applies to DB2 11 and higher.

RIDs No IX Access
The number of times a RID list retrieval for multiple index access is skipped because DB2 can predetermine the outcome of index ANDing or ORing.

Elapsed Time
The accumulated elapsed time used for the SQL statement.

CPU Time
The accumulated CPU time for the SQL statement. This includes CPU that is consumed on an IBM specialty engine.

The following wait time fields are only collected when Accounting trace class 3 is active.

Wait for Synch I/O
The accumulated wait time for synchronous I/O operations.

Wait for Lock/Latch
The accumulated wait time for lock and latch requests.

Synch Exec Switch
The accumulated wait time for synchronous execution unit switch.

Wait for Log Writer
The accumulated wait time for log writers.

Wait Othr Thread Read
The accumulated wait time for read activity performed by another thread.

Wait Othr Thread Write
The accumulated wait time for write activity performed by another thread.

Wait for Latch Req
The accumulated wait time for Latch requests.

Wait Time Page Latch
The accumulated wait time for Page latches.

Wait for Drain Lock
The accumulated wait time for Drain locks.

Wait for Drain/Claim
The accumulated wait time for Drain locks that are waiting for claims to be released.

Wait for Glb L-Locks
The accumulated wait time for global locks.
Wait Glb P/P P-Locks
Accumulated wait for global P/P P-Locks for the statement. DB2 12 or later.

Wait Glb Child L-Locks
Accumulated wait for global child L-Locks for the statement. DB2 12 or later.

Wait Glb Page P-Locks
Accumulated wait for global page P-Locks for the statement. DB2 12 or later.

Wait Glb Other L-Locks
Accumulated wait for global other L-Locks for the statement. DB2 12 or later.

Wait Glb Other P-Locks
Accumulated wait for global other P-Locks for the statement. DB2 12 or later.

Wait for PIPE lock
Accumulated wait for pipe wait. DB2 12 or later.

Wait for PQS lock
Accumulated time waiting for parallel queries to synchronize between parent and child tasks. DB2 12 or later.

Isolation Bind
ISOLATION BIND is in effect on initial PREPARE; it does not reflect ISOLATION specified in the WITH clause

UR: ISOLATION(UR)
Uncommitted Read

CS: ISOLATION(CS)
Cursor stability

RS: ISOLATION(RS)
Read stability

RR: ISOLATION(RR)
Repeatable read

Currentdata Bind
The status of the CURRENTDATA BIND option:
• CURRENTDATA(YES)
• CURRENTDATA(NO)

Dynamic rules Bind
The status of the DYNAMICRULES BIND option:
• DYNAMICRULES(BIND)
• DYNAMICRULES(RUN)

Current Degree
The status of CURRENT DEGREE special register value:
• CURRENT DEGREE = 'ANY'
• CURRENT DEGREE = '1'

Current Rules
The status of CURRENT RULES special register value:
• CURRENT RULES = 'DB2'
• CURRENT RULES = 'SQL'

Current Precision
The status of CURRENT PRECISION special register value:
• CURRENT PRECISION = 'DEC31'
• CURRENT PRECISION = 'DEC15'

Cursor Hold
If YES, the statement was prepared for a held cursor. If NO, the statement was not prepared for a held cursor.

Concentrate Statement
An indicator of the cache literal replacement.
N No literal replacement was done.
R Literals were replaced in the statement.
D Same as R, but the cached statement is a duplicate cache entry instance, because a cache match failed because of literal reusability criteria.

Status of statement
The status of the statement. The statement has actually been removed from the cache, but current users might still have an active copy.

BYDROP
The statement was invalidated by DROP or ALTER.

BYREVOKE
The statement was invalidated by REVOKE.

BYLRU
The statement was invalidated by LRU.

Expansion Reason
The reason that caused the expansion. The query contains an implicit query transformation that is caused by one of the following items:
A The SYSIBMADM.GET_ARCHIVE built-in global variable.
B The current temporal BUSINESS_TIME special register.
S The current temporal SYSTEM_TIME special register.
SB The current temporal BUSINESS_TIME special register and the current temporal SYSTEM_TIME special register.
'' The query does not contain an implicit query transformation that is caused by the current temporal BUSINESS_TIME special register, the current temporal SYSTEM_TIME special register, or the SYSIBMADM.GET_ARCHIVE built-in global variable.
N/A No data available.

ACCEL Eligible
Statement is eligible to run on an accelerator.

Stabilized StmtID
Stabilized dynamic query statement ID. DB2 12 and higher.
(QW0316_SDQ_STMTID)

Query Hash ID
Hash ID of a stabilized dynamic query. DB2 12 and higher.
(QW0316_QUERY_HASH_ID)
Hash ID Version
Version of stabilized dynamic query's hash ID. DB2 12 and higher.
(QW0316_QUERY_HASH_VER)

Program Name
The name of the program. The value is provided on RRS sign-on or
resign-on.

Transaction Name
The name of the transaction. The value is provided on RRS sign-on or
resign-on.

Stabilization Grp
Group ID of a stabilized dynamic query. DB2 12 or higher. (Field name:
QW0316_STBLGRP)

Workstation Name
The name of the workstation. The value is provided on RRS sign-on or
resign-on.

End User ID
The identification (ID) of the end user. The value is provided on RRS
sign-on or resign-on.

Prepare ID
The primary authorization ID of the user who did the initial PREPARE.

User Group
The current SQLID of the user who did the initial PREPARE.

Object Qualifier
The object qualifier for unqualified table names.

Ref Table Qualifier
The table qualifier.

Ref Table
The name of the table.

DSG Member
The data sharing DB2 member that cached the SQL statement.

Appl Data
An identification string that is provided by the user.

Schema
The special register of the current schema.

SQL Statement
The text of the SQL statement.

If the text of the SQL statement is no longer available from the SQL
statement cache because of a fast changing SQL statement cache, a message
is displayed instead of the text of the SQL statement.

EDM Snapshot Free Storage
This panel provides information about the free storage that is currently available
(as of the time of data collection) in the EDM pool.

The EDM Snapshot Free Storage panel shows information about DBD. Depending
on the type you are using, information is shown about RDS below, RDS above, or
SKEL.
Navigation

For additional information about other topics, use the PF keys.

Fields

Each field reflects the data that was available when collection was executed. OMEGAMON XE for DB2 PE collects data and refreshes the panel each time you navigate to the panel.

Total DBD Free Pages
The number of pages of free storage that were available in the EDM pool when the displayed data was collected.

Total DBD Free Entries
The number of free storage entries that were available when the displayed data was collected.

Largest Contiguous Free Entries
The number of pages in each of the largest contiguous free storage entries in the EDM pool when the displayed data was collected. (Displays up to 5 values.)

Bind Statistics
This panel shows information about bind activities, for example, the number of automatic binds, automatic bind failures, static binds, and static bind failures.
**Navigation**

For additional information about
- Near-term history activity, select option **H-HISTORICAL** at the top of the panel.
- other topics, use the PF keys.

**Fields**

**Collection Interval**

This field displays REALTIME to indicate that you are looking at the realtime version of this panel and not at the corresponding near-term history panel. The collection interval and the report interval are the same in this panel.

**Start** The start time of the report interval currently displayed.

**Report Interval**

The time in the last cycle (for example, between two presses of the Enter key).

**End** The end time of the report interval currently displayed.
For each of the following fields, the following statistics values are provided:

**TOTAL QUANTITY**
Total quantity, which reflects the amount of activities since DB2 was started.

**INTERVAL QUANTITY**
Interval quantity, which reflects the amount of activities during the last cycle.

**/SECOND**
Rate per second during the last cycle. The number under /SECOND (in parentheses) is the number of seconds in the interval.

**/THREAD**
Rate per thread during the last cycle. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.

**/COMMIT**
Rate per Commit during the last cycle. The number under /COMMIT (in parentheses) is the number of commit requests (including abort requests) during the interval.

**Automatic Bind Plan Attempts**
The attempts of DB2 to perform an automatic bind of a plan.

**Automatic Bind Plan Successes**
The successful attempts of DB2 to perform an automatic bind of a plan.

**Automatic Bind Pkg Attempts**
The attempts of DB2 to perform an automatic bind of a package.

**Automatic Bind Pkg Successes**
The successful attempts of DB2 to perform an automatic bind of a package.

**Static Bind Plan Attempts**
Represents the Bind subcommands issued, including the Bind Plan Add and Bind Plan Replace subcommands.

**Static Bind Plan Successes**
Represents the Bind subcommands that succeeded.

**Static Bind Pkg Attempts**
Represents the bind package subcommands issued, including the Bind Package Add and Bind Package Replace subcommands.

**Static Bind Pkg Successes**
Represents the bind package subcommands that succeeded.

**Rebind Plan Attempts**
Attempts to rebind a plan.

**Rebind Plan Successes**
Successful attempts to rebind a plan.

**Rebind Pkg Attempts**
Attempts to rebind a package.

**Rebind Pkg Successes**
Successful attempts to rebind a package.

**Free Plan Attempts**
Attempts to free a plan.
Free Plan Successes
Successful attempts to free a plan.

Free Pkg Attempts
Attempts to free a package.

Free Pkg Successes
Successful attempts to free a package.

Plan Allocation Attempts
The requests from the attachment facility to DB2 to allocate a bound plan for a user.

Plan Allocation Successes
Successful plan allocation attempts.

Package Allocation Attempts
The requests from the attachment facility to DB2 to allocate a bound package for a user.

Package Allocation Successes
Successful package allocation attempts.

Auth Check Attempts
Authorization checks for all plans

Auth Check Successes
Successful authorization checks.

Auth Check Using Cache
Successful authorization checks that were performed using cache.

Auth Check Public Authority
Successful authorization checks that were performed based upon execute authority granted to public.

Test Bounds (No Plan ID)
Bind subcommands that were issued without a plan ID.

**DB2 Subsystem Support Manager Statistics**
This panel shows workload-related information about the monitored DB2 subsystem. The panel includes statistics related to Create Thread, Signon, Commit, and abnormal termination activity.
Navigation

For additional information about
- Near-term history activity, select option H-HISTORICAL at the top of the panel.
- other topics, use the PF keys.

Fields

Collection Interval
This field displays REALTIME to indicate that you are looking at the realtime version of this panel and not at the corresponding near-term history panel. The collection interval and the report interval are the same in this panel.

Start The start time of the report interval currently displayed.

Report Interval
The time in the last cycle (for example, between two presses of the Enter key).

End The end time of the report interval currently displayed.

For each of the following fields, three statistics values are provided:
- Total quantity, which reflects the amount of activities since DB2 was started.
- Interval quantity, which reflects the amount of activities during the last cycle.
- Rate per second, which is the rate at which activities occurred during the last cycle. The number under /SECOND (in parentheses) is the number of seconds that made up the interval/cycle.
Identify Requests
Successful connections to DB2 from an allied address space.

Signon Requests
Successful requests to identify a new user for IMS or CICS. Thread Signon processing is applicable only in CICS-DB2 and IMS-DB2 attachment environments.

Create Thread Requests
Successful Create Thread requests.

Create Thread Waits
Create Thread requests that had to wait because no thread was available.

Terminate Thread Requests
Successful thread terminations.

Single Phase Commit Requests
Successful Commit requests that took place in a single-phase commit environment, for example, TSO.

Read Only Commit Requests
Commit requests that were read-only. Each of these requests increments the statistics field for phase 1 commits and the statistics field for read-only commits.

Commit Phase 1 Requests
Commit phase 1 requests in a two-phase-commit environment, for example, CICS and IMS.

Commit Phase 2 Requests
Commit phase 2 requests in a two-phase-commit environment, for example, CICS and IMS.

Abort Requests
Events that resulted in successfully backing out a unit of recovery.

Total Commit Requests
Includes single-phase, read-only, and phase 2 Commit requests.

Indoubt Threads
A thread goes indoubt in the CICS/IMS attachment to DB2 when one of the two subsystems goes down between Commit phase 1 and Commit phase 2.

Indoubts Resolved
Successful resolutions, either automatic or manual, of indoubt threads.

Abends Detected - End of Task
Tasks that abended while connected to DB2.

Abends Detected - End of Memory
The number of times a non-DB2 address space was deleted by MVS while connected to DB2.

High Water Mark for IDFORE
The maximum number of users that are identified to DB2 from TSO foreground at the same time.

High Water Mark for IDBACK
The maximum number of concurrent connections identified to DB2 from batch.
High Water Mark for CTHREAD

The maximum number of allied threads that are allocated concurrently.

Active Trace Summary

This panel provides information about the DB2 traces that are currently active. Each active trace is listed with identifying data, such as type, class, and destination.

<table>
<thead>
<tr>
<th>Type</th>
<th>TNO</th>
<th>Trace Class</th>
<th>Destination</th>
<th>Planname</th>
<th>Authid</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATISTICS</td>
<td>001</td>
<td>01,03,04,05,06</td>
<td>SMF</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>ACCOUNTING</td>
<td>002</td>
<td>01</td>
<td>SMF</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>MONITOR</td>
<td>003</td>
<td>01</td>
<td>OP1</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>PERFORMANCE</td>
<td>004</td>
<td>18,24</td>
<td>OP1</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>ACCOUNTING</td>
<td>005</td>
<td>01,02,03,07,08,10</td>
<td>OP2</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>MONITOR</td>
<td>006</td>
<td>01</td>
<td>OP2</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>PERFORMANCE</td>
<td>007</td>
<td>30</td>
<td>OP2</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>MONITOR</td>
<td>008</td>
<td>01</td>
<td>SMF</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>PERFORMANCE</td>
<td>009</td>
<td>18</td>
<td>OP3</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>MONITOR</td>
<td>014</td>
<td>01</td>
<td>SMF</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>MONITOR</td>
<td>015</td>
<td>01</td>
<td>SMF</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

Navigation

For more information about one of the following items, perform the corresponding task below:

- A particular trace, move the cursor to a trace information line and press F11 (Zoom). For more information, see the description of panel "Active Trace Detail."
- Other topics, use the PF keys.

Fields

Type  The trace type.

TNO   The internal DB2 trace number assigned to the trace.

Trace Class  The active trace class(es) that are in use by this trace entry.

Destination  The destinations that are in use by this trace entry.

Plannname  The planname qualifying the trace. If the trace was not qualified with a planname, this field contains an asterisk (*).

Authid  The authorization identifier used to qualify the trace. If the trace was not qualified with an authorization identifier, this field contains an asterisk (*).

Active Trace Detail

This panel shows DB2 trace activity at a detailed (IFCID) level. With this information you can determine how much overhead was incurred in the traces.
Navigation

For additional information about other topics, use the PF keys.

Fields

Trace Qualifications:

Number   The internal DB2 trace number assigned to the trace.
Type     The trace type.
Destination The destinations that are assigned to the trace on this line.
ASID     Specifies the address space for which trace data is collected.
Class    The active trace class(es) on this trace.
Rmids    The resource manager IDs (Rmids) specified when the trace was started. If the trace was qualified with no Rmids, this field contains an asterisk (*).
Tdata    The trace headers that are in use by this trace entry.
Plan  The plan name qualifying the trace. If the trace was not qualified with a Plan, this field contains an asterisk (*).

Location  The location name qualifying the remote trace. If the trace was not qualified with a location, this field contains an asterisk (*).

Authid  The authorization identifier (Authid) qualifying the trace. If the trace was not qualified with an authorization identifier, this field contains an asterisk (*).

Wrkstn  The workstation name (Wrkstn) qualifying the trace. If the trace was not qualified with a workstation name, this field contains an asterisk (*).

Connid  The connection name (Connid) qualifying the trace. If the trace was not qualified with a connection name, this field contains an asterisk (*).

Appname  The application name (Appname) qualifying the trace. If the trace was not qualified with an application name, this field contains an asterisk (*).

Corrid  The correlation name (Corrid) qualifying the trace. If the trace was not qualified with a correlation name, this field contains an asterisk (*).

Userid  The user name (Userid) qualifying the trace. If the trace was not qualified with a user name, this field contains an asterisk (*).

Pkgloc  The location name of the package (Pkgloc) qualifying the trace. If the trace was not qualified with the location name of the package, this field contains an asterisk (*).

Pkgcol  The collection name of the package (Pkgcol) qualifying the trace. If the trace was not qualified with the collection name of the package, this field contains an asterisk (*).

Pkgprog  The DBRM or program name (Pkgprog) qualifying the trace. If the trace was not qualified with a DBRM or program name, this field contains an asterisk (*).

Role  The connection role name qualifying the trace. If the trace was not qualified with a connection role name, this field contains an asterisk (*).

Audit Policy Names(AUDTPLCY)  Specifies a list of up to eight audit policy names (AUDTPLCY) for which trace information is gathered.

Miscellaneous trace information:  The following fields are displayed if the Trace Destination field contains an OPx destination.

JOBNAME  The jobname that started the trace.

ASID  The address space ID of the job that started the trace.

PLANNAME  The plan name of the thread that is using the OPx destination.
AUTHID
The authorization identifier of the thread that started the trace. For active trace requests in use by OMEGAMON XE for DB2 PE, the authorization ID is that of the O2CI address space, not the authorization ID of the user issuing the start trace request.

CONNID
The connection ID of the thread that is using the OPx destination.

CORRID
The correlation ID of the thread that is using the OPx destination.

BUFSIZE
The buffer size value that was used when the trace was started.

Exclude Trace Qualifications:
XPlan
The exclude filtering for the plan name (XPlan). If the trace was not qualified with an XPlan, this field contains NONE.

XLoc
The exclude filtering for the location name (XLoc) qualifying the remote trace. If the trace was not qualified with an XLoc, this field contains NONE.

XAuthid
The exclude filtering for authorization identifier (Xauthid). If the trace was not qualified with an XAuthid, this field contains NONE.

XWrkstn
The exclude filtering for workstation name (XWrkstn). If the trace was not qualified with an XWrkstn, this field contains NONE.

XConnid
The exclude filtering for connection name (XConnid). If the trace was not qualified with an XConnid, this field contains NONE.

XAppname
The exclude filtering for application name (XAppname). If the trace was not qualified with an XAppname, this field contains NONE.

XCorrid
The exclude filtering for correlation name (XCorrid). If the trace was not qualified with an XCorrid, this field contains NONE.

XUserid
The exclude filtering for user name (XUserid). If the trace was not qualified with an XUserid, this field contains NONE.

XPkgloc
The exclude filtering for the location name of the package (XPkgloc). If the trace was not qualified with an XPkgloc, this field contains NONE.

XPkgcol
The exclude filtering for the collection name of the package (XPkgcol). If the trace was not qualified with an XPkgcol, this field contains NONE.

XPkgprog
The exclude filtering for DBRM or program name (XPkgprog). If the trace was not qualified with a XPkgprog, this field contains NONE.

XRole
The exclude filtering for connection role name (XRole). If the trace was not qualified with a XRole, this field contains NONE.
IFCID information:

Total IFCIDs Active
The total number of trace IFCIDs activated by the trace entry.

IFCID
The number of an active IFCID.

IFCID Description
The description of the IFCID on this line.

IRLM Startup Options and CSA Usage
This panel shows the Internal Resource Lock Manager (IRLM)'s startup options and current common storage (CSA/ECSA) usage.

Navigation
For additional information about other topics, use the PF keys.

Fields
IRLM Proc
The MVS jobname associated with the IRLM address space.

IRLM Subsys
The IRLM MVS subsystem name.

Cross Memory
OMEGAMON XE for DB2 PE displays YES if IRLM is using cross memory services to communicate with the attached subsystems. NO is displayed if IRLM is using common storage (CSA/ECSA) for all locking requests. You can override this option at IRLM startup using the PC= parameter.

Identifier
The IRLM identifier specified at startup.

Deadlock Time
The length of a local deadlock detection cycle, which is the number of seconds that will elapse before the IRLM will check for deadlocks on a single DB2 subsystem.

Deadlock Cycle
The number of local deadlock detection cycles that will elapse before the IRLM will perform a global deadlock check on all subsystems that are using that IRLM.
Maximum ECSA
The maximum amount of CSA/ECSA that IRLM can use if IRLMPC = NO.
(See the Cross Memory field.)

Current Used ECSA
The amount of CSA/ECSA that IRLM is currently using.

High Water Mark ECSA
The largest amount of CSA/ECSA that IRLM has used since startup.

Current Percentage ECSA
The percentage of Maximum ECSA that IRLM is currently using.

Subsystems Sharing IRLM
The number of subsystems using the IRLM.

IRLM Internal Trace
The status of the internal trace (extremely high overhead). ON if the trace is turned on. OFF if the trace is turned off. This option is specified at IRLM startup using the ITRACE parameter.

Data sharing options:

XCF Group Name
The name of the cross-system coupling facility (XCF) group in which this IRLM belongs. This option is specified at IRLM startup using the GROUP= parameter.

Max Users
The maximum number of systems in the data sharing group. This option is specified at IRLM startup using the MAXUSRS= parameter. It is used to determine the size of each hash entry in the global lock structure.

DSNZPARM Thread Parameters
This panel displays the values that are specified in the DSNZPARM module for thread management parameters. It shows the name of the DSNZPARM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.

If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.
DSNZP THREAD PARAMETERS

ZSYS
+ Collection Interval: REALTIME
SNAPTIME: 04/07/16 00:13:18.92
+
+ DSNZPARM Module
+ Initial Module
+ Assembly Date 03/17/16
+ Assembly Date 03/17/16
+ Previous Module
+ Assembly Date 03/17/16
+
+ DSNTEIPE-Thread Management 1
+------------------------------------
+ Max Users (CTHREAD) 400
+ Max Remote Active (MAXDBAT) 200
+ Max Remote Connected (CONDBAT) 10000
+ Max TSO Connect (IDFORE) 200
+ Max Batch Connect (IDBACx) 200
+ Max Kept Dyn Stmts (MAXKEEPD) 5000
+ Max Open File Refs (MAXOFILR) 100
+
+ DSNTEIPE1-Thread Management 2
+------------------------------------
+ (REALSTORAGE_MANAGEMENT) AUTO
+ Contract Thread STG (CONTSTOR) N/A
+ Manage Thread Storage (MINSTOR) N/A
+ (PAGEABLE_1MB_FOR_THREADS) YES
+ Long Running Reader (LRDRTHLD) 10
+ Data Def Timeout (DDLTOX) 1
+ (INDEX_CLEANUP_THREADS) 10

Fields

The **DSNZ** command displays the following lines to reflect the usage of the DB2 **SET SYSPARM** command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

**DSNZPARM Module**

The name of the DSNZPARM module specified for DB2 startup and the date on which this module was assembled.

**Initial Module**

The name of the initial DSNZPARM load module.

**Previous Module**

The name of the previous DSNZPARM load module.

**DSNTIPE-Thread Management 1**

**Max Users (CTHREAD) (QWP1CT)**

The maximum number of concurrent allied threads that might be active in DB2 from all sources. This includes threads for IMS, CICS, TSO (foreground and batch), RRSAF, and utilities.

**Max Remote Active (MAXDBAT) (QWP1RMT)**

The maximum number of distributed database access threads (DBATs) that can actively process SQL requests.

**Max Remote Connected (CONDBAT) (QWP1CDB)**

The maximum number of remote connected threads.
Max TSO Connect (IDFORE) (QWP1IDF)
The maximum number of concurrent connections from TSO foreground users that might access DB2 at one time.

Max Batch Connect (IDBACK) (QWP1IDB)
The maximum number of concurrent connections from batch jobs and utilities that might access DB2 at one time.

Max Kept Dyn Stmts (MAXKEEPD) (QWP4MXKD)
The maximum number of prepared dynamic statements saved past commit when dynamic statement caching is enabled.

Max Open File Refs (MAXOFILR) (QWP1MOFR)
The maximum number of concurrently open data sets for processing.

DSNTIPE-Thread Management 2

(REALSTORAGE_MANAGEMENT) (QWP4STMN)
This parameter determines whether DB2 storage is monitored.

Valid values:
A (AUTO)
N (ON)
O (OFF)

Contract Thread STG (CONTSTOR) (QWP4CONT)
This parameter determines whether thread CT Long Storage Pool is contracted.

Valid values:
NO
YES

Manage Thread Storage (MINSTOR) (QWP4MSTG)
This parameter determines whether DB2 is using storage management algorithms that minimize the amount of working storage that is consumed by individual threads. DB2 10 and DB2 11 only.

(PAGEABLE_1MB_FOR_THREADS) (QWP4P1MT)
Specifies whether DB2 may use 1 MB pageable storage when allocating hvshared above-the-bar object storage for thread pools and thread stack. Valid options are:

NO DB2 cannot not use 1 MB pageable storage for these objects.
YES DB2 may use 1 MB pageable storage for these objects. YES requires a level of z/OS that supports 1 MB pageable objects for hvshared. Sufficient real storage should be available to avoid performance issues related to paging. YES is the default for PAGEABLE_1MB_FOR_THREADS, but is enabled only if realstorage_management=off.

Z PARM NAME
PAGEABLE_1MB_FOR_THREADS.

DB2 12 and later.

Long Running Reader (LRDRTHLD) (QWP4LRTH)
This parameter determines the number of minutes that a READ claim is held by an agent before an IFCID 0313 record is written to report it as a long-running reader.

Data Def Timeout (DDLTOX) (QWP4DDLTO)
This parameter determines the SQL data definition time out factor.
**INDEX CLEANUP THREADS (QWP4IXCU)**

This parameter determines the maximum number of threads that can be created to process the cleanup of pseudo-deleted index entries on this subsystem on a data sharing member. Pseudo-deleted entries in an index are those that are logically deleted but still physically present in the index.

Valid values:
Integers between 0 - 128

Default: 10

DB2 11 and later.

**DSNZPARM Trace Parameters**

This panel shows traces, classes, the size of the internal trace table, and the size of the monitor trace buffer as specified in DSNZPARM for automatic startup. It shows the name of the DSNZPARM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.

If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.

---

```
<table>
<thead>
<tr>
<th>ZPTRC</th>
<th>VTM</th>
<th>O2</th>
<th>V540.4P</th>
<th>DA41</th>
<th>S 11/05/13 16:03:23 Z</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

> Help PF1  Back PF3  Left PF10  Right PF11
> R.H.B
> DSNZPARM INFORMATION: Enter a selection letter on the top line.

> A-THREAD  C-LOGGING  D-ARCHIVING  E-AUTH/RLF/DDF  F-IRLM
> G-STORAGE  H-DATASET  I-DDCS  J-DATA SHARING  K-STORED PROC  L-UTIL
> M-APPL  N-DATA  O-PERF  P-BUFFERPOOL  Q-OTHERS

===============================================================================

DSNZPARM TRACE PARAMETERS

<table>
<thead>
<tr>
<th>ZTRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Collection Interval: REALTIME  SNAPTIME: 11/05/13 15:03:26.95</td>
</tr>
<tr>
<td>+ DSNZPARM Module  DSNZPARM</td>
</tr>
<tr>
<td>+ Assembly Date  06/30/11</td>
</tr>
<tr>
<td>+ Initial Module  DSNZPARM</td>
</tr>
<tr>
<td>+ Assembly Date  06/30/11</td>
</tr>
<tr>
<td>+ Previous Module  DSNZPARM</td>
</tr>
<tr>
<td>+ Assembly Date  06/30/11</td>
</tr>
<tr>
<td>+ DSNTPNP-Trace Parameters</td>
</tr>
<tr>
<td>+ Audit Trace (AUDITST)  NO</td>
</tr>
<tr>
<td>+ Trace Auto Start (TRACSTR)  NO</td>
</tr>
<tr>
<td>+ Trace Size (TRACTBL)  16</td>
</tr>
<tr>
<td>+ SMF Accounting (SMFACCT)  1</td>
</tr>
<tr>
<td>+ SMF Statistics (SMFSTAT)  1,3,4,5,6</td>
</tr>
<tr>
<td>+ Statistics Time (STATIME)  1</td>
</tr>
<tr>
<td>+ Statistics Sync (SYNCVAL)  NO</td>
</tr>
<tr>
<td>+ Dataset Stats Time (DSSTIME)  5</td>
</tr>
<tr>
<td>+ Monitor Trace (MON)  1</td>
</tr>
<tr>
<td>+ Monitor Size (MONSIZE)  1048576</td>
</tr>
<tr>
<td>+ UNICODE IFCIDs (UIFCID)  YES</td>
</tr>
<tr>
<td>+ DDF-RRSAF Accum (ACCUMACC)  10</td>
</tr>
<tr>
<td>+ Aggregation Fields (ACCUMLD)  0</td>
</tr>
<tr>
<td>+ Compress SMF Recs (SMFCOMP)  NO</td>
</tr>
</tbody>
</table>

===============================================================================
```
Navigation

For additional information about
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

Fields

The DSNZ command displays the following lines to reflect the usage of the DB2 SET SYSPARM command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

DSNZPARM Module
The name of the DSNZPARM module that is specified for DB2 startup.

Initial Module
The name of the initial DSNZPARM load module.

Previous Module
The name of the previous DSNZPARM load module.

Assembly Date
The date on which this module was assembled.

DSNTIPN-Trace Parameters

Audit Trace (AUDITST) (QWP1AUDT)
This parameter determines the start options of the audit trace (4 bytes are used as bits 1-32).

Valid values:

- Asterisk (*)
  All bits are set to the value 1.
- NO
  The bit string consists of zero values.
- 1-32
  If any class between 1 and 32 is defined, the NTH bit in the string from left to right is set to 1. This means it is turned on.
- YES
  The default of class 1 is used.

Trace Auto Start (TRACSTR) (QWP1TRST)
This parameter determines the start trace options for global trace classes (4 bytes are used as bits 1-32).

Valid values:

- Asterisk (*)
  All bits are set to the value 1.
- NO
  The bit string consists of zero values.
- 1-32
  If any class between 1 and 32 is defined, the NTH bit in the string from left to right is set to 1. This means it is turned on.
- YES
  The default of class 1, 3, and 4 is used.

Trace Size (TRACTBL) (QWP1TRSZ)
This parameter determines the size of the trace table.

SMF Accounting (SMFACCT) (QWP1SMFA)
This parameter determines the SMF accounting start options (4 bytes are used as bits 1-32).
Valid values:

**Asterisk (*)**
All bits are set to the value 1.

**NO**
The bit string consists of zero values.

**1-32**
If any class between 1 and 32 is defined, the NTH bit in the string from left to right is set to 1. This means it is turned on.

**YES**
The default of class 1 is used.

**SMF Statistics (SMFSTAT) (QWP1SMFS)**
This parameter determines the SMF start options (4 bytes are used as bits 1-32).

Valid values:

**Asterisk (*)**
All bits are set to the value 1.

**NO**
The bit string consists of zero values.

**1-32**
If any class between 1 and 32 is defined, the NTH bit in the string from left to right is set to 1. This means it is turned on.

**YES**
The default of class 1 is used.

**Statistics Time (STATIME) (QWP1STIM)**
This parameter determines the time interval in minutes between the collection of statistics. At the end of this interval, statistics records are written.

**Statistics Sync (SYNCVAL) (QWP1SYNV)**
This parameter determines when DB2 statistics recording is synchronized, for example, 15 minutes past the hour.

Valid values:

**1-59 minutes**

**Dataset Stats Time (DSSTIME) (QWP1DTIM)**
This parameter determines the time interval in minutes before DB2 resets data set statistics that are collected for online performance monitors by using IFI reads requests for IFCID 0199.

**Monitor Trace (MON) (QWP1MON )**
This parameter determines the monitor tracing start options (4 bytes are used as bits 1-32).

Valid values:

**Asterisk (*)**
All bits are set to the value 1.

**NO**
The bit string consists of zero values.

**1-32**
If any class between 1 and 32 is defined, the NTH bit in the string from left to right is set to 1. This means it is turned on.

**YES**
The default of class 1 is used.

**Monitor Size (MONSIZE) (QWP1MONS)**
This parameter determines the monitor buffer size.

**UNICODE IFCIDs (UIFCIDS) (QWP1_UNICODE)**
This parameter determines whether fields that contain the characters %U in the comments are coded in Unicode (UTF-8).
Valid values:

1=YES The trace is coded in Unicode.
0=NO The trace is not coded in Unicode.

**DDF-RRSAF Accum (ACCUMACC) (QWP1ACCU)**
This parameter determines whether to roll up accounting data by end user for DDF or RRSAF threads.

Valid values:

NO
YES

**Aggregation Fields (ACCUMUID) (QWP1ACID)**
This parameter determines the subset of end user fields by which accounting data is aggregated.

Valid values:

0 End user ID, transaction name, and workstation name.
1 End user ID
2 End user transaction name
3 End user workstation name
4 End user ID and transaction name
5 End user ID and workstation name
6 End user transaction name and workstation name.

This value is ignored, if the parameter DDF-RRSAF Accum is set to NO.

**Compress SMF Recs (SMFCOMP) (QWP1CSMF)**
This parameter determines whether DB2 is compressing trace records that are written to SMF.

**DSNZPARNM Logging Parameters**
This panel shows information about the logging parameters that are specified in the DSNZPARM module. It shows the name of the DSNZPARM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.

If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.
### ZLOG + Collection Interval: REALTIME
SNAPTIME: 04/07/16 00:55:02.26

+ DSNZPARM Module
+ Assembly Date 03/17/16
+ Initial Module
+ Assembly Date 03/17/16
+ Previous Module
+ Assembly Date 03/17/16
+ DSNZPARM Module
+ Assembly Date 03/17/16

---

### DSNTIPL-Active LogParms
+ Output Buffer Size (OUTBUFF) 4000
+ (REMOTE_COPY_SW_ACCEL) DISABLE

---

### DSNTIPL-Checkpoint Parameters
+ Checkpoint Type (CHKTYPE) SINGLE
+ Check Frequent (CHKFREQ) 500000
+ Records/Checkpoint (CHKLOGR) 0
+ Minutes/Checkpoint (CHKMINS) 0
+ UR Check Freq (URCHKTH) 0
+ UR Log Write Check (URLGWTH) 0
+ Limit Backout (LBACKOUT) AUTO
+ Backout Duration (BACKDUR) 5
+ RO Switch Chkpts (PCLOSEN) 10
+ RO Switch Time (PCLOSET) 10
+ Levelid Update Freq (DLDFREQ) 5

---

### Navigation

For additional information about
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

### Fields

The **DSNZ** command displays the following lines to reflect the usage of the DB2 **SET SYSPARM** command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

**DSNZPARM Module**

The name of the DSNZPARM module that is specified for DB2 startup.

**Initial Module**

The name of the initial DSNZPARM load module.

**Previous Module**

The name of the previous DSNZPARM load module.

**Assembly Date**

The date on which this module was assembled.

**DSNTIPL-Active LogParms**

**Output Buffer Size (QWP2OBPS)**

The OUTBUFF subsystem parameter determines the size of the output buffer that is used for writing active log data sets.

Valid values:

400K to 400000K
(REMOTE_COPY_SW_ACCEL) (QWP2RCSA)

Specifies whether DB2 uses software (SW) to control the remote copy process for active log output in peer-to-peer remote copy (PPRC) environments.

Valid values:
DISABLE (default)
ENABLE

DB2 12 and later.

DSNTIPL1-Checkpoint Parameters

Checkpoint Type (QWP1LOGT)

The CHKTYPE subsystem parameter indicates whether the interval between log checkpoints is based on the number of written log records, the time between checkpoints, or both.

Valid values:
SINGLE(LOGRECS or MINUTES)
BOTH

Check Frequent (QWP1LOGL)

The CHKFREQ subsystem parameter determines how many log records are created before log checkpoints occur.

Valid values:
1,000 - 16,000,000 (if CHKTYPE is SINGLE/LOGRECS)
1 - 60 (if CHKTYPE is SINGLE/MINUTES)
NOTUSED (if CHKTYPE is BOTH).
NOTUSED is displayed as 0.

Default:
500000

Records/Checkpoint (QWP1LOGR)

The RECORDS/CHECKPOINT parameter determines how many log records are created between log checkpoints.

Valid values:
1,000 - 99,999,999 (if CHKTYPE is BOTH)
NOTUSED (if CHKTYPE is SINGLE)
NOTUSED is displayed as 0.

Default:
NOTUSED(0)

Minutes/Checkpoint (QWP1LOGM)

The MINUTES/CHECKPOINT parameter determines how many minutes are passing between log checkpoints.

Valid values:
1 - 1439 (if CHKTYPE is BOTH)
NOTUSED (if CHKTYPE is SINGLE)
NOTUSED is displayed as 0.

Default:
NOTUSED(0)
UR Check Freq (QWP1URCK)
The URCHKTH subsystem parameter determines the number of checkpoint cycles to be completed before a warning message is issued to the console by DB2 for an uncommitted unit of recovery (UR).

If you do not want these warning messages to be issued, you can disable this option.
Valid values: 0 to 255
Default: 5

Log Apply Storage V9 (QWP1FLBZ)
This parameter determines the maximum amount of dsn1dbm1 storage that can be used for fast log application.

This value is used by DB2 during the log application phase of the recover utility. This field corresponds to the field log apply storage on the installation panel DSNTIPL.

UR Log Write Check (QWP1LWCK)
The URLGWTH subsystem parameter determines the number of log records that are written before a warning message is issued to the console by an uncommitted unit of recovery (UR).

If you do not want these warning messages to be issued, you can disable this option.
Valid values: 0 to 1000K
Default: 10K

Limit Backout (QWP1LMBO)
The LBACKOUT subsystem parameter determines whether DB2 postpones backward-log processing for some units of work.
Valid values: AUTO YES LIGHT LIGHTAUTO NO
Default: AUTO

Backout Duration (QWP1BDUR)
The BACKODUR subsystem parameter determines the number of log records that are backed out during a restart. This value is applied when the LIMIT BACKOUT field is set to AUTO, YES, LIGHT, or LIGHTAUTO.
Valid values: 0 to 255
Default: 5
RO Switch Chkpts (QWP1FREQ)
The PCLOSEN subsystem parameter determines the number of consecutive DB2 checkpoints that are allowed after a page set or partition is updated. After the specified number of checkpoints occurred, DB2 converts the page set or partition from read-write to read-only.

Valid values:
1 to 32767

Default:
10 checkpoints

RO Switch Time (QWP1TMR)
The PCLOSET subsystem parameter determines the number of minutes that can elapse after a page set or partition is updated. After the specified number of minutes, DB2 converts the set or partition from read-write to read-only.

Valid values:
1 to 32767

Default:
10 minutes

Levelid Update Freq (QWP1DFRQ)
The DLDFREQ subsystem parameter determines whether the level ID of a page set or partition is to be updated at DB2-determined checkpoint intervals.

- If level ID updates for down-level detection are enabled (ON), 5 is displayed.
- If level-ID updates for down-level detection are disabled, (OFF), 0 is displayed.

Valid values:
ON
OFF

DSNZPARM Archiving Parameters
This panel shows information about the parameters that affect DB2 archiving. It shows the name of the DSNZPARM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.

If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.
Navigation

For additional information about

• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

The DSNZ command displays the following lines to reflect the usage of the DB2 SET SYSPARM command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

DSNZPARAM Module

The name of the DSNZPARAM module that is specified for DB2 startup.
**Initial Module**
The name of the initial DSNZPARM load module.

**Previous Module**
The name of the previous DSNZPARM load module.

**Assembly Date**
The date on which this module was assembled.

**DSNTIPA-Archive Log Parameters**

**Allocation Unit (QWP3CYL/QWP3TRCK)**
The ALCUNIT subsystem parameter determines the unit type that is used by DB2 to allocate space for archive data sets.

*Valid values:*
- BLK (BLOCK)
- CYL (CYLINDER)
- TRK (TRACK)

*Default:*
- BLK

**Primary Quantity (QWP3RISP)**
The PRIQTY subsystem parameter determines the amount of primary space that is allocated for a disk data set. The units for this parameter are specified in the ALLOCATION UNITS field.

*Valid values:*
- Blank
- 1 to 999999

*Default:*
- Blank

**Secondary Quantity (QWP3SECS)**
The SECQTY subsystem parameter determines the amount of secondary space that is allocated for a disk data set. The units for this parameter are specified in the ALLOCATION UNITS field.

*Valid values:*
- Blank
- 1 to 999999

*Default:*
- Blank

**Catalog Archive Data Set (CATALOG) (QWP3CTLG)**
The value of the CATALOG DATA field specifies whether archive log data sets on tape are to be cataloged.

*Valid values:*
- YES, NO

*Default:*
- NO

DB2 10 and DB2 11 only.
Device Type 1 (QWP3UNT1)
The UNIT subsystem parameter determines the device type or the unit name that is used for storing the first copy of archive log data sets.

Valid values:
Device type
Unit name

Default:
TAPE

Device Type 2 (QWP3UNT2)
The UNIT2 subsystem parameter determines the device type or the unit name that is used for storing the second copy of archive log data sets.

Valid values:
Device type
Unit name

Default:
None

Block Size (QWP3BKSZ)
The BLKSIZE subsystem parameter determines the block size that is used for the archive log data set.

Valid values:
8192 to 28672

Default:
24576

Read Tape Units (QWP2MRTU)
The MAXRTU subsystem parameter determines the maximum number of dedicated tape units that can be allocated to concurrently read archive log tape volumes.

Valid values:
1 to 99

Default:
2

Tape Unit Dealloc Period (QWP2DMIN:QWP2DSEC)
The DEALLCT subsystem parameter determines the length of time that an archive read tape unit can remain unused before it is deallocated.

The time is displayed like this: Minutes : Seconds

Valid values:
Minutes
Seconds
1440
NOLIMIT

Default:
0

Recording Max (QWP2ARCL)
The MAXARCH subsystem parameter determines the maximum number of archive log volumes that are recorded in the BSDS.
If you have a dual archive, this number is for each log data set. For example, if 500 is specified as the maximum number, allow 500 COPY-1 and 500 COPY-2 data sets in the BSDS.

Valid values:
10 to 10000

Default:
10000

**Write to Oper (QWP3WTOR)**

The ARCWTOR subsystem parameter determines whether DB2 sends a message to the operator and waits for a reply before attempting to mount an archive log data set.

Valid values:
NO
YES

Default:
YES

**Retention Period (QWP3RETN)**

The ARCRETN subsystem parameter determines the retention period. This is the number of days that DB2 retains archive log data sets.

The retention period is added to the current date to calculate the expiration date of the archive log data sets.

Valid values:
0 to 9999

Default:
9999

**Quiesce Period (QWP3MQP)**

The QUIESCE subsystem parameter determines the maximum amount of time in seconds that DB2 is allowed to attempt a full system quiesce.

Valid values:
1 to 999

Default:
5

**Compact Data (QWP3COMP)**

The COMPACT subsystem parameter determines whether data that is written to archive logs is compacted.

Valid values:
NO
YES

Default:
NO

**Single Volume (QWP3SVOL)**

The SVOLARC subsystem parameter determines whether a single volume is used by DB2 for disk archives.
When archiving to disk, the number of online storage volumes for the specified UNIT name is used to determine a count of candidate volumes up to 15.

Valid values:
NO
YES

Default:
NO

DSNTIPH-System Resource

Number of Active Logs (QWP2DUAL)
The TWOACTV subsystem parameter determines the number of copies of the active log that is maintained by DB2.

Valid values:
1 (single locking)
2 (dual locking)

Default:
2

Number of Archive Logs (QWP2ADL)
The TWOARCH subsystem parameter determines the number of copies of the archive log that is produced by DB2 during offloading.

Valid values:
1
2

Default:
2

ARC1 Prefix (QWP3RE1N)
The ARCPFX1 subsystem parameter determines the prefix that is used for the first copy of the archive log data set.

Valid values:
Valid data set name prefix
1 to 35 characters

Default:
DSNCAT.ARCHLOG1 or DSNCAT.DSN1.ARCLG1

ARC2 Prefix (QWP3RE2N)
The ARCPFX2 subsystem parameter specifies the prefix that is used for the second copy of the archive log data set. If you use single logging, accept the default value.

Valid values:
Valid data set name prefix
1 to 35 characters

Default:
DSNCAT.ARCHLOG2 or DSNCAT.DSN1.ARCLG2
**Timestamp Archives (QWP3DTIM)**

The TSTAMP subsystem parameter determines whether the DB2 archive log data set name contains the date and time that the archive log data set is created.

Valid values:

- NO
- YES
- EXT

Default: NO

**Dual BSDS Mode (QWP2DBSD)**

The dual BSDS mode.

Valid values:

- NO
- YES

**DSNZPARM Authorization, RLF and DDF Parameters**

This panel shows information about the parameters that affect DB2 access and security. It shows the name of the DSNZPARM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.

If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.

---

<table>
<thead>
<tr>
<th>ZPCTL</th>
<th>VTM</th>
<th>O2</th>
<th>VS40.4P</th>
<th>DSNZPARM INFORMATION: Enter a selection letter on the top line.</th>
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<tbody>
<tr>
<td></td>
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<td>&gt; ZCTL A-THREAD B-TRACE C-LOGGING D-ARCHIVING E-AUTH/RLF/DDF F-IRLM</td>
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<td>&gt; G-STORAGE H-DATASET I-DDCS J-DATA SHARING K-STORED PROC L-UTIL</td>
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<td>&gt; M-APPL N-DATA O-PERF P-BUFFERPOOL Q-OTHERS</td>
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<td></td>
<td>&gt; DSNZPARM AUTHORIZATION, RLF, AND DDF PARAMETERS</td>
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<td>ZCTL + Collection Interval: REALTIME SNAPTIME: 04/07/16 23:10:44.37</td>
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<td>+ DSNZPARM Module DSNZPARM</td>
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<td>+ Assembly Date 03/17/16</td>
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<td>+ Previous Module DSNZPARM</td>
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<td>+ DSNTOPO-Operator Functions</td>
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<td>+ WTO Route Codes (ROUTCODE) 1</td>
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<td>+ Recall Data Base (RECALL) YES</td>
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<td>+ Auto Bind (ABIND) YES</td>
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<td>+ Explain Processing (ABEXP) YES</td>
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<td>+ Dprop Support (EDPROP) NO</td>
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<td>+ Change Data Capture (CHGDC) NO</td>
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<td>+ Tracker Site (TRKRsite) NO</td>
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<td>+ Read Copy2 Archive (ARC2FRST) NO</td>
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<td>+ (PROFILE_AUTOSTART) NO</td>
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### DSNTIPP-Protection 1

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Archive Log RACF (PROTECT)</td>
<td>NO</td>
</tr>
<tr>
<td>Use Protection (AUTH)</td>
<td>YES</td>
</tr>
<tr>
<td>Plan Auth Cache (AUTHCACHE)</td>
<td>3072</td>
</tr>
<tr>
<td>Package Auth Cache (CACHEPAC)</td>
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</tr>
<tr>
<td>Routine Auth Cache (CACHERAC)</td>
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</tr>
<tr>
<td>Auth Exit Limit (AEXITLIM)</td>
<td>10</td>
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<tr>
<td>Auth Exit Check (AUTHEXIT_CHECK)</td>
<td>PRIMARY</td>
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<tr>
<td>(AUTHEXIT_CACHEREFRESH)</td>
<td>NONE</td>
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### DSNTIPP1-Protection 2

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<thead>
<tr>
<th>Parameter</th>
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<tbody>
<tr>
<td>System Admin 1 (SYSADM)</td>
<td>HELM</td>
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<tr>
<td>System Admin 2 (SYSADM2)</td>
<td>SYSADM</td>
</tr>
<tr>
<td>System Operator 1 (SYSPR1)</td>
<td>HELM</td>
</tr>
<tr>
<td>System Operator 2 (SYSPR2)</td>
<td>EMIL</td>
</tr>
<tr>
<td>Security Admin 1 (SECADM1)</td>
<td>SECADM</td>
</tr>
<tr>
<td>Sec Admin1 Type (SECAADM1_TYPE)</td>
<td>AUTHID</td>
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<tr>
<td>Security Admin 2 (SECADM2)</td>
<td>SECADM</td>
</tr>
<tr>
<td>Sec Admin2 Type (SECAADM2_TYPE)</td>
<td>AUTHID</td>
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<tr>
<td>(SEPARATE_SECURITY)</td>
<td>N</td>
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<tr>
<td>Unknown Authid (DEFLTID)</td>
<td>IBMUSER</td>
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<tr>
<td>Resource Authid (RLFAUTH)</td>
<td>SYSIBM</td>
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<tr>
<td>Bind New Package (BINDNV)</td>
<td>BINDADD</td>
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<td>DBADM Create Auth (DBACRVW)</td>
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<td>(REVOKE_DEPENDENT_PRIVILEGES)</td>
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### DSNTIPR-DDF 1

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<thead>
<tr>
<th>Parameter</th>
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<tbody>
<tr>
<td>DDF Startup Option (DDF)</td>
<td>AUTO</td>
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<tr>
<td>Resync Interval (RESYNC)</td>
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<tr>
<td>DDF Threads (CMTSTAT)</td>
<td>INACTIVE</td>
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<tr>
<td>Max Type1 Inactive Thrds (MAXTYPE1)</td>
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<tr>
<td>Idle Thread Timeout (IDHTOIN)</td>
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<tr>
<td>Extended Security (EXTSEC)</td>
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### DSNTIP5-DDF 2

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<th>Parameter</th>
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<tbody>
<tr>
<td>TCP/IP Already Verified (TCPALVER)</td>
<td>NO</td>
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<tr>
<td>Extra Option for TCPALVER</td>
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<tr>
<td>Extra Blocks Req (EXTRAREQ)</td>
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<tr>
<td>Extra Blocks Srv (EXTRASRV)</td>
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<tr>
<td>Hop Site Authorization (HOPAUTH)</td>
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<td>TCP/IP Keepalive (TCPKPALV)</td>
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<td>Pool Thread Timeout (POOLINAC)</td>
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<td>Conn Queue Max Depth (MAXCONNON)</td>
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<td>Conn Queue Max Wait (MAXCONQW)</td>
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### DSNTIPO4-Resource Limit Facility

<table>
<thead>
<tr>
<th>Parameter</th>
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<tbody>
<tr>
<td>RLF Auto Start (RLF)</td>
<td>NO</td>
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<tr>
<td>RLF Scope (RLFENABLE)</td>
<td>DYNAMIC</td>
</tr>
<tr>
<td>RLF Name Suffix (RLFTBL)</td>
<td>01</td>
</tr>
<tr>
<td>RLF Access Err DSQL (RLFERR)</td>
<td>NOLIMIT</td>
</tr>
<tr>
<td>RLF Access Err SSQL (RLFERRSTC)</td>
<td>NOLIMIT</td>
</tr>
<tr>
<td>RLF Access Err RemDSQL (RLFERRD)</td>
<td>NOLIMIT</td>
</tr>
<tr>
<td>RLF Access Err RemSSQL (RLFERRDSTC)</td>
<td>NOLIMIT</td>
</tr>
</tbody>
</table>
Navigation

For additional information about
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

The **DSNZ** command displays the following lines to reflect the usage of the DB2 **SET SYSPARM** command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

**DSNZPARM Module**

The name of the DSNZPARM module that is specified for DB2 startup.

**Initial Module**

The name of the initial DSNZPARM load module.

**Previous Module**

The name of the previous DSNZPARM load module.

**Assembly Date**

The date on which this module was assembled.

**DSNTIPO-Operator Functions**

**WTO Route Codes (ROUTCDE) (QWP1SMRC)**

This parameter determines the z/OS console routing codes that are assigned to messages that are not solicited from a specific console.

Valid values:

2 bytes are used as bits 1-16

**Recall Data Base (RECALL) (QWP4HRCL)**

This parameter determines whether DFSMSHsm automatic recall is performed for DB2 databases.

**Recall Delay (RECALLD) (QWP4HRCD)**

This parameter determines the maximum length of time in seconds that a program can be delayed for a DFSMSHsm recall.

**Auto Bind (ABIND) (QWP4ABN)**

This parameter determines whether plans or packages can be rebound automatically.

Valid values:

**COEXIST**

Automatic rebind is performed in a data sharing coexistence environment if one of the following conditions are met:

• The plan or package is marked as invalid.

• The plan or package was last bound at the current release level. It is now running on a subsystem at the previous release level.

**DISABLE**

You must explicitly bind any invalid plan or package before it can be used.

**ENABLE** Automatic rebind is performed on plans or packages.
Explain Processing (ABEXP) (QWP4ABX)
This parameter determines whether EXPLAIN is allowed during AUTOBIND.

Dprop Support (EDPROP) (QWP4ENF)
DPROP support only.

Change Data Capture (CHGDC) (QWP4CDC)
This parameter determines the enablement of change data capture.

Site Type (SITETYP) (QWP4MSTY)
This parameter determines whether this system runs at the local site.

Tracker Site (TRKRSITE) (QWP4TRKR)
This parameter determines whether this subsystem is a remote tracker site for another DB2 system.

Read Copy2 Archive (ARC2FRST) (QWP2ARC2)
This parameter determines whether the COPY2 archives are read first when the DB2 subsystem is started.

(PROFILE_AUTOSTART) (QWP1PFSY)
Specifies whether start profile command processing is automatically initiated as part of DB2 startup.

• 0=NO
• 1=YES

DB2 12 and later.

DSNTIP-Protection 1

Archive Log RACF (PROTECT) (QWP3RTCT)
This parameter determines the RACF protection.

Use Protection (AUTH) (QWP4AUTH)
This parameter determines whether the DB2 authorization is enabled or disabled.

Valid values:
E=ENABLE(YES)
D=DISABLE(NO)

Default:
E

Plan Auth Cache (AUTHCACH) (QWP4AUCA)
This parameter determines the authorization cache size.

Package Auth Cache (CACHEPAC) (QWP4PAC)
This parameter determines the size of package authorization cache.

Routine Auth Cache (CACHERAC) (QWP4RAC)
This parameter determines the amount of storage that is allocated to the caching of authorization information for all routines on this subsystem.

Default:
32K

Auth Exit Limit (AEXITLIM) (QWP4ACAN)
This parameter determines the abend count for the access control authorization exit.
**Auth Exit Check (AUTHEXIT_CHECK) (QWP4RACK)**

This parameter determines the authorization exit check.

Valid values:
- **P**=PRIMARY
- **D**=DB2

DB2 11 and later.

**AUTHEXIT_CACHEREFRESH) (QWP4AECR)**

This parameter determines the authorization exit cache refresh.

Valid values:
- **A**=ALL
- **N**=NONE

DB2 11 and later.

**DSNTIP1-Protection 2**

**System Admin 1 (SYSADM) (QWP4SADM)**
The system administrator user ID 1.

If QWP4SADM_OFF is not set to 0, this value is truncated. If QWP4SADM is truncated, this is the offset from the beginning of QWP4 TO QWP4SADM_LEN.

If QWP4SADM_OFF is not set to 0, use the following fields:
- Length of QWP4SADM_VAR
- System Administrator user ID 1

**System Admin 2 (SYSADM2) (QWP4ADM2)**
The system administrator user ID 1.

If QWP4ADM2_OFF is not set to 0, this value is truncated. If QWP4ADM2 is truncated, this is the offset from the beginning of QWP4 TO QWP4ADM2_LEN.

If QWP4ADM2_OFF is not set to 0, use the following fields:
- Length of QWP4ADM2_VAR
- System Administrator user ID 2

**System Operator 1 (SYSOPR1) (QWP4OPR1)**
The system operator user ID 1.

If QWP4OPR1_OFF is not set to 0, this value is truncated. If QWP4OPR1 is truncated, this is the offset from the beginning of QWP4 TO QWP4OPR1_LEN.

If QWP4OPR1_OFF is not set to 0, use the following fields:
- Length of QWP4OPR1_VAR
- System Operator user ID 1.

**System Operator 2 (SYSOPR2) (QWP4OPR2)**
The system operator user ID 1.

If QWP4OPR2_OFF is not set to 0, this value is truncated. If QWP4OPR2 is truncated, this is the offset from the beginning of QWP4 TO QWP4OPR2_LEN.

If QWP4OPR2_OFF is not set to 0, use the following fields:
- Length of QWP4OPR2_VAR
• System Operator user ID 2.

**Security Admin 1 (SEADM1) (QWP4SECA1_E)**  
The security administrator 1 authorization ID.

If QWP4SECA1_OFF is not set to 0, this value is truncated. If the authorization is held by a role, this value is blank.

**Sec Admin1 Type (SEADM1_TYPE) (QWP4SECA1_TYPE)**  
The security administrator type 1 authorization ID.

'' Authorization ID
L Role

**Security Admin 2 (SEADM2) (QWP4SECA2_E)**  
The security administrator type 2 authorization ID.

If QWP4SECA1_OFF is not set to 0, this value is truncated. If the authorization is held by a role, this value is blank.

**Sec Admin2 Type (SEADM2_TYPE) (QWP4SECA2_TYPE)**  
The security administrator type 2 authorization ID.

'' Authorization ID
L Role

(SEPARATE_SECURITY) (QWP4SEPS)  
Specifies whether to separate DB2 security administrator duties from the DB2 system administrator duties.

Revoke:
Y SYSADM cannot manage security objects such as roles and trusted contexts. SYSCTRL cannot manage roles.
N SECADM or ACCESSCTRL AUTHORITY is required for security administration.

**Unknown Authid (DEFLTID) (QWP4DFID)**  
The system administrator default user ID.

If QWP4DFID_OFF is not set to 0, this value is truncated. If QWP4DFID is truncated, this is the offset from the beginning of QWP4 TO QWP4DFID_LEN.

If QWP4DFID_OFF is not set to 0, use the following fields:

• LENGTH OF QWP4DFID_VAR
• SYSTEM DEFAULT USER ID.

**Resource Authid (RLFAUTH) (QWP1RLFA)**  
The resource limit specification table authorization ID.

If QWP1RLFA_OFF is not set to 0, this value is truncated. If QWP1RLFA is truncated, this value is the offset from the beginning of QWP1 TO QWP1RLFA_LEN.

Use the following fields if QWP1RLFA_OFF is not set to 0:

• Length of QWP1RLFA_VAR
• Resource limit specification table authorization ID

**Bind New Package (BINDNV) (QWP4BNVA)**  
When adding a new package or a new version of an existing package to a collection, one of the following authorities is required:
• BINDADD AUTHORITY
• BIND AUTHORITY

DBADM Create Auth (DBACRVW) (QWP4CRVW)
Specifies whether an authorization ID with DBADM authority can create a view or an alias for another authorization ID. Valid values are YES or NO. The default value is NO.

(REVOKE_DEPENDENT_PRIVILEGES) (QWP4RVDP)
Specifies whether to include dependent privileges on REVOKE:
Y Dependent privileges are included.
N Dependent privileges are not included.
S The REVOKE statement specification is used.

DSNTIPR-DDF 1
DDF Startup Option (DDF) QWP9STRRT
The facility start parameter.

Resync Interval (RESYNC) (QWP9RYC )
The minutes between resynchronization periods.

DDF Threads (CMTSTAT) (QWP9CMST)
The status of the DDF thread.

Max Type1 Inactive Thrds (MAXTYPE1) (QWP9MAX1)
Specifies the maximum type 1 inactive threads that are allowed by DB2. 0 indicates that type 1 inactive connections are not allowed.

Idle Thread Timeout (IDTHTOIN) (QWP9TTO )
The approximate time in seconds that an active server thread can remain dormant before it is cancelled.

Extended Security (EXTSEC) (QWP1SCER)
This parameter determines the contents of the error message that is returned to a network client when a DDF connection request fails due to a security error. It also determines whether you can update an RACF password by using the DRDA change password function.
Y Detailed error information is returned. You can update the password by using the DRDA function.
N A generic error message is returned. You cannot update the RACF password by using the DRDA function.

DSNTIP5-DDF2
TCP/IP Already Verified (TCPALVER) (QWP9TCPA)
Specifies whether already verified connections are accepted from TCP/IP clients.
Valid values: YES or NO. If connections are not accepted, additional criteria might apply.

Extended Option for TCPALVER (QWP9TCPVE)
If YES is specified, user ID and password are required. These values must be AES-encrypted including RACF passtickets, or a KERBEROS ticket is required, or the connection is protected by one of the following options:
• AT-TLS policy (ensured via a DB2 SECPORT)
• IPSEC tunnel
Extra Blocks Req (EXTRAREQ) (QWP1EXBR)
The maximum number of extra query blocks that DB2 can request from a remote DRDA server.

Extra Blocks Srv (EXTRASRV) (QWP1EXBS)
The maximum number of extra query blocks that DB2 can return to a remote DRDA requester.

Hop Site Authorization (HOPAUTH) V9 (QWP4HOP)
For a non-DB2 requester that executes a package at a DB2 server that sends an SQL statement to another DB2 server, you can specify one of the following options:

ON  The authorization ID of the package owner is used for static SQL, and the ID of the process runner is used for dynamic SQL.

OFF The authorization ID of the process runner is used for all statements.

TCP/IP Keepalive (TCPKPALV) (QWP9TCKA)
Determines whether to override the TCP/IP stack Keepalive value. The default value is 120.

You can specify the following values:

ENABLE The TCP/IP value is not overwritten.

DISABLE Keep alive probing is disabled.

1-65534 (SECONDS) The TCP/IP stack Keepalive value should be replaced with the value that is displayed in this field.

Pool Thread Timeout (POOLINAC) (QWP9INAC)
Specifies the time in seconds that a DBAT can remain idle in the pool before it is terminated. If this parameter is set to 0, a DBAT is terminated instead of going into the pool if there is a sufficient number of threads in the pool to process the number of type 2 inactive threads that is currently existing.

Valid values: 0-9999.

Default: 120.

Conn Queue Max Depth (MAXCONQN) (QWP9MCONQN)
The maximum depth for the connection request queue of connections that are waiting for a DBAT to process a request. The minimum value is 1.

OFF The queue is limited only by CONDBAT.

ON The depth of the queue corresponds to the maximum value that is specified for MAXDBAT.

Conn Queue Max Wait (MAXCONQW) (QWP9MCONQW)
The maximum time in seconds for a connection to wait for a DBAT to process its request.

OFF The connection waits indefinitely.

ON The time value that is specified for IDTHTOIN is used. However, if IDTHTOIN is set to 0, a warning MNOTE is issued. It states that MAXONT is set to OFF because IDTHTOIN is set to 0. The minimum numeric value is 5. The maximum value is 3600 seconds.
This is the default value.

**DSNTIP04 - Resource Limit Facility**

**RLF Auto Start (RLF) (QWP1RLF)**
This parameter determines whether the resource limit facility (governor) starts automatically each time DB2 is started.

**RLF Scope (RFLENABLE)**
The level of RLF governing:

- **DYNAMIC**
  Dynamic SQL only

- **STATIC**
  Static SQL only

- **ALL** Both, dynamic and static SQL

  DB2 12 and later.

**RLST Name Suffix (RLFTBL) (QWP1RLFT)**
This parameter determines the suffix that is used for the default resource limit specification table (RLST). The default RLST is used when the resource limit facility (governor) is started automatically or when the governor is started without a specified suffix.

**RLST Access Error (RLFERR) (QWP1RLFR)**
This parameter determines what DB2 is doing if the governor encounters a condition that prevents it from accessing the resource limit specification table. This setting applies also if DB2 cannot find an applicable row in the resource limit specification table. An applicable row applies to the authorization ID, plan or package name, and the name of the logical unit of work of the query user.

**RLST Access Err SSQL (RLFERRSTC)**
The action taken by DB2 when the governor cannot use the resource limit:

- **NOLIMIT**
  The static SQL statements run without limit.

- **NORUN**
  The static SQL statements terminated with an SQL error code. A number from 1 to 5000000 represents the number of CPU service units allowed for a query.

  DB2 12 and later.

**RLST Access Err RemDSQL (RLFERRD) (QWP9RLER)**
Shows what DB2 does when the governor cannot access the resource limit specification table or when no row in the table matches the currently running statement.

- **NOLIMIT**
  This is the default. It allows all dynamic SQL statements to run without limit.

- **NORUN**
  Terminates all dynamic SQL statements immediately with an SQL error code. A number from 1 to 5000000 is the default limit. If the limit is exceeded, the SQL statement is terminated.
RLST Access Err RemSSQL (RLFERRDSTC)

Shows what DB2 does when the governor cannot access the resource limit specification table or when no row in the table matches the currently running statement:

**NOLIMIT**
- This is the default. It allows all static SQL statements to run without limit.

**NORUN**
- Terminates all static SQL statements immediately with an SQL error code. A number from 1 to 500000 is the default limit; if the limit is exceeded, the SQL statement is terminated.

DB2 12 and later.

**DSNZPARNM IRLM Parameters**

This panel shows information about the Internal Resource Lock Manager (IRLM) with which DB2 communicates. It shows the name of the DSNZPARNM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.

If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.
### DSNZPARM IRLM PARAMETERS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
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<td>SNAPTIME</td>
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### DSNZPARM Module

<table>
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<tr>
<th>Module</th>
<th>Assembly Date</th>
<th>Initial Module</th>
<th>Assembly Date</th>
<th>Previous Module</th>
<th>Assembly Date</th>
</tr>
</thead>
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<tr>
<td>DB1HUNIN</td>
<td>07/30/13</td>
<td>DSNZPARM</td>
<td>07/29/13</td>
<td>DSNZPARM</td>
<td>07/29/13</td>
</tr>
</tbody>
</table>

---

### DSNTIPI-IRLM

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsystem Name (IRLMSID)</td>
<td>IB1H</td>
</tr>
<tr>
<td>Resource Timeout (IRLMRWT)</td>
<td>30</td>
</tr>
<tr>
<td>Auto Start (IRLMAUT)</td>
<td>YES</td>
</tr>
<tr>
<td>Proc Name (IRLMPRC)</td>
<td>DB1H IRLM</td>
</tr>
<tr>
<td>Time to Autostart (IRLMSWT)</td>
<td>120</td>
</tr>
<tr>
<td>U Lock for RR or RS (RRULOCK)</td>
<td>YES</td>
</tr>
<tr>
<td>X Lock for Search U/D (XLKUPDLT)</td>
<td>NO</td>
</tr>
<tr>
<td>IMS BMP Timeout (BMPTOUT)</td>
<td>4</td>
</tr>
<tr>
<td>DL/I Batch Timeout (DLITOUT)</td>
<td>6</td>
</tr>
<tr>
<td>Retain Lock Timeout (RETLWAIT)</td>
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</tbody>
</table>

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### Other IRLM ProcessingParms

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
<td>Locks per Table(space) (NUMLKTS)</td>
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<tr>
<td>Locks Per User (NUMLKUS)</td>
<td>10000</td>
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<tr>
<td>Deadlock Time</td>
<td>5000</td>
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<tr>
<td>Deadlock Cycle</td>
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</tbody>
</table>

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### Fields

The **DSNZ** command displays the following lines to reflect the usage of the DB2 **SET SYSPARM** command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

#### DSNZPARM Module

The name of the DSNZPARM module that is specified for DB2 startup.
Initial Module
The name of the initial DSNZPARM load module.

Previous Module
The name of the previous DSNZPARM load module.

Assembly Date
The date on which this module was assembled.

DSNTIP1-IRLM 1

Subsystem Name (IRLMSID) (QWP4ISID)
The name of the IRLM subsystem that is known to z/OS.

Resource Timeout (IRLMRWT) (QWP4TOUT)
The maximum amount of time in seconds that DB2 is waiting for the release of a locked resource.

Auto Start (IRLMAUT) (QWP4IAUT)
The IRLM start mode. OMEGAMON XE for DB2 PE displays YES if DB2 starts IRLM automatically or NO if it does not.

Proc Name (IRLMPRC) (QWP4IPRC)
The name of the IRLM procedure that is used by DB2 to start IRLM automatically.

Time to Autostart (IRLMSWT) (QWP4ISWT)
The time in seconds that DB2 waits for IRLM to start.

If this time expires and IRLM did not yet start, DB2 stops. This applies regardless whether IRLM is started automatically or not.

U Lock for RR or RS (RRULOCK) (QWP4RRU)
Determines whether the update (U) lock is used when using repeatable read (RR) or read stability (RS) isolation to access a table.

Valid values:
NO
YES

X Lock for Searched U/D (XLKUPDLT) (QWP4XLUD)
Use X lock for searched update or delete. If subsystem parameter XLKUPDLT is set to NO, this bit is off. If subsystem parameter XLKUPDLT is set to YES or TARGET, see QWP4XLUS.

IMS BMP Timeout (BMPTOUT) (QWP4WBMP)
Timeout multiplier for BMP a connection.

DL/I Batch Timeout (DLITOUT) (QWP4WDLI)
Timeout multiplier for DL/I batch connection.

Retain Lock Timeout (RETLWAIT) (QWP4WAIT)
Multiplier for determining how long a transaction waits for incompatible retained locks. This value is multiplied by the normal timeout multiplier of the connection.

If agents do not wait for incompatible retained locks, the value of this parameter is 0. The default is 0.

Utility Timeout (UTIMOUT)
Number of IRLM resource timeout intervals that a utility waits for a lock or claims to be released.

DSNTIPJ-IRLM 2
Locks per Table (NUMLKTS) (QWP4LKTS)
The maximum number of page or row locks that can be held concurrently by a thread against a single table space for which LOCKSIZE ANY is specified before DB2 escalates the locking level to a table space lock.

The value 0 deactivates this feature.

Locks Per User (NUMLKUS) (QWP4LKUS)
The maximum number of page or row locks that can be held concurrently by a thread against all table spaces in the system including locks against data and index pages. Each lock averages 540 bytes. If this limit is reached, DB2 issues a return code RESOURCE UNAVAILABLE.

Deadlock Time (QWP5DLOK)
The time (in seconds or milliseconds) of the local deadlock detection cycle. Values between 1 and 5 are seconds. Values between 100 and 5000 are milliseconds. The initial value is retrieved from the IRLMPROC DEADLOK parameter. This value can be changed dynamically with the MODIFY irlmproc,SET,DEADLOCK=nnnn command.

Deadlock Cycle (QWP5DCYC)
The number of local deadlock cycles that must expire before the IRLM performs global deadlock detection processing. This value is retrieved from the IRLMPROC DEADLOK parameter. In a data sharing environment, IRLM synchronizes all DEADLOK values in the group to the values specified on the most recent IRLM to join the group. The DEADLOK values can be changed by starting a member with the required values.

Other IRLM Processing parameters

PC Yes Specified (QWP5PCY)
Indicates whether the IRLM is to use the cross-address-space program call. This value is retrieved from the IRLMPROC PC parameter.

Current Timeout Interval (QWP5TVAL)
The initial value is retrieved from the Timeout Interval (IRLMRWT). The current value can be changed dynamically with the MODIFY irlmproc,SET,TIMEOUT=nnnn,subsystem-name command.

IRLM Maximum CSA Allowed (QWP5MCSA)
The maximum amount of common service area (CSA) and extended CSA (ECSA) that the IRLM for this DB2 uses for its lock control block structure. This value is retrieved from the IRLMPROC MAXCSA parameter.

CF Lock Table Hash Entries (QWP5HASH)
The number of lock table entries (LTE) that IRLM has allocated in the XCF LOCK structure. The initial value is calculated by the IRLM based on IRLMPROC parameters and the XCF LOCK structure size. This value can be changed dynamically with the MODIFY irlmproc,SET,LTE=nnnn command.

CF Pending Hash Entries (QWP5PHSH)
The number of LOCK HASH entries (LTE) that this IRLM can use on the next connect to the XCF LOCK structure. This value is set by MODIFY irlmproc,SET,LTE=nnnn command and exists until the next time the IRLM connects to the XCF LOCK structure or a subsequent MODIFY irlmproc,SET,LTE=nnnn command is issued.

CF Lock Table List Entries (QWP5RLE)
The number of entries (RLE) in the list of update locks that are currently held in the XCF LOCK structure. This list is sometimes called the “modify
lock list” or “record list table”. The initial value is calculated by the IRLM based on IRLMPROC parameters and the XCF LOCK structure size. This value can be changed dynamically with the MODIFY irlmproc,SET,LTE=nnnn command or a XCF LOCK structure resizing.

Max 31-bit IRLM Private Storage (QWP5BPM)
From a total of 2G virtual storage, a maximum amount of 31-bit IRLM private storage is available for normal operations in IRLM. IRLM reserves an additional 10% of the total 2G virtual storage for use by requests in IRLM. DB2 11 and later.

Max 64-bit IRLM Private Storage (QWP5APM)
From the total storage that is set as the MEMLIMIT, a maximum amount of 64-bit IRLM private storage is available for normal operations in IRLM. IRLM reserves an additional 10% of the total MEMLIMIT storage for use by requests that must be completed in IRLM. DB2 11 and later.

DSNZPARM Storage Parameters
This panel shows virtual storage allocations for the DB2 buffer pools and the Environmental Descriptor Manager (EDM) pool. It shows the name of the DSNZPARM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.

If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.
**DSNZPARM STORAGE PARAMETERS**

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZSTG</td>
<td></td>
</tr>
<tr>
<td>Collection Interval</td>
<td>REALTIME</td>
</tr>
<tr>
<td>SNAPTIME:</td>
<td>07/07/16 16:35:51.89</td>
</tr>
</tbody>
</table>

- **DSNZPARM Module**: DSNZPARM
- **Assembly Date**: 04/14/16
- **Initial Module**: DSNZPARM
- **Assembly Date**: 04/14/16
- **Previous Module**: DSNZPARM
- **Assembly Date**: 04/14/16

**DSNTIPC-Storage Sizes**

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
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<tbody>
<tr>
<td>Max Open Dataset (DSMAX)</td>
<td>20000</td>
</tr>
<tr>
<td>EDM Statement Cache (EDMSTMTC)</td>
<td>116107264</td>
</tr>
<tr>
<td>EDM DBD Cache (EDMDBDC)</td>
<td>23961600</td>
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<tr>
<td>EDMSkeleton_Pool</td>
<td>83886080</td>
</tr>
<tr>
<td>EDM Limit Below the Bar (EDMPOOL)</td>
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</tr>
<tr>
<td>Sort Pool Size (SRTPool)</td>
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<tr>
<td>MAXSORT_IN_MEMORY</td>
<td>1000</td>
</tr>
<tr>
<td>RID Pool Size (MAXRBLK)</td>
<td>409600000</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

The **DSNZ** command displays the following lines to reflect the usage of the DB2 **SET SYSPARM** command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

**DSNZPARM Module**

The name of the DSNZPARM module that is specified for DB2 startup.

**Initial Module**

The name of the initial DSNZPARM load module.

**Previous Module**

The name of the previous DSNZPARM load module.

**Assembly Date**

The date on which this module was assembled.
Max Open Dataset (DSMAX) (QWP4DSMX)
The maximum number of concurrently open data sets before deferred close.

This value is not an absolute limit. It is rather a target level of maximum open data sets that is used by the Deferred Close process of DB2. The practical limit depends on available storage below 16MB.

Valid values:
0-100000

EDM Statement Cache (EDMSTMTC) (QWP4ESTC)
The maximum size (in KB) of the statement cache that can be used by EDM. This value is either the DB2 startup value or a value (above the DB2 startup value) that you can specify with the SET SYSPARM command.

EDM DBD Cache (EDMDBDC) (QWP4EDBC)
The minimum size (in KB) of the DBD cache that can be used by EDM. This value is either the DB2 startup value or a value (above the DB2 startup value) that you can specify with the SET SYSPARM command.

EDM Limit Below the Bar (EDMPOOL) (QWP4EDPL)
Maximum size of the EDM Pool that is in below-the-bar storage. DB2 10 and DB2 11 only.

(EDM_SKELETON_POOL) (QWP4SKLC)
The EDM skeleton pool size in bytes (K=1024 bytes, M=1024 x 1024 bytes).

Sort Pool Size (SRTPOOL) (QWP4SPOL)
The size of the sort pool, KB.

(MAXSORT_IN_MEMORY) (QWP4MIMTS)
The maximum in-memory sort size. DB2 10 and later.

RID Pool Size (MAXRBLK) (QWP4RMAX)
The maximum number of RID blocks in bytes. If this value is zero, access path selections that require the RID pool (including List Prefetch and hybrid joins) will not be used.

DSNTIPD-Sizes

(LOB_INLINE_LENGTH) (QWP1LBIL)
The default number of bytes of a LOB that are stored in the base table.

User LOB Value STG (LOBVALA) (QWP1LVA)
The maximum number of kilobytes that a user can use to store LOB values. This field corresponds to field "User LOB Value Storage" on installation panel DSNTIP7. DB2 10 and DB2 11 only

System LOB Value STG (LOBVALS) (QWP1LVS)
The maximum number of megabytes that a subsystem can use to store LOB values. This field corresponds to field "System Value Storage" in DSN6SYSP. DB2 10 and DB2 11 only.

User XML Value STG (XMLVALA) (QWP1XVA)
Maximum amount of memory in KB for each user for storing XML values. DB2 10 and DB2 11 only.

System XML Value STG (XMLVALS) (QWP1XVS)
Maximum amount of memory in MB for the system for storing XML values. DB2 10 and DB2 11 only.
DSNZPARM Data set and Database Parameters
This panel shows information about the data set and database-related installation parameters in the DSNZPARM module. It shows the name of the DSNZPARM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.

If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.

```plaintext
ZPSDN  VTM  02  V540.4P  SCM  07/08/16  10:16:33  2
> Help PF1  Back PF3  Left PF10  Right PF11
> R.H.H
> DSNZPARM INFORMATION: Enter a selection letter on the top line.
> A-THREAD  B-TRACE  C-LOGGING  D-ARCHIVING  E-AUTH/RLF/DDF  F-IRLM
> G-STOREAGE  H-DATASET  I-DDCS  J-DATA SHARING  K-STORED PROC  L-UTIL
> M-APPL  N-DATA  O-PERF  P-BUFFERPOOL  Q-OThERS
===============================================================================
DSNZPARM DATASET AND DATABASE PARAMETERS
ZDSN
+ Collection Interval: REALTIME  SNAPTIME: 07/08/16 10:16:33.22
+ DSNZPARM Module  DSNZPARM
+ Assembly Date  04/14/16
+ Initial Module  DSNZPARM
+ Assembly Date  04/14/16
+ Previous Module  DSNZPARM
+ Assembly Date  04/14/16
+
+ DSNTP7-SQL Object Defaults 1
+ Reordered Row Format (RRF)  N/A
+ (OBJECT_CREATE_FORMAT)  EXTENDED
+ (UTILITY_OBJECT_CONVERSION)  NONE
+ Vary DS Control Interval (DSVCI)  YES
+ Table Space Allocation (TSQTY)  0
+ Index Space Allocation (IXQTY)  0
+ Optimize Extent Sizing (MGEXTSZ)  NO
+
+ DSNTP7-SQL Object Defaults 2
+ Default Partition Segsize (DPSSEGZ)  32
+ Pct Free for Update (PCTFREE_UPD)  0
+ (PAGESET_PAGENUM)  ABSOLUTE
+ (RETRY_STOPPED_OBJECTS)  NO
+ Pad Index By Default (PADIX)  NO
+ (INDEX_MEMORY_CONTROL)  AUTO
+ (DDL_MATERIALIZATION)  ALWAYS_IMMEDIATE
+ (DEFAULT_INSERT_ALGORITHM)  FAST
```
Navigation

For additional information about
  • related topics, select one of the options on the top of the panel.
  • other topics, use the PF keys.

Fields

The DSNZ command displays the following lines to reflect the usage of the DB2 SET SYSPARM command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

DSNZPARM Module
  The name of the DSNZPARM module that is specified for DB2 startup.

Initial Module
  The name of the initial DSNZPARM load module.

Previous Module
  The name of the previous DSNZPARM load module.

Assembly Date
  The date on which this module was assembled.

DSNTIP7-SQL Object Default 1

Reordered Row Format (RRF) (QWP4RRF)
  This parameter determines whether reordered row format is enabled.

  YES    Enables reordered row format.

  DB2 10 and DB2 11 only.

(OBJECT_CREATE_FORMAT) (QWP4OBCF)
  This parameter determines whether new table spaces and indexes are created in one of the following formats:

  1    Extended log record format

  0    Basic log record format
If RBA尔斯W format is not specified, this parameter converts existing table
spaces and indexes that use extended log record addressing to basic log
record addressing and vice versa. DB2 11 and later.

**Utility Object Conversion (UTILITY_OBJECT_CONVERSION) (QWP4UTOC)**

This parameter determines whether CI SIZE=PAGE is used when
DB2-managed data sets are defined.

**Vary DS Control Interval (DSVCI) (QWP1VVCI)**

This parameter determines whether CI SIZE=PAGE is used when
DB2-managed data sets are defined.

**Table Space Allocation (TSQTY) (QWP1TSQT)**

This parameter determines the default values in KB for PRIQTY and
SEQQTY for table spaces.

**Index Space Allocation (IXQTY) (QWP1IXQT)**

This parameter determines the default values in KB for PRIQTY and
SEQQTY for index spaces.

**Optimize Extent Sizing (MGEXTSZ) (QWP1MESZ)**

This parameter determines whether a sliding scale for secondary space
allocations for DB2-managed data sets is enabled.

**DSNTIP71-SQL Object Default 2**

**Default Partition Segsize (DPSEGSZ) (QWP1DPSS)**

This parameter determines the default segment size that is used for a
partitioned table space when the CREATE TABLESPACE statement does
not include the SEGSIZE parameter.

**Pct Free for Update (PCTFREE_UPD) (QWP4PFUP)**

This parameter determines the default percentage of each page that DB2
leaves as free space for updates when you create a table space without
specifying the FOR UPDATE CLAUSE of the PCTFREE option and a table
within that table space is populated. DB2 11 and later. DB2 11 and later.

**(PAGESET_PAGENUM) (QWP4PSPN)**

Specifies whether range-partitioned table spaces and associated indexes
will be created to use absolute page numbers across partitions or relative
page numbers.

<table>
<thead>
<tr>
<th>A</th>
<th>Absolute page numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Relative page numbers</td>
</tr>
</tbody>
</table>

DB2 12 and later.

**(RETRY_STOPPED_OBJECTS) (QWP4RSO)**

This parameter determines whether new indexes are padded
Valid values:

**NO**  New indexes are not padded unless the PADDED option is included in the CREATE INDEX statement.

**YES**  New indexes are padded unless the NOT PADDED option is included in the CREATE INDEX statement.

Default:
**NO**

**(INDEX MEMORY CONTROL) (QWP4IXMC)**
Shows the amount of memory that DB2 should allocate for fast traversing of DB2 indexes:

1 = AUTO (default)  
DB2 sets the upper limit of the storage to 20% of the currently allocated buffer pools.

0 = DISABLE  
DB2 returns any existing storage allocated for fast index traversal and does not allocate any further storage for this purpose.

10 - 200000  
Indicates the storage limit for fast index traversal in megabytes.

DB2 12 and later.

**(DDL_MATERIALIZATION) (QWP4DDLM)**
Specifies when DB2 materializes changes to the definition of an object.  
Valid values are:

**ALWAYS IMMEDIATE** (default)  
Changes are materialized at the time the request is executed, and the containing table space is placed in the AREO* or REORP status.

**ALWAYS PENDING**  
Changes are not materialized at the time that the request is executed, and the affected objects are available until it is convenient to implement changes. The containing table space is placed in the AREO* status.

DB2 12 and later.

**(DEFAULT_INSERT_ALGORITHM) (QWP4DINA)**
Specifies the default algorithm for inserting data into table spaces. Valid values:

**BASIC(1)** (default)  
The basic insert algorithm is used.

**FAST(2)**  
The fast insert algorithm is used.

DB2 12 and later.

**Define Data Sets (IMPDSDEF) (QWP1DIDS)**
This parameter determines the underlying data sets when a table space that is in an implicitly created database is created.

**Use Data Compression (IMPTSCMP) (QWP1CITS)**
This parameter determines whether data compression in table spaces in implicitly defined databases is used.
Define Data Sets (IMPDSDEF) (QWP1DIDS)
This parameter determines the underlying data sets when a table space that is in an implicitly created database is created.

Use Data Compression (IMPTSCMP) (QWP1CITS)
This parameter determines whether data compression in table spaces in implicitly defined databases is used.

(PREVENT_ALERTTB_LIMITKEY) (QWP4XPKE)
Determines whether DB2 disallows altering the limit key by using an ALTER TABLE statement for index-controlled partitioned table spaces. This alter operation places the table space in REORG-pending (REORG) restrictive status, and the data is not available until the affected partitions are reorganized. Use PREVENT_ALERTTB_LIMITKEY to avoid this data unavailability.

NO  Specifies that you can alter a limit key by using an ALTER TABLE statement for index-controlled partitioned table spaces. NO is the default.

YES Specifies that it is not permitted to alter a limit key by using an ALTER TABLE statement for index-controlled partitioned table spaces. An ALTER TABLE statement must not attempt to alter the limit key for an index-controlled partitioned table.

DB2 11 and later.

(IX_TB_PART_CONV_EXCLUDE) (QWP4XPKE)
This parameter determines whether to include all columns in the partitioning key during the conversion from index-controlled partitioning to table-controlled partitioning.

Rename Table (RENAMETABLE) (QWP4ERTS)
Specifies whether the RENAME TABLE statement should extend to tables that are referenced in a view definition or the definition of an SQL table function:

ALLOW_DEP_VIEW_SQLTUDF
  YES

DISALLOW_DEP_VIEW_SQLTUDF
  NO

DB2 12 and later.

DSNTIP91-Workfile Database

Max Temp STG/AGENT (MAXTEMPS) (QWP4WFAL)
Specifies the maximum number of megabytes of temporary storage in the work file database that can be used by a single agent at any given time for all temporary tables. If 0 is specified, a limit is not enforced.

Valid values:
0 - 2147483647

Default: 0
Separate Work Files (WFDBSEP) (QWP4WFDBSEP)

This parameter determines whether DB2 provides an unconditional separation of table spaces in the work file database based on the allocation attributes of the table spaces.

Valid values:

**YES**  DB2 directs declared global temporary table (DGTT) work only to DB2-managed (STOGROUP) work file table spaces that are defined with a non-zero SECQTY and work file work only to other work file table spaces (DB2-managed table spaces that are defined with zero SECQTY or user-managed table spaces).

If a table space with the preferred allocation type is not available, an error message is issued by DB2.

**NO**  DB2 attempts to direct (DGTT) work to DB2-managed (STOGROUP) work file table spaces that are defined with a non-zero SECQTY and work file work to any other work file table space (DB2-managed table spaces that are defined with zero SECQTY or user-managed table spaces).

If a table space with the preferred allocation type is available, DB2 selects a table space with a non-preferred allocation type.

Default: NO

Max Temp RID (MAXTEMPS_RID) (QWP4WFRD)

The maximum number of RID blocks of temporary storage in the work file database that a single RID list can use at any point in time.

(WFSTGUSE_AGENT_THRESHOLD) (QWP4WFAT)

Determines the percentage of the space that is available in the work file database on this DB2 subsystem or in this data sharing member that can be consumed by a single agent before a warning message is issued.

Space in the work file database can be configured for temporary (DGTT-ORIENTED) work and for sort work including CGTTS and trigger transition tables.

Valid values:

**0**  Agent-level space-usage alerts for the work file database are not issued by DB2.

This is the default setting.

**1 - 100**  If DSN6SPRM.WFDBSEP is set to YES, a warning message is issued by DB2 if the percentage of the total temporary work file space or the percentage of the total sort work file space that is consumed by an agent exceeds the specified threshold.

If DSN6SPRM.WFDBSEP is set to NO, a warning message is issued by DB2 if the percentage of the entire work file space (temporary and sort) that is consumed by an agent exceeds the specified threshold.

If DSN6SPRM.MAXTEMPS is greater than 0 and if the threshold that is specified for DSN6SPRM.MAXTEMPS is exceeded before the threshold that is specified for the WFSTGUSE_AGENT is reached, the warning message is not issued because MAXTEMPS is
reached first by the agent. This results in an error message 
"Resource unavailable" with the SQL code -904.

DB2 11 and later.

(WFSTGUSE_SYSTEM_THRESHOLD) (QWP4WFST)
Determines the percentage of the space that is available in the work file
database on this DB2 subsystem or in this data sharing member that can be
consumed by all agents before a warning message is issued.

Valid values:
0 System-level space-usage alerts for the work file database are not
issued by DB2.
1 - 100 If DSN6SPRM.WFDBSEP is set to YES, a warning message is
issued by DB2 if the percentage of total temporary work file space
or the percentage of total sort work file space that is consumed by
all agents exceeds the specified threshold.

If DSN6SPRM.WFDBSEP is set to NO, a warning message is issued
by DB2 if the percentage of the entire work file space (temporary
and sort) that is consumed by all agents exceeds the specified
threshold.

The default setting is 90. DB2 11 and later.

DSNTIPS-Auto Start DB/TS

Restart or Defer (RESTART) (QWP7STR )
This parameter determines whether DB2 databases are started
automatically or are deferred.

Valid values:
NO The specified databases and page sets are deferred.
YES The specified databases are started automatically.

Auto Start Type (LIST or ALL) (SWP7STR )
This parameter determines the DB2 databases that are started or deferred.

Valid values:
ALL When DB2 starts, all databases are started automatically.
LIST When DB2 starts, a list of databases and table spaces and indexes
is displayed. The databases and table spaces and indexes of this
list are started automatically or they are deferred.

DSNZPRM Data Definition Control Support Parameters
This panel shows information about the Data Definition Control Support (DDCS)
installation parameters in the DSNZPRM module. It shows the name of the
DSNZPRM module that is specified for DB2 startup and the date on which the
module is assembled. It also shows a list of the default values of the DB2
application.

If a field is not available for the current DB2 release, the string N/A is displayed.
For other conditions, for example, if specific DB2 traces are not started or control
block data is not available, the string N/P is displayed.
**Navigation**

For additional information about

- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

The **DSNZ** command displays the following lines to reflect the usage of the DB2 **SET SYSPARM** command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

**DSNZPARM Module**

The name of the DSNZPARM module that is specified for DB2 startup.

**Initial Module**

The name of the initial DSNZPARM load module.

**Previous Module**

The name of the previous DSNZPARM load module.

**Assembly Date**

The date on which this module was assembled.

**DSNTIPZ-Data Def Control**

**Install DDCNTL Support (RGFINSTL) (QWP4REGI)**

Determines whether data definition control support is used.

**Control All Applications (RGFDEDPL) (QWP4REGD)**

Determines whether only registered packages or plans can use DDL.
Require Full Names (RGFFULLQ) (QWP4REGQ)
Determines whether two-part names are required for every object that is registered in ORT.

Unregistered DDL Default (RGFDEFLT) (QWP4REGU)
This is a flag for unregistered DDL default.
00 Unregistered DDL are prohibited.
1X Unregistered DDL can be used.
X1 Consult the art for unregistered DDL.

ART/ORT Escape Char (RGFESCP) (QWP4ESC)
The DDCS escape character for a search of the application registration table (ART) or the object registration table (ORT). This character is shown in both display and hexadecimal formats.

Registration Owner (RGFCOLID) (QWP4REGC)
Displays the owner of the application registration table and the object registration table.
If QWP4REGC_OFF is not set to 0, this value is truncated. If QWP4REGC is truncated, this is the offset from the beginning of QWP4 TO QWP4REGC_LEN.
If QWP4REGC_OFF is not set to 0, use the following fields:
• LENGTH OF QWP4REGC_VAR
• DDL REGISTRATION TABLE OWNER

Registration Database (RGFDBNAM) (QWP4REGN)
Specifies the name of the database that contains the registration tables.

Appl Registration Table (RGFNMPR) (QWP4REGA)
Specifies the name of the application registration table.
If QWP4REGA_OFF is not set to 0, this value is truncated. If QWP4REGA is truncated, this is the offset from the beginning of QWP4 TO QWP4REGA_LEN.
If QWP4REGA_OFF is not set to 0, use the following fields:
• LENGTH OF QWP4REGA_VAR
• DDL REGISTRATION APPLICATION REGISTRATION TABLE NAME

Object Registration Table (RGFNMORT) (QWP4REGO)
Specifies the name of the object registration table.
If QWP4REGO_OFF is not set to 0, this value is truncated. If QWP4REGO is truncated, this is the offset from the beginning of QWP4 TO QWP4REGO_LEN.
If QWP4REGO_OFF is not set to 0, use the following fields:
• LENGTH OF QWP4REGO_VAR
• DDL REGISTRATION OBJECT REGISTRATION TABLE NAME

DSNZPARAM Data Sharing Parameters
This panel shows information about the data sharing installation parameters in the DSNZPARAM module. It shows the name of the DSNZPARAM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.
If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ZPSHR</td>
<td>VTM</td>
<td>02</td>
<td>V540.4P</td>
<td>SC11</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>

**DSNZPARM INFORMATION:** Enter a selection letter on the top line.

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<table>
<thead>
<tr>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;</td>
<td>Help PF1</td>
<td>Back PF3</td>
<td>Left PF10</td>
<td>Right PF11</td>
</tr>
<tr>
<td>&gt;</td>
<td>R.H.J</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DSNZPARM Module**

The name of the DSNZPARM module that is specified for DB2 startup.

**Initial Module**

The name of the initial DSNZPARM load module.

**Previous Module**

The name of the previous DSNZPARM load module.

**Assembly Date**

The date on which this module was assembled.

**DSNTIPK-Data Sharing Parm**

The name of a new or of an existing DB2 data sharing group.

**Navigation**

For additional information about

- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

The DSNZ command displays the following lines to reflect the usage of the DB2 **SET SYSPARM** command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

**DSNZPARM Module**

The name of the DSNZPARM module that is specified for DB2 startup.

**Initial Module**

The name of the initial DSNZPARM load module.

**Previous Module**

The name of the previous DSNZPARM load module.

**Assembly Date**

The date on which this module was assembled.

**DSNTIPK-Data Sharing Parm**

**Group Name (GRPNAME) (QWPAGRPN)**

The name of a new or of an existing DB2 data sharing group.
Member name (MEMBNAME) (QWPAMBRN)
The name of a new or of an existing DB2 data sharing member. This field displays N/A if data sharing is not enabled.

Coordinator (COORDNTR) (QWPACOOR)
Determines whether this DB2 can send parallel tasks to eligible DB2 members.
Valid values: Y (Yes) or N (No).
Default: Yes
DB2 10 only.

Assistant (ASSIST) (QWPAAASST)
Determines whether this DB2 can assist parallel processing at BIND time and at RUN time.
To be used as an assistant at RUN time, the threshold of the VPPSEQT and the VPXPSEQT buffer pool must be greater than 0.
Valid values: Y (Yes) or N (No)If YES, this member can assist in parallel processing.
DB2 10 only.

Data Sharing (DSHARE) (QWPADSHR)
Determines whether DB2 data sharing is enabled.
Valid values: YES or NO.

Random Attach (RANDOMATT) (QWPARAND)
The flag whether this DB2 is eligible for the random group attach.
Valid values: Y (Yes) or N (No).

(DEL_CFSTRUCTS_ON_RESTART) (QWP1DCFS)
During restart, it is attempted to delete CF structures including the SCA, IRLM LOCK structures and allocated group buffer pools.

PEER_RECOVERY (QWPAPPEERREC)
Specifies whether the data sharing member participates in data sharing peer recovery. Valid values
NONE (default) Does not participate in peer recovery. Use this option if you have configured the z/OS Automatic Restart Manager (ARM) to restart failed DB2 members.
RECOVER Member is recovered by a peer member if it fails.
ASSIST Member attempts to initiate peer recovery for other failed members. When this member detects a failure it attempts to initiate a LIGHT(YES) restart for the failed member. if it has not already been initiated to recover the retained locks.
BOTH Both RECOVER and ASSIST options are activated for this member
DB2 12 and later.
DSNZP ARM Stored Procedures Parameters
This panel shows information about the use of stored procedures in the DB2 system. It shows the name of the DSNZP ARM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.

If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.

<table>
<thead>
<tr>
<th>Collection Interval: REALTIME</th>
<th>SNAPTIME: 11/05/13 15:07:05.85</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ DSNZP ARM Module</td>
<td>DSNZP ARM</td>
</tr>
<tr>
<td>+ Assembly Date</td>
<td>06/30/11</td>
</tr>
<tr>
<td>+ Initial Module</td>
<td>DSNZP ARM</td>
</tr>
<tr>
<td>+ Assembly Date</td>
<td>06/30/11</td>
</tr>
<tr>
<td>+ Previous Module</td>
<td>DSNZP ARM</td>
</tr>
<tr>
<td>+ Assembly Date</td>
<td>06/30/11</td>
</tr>
<tr>
<td>+ Max Abend Count (STORMXAB)</td>
<td>0</td>
</tr>
<tr>
<td>+ Timeout Value (STORTIME)</td>
<td>180</td>
</tr>
<tr>
<td>+ WLM Environment (WLMENV)</td>
<td>DSNWLMV10</td>
</tr>
<tr>
<td>+ Max Open Cursors (MAX_NUM_CUR)</td>
<td>500</td>
</tr>
<tr>
<td>+ Maximum LE Tokens (LEMAX)</td>
<td>20</td>
</tr>
<tr>
<td>+ (BIF_COMPATIBILITY)</td>
<td>V9</td>
</tr>
<tr>
<td>+ Admin Scheduler (ADMTPROC)</td>
<td></td>
</tr>
</tbody>
</table>

Navigation
For additional information about
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields
The DSNZ command displays the following lines to reflect the usage of the DB2 SET SYSPARM command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

DSNZP ARM Module
The name of the DSNZP ARM module that is specified for DB2 startup.

Initial Module
The name of the initial DSNZP ARM load module.

Previous Module
The name of the previous DSNZP ARM load module.
Assembly Date
The date on which this module was assembled.

DSNTIPX-Routine Parameters

Max Abend Count (STORMXAB) (QWP1SPAB)
The number of times a stored procedure can terminate abnormally before
DB2 stops it, and rejects any further requests. Use the DB2 command START
PROCEDURE to remove the stopped status.

Timeout Value (STORTIME) (QWP1SPTO)
The number of seconds to wait for an SQL CALL statement to be assigned
for execution in the DB2 stored procedures address space.
If this value is set to 0, the request waits until a TCB is available and is not
subject to timeout.

WLM Environment (WLMENV) (QWP1WLME)
This is the default WLM environment for user-defined functions and stored
procedures. This value is used by DB2 if the WLM environment is not
specified in a CREATE function or a CREATE PROCEDURE statement.

Max Open Cursors (MAX_NUM_CUR) (QWP4MXNC)
The maximum number of open cursors per thread.

Max Stored Procs (MAX_ST_PROC) (QWP4MXSP)
The maximum number of active stored procedures per thread.

Maximum LE Tokens (LEMAX) (QWP4LEM)
The maximum number of language environment tokens that are active at
any time.
Valid values: 0 - 50.
Default: 20
DB2 10 and DB2 11 only.

(BIF_COMPATIBILITY) (QWP4BIF_COMPAT)
The BIF compatibility subsystem parameter specifies whether the built-in
functions and specifications are to return results in the DB2 10 format or
revert to the pre-version 10 format. BIF_COMPATIBILITY can have the
following values:
CURRENT
V9
V9_TRIM
V9_DECIMAL_VARCHAR
N/P

Admin Scheduler (ADMTPROC) (QWP4ADMT)
The name of the JCL procedure that is used to start the DB2 administrative
scheduler task address space.

DSNZPARM Application Parameters
This panel shows information about the parameters that affect the default settings
of the DB2 application. It shows the name of the DSNZPARM module that is
specified for DB2 startup and the date on which the module is assembled. It also
shows a list of the default values of the DB2 application.

If a field is not available for the current DB2 release, the string N/A is displayed.
For other conditions, for example, if specific DB2 traces are not started or control
block data is not available, the string N/P is displayed.
### DSNZPARM Application Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection Interval</td>
<td>REALTIME</td>
</tr>
<tr>
<td>Assembly Date</td>
<td>03/18/13</td>
</tr>
<tr>
<td>Initial Module</td>
<td>DSNZPARM</td>
</tr>
<tr>
<td>Assembly Date</td>
<td>03/18/13</td>
</tr>
<tr>
<td>Previous Module</td>
<td>DSNZPARM</td>
</tr>
<tr>
<td>Assembly Date</td>
<td>03/18/13</td>
</tr>
<tr>
<td>Language Default</td>
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</tr>
<tr>
<td>Decimal Point</td>
<td>PERIOD</td>
</tr>
<tr>
<td>String Delimiter</td>
<td>DEFAULT</td>
</tr>
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<td>DEFAULT</td>
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<tr>
<td>Dist SQL Str Delimiter</td>
<td>APOST</td>
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<td>Mixed Data</td>
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<td>ASCII MBCS CCSID</td>
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<tr>
<td>Minimum Divide Scale</td>
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</tr>
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<td>Decimal Arithmetic</td>
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<tr>
<td>Time Format</td>
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<td>Impl Time Zone</td>
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<td>STD SQL Language</td>
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<td>Pad Nul-Terminated</td>
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<tr>
<td>APPL COMPAT LEVEL</td>
<td>V11R1</td>
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</tbody>
</table>

### Navigation

For additional information about related topics, select one of the options on the top of the panel. For other topics, use the PF keys.
Fields

The **DSNZ** command displays the following lines to reflect the usage of the DB2 **SET SYSPARM** command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

**DSNZPARM Module**
The name of the DSNZPARM module that is specified for DB2 startup.

**Initial Module**
The name of the initial DSNZPARM load module.

**Previous Module**
The name of the previous DSNZPARM load module.

**Assembly Date**
The date on which this module was assembled.

**DSNTIPF-Application Default 1**

**Language Default (QWPBLANG)**
This parameter determines the programming language that is used for your site.

Valid values:
- ASM
- C
- COBOL
- COB2
- CPP
- FORTRAN
- IBMCOB
- PLI

Default: IBMCOB

**Decimal Point (QWPBDEC)**
This parameter determines the decimal point for numbers.

Valid values:
- COMMA (,)
- PERIOD (.)

Default: PERIOD

**String delimiter (QWPBDL)**
This parameter determines the string delimiter that is used for COBOL.

Valid values:
- APOST (')
- DEFAULT
- QUOTE (*)

Default: DEFAULT

**SQL string delimiter (QWPBSDL)**
This parameter determines the character that is used to delimit character strings in dynamic SQL.

Valid values:
- APOST (')
- DEFAULT
- QUOTE (*)
Dist SQL Str Delimiter (QWPBDSD)
This parameter determines the string delimiter that is used for bind operations at this DB2 site if the requester does not provide this information for DB2.

Valid values:
APOST (')
QUOTE ('"')

Default: APOST

Mixed Data (QWPBGRAF)
This parameter determines how the EBCDIC CCSID fields and the ASCII CCSID fields are interpreted by DB2. The MIXED DATA option does not affect the UNICODE CCSID field. Regardless of the setting for MIXED DATA, UNICODE UTF-8 data is considered as mixed data. Therefore UNICODE UTF-8 data is processed according to the rules for mixed data.

Valid values:
NO
YES

Default: NO

Single Byte (QWPBSID), Mixed Byte (QWPBMID), and Double Byte (QWPBGID) CCSID
The coded character set identifier (CCSID) for Single Byte Character Set (SBCS), Mixed Byte Character Set (MBCS), and Double Byte Character Set (DBCS).

This parameter determines the default CCSID for EBCDIC-encoded character data that is stored in your DB2 subsystem or in your data sharing system. This value is used by DB2 to perform the conversion of character data that is received from external sources including other database management systems.

Choose this value carefully to avoid the loss of data integrity. The values that you select for EBCDIC CCSID and ASCII CCSID are closely related.

Valid values:
1 to 65533

Default: None

DSNHDECP:
SCCSID (single byte)
MCCSID (mixed byte)
GCCSID (double byte)

ASCII SBCS CCSID (QWPBASID), ASCII MBCS CCSID (QWPBAMID), and ASCII GBCS CCSID (QWPBAGID)
Coded character set identifier (CCSID) for ASCII Single Byte Character Set, (ASCSCSID), ASCII Mixed Byte Character Set, and ASCII Double Byte Character Set.

This parameter determines the default coded character set identifier (CCSID) for ASCII-encoded character data that is stored in your DB2
subsystem or in your data sharing system. This value is used by DB2 to convert character data that is received from external sources including other database management systems.

You must specify a value for this field even if you do not use ASCII-encoded objects.

Choose this value carefully to prevent the loss of data integrity.

Valid values:
1 to 65533

Default: None

DSNHDECP:
ASCCSID (single-byte)
AMCCSID (mixed)
AGCCSID (graphic)

UNICODE SBCS CCSID (QWPBUSID), UNICODE MBCS CCSID (QWPBUMID), and UNICODE GBCS CCSID (QWPBUGID)
Coded character set identifier (CCSID) for ASCII Single Byte Character Set, ASCII Mixed Byte Character Set, and ASCII Double Byte Character Set.

This parameter determines the CCSID that is used for Unicode data.

Valid values:
1208

Default: 1208

DSNHDECP:
USCCSID (367 for single-byte)
UMCCSID (1208 for mixed)
UGCCSID (1200 for graphic)

Def Encoding Scheme (QWPBENS)
This parameter determines the default format in which the data is stored in DB2.

Valid values:
ASCII
EBCDIC
UNICODE

Default: EBCDIC

Application Encoding (QWPBAPSC)
This parameter determines the default application encoding scheme of the system. It determines how data is interpreted by DB2. For example, if your default application encoding scheme is set to 37 and your EBCDIC coded character is set to 500, DB2 converts all data coming into the system to 500 from 37 before using it. This includes, but is not limited to, SQL statement text and host variables.

Valid values:
ASCII
EBCDIC
UNICODE
CCSID (1 to 65533)
Default: EBCDIC

**Locale LC_TYPE (QWPBLCTP)**

This parameter determines the system LOCALE LC_CTYPE.

A locale is the part of your system environment that depends on the language and on cultural conventions. An LC_CTYPE is a subset of a locale that applies to character functions.

Valid values:

A valid locale of 0 to 50 characters.

Default: Blank

**DEF_DECFLOAT_ROUND_MODE (QWPBDDRM)**

This parameter determines the default rounding mode for decimal floating-point values.

Valid values:

- ROUND_CEILING
- ROUND_DOWN
- ROUND_FLOOR
- ROUND_HALF_DOWN
- ROUND_HALF_EVEN
- ROUND_HALF_UP
- ROUND_UP.

Default: ROUND_HALF_EVEN

**DSNTIP4-Application Default 2**

**Minimum Divide Scale (QWP4DIV3)**

This parameter determines whether to retain at least three digits to the right of the decimal point after any decimal division.

Valid values:

- NO
- YES

Default: NO

**Decimal Arithmetic (QWPBARTH)**

This parameter determines the rules that are used if both operands in a decimal operation have a precision of 15 or less.

Valid values:

- DEC15
- DEC31
- 15
- 1
- DPP.S

Default: DEC15

**Use for DynamicRules (QWPBDRLS)**

This parameter determines whether DB2 is using the application programming default values that are specified on this panel or the values of the DB2 precompiler options for dynamic SQL statements. These are bound by using DYNAMICRULES bind, define, or invoke behavior.

Valid values:

- NO
- YES
Default: YES

Describe for Static (QWP4DSST)
This parameter determines whether DB2 is building a DESCRIBE SQL descriptor area (SQLDA) when binding static SQL statements. With DESCRIBE SQLDAs, DESCRIBE requests for static SQL statements can be executed successfully.

The DESCSTAT subsystem parameter provides the default value for the DESCSTAT BIND or REBIND option. The value of the DESCSTAT BIND or REBIND option always overrides the DESCSTAT subsystem parameter value.

Except for the following scenarios, a DESCRIBE request cannot be issued against a static SQL statement.

In a distributed environment, where DB2 for z/OS is the server and the requester supports extended dynamic SQL
In this scenario, a DESCRIBE request that is executed on an SQL statement in the extended dynamic package is considered by DB2 as a DESCRIBE on a static SQL statement in the DB2 package.

If a stored procedure result set is used by an application and a cursor must be allocated for this result set
In this scenario, the application can describe the cursor by using a DESCRIBE CURSOR statement. The SQL statement that is actually described is the statement for which the cursor is declared in the stored procedure. If that statement is static, a static SQL statement must be described.

Valid values:
NO
YES

Default: YES

Date Format (QWPBDATE)
This parameter determines the format that is used to represent dates in output.

Valid values:
EUR
ISO
JIS
LOCAL
USA

Default: ISO

Time Format (QWPBTIME)
This parameter determines the format that is used to represent time in output.

Valid values:
EUR
ISO
JIS
LOCAL
USA

Default: ISO
Local Date Length (QWPBDLEN)
If you use a locally defined date exit routine, this parameter determines the length of the longest field that is required to hold a date.

To use your own default date format, you must also enter LOCAL for the DATE FORMAT field on panel DSNTIP4.

Valid values:
0
10
254

Default: 0

Local Time Length (QWPBTLEN)
This parameter determines the time length default for the local format.

To use one of the following time formats that are provided by IBM, keep the default value of 0:
EUR
ISO
JIS
USA

Valid values:
0
8
254

Default: 0

Impl Time Zone (QWPBIMTZ)
This parameter determines the implicit time zone that is used when a time zone is not provided.

This parameter applies to DB2 table columns and routing parameters that are declared with TIMESTAMP WITH TIME ZONE data types.

Valid values:
CURRENT
SESSION
-12:59 to +14:00

Default: CURRENT

STD SQL Language (QWPBSQNL)
This parameter determines the SQL standard that is used in writing application programs. Specifically, the parameter specifies whether the SQL language conforms to those portions of the 1992 ANSI SQL standard that are implemented by DB2.

Valid values:
NO
YES

Default: NO

Pad Nul-Terminated (QWPBPAD)
This parameter determines whether output host variables that are nul-terminated strings are padded with blanks and a nul-terminator.

Valid values:
DSNTIPF-Application Default 3

APPL COMPAT LEVEL (QWP4APCO)

This parameter determines the default release level of the APPLCOMPAT BIND and REBIND option.

Tip:

- Set all DB2 data sharing members to the same value.
- This system parameter is the default value when binding packages without explicitly specifying the APPLCOMPAT bind option. Ensure that all applications are ready for new compatibility behavior before you change the default value.

Valid values:

- V10R1
- V11R1

Default:

- V11R1 after migration.
- V12R1 for a new installation.

DB2 11 and later.

DSNZPARM Data Parameters

This panel shows information about the parameters that affect the default settings of the DB2 application. It shows the name of the DSNZPARM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.

If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.
### DSNZPARM Data Parameters

**ZDAT**

- **+ Collection Interval:** REALTIME
- **SNAPTIME:** 06/27/13 19:58:37.98

**+ Member Name**

- SE11
- SE12

**+ DSNZPARM Module**

- DSNZPARM

**+ Assembly Date**

- 03/18/13
- N/P

**+ Initial Module**

- DSNZPARM
- N/P

**+ Assembly Date**

- 03/18/13
- N/P

**+ Previous Module**

- DSNZPARM
- N/P

**+ Assembly Date**

- 03/18/13
- N/P

**+ DSNTPA2-Data**

- Catalog Alias (CATALOG): DBE1
- SMS DAT Data Class (CATDACL): XVSAM
- SMS DAT Mgmt Class (CATDMGCL): DB2
- SMS DAT Storage Class (CATDSTCL): DB2
- SMS IX Data Class (CATXDACL): XVSAM
- SMS IX Management Class (CATXMGCCL): DB2
- SMS IX STO Class (CATXSTCL): DB2
- Compress SPT01 (COMPRESS_SPT01): NO
- (COMPRESS_DIRLOB): NO
- (SPT01_INLINE_LENGTH): 32138

**+ DSNTPAI3-Default Startup**

- Parameter Module: DSNZPARM
- Access Control (ACCESS_CNTL_MODULE): DSNX00XAC
- Identify Auth (IDAUTH_MODULE): DSN300ATH
- Signon (IGNON_MODULE): DSN305SN

**+ DSNTPIM-MVS Parameters**

- Subsystem Name (SSID): SE11
- Suppress Soft Errors (SUPRRS): YES

---

### Navigation

For additional information about

- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

### Fields

The DSNZ command displays the following lines to reflect the usage of the DB2 **SET SYSPARM** command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

**DSNZPARM Module**

The name of the DSNZPARM module that is specified for DB2 startup.

**Initial Module**

The name of the initial DSNZPARM load module.

**Previous Module**

The name of the previous DSNZPARM load module.
Assembly Date
The date on which this module was assembled.

DSNTIPA2-Data

Catalog Alias (QWP6CATN)
The value of the CATALOG ALIAS field determines the high-level qualifier for VSAM data sets that are used by the DB2 catalog and directory.

Valid values:
1 to 8 characters

Default: DSNCAT

SMS DAT Data Class (QWP4CDDC), SMS DAT Mgmt Class (QWP4CDMC), SMS DAT Storage Class (QWP4CDSC)
The DIRECTORY AND CATALOG DATA field determines the explicit Storage Management Subsystem (SMS) classes that are used to define VSAM data sets for the DB2 catalog and directory. Your SMS storage administrator defines these SMS classes.

To use ACS routines for defining these data sets, leave this field blank.

SMS IX Data Class (QWP4CXDC), SMS IX Management Class (QWP4CXMC), SMS IX STO Class (QWP4CXSC)
The DIRECTORY AND CATALOG INDEXES field determines the explicit Storage Management Subsystem (SMS) classes that are used to define VSAM data sets for DB2 catalog and directory indexes. Your SMS storage administrator defines these SMS classes.

To use ACS routines for defining these data sets, leave this field blank.

Compress SPT01 (COMPRESS_SPT01) (QWP4CS01)
The COMPRESS_SPT01 subsystem parameter determines whether the SPT01 directory table space is compressed.

Valid values: NO, YES.

Default: NO

(COMPRESS_DIRLOB) (QWP4CDRL)
Specifies whether DB2 compresses LOB table spaces in the DB2 directory the next time that the table spaces are reorganized. Valid values:

NO LOB table spaces in the DB2 directory are not compressed
YES LOB table spaces in the DB2 directory are compressed the next time they are reorganized.

DB2 12 and later.

(SPT01_INLINE_LENGTH) (QWP4S1IL)
The SPT01_INLINE_LENGTH subsystem parameter defines the maximum length of LOB column data in the SPT01 directory table space that is maintained in the base table. The length is specified in single-byte characters.

In a data sharing environment, all members must use the same setting for this parameter.

Valid values:

NOINLINE
1 to 32138
Default: 32138

**DSNTIP03-Default Startup**

**Parameter Module (QWP1ZPNM)**
The PARAMETER MODULE parameter defines the member name of the load module that is used for DB2 subsystem parameters.

Valid values:
1 to 8 characters

Default: DSNZPARM

**Access Control (ACCESS_CNTL_MODULE) (QWP1DXAC)**
This parameter defines the member name of the load module that is used for the DB2 access control exit routine.

Valid values:
For installation: 1 - 8 characters
For migration: DSNX@XAC

Default: DSNX@XAC

**Identify Auth (IDAUTH_MODULE) (QWP1DATH)**
This parameter determines the member name of the load module that is used for the DB2 connection authorization exit routine.

Valid values:
For installation: 1 - 8 characters
For migration: DSN3@ATH

Default: DSN3@ATH

**Signon (SIGNON_MODULE) (QWP1DSGN)**
This parameter determines the member name of the load module that is used for the DB2 sign-on exit routine.

Valid values:
For installation: 1 - 8 characters
For migration: DSN3@SGN

Default: DSN3@SGN

**DSNTIPM-MVS Parameters**

**Subsystem Name (SSID) (QWPBSSID)**
This parameter determines the z/OS subsystem name for DB2.

Valid values:
1 to 4 characters

The first character must be a letter (A - Z)
or one of the following symbols: $, $, or @.

The other characters must be any letter from A to Z,
integers from 0 - 9,
or any of the following symbols: $, $, or @.

Default: DSN1

**Suppress Soft Errors (SUPERRS) (QWP4SAE)**
This parameter determines whether DB2 is recording errors such as invalid
decimal data or arithmetic exceptions, and whether SQLCODEs are issued for these errors. These errors are recorded in the operating system data set SYS1.LOGREC.

Valid values:

NO
YES

Default: YES

**DSNZPARM Performance and Optimization Parameters**

This panel shows information about the parameters that affect DB2 performance and optimization. It shows the name of the DSNZPARM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.

If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.
### PERFORMANCE OPTIMIZATION PARAMETERS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Collection Interval</td>
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<tr>
<td>DSNZPARM Module Assembly Date</td>
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<tr>
<td>Initial Module Assembly Date</td>
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<td>03/17/16</td>
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<tr>
<td>Cache Dynamic SQL (CACHEDYN)</td>
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</tr>
<tr>
<td>Optimization Hints (OPTHINTS)</td>
<td>NO</td>
</tr>
<tr>
<td>Evaluate Uncommitted (EVALUNC)</td>
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<tr>
<td>Skip Uncomm Inserts (SKIPUNCI)</td>
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<tr>
<td>Immediate Write (IMMEDWR)</td>
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<td>Plan Management (PLANMGMT)</td>
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<td>XML RANDOMIZE_DOCID (XML_RANDOMIZE_DOCID)</td>
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<td>Real Time Stats (STATSINT)</td>
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<tr>
<td>Disable EDM RTS (DISABLE_EDMRTS)</td>
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<td>Statistics Feedback (STATFDBK_SCOPE)</td>
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<td>Max Degree for DPSI (PARAMDEG_DPSI)</td>
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<td>Star Join Queries (STARGJOIN)</td>
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<td>(GET ACCEL ARCHIVE)</td>
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<td>(QUERY ACCEL_OPTIONS)</td>
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<tr>
<td>2-INSERT FROM SELECT</td>
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</tr>
<tr>
<td>3-BYTE-BASED STRING FUNCTIONS</td>
<td>YES</td>
</tr>
<tr>
<td>4-DD/MM/YYYY LOCAL DATE FORMAT</td>
<td>NO</td>
</tr>
<tr>
<td>5-SYSTEM TIME TEMPORAL QUERIES</td>
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<tr>
<td>6-TS COLS WITH PRECISION OF 12</td>
<td>NO</td>
</tr>
<tr>
<td>7-YYYYMDD LOCAL DATE FORMAT</td>
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</tr>
</tbody>
</table>

### Navigation

For additional information about

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- other topics, use the PF keys.
Fields

The **DSNZ** command displays the following lines to reflect the usage of the DB2 **SET SYSPARM** command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

**DSNZPARM Module**

The name of the DSNZPARM module that is specified for DB2 startup.

**Initial Module**

The name of the initial DSNZPARM load module.

**Previous Module**

The name of the previous DSNZPARM load module.

**Assembly Date**

The date on which this module was assembled.

**DSNTIP8-Perf and Optimization 1**

**Cache Dynamic SQL (QWP4CDYN)**

The CACHEDYN subsystem parameter determines whether prepared static SQL statements or dynamic SQL statements are cached for later use by eligible application processes.

Valid Values:

- **NO**
- **YES**

Default: **YES**

**(CACHEDYN_STABILIZATION)**

This ZPARM specifies how DB2 is to stabilize cached dynamic SQL statement. When a statement is stabilized, the current SQLID, statement text, and runtime structures are written to catalog tables. If a dynamic SQL statement is not present in the dynamic SQL statement cache, DB2 will load the runtime structures from catalog table rather than performing a full prepare. This extends the stability and reliability of performance of a dynamic SQL. It can have the following values:

**CAPTURE**

Statements may be stabilized through the **-START DYNQUERY** command using both **MONITOR(NO)** and **MONITOR(YES)**. DB2 will not load stabilized statements from **SYSDYNQRY**.

**LOAD**

Statements may not be stabilized via any means. The **-START DYNQUERY** command will fail, and any **MONITOR(YES)** commands in progress will not stabilize statements, even if stabilization criteria are matched. During long prepare, DB2 will attempt to load stabilized statements from **SYSDYNQRY** with which to run.

**BOTH**

Statements may be stabilized through the **-START DYNQUERY** command via both **MONITOR(NO)** and **MONITOR(YES)**. During long prepare, DB2 will attempt to load stabilized statements from **SYSDYNQRY** with which to run. **BOTH** is the default setting.

**NONE**

Statements may not be stabilized via any means. The **-START DYNQUERY** command will fail, and any **MONITOR(YES)**
commands in progress will not stabilize statements, even if stabilization criteria are matched. DB2 will not load stabilized statements from SYSDYNQRY.

DB2 12 and later.

Optimization Hints (QWP4HINT)
The OPTHINTS subsystem parameter determines whether DB2 applies optimization hints when static SQL statements are bound or dynamic SQL statements are prepared.

Valid Values:
NO
YES

Default: NO

Evaluate Uncommitted (QWP4EVUN)
The EVALUNC subsystem parameter determines whether predicate evaluation is allowed on uncommitted data of other transactions. This parameter applies only to stage 1 predicate processing that uses table access for queries with isolation level RS or CS. Table access includes table space scan, index-to-data access, and RID-list processing.

Valid Values:
NO
YES

Default: NO

Skip Uncomm Inserts (QWP4SKUI)
The SKIPUNCI subsystem parameter determines whether statements ignore a row that is inserted by another transaction if the row is not yet detected as committed. A newly inserted row can be detected as committed only after the lock that is held on the row is released.

Valid Values:
NO
YES

Default: NO

Immediate Write (QWP4IMMW)
The IMMEDWRI subsystem parameter determines when updates to group buffer pool-dependent buffers are written to the coupling facility.

Valid Values:
NO
YES

Default: NO

Plan Management (QWP4PMGT)
The PLANMGMT subsystem parameter determines the default plan management policy that is used when the PLANMGMT option is not explicitly specified for the bind or the rebind of a package.

Valid Values:
BASIC
EXTENDED
OFF
Default: EXTENDED

Plan Mgmt Scope (QWP4PMSC)
The PLANMGMTSCOPE subsystem parameter determines the default plan management scope that is used when the PLANMGMTSCOPE option is not explicitly specified for the bind or rebind of a package.

The value in this field is meaningful only when the value of the PLAN MANAGEMENT field is set to BASIC or EXTENDED.

Valid Values:
A (ALL)
D (DYNAMIC)
S (STATIC)

Default: S (STATIC)

Pkgrel Commit (PKGREL_COMMIT) (QWP4PKRC)
YES indicates that the following operations on a package that are bound with RELEASE(DEALLOCATE) are permitted while the package is active and allocated by DB2:

- BIND and REBIND requests, including AUTOMATIC REBIND
- Data definition language changes to objects that are statically referenced by the package

DB2 11 and later.

(XML_RANDOMIZE_DOCID) (QWP1XRDI)
The XML_RANDOMIZE_DOCID subsystem parameter determines whether DB2 is sequentially or randomly generating the DOCID values for XML columns.

This parameter does not affect existing tables that have XML columns. These tables continue to generate DOCIDs in the order that is specified by the XML_RANDOMIZE_DOCID parameter when the table is created or in sequential order if the parameter was not specified.

Valid Values:
NO
YES

Default: NO

Real Time Stats (STATSINT) (QWP4INTE)
The time interval that DB2 waits before it attempts to write out page set statistics to the real-time statistics tables. This value is between 1 and 65535 minutes.

Disable EDM RTS (QWP4DEDR)
The DISABLE_EDMRTS subsystem parameter determines whether the collection of real-time statistics is disabled by the environmental description manager (EDM). Real-time statistics is tracking when packages were last used.

Valid Values:
NO
YES

Default: NO

Statistics Feedback (STATFDBK_SCOPE) (QWP4SFBS)
Specifies the scope of SQL statements for which DB2 is to recommend statistics. Possible values are:

- All (default): Statistics recommended for all SQL statements.
- Dynamic: Statistics recommended only for dynamically processed SQL statements.
- None: DB2 does not recommend statistics.
- Static: Statistics recommended only for statically processed SQL statements, that is, those that are bound to a package.

DB2 11 and later.

**STATFDBK_PROFILE (QWP4SFPR)**

Specifies whether statistics recommendations identified during query optimization directly result in modifications to statistics profiles.

Valid values:
- YES
- NO

Default: YES.

DB2 12 and later.

**DSNTIP81-Perf and Optimization 2**

**Current Degree (CDSSRDEF)**

The CDSSRDEF subsystem parameter determines the default value that is used for the CURRENT DEGREE special register. The default value is used when a degree is not explicitly set in the SQL statement SET CURRENT DEGREE.

Valid Values:
- 1
- ANY

Default: 1

**Max Degree (PARAMDEG)**

The PARAMDEG subsystem parameter determines the maximum degree of parallelism that is allowed for a parallel group. If you specify a value for this parameter, you limit the degree of parallelism so that DB2 does not create too many parallel tasks that use virtual storage.

Valid Values:
- 0 to 254

Default: 0

**Max Degree for DPSI (PARAMDEG_DPSI)**

The PARAMDEG_DPSI system parameter determines the maximum degree of parallelism that you can specify for a parallel group in which a data partitioned secondary index (DPSI) is used to drive parallelism.

A DPSI is a nonpartitioning index that is physically partitioned according to the partitioning scheme of the table. If you specify a value that is greater than 0 for this parameter, you limit the degree of parallelism for DPSIs so that DB2 does not create too many parallel tasks that use virtual storage.

Valid Values:
0-254
DISABLE

Default: 0

Parallel Efficiency (PARA_EFF)
The PARA_EFF subsystem parameter determines the efficiency that DB2 assumes for parallelism when DB2 chooses an access path. The integer value that is used for this parameter represents a percentage efficiency.

Valid Values:
0 ÷ 100

Default: 50

Star Join Queries (STARJOIN)
The STARJOIN subsystem parameter determines whether star join processing is enabled.

Valid Values:
DISABLE
ENABLE
1 to 32768

Default: DISABLE
ZPARM: DSN6SPRM STARJOIN

Max Data Caching (MXDTCACH)
The MXDTCACH subsystem parameter determines the maximum amount of memory in MB that is allocated for data caching per thread.

Valid Values:
0 to 512

Default: 20

Current Refresh Age (REFSHAGE)
The REFSHAGE subsystem parameter determines the default value for the CURRENT REFRESH AGE special register. The default value is used when no value is explicitly set by using the SET CURRENT REFRESH AGE statement.

Valid Values:
0
ANY

Default: 0

Current Maint Types (MAINTYPE)
The MAINTYPE subsystem parameter determines the default value for the CURRENT MAINTAINED TABLE TYPES FOR > OPTIMIZATION special register. This value is used when no value is explicitly set by using the SQL statement SET CURRENT MAINTAINED TABLE TYPES FOR OPTIMIZATION.

Valid Values:
ALL
NONE
SYSTEM
USER
Default: SYSTEM

DSNTIP82-Query Accelerator Refs

ACCELERATOR STARTUP (ACCEL) (QWP4ACCS)
This parameter determines whether accelerator servers are used with a
DB2 subsystem, and how the accelerator servers are enabled and started.

Before you can start an accelerator server, it must be enabled.

You can modify this parameter online, however, if you change the setting
from NO or COMMAND to AUTO, you must stop and restart DB2 to
activate the new setting.

Valid Values:
A (AUTO)
C (COMMAND)
N (NO)

Default: NO

(GET_ACCEL_ARCHIVE) (QWP4CGAA)
The GET_ACCEL_ARCHIVE subsystem parameter determines the default
value that is used for the CURRENT GET_ACCEL_ARCHIVE special
register.

The GET_ACCEL_ARCHIVE subsystem parameter is used when no value
is explicitly set for the CURRENT GET_ACCEL_ARCHIVE special register
by the SQL statement SET CURRENT GET_ACCEL_ARCHIVE.

Valid Values:
NO
YES

Default: NO

(QUERY_ACCEL_OPTIONS) - None (QWP4QACO)
The QUERY_ACCEL_OPTIONS subsystem parameter determines whether
certain types of queries are allowed to execute on an accelerator server.

Valid options:
YES Query offloading is restricted to the standard SQL statements
NO Options are set to the following list of possible values:
1, 2, 3, 4, 5, 6, 7

Valid Values:

Default: NONE
NONE

Query offloading is restricted to the standard SQL statements.

1 The queries that include data that is encoded by the multi-byte
character set EBCDIC encoding scheme is not blocked from
executing on IBM Db2 Analytics Accelerator for z/OS although
IBM Db2 Analytics Accelerator for z/OS encodes the same data in
the UTF-8 UNICODE encoding scheme.

EBCDIC and UNICODE implement different collating sequences.
• The collating sequence for UNICODE is numeric, uppercase
characters, and lower case characters. (1, 2, 3, A, B, C, a, b, c).
In EBCDIC, the collating sequence is lower case, upper case, and numeric (a, b, c, A, B, C, 1, 2, 3).

There are also differences in collating for the national characters. This affects the ordering of data and the results from range predicates. Therefore, in the following cases, a query that is executed in DB2 might return a different result set than the same query executed in IBM Db2 Analytics Accelerator for z/OS:

- If the tables include character columns where more than one of these groups can be found in the column values
- If the SQL statements include range predicates or ordering on these columns

2 The queries that include an INSERT from SELECT statement, the select part is not blocked from executing on IBM Db2 Analytics Accelerator for z/OS although the data operated on by the SELECT might not be current in IBM Db2 Analytics Accelerator for z/OS.

3 The queries that include DB2 byte-based string functions on data that is encoded by multi-byte character sets encoding schemes, for example, UNICODE, are not blocked from executing on IBM Db2 Analytics Accelerator for z/OS although IBM Db2 Analytics Accelerator for z/OS supports only character-based string functions.

If the data on which the string function is specified contains only single-byte characters, executing the function on IBM Db2 Analytics Accelerator for z/OS returns the same result as executing the function on DB2 no matter what encoding scheme is used for the data. However, if the data contains multi-byte characters, the results is not the same.

4 Queries that include DB2 byte-based string functions on data encoded by multi-byte character sets encoding schemes (like UNICODE) are not blocked from running on IDAA although IDAA supports only character-based string functions.

If the data on which the string function is specified contains only single-byte characters, running the function on IDAA returns the same result as running the function on DB2 irrespective of what encoding scheme is used for the data. However, if the data contains multi-byte characters, the results is not the same.

5 SYSTEM_TIME temporal queries are offloaded to an accelerator. DB2 12 and later.

6 Queries that reference timestamp columns with precision of 12 are offloaded to an accelerator. DB2 12 and later.

**Note:** Option 4 cannot be specified in combination with option 7.
7 Queries that reference an expression with a DATE data type that uses a LOCAL format are not blocked from running on IDAA. IDAA uses the yyyyymmdd format to interpret the input and output date value.

Specify option 7 only when you also specify LOCAL as the setting for the DSNHDECP.DATE parameter and your LOCAL date exit defines the specific yyyyymmdd date format. Otherwise, queries may return yyyyymmdd date format or unpredictable results. DB2 12 and later.

(QUERY_ACCELERATION) (QWP4CQAC)
The QUERY_ACCELERATION subsystem parameter determines the default value that is used for the CURRENT QUERY ACCELERATION special register.

The QUERY_ACCELERATION subsystem parameter is used when no value is explicitly set for the CURRENT QUERY ACCELERATION special register by the SQL statement SET CURRENT QUERY ACCELERATION.

Valid Values:
1, 2, 3, 4, 5

Default: 1

1 (NONE)
Determines that query acceleration is not used.

2 (ENABLE)
Determines that queries are accelerated if DB2 determines that acceleration is of advantage.

If an accelerator failure occurs while a query is running, or if the accelerator returns an error, DB2 returns a negative SQLCODE to the application.

3 (ENABLE_WITH_FAILBACK)
Determines that queries are accelerated if DB2 determines that acceleration is of advantage.

If the accelerator returns an error during PREPARE or first OPEN for the query, DB2 executes the query without the accelerator.

If the accelerator returns an error during FETCH or a subsequent OPEN, DB2 returns the error to the user. The query is not executed.

4 (ELIGIBLE)
Determines that queries are accelerated if they are eligible for acceleration.

DB2 does not use cost information to determine whether to accelerate the queries. Queries that are not eligible for acceleration are executed by DB2. If an accelerator failure occurs while a query is running, or if the accelerator returns an error, DB2 returns a negative SQLCODE to the application.

5 (ALL)
Determines that queries are accelerated if they are eligible for acceleration.

DB2 does not use cost information to determine whether to accelerate the queries. Queries that are not eligible for acceleration
are not executed by DB2. An SQL error is returned. If an accelerator failure occurs while a query is running, or if the accelerator returns an error, DB2 returns a negative SQLCODE to the application.

**DSNZPARM Buffer Pool Parameters**

This panel shows information about the parameters that affect DB2 buffer pool default settings. It shows the name of the DSNZPARM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.

If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.

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<th>ZPBPL</th>
<th>VTM</th>
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<th>VS40</th>
<th>DB11</th>
<th>S 10/11/12 22:06:37 2</th>
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<td>Back</td>
<td>PF3</td>
<td>Left PF10 Right PF11</td>
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<td>&gt;</td>
<td>A-THREAD</td>
<td>B-TRACE</td>
<td>C-LOGGING</td>
<td>D-ARCHIVING</td>
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<td>&gt;</td>
<td>G-STORE</td>
<td>H-DATASET</td>
<td>I-DDCS</td>
<td>J-DATA SHARING</td>
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<td>&gt;</td>
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</tbody>
</table>

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**Navigation**

For additional information about

- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

The **DSNZ** command displays the following lines to reflect the usage of the DB2 **SET SYSPARM** command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

**DSNZPARM Module**

The name of the DSNZPARM module that is specified for DB2 startup.

**Initial Module**

The name of the initial DSNZPARM load module.
Previous Module
The name of the previous DSNZPARM load module.

Assembly Date
The date on which this module was assembled.

DSNTIP1-Buffer Pools

4KBP for User Data (TBSBPOOL)
Default 4KB Buffer Pool for:
- Table spaces with a 4KB page size in implicitly created databases
- Explicitly created table spaces with a 4KB page size and no buffer pool clause specified in the CREATE TABLESPACE statement.

This field corresponds to the field "Default 4-KB Buffer Pool for user data" on the installation panel DSNTIP1.
ZPARM name: TBSBPOOL in DSN6SYSP.

8KBP for User Data (TBSBP8K)
Default 8KB Buffer Pool for:
- Table spaces with a 8KB page size in implicitly created databases
- Explicitly created table spaces with a 8KB page size and no buffer pool clause specified in the CREATE TABLESPACE statement.

This field corresponds to the field "Default 8-KB Buffer Pool for user data" on the installation panel DSNTIP1.
ZPARM name: TBSBP8K in DSN6SYSP.

16KBP for User Data (TBSBP16K)
Default 16KB Buffer Pool for:
- Table spaces with a 16KB page size in implicitly created databases
- Explicitly created table spaces with a 16KB page size and no buffer pool clause specified in the CREATE TABLESPACE statement.

This field corresponds to the field "Default 16-KB Buffer Pool for user data" on the installation panel DSNTIP1.
ZPARM name: TBSBP16K in DSN6SYSP.

32KBP for User Data (TBSBP32K)
Default 32KB Buffer Pool for:
- Table spaces with a 32KB page size in implicitly created databases
- Explicitly created table spaces with a 32KB page size and no buffer pool clause specified in the CREATE TABLESPACE statement.

This field corresponds to the field "Default 32-KB Buffer Pool for User Data" on the installation panel DSNTIP1.
ZPARM name: TBSBP32K in DSN6SYSP.

BP for LOB Data (TBSBPLOB)
Name of the buffer pool that is used for implicitly created LOB table spaces.
This field corresponds to the field "Default Buffer Pool for User LOB Data" on installation panel DSNTIP1.
ZPARM name: TBSBPLOB in DSN6SYSP
**BP for XML data (TBSBPXML)**
Name of the buffer pool that is used for XML table spaces.
This field corresponds to the field "Default Buffer Pool for User XML Data" on the installation panel DSNTIP1.
ZPARM name: TBSBPXML in DSN6SYSP.

**BP for indexes (IDXBPPOOL)**
Default buffer pool for user index spaces.
This field corresponds to the field "Default Buffer Pool for User Indexes" on the installation panel DSNTIP1.
ZPARM name: IDXBPPOOL in DSN6SYSP.

**DSNZPARM Utility Parameters**
This panel displays information about the parameters that affect DB2 utility default settings. It shows the name of the DSNZPARM module that is specified for DB2 startup and the date on which the module is assembled. It also shows a list of the default values of the DB2 application.
If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.
Navigation

For additional information about related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

The DSNZ command displays the following lines to reflect the usage of the DB2 SET SYSPARM command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

DSNZPARM Module
The name of the DSNZPARM module that is specified for DB2 startup.

Initial Module
The name of the initial DSNZPARM load module.

Previous Module
The name of the previous DSNZPARM load module.

Assembly Date
The date on which this module was assembled.

DSNTIP6 - Utility Parms 1

Temp DS Unit Name (VOLTDEVT) (QWP4VDTY)
This parameter determines the device type for temporary data sets.

(UTIL_TEMP_STORCLAS) (QWP4CHEC)
This parameter determines the name of the SMS storage class that is used by DB2 to define temporary shadow data sets. A blank value indicates that the temporary shadow data sets are defined in the same storage class as the production page set.

Statistics History (STATHIST) (QWP4STHT)
This parameter determines the default for the statistics history. Depending on the specified value, catalog changes that are made by DB2 are recorded in the catalog history tables.

Valid values:
ALL All changes are recorded.
NONE Changes are not recorded.
SPACE All changes that are related to space are recorded.
ACCESSPATH All changes that are related to accesspath are recorded.

Default: NONE

Statistics Rollup (STATROLL) (QWP4STRL)
This parameter determines the default for the statistics rollup. It controls whether the RUNSTATS utility aggregates partition-level statistics.

Valid values:
NO
YES

Utility Timeout (UTIMOUT) (QWP4UTO)
This parameter determines the utility timeout factor.

UT Sort Data Allocation (UTSORTAL) (QWP3SRAL)
Indicates that the utility will use sortnum elimination logic for sort tasks.

Valid values:
NO
YES

YES is the default. DB2 10 and DB2 11 only.

Ignore Sortnum Stmt (IGNSORTN) (QWP4IGSN)
This parameter determines whether the SORTNUM keyword specification in a UT JOB STMT is ignored.
Valid values:
NO
YES

Set Check Pending (CHECK_SETCHKP) (QWP4CSCP)
Specifies whether the check data and the check LOB utilities should place inconsistent objects in a check pending status. When these utilities detect an inconsistency in an object, they write a diagnostic message and end with return code 4.
Valid values:
YES The object is placed in check pending status
NO (default) The object is not placed in check pending status. Objects that are already in check pending status remain so.

NO
YES

DB2 10 and DB2 11 only.

UT DB2 Sort Use (DB2SORT)
Enables the use of the DB2 sort product from utilities when it is installed. DFSORT is used otherwise. Valid values are ENABLE (default) and DISABLE. DB2 10 and DB2 11 only.

Template Time (TEMPLATE_TIME) (QWP4TPTM)
This parameter determines the default setting for the TIME option of the DB2 UTILITIES TEMPLATE statement.
Valid values:
LOCAL
UTC (Coordinated universal time)

Default: UTC.

DB2 11 and later.

Max Utils Parallel (PARAMDEG_UTIL) (QWP4UMD)
This parameter determines the maximum degree of parallelism that is allowed when a DB2 utility is driving parallelism.
Valid values:
0 (Unlimited)
1 To 32767

Default: 99

DB2 11 and later.

DSNTIP6 - UtilityParms 2
(COPY_FASTREPLICATION) (QWP4CYFR)
This parameter specifies for the COPY utility whether FlashCopy fast replication is preferred, required, or not used for the creation of the FlashCopy image copy.

Valid values:

Preferred
The COPY utility directs DSS COPY to use fast replication if available.

Required
The COPY utility directs DSS COPY to only use fast replication, ensuring that object copies occur as fast as possible. Resource contention and unavailability are reduced.

None
The COPY utility directs DSS COPY not to use fast replication.

DB2 12 and later.

Fast Restore (REC_FASTREPLICATION) (QWP4RFRP)
This parameter determines whether FlashCopy® is used by the RECOVER utility to recover from a FlashCopy image copy.

If you use BACKUP SYSTEM to create system-level backup copies, using FlashCopy for restoring might cause BACKUP SYSTEM to fail because cascading FlashCopy is not supported.

Valid values:

NONE
Standard input and output is used to restore the FlashCopy image copy.

PREFERRED
FlashCopy is only used if FlashCopy support is available.

REQUIRED
FlashCopy is used to recover from a FlashCopy image copy to ensure that copies are recovered as fast as possible. However, recovery fails if FlashCopy support is not available.

Default: PREFERRED

(FLASHCOPY_PPRC) (QWP4FCPPRC)
This parameter determines the behavior for DFSMSDSS FlashCopy requests by DB2 utilities when the target disk storage volume is the primary device in a peer-to-peer remote copy (PPRC) relationship. A PPRC relationship exists when a DB2 utility is using DFSMSDSS FlashCopy technology to create a FlashCopy image copy or shadow data sets (for the online check utility) and the target disk storage volume is mirrored by another disk device on a different system.

The FlashCopy PPRC option pertains to COPY, REORG TABLESPACE, REORG INDEX, REBUILD INDEX, LOAD, RECOVER, and the CHECK utilities.

Valid values:

Blank
Mirroring is not preserved by DFSMSDSS.

NONE
Mirroring is not preserved by DFSMSDSS when it is processing a
DB2 utilities request, even if all configuration requirements for preserving the mirror operation are met.

**PREFERRED**

DFSMSDSS allows the volume pair to go into duplex pending state when processing a DB2 utilities request only if it is required.

**REQUIRED**

DFSMSDSS does not permit the PPRC volume pair to go into duplex pending state when processing a DB2 utilities request.

Default: REQUIRED

**Default Template (FCCOPYDDN) (QWP4FCCD)**

Offset from the beginning of QWP4 to QWP4FCCD.

Fields for the FCOPYDDN subsystem parameter: Length of QWP4FCCD_VAR.

This parameter determines the default settings of the FCCOPYDDN subsystem parameter for the COPY, LOAD, REBUILD INDEX, REORG INDEX, and REORG TABLESPACE UTILITY CONTROL statements when the FlashCopy parameter is set to YES or CONSISTENT.

FCCOPYDDN determines a DB2 utilities template data set name expression that is used to derive the COPY DATA SET NAME that is allocated by the utility during operation.

**Copy (FLASHCOPY_COPY) (QWP4FCCP)**

This parameter determines whether the COPY utility is using FLASHCOPY=YES and the system parameter settings for FCCOPYDDN when these keywords are not included in the utility control statement.

Valid values:

- NO
- YES

**DEFAULT: NO**

**Load (FLASHCOPY_LOAD) (QWP4FCLD)**

This parameter defines whether the LOAD utility is using FLASHCOPY=YES and the system parameter setting for FCCOPYDDN when these keywords are not included in the utility control statement.

Valid values:

- NO
- YES

**DEFAULT: NO**

**(FLASHCOPY_REORG_TS) (QWP4FROT)**

This parameter determines whether the REORG TABLESPACE utility is using FLASHCOPY=YES and the system parameter setting for FCCOPYDDN when these keywords are not included in the utility control statement.

Valid values:

- NO
- YES

**DEFAULT: NO**
**FLASHCOPY_REBUILD_INDEX** (QWP4FRBI)
This parameter determines whether the REBUILD INDEX utility is using
FLASHCOPY=YES and the system parameter setting for FCCOPYDDN
when these keywords are not included in the UTILITY CONTROL
statement.

Valid values:
- **NO**
- **YES**

**DEFAULT:** NO

**FLASHCOPY_REORG_INDEX** (QWP4FROI)
This parameter determines whether the REORG INDEX utility is using
FLASHCOPY=YES and the system parameter setting for FCCOPYDDN
when these keywords are not included in the UTILITY CONTROL
statement.

Valid values:
- **NO**
- **YES**

**DEFAULT:** NO

**DSNTIP6 - Utility Parms 3**

**SYSTEM_LEVEL_BACKUPS** (QWP4SLBU)
This parameter determines whether the RECOVER utility is using
system-level backup copies as a recovery base additional to image copies
and concurrent copies for object-level recoveries. If you do not want
system-level backup copies with the BACKUP SYSTEM utility, specify NO.

For more information, see the chapter Recover in the *DB2 10 for z/OS,
Utility Guide and Reference, SC19-2984-08*.

Valid values:
- **NO**
- **YES**

Default: NO

**RESTORE_RECOVER_FROMDUMP** (QWP4RRFD)
This parameter determines for the restore system and the RECOVER
utilities whether the system-level backup that is selected as the recovery
base is used from the disk copy of the system-level backup (NO) or from
the dump on tape (YES).

Valid values:
- **NO**
- **YES**

Default: NO

**UTILS_DUMP_CLASS_NAME** (QWP4RSDC)
This parameter determines the name of the DFSMSHSM dump clas that is
used by the Restore System Utility to restore from a system-level backup
that is dumped to tape.

**Max Tape Units (RESTORE_TAPEUNITS)** (QWP4RSMT)
This parameter determines the maximum number of tape units or tape
Drives that the Restore System Utility can use to restore from a system-level backup that is dumped to tape.

Valid values:
0 (No limit)  
1-255  

(REORG_IGNORE_FREE_SPACE) (QWP4RIFS)  
This parameter specifies whether the Reorg Tablespace Utility should ignore the PCTFREE and FREEPAGE values while reloading data rows into a PBG table space in the following circumstances:
• When a subset of the PBG partitions are reorganized  
• When the table in the PBG table space as LOB columns  
The default is NO (PCTFREE and FREEPAGE values are honored).  

DB2 10 and DB2 11 only.

Alternate Copy Pool (ALTERNATE_CP) (QWP4BSACP)  
Specifies an optional alternate SMS copy pool for the DB2 BACKUP SYSTEM utility.

Valid values:
blank (default)  

1-16 alphanumeric characters  
DB2 BACKUP SYSTEM uses the standard copy pool only.

DB2 12 and later.

DB Backup STG Group (UTIL_DBBSG) (QWP4UDBSG)  
Specifies an optional backup SMS storage group to be used by the DB2 BACKUP SYSTEM utility for the DB copy pool.

Valid values:
blank (default)  

DB2 BACKUP SYSTEM requests that DFSMShsm uses the copy pool backup storage group that is associated with each storage group in the copy pool.

Valid SMS storage group name  
DB2 BACKUP SYSTEM requests that DFSMShsm uses the specified copy pool backup storage group. The specified storage group must be defined with the COPY POOL BACKUP attribute.

DB2 12 and later.

LOG Backup STG Group (UTIL_LGBSG) (QWP4ULBSG)  
Specifies an optional backup SMS storage group to be used by the DB2 BACKUP SYSTEM utility for the LOG copy pool.

Valid values:
blank (default)
DB2 BACKUP SYSTEM requests that DFSMShsm uses the copy pool backup storage group that is associated with each storage group in the copy pool.

Valid SMS storage group name
DB2 BACKUP SYSTEM requests that DFSMShsm uses the specified copy pool backup storage group. The specified storage group must be defined with the COPY POOL BACKUP attribute.

DB2 12 and later.

(UTILS_HSM_MSGDS_HLQ) (QWP4UHMD)
Shows the high level qualifier (HLQ) for data sets (DS) to be allocated by the DB2 BACKUP SYSTEM and RESTORE SYSTEM utilities to receive messages from the Data Facility Hierarchical Storage Manager (DFHSM) and the IBM Data Facility Data Set Services (DFDSS).

Valid values:
• blank (default)
• Valid data set qualifier of 1 to 6 characters

DB2 12 and later.

DSNTIP63 - Utility Parms 4

(REORG_PART_SORT_NPSI) (QWP4RPSN)
This parameter determines the default method of building a non-partitioned secondary index (NPSI) during REORG TABLESPACE PART. This setting is used when the SORTNPSI keyword is not provided in the utility control statement.

The SORTNPSI keyword determines whether REORG TABLESPACE PART is sorting all keys of a NPSI. This setting is ignored for a REORG that is not part-level or a REORG with no NPSIS.

Valid values:
• AUTO If sorting all keys of the NPSI(s) improves the elapsed time and the CPU performance, all keys are sorted.
• NO If sorting all keys of the NPSI(s) improves the elapsed time and the CPU performance, all keys are sorted.
• YES Only the keys of the NPSI(s) that are in the scope of the REORG are sorted.

Default: AUTO

(REORG_LIST_PROCESSING) (QWP4RLPR)
This parameter determines the default setting for the parallel option of the DB2 REORG TABLESPACE utility if the REORG TABLESPACE control statement does not include the parallel keyword. Depending on the value, the type of processing for partitioned table spaces is selected.

The DB2 REORG TABLESPACE utility can process partitions that are specified in the INPUT LISTDEF STATEMENT like this:

Valid values:
• PARALLEL YES All partitions are processed in a single utility execution
PARALLEL NO
Each partition is processed in a separate utility execution

Default:
PARALLEL YES
DB2 11 and later.

(REORG_MAPPING_DATABASE) (QWP4RMDB)
This parameter determines the default database that is used by REORG TABLESPACE SHRLEVEL CHANGE to create the mapping table. When a REORG TABLESPACE SHRLEVEL CHANGE REQUEST is processed, the REORG UTILITY can create its own mapping table and mapping index or it can process user input.

If this parameter is set to a valid database, REORG allocates the mapping table in the specified database.

If this parameter is set to NULL, REORG allocates the mapping table in an implicitly defined database.

(REORG_DROP_PBG_PARTS) (QWP4RPBG)
This parameter determines whether REORG removes trailing empty partitions when operating on an entire partitioned by growth (PBG) table space. An empty trailing partition occurs when REORG moves all data records from a partition into lower numbered partitions.

This parameter is only used if REORG runs against an entire PBG table space. It is ignored by REORGs of non-PBG table spaces and for partition-level REORGs of PBG table spaces.

Valid values:
ENABLE If there is any trailing empty partition after REORG is completed, it is removed.
DISABLE The number of PBG partitions that is present after REORG is completed is equal or greater than the number of partitions that was present before REORG was run. Even if REORG can relocate all data records into the lowest numbered partitions, trailing empty PBG partitions are retained.

Default:
DISABLE
DB2 11 and later.

DSNZPARM Other System Parameters
This panel shows information about the installation parameters that affect DB2 subsystem default settings. These system parameters are not displayed from DB2 installation panels.

If a field is not available for the current DB2 release, the string N/A is displayed. For other conditions, for example, if specific DB2 traces are not started or control block data is not available, the string N/P is displayed.
DSNZPARM INFORMATION: Enter a selection letter on the top line.

> A-THREAD  B-TRACE  C-LOGGING  D-ARCHIVING  E-AUTH/RLF/DDF  F-IRLM
> G-STORAGE  H-DATASET  I-DDCS  J-DATA SHARING  K-STORED PROC  L-UTIL
> M-APPL  N-DATA  O-PERF  P-BUFFERPOOL  --OTHERS

===============================================================================

OTHER SYSTEM PARAMETERS
ZOTH
+ Collection Interval: REALTIME SNAPTIME: 07/31/13 13:33:44.01
+
+ DSNZPARM Module DBIHUNIN
+ Assembly Date 07/30/13
+ Initial Module DSNZPARM
+ Assembly Date 07/29/13
+ Previous Module DSNZPARM
+ Assembly Date 07/29/13
+
+ From DSN6SYSP
+------------------------------------
+ Size of Local Trace Table (TRACLOC) 16
+ Parallel Task AcctRollup (PTASKROL) NO
+ Measured Usage Pricing (SMF89) NO
+ DB2 OTC License Term (OTC_LICENSE) NO
+ Trackmod Implicit TS (IMPTKMOD) YES
+ Max DSSID Implicit TS (IMPDSSID) 4
+
+ From DSN6LOGP
+------------------------------------
+ Offload Option (OFFLOAD) YES
+
+ From DSN6ARVP
+------------------------------------
+ MSS Volume Group 1 Name (MVSGP) N/A
+ MSS Volume Group 2 Name (MVSGP2) N/A
<table>
<thead>
<tr>
<th>Configuration Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable Database Check (DBCHK)</td>
<td>NO</td>
</tr>
<tr>
<td>Utility Cache Option (SEQPRES)</td>
<td>N/A</td>
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<tr>
<td>3990-3 Seq Cache (SEQCACH)</td>
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<td>Disable Code Page Protect (PROTOFF)</td>
<td>NO</td>
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<tr>
<td>Varchar from Index (RETVLCFK)</td>
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<tr>
<td>Outer Join Perf Enh (GUPPERFEH)</td>
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<td>Minimum RID Lists (MINRBLK)</td>
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<td>NPAGES Threshold (NPGTHRSHP)</td>
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<tr>
<td>Star Join Threshold (SJTABLES)</td>
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<td>SMS Data Class for TS (SMSDCFL)</td>
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<tr>
<td>SMS Data Class for IX (SMSDCIX)</td>
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<td>MIN SCALE DECIMAL DIVIDE (MINDVSCL)</td>
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<td>Max RDS OP Pool (MAX_OPT_STOR)</td>
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<td>Max CPU Sec OP Use (MAX_OPT_CPU)</td>
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<td>Disable SQLWANR1,5 (DISABSCL)</td>
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<td>Max Entry Sclabel Cache (SECLCACH)</td>
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<td>Max Numb in IN-List (INLISTP)</td>
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<td>Recover to Point-in-Time (RPITWC)</td>
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<td>(UNION_COLNAME_7)</td>
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<td>Statistics Cluster (STATCLUS)</td>
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<tr>
<td>(CACHEDYN_FREELOCAL)</td>
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<tr>
<td>(MAX_CONCURRENT_PKG_OPS)</td>
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<td>(HONOR_KEEPDICTIONARY)</td>
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<td>(INDEX_IO_PARALLELISM)</td>
<td>YES</td>
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<tr>
<td>/OS Metrics (ZOSMETRICS)</td>
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<tr>
<td>OPT I/O Weighting (OPTIONGT)</td>
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<tr>
<td>Enable Pair-wiseJoin (EN_PJSJ)</td>
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<td>(RESTRICT_ALT_COL_FOR_DCC)</td>
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<td>(DISALLOW_DEFAULT_COLLID)</td>
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<td>I/O Scheduling feature (SPRMIOP)</td>
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<td>Correlation ID Monitor (SPRMOZCI)</td>
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<td>User ID Monitor (SPRMOZUS)</td>
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<td>Value For Trigger Drain (SPRMTDD)</td>
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<td>Max # OF DDS Withhold (SPRMDD)</td>
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<td>#Field Proc for TB Block (SPRMFDP)</td>
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<tr>
<td>Max NotFound Hash Records (SPRMMFC)</td>
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<td>Max Extend Service Tasks (SPRMESS)</td>
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<td>Max ZIVLEMPEL Dict Entry (SPRMMDE)</td>
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<td>ProjectZ Insert Threshold (SPRMZTN)</td>
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<td>Default index type (SPRMDBXT)</td>
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<td>(OPT1ROWBLOCKSORT)</td>
<td>NO</td>
</tr>
<tr>
<td>(SURQ_MIDX)</td>
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</tr>
</tbody>
</table>
Navigation

For additional information about
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

The DSNZ command displays the following lines to reflect the usage of the DB2 SET SYSPARM command. To each of these lines, the corresponding date on which this particular module is assembled is displayed.

DSNZPARM Module
The DSNZPARM module name specified for DB2 startup.

Initial Module
The name of the initial DSNZPARM load module.

Previous Module
The name of the previous DSNZPARM load module.

Assembly Date
The date on which this module was assembled.
From DSN6SYSP

Size of Local Trace Table (TRACLOC)
Determines a multiple of 4K that determines the size of the local trace tables.

Parallel Task AcctRollup
Indicates whether to roll up the accounting trace of the query parallel tasks into the accounting trace of the originating task. Valid values:
- **Yes**: The originating task cuts an additional accounting trace record with all the roll-up values from parallel tasks.
  - This is the default value.
- **No**: Each parallel task produces its own accounting trace.

Measured Usage Pricing
Indicates whether DB2 is tracking for measured usage pricing.
Default value: NO

DB2 OTC License Term (OTC_LICENSE)
Determines whether this DB2 subsystem or data sharing member operates under an OTC license. The terms of the OTC license are accepted. Valid values:
- **Not used**: Indicates that an OTC license is not in effect on this DB2.
  - This is the default value.
- **Terms accepted**: Indicates that an OTC license is in effect on the DB2 and that the owner accepts the terms of that license. To view the terms, see the member DSNTIPO1 of the SDSNSPPFP target library for this version of DB2.

Trackmod Implicit TS
Determines whether DB2 tracks modifications to the pages of implicitly created table spaces.
This setting pertains only to the base table spaces. It is not used for implicitly created LOB or XML table spaces. Valid values:
- **Yes**: Implicit table spaces are created. DB2 tracks changed pages in the space map pages to improve the performance of incremental image copy.
- **No**: DB2 does not track changed pages in the space map pages. To determine whether a page is changed, the LRSN value is used.

Max DSSIZE Implicit TS
Determines the maximum DSSIZE in gigabytes that can be used by DB2 for creating each partition of an implicitly created base table space.

From DSN6LOGP

Offload Option
Determines whether online initiation of the offload process is used. Valid values: YES or NO.
- Default: YES
MSS Volume Group 1 Name
The name of the mass storage system volume group 1. DB2 10 only.

MSS Volume Group 2 Name
The name of the mass storage system volume group 2. DB2 10 only.

From DSN6PRM

Enable Database Check
Determines whether additional internal checking is performed to
determine whether the database manager is producing defective data or
index records. Internal checking increases the cost of a database request,
however, it provides early detection of system errors that might produce
incorrect data. Valid values: YES or NO.
Default: NO.

Utility Cache Option
Determines whether the sequential prestage function of 3990 sequential
caching for utilities is used.
DB2 10 only.

3990-3 Seq Cache
Determines whether sequential mode to read cached data from a 3990
controller is used.
DB2 10 only.

Disable Code Page Protect
Determines whether Code Page Protect is used.

Varchar from Index
Determines whether DB2 can return data from an index key for a varying
length column. DB2 10 only.

Outer Join Perf Enh
Determines whether outer join performance enhancements are used. DB2
10 only.

Minimum RID Lists
The minimum number of RID blocks in the DB2 subsystem.

NPAGES Threshold
The NPAGES threshold for optimizer.

Star Join Threshold
Determines the minimum number of tables in a query block before DB2
considers the query block for star join. Star join must be enabled before
DB2 can use this system parameter. Valid values:

0   Star join is enabled for a query block with 10 or more tables.
    This is the default setting.

1,2,3   Star joins is enabled.

4-225   Star join is enabled if the query block contains a minimum of this
        number of tables.

226-32767   Star join is not enabled.
SMS Data Class for TS
The SMS data class name that is used by DB2 when a cluster for a table space is defined. If this value is blank, a data class name is not used. DB2 10 only.

SMS Data Class for IX
The SMS data class name that is used by DB2 when a cluster for an index is defined. If this value is blank, a data class name is not used. DB2 10 only.

MIN SCALE DECIMAL DIVIDE
The minimum scale for the result of a decimal division.
Valid values: None (default), 3, or 6. If 3 or 6 is specified, this parameter overrides the DECDIV3 parameter.

Max RDS OP Pool (QWP4MXOS)
The maximum amount of RDS op pool storage in MB to be used by the DB2 Optimizer. Valid values: 0 to 100. If 0 is specified, DB2 uses the maximum of 100. Default: 20.

Max CPU Sec OP Use (QWP4MXOC)
The maximum amount of CPU time in seconds to be used by the DB2 Optimizer. Valid values: 0 to 500. If 0 is specified, DB2 uses the maximum of 500. Default: 100.

Disable SQLWARN1,5 (QWP4DSCM)
Do not set SQLWARN1, SQLWARN4 and SQLWARN5 after the scrollable cursor has been successfully opened. DB2 10 only.

Max Entry Seclabel Cache (QWP4SCLC)
Maximum number of entries in the SECLABEL cache. Used to avoid RACROUTE REQUEST=DIRAUTH REQUESTS.

Max Numb in IN-List (QWP4INLP)
The maximum number of elements in an IN-List for an in-list predicate to be optimized. If the IN-List contains this number or fewer elements, it is optimized in the following ways:
- The IN-List predicated is pushed down into a materialized view or table expression
- A correlated IN-List predicate in a subquery that is generated by transitive closure can be moved up to the parent query block.
Valid values: 0 to 5000. 0 means that no optimization occurs. The default is 50.

Recover to Point-in-Time (QWP4RPTC)
Recover to Point-In-Time with consistency.

(UNION_COLNAME_7) (QWP4UNM7)
The SQLNAME field in the SQLDA after a query describe in which the result table is the result of a union, is the name of the column from the first subquery of the union.

Statistics Cluster
Defines whether enhanced clustering is used. DB2 10 only.

(CACHEDYN_FREELOCAL)
Determines whether statements from the dynamic statement cache can be freed by DB2 to relieve storage constraints below the 2GB bar.
This parameter applies only for packages or plans that are bound with KEEPDYNAMIC(YES).

Valid values:

- 0  Statements cannot be freed from the cache.
- 1  Statements can be freed from the cache.

DB2 10 and DB2 11 only.

**MAX_CONCURRENT_PKG_OPS**

The maximum number of package requests that can be processed simultaneously.

**HONOR_KEEPDICTIONARY** (QWP4HKPD)

Valid values: YES, NO.

**INDEX_IO_PARALLELISM**

Determines whether index I/O parallelism is enabled. DB2 10 and DB2 11 only.

**Z/OS Metrics**

Determines whether the gathering of Z/OS metrics through the RMF interface is enabled.

**OPT I/O Weighting**

Determines whether the optimizer I/O weighting is enabled. DB2 10 only.

**Enable Pair-wise Join**

Determines whether pair-wise join is enabled.

**REALSTORAGE_MAX** (QWP4RSMX)

Maximum amount of real plus auxiliary storage that can be used.

**RESTRICT_ALT_COL_FOR_DCC** (QWP4RACD)

Restrict_Alt_Col_For_DCC.

**DISALLOW_DEFAULT_COLLID** (QWP4DDCI)

Disallow default collection ID. DB2 10 only.

**I/O Scheduling feature**

Determines whether the I/O scheduling feature is activated.

**Correlation ID Monitor** (QWP4OZCI)

Online system parameter correlation ID monitor.

**User ID Monitor**

Online system parameter user ID monitor.

If QWP4OZUS_OFF is not 0, this value is truncated. If QWP4OZUS is truncated, this is the offset from the beginning of QWP4 TO QWP4OZUS_LEN.

**Value for Trigger Drain** (QWP4TDDN)

Value for trigger drain.

**Max # of DDS withhold** (QWP4MDDN)

Maximum number of DDS with HOLD.

**Field Procs for TB Block**

The number of field procs for Describe Table Block.

**Max NotFound Hash Records** (QWP4KNFC)

Maximum number of "Not Found" hash records.
Max Extend Service Tasks (QWPPEST)
Maximum extend service tasks.

Max ZIVLEMPEL Dict Entry (QWP4MDE)
Maximum number of ZIVLEMPEL dictionary entries.

ProjectZ Insert Threshold (QWP4ZTN)
Project Z insertion threshold.

Default index type (S) (QWP4DXTP)
Default index type (type 1 or type 2).

(OPT1ROWBLOCKSORT)
Determines for queries that use the option Optimize For 1 Row whether all access paths that require sorting are blocked if there is at least one access path that avoids sorting.

Valid values:

Enable
If the option Optimize For 1 Row is used with a query, the option Sort Access Paths is disabled if a No-Sort choice is available.

Disable
It is unlikely that Sort Access Paths is chosen by DB2. However, a Sort Access Path might win.

(SUBQ_MIDX)
Determines whether Multiple Index Access for queries that have subquery predicates is enabled.

(ACCELMODEL) (QWP4ACMO)
Specifies whether to enable the modeling of query workloads for evaluating the potential savings for both accumulated elapsed time and processor time if the plan is run on an accelerator server.

Only queries that DB2 deems eligible to run on an accelerator server are included in the accelerator-related fields of accounting trace IFCID 3. Valid values are:

NO (default)
Modeling is not done.

YES
Modeling is done. This value applies only when the following requirements are also met:

• The value of the QUERY ACCELRATION subsystem parameter value is NONE, ENABLE, ENABLE WITH FAILBACK or ELIGIBLE
• The CURRENT GET_ACCEL_ARCHIVE special register value is NO.
• The GET_ACCEL_ARCHIVE subsystem parameter value is NO
If other values are specified, DB2 tries to accelerate queries instead of doing accelerator modeling.

(AUTH_COMPATIBILITY) (QWP4AUTCSU)
The AUTH_COMPATIBILITY parameter specifies whether the default authorization check is overridden when users request to use the UNLOAD utility. Valid values:

NO for blank (default)
Indicates that AUTH_COMPATIBILITY has no effect and that there is no authorization check override.
YES for SELECT_FOR_UNLOAD
When this value is specified, the UNLOAD utility checks if the user has the SELECT privilege on the target table. When this value is not specified, the UNLOAD utility checks if the user has the UNLOAD privilege on the target table.

DB2 12 and later.

(CHECK_FASTREPLICATION) (QWP4CFRP)
Specify the type of replication to be used by DSSCOPY when invoked by the DB2 check utilities to copy objects to shadow data sets. The check utilities use DSSCOPY to copy DB2 objects to shadow data sets for processing and can stipulate fast replication as either preferred or required. Valid values are:

REQUIRED (default)
The check utilities force DSSCOPY to use fast replication ensuring that object copies occur as quickly as possible. This reduces the opportunity for resource contention and unavailability. This option causes the check to fail if flash copy cannot be used.

PREFERRED
The check utilities direct DSSCOPY to use fast replication only if flash copy support is available.

NONE

XML_RESTRICT_EMPTY_TAG (QWP4NOET)
Specifies whether DB2 always serializes an empty XML element using a start-element tag followed by an end-element tag.

Valid values are NO and YES. NO is the default.

A value of NO means that DB2 serializes an empty XML element in either of the following ways:
• As a start-element tag followed by an end-element tag. For example
  <emptyElement></emptyElement>
• As an empty-element tag. For example:
  <emptyElement/>

A value of YES means that DB2 always serializes an empty XML element as a start-element tag followed by an end-element tag. For example:
  <emptyElement></emptyElement>

DB2 12 and later.

(PREVENT_NEW_IXCTRL_PART) (QWP4PCIP)
The PREVENT_NEW_IXCTRL_PART subsystem parameter determines whether DB2 disallows the creation of new index-controlled partitioned tables. This subsystem parameter ensures that new partitioned tables use table-controlled partitioning, which is the preferred partitioning method for non-universal tablespaces. Valid values:

NO Specifies that new index-controlled partitioned tables can be created.

YES Specifies that new partitioned table spaces must use table-controlled partitioning. A CREATE INDEX statement must not attempt to create an index-controlled partitioned table.
(SUPPRESS_HINT_SQLCODE_DYN) (QWP4SHDE)
Specifies whether DB2 suppresses SQLCODE +394 and SQLCODE +395 when specified access paths are applied for dynamic SQL statements.

NO (default)
Specifies that DB2 issues SQLCODEs +394 and +395 for statement-level access paths and PLAN_TABLE access paths.

STMT
Specifies that DB2 suppresses SQLCODEs +394 and +395 for statement-level access paths for dynamic SQL statement.

ALL
Specifies that DB2 suppresses SQLCODEs +394 and +395 for statement-level access paths and PLAN_TABLE access paths for dynamic SQL statements.

The SUPPRESS_HINT_SQLCODE_DYN subsystem parameter does not apply to static SQL statements or dynamic EXPLAIN statements.

(LIKE BLANK INSIGNIFICANT) (QWP4LBIN)
Specifies whether blanks are significant when applying the LIKE predicate to a string. If set, the blank insignificant behavior applies. Valid values: YES, NO. The default is NO.

(SIMULATED_CPU_COUNT) (QWP4NCPU)
Specifies the number of CPUs that are being simulated. This parameter is to be used for DB2 optimization modeling only. Valid values are OFF and numbers 1 - 255. The parameter is online changeable.

The default value, OFF, means that DB2 optimizes for the number of CPUs on which it is running. This setting is recommended for production environments.

(SIMULATED_CPU_SPEED) (QWP4CPUM)
Specifies the microseconds of execution time for tasks or service request blocks (SRBs) per service unit for the CPU that is being simulated. This parameter is used only for DB2 optimization modeling. Valid values:

OFF
DB2 optimizes for the CPU on which it is running. Use this setting in production environments.

1 - 2,147,483,647
Microseconds of execution time for tasks or service request blocks (SRBs) per service unit for the CPU that is being simulated. For values 1 - 27, DB2 uses a value of 27.

(MATERIALIZE_NODET_SQLTIDF) (QWP4MNSU)
Specifies whether the DB2 database manager materializes the result of a user-defined SQL table function that is defined as NOT DETERMINISTIC. Valid values are:

NO (default)
The DB2 database manager does not materialize the result of a user-defined SQL table function that is defined as NOT DETERMINISTIC.

YES
The DB2 database manager materializes the result of a user-defined SQL table function that is defined as NOT DETERMINISTIC. Use this setting to avoid errors in processing SQL statements that reference those user-defined SQL table functions

DB2 12 and later.
Enable SQL Interrupt

Determines whether SQL Interrupt processing is enabled.

Typically, this parameter is not modified unless remote client systems experience SQL interrupt-oriented failures and a disablement of the DB2 SQL Interrupt support is required until the remote client systems can be modified to tolerate this behaviour.

Default: Enable.

(PRIVATE_PROTOCOL)

Determines the DB2 behaviour that is relative to legacy private protocol usage.

NO

Does not allow private protocol-related behaviour.

Indicates that plan owner-based package execution authorization semantics that might affect DB2 for z/OS DRDA requester systems that might rely on it are not honored.

Secondary IDs are utilized to determine package execution privileges that are relative to remote DB2 for z/OS applications.

This is the default value.

AUTH

Allows private protocol-related plan owner-based package authorization behaviour.

Indicates that plan owner-based package execution authorization semantics are honored for the benefit of DB2 for z/OS DRDA requester systems that might rely on it.

Secondary IDs are not utilized to determine package execution privileges that are relative to remote DB2 for z/OS applications.

(DDF_COMPATIBILITY) (QWP9DDFCIP)

Determines whether DDF behavior for compatibility with previous releases is enabled.

Valid options are:

IDNTFY_V10_PRIOR_VER (DB2 10 only) IDNTFY_V11_PRIOR_VER (DB2 11 only)

Return information to ALL remote clients to reflect new-function support and product signature of previous version from where DB2 was migrated. DB2 identifies itself as the previous version. Does not apply in NFM. Applies only in CMn/ENFM and CMn*/ENFM*.

IDNTFY_V12_PRIOR_VER (DB2 12 only)

Specifies a DB2 12 server for which the new function has not been activated to identify itself to all remote clients as a DB2 11 server in new-function mode.

null

The DDF_COMPATIBILITY parameter has no effect and DB2 12 new function behavior is used for all applications.

DISABLE_IMPCAST_JV

Specifies that the DB2 for z/OS server disables implicit casting of input host variables from numeric data types to string data types, or from string data types to numeric data types, when the
application is a Java client application that uses the IBM Data
Server Driver for JDBC and SQLJ. If DISABLE_IMPCAST_JV is not
specified, DB2 enables implicit casting of input host variables from
numeric data types to string data types, or from string data types
to numeric data types.

**IGNORE_TZ**
Specifies that the time zone information is ignored during
boundary error checking for TIMESTAMP WITH TIME ZONE
input variables when the target data type is TIMESTAMP and the
client driver is IBM Data Server Driver for JDBC and SQLJ.
IGNORE_TZ is deprecated. In DB2 11, IGNORE_TZ is effective
only if application compatibility is set to V10R1. DB2 V12 and later.

**SP_PARMS_NJV**
Specifies that when a non-Java client application calls a DB2 for
z/OS stored procedure, DB2 returns output argument values with
data types that match the data types of the corresponding CALL
statement arguments, unless either of the following conditions are
true:

- The non-Java client is Version 10 or later.
- The stored procedure uses a parameter data type that was
  introduced in DB2 10 (XML, TIMESTAMP WITH TIMEZONE, or
  TIMESTAMP with precision greater than 6).

If either condition is true, DB2 returns output parameter values
with data types that match the data types of the parameters in the
stored procedure definition.

If SP_PARMS_NJV is not specified, DB2 returns output parameter
values with data types that match the data types of the parameters
in the stored procedure definition.

SP_PARMS_NJV is deprecated. DB2 ignores this value if
application compatibility is set to V11R1 or later.

From DSNHDECP

**DB2 Supplied DECP Indic (DB2SUPLD) (QWPBDB2S)**
DB2-supplied DECP indication.

**Charset Default (CHARSET) (QWPBCHAR)**
Character set default. DB2 10 only.

**Others**

**Space Above DB2 Leave Available**
The amount of space that is kept available by DB2 for critical tasks.

**Space Reserved for Critical Work**
The amount of space that is reserved for critical work that must be
completed.

**Space Reserved for z/OS Functions**
The amount of space that is reserved for z/OS functions.

**Extended Datestamp Indicator**
Determines whether the time stamp archive log data sets with the date in
the format YYYYDDDD are used.
New Function Mode
Determines whether subsystem is in the New Function mode.

Lock Manager Information
This panel shows information about current locking activity and claims and drains.

<table>
<thead>
<tr>
<th>ZLOKM</th>
<th>VTM</th>
<th>O2</th>
<th>V540</th>
<th>SE12</th>
<th>11/05/13 16:11:04</th>
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<tr>
<td>Help PF1</td>
<td>Back PF3</td>
<td>Up PF7</td>
<td>Down PF8</td>
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</tr>
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</table>

**LOCK MANAGER INFORMATION**

- **LOKM**
  - Collection Interval: REALTIME
  - Report Interval: 2 sec

<table>
<thead>
<tr>
<th></th>
<th>TOTAL</th>
<th>INTERVAL</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
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<td>QUANTITY</td>
<td>QUANTITY</td>
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<td>(1)</td>
<td>(0)</td>
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<td>.00</td>
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<td>.00</td>
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<td>Timeouts Detected</td>
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<td>Susp Detected - Lock Only</td>
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<td>.00</td>
<td>.00</td>
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<td>.00</td>
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<td>Susp Detected - Other</td>
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<tr>
<td>Unsuccessful Drain Requests</td>
<td>0</td>
<td>0</td>
<td>.00</td>
<td>.00</td>
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</tr>
</tbody>
</table>

**Navigation**

For additional information about

- global lock information, select option **B-GLOBAL LOCK STATISTICS** at the top of the panel.
- Near-term history activity, select option **H-HISTORICAL** at the top of the panel.
- other topics, use the PF keys.

**Fields**

**Collection Interval**

This field displays REALTIME to indicate that you are looking at the realtime version of this panel and not at the corresponding near-term history panel. The collection interval and the report interval are the same in this panel.

**Start**
The start time of the report interval currently displayed.

**Report Interval**
The time in the last cycle (for example, between two presses of the Enter key).

**End**
The end time of the report interval currently displayed.
For each of the following fields, the following statistics values are provided:

**TOTAL QUANTITY**
Total quantity, which reflects the amount of activities since DB2 was started.

**INTERVAL QUANTITY**
Interval quantity, which reflects the amount of activities during the last cycle.

**/SECOND**
Rate per second during the last cycle. The number under /SECOND (in parentheses) is the number of seconds in the interval.

**/THREAD**
Rate per thread during the last cycle. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.

**/COMMIT**
Rate per Commit during the last cycle. The number under /COMMIT (in parentheses) is the number of commit requests (including abort requests) during the interval.

**Lock manager information:**

Deadlocks detected
The number of deadlocks detected.

Timeouts detected
Occasions when suspension of a unit of work lasted longer than the Internal Resource Lock Manager (IRLM) timeout value.

Susp detected - lock only
Suspensions of a unit of work because a lock could not be obtained.

Susp detected - latch only
Db2 internal latch suspensions.

Susp detected - other
Suspensions caused by something other than locks and latches.

Lock escalations - to shared
Occasions when the allowable number of locks per tablespace was exceeded, causing a page (IS) lock to escalate to a shared (S) lock.

Lock escalations - to exclusive
Occasions when the allowable number of locks per tablespace was exceeded, causing a page (ix) lock to escalate to an exclusive (x) lock.

Lock requests
Requests to IRLM to obtain a lock on a resource.

Unlock requests
Requests to IRLM to unlock a resource.

Query requests
Requests to IRLM to query a lock.

Change requests
Requests to IRLM to change a lock.

Other irlm requests
Requests to IRLM to perform a function other than those listed before.
Claim/drain information:

Claim requests
Number of claim requests.

Unsuccessful claim requests
Number of unsuccessful claim requests.

Drain requests
Number of drain requests.

Unsuccessful drain requests
Number of unsuccessful drain requests.

Global Lock Statistics
This panel shows information about current global locking activity in a data sharing environment.

```
GLOBAL LOCK STATISTICS

GLOK
+ Collection Interval: REALTIME Start: 09/10 13:46:49
+ Report Interval: 3 sec End: 09/10 13:47:05
+
+ Total Global Contention = .5% P-Lock/Notify Engines = 500
+ False Contention = .1%
+
+ TOTAL QUANTITY INTERVAL (SECOND) /THREAD /COMMIT
--------- ----------- ----------- ----------- -----------
+ P-Lock Lock Requests 3972 0 .00 .00 .00
+ P-Lock Change Requests 193 0 .00 .00 .00
+ P-Lock Unlock Requests 3386 0 .00 .00 .00
+
+ XES Lock Requests 60530 18 6.00 .00 .00
+ XES Change Requests 7326 0 .00 .00 .00
+ XES Unlock Requests 60764 18 6.00 .00 .00
+ XES Asynchronous Requests 28 0 .00 .00 .00
+
+ Suspend-IRLM Global Contention 452 0 .00 .00 .00
+ Suspend-XES Global Contention 0 0 .00 .00 .00
+ Suspend-False Contention 162 0 .00 .00 .00
+
+ Negotiate Pageset P-Locks 82 0 .00 .00 .00
+ Negotiate Page P-Locks 0 0 .00 .00 .00
+ Negotiate Other P-Locks 62 0 .00 .00 .00
+ Negotiate P-Lock Change 128 0 .00 .00 .00
+
+ Incompatible Retained Locks 0 0 .00 .00 .00
+ Notify Messages Sent 719 0 .00 .00 .00
+ Notify Messages Received 942 0 .00 .00 .00
+ Engine Not Available 0 0 .00 .00 .00
+ Very Conditional Rejections 0 0 .00 .00 .00
```

Navigation
For additional information about:

- Lock information, select option A-LOCK STATISTICS at the top of the top of the panel.
• Near-term history activity, select option **H-HISTORICAL** at the top of the panel.
• Other topics, use the PF keys.

**Fields**

**Collection Interval**
This field displays **REALTIME** to indicate that you are looking at the realtime version of this panel and not at the corresponding near-term history panel. The collection interval and the report interval are the same in this panel.

**Start**
The start time of the interval currently displayed.

**Report Interval**
This field determines the report interval. It is set on the Near-Term History Report Option panel.

**End**
The end time of the interval currently displayed.

**Total Global Contention**
The percent of synchronous XES lock, change, or unlock requests that resulted in global contention.

**False Contention Percentage**
The rate of false contentions to real contentions. This number should be no more than 50%.

**P-Lock/Notify Engines**
The number of engines available for P-lock exit or notify exit requests.

For each of the following fields, the following statistics values are provided:

**TOTAL QUANTITY**
Total quantity, which reflects the amount of activities since DB2 was started.

**INTERVAL QUANTITY**
Interval quantity, which reflects the amount of activities during the last cycle.

**/SECOND**
Rate per second during the last cycle. The number under **/SECOND** (in parentheses) is the number of seconds in the interval.

**/THREAD**
Rate per thread during the last cycle. The number under **/THREAD** (in parentheses) is the number of Create Threads during the interval.

**/COMMIT**
Rate per Commit during the last cycle. The number under **/COMMIT** (in parentheses) is the number of commit requests (including abort requests) during the interval.

**P-lock Lock Requests**
Number of lock requests for P-locks.

**P-lock Change Requests**
Number of change requests for P-locks.

**P-lock Unlock Requests**
Number of unlock requests for P-locks.

**XES Lock Requests**
The number of lock requests (both logical and physical) that are propagated to MVS XES synchronously under the caller’s execution unit.
This count does not include suspended requests. Only the most restrictive lock for a particular resource is propagated to XES and the coupling facility.

**XES Change Requests**
The number of change requests (both logical and physical) that are propagated to MVS XES synchronously under the caller's execution unit. This count does not include suspended requests.

**XES Unlock Requests**
The number of unlock requests (both logical and physical) that are propagated to MVS XES synchronously under the caller's execution unit. This count does not include suspended requests.

**XES Asynchronous Requests**
The number of L-locks and P-locks propagated to XES asynchronously. This occurs when a new inter-DB2 interest occurs on a parent resource or when a request completes after the requestor's execution unit has been suspended.

**Suspends-IRLM Global Contention**
The number of suspends due to Internal Resource Lock Manager (IRLM) global resource contentions. IRLM lock states were in conflict and inter-system communication is required to resolve the conflict.

**Suspends-XES Global Contention**
The number of suspends due to MVS XES global resource contentions that were not IRLM-level contentions. The XES lock states were in conflict, but the IRLM lock states were not.

**Suspends-False Contention**
The number of suspends caused by MVS XES false contentions. XES detects hash class contention when two different locks on different resources hash to the same entry in the coupling facility lock table. The requester is suspended until it is determined that no real lock contention exists.

**Negotiate Pageset P-Locks**
The number of times this DB2 member was driven to negotiate a pageset/partition P-lock because of changing inter-DB2 interest levels on the pageset/partition.

**Negotiate Page P-Locks**
The number of times this DB2 member was driven to negotiate a page P-lock because of inter-DB2 P-lock contention.

**Negotiate Other P-Locks**
The number of times this DB2 member was driven to negotiate a P-lock type other than pageset/partition or page.

**Negotiate P-Lock Change**
The number of times a P-lock change request was issued during P-lock negotiation.

**Incompatible Retained Locks**
The number of global lock or change requests that failed because of an incompatible retained lock. Certain P-locks can be retained because of a system failure. Another DB2 member cannot access the data that the retained P-lock is protecting unless it requests a P-lock in a compatible state.
**Notify Messages Sent**

The number of notify messages sent.

**Notify Messages Received**

The number of notify messages received.

**Engine Not Available**

The number of times an engine was not available for a P-lock exit or a notify exit request.

**Very Conditional Rejections**

The number of rejections of very conditional requests which could not get processed because of the heuristic algorithm used by XES.

**SQL/RID Pool/Parallelism/Stored Procedure Information**

This panel shows information about the current SQL, RID pool, Parallelism, and Stored Procedure activities.

<table>
<thead>
<tr>
<th>SQLC</th>
<th>VTM</th>
<th>O2</th>
<th>V540./I</th>
<th>SE11</th>
<th>07/16/13 15:21:01 2</th>
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</thead>
<tbody>
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<td>SQLC</td>
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<td>SQL Manipulative (DML)</td>
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<td></td>
</tr>
<tr>
<td>SQL Control (DCL)</td>
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<tr>
<td>+</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Notify Messages Received**

The number of notify messages received.

**Engine Not Available**

The number of times an engine was not available for a P-lock exit or a notify exit request.

**Very Conditional Rejections**

The number of rejections of very conditional requests which could not get processed because of the heuristic algorithm used by XES.

**SQL/RID Pool/Parallelism/Stored Procedure Information**

This panel shows information about the current SQL, RID pool, Parallelism, and Stored Procedure activities.
<table>
<thead>
<tr>
<th>SQL Definitional (DDL)</th>
<th>TOTAL QUANTITY</th>
<th>INTERVAL QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
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</tr>
<tr>
<td>Max Total Storage</td>
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<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
</tr>
<tr>
<td>HWM DGTW WF Stor (KB)</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
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<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Curr DGTW WF Stor (KB)</td>
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</tr>
<tr>
<td>Curr WF Storage (KB)</td>
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<tr>
<td>Storage in 4K TS</td>
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<td>Storage in 32K TS</td>
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<td>32K used instead of 4K</td>
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<tr>
<td>4K used instead of 32K</td>
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<tr>
<td>HWM DM WF Count</td>
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<td>N/A</td>
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<tr>
<td>HWM NSort WF Count</td>
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<td>N/A</td>
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<td>N/A</td>
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<tr>
<td>Curr DM WF Count</td>
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<tr>
<td>Curr Sort WF size (KB)</td>
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<td>N/A</td>
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</tr>
</tbody>
</table>

**Navigation**

For additional information about

- Near-term history activity, select option **H-HISTORICAL** at the top of the panel.
- other topics, use the PF keys.

**Fields**

**Collection Interval**

This field displays REALTIME to indicate that you are looking at the real-time version of this panel and not at the corresponding near-term history panel.

The collection interval and the report interval are the same in this panel.

**Start** The start time of the report interval currently displayed.

**Report Interval**

The time in the last cycle (for example, between two presses of the Enter key).

**End** The end time of the report interval currently displayed.

**Maximum Degree of Parallelism Executed**

The maximum degree of parallel I/O processing for all parallel groups. This is a high-water mark.

For each field described below the following statistics are provided:

- The amount of activities that occur during the interval.
- Rate per minute during the last cycle. The number under /MINUTE is the number of minutes in the interval.
• Rate per thread during the last cycle. The number under /THREAD is the number of Create Threads during the interval.
• Rate per Commit during the last cycle. The number under /COMMIT is the number of commit requests (including abort requests) during the interval.
• Percentage of DML, DCL, or DDL during the last cycle.

SQL Manipulative (DML):

SELECT
SELECT statements executed to retrieve rows from a DB2 table.

INSERT
INSERT statements executed to add rows to a DB2 table.

UPDATE
UPDATE statements executed to alter existing rows in a DB2 table.

MERGE
The number of times a MERGE statement is executed.

DELETE
DELETE statements executed to remove rows from a DB2 table.

DESCRIBE
DESCRIBE statements executed to obtain information about prepared SQL statements.

DESCRIBE TABLE
DESCRIBE TABLE statements executed to obtain information about a table or view.

PREPARE
Occasions when SQL statements were dynamically prepared for execution.

OPEN CURSOR
OPEN statements executed to prepare cursors for subsequent Fetch operations.

FETCH
FETCH statements executed to retrieve rows from DB2 tables.

CLOSE CURSOR
CLOSE statements executed to close previously opened cursors.

REFRESH TABLE
Number of refresh table statements. DB2 12 and later. (Field name: QXTREFTBL)

Total DML
All data manipulative language statements.

SQL Control (DCL):

CALL
CALL statements executed to invoke a stored procedure.

CONNECT (Type 1)
CONNECT (Type 1) statements executed to connect an application process to a designated server.

CONNECT (Type 2)
CONNECT (Type 2) statements executed to connect an application process to a designated server.
GRANT
GRANT statements issued to extend DB2 privileges to users.

LOCK TABLE
LOCK TABLE statements issued to lock a tablespace or table in a segmented tablespace.

RELEASE
RELEASE statements executed to place one or more connections in the released state.

REVOKE
REVOKE statements issued to revoke users’ DB2 privileges.

SET CONNECTION
SET CONNECTION statements executed to establish the application server of the process.

SET CURRENT DEGREE
SET CURRENT DEGREE statements executed to assign a value to the CURRENT DEGREE special register.

SET CURRENT RULES
SET CURRENT RULE statements executed to assign a value to the current rules special register.

SET CURRENT SQLID
SET CURRENT SQLID statements issued to change your current authorization ID.

SET HOST VARIABLE
SET host-variable statements issued.

SET CURRENT PATH
SET CURRENT PATH statements issued to assign a value to the CURRENT PATH special register.

SET CURRENT PRECISION
The number of Set Current Precision statements.

ASSOCIATE LOCATOR
The number of ASSOCIATE LOCATOR statements issued.

ALLOCATE CURSOR
The number of ALLOCATE CURSOR statements issued.

HOLD LOCATOR
The number of Hold Locator statements.

FREE LOCATOR
The number of Free Locator statements.

TRANSFER OWNERSHIP
Number of transfer ownership statements. DB2 12 and later. (Field name: QXTRNOWN)

Total DCL
All data control language statements.

SQL Definitional (DDL):
CREATE TABLE
CREATE TABLE statements issued to define a DB2 table.
CREATE GBL TEMP TABLE
   The number of Create Global Temporary Table statements issued to create a description of a temporary table at the current server.

DCL GBL TEMP TABLE TH
   The number of SQL Declare Global Temporary Table statements.

CREATE AUX TABLE
   The number of Create Auxiliary Table statements.

CREATE INDEX
   CREATE INDEX statements issued to establish indexes on DB2 tables.

CREATE TABLESPACE
   CREATE TABLESPACE statements issued to establish DB2 tablespaces.

CREATE DATABASE
   CREATE DATABASE statements issued to establish DB2 databases.

CREATE STOGROUP
   CREATE STOGROUP statements issued to establish DB2 storage groups.

CREATE SYNONYM
   CREATE SYNONYM statements issued to create alternate names for DB2 tables and views.

CREATE VIEW
   CREATE VIEW statements issued to establish views of DB2 tables.

CREATE ALIAS
   CREATE ALIAS statements issued to achieve "location transparency" of DB2 tables. This field is used primarily to refer to tables and views from remote DB2 subsystems in a distributed environment.

CREATE TRIGGER
   CREATE TRIGGER statements issued to define a trigger in a schema and build a trigger package at the current server.

CREATE DISTINCT TYPE
   CREATE DISTINCT TYPE statements issued to define a distinct type, which is a data type that a user defines. A distinct type must be sourced on one of the built-in data types.

CREATE FUNCTION
   CREATE FUNCTION statements issued to register a user-defined function with an application server. You can register the following types of functions with this statement: external scalar, external table, and sourced.

CREATE PROCEDURE
   CREATE PROCEDURE statements issued to define a stored procedure.

CREATE SEQUENCE
   The number of Create Sequence statements.

CREATE ROLE
   The number of Create Role statements.

CREATE TRUSTED CTX
   The number of Create Trusted CTX statements.

CREATE MASK/PERM
   The number of Create Mask or Create Permission statements.

CREATE VARIABLE
   The number of Create Variable statements. DB2 11 and later.
DROP TABLE
   DROP TABLE statements issued to remove tables from DB2 databases.

DROP INDEX
   DROP INDEX statements issued to remove indexes from DB2 tables.

DROP TABLESPACE
   DROP TABLESPACE statements issued to delete tablespaces.

DROP DATABASE
   DROP DATABASE statements issued to delete databases.

DROP STOGROUP
   DROP STOGROUP statements issued to delete storage group definitions.

DROP SYNONYM
   DROP SYNONYM statements issued to delete alternative table names and
   view names.

DROP VIEW
   DROP VIEW statements issued to delete table views.

DROP ALIAS
   DROP ALIAS statements issued to delete view and table aliases from the
   DB2 catalog.

DROP PACKAGE
   DROP PACKAGE statements issued to delete packages.

DROP TRIGGER
   DROP TRIGGER statements issued to delete triggers.

DROP FUNCTION
   DROP FUNCTION statements issued to delete user-defined functions.

DROP DISTINCT TYPE
   DROP DISTINCT TYPE statements issued to delete user-defined data
   types.

DROP PROCEDURE
   DROP PROCEDURE statements issued to delete stored procedures.

DROP SEQUENCE
   The number of Drop Sequence statements.

DROP TRUSTED CTX
   The number of Drop Trusted CTX statements.

DROP ROLE
   The number of Drop Role statements.

DROP MASK/PERM
   The number of Drop Mask or Drop Permission statements.

DROP VARIABLE
   The number of Drop Variable statements. DB2 11 and later.

ALTER TABLE
   ALTER TABLE statements issued to change table attributes.

ALTER INDEX
   ALTER INDEX statements issued to change index attributes.

ALTER TABLESPACE
   Alter Tablespace statements issued to change tablespace attributes.
ALTER STOGROUP
ALTER STOGROUP statements issued to add devices to and delete devices from storage groups.

ALTER VIEW
Number of Alter View statements.

ALTER DATABASE
ALTER DATABASE statements issued to change database attributes.

ALTER FUNCTION
ALTER FUNCTION statements issued to change the description of an external scalar or external table function at the current server.

ALTER PROCEDURE
ALTER PROCEDURE statements issued to change the description of a stored procedure at the current server.

ALTER SEQUENCE
The number of Alter Sequence statements.

ALTER TRUSTED CTX
The number of Alter Trusted CTX statements.

ALTER JAR
The number of Alter Jar statements.

ALTER MASK/PERM
The number of Alter Mask or Alter Permission statements.

RENAME TABLE
RENAME TABLE statements issued to rename an existing table.

RENAME INDEX
The number of Rename Index statements.

TRUNCATED TABLE
The number of Truncated Table statements issued to rename an existing table.

COMMENT ON
COMMENT ON statements issued to add or replace comments for user-defined objects (tables, views, columns, and sets of columns) in the DB2 catalog.

LABEL ON
LABEL ON statements issued to add or replace labels in DB2 catalog descriptions of tables, views, columns, and sets of columns.

Total DDL
All Data Definition Language statements.

RID List Processing: For each field described below the following statistics are provided:
- The amount of activities that occur during the interval.
- Rate per minute.
- Rate per thread.
- Rate per Commit.

For high water mark fields, N/A is displayed for rate fields. For interval quantity fields, the high water mark value is displayed at the end of the interval.
Successful
Number of times RID list processing was used when accessing a DB2 table. This field is incremented once for a given table access for Index Access with list prefetch and for Multiple Index Access.

Not Used (No Storage)
Number of times RID list processing was terminated because of insufficient storage to hold the list of RIDs.

Not Used (Max Limit)
Number of times RID list processing was terminated because the number of RIDs would exceed a RID limit or threshold.

To WF (No Storage)
The number of times a RID list overflows to a work file because RIDPOOL storage is not available to hold the list of RIDs.

To WF (Max Limit)
The number of times a RID list overflows to a work file because the number of RIDs exceeds internal limits.

Interrupted (No Stor)
The number of times a RID list append for a Hybrid Join is interrupted because RIDPOOL storage is not available to hold the list of RIDs. This is the number of times DB2 interrupted the RID phase and switched to the Data phase.

Interrupted (Max Lmt)
The number of times a RID list append for a Hybrid Join is interrupted because the number of RIDs exceeds internal limits. This is the number of times DB2 interrupted the RID phase and switched to the Data phase.

Skipped (Adaptive IX)
The number of times a DM is not called for RID list retrieval for multiple index access or LPF because it was not necessary due to Runtime Adaptive Index processing being able to predetermine the outcome. DB2 12 and later. (Field name: QXRSDMAD)

Skipped (Index Known)
The number of times a RID list retrieval for multiple index access was skipped because it was not necessary due to DB2 being able to predetermine the outcome of index ANDing or ORing.

Term (No Storage)
The number of times RID list processing exhausted virtual storage.

Term (> RDS Limit)
The number of times RID list processing terminated because the number of RID entries was greater than the RDS limit. The RDS limit is the maximum (25% of table size, number of RIDs that can fit into the guaranteed number of RID blocks).

Term (> DM Limit)
The number of times RID list processing terminated because the number of RID entries was greater than the DM limit. The DM limit is approximately 26 million RIDs.

Term (> PROC Limit)
The number of times the maximum RID pool storage was exceeded. The default maximum RID pool size is the minimum (install value pool size, 10GB).
HWM RID Blks Inuse
The number of RID blocks currently in use.

Curr RID Blks Inuse
The highest number of RID blocks in use at any one time since DB2 startup time.

HWM RID Blks in WF
The highest number of RID blocks overflowed (stored) to a work file at any time since DB2 startup.

Curr RID Blks in WF
The number of RID blocks currently residing in work file storage.

Query Parallelism: For each field described below the following statistics are provided:
• Total quantity, which reflects the amount of activities since DB2 was started.
• Interval quantity, which reflect activity during the last cycle.
• Rate per minute during the last cycle.
• Rate per thread during the last cycle.
• Rate per Commit during the last cycle.

HWM degree Parallelism
Maximum degree of parallelism among the parallel groups to indicate the extent to which query parallelism applies.

Max Degree (Planned)
The planned maximum degree of parallelism for a parallel group. This value is the optimal degree of parallelism that can be obtained at execution time after host variables or parameter markers are resolved and before buffer pool negotiation and system negotiation are performed. DB2 11 and later.

Max Degree (Estimated)
The estimated maximum degree of parallelism for a parallel group. This value is estimated at bind time, based on the cost formula. If a parallel group contains a host variable or parameter marker, the estimate is based on assumed values. DB2 11 and later.

Max Degree (Executed)
Total number of parallel groups executed.

Ran Planned
Total number of parallel groups that have a planned degree greater than one at run time and were executed to the same degree because of sufficient storage on the buffer pool.

Ran Reduced (Storage)
Total number of parallel groups that have a planned degree greater than one at run time but were processed to a parallel degree less than planned because of a storage shortage or contention on the buffer pool.

Ran Reduced (Negotia)
Number of parallel group degree to be reduced due to system negotiation result of system stress level. DB2 11 and later.

Ran Seq (Cursor)
Total number of parallel groups which fell back to sequential mode because the cursor might be used in UPDATE/DELETE.
Ran Seq (No Buffer)
Total number of parallel groups that have a planned degree greater than one at run time, but fell back to sequential mode because of storage shortage or contention on the buffer pool.

Ran Seq (No ESA Sort)
Total number of parallel groups which fell back to sequential mode due to lack of ESA sort support.

Ran Seq (No ESA Enc)
Total number of parallel groups executed in sequential mode due to the unavailable enclave. This applies only to DB2 9.

Ran Seq (Autonomous)
Total number of parallel groups which fell back to sequential mode due to executing under an autonomous procedure. This applies only to DB2 11 or higher.

Ran Seq (Negotiate)
Number of parallel groups that is degenerated to sequential mode due to system negotiation result of system stress level.
This applies only to DB2 11 or higher.

One DB2 (Coord=No)
Total number of parallel groups that are executed on a single DB2 because the COORDINATOR subsystem parameter is set to NO. When the statement is bound, the COORDINATOR subsystem parameter is set to YES. This situation might also occur when a plan or package is bound on a DB2 where the COORDINATOR subsystem parameter is set to YES, but is run on a DB2 where the subsystem parameter COORDINATOR is set to NO.

One DB2 (Isolation)
Total number of parallel groups that are executed on a single DB2 because of repeatable-read or read-stability isolation.

One DB2 (DCL GTT)
Total number of parallel groups that are part of a query block. The query block is using an UDF. It is executed on a single DB2 because a Declared Temporary Table exists in the application process. Neither the query block nor the parallel group is referencing a Declared Temporary Table. A parallel group might use or might not use an UDF.

Groups Intended
Total number of parallel groups that are intended to run across the data sharing group. This count is only incremented on the parallelism coordinator at run time.

Groups Skipped
The number of times that the parallelism coordinator must bypass a DB2 when distributing tasks because there is not enough buffer pool storage on one or more DB2 members.

This field is incremented only on the parallelism coordinator. It is only incremented once per parallel group even though it is possible that more than one DB2 systems have a buffer pool shortage for that parallel group. The purpose of this count is to indicate when there are not enough buffers on a member. Therefore, this count is incremented only when the buffer
pool is defined to allow parallelism. For example, if VXPSET is set to 0 on an assistant, DB2 does not send parallel work to the assistant, but this count is not incremented.

**Reform (Config)**
Total number of parallel groups for which DB2 reformulated the parallel portion of the access path because the sysplex configuration is different from the sysplex configuration at bind time. This counter is only incremented by the parallelism coordinator at run time.

**Reform (No Buffer)**
Total number of parallel groups for which DB2 reformulated the parallel portion of the access path because there was not enough buffer pool resource. This counter is only incremented by the parallelism coordinator at run time.

**Miscellaneous**

**Incremental Bind**
Occurrences of incremental bind, which take place upon execution of a DB2 plan that is bound as VALIDATE(RUN).

**Max SQL Levels**
The maximum level of nested SQL cascading. This includes cascading because of triggers, UDFs, and stored procedures.

**Max LOB Storage (MB)**
Maximum storage that is used for LOB values.

**Max XML Storage**
Maximum storage that is used for XML values.

**Array Expansions**
The number of times an array variable is expanded beyond 32K.
This applies to DB2 11 or higher.

**Sparse IX (Disabled)**
The number of times that sparse index is disabled because of insufficient storage.
This applies to DB2 11 or higher.

**Sparse IX (Built WF)**
The number of times that sparse index built a physical work file for probing.
This applies to DB2 11 or higher.

**Fetched 1 Block Only (QXR1BOARD)**
The number of times 1 block is fetched and there were no further fetches. DB2 12 and later.

**Pipes Allocated (QISTINPA)**
The number of data manager fast insert pipes that were allocated since DB2 restart. DB2 12 and later.

**Pipes Disabled (QISTINPD)**
The number of data manager fast insert pipes that were disabled since DB2 restart. DB2 12 and later.

**Stored procedures**: For each field described below the following statistics are provided:
- Total quantity, which reflects the amount of activities since DB2 was started.
- Interval quantity, which reflects activity during the last cycle.
- Rate per minute during the last cycle.
- Rate per thread during the last cycle.
- Rate per Commit during the last cycle.

**Abended**

CALL statements executed to invoke a stored procedure that terminated abnormally.

**Timed Out**

CALL statements executed to invoke a stored procedure that timed out while waiting to be scheduled.

**Rejected**

CALL statements executed to invoke a stored procedure that was in the STOP ACTION(REJECT) state.

**User Defined Functions:** For each field described below the following statistics are provided:
- Total quantity, which reflects the amount of activities since DB2 was started.
- Interval quantity, which reflects activity during the last cycle.
- Rate per minute during the last cycle.
- Rate per thread during the last cycle.
- Rate per Commit during the last cycle.

**Executed**

The number of user-defined functions (UDFs) executed.

**Abended**

The number of times a UDF abended.

**Timed Out**

The number of times a UDF timed out when waiting to be scheduled.

**Rejected**

The number of times a UDF was rejected.

**Triggers:** For each field described below the following statistics are provided:
- Total quantity, which reflects the amount of activities since DB2 was started.
- Interval quantity, which reflects activity during the last cycle.
- Rate per minute during the last cycle.
- Rate per thread during the last cycle.
- Rate per Commit during the last cycle.

**Stmt Triggers Executed**

The number of times a statement trigger was activated.

**Row Triggers Activated**

The number of times a row trigger was activated.

**SQL Error in Trigger**

The number of times an SQL error occurred during execution of a triggered action.

**Dynamic SQL**
Prepares (Copy Found)
The number of times a PREPARE request is satisfied by making a copy from the prepared statement cache.

Prepares (Catalog Found)
The number of times a PREPARE request is satisfied by making a copy from the stabilized statement in SYSIBM.SYSDYNQRY catalog table. The stabilized statement search is done only when no matching statement is found in the prepared statement cache. DB2 12 and later. (Field name: QXSTSFND)

Prepares (Copy NFound)
The number of times a PREPARE request is received but a matching statement is not found in the prepared statement cache. Cache search is only done for DML SQL and only if cache option is active.

Prepares (Restrict IX)
The number of PREPARE requests for which the use of index/indexes are restricted because the index is in a pending state.

KeepDyn (Implicit)
The number of times the following actions occurred:
- An implicit PREPARE is performed because the KEEPDYNAMIC(YES) option is used
- An OPEN, EXECUTE, or DESCRIBE of a dynamic statement occurred after a COMMIT, however, DB2 no longer had a valid copy of the executable version of the prepared statement.

KeepDyn (Avoided)
The number of times that a PREPARE is avoided because KEEPDYNAMIC(YES) is used together with prepared statement caching, and DB2 still had the copy of the executable version of the prepared statement.

KeepDyn (Exceed Limit)
The number of times that an executable copy of a prepared statement is discarded because the MAXKEEPD system limit is exceeded.

KeepDyn (Invalidated)
The number of times that a prepared statement is purged from the cache because a DROP, ALTER, or REVOKE statement is issued on a dependent object.

Literals (Parsed)
The number of times DB2 parsed dynamic statements because CONCENTRATE STATEMENTS WITH LITERALS behavior is in effect for the prepare of the statement for the dynamic statement cache.

Literals (Replaced)
The number of times DB2 replaced at least one literal in a dynamic statement because CONCENTRATE STATEMENTS WITH LITERALS is in effect for the prepare of the statement for dynamic statement cache.

Literals (Matched)
The number of times DB2 found a matching reusable copy of a dynamic statement in statement cache during preparation of a statement that had literals replaced because of CONCENTRATE.

Literals (Duplicated)
The number of times DB2 created a duplicate statement instance in the statement cache for a dynamic statement that had literals replaced by
CONCENTRATE STATEMENTS WITH LITERALS behavior and the duplicate statement instance was needed because a cache match failed because of literal reusability criteria.

Row ID
Successful
The number of times that direct row access was successful.

Revert to Index
The number of times an attempt to use direct row access reverted to using an index to locate a record.

Revert to TS Scan
The number of times an attempt to use direct row access reverted to using a table space scan to locate a record.

Rows Processing
Rows Fetched
The number of fetched rows.

Rows Inserted
The number of inserted rows.

Rows Updated
The number of updated rows.

Rows Deleted
The number of deleted rows.

Currently Committed
Insert Rows Skipped
The number of rows that are skipped by read transactions because uncommitted inserts are performed when current committed read is in effect for fetch operations.

Delete Rows Accessed
The number of rows that are skipped by read transactions because uncommitted deletes are performed when current committed read is in effect for fetch operations.

Update Rows Accessed
The number of rows that are accessed by read transactions while uncommitted updates existed because currently committed read behavior is in effect for fetch operation.

Workfile Database (WFDB)
Curr WFDB For TS (KB)
Current total storage (KB) that is configured for all table spaces in the WFDB.

This applies to DB2 11 or higher.

DGTT WF configured (KB)
Total preferred STORAGE (KB) that is configured for DGTTs in the WFDB.

This applies to DB2 11 or higher.
WF Stor Configed (KB)
Total preferred STORAGE (KB) that is configured for work files in the WFDB.
This applies to DB2 11 or higher.

System WKDB threshold
The value in percent (%) for the threshold of the system-level WFDB space usage alert.
Valid values: 0 - 100
This applies to DB2 11 or higher.

Max Total Storage
The maximum total storage (KBs) that is used in the WFDB at system level for DGTTs and work files since DB2 is started. After restart, this value starts again with 0.

HWM DGTT WF Stor (KB)
The highest total storage (KB) that is used for DGTTs by all agents on the system since DB2 is started.
This applies to DB2 11 or higher.

HWM WF Storage (KB)
The highest total storage (KB) that is used for work files by all agents on the system since DB2 is started.
This applies to DB2 11 or higher.

Curr DGTT WF Stor (KB)
Current total storage (KB) that is used for DGTTs by all agents on the system since DB2 is started.
This applies to DB2 11 or higher.

Curr WF Storage (KB)
The current total storage (KB) that is used for work files by all agents on the system since DB2 started.
This applies to DB2 11 or higher.

Storage in 4K TS
Current 4KB table space storage that is used (KB).

Storage in 32K TS
Current 32KB table space storage that is used (KB).

32K used instead of 4K
The number of times a 32KB page TS is used when a 4KB page TS is to be preferred but not available.

4K used instead of 32K
The number of times a 4KB page TS is used when a 32KB page TS is to be preferred but not available.

HWM DM WF Count
High watermark count (maximum number) of SORT-related DM in-memory work files that are active at any point in time since DB2 is started.
HWM NSort WF Count
High watermark count (maximum number) of non-SORT-related DM in-memory work files that are active at any point in time since DB2 is started.

This applies to DB2 11 or higher.

Curr DM WF Count
The number of times SORT-related DM in-memory work files are currently active.

Curr NSort WF Count
The number of times non-SORT related DM in-memory work files are currently active.

This applies to DB2 11 or higher.

HWM DM WF size (KB)
High watermark count of maximum space in KB that is used for the active DM In-Memory work files at any point in time since DB2 is started.

Curr DM WF size (KB)
Total space in KB that is used for the currently active DM In-Memory work files.

HWM Sort WF Count
High watermark count (maximum number) of Sort-Inmem work files that are active at any point in time since DB2 is started.

Curr Sort WF Count
The number of times Sort-Inmem work files are currently active.

HWM Sort WF size (KB)
High watermark count of maximum space that is used for the active Sort-Inmem work files at any point in time since DB2 is started.

Curr Sort WF size (KB)
Total Space that is used for the currently active Sort-Inmem work files.

WF Overflow to TS
The number of times the type-2 in-memory work files overflow into a physical tablespace since DB2 is started.

This applies to DB2 11 or higher.

WF Not Created(NoStor)
The number of times a work file is not created as any type of DM in-memory work file because of critical storage conditions since DB2 is started.

This applies to DB2 11 or higher.

Agent Max Storage
The limit of the maximum storage per agent (KB).

Number of Max Exceeded
The number of times the maximum storage limit is exceeded.

Agent WFDB threshold
The value for the threshold of the agent-level WFDB space usage alert.

Valid values: 0 - 100.

This applies to DB2 11 or higher.
HWM WFDB by Thread(KB)

The highest amount of WFDB storage (KB) that is used by any thread on the system since DB2 is started.

This applies to DB2 11 or higher.

Open/Close Statistics

This panel shows information about open and close data set activity and information about Deferred Close activity.

<table>
<thead>
<tr>
<th>ZOPCL</th>
<th>VM</th>
<th>O2</th>
<th>V540./C</th>
<th>S221</th>
<th>09/10/13 13:49:55</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Help PF1</td>
<td>Back PF3</td>
<td>Up PF7</td>
<td>Down PF8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

> R.K
> H-HISTORICAL

Open/Close Statistics

Collection Interval

+ Collection Interval: REALTIME
+ Report Interval: 4 sec

Maximum Number of Open Datasets (DSMAX) = 20000
+ Checkpoints to Pseudo-Close (PCLOSEN) = 5
+ Elapsed Time to Pseudo-Close (PCLOSET) = 10
+ Current Number Open Datasets = 154
+ High Water Mark Open Datasets = 154
+ High Water Mark Not-in-use Datasets = 150
+ Current Number Not-in-use Datasets = 150

Not-in-use Datasets Requested | 58047 | 7 | 1.75 | 7.00 | 1.17
Not-in-use Datasets Closed | 0 | 0 | .00 | .00 | .00
Datasets Converted to Read-Only | 94 | 0 | .00 | .00 | .00

Navigation

For additional information about
- Near-term history activity, select option H-HISTORICAL at the top of the panel.
- other topics, use the PF keys.

Fields

Collection Interval

This field displays REALTIME to indicate that you are looking at the realtime version of this panel and not at the corresponding near-term history panel. The collection interval and the report interval are the same in this panel.

Start

The start time of the report interval currently displayed.

Report Interval

The time in the last cycle (for example, between two presses of the Enter key).

End

The end time of the report interval currently displayed.

Maximum Number of Open Datasets (DSMAX)

The value specified for the installation parameter DSMAX. DB2 uses this value to determine when the drain process should be initiated to close unused data sets.
Checkpoints to Pseudo-Close (PCLOSEN)
The number of consecutive checkpoints that a data set or partition must go through since it was last updated before being selected for pseudo-close, that is, the state changed from read-write to read-only.

Elapsed Time to Pseudo-Close (PCLOSET)
The time in minutes that must elapse since a data set or partition was last updated before it can be selected for pseudo-close.

Current Number Open Datasets
The current number of open data sets.

High Water Open Datasets
The maximum number of data sets open at any one time since DB2 was started.

High Water Mark Not-in-use Datasets
The maximum number of pagesets specified with CLOSE(YES) that are not in use but are not physically closed.

Current Number Not-in-use Datasets
The current number of open pagesets specified with CLOSE(YES) that are not in use but are not physically closed.

For each of the following fields, the following statistics values are provided:

TOTAL QUANTITY
Total quantity, which reflects the amount of activities since DB2 was started.

INTERVAL QUANTITY
Interval quantity, which reflects the amount of activities during the last cycle.

/SECOND
Rate per second during the last cycle. The number under /SECOND (in parentheses) is the number of seconds in the interval.

/THREAD
Rate per thread during the last cycle. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.

/COMMIT
Rate per Commit during the last cycle. The number under /COMMIT (in parentheses) is the number of commit requests (including abort requests) during the interval.

Not-in-use Datasets Requested
Number of requests to open a data set that was on the deferred close queue. When this occurs, a physical data set Open is not necessary.

Not-in-use Datasets Closed
Number of not-in-use data sets that were closed because the total number of open data sets reached the Deferred Close threshold. The Deferred Close threshold is based on the smaller of the values of DSMAX or the MVS DD limit.

Datasets Converted to Read-Only
The number of infrequently updated data sets converted from read-write to read-only (pseudo-close). The SYSLGRNG entry is closed at this time.
DB2 Command Statistics
This panel shows information about current DB2 command activity.

<table>
<thead>
<tr>
<th>Command</th>
<th>Quantity</th>
<th>Interval</th>
<th>/Second</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALTER BUFFERPOOL</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>ALTER GROUPBUFFERPOOL</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>ALTER UTILITY</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>ARCHIVE LOG</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>CANCEL (DDF) THREAD</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>DISPLAY ARCHIVE</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>DISPLAY BUFFERPOOL</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>DISPLAY DATABASE</td>
<td>1</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>DISPLAY GROUP</td>
<td>260</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>DISPLAY GROUPBUFFERPOOL</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>DISPLAY LOCATION</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>DISPLAY PROCEDURE</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>DISPLAY RLIMIT</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>DISPLAY THREAD</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>DISPLAY TRACE</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>DISPLAY UTILITY</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>DISPLAY FUNCTION</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>DISPLAY LOG</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>MODIFY TRACE</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>RECOVER BSDS</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>RECOVER INDOUBT</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>RESET INDOUBT</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>RESET GENERICLUI</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>SET ARCHIVE</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>START DATABASE</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>START DB2</td>
<td>1</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>START DDF</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>START PROCEDURE</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>START RLIMIT</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
<tr>
<td>START TRACE</td>
<td>55</td>
<td>0</td>
<td>0.00</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Navigation

For additional information about

- Near-term history activity, select option **H-HISTORICAL** at the top of the panel.
- other topics, use the PF keys.

Fields

- Total Quantity - activity since DB2 was started.
- Interval Quantity - activity during the last cycle.
- Rate per second during the last cycle.
- Percentage of total commands since DB2 was started.

**ALTER BUFFERPOOL**

**ALTER BUFFERPOOL** commands executed to alter attributes for active or inactive buffer pools.

**ALTER GROUP BUFFERPOOL**

**ALTER GROUP BUFFERPOOL** commands executed to alter attributes of group buffer pools.

**ARCHIVE LOG**

**ARCHIVE LOG** commands executed to initiate a DB2 active log switch.

**CANCEL DDF THREAD**

**CANCEL DDF THREAD** commands executed to cancel a thread.

**DISPLAY ARCHIVE**

**DISPLAY ARCHIVE** commands executed to display input archive log information.

**DISPLAY BUFFERPOOL**

**DISPLAY BUFFERPOOL** commands executed to display statistics for active or inactive buffer pools.
DISPLAY DATABASE

DISPLAY DATABASE commands executed to display status information about
tables and indexspaces within a database.

DISPLAY GROUP

DISPLAY GROUP commands executed to display statistics about the data
sharing group to which the DB2 subsystem belongs.

DISPLAY GROUP BUFFERPOOL

DISPLAY GROUP BUFFERPOOL commands executed to display attributes of
group buffer pools.

DISPLAY LOCATION

DISPLAY LOCATION commands executed to display statistics about threads
with distributed relationships.

DISPLAY PROCEDURE

DISPLAY PROCEDURE commands executed to display statistics about stored
procedures.

DISPLAY RLIMIT

DISPLAY RLIMIT commands executed to display the current status of the
resource limit facility.

DISPLAY THREAD

DISPLAY THREAD commands executed to display status information about
DB2 threads.

DISPLAY TRACE

DISPLAY TRACE commands executed to display a list of active traces.

DISPLAY UTILITY

DISPLAY UTILITY commands executed to display status information about
DB2 utility jobs.

MODIFY TRACE

MODIFY TRACE commands executed to change the IFCID being traced for
an active trace.

RECOVER BSDS

RECOVER BSDS commands executed to recover a boot strap data set that has
been disabled by an error.

RECOVER INDOUBT

RECOVER INDOUBT commands executed to recover threads left in the indoubt
status.

RESET GENERICLU

RESET GENERICLU commands executed to purge information stored by
VTAM in the coupling facility for one or more partners of a particular DB2
subsystem.

RESET INDOUBT

RESET INDOUBT commands executed to purge indoubt thread information.

SET ARCHIVE

SET ARCHIVE commands executed to change the maximum tape units and
the de-allocation time parameters originally set in the installation
parameters.

START DATABASE

START DATABASE commands executed to make stopped databases available
for use.
START DB2
START DB2 commands executed.

START DDF
START DDF commands executed to start the distributed data facility.

START PROCEDURE
START PROCEDURE commands executed to activate the definition of a stored
procedure which was stopped, or refreshes a stored procedure that is
cached.

START RLIMIT
START RLIMIT commands executed to start the resource limit facility.

START TRACE
START TRACE commands executed to begin collection of DB2 trace records.

STOP DATABASE
STOP DATABASE commands executed to make specified databases
unavailable for use.

STOP DB2
STOP DB2 commands executed.

STOP DDF
STOP DDF commands executed to stop the distributed data facility.

STOP PROCEDURE
STOP PROCEDURE commands executed to prevent DB2 from accepting SQL
CALL statements for one or more stored procedure.

STOP RLIMIT
STOP RLIMIT commands executed to stop the resource limit facility.

STOP TRACE
STOP TRACE commands executed to stop collection of DB2 trace records.

TERM UTILITY
TERM UTILITY commands executed to terminate execution of a utility job.

SET LOG
Set Log commands that are executed to modify the checkpoint frequency
that are specified during installation.

DISPLAY ACCEL
Display Accelerator commands that are executed to display details about
accelerators that are connected to the current subsystem.

START ACCEL
Start Accelerator commands that are executed to activate an accelerator.

STOP ACCEL
Stop Accelerator commands that are executed to deactivate an accelerator.

SET SYSPARM
The number of DB2 SET SYSPARM commands that are issued. This includes
normal and abnormal completion of the command.

DISPLAY DDF
The number of DB2 DISPLAY DDF commands that are issued. This includes
normal and abnormal completion of the command.

ACCESS DATABASE
The number of DB2 ACCESS DATABASE commands that are issued. This
includes normal and abnormal completion of the command.
START PROFILE
The number of DB2 START PROFILE commands that are issued. This includes normal and abnormal completion of the command.

STOP PROFILE
The number of DB2 STOP PROFILE commands that are issued. This includes normal and abnormal completion of the command.

DISPLAY PROFILE
The number of DB2 DISPLAY PROFILE commands that are issued. This includes normal and abnormal completion of the command.

MODIFY DDF
The number of DB2 MODIFY DDF commands that are issued. This includes normal and abnormal completion of the command.

This field is only displayed for DB2 10 or above.

ACTIVATE FUNCTION LEVEL (Q9STCTEN)
The number of DB2 ACTIVATE FUNCTION LEVEL commands issued. This includes normal and abnormal completion of the command. DB2 12 and later.

START DYNQUERYCAPTURE (Q9STCTSQ)
The number of DB2 START DYNQUERYCAPTURE commands issued. This includes normal and abnormal completion of the command. DB2 12 and later.

STOP DYNQUERYCAPTURE (QSTCTXQ)
The number of DB2 STOP DYNQUERYCAPTURE commands issued. This includes normal and abnormal completion of the command. DB2 12 and later.

DISPLAY DYNQUERYCAPTURE (Q9STCTDQ)
The number of DB2 DISPLAY DYNQUERYCAPTURE commands issued. This includes normal and abnormal completion of the command. This field only shown for DB2 12 and later.

UNRECOGNIZED COMMAND
Number of unrecognized commands.

Total All DB2 commands.

DB2 Storage
This menu option provides access to realtime DB2 storage management performance and statistics information.

The statistics data shown in the following panels is based on and derived from IFCID 225 performance data. When the menu option is invoked, data is requested from DB2 through READS, derived fields are calculated, and the requested data is displayed. To ensure consistency among data on subsequent panels, this data is kept in memory and is used as long as option M (DB2 Storage) is invoked again. If the Enter key is pressed on any of the panels, the data is refreshed and consistently used on all subsequent panels.

If data for certain fields on subsequent panels is not available or cannot be calculated because of differences of the installed DB2 version, the contents are marked as N/A.

The following panels are accessible:

• “Address Space Summary” on page 1310
Address Space Summary
This panel provides summary information about the size and usage of the DBM1 and DIST address spaces.

This panel is accessible only on OMEGAMON XE for DB2 PE systems monitoring DB2 version 10 and higher. For more information, see “DB2 Storage” on page 1309.

<table>
<thead>
<tr>
<th>Address Space Summary</th>
<th>DBM1</th>
<th>DIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address Space Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Thread Footprint (MB)</td>
<td>0.22</td>
<td>N/A</td>
</tr>
<tr>
<td>Maximum Number of Thread</td>
<td>4517</td>
<td>N/A</td>
</tr>
<tr>
<td>Castout Buffer Storage (MB)</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>24-Bit Low Private</td>
<td>172032</td>
<td>253952</td>
</tr>
<tr>
<td>24-Bit High Private</td>
<td>483328</td>
<td>274432</td>
</tr>
<tr>
<td>High Address 24-Bit Private Region</td>
<td>00030000</td>
<td>00044000</td>
</tr>
<tr>
<td>31-Bit Extended Low Private</td>
<td>86728704</td>
<td>8060928</td>
</tr>
<tr>
<td>31-Bit Extended High Private</td>
<td>33611776</td>
<td>13905920</td>
</tr>
<tr>
<td>High Address 31-bit Private Region</td>
<td>26400000</td>
<td>218B0000</td>
</tr>
<tr>
<td>Extended Region Size</td>
<td>1555456K</td>
<td>1555456K</td>
</tr>
<tr>
<td>31-Bit Storage Reserved for Must-Complete Operation</td>
<td>155545K</td>
<td>155545K</td>
</tr>
<tr>
<td>31-Bit Storage Reserved for Z/OS Use</td>
<td>40960</td>
<td>40960</td>
</tr>
<tr>
<td>Storage Cushion Warning to Contract</td>
<td>155545K</td>
<td>155545K</td>
</tr>
<tr>
<td>Storage Cushion (MB)</td>
<td>303</td>
<td>N/A</td>
</tr>
<tr>
<td>Total 31-Bit Getmained Stack</td>
<td>8515584</td>
<td>1523712</td>
</tr>
<tr>
<td>Total 31-Bit Stack In Use</td>
<td>7024640</td>
<td>1130496</td>
</tr>
<tr>
<td>Total 31-Bit Variable Pool Storage</td>
<td>2846720</td>
<td>360448</td>
</tr>
<tr>
<td>Total 31-Bit Fixed Pool Storage</td>
<td>118784</td>
<td>86016</td>
</tr>
<tr>
<td>Total 31-Bit Getmained Storage</td>
<td>267272</td>
<td>12634</td>
</tr>
<tr>
<td>Total 31-Bit Storage (MB)</td>
<td>11</td>
<td>N/A</td>
</tr>
<tr>
<td>Amount of Available 31-bit Storage</td>
<td>1437932K</td>
<td>1534000K</td>
</tr>
<tr>
<td>Total 64-Bit Private Variable Pool Storage</td>
<td>201736K</td>
<td>167936</td>
</tr>
<tr>
<td>Total 64-Bit Private Fixed Pool Storage</td>
<td>10891264</td>
<td>110592</td>
</tr>
<tr>
<td>Total 64-Bit Private Getmained Storage</td>
<td>109636K</td>
<td>0</td>
</tr>
<tr>
<td>Total 64-Bit Private Storage for Storage</td>
<td>2449408</td>
<td>1400832</td>
</tr>
<tr>
<td>Real 4K Frames In Use</td>
<td>76432</td>
<td>1061</td>
</tr>
<tr>
<td>Real 4K Frames In Use (64-Bit)</td>
<td>64911</td>
<td>86</td>
</tr>
<tr>
<td>Real 4K Frames In Use(64-Bit Private)</td>
<td>46552</td>
<td>83</td>
</tr>
<tr>
<td>HWM of Real 4K Frames</td>
<td>77031</td>
<td>383</td>
</tr>
<tr>
<td>4K Auxiliary Slots In Use</td>
<td>74089</td>
<td>2066</td>
</tr>
<tr>
<td>4K Auxiliary Frames In Use(64-Bit)</td>
<td>59518</td>
<td>372</td>
</tr>
<tr>
<td>4K Auxiliary Frames In Use(64-Bit Private)</td>
<td>34409</td>
<td>341</td>
</tr>
<tr>
<td>HWM of 4K Auxiliary Frames</td>
<td>59518</td>
<td>372</td>
</tr>
<tr>
<td>Real 2G Frames In Use (64-Bit)</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Navigation

You can scroll through the information using F7 and F8 (if the information requires more than one panel).

For additional options
- select one of the options from the panel. The same snapshot of DB2 performance data is used as long as Enter is not pressed.
- use the PF keys.

Fields

Address Space Name
Shows the address space names DBM1 and DIST (QW0225AN).

Average Thread Footprint (MB)
Shows the average size of all threads in the address space.

Maximum Number of Thread
Shows the maximum number of threads in the address space.

Castout Buffer Storage (MB)
Shows the size of the castout buffer.

24-Bit Low Private
Shows the amount of private MVS storage below the 16 MB line. This storage is obtained from bottom upward, usually for unauthorized programs (QW0225LO).

24-Bit High Private
Shows the amount of private MVS storage below the 16 MB line. This storage is obtained from top downward, usually for authorized programs (QW0225HI).

High Address 24-Bit Private Region
Shows the current high address of the 24-bit private region (QW0225TP).

31-Bit Extended Low Private
Shows the amount of private MVS storage above the 16 MB line. This storage is obtained from bottom upward, usually for unauthorized programs (QW0225EL).

31-Bit Extended High Private
Shows the amount of private MVS storage above the 16 MB line. This storage is obtained from top downward, usually for authorized programs (QW0225EH).

High Address 31-bit Private Region
Shows the current high address of 31-bit private region (QW0225EP).

Extended Region Size
Shows the size of the MVS extended region (QW0225TP).

31-Bit Storage Reserved for Must-Complete Operation
Shows the size of the 31-bit storage reserved for operations that must be completed (QW0225CR).

31-Bit Storage Reserved for Z/OS Use
Shows the size of the 31-bit storage reserved for MVS (QW0225MV).

Storage Cushion Warning to Contract
Shows the storage cushion warning to contract (QW0225SO).
Storage Cushion
  Shows the sum of QW0225SO, QW0225CR, and QW0225MV.

Total 31-Bit Getmained Stack
  Shows the total size of the 31-bit getmained stack (QW0225GS).

Total 31-Bit Stack In Use
  Shows the total size of the 31-bit stack in use (QW0225SU).

Total 31-Bit Variable Pool Storage
  Shows the total size of the 31-bit variable pool storage (QW0225VR).

Total 31-Bit Fixed Pool Storage
  Shows the total size of the 31-bit fixed pool storage (QW0225FX).

Total 31-Bit Getmained Storage
  Shows the total size of the 31-bit getmained storage (QW0225GM).

Total 31-Bit Storage (MB)
  Shows the total size of the 31-bit storage.

Amount of Available 31-Bit Storage
  Shows the amount of available 31-bit storage (QW0225AV).

Total 64-Bit Private Variable Pool Storage
  Shows the total size of the 64-bit private variable pool storage (QW0225VA).

Total 64-Bit Private Fixed Pool Storage
  Shows the total size of the 64-bit private fixed pool storage (QW0225FA).

Total 64-Bit Private Getmained Storage
  Shows the total size of the 64-bit private getmained storage (QW0225GA).

Total 64-Bit Private Storage for Storage
  Shows the total size of the 64-bit private storage allocated for storage manager control structures (QW0225SM).

Real 4K Frames In Use
  Shows the number of real 4K frames in use for 31- and 64-bit private pools (QW0225RL).

Real 4K Frames In Use (64-Bit)
  Shows the number of real 4K frames in use for 64-bit private pools (available in z/OS version 1.11 and later) (QW0225HVPagesInReal).

Real 4K Frames In Use (64-Bit Private)
  Shows the number of real 4K frames in use for 64-bit private storage. This field is a subset of Real 4K Frames In Use (64-Bit) (QW0225HVPagesInReal) and does not include buffer pool storage (QW0225PriStg_Real). This field is available in z/OS version 1.10 (and maintenance) or later.

HWM of Real 4K Frames
  Shows the high-water mark for the number of real 4K frames in use for 64-bit private pools (available in z/OS version 1.11 and later) (QW0225HVGPagesInReal).

4K Auxiliary Slots In Use
  Shows the number of 4K auxiliary slots in use for 31- and 64-bit private pools (QW0225AX).
4K Auxiliary Frames In Use (64-Bit)
Shows the number of 4K auxiliary frames in use for 64-bit private pools (available in z/OS version 1.11 and later).

4K Auxiliary Frames In Use (64-Bit Private)
Shows the number of 4K auxiliary slots in use for 64-bit private storage (QW0225PriStg_Aux). This field does not include buffer pool storage. It only includes auxiliary slots occupied by pages that are paged out. This field is available in z/OS version 1.10 (and maintenance) or later.

HWM of 4K Auxiliary Frames
Shows the high-water mark for the number of 4K auxiliary frames in use.

Real 2G Frames in Use (64-bit) (QW0225HVPagesInReal2G)
Number of real 2G frames in use for 64-bit private (available in >= z/OS 1.11). DB2 12 and later.

Thread Information
This panel provides information about threads, DBATs, and various engines.

This panel is accessible only on OMEGAMON XE for DB2 PE systems monitoring DB2 version 10 and higher. For more information, see “DB2 Storage” on page 1309.

Navigation
You can scroll through the information using F7 and F8 (if the information requires more than one panel).

For additional options
• select one of the options from the panel. The same snapshot of DB2 performance data is used as long as Enter is not pressed.
• use the PF keys.

Fields
Active Threads
Shows the number of active threads (QW0225AT).

Active and Disconnected DBATs
Shows the number of active and disconnected DBATs (QW0225DB).

Prefetch Engines
Shows the number of prefetch engines (QW0225PF).
Deferred Write Engines
   Shows the number of deferred write engines (QW0225DW).

Castout Engines
   Shows the number of castout engines (QW0225CE).

GBP Write Engines
   Shows the number of GBP write engines (QW0225GW).

P-Lock/Notify Exit Engines
   Shows the number of P-lock/notify exit engines (QW0225PL).

Active Parallel Child Threads
   Shows the number of active parallel child threads (QW0225PT).

Shared and Common Storage
This panel provides information about the shared and common storage areas.

This panel is accessible only on OMEGAMON XE for DB2 PE systems monitoring DB2 version 10 and higher. For more information, see "DB2 Storage" on page 1309.
Navigation

You can scroll through the information using F7 and F8 (if the information requires more than one panel).

For additional options
• select one of the options from the panel. The same snapshot of DB2 performance data is used as long as Enter is not pressed.
• use the PF keys.

Fields

MVS Extended CSA Size

Shows the MVS extended CSA size (QW0225EC).
Total 31-Bit Common Fixed Pool Storage
Shows the total size of the 31-bit common fixed pool storage (QW0225FC).

Total 31-Bit Common Variable Pool Storage
Shows the total size of the 31-bit common variable pool storage (QW0225VC).

Total 31-Bit Common Getmained Storage
Shows the total size of the 31-bit common getmained storage (QW0225GC).

Total 64-Bit Common Fixed Pool Storage
Shows the total size of the 64-bit common fixed pool storage (QW0225FCG).

Total 64-Bit Common Variable Pool Storage
Shows the total size of the 64-bit common variable pool storage (QW0225VCG).

Total 64-Bit Common Getmained Storage
Shows the total size of the 64-bit common getmained storage (QW0225GCG).

Total 64-Bit Common Storage for SM Cntl Struct
Shows the total size of the 64-bit common storage allocated for storage manager control structures (QW0225SMC).

Total 64-Bit Shared Storage for SM Cntl Struct
Shows the total size of the 64-bit shared storage for storage manager control structures (QW0225SMS).

Total 64-Bit Shared Variable Pool Storage
Shows the total size of the 64-bit shared variable pool storage (QW0225SV).

Total 64-Bit Shared Fixed Pool Storage
Shows the total size of the 64-bit shared fixed pool storage (QW0225SF).

Total 64-Bit Shared Getmained Storage
Shows the total size of the 64-bit shared getmained storage (QW0225SF).

Total 64-Bit Shared System Agent Stack
Shows the total size of the 64-bit shared storage allocated for system agent stack use (QW0225GSG_SYS).

Total 64-Bit Shared System Agent Stack In Use
Shows the total size of the 64-bit shared system agent stack that is in use (QW0225SUG_SYS).

Total 64-Bit Shared Non-System Agent Stack
Shows the total size of the 64-bit shared storage allocated for non-system agent stack use (QW0225GSG).

Total 64-Bit Shared Non-System Agent Stack In Use
Shows the total size of the 64-bit shared non-system agent stack that is in use (QW0225SUG).

Number of Shared Memory Objects
Shows the number of shared memory objects allocated for this MVS LPAR (QW0225SHRNOMB).

Number of 64-Bit Shared Memory Pages
Shows the number of 64-bit shared memory pages allocated for this MVS LPAR (this count includes hidden pages) (QW0225SHRPAGES).
High Water Mark 64-Bit Shared Bytes
Shows the high-water mark of the 64-bit shared bytes for this MVS LPAR (QW0225SHRGBYTES).

Number of 64-Bit Shared Pages In Real Storage
Shows the number of 64-bit shared pages backed in real storage (4K pages) for this MVS LPAR (QW0225SHRINREAL).

Number of Auxiliary Slots for 64-Bit Shared Storage
Shows the number of auxiliary slots used for 64-bit shared storage for this MVS LPAR (QW0225SHRAUXSLOTS).

Number of 64-Bit Paged-in Shared Pages
Shows the number of 64-bit shared pages paged in from auxiliary storage for this MVS LPAR (QW0225SHRPAGEINS).

Number of 64-Bit Paged-out Shared Pages
Shows the number of 64-bit shared pages paged out to auxiliary storage for this MVS LPAR (QW0225SHRPAGEOUTS).

Number of 4K Frames in Use for 64-Bit Shared Storage
Shows the number of real 4K frames in use for 64-bit shared storage (QW0225ShrStg_Real). This field does not include shared stack storage. This information is recorded at the subsystem level. This field is available in z/OS version 1.10 (and maintenance) or later.

Number of 4K Auxiliary Slots for 64-Bit Shared Storage
Shows the number of 4K auxiliary slots in use for 64-bit shared storage (QW0225ShrStg_Aux). This field does not include shared stack storage. This information is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out. This field is available in z/OS version 1.10 (and maintenance) or later.

Number of 4K Frames in Use for 64-Bit Shared Stack
Shows the number of real 4K frames in use for 64-bit shared stack storage (QW0225ShrStkStg_Real). This information is recorded at the subsystem level. This field is available in z/OS version 1.10 (and maintenance) or later.

Number of 4K Auxiliary Slots for 64-Bit Shared Stack
Shows the number of 4K auxiliary slots in use for 64-bit shared stack storage (QW0225ShrStkStg_Aux). This information is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out. This field is available in z/OS version 1.10 (and maintenance) or later.

Number of 4K Frames in Use for 64-Bit Common Storage
Shows the number of real 4K frames in use for 64-bit common storage (QW0225ComStg_Real). This information is recorded at the subsystem level. This field is available in z/OS version 1.10 (and maintenance) or later.

Number of 4K Auxiliary Slots for 64-Bit Common Storage
Shows the number of 4K auxiliary slots in use for 64-bit common storage (QW0225ComStg_Aux). This information is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out. This field is available in z/OS version 1.10 (and maintenance) or later.
Log Mgr Write Buffer Frames in REAL
Shows the number of frames in real storage that are used for log manager write buffers.

This applies to DB2 11 and higher.

Log Mgr Write Buffer Frames in AUX
Shows the number of auxiliary frames that are used for log manager write buffers.

This applies to DB2 11 and higher.

Log Manager Control Frames in REAL
Shows the number of frames in real storage that are used for log manager control structures.

This applies to DB2 11 and higher.

Log Manager Control Frames in Aux
Shows the number of frames in auxiliary storage that are used for log manager control structures.

This applies to DB2 11 and higher.

Statement Cache and XProc Detail
This panel provides information about the usage of the SQL statement cache and the xProc storage.

This panel is accessible only on OMEGAMON XE for DB2 PE systems monitoring DB2 version 10 and higher. For more information, see “DB2 Storage” on page 1309.

```
>  Help PF1  Back PF3  Up PF7  Down PF8
>  R.M.D
>  A-Address Space Summary  B-Thread Information  C-Shared and Common Storage
>  D-Stmt Cache and xProc  E-Pool Detail  F-IRLM Storage
>  Statement Cache and XProc Detail
J22D
+  Total Allocated Shareable Storage for Dynamic SQL  12414976
+  Total Requested Shareable Storage for Dynamic SQL  10630160
+  HWM Requested Shareable Storage for Dynamic SQL  10630160
+  Total Allocated Shareable Storage for Static SQL  667648
+  Number of Stmts in 64-Bit Storage  0
+  Number of Stmts in 64-Bit Storage When Interval HWM Is Set  0
+  Total Stmt Cache Storage(64-Bit)  0
+  High Water Mark for Stmt Cache Storage(64-Bit) This Interval  0
+  Timestamp of High Water Mark 64-Bit Local Pools  2016-07-26 22:28:52
+  Total 64-Bit Statement 2G Cache Block Storage  23199744
+  Stmt Cache Hash Entry Allocation  5580541
===============================================================================
```

Navigation
You can scroll through the information using F7 and F8 (if the information requires more than one panel).

For additional options
- select one of the options from the panel. The same snapshot of DB2 performance data is used as long as Enter is not pressed.
- use the PF keys.
Fields

**Total xPROC Storage for Dynamic SQL**
Shows the total size of the xPROC storage for dynamic SQL that is used by active threads and globally cached statements.

This applies to DB2 10.

**Allocated xPROC Storage for Dynamic SQL**
Shows the size of the allocated xPROC storage for globally cached statements.

This applies to DB2 10.

**High Water Mark xPROC Storage for Dynamic SQL**
Shows the largest amount of allocated xPROC storage so far.

This applies to DB2 10.

**Total xPROC Storage for Static SQL**
Shows the size of the total xPROC storage that is used for static SQL statements.

This applies to DB2 10.

**Total Allocated Shareable Storage for Dynamic SQL**
Shows the total allocated sharable storage for dynamic SQL used by active threads (64-bit shared system variable pools).

This applies to DB2 11 or higher.

**Total Requested Shareable Storage for Dynamic SQL**
Shows the total requested sharable storage for dynamic SQL used by active threads (64-bit shared system variable pools).

This applies to DB2 11 or higher.

**HWM Requested Shareable Storage for Dynamic SQL**
Shows the total allocated sharable storage for static SQL statements (64-bit shared system variable pools).

This applies to DB2 11 or higher.

**Total Allocated Shareable Storage for Static SQL**
Shows the high water mark of total requested sharable storage for dynamic SQL used by active threads (64-bit shared system variable pools).

This applies to DB2 11 or higher.

**Number of Stmts in 64-Bit Storage**
Shows the number of statements in the 64-bit agent local pool (64-bit shared agent local variable pools).

**Number of Stmts in 64-bit storage when interval HWM Is Set**
Shows the number of statements at the time a new interval High Water Mark is set for 64-bit shared agent local variable pools (default statistics interval: 1 minute).

**Total Stmt Cache Storage(64-Bit)**
Shows the allocated statement cache storage that is in 64-bit agent local pools (64-bit shared agent local variable pools).

**High Water Mark for Stmt Cache Storage(64-Bit) This Interval**
Shows the largest amount of allocated statement cache storage in 64-bit shared agent local pools in this interval (default statistics interval: 1 minute).
Timestamp of High Water Mark 64-Bit Local Pools
Shows the timestamp when the largest amount of storage in 64-bit agent local pools was allocated after the last IFCID 0225 record was written (64-bit shared agent local variable pools).

Total 64-Bit Statement 2G Cache Block Storage
Shows the total statement cache storage blocks above the bar (64-bit shared variable pool).

Stmt Cache Hash Entry Allocation (QW0225DMH)
The amount of storage that is allocated for hashing entries in the dynamic statement cache. DB2 12 and later.

Pool Detail
This panel displays data for DB2 10 and higher.

This panel is accessible only on OMEGAMON XE for DB2 PE systems monitoring DB2 version 10 and higher. For more information, see “DB2 Storage” on page 1309.

<table>
<thead>
<tr>
<th>Total Agent Local Storage</th>
<th>458752</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total System Agent Storage</td>
<td>356352</td>
</tr>
<tr>
<td>Total Buffer Manager Storage Blocks</td>
<td>528384</td>
</tr>
<tr>
<td>Total Agent Local Storage(64-Bit)</td>
<td>12124160</td>
</tr>
<tr>
<td>Total System Agent Storage(64-Bit)</td>
<td>7581696</td>
</tr>
<tr>
<td>Total RID Pool Storage(64-Bit)</td>
<td>0</td>
</tr>
<tr>
<td>Total Compression Dictionary Storage(64-Bit)</td>
<td>16384</td>
</tr>
<tr>
<td>Total Array Variable Storage</td>
<td>0</td>
</tr>
</tbody>
</table>

Navigation
You can scroll through the information using F7 and F8 (if the information requires more than one panel).

For additional options
• select one of the options from the panel. The same snapshot of DB2 performance data is used as long as Enter is not pressed.
• use the PF keys.

Fields
Total Agent Local Storage
Shows the total agent local storage (31-bit DBM1 private variable pools) (QW0225AL).

Total System Agent Storage
Shows the total system agent storage (31-bit DBM1 private variable pools) (QW0225AS).

Total Buffer Manager Storage Blocks
Shows the total buffer manager storage blocks (31-bit DBM1 private variable pools) (QW0225BB).
Total Agent Local Storage (64-Bit)
Shows the total size of the agent-related 64-bit local storage (64-bit shared variable pools) (QW0225ALG).

Total System Agent Storage (64-Bit)
Shows the total size of the 64-bit storage used by system agents (64-bit shared variable pools) (QW0225ASG).

Total RID Pool Storage (64-Bit)
Shows the total size of the RID pool storage (64-bit shared fixed pool) (QW0225RP).

Total Compression Dictionary Storage (64-Bit)
Shows the total compression dictionary storage (64-bit DBM1 private getmained) (QW0225CD).

Total Array Variable Storage
Shows the total array variable storage.
This applies to DB2 11 and higher.

IRLM Storage Usage
This panel shows the usage of IRLM storage.

This panel displays data for DB2 11 and higher.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently Used ECSA</td>
<td>550951</td>
</tr>
<tr>
<td>ECSA High Water Mark</td>
<td>550951</td>
</tr>
<tr>
<td>Currently Used 31-bit IRLM Private</td>
<td>0</td>
</tr>
<tr>
<td>High Water Mark for 31-bit IRLM Private</td>
<td>0</td>
</tr>
<tr>
<td>Threshold 31-Bit IRLM Private Storage</td>
<td>0</td>
</tr>
<tr>
<td>Currently Used 64-bit IRLM Private</td>
<td>0</td>
</tr>
<tr>
<td>High Water Mark for 64-bit IRLM Private</td>
<td>0</td>
</tr>
<tr>
<td>Threshold 64-Bit IRLM Private Storage</td>
<td>0</td>
</tr>
<tr>
<td>Currently Used 64-bit Common</td>
<td>0</td>
</tr>
<tr>
<td>High Water Mark for 64-bit Common</td>
<td>0</td>
</tr>
</tbody>
</table>

Fields

Currently Used ECSA (QW0225I_BBECSA)
The amount of ECSA that is currently used. This value is the total of all ECSA IRLM pools.

ECISA High Water Mark (QW0225I_BBESCAH)
The highest amount of ECSA that is used so far. This value is the total of all ECSA IRLM pools.

Currently Used 31-bit IRLM Private (QW0225I_BBPVT)
The amount of 31-bit IRLM private storage that is currently in used. This value is the total of all 31-bit IRLM private pools.
High Water Mark for 31-bit IRLM Private (QW0225I_BBPVH)
The highest amount of 31-bit IRLM private storage that is used so far. This value is the total of all 31-bit IRLM private pools.

Threshold 31-Bit IRLM Private Storage (QW0225I_BPMAX)
The maximum amount of virtual 31-bit IRLM private storage that is available for normal IRLM execution. If this value is exceeded, only requests for storage tasks that must be completed are granted.

Currently Used 64-bit IRLM Private (QW0225I_ABPVT)
The amount of 64-bit IRLM private storage that is currently used. This value is the total of all 64-bit IRLM private pools.

High Water Mark for 64-bit IRLM Private (QW0225I_ABPVH)
The highest amount of 64-bit IRLM private storage that is used so far. This value is the total of all 64-bit IRLM private pools.

Threshold 64-Bit IRLM Private Storage (QW0225I_APMAX)
The maximum amount of virtual 64-bit IRLM private storage that is available for normal IRLM execution. If this value is exceeded, only requests for storage tasks that must be completed are granted.

Currently used 64-bit common (QW0225I_ABCSA)
The amount of 64-bit common storage that is currently used. This value is the total of all 64-bit common IRLM pools.

High Water Mark for 64-bit common (QW0225I_ABCSH)
The highest amount of 64-bit common storage that is used so far. This value is the total of all 64-bit common IRLM pools.

GBP Coupling Facility Cache Structure Statistics Summary
This panel shows a summary of the DB2 group buffer pool (GBP) coupling facility cache structure statistics. It can be displayed in S mode or in G mode. In S mode, a summary of the Group Buffer Pools of the current member is displayed. In G mode, a summary of the Group Buffer Pools of all members is displayed.

The following panel shows a summary of the GBP Coupling Facility Cache Structure Statistics in S mode.

---

The following panel shows a summary of the GBP Coupling Facility Cache Structure Statistics in G mode.
### GBP Coupling Facility Cache Structure Statistics Summary

**S254**

+ Collection Interval: REALTIME  
SNAPTIME: 02/12/13 04:32:40.05

#### GBP Name  | ReadMiss | WriteMiss | XIDirRClm | CastOut | DirEntry | DataEnty | TotChnge
---|---|---|---|---|---|---|---
GBP0 | 0 | 0 | 0 | 10923 | 316 | 2 | 0
GBP1 | 0 | 0 | 0 | 0 | 0 | 0 | 0
GBP2 | 0 | 0 | 0 | 0 | 0 | 0 | 0
GBP8K0 | 0 | 0 | 30727 | 8 | 1 | 0 | 0
TOTAL | 0 | 0 | 30 | 10 | 0 | 0 | 0

#### GBP Name  | ReadMiss | WriteMiss | XIDirRClm | CastOut | DirEntry | DataEnty | TotChnge
---|---|---|---|---|---|---|---
GBP0 | 0 | 0 | 0 | 10923 | 316 | 2 | 0
GBP8K0 | 0 | 0 | 30727 | 8 | 1 | 0 | 0
TOTAL | 0 | 0 | 30 | 10 | 0 | 0 | 0

#### GBP Name  | ReadMiss | WriteMiss | XIDirRClm | CastOut | DirEntry | DataEnty | TotChnge
---|---|---|---|---|---|---|---
GBP0 | 0 | 0 | 0 | 10923 | 316 | 2 | 0
TOTAL | 0 | 0 | 30 | 10 | 0 | 0 | 0

#### GBP Name  | ReadMiss | WriteMiss | XIDirRClm | CastOut | DirEntry | DataEnty | TotChnge
---|---|---|---|---|---|---|---
GBP0 | 0 | 0 | 0 | 10923 | 316 | 2 | 0
GBP1 | 0 | 0 | 0 | 0 | 0 | 0 | 0
GBP8K0 | 0 | 0 | 30727 | 8 | 1 | 0 | 0
GBP16K0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
TOTAL | 0 | 0 | 30 | 10 | 0 | 0 | 0

---

### Navigation

You can browse details of a group buffer pool or the TOTAL values by moving the cursor to the appropriate line in the panel and pressing PF11 (Zoom).

For additional information about:

- G mode in S mode or vice versa, replace the letter S with G or vice versa.
- other members of the data sharing group or other DB2 subsystems that are monitored by the current server, type over the DB2 SSID.
- the details of a particular GBP cache structure statistics, move the cursor to the GBP of your choice and click F11 (Zoom).
- other topics, use the PF keys.

### Fields

**GBPName**

The name of the group buffer pool.

**ReadMiss**

The Read Miss Cache Full Counter shows the number of times that a coupling facility read request specifies a page for which a directory entry does not exist or is not created because the storage in the group buffer pool is insufficient.
A nonzero value in this field indicates that the size of the backing coupling facility cache structure might be too small to support the current workload.

**WriteMiss**

The Write Miss Cache Full Counter shows the number of times a coupling facility write request is not completed because the storage in the group buffer pool is insufficient.

The value in this field indicates that the data page resources of the coupling facility are faster consumed than the DB2 castout process can free them. For information about alleviating this condition, see *DB2 Data Sharing: Planning and Administration*.

**XIDirRClm**

The XI Directory Entry Reclaim Counter shows the number of times a directory is reclaimed (stolen) and cross-validation (XI) signals are sent because the named page is cached in one or more DB2 buffer pools. This means that the stolen directory entry has registered DB2 interest.

A high number might indicate a problem. Check the hit ratio of the group buffer pool to determine whether the lack of directory entries might be causing excessive reads from the group buffer pool.

**CastOut**

The Castout Counter shows the number of castout operations that are performed. Castout is the process of writing pages from the group buffer pool to DASD.

**DirEntry**

The Directory Entry Counter shows the number of directory entries that are allocated for the coupling facility cache structure (DB2 group buffer pool). A directory entry contains control information for one database page. The directory entry is used by the coupling facility to determine where to send cross-validation signals when a page of data is changed or when the directory entry must be reused.

This value is a snapshot value. It is not affected by an incremental display or a cumulative display.

**DataEntry**

The Data Entry Counter shows the number of data entries that are allocated for the coupling facility cache structure (DB2 group buffer pool). The data entries are the actual places where the data page resides.

This value is a snapshot value. It is not affected by an incremental display or a cumulative display.

**TotChnge**

The Total Changed Counter shows a snapshot value of the current number of changed pages. This value is not affected by an incremental display or a cumulative display.

**GBP Coupling Facility Cache Structure Statistics**

This panel shows detail information about DB2 Group Buffer Pool (GBP) coupling facility cache structure statistics.

Total values are depicted in KB with a scale of 1000.
GBP COUPLING FACILITY CACHE STRUCTURE STATISTICS

+ Group Buffer Pool Name            GBP8K0
+ Explicit XI Counter              0
+ Read Hit Counter                 12
+ Read Miss Directory Hit Counter 14040
+ Read Miss Assign Suppressed Counter 7
+ Read Miss Name Assigned Counter 50593
+ Read Miss Cache Full Counter 0
+ Changed Page Write Hit Counter 72
+ Clean Page Write Hit Counter 0
+ Write Miss Cache Full Counter 0
+ Directory Entry Reclaim Counter 47722
+ Data Entry Reclaim Counter 30
+ Dir Entry Reclaim Counter 60865
+ Castout Counter 56
+ Directory Entry Counter 1
+ Data Entry Counter 0
+ Total Changed Counter 0
+
+ Secondary Bufferpool
+------------------------------
+ Changed Page Write Hit Counter 2 0
+ Write Miss Cache Full Counter 2 0
+ Directory Entry Counter 2 0
+ Data Entry Counter 2 0
+ Total Changed Counter 2 0

Navigation

You can view other GBP data without going back to the summary display panel by replacing the member name and the GBP name.

For additional information about

- data that is related to the member MBR1 of the same data sharing group and the group buffer pool GBP1, replace SN12 :GBP8K0 with MBR1 :GBP1. If the names of the member and the group buffer pool have less than 8 characters, they must be padded with blanks.
- other topics, use the PF keys.

Fields

Group Buffer Pool Name
The name of the group buffer pool.

Explicit XI Counter
The Explicit XI Counter shows the number of times that:
- a request is made to the coupling facility to explicitly cross-invalidate a page
- XI signals are sent because the named page is cached in one or more DB2 buffer pools.

Read Hit Counter
The Read Hit Counter shows the number of times that a page is returned on a coupling facility read request.
**Read Miss Directory Hit Counter**
The Read Miss Directory Hit counter shows the number of times that a coupling facility read request specifies a page for which a directory entry exists, however, data is not cached for that page.

**Read Miss Assign Suppressed Counter**
The Read Miss Assignment Suppressed Counter shows the number of times that a coupling facility read request specifies a page for which a directory entry does not exist or is not created. DB2 does not create a directory entry if it does not need to register the page to the coupling facility for cross-invalidation (XI) because no other DB2 in the group has read or write interest in the page set or partition. This counter also represents the number of times that pages are deregistered due to buffer stealing.

**Read Miss Name Assigned Counter**
The Read Miss Name Assigned Counter shows the number of times that a coupling facility read request specifies a page for which a directory entry is created.

**Read Miss Cache Full Counter**
The Read Miss Cache Full Counter shows the number of times that a coupling facility read request specifies a page for which a directory entry does not exist or is not created because the storage in the group buffer pool is insufficient.

A nonzero value in this field indicates that the size of the backing coupling facility cache structure might be too small to support the current workload.

**Changed Page Write Hit Counter**
The Changed Page Write Hit Counter shows the number of times a coupling facility write request for a changed page is completed successfully.

**Clean Page Write Hit Counter**
The Clean Page Write Hit counter shows the number of times a coupling facility write request for a clean page is completed successfully.

**Write Miss Cache Full Counter**
The Write Miss Cache Full Counter shows the number of times a coupling facility write request is not completed because the storage in the group buffer pool is insufficient.

The value in this field indicates that the data page resources of the coupling facility are faster consumed than the DB2 castout process can free them. For information about alleviating this condition, see *DB2 Data Sharing: Planning and Administration*.

**Directory Entry Reclaim Counter**
The Directory Entry Reclaim Counter shows the number of times a name assignment requires that a directory entry is reclaimed by the coupling facility.

**Data Entry Reclaim Counter**
The Data Entry Reclaim Counter shows the number of times a name assignment requires that a data page is reclaimed by the coupling facility.

**XI Dir Entry Reclaim Counter**
The XI Directory Entry Reclaim Counter shows the number of times a directory is reclaimed (stolen) and cross-invalidation (XI) signals are sent...
because the named page is cached in one or more DB2 buffer pools. This means that the stolen directory entry has registered DB2 interest.

A high number might indicate a problem. Check the hit ratio of the group buffer pool to determine whether the lack of directory entries might be causing excessive reads from the group buffer pool.

**Castout Counter**
The Castout Counter shows the number of castout operations that are performed. Castout is the process of writing pages from the group buffer pool to DASD.

**Directory Entry Counter**
The Directory Entry Counter shows the number of directory entries that are allocated for the coupling facility cache structure (DB2 group buffer pool). A directory entry contains control information for one database page. The directory entry is used by the coupling facility to determine where to send cross-validation signals when a page of data is changed or when the directory entry must be reused.

This value is a snapshot value. It is not affected by an incremental display or a cumulative display.

**Data Entry Counter**
The Data Entry Counter shows the number of data entries that are allocated for the coupling facility cache structure (DB2 group buffer pool). The data entries are the actual places where the data page resides.

This value is a snapshot value. It is not affected by an incremental display or a cumulative display.

**Total Changed Counter**
The Total Changed Counter shows a snapshot value of the current number of changed pages. This value is not affected by an incremental display or a cumulative display.

**Changed Page Write Hit Counter 2**
The Changed Page Write Hit Counter 2 for the secondary group buffer pool shows the number of successfully completed coupling facility write requests for changed pages.

**Write Miss Cache Full Counter 2**
The Write Miss Cache Full Counter for the secondary group buffer pool shows the number of coupling facility write requests that cannot complete because the coupling facility storage resources are insufficient.

**Directory Entry Counter 2**
The Directory Entry Counter for the secondary group buffer pool shows a snapshot value of the number of allocated directory entries.

**Data Entry Counter 2**
The Data Entry Counter for the secondary group buffer pool shows a snapshot value of the number of allocated data entries.

**Total Changed Counter 2**
The Total Changed Counter for the secondary group buffer pool shows a snapshot value of the number of allocated data entries that are currently in changed state.

**Accelerator Statistics Overview**
This panel displays the Analytics Accelerators that are available in the current DB2 subsystem. With this information, you can analyze the usage of the devices.
Navigation

For additional information about

• a particular Analytics Accelerator, move the cursor to the Analytics Accelerator line and press F11 (Zoom).
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

For each of the available accelerators, the following information is displayed on the Accelerator Summary panel:

Number of accelerators defined
   The number of accelerators that are defined on the system.

Name   The name of the Accelerator.

Product
   The product ID.

State   The state of the Accelerator.

Repl. State
   The state of Replication processing on this Accelerator.

Requests
   The number of Accelerator requests that are processed since the Accelerator was started.

Active   The number of active requests that are processed on the Accelerator.

Max Actv
   The high water mark of concurrent requests on the Accelerator.

Accelerator Statistics Detail
Depending on the version of the Analytics Accelerator that you are using, the information about the activity of a specified Analytics Accelerator is different. The version number of the Analytics Accelerator is displayed in the Product ID field.

Accelerator Detail

If the product ID is lower than AQT04010, the Accelerator Detail panel is displayed. It might look like this:
**Accelerator Detail**

<table>
<thead>
<tr>
<th>Collection Interval:</th>
<th>REALTIME</th>
<th>Start: 03/25 16:49:04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report Interval:</td>
<td>10 min</td>
<td>End: 03/25 16:58:59</td>
</tr>
</tbody>
</table>

- **Name**: VMNPS52
- **State**: ONLINE
- **Product ID**: AQT03010
- **Curr Active Requests**: 0
- **Max Active Requests**: 4
- **Avg Coord CPU**: 30.00%
- **Avg Worker CPU**: 0.00%
- **Total Num Processors**: 8
- **Processing Capacity**: 0
- **Act Worker Nodes**: 2
- **Avg Queue Wait Time (MS)**: 47
- **Max Queue Wait Time (MS)**: 141
- **Query Queue Len 3 HR Avg**: 0
- **Query Queue Len 24 HR Avg**: 0
- **Max Query Queue Len**: 0
- **Avail Disk (MB)**: 195426
- **DB Disk Avail (MB)**: 288
- **In-use Disk**: 0.21%

<table>
<thead>
<tr>
<th>TOTAL QUANTITY</th>
<th>INTERVAL QUANTITY /SECOND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Query Reqs Since Start</td>
<td>61 2 .00</td>
</tr>
<tr>
<td>Failed Reqs Since Start</td>
<td>1 0 .00</td>
</tr>
<tr>
<td>Failed Reqs Inv State</td>
<td>0 0 .00</td>
</tr>
<tr>
<td>Total Num Accel Connects</td>
<td>62 2 .00</td>
</tr>
<tr>
<td>Total Num Accel Requests</td>
<td>124 4 .00</td>
</tr>
<tr>
<td>Total Timed out Reqs</td>
<td>0 0 .00</td>
</tr>
<tr>
<td>Total Failed Reqs</td>
<td>0 0 .00</td>
</tr>
<tr>
<td>Num Bytes Sent</td>
<td>172758 6242 10.50</td>
</tr>
<tr>
<td>Num Bytes Received</td>
<td>33810260 3679800 6194.94</td>
</tr>
<tr>
<td>Num Msgs Sent</td>
<td>682 22 .03</td>
</tr>
<tr>
<td>Num Msgs Received</td>
<td>706 24 .04</td>
</tr>
<tr>
<td>Num Blocks Sent</td>
<td>0 0 .00</td>
</tr>
<tr>
<td>Num Blocks Received</td>
<td>62 2 .00</td>
</tr>
<tr>
<td>Num Rows Sent</td>
<td>0 0 .00</td>
</tr>
<tr>
<td>Num Rows Received</td>
<td>90854 10104 17.01</td>
</tr>
</tbody>
</table>

**Time Data**

- **TCP/IP Services Elapsed Time**: 0.000000 0.000000
- **CPU Time Executing SQL Stmts**: 0.000000 0.000000
- **CPU Time for Replication**: N/P N/P
- **CPU Time Load/Archive/Restore**: 0.000000 0.000000
- **Accel Elapsed Time**: 0.000000 0.000000
- **Accum Wait Time**: 0.000000 0.000000

---

**Navigation**

For more information about
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.
Fields

Collection Interval
The value REALTIME indicates that the collection interval and the report interval are the same.

Start
The start time of the report interval that is currently displayed.

Report Interval
The amount of time in the last cycle, for example, the time inbetween the Enter key was pressed twice.

End
The end time of the report interval that is currently displayed.

Name (Q8STNAME)
The name of the Accelerator.

State (Q8STSTATE)
The current state of the Accelerator. The following list shows the values for the state:
INITIALIZED
INITING
ONLINE
PAUSED
OFFLINE
STOPPED
MAINTENANCE

Product ID (Q8STPRID)
The internal product ID. It includes the version of the Accelerator.

Curr Active Requests
The number of requests that are currently processed on the Accelerator.

Max Active Requests
The high water mark of concurrent active requests on the Accelerator.

Avg Coord CPU
The average percentage of the time that the CPU is busy for the Accelerator coordinator node.

Avg Worker CPU
The average percentage of the time that the CPU is busy for the Accelerator worker node.

Total Num Processors
The total number of processors for all the nodes in the Accelerator.

Processing Capacity
The total capacity of the processors in the Accelerator.

Act Worker Nodes
The number of worker nodes that are defined in the Accelerator.

Avg Queue Wait Time (MS)
The average time that a query is queued in the Accelerator.

Max Queue Wait Time (MS)
The maximum time that a query is queued in the Accelerator.

Query Queue Len 3 HR Avg
The average length of a queue during the past 3 hours.

Query Queue Len 24 HR Avg
The average length of a queue during the past 24 hours.
Max Query Queue Len
The maximum queue time a query is queued.

Avail Disk (MB)
The amount of disk space that is available on Accelerator.

DB Disk In Use (MB)
The amount of disk space that is used by database objects.

In-use Disk
The percentage of disk space that is used.

The following statistics are displayed for the fields below in tabular format:

TOTAL QUANTITY
The amount of activity since DB2 was started.

INTERVAL QUANTITY
The amount of activity during the last cycle.

/ SECOND (594)
The rate per second during the last cycle. The value in parentheses indicates the number of seconds in the interval.

These are the fields for which the statistics above are displayed:

Successful Requests
The number of query requests sent by this DB2 that are successfully completed since the Accelerator is started.

Failed Reqs Since Start
The number of query requests that are sent by this DB2 since the Accelerator is started that failed for any reason.

Failed Reqs Inv State
The number of query requests that are sent by this DB2 since the Accelerator is started that failed because the Accelerator is in an invalid state. This value is a subset of the value in the field Failed Reqs Since Start.

Total Num Accel Connects
The number of connections that are started between this DB2 subsystem and the Accelerator.

Total Num Accel Requests
The number of requests that are sent to the Accelerator from this DB2 subsystem.

Total Timed Out Reqs
The number of requests that failed due to a timeout while waiting for the Accelerator.

Total Failed Reqs
The total number of failed Accelerator requests. This number includes any timeout errors.

Num Bytes Sent
The count of bytes of data that is sent to the Accelerator.

Num Bytes Received
The count of bytes of data that is received from the Accelerator.

Num Messages Sent
The count of messages that are sent to the Accelerator.
Num Messages Received
The count of messages that are received from the Accelerator.

Num Blocks Sent
The count of blocks that are sent to the Accelerator.

Num Blocks Received
The count of blocks that are received from the Accelerator.

Num Rows Sent
The count of data rows that are sent to the Accelerator.

Num Rows Received
The count of data rows that are received from the Accelerator.

The following statistics are displayed for the fields below in tabular format:

Total Times
The amount of time that is consumed since the Accelerator is activated.

Interval Times
The amount of time that is consumed in the current interval.

These are the fields for which the statistics above are displayed:

In DB2 CPU Time
The CPU time that is consumed within the Analytics Accelerator.

TCP/IP Services Elapsed Time (Q8STTELA)
The total elapsed time from the time DB2 started to process requests until the requests are complete.

Accel CPU Time (Q8STACPU)
This is the CPU time consumed within the Accelerator device.

Accel Elapsed Time (Q8STAELE)
The total elapsed time that the thread is processed on the Accelerator. The Accelerator time is a subset of the In-DB2 time.

Accum Wait Time (Q8STAWAT)
The total wait time within the Accelerator.

Accelerator Detail Subsystem Perspective

If the product ID is greater than or equal to AQT04010, the Accelerator Detail Subsystem Perspective panel is displayed. It shows information from the perspective of the individual DB2 subsystem. It might look like this:
ZID4

+ Report Interval:   23 sec  End: 01/29/15 13:45:49.26

+ Name  VNMPS52
+ State  ONLINE
+ Product ID  AQT04012
+ Server Start Time  01/19/15 02:48:10.63
+ Status Change Time  01/19/15 02:48:10.67
+ Curr Active Queries  0
+ Max Active Queries  0
+ Replication State  STARTED
+ Replication Latency  0.000000
+ Replication Status Change  01/26/15 18:30:11.67
+ Disk In Use This DB2 (MB)  N/P

+ TOTAL QUANTITY INTERVAL /SECOND ( 23)
+ Successful Requests  0  0  0
+ Failed Requests  0  0  0
+ Total Num Accel Connects  0  0  0
+ Total Num Accel Requests  0  0  0
+ Total Timed Out Reqs  0  0  0
+ Total Failed Reqs  0  0  0
+ Number Bytes Sent  0  0  0
+ Number Bytes Received  0  0  0
+ Number Msgs Sent  0  0  0
+ Number Msgs Received  0  0  0
+ Number Blocks Sent  0  0  0
+ Number Blocks Received  0  0  0
+ Number Rows Sent  0  0  0
+ Number Rows Received  0  0  0

+ Replication Data
+ TOTAL QUANTITY INTERVAL /SECOND ( 23)
+ Log Records Read  387086  0  0
+ Log Records Read Accel Tables  387086  0  0
+ Log Records Bytes Processed  25547808  0  0
+ Rows Inserted Accel Tables  0  0  0
+ Rows Updated Accel Tables  0  0  0
+ Rows Deleted Accel Tables  0  0  0

Chapter 5. Monitoring 1333
Navigation

For more information about

* an aggregation of accelerator details of all DB2 subsystems that are connected to the Analytics Accelerator, select the option **B-ACCELERATOR PERSPECTIVE**.
* related topics, select one of the options at the top of the panel.
* other topics, use the PF keys.

Fields

**Collection Interval**

The value REALTIME indicates that the collection interval and the report interval are the same.

**Start**
The start time of the report interval that is currently displayed.

**Report Interval**
The amount of time in the last cycle, for example, the time inbetween the Enter key was pressed twice.

**End**
The end time of the report interval that is currently displayed.

**Name (Q8STNAME)**
The name of the Accelerator.

**State (Q8STTATE)**
The current state of the Accelerator. The following list shows the values for the state:

- INITIALIZED
- INITING
- ONLINE
- PAUSED
- OFFLINE
- STOPPED
- MAINTENANCE

**Product ID (Q8STPRID)**
The internal product ID. It includes the version of the Accelerator.
Server Start Time (Q8STTART)  
The time the Accelerator server process is started.

Status Change Time (Q8STTATC)  
The time the last status change is recorded.

Curr Active Queries (Q8STNCQS)  
The number of queries that are processed currently on behalf of this DB2.

Max Active Queries (Q8STMNQS)  
The maximum number of concurrent queries that are processed on behalf of this DB2.

Replication State (Q8STCSS)  
The state of replication processing for this DB2.

Replication Latency (Q8STCRL)  
The replication latency for this DB2.

Replication Status Change (Q8STTLSC)  
The time the last replication status change is recorded.

Disk in Use This DB2 (Q8STDSDKB)  
The amount of disk space that is used by database objects.

The following statistics are displayed for the fields below in tabular format:

<table>
<thead>
<tr>
<th>Field Description</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL QUANTITY</td>
<td>The amount of activity since the Accelerator is activated.</td>
</tr>
<tr>
<td>INTERVAL QUANTITY</td>
<td>The amount of activity during the last cycle.</td>
</tr>
<tr>
<td>/SECOND (1)</td>
<td>The rate per second during the last cycle. The value in parentheses indicates the number of seconds in the interval.</td>
</tr>
</tbody>
</table>

These are the fields for which the statistics above are displayed:

Successful Requests (Q8STSREQ)  
The number of query requests sent by this DB2 since the Accelerator is started that completed successfully.

Failed Requests (Q8STFREQ)  
The number of query requests sent by this DB2 since the Accelerator is started that failed for any reason.

Total Num Accel Connects (Q8STCONN)  
The number of connections that are started between this DB2 subsystem and the Accelerator.

Total Num Accel Requests (Q8STREQ)  
The number of requests that are sent to the Accelerator from this DB2 subsystem.

Total Timed Out Reqs (Q8STTOUT)  
The number of requests that failed due to a timeout waiting for the Accelerator.

Total Failed Reqs (Q8STFAIL)  
The total number of failed Accelerator requests. This number includes any timeout errors.
Number Bytes Sent
The number of bytes of data that is sent to the Accelerator.

Number Bytes Received (Q8STBYTR)
The number of bytes that are received.

Number Messages Sent (Q8STMSG)
The number of messages that are sent to the Accelerator.

Number Messages Received (Q8STMSGR)
The number of messages that are received from the Accelerator.

Number Blocks Sent (Q8STBLKS)
The number of blocks that are sent to the Accelerator.

Number Blocks Received (Q8STBLKR)
The number of blocks that are received by the Accelerator.

Number Rows Sent (Q8STROWS)
The number of data rows that are sent to the Accelerator.

Number Rows Received (Q8STROWR)
The number of data rows that are received by the Accelerator.

The following set of statistic fields is related to replication processing. If replication is not configured for this Accelerator, these fields are not displayed.

Log Records Read (Q8STNLRS)
The total number of log records that is read by capture agents on this DB2.

Log Records Read Accel Tables (Q8STNLTS)
The number of log records that are read by capture agents on this DB2 for tables that reside in this Accelerator.

Log Record Bytes Processed (Q8STNBS)
The number of bytes that are processed by capture agents for this DB2.

Rows Inserted Accel Tables (Q8STNIS)
The number of inserted rows that are processed by capture agents on this DB2 for tables that reside in this Accelerator.

Rows Updated Accel Tables (Q8STNUS)
The number of updated rows that are processed by capture agents on this DB2 for tables that reside in this Accelerator.

Rows Deleted Accel Tables (Q8STNDS)
The number of inserted rows that are processed by capture agents on this DB2 for tables that reside in this Accelerator.

The following statistics are displayed for the fields below in tabular format:

TOTAL QUANTITY
The amount of time that is consumed since the Accelerator is activated.

INTERVAL QUANTITY
The amount of time that is consumed in the current interval.

These are the fields for which the statistics above are displayed.

TCP/IP Services Elapsed Time (Q8STTELA)
The total elapsed time from the time DB2 started to process a request until the time the request is completed.
CPU Time Executing Queries (Q8STTCQS)
The CPU time that is consumed by the Analytics Accelerator for processing queries.

CPU Time for Replication (Q8STTCCS)
The CPU time that is consumed by the Analytics Accelerator for replication.

CPU Time for Load/Archive/Restore (Q8STTCMS)
The CPU time that is consumed by the Analytics Accelerator for maintenance.

Accel Elapsed Time (Q8STAELA)
The total elapsed time that the thread is processed on the Analytics Accelerator. The Accelerator time is a subset of the In DB2 time.

Accum Wait Time (Q8STAWAT)
The total wait time within the Analytics Accelerator.

Statements sent to Accelerator
Insert The number of Insert statements issued for IDT (Q8STINSC) objects from DB2 to the accelerator.

Update The number of Update statements issued for IDT (Q8STUPDC) objects from DB2 to the accelerator.

Delete This is the number of Delete statements issued for IDT (Q8STDELC) objects from DB2 to the accelerator.

Drop The number of Drop statements issued for IDT (Q8STDRTC) objects from DB2 to the accelerator.

Create The number of Create statements issued for IDT (Q8STCRRTC) objects from DB2 to the accelerator.

Commit The number of Commit statements issued for IDT (Q8STCMTC) objects from DB2 to the accelerator.

Rollback This is the number of Rollback statements issued for (Q8STRBKC) IDT objects from DB2 to the accelerator.

Open The number of Open statements issued for IDT (Q8STOPNC) objects from DB2 to the accelerator.

Accelerator Detail Accelerator Perspective
This panel displays detailed information that is aggregated across all DB2 subsystems that are connected to the Analytics Accelerator.
Navigation

For more information about
• the activity in the specified Analytics Accelerator, select the option **A-DB2 PERSPECTIVE**.
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.
Fields

Collection Interval
The value REALTIME indicates that the collection interval and the report interval are the same.

Start
The start time of the report interval that is currently displayed.

Report Interval
The amount of time in the last cycle, for example, the time inbetween the Enter key was pressed twice.

End
The end time of the report interval that is currently displayed.

Name (Q8STNAME)
The name of the Accelerator.

State (Q8STTATE)
The current state of the Accelerator. The following list shows the values for the state:
- INITIALIZED
- INITING
- ONLINE
- PAUSED
- OFFLINE
- STOPPED
- MAINTENANCE

Product ID (Q8STPRID)
The internal product ID. It includes the version of the Accelerator.

Server Start Time (Q8STTART)
The time the Accelerator server process is started.

Status Change Time (Q8STTATC)
The time the last status change is recorded.

Curr Active Queries (Q8STNCQS)
The number of queries that are processed currently on behalf of this DB2.

Max Active Queries (Q8STMNQ5S)
The maximum number of concurrent queries that are processed on behalf of this DB2.

Avg Coord CPU (Q8STCCPU_64)
The utilization of the CPU on the coordinator node.

Avg Worker CPU (Q8STWCPU_64)
The utilization of the CPU on worker nodes.

Total Num Processors (Q8STCORS)
The total number of CPU cores that are available for worker nodes.

Act Worker Nodes (Q8STWNOD_64)
The number of nodes that are active.

Current Queue Length (Q8STCQL)
The length of the waiting work queue.

Max Queue Length
The high watermark of the query queue length at the accelerator.

Avg Queue Wait Time (MS) (Q8STQUEW)
The average waiting time in a work queue.
Max Queue Wait Time (MS)
The maximum waiting time in a work queue.

Disk Space for All DB2 (MB) (Q8STDSDKA)
The storage that is available on the disk.

Disk In Use All DB2 (MB) (Q8STDSA)
The total disk space that is used in all databases.

The following statistics are displayed for the fields below in tabular format:

TOTAL QUANTITY
The amount of activity since DB2 was started.

INTERVAL QUANTITY
The amount of activity during the last cycle.

/ SECOND (594)
The rate per second during the last cycle. The value in parentheses indicates the number of seconds in the interval.

These are the fields for which the statistics above are displayed:

Successful Requests
The number of query requests sent by this DB2 that are successfully completed since the Accelerator is started.

Failed Reqs Since Start
The number of query requests that are sent by this DB2 since the Accelerator is started that failed for any reason.

The following set of statistic fields is related to replication processing. If replication is not configured for this Accelerator, these fields are not displayed.

Log Records Read (Q8STNLRS)
The total number of log records that is read by capture agents on this DB2.

Log Records Read Accel Tables (Q8STNLTS)
The number of log records that are read by capture agents on this DB2 for tables that reside in this Accelerator.

Log Record Bytes Processed (Q8STNBS)
The number of bytes that are processed by capture agents for this DB2.

Rows Inserted Accel Tables (Q8STNIS)
The number of inserted rows that are processed by capture agents on this DB2 for tables that reside in this Accelerator.

Rows Updated Accel Tables (Q8STNUS)
The number of updated rows that are processed by capture agents on this DB2 for tables that reside in this Accelerator.

Rows Deleted Accel Tables (Q8STNDS)
The number of inserted rows that are processed by capture agents on this DB2 for tables that reside in this Accelerator.

The following statistics are displayed for the fields below in tabular format:

TOTAL QUANTITY
The amount of time that is consumed since the Accelerator is activated.

INTERVAL QUANTITY
The amount of time that is consumed in the current interval.
These are the fields for which the statistics above are displayed.

**CPU Time Executing Queries (Q8STTCQS)**
- The CPU time that is consumed by the Analytics Accelerator for processing queries.

**CPU Time for Replication (Q8STTCCS)**
- The CPU time that is consumed by the Analytics Accelerator for replication.

**CPU Time for Load/Archive/Restore (Q8STTCMS)**
- The CPU time that is consumed by the Analytics Accelerator for maintenance.

### Application Trace Facility (ATF)

Select this main menu option to access the Application Trace Facility (ATF) to trace the execution of a DB2 application.

The information gathered in these traces helps in the analysis of application flow and resource consumption. The Application Trace Facility provides the following types of performance information:

- SQL trace information including static host variables and dynamic parameter markers
- Sort activity information
- Pageset access and scan information
- Locking information
- Application In-DB2 time and In-DB2 CPU time

The data that is collected by the Application Trace Facility is stored in a VSAM file or resident in memory. If the data is not stored in a VSAM file, it is only available for the current OMEGAMON for Db2 PE session.

All Application Trace Facility (ATF) panels show the current state of an application trace, including a possible trace data set full condition, as ABENDED, ACTIVE, INACTIVE, or DSN FULL. A state of INIT-XXX might be shown briefly during early stages of initialization. For more information, see the description of panel “View the Active In-Memory Non-Dataset Trace” on page 1348.

### Application Trace Facility Menu

This menu provides access to panels from which you can start an application trace, store trace data, review the data collected by an application trace, stop an application trace, and release the storage data set.

You can use this panel to specify the criteria for the application to be traced and to store the trace output. Trace output can have the following formats:

**In memory trace**
- Trace data is stored in the virtual storage of the OMEGAMON for Db2 PE address space. It is limited to the total amount of storage that is available. The storage is owned by the VTAM session that started the trace. The trace starts as soon as you are completing the start request. If the VTAM session terminates while the trace is running, the trace is terminated and the trace output is lost. When the trace is completed, the data is only available to the VTAM session that started the trace. If the VTAM session terminates, or if you request another in memory application trace, the trace is discarded.
To control the TRACE request, select option **B - VIEW TRACE**. To terminate the trace or to view the trace contents, select option **C - Stop Trace**.

**VSAM Dataset Trace**
The trace is written to a VSAM dataset. It is limited by the size of the dataset. You can define whether the trace is to run immediately or to be deferred (scheduled) for execution at a later time. If the trace is started or scheduled, the VTAM session that requests the trace does not need to stay active for the trace to complete successfully. Information about the trace is maintained for the duration of the OMEGAMON for Db2 PE address space, unless it is manually deleted. You can view the trace data from any VTAM session.

To control the trace, select option **H - QUEUED Traces** and select the appropriate element.

---

**Navigation**

The following menu options are available. To select an item, enter the appropriate letter on the command line of the panel. For example, you might want to enter **A** to specify a trace.

**A - Specify Trace**
Provides a fill-in-the-blank panel to identify the application to trace. Select this option to specify or to start an active trace. You can also capture the trace output for later viewing in a dataset.

For more information, see the description of panel “Specify Application Trace” on page 1343.

**B - View Trace**
Shows an overview of the trace status and output information that is generated by the trace.

This option is only available for traces that are not written to a VSAM dataset.

For more information, see the description of panel “View the Active In-Memory Non-Dataset Trace” on page 1348.

**C - Stop Trace**
Stops the active trace of the specified application.
This option is only available for traces that are not written to a VSAM dataset.
For more information, see the “Stop In-Memory Non-Dataset Trace Requests” on page 1350 panel.

D - Select Dataset
Select this option to select a data set that previously captured trace output.

This option is deprecated in version 5.2.0 and subsequent versions. To select a data set that contains previously captured trace output, enter option H to manage traces that are written to a VSAM data set.
For more information, see the description of panel “Select Data Set and Trace Parameters” on page 1350.

E - View Dataset
Select this option to view the data in the selected trace data set.

This option is deprecated in version 5.2.0 and subsequent versions. To view the data in the selected trace data set, enter option H to manage traces that are written to a VSAM data set.
For more information, see the description of panel “Application Trace Thread Summary - View Dataset” on page 1352.

F - Stop View
Select this option to release a previously selected trace data set from OMEGAMON for Db2 PE.

This option is deprecated in version 5.2.0 and subsequent versions. To release a selected trace data set from OMEGAMON for Db2 PE, enter option H to manage traces that are written to a VSAM data set.
For more information, see the description of panel “Stop Viewing Trace Dataset” on page 1354.

G - CREATE DSN
Select this option to create a new VSAM linear data set for storing the trace output.

For more information, see the description of panel “Create Application Trace Data Set Name” on page 1354.

H - QUEUED TRACES
Select this option to manage the queue of application trace requests that are written to a VSAM dataset.

You can use the 3270 Tab key in panels that permit for data entry. The 3270 Tab key eases the navigation in panels with multiple data entry fields.

Specify Application Trace:

Use this panel to specify the criteria for the application to be traced and the data set to which the trace data is to be stored for later analysis.

All ATF panels display the current trace status. The following values might be displayed:

ACTIVE
The application trace is active.

INACTIVE
The application trace is inactive.
You can trace up to five individual plans or all plans (threads) executing in the DB2 system. To limit trace overhead incurred by the DB2 subsystem and OMEGAMON XE for DB2 PE, qualify your trace request as much as possible. To qualify a trace request, enter the required information for only one of the connection types (TSO, batch, CICS, or IMS).

**Note:** Use SMP/E USERMOD if you want to change default options and limits listed below. See TKANSAM(KO2MOD01) for more information.

**Navigation**

For additional options, use the PF keys.

**Fields**

**DSN**  
The name of a VSAM data set. If you want trace data to be saved for later viewing, enter the name of a preallocated, preformatted data set; otherwise, leave this field blank.

For considerations about sizing VSAM data sets for various record types and output devices, see *Configuration and Customization*.

For procedures about customizing the Application Trace Facility, see *Configuration and Customization*. The ATF uses only the primary extent of a data set; it does not use secondary extents. Keep this in mind when considering space requirements for the trace data.
MODE
Defines whether trace data is appended to existing data in the VSAM data set that is specified in the DSN field. You can use the following values:

APPEND
Any previously collected trace data is retained and new data is appended to the end of existing data.
This is the default value.

REUSE
Deletes existing trace data from a data set before new trace data is added.

You can change the default value by adding the keyword ATFMODE to the member OMPEOPTS in the rhlrev.RKD2PAR(OMPEOPTS) data set. Valid values for the keyword ATFMODE are APPEND or REUSE.

PLANNAME
The DB2 plan names of the application threads to be traced. To trace all thread activity, set the plan name to ALL. This field is required.
The specification of individual plan names and individual authorization IDs is restricted such that you can specify either up to five plan names and one authorization ID or one plan name and up to five authorization IDs.

AUTHID
The DB2 authorization IDs of the application (threads) to be traced. This field is optional, however, you should supply one or more authorization IDs to limit trace overhead and the amount of data collected.
See also PLANNAME for possible restrictions.

TSOUSER
The TSO user ID of the application (thread) to be traced if the application originates from a DB2 TSO connection. This limits the amount of trace data collected and overhead incurred.

JOBNAME
The jobname of the application (thread) to be traced if the application originates from a DB2 batch (TSO background) connection. This limits the amount of trace data collected and overhead incurred.

CICSTRAN
The transaction ID of the application (thread) to be traced if the application originates from a DB2 CICS connection. This limits the amount of trace data collected and overhead incurred.

CICSCONN
The DB2 connection ID of the CICS region from which the application (thread) originates. This limits the amount of trace data collected and overhead incurred.

PSBNAME
The IMS PSB name of the application (thread) if the application originates from the DB2 IMS connection. This limits the amount of trace data collected and overhead incurred.

IMSID
The IMSID of the IMS region from which the application (thread) originates. This limits the amount of trace data collected and overhead incurred.
SMF  Specifies whether the trace data will be written out to SMF in addition to the capture. The default is N. SMF and GTF are mutually exclusive fields. You can specify N for both fields, but not Y.

GTF  Specifies whether the trace data will be written out to GTF in addition to the capture. The default is N. SMF and GTF are mutually exclusive fields. You can specify N for both fields, but not Y.

STATSQL  Specify Yes to enable display of static SQL statements.

SQLDATA  Specify No to inhibit collection of DB2 SQL trace records. This reduces the number of captured trace records and associated overhead.

SQLDATA activates the following IFCIDs:
- 58 END OF SQL STATEMENT EXECUTION
- 59 START OF FETCH SQL STATEMENT EXEC
- 60 START OF SELECT SQL STATEMENT EXEC
- 61 START OF INSERT, UPDATE, DELETE SQL
- 62 START OF DDL STATEMENT EXECUTION
- 63 SQL STATEMENT TO BE PARSED
- 64 START PREPARE SQL STATEMENT EXEC
- 65 START OPEN CURSOR STATIC/DYN SQL
- 66 START CLOSE CURSOR STATIC/DYN SQL
- 177 SUCCESSFUL PACKAGE ALLOCATION
- 233 START/END CALL TO USER ROUTINE

LOCKDATA  Specify NO to inhibit collection of DB2 lock trace records. This reduces the number of captured trace records and associated overhead.

LOCKDATA activates the IFCID 21 DETAIL LOCK REQ.ON RETURN FROM IRLM.

SCANDATA  Specify NO to inhibit collection of DB2 scan trace records. This reduces the number of captured trace records and associated overhead.

SCANDATA activates the following IFCID(s):
- 15 INPUT MATCH./NON-MATCH.INDEX SCAN
- 16 INPUT TO THE FIRST INSERT
- 17 INPUT TO SEQUENTIAL SCAN
- 18 END INDEX SCAN, INSERT, SEQ. SCAN
- 221 PARALLEL DEGREE FOR PARALLEL GROUP
- 222 PARALLEL GROUP ELAPSED TIME
- 231 PARALLEL GROUP COMPLETION

THRDDATA  Specify NO to inhibit collection of DB2 thread trace records. This reduces the number of captured trace records and associated overhead.

THRDDATA activates the following IFCID(s):
- 68 BEGINNING OF A ROLLBACK REQUEST
- 69 ENDING OF A ROLLBACK REQUEST
- 70 BEGIN COMMIT PHASE 2 REQUEST
- 71 END COMMIT PHASE 2 REQUEST
- 73 ENDING OF A CREATE THREAD REQUEST
- 74 BEGINNING OF TERM. THREAD REQUEST

**CONNDATA**
Specify NO to inhibit collection of DB2 connection trace records. This reduces the number of captured trace records and associated overhead. CONNDATA activates the following IFCID(s):
- 84 BEGIN PHASE 1 COMMIT REQUEST
- 85 END PHASE 1 COMMIT REQUEST
- 86 BEGINNING OF SIGNON REQUEST
- 87 ENDING OF SIGNON REQUEST
- 88 BEGINNING OF A SYNC REQUEST
- 89 ENDING OF A SYNC REQUEST
- 95 SORT STARTED
- 96 SORT ENDED

**HOSTVARS**
Specify Y to enable input HOSTVAR data collection. The default is N. HOSTVARS activates the IFCID 247 SQLDA AND INPUT HOST VARIABLE DATA.

**MEMSIZE**
Specifies the amount of virtual memory to be used for the collection work area. You can specify a value from 1 to 4 MB.

The default value is 2 MB.

**TIME**
The time (in minutes) that OMEGAMON XE for DB2 PE will trace the application. The default is 5 minutes. The trace time can be any value from 1 through 60 minutes. The length of the application trace should be minimized to limit the resource utilization (CPU, memory) required by the facility.

**FLUSH**
The interval at which ATF processing will flush those Unit of Work (UOW) records that are complete and write them to the VSAM data set. The default is 300 seconds (5 minutes).

**DEFERRED**
Optionally, you can defer the start of the trace request by specifying the following fields:

**STDAT**
The date (in mm/dd/yyyy or dd.mm.yyyy format) the trace request is to start. You can specify the current date or a date in the future.

**STTIME**
The time (in 24 hour format) the trace is to start. This field is required, if STDAT is specified.

If STDAT represents the current date, STTIME must be a time in the future.

If STDAT is for a future date, this field must be a valid time.
If the OMEGAMON Collector Address Space is stopped, all scheduled requests will be lost. Both fields must be entered for the request to be deferred. Deferred requests must be written to VSAM datasets.

Deferred information cannot be entered when the ATF command is entered from the Thread Detail display.

When you complete the fields in this panel and press Enter, OMEGAMON XE for DB2 PE displays a confirmation panel that contains the values you supplied. To start the application trace using these values, press Enter. To change the values without starting a trace, press F3.

**View the Active In-Memory Non-Dataset Trace:**

This panel shows information about the status of the current trace and a summary of the application (DB2 thread) information that is being collected.

All ATF screens display the Current Trace Status. The basic status values are INACTIVE or ACTIVE. Plans are listed in descending order of in-DB2 CPU time used.

To view unit of work summary information for a traced application thread, place the cursor on the line of a plan name and press PF11.

<table>
<thead>
<tr>
<th>ZATVW</th>
<th>VTM</th>
<th>O2</th>
<th>V540.#P</th>
<th>SE12</th>
<th>11/05/13 16:28:32</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>&gt;</td>
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<td></td>
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</tr>
<tr>
<td>&gt; A,B</td>
<td>Current Trace Status: ACTIVE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; A-SPECIFY TRACE</td>
<td>--&gt; VIEW TRACE</td>
<td>C-STOP TRACE</td>
<td>D-SELECT DSN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; E-VIEW DATASET</td>
<td>F-STOP VIEW</td>
<td>G-CREATE VSAM LDS</td>
<td>H-QUEUED TRACES</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>==-----------------------------------------------------------------==</td>
<td></td>
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</tr>
<tr>
<td>&gt; APPLICATION TRACE THREAD SUMMARY</td>
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<tr>
<td>ATVW</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>+ Trace Status = ACTIVE Trace Time Remaining = 00:04:44</td>
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<td></td>
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</tr>
<tr>
<td>+ Trace Start Time = 16:28:16 Trace Start Date = 11/05/2013</td>
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</tr>
<tr>
<td>+ Trace End Time = 00:00:00 Trace End Date = 00/00/0000</td>
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</tr>
<tr>
<td>+ Trace Time Limit = 00:05:00 Trace Records Collected = 0</td>
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<tr>
<td>+ Trace Request Information :</td>
<td></td>
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</tr>
<tr>
<td>+ PLANNAME = QMF910</td>
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<td>+ AUTHID = HONG</td>
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<tr>
<td>+ CICSTRAN = QMFE</td>
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<tr>
<td>+ STATSQL = Y</td>
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<td></td>
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<tr>
<td>+ HOSTVARS = Y</td>
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<tr>
<td>====================================================================</td>
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</tbody>
</table>

After an in-memory trace is started successfully, you can view the trace output by using option **B - View Trace** from the main menu.

**Navigation**

For additional information about

- a particular thread, move the cursor to the thread line and press F11 (Zoom). For more information, see the description of panel **"Application Trace Unit of Work Activity Summary"** on page 1360.

- other topics, use the PF keys.

**Fields**

**Trace Status**

The current status of the trace:
ACTIVE
The trace is still collecting data.

INACTIVE
The time specified on the trace request has elapsed and application trace collection has terminated.

Trace Time Remaining
The time remaining if the trace is still active. If the trace is inactive, this field contains zeros.

Trace Start Time
The time the trace started.

Trace Start Date
The date the trace started.

Trace End Time
The time the trace stopped if trace status is inactive. If the trace is still active, this field contains zeros.

Trace End Date
The date the trace stopped if trace status is inactive. If the trace is still active, this field contains zeros.

Trace Time Limit
The trace time limit specified when the trace was started.

Trace Request Information:
This section displays the request criteria that you specified in the Specify Application Trace panel. For example:
PLANNAME
AUTHID
TSOUSER
STATSQL
HOSTVARS

ATF summary data collected:
This section displays the ATF summary data that is collected since the start of the ATF in-memory trace. The summary data is organized by planname.

Planname
The DB2 plan name of the thread.

Connid
The DB2 connection identifier of the thread.

Corrid
The DB2 correlation identifier of the thread.

Authid
The DB2 authorization identifier of the thread.

InDB2 CPU
The CPU time (in seconds) used by the thread while executing in DB2.

SQL
The total number of SQL statements issued by the thread.

Commits
The total number of Commits that occurred for the thread.

Aborts
The total number of aborts that occurred for the thread.
Stop In-Memory Non-Dataset Trace Requests:

Use this panel to manually stop an application trace that is currently active.

A application trace is normally terminated after the trace time limit that is specified during the trace request has expired.

Stopping trace collection does not delete trace information collected. It simply stops the active trace request. All data collected before trace termination is still available for viewing.

Navigation

For additional options, use the PF keys.

Fields

OMEGAMON XE for DB2 PE does not display any fields on the Stop Application Trace Request panel.

Select Data Set and Trace Parameters:

Use this panel to specify a data set with application trace data so that you can view the trace data. You can also specify selection criteria to limit the data to be reported.
The data set must be a VSAM data set that was used to capture an application trace (by specifying the data set name on the Specify Application Trace panel).

You can limit the data to be reported by applying one or more selection criteria. For example, you can specify a time period, individual plan names or authorization IDs, or qualify a connection type. If no selection criteria are applied, all trace data from the specified data set are reported. By applying selection criteria, you also limit the reporting overhead incurred by OMEGAMON XE for DB2 PE.

Navigation

For additional options, use the PF keys.

Fields

DSN  The name of the VSAM data set that contains the captured trace information. This field is required.

STARTDATE  The starting date delimiting the records to be displayed.

STARTTIME  The starting time delimiting the records to be displayed.

ENDDATE  The ending date delimiting the records to be displayed.

ENDTIME  The ending time delimiting the records to be displayed.
DB2ID
The identifier of the DB2 subsystem to be displayed.

MVSID
The identifier of the MVS where the monitored DB2 resides.

PLANNAME
DB2 plan names to be displayed.

AUTHID
DB2 authorization IDs to be displayed.

TSOUSER
The TSO user ID of the application (thread), if the application originates from a DB2 TSO connection.

JOBNAME
The jobname of the application (thread), if the application originates from a DB2 batch (TSO background) connection.

CICSTRAN
The transaction ID of the application (thread), if the application originates from a DB2 CICS connection.

CICSCONN
The DB2 connection ID of the CICS region from which the application (thread) originates.

PSBNAME
The IMS PSB name of the application (thread), if the application originates from the DB2 IMS connection.

IMSID
The IMSID of the IMS region from which the application (thread) originates.

STATIC SQL(Y/N)
Specifying Y or N determines whether static SQL text is retrieved from the catalog table.

Host Variable(Y/N)
Specifying Y or N determines whether input host variable information is retrieved from the VSAM dataset and displayed on panel ZATD1.

This option applies only to the VSAM ATF. To control whether input host variable data is collected into a VSAM dataset, use the HOSTVARS option on the panels ZATRQ or ZATRQ2.

Application Trace Thread Summary - View Dataset:
This panel shows information about the specified trace request and a summary of application (DB2 thread) information that is being captured in this data set.
Each time you navigate to this panel and each time you press Enter, the data set information is refreshed.

**Navigation**

For additional information about

- a particular thread, move the cursor to the thread line and press F11 (Zoom). For more information, see the description of panel "Application Trace Unit of Work Activity Summary" on page 1360.
- other topics, use the PF keys.

**Fields**

**Trace parameters:** This section displays the specified data set name and the specified trace request information, similar to the Application Trace Thread Summary panel.

**Thread information:** This section shows a summary of thread activities for the specified trace request.

**Plannname**

The DB2 plan name of the thread.

**Connid**

The DB2 connection identifier of the thread.

**Corrid**

The DB2 correlation identifier of the thread.

**Authid**

The DB2 authorization ID of the thread.

**DB2**

The identifier of the DB2 subsystem that is monitored.

**MVS**

The identifier of the MVS where the monitored DB2 resides.

**InDB2 CPU**

The CPU time (in seconds) used by the thread while executing in DB2.

**Commits**

The total number of Commits located for the thread.

**Aborts**

The total number of aborts located for the thread.
Stop Viewing Trace Dataset:

Use this panel to release a data set that was previously selected on the Select Dataset and Trace Parameters panel.

Releasing a data set makes it available for redefinition and recreation. The data will still be available for viewing after the data set is released.

Navigation

For additional options, use the PF keys.

Create Application Trace Data Set Name:

Use this panel to create a VSAM linear data set that can be used as the target for application trace output data.

Navigation

For additional options, use the PF keys.

Fields

**DSN**  The name of the dataset to be created.

**SIZE**  The size of the dataset (in MB). The maximum value is 2048.

**VOLUME**  The volume serial number of the volume on which the dataset is to be placed.
Processing Traces Written to VSAM Datasets:

This panel shows information about the status of the current trace and a summary of the application (DB2 thread) information that is collected.

<table>
<thead>
<tr>
<th>ATQM</th>
<th>VTM</th>
<th>DSN</th>
<th>Date</th>
<th>Time</th>
<th>SSID</th>
<th>Status</th>
<th>Owner</th>
<th>Plan</th>
<th>AUTHID</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Pending</td>
<td>WDRI</td>
<td>APPLPN1</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Scheduled</td>
<td>WDRI</td>
<td>APPLPLAN</td>
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<td></td>
<td>Executing</td>
<td>WDRI</td>
<td>WAYNEPLN</td>
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<td></td>
<td></td>
<td></td>
<td>Complete</td>
<td>WDRI</td>
<td>WAYNEPLN</td>
<td></td>
</tr>
</tbody>
</table>

Navigation

For individual information about:

- A particular trace entry, move the cursor to the trace description line and press F11 (Zoom).
- Related topics, select one of the options at the top of the panel.
- Other topics, use the PF keys.

Fields

Status  The current state of the trace request. The following values might be displayed:

  Pending  The request is awaiting processing.

  Scheduled  The request starts at the scheduled time.

  Executing  The trace request is currently executing.

  Complete  The request has completed. Warning might be displayed.

  Failed  The trace execution cannot be started.

  Obsolete  The VSAM dataset that is used for this completed trace is overwritten by a subsequent trace.

SSID  The DB2 subsystem that the trace collects data from.

Scheduled Start

The following fields contain information about the scheduled or the actual start date and time of the trace.

Date  The start date for this trace if a deferred date is specified in the
trace request. If no start date is specified and if the request is pending, the date is displayed like this: 00/00/0000. When the trace starts executing, the actual start date is displayed.

**Time**  The start time for this trace if a deferred time is specified in the trace request. If no start time is specified and if the request is pending, the time is displayed like this: 00:00. When the trace starts executing, the actual start time is displayed.

**Completion**
The following fields contain information about the actual completion date and time of the trace.

**Date**  The date the trace completed.

**Time**  The time the trace completed.

**Owner**
The owner ID of the trace. If a logon exit is provided, this field displays the USERID from that exit. If a logon exit is not provided, this field contains the VTAM LUNAME of the VTAM session.

**First Plan**
The name that is specified for the first plan in the trace request.

**First AUTHID**
The first author ID that is specified in the trace request. If an author ID is not specified, this field is blank.

**VSAM Trace Entry Detail:**
This panel shows information about the status of the selected trace and a summary of the application (DB2 thread) information that is collected.

The information includes counts of the number of records that are collected and lost. If the counts of records that are lost are not zeros, it indicates that the rate at which DB2 generates the records is too fast for the capture facility. In this case, you should specify more selection criteria to restrict the data.
Navigation

For additional information about:

- Managing the trace output, select one of the options at the top of the panel.
- Other topics, use the PF keys.

Fields

**Queued Request Owner**
This field displays the USERID that is used to log on to OMEGAMON for Db2 PE or the VTAM Terminal ID that the request is issued from if external security is disabled for the OMEGAMON for Db2 PE server.

**Type**
This field identifies the type of queued request. Valid values:

- **Immediate**
  This request is queued for execution. The queue is processed

- **Scheduled**
  This request is scheduled to be executed at a particular time.

**Trace Status**
The following trace information is available:

- **OBSOLETE**
The VSAM dataset used for this trace has been overwritten by > a subsequent trace, so the trace data cannot be confirmed.

- **ABENDED**
The trace is terminated due to ABEND.

- **ACTIVE**
The trace is still collecting data.

- **INACTIVE**
The time that is specified in the trace request elapsed and the application trace collection terminated.
DSN FULL
The VSAM data set that is used for storing the trace data is full.

Trace Time Remaining
The time remaining if the trace is still active. If the trace is inactive, this field contains zero.

Trace Start Time
The time the trace started.

Trace Start Date
The date the trace started.

Trace End Time
The time the trace ended.

Trace End Date
The date the trace ended.

Trace Time Limit
The trace time limit that is specified when the trace is started.

DSN
The specified name of the data set that holds data to be captured.

Trace records captured
The number of records that are captured.

Trace records lost
The number of trace records that are lost.

If a nonzero value is displayed in this field, DB2 generated trace records too fast for the capture facility. You can use trace criteria to limit the amount of data to be captured.

UOW records captured
The number of Unit of Work (UOW) records that are captured.

UOW records lost
The number of UOW records that are lost.

If a nonzero value is displayed in this field, DB2 generated UOW records too fast for the capture facility. You can use trace criteria to limit the amount of data to be captured.

Viewing Dataset:

This panel displays the trace selection criteria and the application trace output that is generated from data that is contained in the selected input dataset.

All ATF screens display the current trace status. The following values are available:

ACTIVE or INACTIVE
Basic status values.

DSN FULL
The output file ran out of space.

INIT-XXX
This value is displayed briefly during various stages of initialization.

ABENDED
The job abended.

Plans are displayed in descending order based on in-DB2 CPU time used.
The section Trace parameters displays the specified data set name and the specified trace request information, similar to the Application Trace Thread Summary panel.

The section Thread information shows a summary of thread activities for the specified trace request.

<table>
<thead>
<tr>
<th>ZAT0D</th>
<th>VTM</th>
<th>02</th>
<th>V540.4P SE12 11/05/13 16:39:58 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;</td>
<td>Help PF1 Back PF3 Up PF7 Down PF8 Zoom PF11</td>
<td>&gt;</td>
<td>A.H.B Current Trace Status: INACTIVE</td>
</tr>
<tr>
<td>&gt; A-VIEW TRACE *-VIEW DATASET C-DELETE ENTRY D-STOP TRACE</td>
<td>&gt; APPLICATION TRACE THREAD SUMMARY -- VIEW DATASET</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATVD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>DSN = MIS.ATF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>Start Date = 11/05/2013 Start Time = 16:38:41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>Planname Connid Corrid Authid DB2 MVS InDB2 CPU Commits Aborts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>----------------- -------------- --------- ------ --------------- ------ ---------- ------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td>DSNESPCS TSO MIS MIS SE12 PM04 .18827 5 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Navigation**

To view a summary of the unit of work for a traced application thread, place the cursor on a plan name and press PF11.

**Fields**

**Plannname**
The DB plan name of the thread.

**Connid**
The DB2 connection identifier of the thread.

**Corrid**
The DB2 correlation identifier of the thread.

**Authid**
The DB2 authorization ID of the thread.

**DB2**
The identifier of the DB2 subsystem that is monitored.

**MVS**
The identifier of the MVS where the monitored DB2 resides.

**InDB2 CPU**
The CPU time (in seconds) that is used by the thread while running in DB2.

**Commits**
The total number of Commits that are located for the thread.
The numbers that are displayed for Commits do not include implicit actions that are associated with task termination.

**Aborts**
The total number of aborts that are located for the thread.
The numbers that are displayed for Aborts do not include implicit actions that are associated with task termination.

**Deleting Entries:**

This panel is displayed to delete the currently selected trace entry. It will not delete the dataset, but will remove the entry from the list of managed traces.
If the trace is not yet executing, you can delete the entry by removing the character > in front of the ATQX command and pressing the Enter key.

If the trace is currently executing, an error message is issued. You must use option D to stop the trace before you can delete it.

```
ATQX + Owner = WDRI  State = Complete
+ First Plan = WAYNEPLN  First Authid =
+ Dataset = WDRI.V51OBETA.DS4.ATF
>
To delete this ATF Request, remove the ">" preceding the following command and press the ENTER key. Note, if the status is EXECUTING, the ATQX command will stop the the trace, but NOT delete the entry.
>
>ATQX
```

**Stopping Traces:**

This panel is used to stop a VSAM Trace request, before the requested duration completes.

If the trace is executing, you can stop the trace by removing the character > in front of the ATQX command and pressing the Enter key.

If the trace is not yet executing, an error message is displayed.

```
ATQS + Owner = WDRI  State = Executing
+ First Plan = WAYNEPLN  First Authid =
+ Dataset = WDRI.V51OBETA.DS4.ATF
>
To stop this TRACE Request, remove the ">" preceding the following command and press the ENTER key. Note, if the status is not EXECUTING, the ATQS command will fail.
>
>ATQS
```

**Application Trace Unit of Work Activity Summary**

This panel summarizes thread unit of work activity information for the selected thread.

A single line of output is produced for every commit or abort (either in-flight or complete) that has associated SQL activity. You can evaluate application resource use on a thread unit of work basis.
The unit of work is defined by a commit or thread abort. It shows a single line of information for every commit or abort located for the thread.

All ATF screens display the Current Trace Status. The basic status values are INACTIVE or ACTIVE. The status DSN FULL is displayed if the output file has run out of space. The status INIT-XXX is displayed briefly during various stages of initialization. The status ABENDED might also be displayed.

Unit of work entries are displayed in LIFO (last in first out) order. When you view trace data that is stored in a VSAM dataset, units of work are also sorted by date of occurrence.

An asterisk (*) in column 2 indicates that this UOW ended with COMMIT.

```
ATVC ZATVC VTM O2 V540 #P SE12 11/05/13 16:40:49 3
+Help PF1 Back PF3 Up PF7 Down PF8 Zoom PF11
> Current Trace Status: INACTIVE
>-------------------------------------------------------------
> APPLICATION TRACE UNIT OF WORK SUMMARY
ATVC
+ Planname=DSNESPCS Connid=TSO Corrid=MIS Authid=MIS
+ Date Start Time Progname InDB2 Time InDB2CPU SQL Sort Locks Rows
+ 11/05 16:39:07.360 DSNESM68 00:02.55730 .03411 24 0 361 219
+ 11/05 16:39:03.538 DSNESM68 00:03.40427 .05251 33 0 674 459
+ 11/05 16:39:00.395 DSNESM68 00:02.92977 .03548 21 0 500 298
+ 11/05 16:38:51.869 DSNESM68 00:07.98119 .05858 17 0 562 7505
+ 11/05 16:38:51.568 DSNESM68 00:00.23238 .00593 16 3 222 445
+ 11/05 16:38:49.958 DSNESM68 00:00.00414 .00166 4 0 10 4
```

**Navigation**

For additional information about

- a particular unit of work, move the cursor to the required line and press F11 (Zoom). For more information, see the description of panel “Application Trace Program Summary (with activity counts)” on page 1362.
- other topics, use the PF keys.

**Fields**

**Planname**
The DB2 plan name of the application.

**Connid**
The DB2 connection identifier of the application.

**Corrid**
The DB2 correlation identifier of the application.

**Authid**
The DB2 authorization identifier of the application.

**Date**
The date on which the Commit or abort (unit of work) occurred. This field is displayed only when you are viewing trace data from a data set.

**Start Time**
The start time of the DB2 Commit/abort (unit of work).

**Progname**
The first application program name located for the thread Commit or abort (unit of work).
**InDB2 Time**
The In-DB2 time for the thread Commit or abort (unit of work).

**InDB2 CPU**
The In-DB2 CPU time for the thread Commit or abort (unit of work). For parallel task activity, this value represents the sum of the parent and child tasks.

**SQL**
The number of SQL calls issued in the DB2 unit of work.

**Sorts**
The number of sorts processed in the DB2 unit of work.

**Locks**
The number of locks acquired in the DB2 unit of work. For parallel task activity, this value represents the sum of the parent and child tasks.

**Rows**
The number of rows processed in the DB2 unit of work. For parallel task activity, this value represents the sum of the parent and child tasks.

**Application Trace Program Summary (with activity counts):**
This panel shows information about the traced application thread unit of work at the program level (with activity counts).

OMEGAMON XE for DB2 PE shows a single line summary of each program that executed at least one SQL call during the trace.

---

**Navigation**
For additional information about

- a particular program, move the cursor to the program line and press F11 (Zoom). For more information, see the description of panel “Application Trace Program Detail” on page 1363.
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

**Planname**
The DB2 plan name of the application.

**Connid**
The DB2 connection identifier of the application.

**Corrid**
The DB2 correlation identifier of the application.

**Authid**
The DB2 authorization identifier of the application.
Prognome
The application program name invoked by application.

InDB2 Time
The elapsed time incurred while executing in DB2.

InDB2 CPU
The CPU time incurred while executing in DB2. The value is expressed in 1000ths of seconds. For parallel task activity, this value represents the sum of the parent and child tasks.

SQL
The total number of SQL requests issued by the program.

Sorts
The total number of sorts because of SQL activity issued by the program.

Locks
The total number of locks that were acquired by SQL statements issued by the program. For parallel task activity, this value represents the sum of the parent and child tasks.

Pages
The total number of pages that were referenced (scanned) by the program. For parallel task activity, this value represents the sum of the parent and child tasks.

Rows
The total number of rows that were examined (scanned) by the program. For parallel task activity, this value represents the sum of the parent and child tasks.

Application Trace Program Detail:

This panel shows application trace detail information at the program level for a traced application thread unit of work.

Following the thread information, the display is logically broken down into four areas for easy evaluation of program efficiency and DB2 resource usage: SQL, sort, lock, and scan.
Lock Summary Information

<table>
<thead>
<tr>
<th>Type</th>
<th>Level</th>
<th>Resource</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROW</td>
<td>S</td>
<td>DB=DSNDB06 PS=SYSTSTAB</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>S</td>
<td>DB=DSNDB06 PS=SYSTSTSP</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>S</td>
<td>DB=DSNDB06 PS=SYSTSCOL</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>S</td>
<td>DB=DSNDB06 PS=SYSTSTAU</td>
<td>1</td>
</tr>
<tr>
<td>PALX</td>
<td>IS</td>
<td>DB=DSNDB06 PS=SYSTSTAB PT=00001</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>IS</td>
<td>DB=DSNDB06 PS=SYSTSTSP PT=00001</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>IS</td>
<td>DB=DSNDB06 PS=SYSTSCOL PT=00001</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>IS</td>
<td>DB=DSNDB06 PS=SYSTSTAU PT=00001</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Locks Acquired = 8

Scan Summary Information

<table>
<thead>
<tr>
<th>Type</th>
<th>Process</th>
<th>Rows Looked</th>
<th>Qual/DM</th>
<th>Qual/RD</th>
<th>Insert</th>
<th>Delete</th>
<th>De/Ref</th>
<th>Scand</th>
<th>Sc/Ref</th>
<th>Pages</th>
<th>Scand</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDEX</td>
<td></td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>INDEX</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>INDEX</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>INDEX</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>INDEX</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Navigation

For additional options, use the PF keys.
Fields

Thread information:

Planname
The DB2 plan name of the application.

Connid
The DB2 connection identifier of the application.

Corrid
The DB2 correlation identifier of the application.

Authid
The DB2 authorization identifier of the application.

Program Name
The application program name for which information is being displayed.

SQL summary information:

SQL Call
The SQL statement type.

Stmt#
The statement number of the SQL statement. This is the actual SQL statement number generated by the DB2 precompiler and is contained in the precompiler program output listing.

Count
The total number of executions of the SQL statement.

InDB2 Time
The elapsed time spent executing in DB2 to process the SQL statements.

InDB2 CPU
The elapsed CPU time used executing in DB2 to process the SQL statements. For parallel task activity, this value represents the sum of the parent and child tasks.

Avg Time
The average elapsed time spent executing in DB2 per SQL statement.

Avg CPU
The average CPU time used while executing in DB2 to process the SQL statement.

Sort summary information:

SQL Call
The SQL statement causing sort processing to be invoked.

Stmt#
The SQL statement number causing sort processing to be invoked.

Count
The number of times that the SQL statement invoked a sort.

Sort Time
The elapsed time spent in sort processing that is required to satisfy the call.

Recs
The total number of records sorted.

Reads
The number of records retrieved from a work file during sort processing.

Inserts
The number of records inserted into a work file during sort processing.

Wfiles
The number of logical workfiles used during sort processing.
**Lock summary information:** No data is displayed in this area if you set LOCKDATA equals NO in the Specify Application Trace panel. For parallel task activity, these values include locks held by both parent and child tasks. For more information about lock types, lock levels, and lock resources, see "Lock Types and Lock Levels".

- **Type** The lock type owned. Every lock type owned by the thread is displayed.
- **Level** The lock levels of the various lock types owned. All lock levels owned within a lock type are listed. Lock levels can occur repetitively for a single lock type because of the different resources owned by the locks.
- **Resource** The resource that is the object of the lock. The content of the Resource field is dependent on lock type. For data page (DPAG) and index page (IPAG) locks, the resource does not contain the actual data page number that is locked; it lists the database and pageset that own the data or index page lock. The Count field displays how many data or index page locks exist within the resource (pageset) listed.
- **Count** The number of locks meeting the type, level, and resource description of the lock.

**Scan summary information:** No data is displayed in this area if you set SCANDATA equals NO in the Specify Application Trace panel. For parallel task activity, these values represent the sum of the parent and child tasks.

- **Scan Type** The type of scan to which the following statistics are related.
  - **Index** Index scan
  - **Sequential** Sequential data tablespace scan
  - **Insert** San for a space to insert a new row
  - **Hash** San used for directory DSND01 database access
- **DBID** The identifier of the database that was the object of the scan.
- **Scan Count** The number of scans of the corresponding scan type generated by program SQL activity.
- **PSID** The identifier of the pageset that was the object of the scan.
- **Data Type** The type of statistics displayed:
  - **INDX** Index pageset
  - **DATA** Data pageset
  - **WORK** Data workfile (DSND07) pageset
- **Rows Process** The number of rows processed by the Data Manager. This count can include some rows that belong to a table other than the referenced table (such rows are rejected before the Data Manager applies the qualifying stage 1 predicates).
- **Rows Looked** The number of rows examined by the Data Manager. This count includes
only rows that belong to the referenced table, and to which the Data Manager applied the stage 1 predicates.

**Rows Qual/DM**
The number of rows qualified by the Data Manager (stage 1).

**Rows Qual/RD**
The number of rows qualified by the Relational Data Manager (stage 2).

**Rows Update**
The number of rows updated.

**Rows Insert**
The number of rows inserted.

**Rows De/REF**
The number of rows deleted or set to null because of enforcement of defined referential integrity constraints.

**Pages Scand**
The total number of pages scanned by the Data Manager.

**Pages Sc/REF**
The total number of pages scanned because of enforcement of defined referential integrity constraints.

**Sync Reads**
The number of synchronous buffer reads (DB2 field name: QW0058SR).

**Get Pages**
The number of Getpage operations (DB2 field name: QW0058GP).

**Buffer Writes**
The number of buffer writes (DB2 field name: QW0058WT).

**Parall Groups**
The number of parallel groups created (DB2 field name: QW0058PG).

**SyncWait**
The accumulated wait for synchronous I/O (DB2 field name: QW0058SI).

**LockWait**
The accumulated wait for locks (DB2 field name: QW0058LK).

**UnitWait**
The accumulated wait time for synchronous execution unit switches (DB2 field name: QW0058EU).

**ReadWait**
The accumulated wait time for read activity done by another thread (DB2 field name: QW0058OR).

**WriteWait**
The accumulated wait time for write activity done by another thread (DB2 field name: QW0058OW).

**RID Number**
The number of times RID list was not used because the number of RIDs would have exceeded DB2 limits (DB2 field name: QW0058RL).
RID Store

The number of times a RID list was not used because there is not enough storage available to hold the list of RIDs (DB2 field name: QW0058RS).

Application Trace SQL Index:

This panel shows one line of summary information about each SQL statement associated with the unit of work you are investigating.

The SQL calls are presented in the order of their execution.

You can select a particular call for detailed analysis by placing the cursor on that line and pressing the zoom key.

<table>
<thead>
<tr>
<th>Call Type</th>
<th>Stm#</th>
<th>Program</th>
<th>Count</th>
<th>InDB2 Time</th>
<th>MRet</th>
<th>Rws</th>
<th>Pc</th>
<th>Rws</th>
<th>DM</th>
<th>Rws</th>
<th>RD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREPARE</td>
<td>1839</td>
<td>DSN@EP2L</td>
<td>1</td>
<td>00:00:02117</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OPEN CURSOR</td>
<td>1939</td>
<td>DSN@EP2L</td>
<td>1</td>
<td>00:00:00054</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FETCH</td>
<td>1969</td>
<td>DSN@EP2L</td>
<td>2</td>
<td>00:00:00793</td>
<td>100</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>CLOSE CURSOR</td>
<td>2243</td>
<td>DSN@EP2L</td>
<td>1</td>
<td>00:00:00000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PREPARE</td>
<td>1839</td>
<td>DSN@EP2L</td>
<td>1</td>
<td>00:00:01688</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OPEN CURSOR</td>
<td>1939</td>
<td>DSN@EP2L</td>
<td>1</td>
<td>00:00:00000</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FETCH</td>
<td>1969</td>
<td>DSN@EP2L</td>
<td>2</td>
<td>00:00:00589</td>
<td>100</td>
<td>39</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>CLOSE CURSOR</td>
<td>2243</td>
<td>DSN@EP2L</td>
<td>1</td>
<td>00:00:00000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Navigation

For additional information about
- a particular SQL statement, move the cursor to the statement line and press F11 (Zoom).
- other topics, use the PF keys.

Fields

Plannname
The DB2 plan name of the active thread.

Connid
The DB2 connection identifier of the active thread.

Corrid
The DB2 correlation identifier of the active thread.

Authid
The DB2 authorization identifier of the active thread.

Call Type
The SQL statement type.

Stmt#
The SQL statement number. This is the actual statement number generated by the DB2 precompiler; it is contained in the precompiler program output listing.
**Program**
The program name in which the SQL statement was executed.

**Count**
The number of times this statement was executed consecutively.

**InDB2 Time**
The elapsed time spent executing the SQL statement (or group of statements if Count is greater than 1).

**MRet**
The maximum return code encountered when executing the SQL statement.

**Rws Pc**
The total number of index/data/work rows of all record types processed by the Data Manager. For parallel task activity, this value represents the sum of the parent and child tasks.

**Rws DM**
The total number of index/data/work rows qualified by the Data Manager. For parallel task activity, this value represents the sum of the parent and child tasks.

**Rws RD**
The total number of index/data/work rows qualified by the Relational Data Manager. For parallel task activity, this value represents the sum of the parent and child tasks.

**Application Trace SQL Detail:**

This panel shows information about the traced application at the SQL statement level. It also shows the text of all dynamic SQL calls.

Depending on the SQL data, the information that is displayed in this panel varies.
The data is refreshed each time you press Enter, which shows details for another SQL call.

When the detail pertains to a dynamic SQL call (SQL Call is PREPARE), the panel also shows the text of the call and access path information. You can view both dynamic and static SQL call text in the panel described in "SQL Call Being Executed" on page 948.
Fields

Planname
The DB2 plan name of the active thread.

Connid
The DB2 connection identifier of the active thread.

Corrid
The DB2 correlation identifier of the active thread.

Authid
The DB2 authorization identifier of the active thread.

Control
The next SQL statement that OMEGAMON XE for DB2 PE displays. This panel initially displays the first SQL statement collected for the thread. Use these keywords to control the display:

FIRST  First SQL statement encountered for the thread.
LAST   Last SQL statement encountered for the thread.
NEXT   Next SQL statement encountered for the thread.
PREV   Previous SQL statement encountered for the thread.

nnnnn
The nnnnn (1-99999) entry after the currently displayed SQL statement.

-nnnnn
The nnnnn (1-99999) entry before the currently displayed SQL statement.

Snnnnn
Statement number nnnnn.

Current
The relative number of the SQL statement currently being displayed. This is relative to the total number of calls located for the DB2 unit of work.

Total Number of SQL Calls
The total number of SQL calls located for the DB2 unit of work.

Start Time
The time the SQL statement was issued.

Progname
The name of program that issued the SQL statement.

SQL Call
The SQL statement type.

Stmt#
The SQL statement precompiler statement number.

Retcode
The SQL statement return code returned to the application in the SQLCA.

InDB2 Time
The elapsed wall clock time spent executing the SQL call.

InDB2 CPU
The CPU time used executing the SQL statement. For parallel task activity, this value represents the sum of the parent and child tasks.

Data Type
The type of statistics displayed:
INDEX  Index pageset
DATA   Data pageset
WORK   Data workfile (DSNDB07) pageset

**Rows Proc**
The number of rows processed by the Data Manager for the statement. For parallel task activity, this value represents the sum of the parent and child tasks.

**Rows Looked**
The number of rows looked at/examined by the Data Manager for the statement. For parallel task activity, this value represents the sum of the parent and child tasks.

**Rows Qual/DM**
The number of rows qualified by the Data Manager for the statement (stage 1). For parallel task activity, this value represents the sum of the parent and child tasks.

**Rows Qual/RD**
The number of rows qualified by the Relational Data Manager for the statement (stage 2). For parallel task activity, this value represents the sum of the parent and child tasks.

**Rows Update**
The number of rows updated by the statement. For parallel task activity, this value represents the sum of the parent and child tasks.

**Rows Insert**
The number of rows inserted by the statement. For parallel task activity, this value represents the sum of the parent and child tasks.

**Rows Delete**
The number of rows deleted by the statement. For parallel task activity, this value represents the sum of the parent and child tasks.

**Rows De/Ref**
The number of rows deleted or set to null because of enforcement of defined referential integrity constraints for the statement. For parallel task activity, this value represents the sum of the parent and child tasks.

**Pages Scand**
The total number of pages scanned by the Data Manager for the statement. For parallel task activity, this value represents the sum of the parent and child tasks.

**Pages Sc/Ref**
The total number of pages scanned because of enforcement of defined referential integrity constraints for the statement. For parallel task activity, this value represents the sum of the parent and child tasks.

**Sync Reads**
The number of synchronous buffer reads (DB2 field name: QW0058SR).

**Get Pages**
The number of Getpage operations (DB2 field name: QW0058GP).

**Buffer Writes**
The number of buffer writes (DB2 field name: QW0058WT).
Parall Groups
The number of parallel groups created (DB2 field name: QW0058PG).

RID Number
The number of times RID list was not used because the number of RIDs would have exceeded DB2 limits (DB2 field name: QW0058RL).

RID Store
The number of times a RID list was not used because there is not enough storage available to hold the list of RIDs (DB2 field name: QW0058RS).

Num sorts
The number of sorts (DB2 field name: QW0058ST).

Num IXScan
The number of index scans (DB2 field name: QW0058IS).

Num TSScan
The number of table space scans (DB2 field name: QW0058TB).

SyncWait
The accumulated wait for synchronous I/O (DB2 field name: QW0058SI).

LockWait
The accumulated wait for locks (DB2 field name: QW0058LK).

UnitWait
The accumulated wait time for synchronous execution unit switches (DB2 field name: QW0058EU).

ReadWait
The accumulated wait time for read activity done by another thread (DB2 field name: QW0058OR).

WriteWait
The accumulated wait time for write activity done by another thread (DB2 field name: QW0058OW).

GLockWait
The accumulated wait time for global locks (DB2 field name: QW0058GL).

LatchWait
The accumulated wait time for latches (DB2 field name: QW0058LH).

PgLatchWait
Accumulated wait time for page latches (DB2 field name: QW0058PA).

DrainLokWait
Accumulated wait time for drain locks (DB2 field name: QW0058DA).

ClaimWait
Accumulated wait time for claim counts (DB2 field name: QW0058CL).

LogWrtWait
Accumulated wait time for log writers (DB2 field name: QW0058LG).

Static SQL call text or Dynamic SQL call text The complete text of the SQL statement is displayed in this area if it is a static or dynamic call. You can view both dynamic and static SQL call text in the panel described in “SQL Call Being Executed” on page 948.
Miniplan Generated by DB2: Access path information is displayed in this area if the SQL statement is a PREPARE for a SELECT, UPDATE, INSERT, or DELETE statement. A plan for each select block within the prepared SQL statement is provided.

Estimated Cost
The cost factor generated by the DB2 Optimizer for this SQL statement.

Table
The name of the table being accessed.

Access Type
The method in which the table is accessed. Possible values:

INDEX
Index will be used to access table data.

INDEX (ONE-FETCH)
Index will be used to determine which data page is needed for processing. This type of access is used for processing MIN and MAX functions.

INDEX (IN KEYWORD)
Index will be used to access table data for processing the IN keyword in SQL statements.

INDEX (PAGE RANGE)
Index will be used to access table data in a particular page range.

SEQUENTIAL SCAN
All pages in the tablespace (or table, if the tablespace is segmented) will be accessed sequentially.

SEQUENTIAL SCAN (PAGE RANGE)
All pages within a particular page range of the partitioned tablespace will be accessed sequentially.

Index
The name of the index used. If more than one index is used, only the first index is displayed.

Matching Cols
The number of index keys used in the index scan.

Join Method
Type of join being performed. Possible values are NESTED LOOP, HYBRID, and MERGE SCAN.

Table Type
Indicates whether the table is the INNER or OUTER table for the join processing.

Sort Activity
The reason for the sort. If no sort is performed, this field will not be displayed. Possible values:

UNIQ Sort to remove duplicate rows.

JOIN Sort needed for join processing.

ORDER Sort needed to satisfy Order By clause.

GROUP Sort needed to satisfy Group By clause.
UNIQ(C)
Sort to remove duplicate rows (composite table).

JOIN(C)
Sort needed for join processing (composite table).

ORDER(C)
Sort needed to satisfy Order By clause (composite table).

GROUP(C)
Sort needed to satisfy Group By clause (composite table).

Prefetch Activity
The type of prefetch activity being performed. If no prefetch is performed, this field will not be displayed. Possible values:

SEQUENTIAL
Sequential prefetch.

LIST  List Prefetch for one or more indexes.

Access Degree
The degree of parallelism used by the query. This is the number of parallel I/O streams determined by the optimizer at PREPARE time. The actual number of I/O streams used at execution time can be different.

Access Group ID
The parallel group identifier used for accessing the new table. This is the identifier for a group of consecutive parallel operations. These parallel operations have the same number of I/O streams. The value is determined at PREPARE time and might be changed at execution time.

Parallel Mode
The type of parallel processing to be used. Possible values are CPU for CPU parallelism or I/O for I/O parallelism.

Join Degree
The degree of parallelism used in joining the composite table with the new table. This is the number of parallel I/O streams used for the join. The value is set at PREPARE time and might change at execution time.

Join Group ID
The value used to identify the parallel group when DB2 joins the composite table with the new table. This is determined at PREPARE time and could be different at execution time.

Data type conversion is done internally. For certain uncommon data types, internal SQLTYPE(integer) is displayed.

The following SQL data types of the host variable are supported:

DATE
TIME
TIMESTAMP
DATALINK
NUL-TERMINATED GRAPHIC STRING
BLOB
CLOB
DBCLOB
VARYING-LENGTH CHARACTER STRING
Application Trace Lock Detail:

This panel shows a summary of all locks that are acquired as a result of the SQL statement.
The data is refreshed each time you press Enter, which shows details for another SQL call. For parallel task activity, these values include locks held by parent and child tasks.

**Navigation**

For additional information about
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

**Note:** No data is shown if you specified LOCKDATA=NO in the Specify Application Trace panel.

**Planname**

The DB2 plan name of the active thread.

**Connid**

The DB2 connection identifier of the active thread.

**Corrid**

The DB2 correlation identifier of the active thread.
Authid
The DB2 authorization identifier of the active thread.

Control
The next SQL statement that OMEGAMON XE for DB2 PE displays. This panel initially displays the first SQL statement collected for the thread. Use these keywords to control the display:

FIRST First SQL statement encountered for the thread.
LAST Last SQL statement encountered for the thread.
NEXT Next SQL statement encountered for the thread.
PREV Previous SQL statement encountered for the thread.

nnnnn
The nnnnn (1-99999) entry after the currently displayed SQL statement.

-nnnnn
The nnnnn (1-99999) entry before the currently displayed SQL statement.

Snnnnn
Statement number nnnnn.

Current
The relative number of the SQL statement currently being displayed. This is relative to the total number of calls located for the DB2 unit of work.

Total Number of SQL Calls
The total number of SQL calls located for the DB2 unit of work.

Start Time
The time the SQL statement was issued.

Programe
The name of program that issued the SQL statement.

SQL Call
The SQL statement type.

Stmt# The SQL statement precompiler statement number.
PSET The total number of pageset locks acquired by the SQL statement.
DPAG The total number of datapage locks acquired by the SQL statement.
IPAG The total number of index page locks acquired by the SQL statement.
OTHER The total number of other types of locks acquired by the SQL statement.

Locks Acquired and Locks Owned information: For more information about lock types, lock levels, and lock resources, see "Lock Types and Lock Levels".

TYPE The lock type owned. Every lock type owned by the thread will be displayed.

LEVEL The lock levels of the various lock types owned. All lock levels owned within a lock type will be listed. Lock levels can be displayed repetitively for a single lock type because of the different resources owned by the locks.
RESOURCE
The resource that is the object of the lock. The content of the Resource field is dependent on lock type. For data page (DPAG) and index page (IPAG) locks, the resource does not contain the actual data page number that is locked; it lists the database and pageset that own the data or index page lock. The Count field will then display how many data or index page locks exist within the resource (pageset) listed.

Note: When you are using an ATF trace from VSAM, and the resource is a table or a datapage in a segmented tablespace, OMEGAMON XE for DB2 PE will not translate the PSID number (page set ID) to the table name. Instead, OMEGAMON XE for DB2 PE displays the OBID of the DB2 table. (This is because OMEGAMON XE for DB2 PE uses IFCIDs 105 and 107 to translate the object identifiers from lock records, and those IFCIDs do not contain OBID-TABLENAME pairs.)

You can execute the following SQL statement to determine the DB2 table name from the displayed PSID.

```
SELECT NAME, CREATOR
FROM SYSTBL.SYSTABLES
WHERE DBNAME = 'dbname' AND OBID = nn
```

COUNT
The number of locks meeting the type, level, and resource description of the lock.

Application Trace Event Detail:

This panel shows detailed information about the flow of an application. The information is shown as a series of DB2 events. Each line describes a single event or action. You can control the order by using keywords.
The data is refreshed each time you press Enter, which shows details for another SQL call.

**Navigation**

For additional information about
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

**Plannename**

The DB2 plan name of the active thread.
Connid
The DB2 connection identifier of the active thread.

Corrid
The DB2 correlation identifier of the active thread.

Authid
The DB2 authorization identifier of the active thread.

Control
The next SQL statement that OMEGAMON XE for DB2 PE displays. This panel initially displays the first SQL statement collected for the thread. Use these keywords to control the display:

FIRST First SQL statement encountered for the thread.
LAST Last SQL statement encountered for the thread.
NEXT Next SQL statement encountered for the thread.
PREV Previous SQL statement encountered for the thread.
+nnnnn The nnnnn (1-99999) entry after the currently displayed SQL statement.
-nnnnn The nnnnn (1-99999) entry before the currently displayed SQL statement.
Snnnnn Statement number nnnnn.
TOP Display the first LROWS (number of logical rows) records for the current SQL statement.
BOTTOM Display the last LROWS records for the current SQL statement.
UP Scroll up about LROWS records from the current display for the current SQL statement.
DOWN Scroll down about LROWS records from the current display for the current SQL statement.

Current
The relative number of the SQL statement currently being displayed. This is relative to the total number of calls located for the DB2 unit of work.

Total Number of SQL Calls
The total number of SQL calls located for the DB2 unit of work.

Event Time
The time the event described started.

TN For parallel processing, this field contains the task number of the child task to which this event applies. For a parent task, or where there is no parallel task activity, this field is blank. The task numbers are assigned arbitrarily at display time to help you distinguish the activity of particular child tasks. Task numbers are not provided by DB2. Events relating to each child task are grouped together following those of the parent task.

Event Type
The DB2 event description. The events displayed are as follows:

• Create Thread
- End Abort Request
- End Alter Database
- End Alter Function
- End Alter Index
- End Alter JAR
- End Alter Mask
- End Alter Permission
- End Alter Procedure
- End Alter Sequence
- End Alter Stogroup
- End Alter Table
- End Alter Tablespace
- End Alter Trust Ctx
- End Close Cursor
- End Comment ON
- End Commit
- End Commit PhaseI
- End Commit PhaseII
- End Create Alias
- End Create AUX Table
- End Create Database
- End Create Function
- End Create Global Tb
- End Create Index
- End Create JAR
- End Create Mask
- End Create Permission
- End Create Role
- End Create Sequence
- End Create Stogroup
- End Create Synonym
- End Create Table
- End Create Tablespace
- End Create Trigger
- End Create Trust Ctx
- End Create Type
- End Create Variable
- End Create View
- End Dcl Glob Temp Tb
- End Delete
- End Drop Alias
- End Drop Database
- End Drop Function
- End Drop Index
- End Drop JAR
- End Drop Mask
- End Drop Package
- End Drop Permission
- End Drop Procedure
- End Drop Role
- End Drop Sequence
- End Drop Stogroup
- End Drop Synonym
- End Drop Table
- End Drop Tablespace
- End Drop Trigger
- End Drop Trust Ctx
- End Drop Type
- End Drop Variable
- End Drop View
- End Fetch
- End Free Locator
- End Grant
- End Hold Locator
- End Insert
- End Label ON
- End Lock Table
- End of Index Scan
- End of Insert Scan
- End of Scan
- End Open Cursor
- End Prepare
- End Rename Index
- End Rename Table
- End Revoke
- End Select
- End Sequential Scan
- End Signon
- End Sort
- End Stored Procedures
- End Terminate Create Thread
- End Update
- Input Hostvar
- Lock Acquire
- Lock Change
- Lock Release (Group)
- Lock Release (Single)
- Parallel Degree
- Parallel Group End
- Start Abort Request
- Start Alter Database
- Start Alter Function
- Start Alter Index
- Start Alter JAR
- Start Alter Mask
- Start Alter Permission
- Start Alter Procedure
- Start Alter Sequence
- Start Alter Stogroup
- Start Alter Table
- Start Alter Tablespace
- Start Alter Trust Ctx
- Start Close Cursor
- Start Comment ON
- Start Commit
- Start Commit PhaseI
- Start Commit PhaseII
- Start Create Alias
- Start Create AUX Table
- Start Create Database
- Start Create Function
- Start Create Global Tb
- Start Create Index
- Start Create JAR
- Start Create Mask
- Start Create Permission
- Start Create Role
- Start Create Sequence
- Start Create Stogroup
- Start Create Synonym
- Start Create Table
- Start Create Tablespace
- Start Create Thread
- Start Create Trigger
- Start Create Trust Ctx
- Start Create Type
- Start Create Variable
- Start Create View
- Start Dcl Glob Temp Tb
- Start Delete
- Start Drop Alias
- Start Drop Database
- Start Drop Function
- Start Drop Index
- Start Drop JAR
• Start Drop Mask
• Start Drop Package
• Start Drop Permission
• Start Drop Procedure
• Start Drop Role
• Start Drop Sequence
• Start Drop Stogroup
• Start Drop Synonym
• Start Drop Table
• Start Drop Tablespace
• Start Drop Trigger
• Start Drop Trust Ctx
• Start Drop Type
• Start Drop Variable
• Start Drop View
• Start Fetch
• Start Free Locator
• Start Grant
• Start Hold Locator
• Start Index Scan
• Start Insert
• Start Insert Scan
• Start Label ON
• Start Lock Table
• Start of Sort
• Start Open Cursor
• Start Prepare
• Start Rename Index
• Start Rename Table
• Start Revoke
• Start Select
• Start Sequential Scan
• Start Signon
• Start Stored Procedures
• Start Update
• Terminate Thread

**Event resource information:** Additional information related to the event listed. The following table lists and briefly describes all possible event tokens that can occur in this field.

<table>
<thead>
<tr>
<th>Event Token</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual=nn</td>
<td>Actual degree of parallelism used.</td>
</tr>
<tr>
<td>ALBP</td>
<td>Alter buffer pool lock.</td>
</tr>
</tbody>
</table>
BIND=nn
   Degree of parallelism at bind time.

BMBA
   Buffer manager SCA MBA L-lock.

BPPS
   A buffer manager pageset P-lock.

CCAT
   CATMAINT convert catalog lock.

CDIR
   CATMAINT convert directory block.

CDRN
   Cursor stability read drain lock.

CMIG
   CATMAINT migration block.

COLL
   Collection lock.

D=x
   Lock duration. Possible values:

   ALC
      Lock is held until the thread is terminated or until the plan is
deallocated.

   CMT
      Lock is held until Commit is processed.

   CM+
      Lock is held until Commit is processed, unless Lock is needed to
maintain the position of the cursor that was opened with the Hold
attribute.

   FRE
      Duration to free all locks.

   INT
      Lock is held as long as DB2 has interest in the resource. The lock is
not dependent on thread Commit or deallocation. This duration is
used only for P-locks.

   MNL
      A lock of short duration that DB2 acquires to do things like
authorization checking.

   MN+
      A lock of short duration that DB2 acquires to temporarily change
from CS to RR during bind or DDL.

   PLN
      Lock is held until plan is deallocated.

   UND
      Undetermined duration.

DB=x
   Database name.

DBEX
   Database exception LPL/GRECP lock.

DGTT
   DGTT URID lock

DPAG
   Data page lock. For more information, see "Lock Types and Lock Levels".

DSET
   Partitioned lock. For more information, see "Lock Types and Lock Levels".

DTBS
   Database lock. For more information, see "Lock Types and Lock Levels".

GRBP
   Group buffer pool start/stop lock.

HASH
   Hash anchor lock.

IEOF
   Index end of file lock.

IPAG
   Index page lock. For more information, see "Lock Types and Lock Levels".

IS
   Intent share lock. For more information, see "Lock Types and Lock Levels".
IX  Intent exclusive lock. For more information, see “Lock Types and Lock Levels”.
MDEL  Mass delete lock.
NAME=StoredProcedure-Name SQLCODE=SqlCode
   The name Stored Procedure and its return code.
PAGES=n
   Number of pages scanned.
PCDB  DDF CDB P-lock.
PDBD  DBD P-lock.
PDSO  Pageset or partitioned pageset open lock. For more information, see “Lock Types and Lock Levels”.
PGM=x
   DBRM name.
PPAG  Page P-lock.
PPSC  Page set/Partition castout P-lock.
PPSP  Page set/Partition P-lock.
PRLF  RLF P-lock.
PS=x
   For scan activity, the name of the indexspace or tablespace that caused the lock.
   For lock activity, the name of the pageset that caused the lock.
PSET  Pageset lock. For more information, see “Lock Types and Lock Levels”.
PSPI  Pageset piece lock. For more information, see “Lock Types and Lock Levels”.
RDRN  Repeatable read drain lock.
RECS=n
   Number of records sorted.
ROW  Row lock.
ROWS=n
   Number of rows processed.
RSIZE=n
   Sort record size (in bytes).
Run=nn
   Degree of parallelism at runtime.
RSIZE=n
   Sort record size (in bytes).
RSTR  SCA access for restart/redo lock.
S  Shared lock. For more information, see “Lock Types and Lock Levels”.
SDBA  Start/stop lock. For more information, see “Lock Types and Lock Levels”.
SIX  Share with intent exclusive lock. For more information, see “Lock Types and Lock Levels”.
SKCT  Skeleton cursor table lock. For more information, see "Lock Types and Lock Levels".

SKPT  Skeleton package table lock. For more information, see "Lock Types and Lock Levels".

SPRC  System Level PIT Recovery lock.

SQLCode | SQL code from the CALL to the stored procedure.

SREC  Log range lock. For more information, see "Lock Types and Lock Levels".

STMT=n  DBRM statement number.

TABL  Table lock. For more information, see "Lock Types and Lock Levels".

U   Update. For more information, see "Lock Types and Lock Levels".

UNDT  Undetermined lock. For more information, see "Lock Types and Lock Levels".

UTSE  Utility serialization lock. For more information, see "Lock Types and Lock Levels".

WDRN  Write drain lock.

X   Exclusive lock. For more information, see "Lock Types and Lock Levels".

### Distributed Data Facility

Select this main menu option for information about distributed database activity.

Additional Distributed Data Facility (DDF) information can be accessed through the Thread Activity and the Resource Managers and Other DB2 Subsystem Information main menu options. For more information, see "Thread Activity" on page 921 and "Resource Managers and Other DB2 Subsystem Information menu" on page 1110.

### Distributed Data Facility Statistics

This panel shows statistics about DDF activity, formatted by remote DB2 location.

Each remote DB2 that has acted as a requester or a server to the monitored (local) DB2 is displayed, together with such statistics as number of transactions sent and received. Miscellaneous information about the local DB2 subsystem, such as send rate and receive rate, is also provided.
For additional information about related topics, select one of the options at the top of the panel. For other topics, use the PF keys.

### Fields

**Collection Interval**
- This field displays REALTIME to indicate that you are looking at the realtime version of this panel and not at the corresponding near-term history panel. The collection interval and the report interval are the same in this panel.

**Start**
- The start time of the first report interval in this display.

**Report Interval**
- The time in the last cycle (for example, between two presses of the Enter key).

**End**
- The end time of the last report interval in this display.

**Location Name**
- The DDF location name of the DB2 subsystem being monitored.

**DDF Status**
- The status of the Distributed Database Facility: ACTIVE or NOT ACTIVE.

**DDF CPU Rate**
- The CPU rate of the DDF address space. Includes both MVS TCB and SRB time.

**Dist Allied Threads**
- The number of distributed allied threads that are currently active.
Active DBATs
The number of currently active database access threads.

Inactive DBATs
The number of currently inactive database access threads.

DDF Send Rate
The rate at which data is being sent by DDF, in bytes, KB, MB, GB per second.

DDF Receive Rate
The rate at which data is being received by DDF, in bytes, KB, MB, GB per second.

Resync Attempts
The number of resynchronization connects attempted with all remote locations. Used only for two-phase commit.

Resync Successes
The number of resynchronization connects that succeeded with all remote locations. Used only for two-phase commit.

Cold Start Connections
The number of Cold Start connections with all remote locations. Used only for two-phase commit.

Warm Start Connections
The number of Warm Start connections with all remote locations. Used only for two-phase commit.

DBATs Queued
Number of times a database access thread (DBAT) had to wait because the maximum number of concurrent DBATs (MAXDBAT) was reached.

Conversation Dealloc
The number of conversations deallocated because the ZPARM limit for maximum connected remote threads (both active and inactive) was reached.

HWM Remote Connections
The high-water mark (HWM) of inactive and active remote threads.

HWM Active DBATs
The high-water mark (HWM) of active database access threads (DBATs). If the INACTIVE option is specified, it is possible for this value and the current number of active DBATs to exceed MAXDBAT. This occurs because DB2 allows CONNECTs to be processed even if MAXDBAT has been exceeded. After connect processing is complete, if MAXDBAT is still exceeded, then the DBAT is made inactive.

Max DB Access (MAXDBAT)
The maximum number of database access threads allowed for the DB2 being monitored (determined by the setting of MAXDBAT in DSNZPARM).

HWM Inactive DBATs
The high-water mark (HWM) of inactive database access threads (DBATs).

Remote statistics: The following group of fields occurs for each remote DB2 location with which the local DB2 subsystem has communicated, either as a requester or a responder, since the local DB2 was started.
**Remote Location Name**
The name of a remote location with which the local DB2 has communicated. The statistics immediately below this field pertain to this location.

**Conversations Queued**
The number of conversations queued by DDF since the local DB2 was started.

**Indoubts/Remote**
The number of threads that became indoubt with the remote location as coordinator.

Each of the following sent/received fields generates two rows of output; the top row is the sent value, and the bottom row is the received value.

**SQL Sent/Recv**
The number of SQL calls sent to and from the remote location since the local DB2 was started.

**Row Sent/Recv**
The number of rows sent to and from the remote location since the local DB2 was started.

**Message Sent/Recv**
The number of VTAM messages sent to and from the remote location since the local DB2 was started.

**Byte Sent/Recv**
The number of bytes sent to and from the remote location since the local DB2 was started.

**Commit Sent/Recv**
The number of Commits sent to and from the remote location since the local DB2 was started.

**Abort Sent/Recv**
The number of aborts sent to and from the remote location since the local DB2 was started.

**Conv Sent/Recv**
The number of conversations sent to and from the remote location since the local DB2 was started.

**Blocks Sent/Recv**
The number of blocks sent to and from the remote location, if using block mode.

**Distributed Data Facility VTAM Summary**
This panel provides DDF VTAM-related information, including high-level analysis of active VTAM sessions, active VTAM APPC conversations, and the number of active threads.

Information is presented for each remote DB2 location that has a current connection to the local DB2 subsystem being monitored.
Navigation

For additional information about

• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

VTAM Luname
The VTAM logical unit name in use by DDF.

VTAM Acbname
The VTAM access control block name for the logical unit in use by DDF.

VTAM Modetab
The VTAM mode entry table name in use by DDF.

VTAM Sessions
The number of active VTAM sessions that are currently allocated.

VTAM Version
The version of VTAM that is in use.

VTAM Conversations
The number of active VTAM APPC conversations that are currently allocated.

Remote Location Name
The name of a remote location in which active VTAM sessions exist.

Remote Luname
The logical unit name for the remote location in this row.

VTAM Ver
The version of VTAM in use by this remote location.

VTAM Session
The number of active VTAM sessions between this remote DB2 location and the local DB2.

DIST Thread
The number of active distributed allied threads with conversations between this remote DB2 location and the local DB2 subsystem.
**DIST Conv**
The number of active conversations that are in use by the distributed allied threads connected to this remote DB2 and the local DB2.

**DBAC Thread**
The number of active database access threads with conversations between this remote DB2 and the local DB2.

**DBAC Conv**
The number of active conversations that are using the database access threads connected to this remote DB2 and the local DB2.

**Distributed Data Facility VTAM Detail**
This panel shows information about DDF activities from the perspective of active VTAM sessions.

DIST (distributed allied) and DBAC (database access) conversation types are always displayed at the top of the panel. Output is sorted by elapsed time of threads owning the conversations. If a thread owns multiple conversations, the plan name is displayed only for the first conversation. The Planname field is blank for all other conversations owned by the thread.

### Navigation
For additional information about
- the thread that owns a particular conversation, move the cursor to the required line and press F11 (Zoom).
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

### Fields

#### VTAM Session ID
The VTAM session ID of the active VTAM session.

#### Conv Type
The conversation type.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBAC</td>
<td>A conversation owned by a database access thread.</td>
</tr>
<tr>
<td>DIST</td>
<td>A conversation owned by a distributed allied thread.</td>
</tr>
<tr>
<td>SYST</td>
<td>A system conversation between two DB2 subsystems.</td>
</tr>
<tr>
<td>AVAL</td>
<td>No conversation on this active VTAM session.</td>
</tr>
</tbody>
</table>
VTAM Luname
The logical unit name of the remote DB2 location that is the partner logical unit for the active VTAM session.

VTAM Logmode
The VTAM logmode entry name in use by the session.

Time Since Last Req
The time that has elapsed since the last VTAM APPC request was issued on the active conversation (hh:mm:ss)

Conv Status
The status of the conversation:
- WAIT-VTAM
  The conversation is suspended and waiting for a VTAM response.
- IN-VTAM
  The conversation is active within VTAM.
- NOT ACTIVE
  The conversation is inactive (neither active nor waiting for a VTAM response).

Planname
The plan name of the thread that owns the conversation using this VTAM session. If this field is blank for a DIST or DBAC conversation type, the plan name is the same as the one immediately before.
If Conv Type is SYST, this field is blank because no plan is involved.

Object Analysis
Select this main menu option for information about DB2 object allocations, object activities, volume activities, and data set extend activities.

Object analysis collection must be started, otherwise no information is provided. For more information, see the description of panel “Start Object Analysis Collection” on page 1429 and panel “Stop Object Analysis Collection” on page 1430.

Object analysis collection requires that the OMEGAMON XE for DB2 PE Event Collection Manager (EVENTMGR) is started. For more information, see Configuration and Customization.

Note: OMEGAMON XE for DB2 PE provides object analysis data only for active DB2 objects. Data is not available for objects that are not open.

Note: Object analysis can only be performed on a single DB2 subsystem, no matter whether the subsystem is a member of a data sharing group or not.

Object Allocation Summary
This panel shows allocation-related information at the database level.

It displays only databases that contain spaces that are currently allocated to the DB2 subsystem being monitored (if a database is stopped it will not be displayed in the panel).

You can use the default settings of the Object Allocation Summary, or you can limit the data that is displayed by modifying the Display options.
If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

**Navigation**

For additional information about

- a particular database, move the cursor to the database line and press F11 (Zoom). For more information, see the description of panel “Database Allocations” on page 1396.
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

**Total Databases**

The number of databases that are allocated to the monitored DB2.

**Total Spaces**

The number of spaces that are allocated to the monitored DB2.

**Total Datasets**

The number of data sets that are allocated to the monitored DB2.

**Database**

The name of a database.

**Spaces**

The number of spaces owned by the database and currently allocated to DB2.

**Tblsp**

The number of spaces that are tablespaces currently allocated to DB2.

**Indxs**

The number of spaces that are indexspaces currently allocated to DB2.
# DSNs
The number of data sets that are allocated for the spaces owned by the database.

# Extents
The number of data set extents allocated by the data sets.

# Ext/DNS
The average number of extents per data set for the database.

# Max ExtS
The largest number of extents per data set for the database.

## Database Allocations:

This panel provides allocation information for all spacenames owned by a particular database.

OMEGAMON XE for DB2 PE will sort on that column.

![Database Allocations Table](image)

### Navigation

For additional information about
- a particular space, move the cursor to the spacenane line and press F11 (Zoom).
- related display options, select option **C-Display Options**. For more information, see the description of panel “Display Options For Database Allocations And Database Activity Displays” on page 1409.
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.
Fields

Database
The name of the database that owns the spacenames in the display.

Total Spaces
The number of spaces in this database.

Total Datasets
The number of data sets in this database.

Spacename
The name of a space that is owned by the database and allocated to DB2.

Type
The spacename type. Possible values:

- **INDX** An index
- **IXCL** A clone of an index
- **LBTS** A LOB tablespace
- **PTIX** A partitioned index
- **PTTS** A partitioned tablespace
- **SEGM** A segmented tablespace
- **TBLS** A simple tablespace
- **TSCL** A clone of an universal tablespace
- **TSPG** A partition by growth universal tablespace
- **TSPR** A partition by range universal tablespace
- **XMTS** An XML tablespace
- **UNDT** Undetermined
  This can occur if the database DBD is currently not loaded in the EDM pool.

BP
The identifier of the buffer pool in use by the spacename.

Vols
The number of volumes in use by the spacename.

DSNs
The number of data sets that are allocated for the spacename.

Exts
The number of data set extents allocated by the data sets.

Exts/DSN
The average number of extents per data set for the spacename.

Max Exts
The largest number of extents per data set for the spacename.

Spacename Allocations:

This panel provides allocation-related information at the spacename level.

It displays only data sets that are currently allocated to DB2 and are owned by the spacename displayed.
OBJECT ANALYSIS: Enter a selection letter on the top line.

SPACENAME ALLOCATIONS

OJA2
+ Database = DSNDB01  Spacename = SPT01  Type = PART BY GROWTH TS
+ Datasets = 1  Volumes = 6  Exts = 21
+ Space = 5910 Trks
+ *
  + DSN  Vols  Exts  Fmt  Pg  High  High  %  In Use  Dataset  Space
  + 001  6  21 00210B  00210B  100.0%  5910 Trks

If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

Navigation

For additional information about
- a particular data set, move the cursor to the DSN line and press F11 (Zoom). For more information, see the description of panel “Dataset Allocations” on page 1399.
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

Fields

Database
The name of the database that owns the spacename.

Spacename
The name of the space about which information is displayed.

Type
The spacename type. Possible values:
- INDX  An index
- IXCL  A clone of an index
- L BTS  A LOB tablespace
- PTIX  A partitioned index
- PTTS  A partitioned tablespace
- SEGM  A segmented tablespace
- TBLS  A simple tablespace
- TSCL  A clone of an universal tablespace
- TSPG  A partition by growth universal tablespace
- TSPR  A partition by range universal tablespace
- XMTS  An XML tablespace
UNDT
Undetermined
This can occur if the database DBD is currently not loaded in the
EDM pool.

Datasets
The number of data sets in use by the spacename.

Volumes
The number of volumes in use by the data set.

Exts
The number of data set extents allocated by all data sets in use by the
spacename.

Space
The total amount of space allocated by the spacename.

DSN
The sequence number of the data set.

Vols
The number of volumes that the data set resides on.

Exts
The number of extents allocated by the data set.

High Fmt Pg
The highest page number formatted in the data set. This value is displayed
in hexadecimal.

High Alloc Pg
The highest page number allocated in the data set. This value is displayed
in hexadecimal.

% In Use
The percentage of pages in use for the data set. This value is computed by
dividing High Fmt Pg by High Alloc Pg.

Dataset Space
The total amount of space allocated by the data set. This value is expressed
in tracks.

Dataset Allocations:
This panel provides allocation information for a single DB2 data set.

This display helps you evaluate data set size, data set extents, and data set
placement.
### DATASET ALLOCATIONS

- **Database** = DSNDB01  
  **Spacename** = SPT01  
  **Type** = PART BY GROWTH TS

- **Dataset** = 001  
  **Volumes** = 6  
  **Exts** = 21

- **Space** = 5910 Trks

<table>
<thead>
<tr>
<th>Extent</th>
<th>Volume</th>
<th>Low CCHH</th>
<th>High CCHH</th>
<th>Low Page</th>
<th>High Page</th>
<th>Extent Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ 001</td>
<td>PMOSD5</td>
<td>05A40000</td>
<td>0607000E</td>
<td>000000</td>
<td>000897</td>
<td>1500 Trks</td>
</tr>
<tr>
<td>+ 002</td>
<td>PMOSD5</td>
<td>06B00000</td>
<td>06CA000E</td>
<td>000898</td>
<td>000AE9</td>
<td>405 Trks</td>
</tr>
<tr>
<td>+ 003</td>
<td>PMOSD5</td>
<td>15A50000</td>
<td>15AD000E</td>
<td>000AFA</td>
<td>000B0A</td>
<td>135 Trks</td>
</tr>
<tr>
<td>+ 004</td>
<td>PMOSD5</td>
<td>15AF0000</td>
<td>15FC000E</td>
<td>000B0B</td>
<td>001263</td>
<td>1170 Trks</td>
</tr>
<tr>
<td>+ 005</td>
<td>PMOSD5</td>
<td>1C380000</td>
<td>1C49000E</td>
<td>001264</td>
<td>0013EF</td>
<td>270 Trks</td>
</tr>
<tr>
<td>+ 006</td>
<td>PMOSD5</td>
<td>4A9D0000</td>
<td>4AB0000E</td>
<td>0013F0</td>
<td>0015A7</td>
<td>300 Trks</td>
</tr>
<tr>
<td>+ 007</td>
<td>PMOSD5</td>
<td>1AC10000</td>
<td>1AD6000E</td>
<td>0015A8</td>
<td>00178B</td>
<td>330 Trks</td>
</tr>
<tr>
<td>+ 008</td>
<td>PMOSD5</td>
<td>20370000</td>
<td>204E000E</td>
<td>00178C</td>
<td>00199B</td>
<td>360 Trks</td>
</tr>
<tr>
<td>+ 009</td>
<td>PMOSD5</td>
<td>22C30000</td>
<td>22DC000E</td>
<td>00199C</td>
<td>001BD7</td>
<td>390 Trks</td>
</tr>
<tr>
<td>+ 010</td>
<td>PMOSD4</td>
<td>0FA00000</td>
<td>0F12000E</td>
<td>001BD8</td>
<td>001DFD</td>
<td>375 Trks</td>
</tr>
<tr>
<td>+ 011</td>
<td>PMOSD4</td>
<td>0F9C0000</td>
<td>0F9E000E</td>
<td>001DFE</td>
<td>001E3F</td>
<td>45 Trks</td>
</tr>
<tr>
<td>+ 012</td>
<td>PMOSD4</td>
<td>01D40000</td>
<td>01D4000E</td>
<td>001E40</td>
<td>001E55</td>
<td>15 Trks</td>
</tr>
<tr>
<td>+ 013</td>
<td>PMOSD4</td>
<td>00E10000</td>
<td>00E1000E</td>
<td>001E56</td>
<td>001E68</td>
<td>15 Trks</td>
</tr>
<tr>
<td>+ 014</td>
<td>PMOSD9</td>
<td>0AB80000</td>
<td>0AB8000E</td>
<td>001E6C</td>
<td>001E81</td>
<td>15 Trks</td>
</tr>
<tr>
<td>+ 015</td>
<td>PMOSD9</td>
<td>0AB80000</td>
<td>0AB8000E</td>
<td>001E6E</td>
<td>001E97</td>
<td>15 Trks</td>
</tr>
<tr>
<td>+ 016</td>
<td>PMOSD9</td>
<td>14640000</td>
<td>1464000E</td>
<td>001E98</td>
<td>001EAD</td>
<td>15 Trks</td>
</tr>
<tr>
<td>+ 017</td>
<td>PMOSD1</td>
<td>476A0000</td>
<td>476B000E</td>
<td>001EAE</td>
<td>001E9D</td>
<td>30 Trks</td>
</tr>
<tr>
<td>+ 018</td>
<td>PMOSD1</td>
<td>475B0000</td>
<td>475B000E</td>
<td>001E0A</td>
<td>001EEF</td>
<td>15 Trks</td>
</tr>
<tr>
<td>+ 019</td>
<td>PMOSD1</td>
<td>4F320000</td>
<td>4F32000E</td>
<td>001E0F</td>
<td>001F05</td>
<td>15 Trks</td>
</tr>
<tr>
<td>+ 020</td>
<td>PMOSD1</td>
<td>64A00000</td>
<td>64A0000E</td>
<td>001F06</td>
<td>001F1B</td>
<td>15 Trks</td>
</tr>
<tr>
<td>+ 021</td>
<td>PMOSD7</td>
<td>52B60000</td>
<td>52D5000E</td>
<td>001F1C</td>
<td>0021D8</td>
<td>480 Trks</td>
</tr>
</tbody>
</table>

If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

**Navigation**

For additional information about
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

**Database**
- The name of the database that owns the space.

**Spacename**
- The name of the space that owns the data set.

**Type**
- The spacename type. Possible values:
  - **INDX** An index
  - **IXCL** A clone of an index
  - **LBTS** A LOB tablespace
  - **PTIX** A partitioned index
  - **PTTS** A partitioned tablespace
SEGMA
A segmented tablespace

TBLS  A simple tablespace

TSCL  A clone of an universal tablespace

TSPG  A partition by growth universal tablespace

TSPR  A partition by range universal tablespace

XMTS  An XML tablespace

UNDT  Undetermined
This can occur if the database DBD is currently not loaded in the EDM pool.

Dataset
The sequence number of the selected data set.

Volumes
The number of volumes in use by the data set.

Exts  The number of data set extents allocated by the data set.

Space  The total amount of space currently allocated by the data set.

Extent  The sequence number of the extent.

Volume
The volume in which the extent is allocated.

Low CCHH
The beginning cylinder and head address on the volume where the extent
is located.

High CCHH
The ending cylinder and head address on the volume where the extent is
located.

Low Page
The beginning page number contained in the extent. This value is
displayed in hexadecimal.

High Page
The ending page number contained in the extent. This value is displayed
in hexadecimal.

Extent Space
The amount of space allocated by the extent. This value is expressed in
tracks.

Display Options For Object Activity Summary And Object Allocation Summary Displays:

Use this panel to specify filtering criteria for the output that is displayed in the Object Activity Summary and Object Allocation Summary panels.

You can specify more than one filter option.
DISPLAY OPTIONS FOR OBJECT ACTIVITY SUMMARY AND OBJECT ALLOCATION SUMMARY DISPLAYS

OJOO

+ Following options applied to both displays:
  : DATABASE=_______ Filter display output by database name

+ Following options applied to OBJECT ALLOCATION SUMMARY display
  : EXTSDSN>_______ Filter display output by extents/dataset ratio
  : MAXEXTS>_______ " by max extents/dataset

+ Following options applied to OBJECT ACTIVITY SUMMARY display
  : PERCGETP>_______ Filter display output by % of getpage activity
  : PERCIO>_______ " by % of I/O activity
  : RATE=_______ Display activity rates or counts (yes/no)

Navigation

For additional information about other topics, use the PF keys.

Fields

DATABASE=

Type a database name (maximum 8 characters) if you want to limit the displayed information to a particular database or group of databases.

You can specify a wildcard by typing a question mark (?), or you can use an asterisk (*) for generic filtering. For example, DSNDB* would select all databases that begin with DSNDB, and DSN??06 would select all databases that begin with DSN, end with 06, and have any two characters in between.

EXTSDSN>

If you want to display object allocation information that applies only to databases with more than n extents per data set, enter a number that is greater than 0.

MAXEXTS>

If you want to display object allocation information that applies only to databases with data sets containing more than n total extents, enter a number that is greater than 0.

PERCGETP>

If you want to display object activity information that applies only to databases with a percentage of total Getpages that is greater than n, enter a number from 0 to 100.

PERCIO>

If you want to display object activity information that applies only to databases with a percentage of total I/O that is greater than n, enter a number from 0 to 100.

RATE=

If you want to display object activity information as rates rather than counts, enter YES. The default is NO. Rates are calculated dividing each count field by the interval elapsed time.
**Object Activity Summary**

This panel shows a high-level analysis of Getpage and I/O activity from a DB2 database perspective.

<table>
<thead>
<tr>
<th>Database</th>
<th>% of Getp</th>
<th>% of I/O</th>
<th>Getp per RIO</th>
<th>Getpage</th>
<th>Sync</th>
<th>Pre</th>
<th>Async</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSNDB01</td>
<td>33.3%</td>
<td>100.0%</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>DSNDB06</td>
<td>66.6%</td>
<td>0%</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

**Navigation**

For additional information about

- a particular database, move the cursor to the database line and press F11 (Zoom). For more information, see the description of panel “Database Activity” on page 1404.
- related display options, select option E-Display Options. For more information, see the description of panel “Display Options For Object Activity Summary And Object Allocation Summary Displays” on page 1401.
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

**Interval Time**

The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

**Interval Elapsed**

The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

**Total Getpage**

The total number of Getpage requests since the beginning of the collection interval.

**Total I/O**

The total number of I/O requests since the beginning of the collection interval.

**Database**

The name of a database that has incurred Getpage or I/O activity.

**% of Getp**

The percentage of total Getpage activity that is applicable to the database.
% of I/O
The percentage of total I/O activity that is applicable to the database.

Getp per RIO
The Getpage to Read I/O ratio for the database. This ratio is computed by dividing Getpage by Sync Read + Pre Fetch.

Getpage
The number of Getpage requests for the database.

Sync Read
The number of synchronous reads for the database.

Pre Fetch
The number of prefetch Read I/Os for the database.

Async Write
The number of asynchronous writes for the database.

Other Write
The number of immediate and format writes for the database.

Database Activity:
This panel shows activity information about spaces that have incurred Getpage or I/O activity during the current collection interval. This panel formats Getpage and I/O activity for spaces owned by a single database.

<table>
<thead>
<tr>
<th>Spacename</th>
<th>Getp %</th>
<th>Getp I/O per RIO</th>
<th>Sync Read</th>
<th>Pre Fetch</th>
<th>Async Write</th>
<th>Other Write</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSNLLX01</td>
<td>66.6%</td>
<td>83.3%</td>
<td>0</td>
<td>4</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>SYSLGRNX</td>
<td>33.3%</td>
<td>16.6%</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

Navigation
For additional information about
- a particular space, move the cursor to the spacename line and press F11 (Zoom). For more information, see the description of panel “Spacename Activity” on page 1407.
- related thread activity, select option C-Thread Activity. For more information, see the description of panel “Thread Activity by Database” on page 1405.
• related display options, select option **D-Display Options**. For more information, see the description of panel "Display Options For Database Allocations And Database Activity Displays" on page 1409.

• related topics, select one of the options on the top of the panel.

• other topics, use the PF keys.

### Fields

**Interval Time**

The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

**Interval Elapsed**

The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

**Total Getpage**

The total number of Getpage requests since the beginning of the collection interval.

**Total I/O**

The total number of I/O requests since the beginning of the collection interval.

**Database**

The name of the database that owns the spacenames in the display.

**Spacename**

The name of a space that has incurred Getpage/IO activity.

**% of Getp**

The percentage of total Getpage activity that is applicable to the spacename.

**% of I/O**

The percentage of total I/O activity that is applicable to the spacename.

**Getp per RIO**

The Getpage to Read I/O ratio for the spacename. This ratio is computed by dividing Getpage by Sync Read + Pre Fetch.

**Getpage**

The number of Getpage requests for the spacename.

**Sync Read**

The number of synchronous Reads for the spacename.

**Pre Fetch**

The number of prefetch Read I/Os for the spacename.

**Async Write**

The number of asynchronous Writes for the spacename.

**Other Write**

The number of immediate and format Writes for the spacename.

### Thread Activity by Database:

This panel shows activity information for each thread that generated I/O activity for a selected DB2 database during the collection interval.
If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

**Navigation**

For additional information about other topics, use the PF keys.

**Fields**

**Interval Time**

The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

**Interval Elapsed**

The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

**Total Getpage**

The total number of Getpage requests since the beginning of the collection interval.

**Total I/O**

The total number of I/O requests since the beginning of the collection interval.

**Database**

The name of the selected database for which thread activity has occurred.

**Plannname**

The name of the plan associated with the thread.

**Authid**

The authid associated with the thread.

**Correlation**

The correlation ID associated with the thread.

**Getpage**

The number of Getpage requests made by the thread.

**Sync Read**

The number synchronous reads made by the thread.
Sequential Prefetch
The number of Sequential Prefetch Read I/Os made by the thread.

List Prefetch
The number of List Prefetch Read I/Os made by the thread.

Spacename Activity:
This panel shows activity information about data sets that have incurred Getpage and I/O activity during the current collection interval. This panel formats Getpage and I/O activity for a single spacename.

If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

Navigation
For additional information about
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

Fields
Interval Time
The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

Interval Elapsed
The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

Total Getpage
The total number of Getpage requests since the beginning of the collection interval.

Total I/O
The total number of I/O requests since the beginning of the collection interval.

Database
The name of the database that owns the spacename (and data sets) in the display.
Spacename
The name of the space that contains the data sets in the display.

DSN
The sequence number of a data set that incurred I/O activity.

% of Getp
The percentage of total Getpage activity that is applicable to the spacename.

% of I/O
The percentage of total I/O activity that is applicable to the spacename.

Getp per RIO
The Getpage to Read I/O ratio for the spacename. This ratio is computed by dividing Getpage by Sync Read + Pre Fetch.

Getpage
The number of Getpage requests for the spacename.

Sync Read
The number of synchronous reads for the spacename.

Pre Fetch
The number of prefetch Read I/Os for the spacename.

Async Write
The number of asynchronous writes for the spacename.

Other Write
The number of immediate and format writes for the spacename.

Thread Activity by Spacename:
This panel shows thread activity information for each thread that generated I/O activity to the spacename during the collection interval. Use this information to analyze which threads are generating I/O activity for a selected spacename.

If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

Navigation
For additional information about other topics, use the PF keys.
Fields

Interval Time
The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

Interval Elapsed
The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

Total Getpage
The total number of Getpage requests since the beginning of the collection interval.

Total I/O
The total number of I/O requests since the beginning of the collection interval.

Database
The name of the selected database for which thread activity has occurred.

Spacename
The name of the selected spacename for which thread activity has occurred.

Planname
The name of the plan associated with the thread.

Authid
The authid associated with the thread.

Correlation
The correlation ID associated with the thread.

Getpage
The number of Getpage requests made by the thread.

Sync Read
The number synchronous reads made by the thread.

Sequential Prefetch
The number of Sequential Prefetch Read I/Os made by the thread.

List Prefetch
The number of List Prefetch Read I/Os made by the thread.

Display Options For Database Allocations And Database Activity Displays:
Use this panel to specify filtering criteria for the output that is displayed in the Database Allocations and Database Activity panels.
Navigation

For additional information about other topics, use the PF keys.

Fields

**SPACENAM=**

Enter a spacename (maximum 8 characters) if you want to limit the displayed information to a particular space or group of spaces.

You can specify a wildcard by entering a question mark (?), or you can use an asterisk (*) for generic filtering. For example, DSN* would select all databases that begin with DSN, and DSN??010 would select all databases that begin with DSN, end with 010, and have any two characters in between.

**BPID=**

If you want to display database allocation and activity information that applies only to a particular buffer pool, enter the buffer pool ID.

**Note:** Omit the ‘BP’ prefix when you specify the buffer pool ID.

4KB 0, 1, 2, ..., 49
8KB 8K0, 8K1, 8K2, ..., 8K9
16KB 16K0, 16K1, 16K2, ..., 16K9
32KB 32K, 32K1, 32K2, ..., 32K9

**EXTSDSN>**

If you want to display database allocation information that applies only to spaces with more than \( n \) extents per data set, enter a number that is greater than 0.

**MAXEXTS>**

If you want to display object allocation information that applies only to spaces with more than \( n \) total extents per data set, enter a number that is greater than 0.
TYPE=
If you want to limit the displayed information to a particular object type, enter one of the following values:

INDX  An index
IXCL  A clone of an index
LBTS  A LOB tablespace
PTIX  A partitioned index
PTTS  A partitioned tablespace
SEGM  A segmented tablespace
TBLS  A simple tablespace
TSCL  A clone of a universal tablespace
TSPG  A partition by growth universal tablespace
TSPR  A partition by range universal tablespace
XMTS  An XML tablespace
UNDT  Undetermined

This can occur if the database DBD is currently not loaded in the EDM pool.

PERCGETP>
If you want to display database activity information that applies only to spaces with a percentage of total Getpage that is greater than \( n \), enter a number from 0 - 100.

PERCIO>
If you want to display database activity information that applies only to spaces with a percentage of total I/O that is greater than \( n \), enter a number from 0 - 100.

RATE=
If you want to display database activity information as rates rather than counts, enter YES. The default is NO. Rates are calculated dividing each count field by the interval elapsed time.

Volume Activity Summary
This panel shows activity information of volumes that contain DB2 objects that are currently allocated and available for use by the DB2 being monitored. Use this information to evaluate the DASD performance by volume.
OBJECT ANALYSIS: Enter a selection letter on the top line.

<table>
<thead>
<tr>
<th>Volume</th>
<th>Unit</th>
<th>Vol Util%</th>
<th>Serv</th>
<th>Total</th>
<th>DB2</th>
<th>% DB2</th>
<th>Alloc</th>
<th>Alloc</th>
<th>Exts/DSNs</th>
<th>Exts</th>
<th>DSN</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMOSDA 4C2E</td>
<td>.0%</td>
<td>.5</td>
<td>0</td>
<td>0</td>
<td>.0%</td>
<td>1</td>
<td>1</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMOSDB 4C2F</td>
<td>.0%</td>
<td>.4</td>
<td>13</td>
<td>14</td>
<td>13</td>
<td>22.4%</td>
<td>35</td>
<td>49</td>
<td>1.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMOSD1 4C09</td>
<td>.0%</td>
<td>.3</td>
<td>14</td>
<td>14</td>
<td>24.1%</td>
<td>51</td>
<td>60</td>
<td>1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMOSD2 4C0A</td>
<td>.0%</td>
<td>.0</td>
<td>1</td>
<td>1</td>
<td>1.7%</td>
<td>0</td>
<td>0</td>
<td>.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMOSD3 4C0B</td>
<td>.0%</td>
<td>.3</td>
<td>3</td>
<td>3</td>
<td>5.1%</td>
<td>1</td>
<td>2</td>
<td>2.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMOSD4 4C0C</td>
<td>.0%</td>
<td>.3</td>
<td>2</td>
<td>2</td>
<td>3.4%</td>
<td>2</td>
<td>6</td>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMOSD5 4C0D</td>
<td>.0%</td>
<td>.3</td>
<td>10</td>
<td>10</td>
<td>17.2%</td>
<td>39</td>
<td>60</td>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMOSD6 4C0E</td>
<td>.0%</td>
<td>.4</td>
<td>5</td>
<td>5</td>
<td>8.6%</td>
<td>44</td>
<td>49</td>
<td>1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMOSD7 4C0F</td>
<td>.0%</td>
<td>.5</td>
<td>0</td>
<td>0</td>
<td>.0%</td>
<td>31</td>
<td>38</td>
<td>1.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMOSD8 4C28</td>
<td>.0%</td>
<td>.3</td>
<td>8</td>
<td>8</td>
<td>13.7%</td>
<td>46</td>
<td>72</td>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMOSD9 4C29</td>
<td>.0%</td>
<td>.3</td>
<td>2</td>
<td>2</td>
<td>3.4%</td>
<td>1</td>
<td>3</td>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

**Navigation**

For additional information about:

- a particular volume, move the cursor to the volume line and press F11 (Zoom). For more information, see the description of panel “Volume Database Activity” on page 1413.
- related display options, select option E-Display Options. For more information, see the description of panel “Display Options For Volume Activity Summary Display” on page 1427.
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

**Fields**

**Interval Time**

The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

**Interval Elapsed**

The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

**Volume**

The name of a volume that contains DB2 objects.

**Unit**

The address of the volume.

**Vol Util%**

The volume utilization percentage. This value represents the percentage of time the volume is actually in use.
Vol Serv
The average service time for the volume since the beginning of the collection interval. This field is the sum of the average IOS pending time, the average IOS connect time, and the average IOS disconnect time for the volume. It does not include IOS queue time.

Total I/O
The total number of I/Os for this volume. This value is from an MVS perspective. If the volume is shared by multiple MVS systems, this value might not reflect all I/O activity to the volume.

DB2 I/O
The total number of I/Os (for this volume) originating from the DB2 subsystem being monitored. This is a subset of total I/Os per second if I/O to the volume is also occurring from address spaces other than the DB2 subsystem being monitored.

% DB2 I/O
The percentage of total DB2 I/O that is attributable to the volume. This value is derived by dividing the volume DB2 I/O count by the total DB2 I/O count.

Alloc DSNs
The number of physical DB2 data sets currently allocated as a result of the DB2 spaces residing on the volume.

Alloc Exts
The number of data set extents currently allocated as a result of the DB2 data sets residing on the volume.

Exts/DSN
The average number of allocated extents per allocated data set on the volume.

Volume Database Activity:
This panel shows activity information of each database that has incurred I/O to a single volume. Use this information to analyze I/O activity from a DB2 database perspective.

If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.
Navigation

For additional information about

- a particular database, move the cursor to the database line and press F1 (Zoom). For more information, see the description of panel "Volume Spacename Activity" on page 1417.
- related topics, select one of the options on the top of the panel.
- other topics, use the PF keys.

Fields

Interval Time
The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

Interval Elapsed
The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

Volume/Unit
The name and address of the volume.

Total I/O Rate/sec
The total number of I/Os per second for the volume. This value is from an MVS perspective. If the volume is shared by multiple MVS systems, this value might not reflect all I/O activity to the volume.

Device Type
The device type of the volume displayed.

DB2 I/O Rate/sec
The total number of I/Os per second (for the volume) originating from the DB2 subsystem being monitored. This is a subset of total I/Os per second if I/O to the volume is also occurring from address spaces other than the DB2 subsystem being monitored.

Database
The name of a database that contains one or more objects residing on the volume.

DSNs
The number of data sets that have incurred I/O to the volume since the beginning of the collection interval.

Exts
The number of allocated extents that have incurred I/O to the volume since the beginning of the collection interval.

Vol Use%
The percentage of DB2 I/O activity to the volume that is attributable to the database. This ratio is computed by dividing the total I/O rate for the database by the total DB2 I/O rate to the volume.

Total I/O Rate
The total I/O rate (per second) that is attributable to the database for the time elapsed.

Read I/O Rate
The Read I/O rate (per second) that is attributable to the database for the time elapsed.

Write I/O Rate
The Write I/O rate (per second) that is attributable to the database for the time elapsed.
Total I/O Count
The total I/O count that is attributable to the database for the time elapsed.

Read I/O Count
The number of reads that are attributable to the database for the time elapsed.

Write I/O Count
The number of writes that are attributable to the database for the time elapsed.

Volume Service:
This panel shows a breakdown of volume service time by the various IOS service-time components. Use this information to analyze service times for a single DASD volume.

<table>
<thead>
<tr>
<th>VOLUME SERVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OJVR</td>
</tr>
</tbody>
</table>
+ Interval Time  = 00:05:00 | Interval Elapsed = 00:04:18 |
+ Volume/Unit    = PMOSDB/4C2F | Total I/O Rate/sec = .0 |
+ Device Type    = 3390   | DB2 I/O Rate/sec = .0 |
+ Vol Serv = Pending + Connect + Disconnect |
+ .3 .1 .2 .0 |

Navigation
For additional information about other topics, use the PF keys.

Fields

Interval Time
The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

Interval Elapsed
The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

Volume/Unit
The name and address of the volume.

Total I/O Rate/sec
The total number of I/Os per second for the volume. This value is from an MVS perspective. If the volume is shared by multiple MVS systems, this value might not reflect all I/O activity to the volume.

Device Type
The device type of the volume displayed.

DB2 I/O Rate/sec
The total number of I/Os per second (for the volume) originating from the
DB2 subsystem being monitored. This is a subset of total I/Os per second if I/O to the volume is also occurring from address spaces other than the DB2 subsystem being monitored.

Vol Serv
The average service time for the volume since the beginning of the collection interval. This field is the sum of the average IOS pending time, the average IOS connect time, and the average IOS disconnect time for the volume. It does not include IOS queue time.

Pending
The average IOS pending time for the volume. This is a subset of total volume service time.

Connect
The average IOS connect time for the volume. This is a subset of total volume service time.

Disconnect
The average IOS disconnect time for the volume. This is a subset of total volume service time.

Thread Activity by Volume:
This panel shows activity information for each thread that generated I/O activity to the selected volume during the collection interval. Use this information to determine which DB2 threads are generating I/O on the selected volume.

<table>
<thead>
<tr>
<th>OJT1</th>
<th>VTM</th>
<th>O2</th>
<th>V540.4P</th>
<th>SE12</th>
<th>11/06/13</th>
<th>10:29:21</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Help PF1</td>
<td>Back PF3 Up PF7 Down PF8 Sort PF10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

===============================================================================

<table>
<thead>
<tr>
<th>THREAD ACTIVITY BY VOLUME</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>OJT1</td>
</tr>
<tr>
<td>+ Interval Time = 00:05:00</td>
</tr>
<tr>
<td>+ Volume/Unit = PMOSDB/AC2F</td>
</tr>
<tr>
<td>+ Device Type = 3390 DB2</td>
</tr>
<tr>
<td>+ *</td>
</tr>
<tr>
<td>+ Planname Authid Correlation Total Read Write Total Read Write</td>
</tr>
<tr>
<td>+ SYSPR</td>
</tr>
<tr>
<td>+ DSNESPSCS MIS MIS</td>
</tr>
<tr>
<td>------I/O Rates------</td>
</tr>
<tr>
<td>.0 0 0 2 0 2</td>
</tr>
</tbody>
</table>

===============================================================================

Navigation
For additional information about other topics, use the PF keys.

Fields
Interval Time
The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

Interval Elapsed
The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

Volume/Unit
The name and address of the volume.
Total I/O Rate/sec
The total number of I/Os per second for the volume. This value is from an MVS perspective. If the volume is shared by multiple MVS systems, this value might not reflect all I/O activity to the volume.

Device Type
The device type of the volume displayed.

DB2 I/O Rate/Sec
The total number of I/Os per second (for the volume) that originated from the DB2 subsystem being monitored. This is a subset of total I/Os per second if I/O to the volume is also occurring from address spaces other than the DB2 subsystem being monitored.

Plannname
The name of the plan associated with the thread.

Authid
The authid associated with the thread.

Correlation
The correlation ID associated with the thread.

Total I/O Rate
The total I/O rate (per second) that is attributable to the volume for the time elapsed.

Read I/O Rate
The Read I/O rate (per second) that is attributable to the volume for the time elapsed.

Write I/O Rate
The Write I/O rate (per second) that is attributable to the volume for the time elapsed.

Total I/O Count
The total I/O count that is attributable to the volume for the time elapsed.

Read I/O Count
The Read I/O count that is attributable to the volume for the time elapsed.

Write I/O Count
The Write I/O count that is attributable to the volume for the time elapsed.

Volume Spacename Activity:
This panel shows activity information for each spacename owned by the database that incurred I/O activity to the volume during the collection interval. Use this information to analyze I/O activity for a single volume from a DB2 database/spacename perspective.
If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

**Navigation**

For additional information about
- a particular spacename, move the cursor to the spacename line and press F11 (Zoom). For more information, see the description of panel “Volume Dataset Activity” on page 1421.
- related topics, select one of the options at the top of the panel.

**Fields**

**Interval Time**
The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

**Interval Elapsed**
The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

**Volume/Unit**
The name and address of the volume.

**Total I/O Rate/sec**
The total number of I/Os per second for the volume. This value is from an MVS perspective. If the volume is shared by multiple MVS systems, this value might not reflect all I/O activity to the volume.

**Device Type**
The device type of the volume displayed.

**DB2 I/O Rate/sec**
The total number of I/Os per second (for the volume) originating from the DB2 subsystem being monitored. This is a subset of total I/Os per second if I/O to the volume is also occurring from address spaces other than the DB2 subsystem being monitored.

**Database**
The name of the selected database.
Spacename
The name of a space that has incurred I/O activity since the beginning of the collection interval.

DSNs
The number of data sets that have incurred I/O to the volume since the beginning of the collection interval.

Exts
The number of allocated extents that have incurred I/O activity since the beginning of the collection interval.

Vol Use %
The percentage of DB2 I/O activity to the volume that is attributable to the spacename. This ratio is computed by dividing the total I/O rate for the database/spacename by the total database I/O rate to the volume.

Total I/O Rate
The total I/O rate (per second) that is attributable to the space for the time elapsed.

Read I/O Rate
The Read I/O rate (per second) that is attributable to the space for the time elapsed.

Write I/O Rate
The Write I/O rate (per second) that is attributable to the space for the time elapsed.

Total I/O Count
The total I/O count that is attributable to the space for the time elapsed.

Read I/O Count
The number of reads that are attributable to the space for the time elapsed.

Write I/O Count
The number of writes that are attributable to the space for the time elapsed.

Volume Thread Activity by Database:

This panel shows volume activity information for each thread that generated I/O activity to the database during the collection interval. Use this information to analyze which threads are generating I/O activity for a single volume from a DB2 database perspective.

<table>
<thead>
<tr>
<th>Planname</th>
<th>Authid</th>
<th>Correlation</th>
<th>Total</th>
<th>Read</th>
<th>Write</th>
<th>Total</th>
<th>Read</th>
<th>Write</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSOPR</td>
<td>.0</td>
<td>.0</td>
<td>.0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>DSNESPCS</td>
<td>MIS</td>
<td>MIS</td>
<td>.0</td>
<td>.0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Chapter 5. Monitoring  1419
If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

**Navigation**

For additional information about other topics, use the PF keys.

**Fields**

**Interval Time**

The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

**Interval Elapsed**

The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

**Volume/Unit**

The name and address of the volume.

**Total I/O Rate/sec**

The total number of I/Os per second for the volume. This value is from an MVS perspective. If the volume is shared by multiple MVS systems, this value might not reflect all I/O activity to the volume.

**Device Type**

The device type of the volume displayed.

**DB2 I/O Rate/sec**

The total number of I/Os per second (for the volume) originating from the DB2 subsystem being monitored. This is a subset of total I/Os per second if I/O to the volume is also occurring from address spaces other than the DB2 subsystem being monitored.

**Database**

The name of the database for which thread activity has occurred.

**Plannname**

The name of the plan associated with the thread.

**Authid**

The authid associated with the thread.

**Correlation**

The correlation ID associated with the thread.

**Total I/O Rate**

The total I/O rate (per second) that is attributable to the database for the time elapsed.

**Read I/O Rate**

The Read I/O rate (per second) that is attributable to the database for the time elapsed.

**Write I/O Rate**

The Write I/O rate (per second) that is attributable to the database for the time elapsed.

**Total I/O Count**

The total I/O count that is attributable to the database for the time elapsed.
Read I/O Count
The Read I/O count that is attributable to the database for the time elapsed.

Write I/O Count
The Write I/O count that is attributable to the database for the time elapsed.

Volume Dataset Activity:
This panel shows activity information for all data sets that have incurred I/O activities to a single volume. Use this information to analyze I/O activity for a single volume from a DB2 database/spacename perspective.

<table>
<thead>
<tr>
<th>ZOJV3</th>
<th>VTM</th>
<th>O2</th>
<th>V540</th>
<th>4P</th>
<th>SE12</th>
<th>11/06/13</th>
<th>10:27:33</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Help PF1</td>
<td>Back PF3</td>
<td>Up PF7</td>
<td>Down PF8</td>
<td>Sort PF10</td>
<td>Zoom PF11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; OBJECT ANALYSIS: Enter a selection letter on the top line.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; + VOLUME DS ACTIVITY C-THREAD ACTIVITY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; VOLUME DATASET ACTIVITY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OJV3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Interval Time = 00:05:00</td>
<td>Interval Elapsed = 00:02:49</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Volume/Unit = PMOSDB/4C2F</td>
<td>Total I/O Rate/sec = .0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Device Type = 3390</td>
<td>DB2 I/O Rate/sec = .0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Database = DSN00212</td>
<td>Spacename = FOO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ *</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ DSN Extts Use % Total Read Write Total Read Write</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ 001 1 100.0% .0 .0 .0 2 1 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

Navigation
For additional information about
- a particular data set, move the cursor to the DSN line and press F11 (Zoom). For more information, see the description of panel "Volume Dataset/Extent Activity" on page 1424.
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

Fields
Interval Time
The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

Interval Elapsed
The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

Volume/Unit
The name and address of the volume.

Total I/O Rate/sec
The total number of I/Os per second for the volume. This value is from an
MVS perspective. If the volume is shared by multiple MVS systems, this value might not reflect all I/O activity to the volume.

Device Type
The device type of the volume displayed.

DB2 I/O Rate/sec
The total number of I/Os per second (for the volume) originating from the DB2 subsystem being monitored. This is a subset of total I/Os per second if I/O to the volume is also occurring from address spaces other than the DB2 subsystem being monitored.

Database
The name of the selected database.

Spacename
The name of the selected space.

DSN
The number of a data set that incurred I/O activity.

Exts
The number of allocated extents that have incurred I/O activity since the beginning of the collection interval.

Vol Use %
The percentage of DB2 I/O activity to the volume that is attributable to the spacename. This ratio is computed by dividing the total I/O rate for the database/spacename by the total spacename I/O rate to the volume.

Total I/O Rate
The total I/O rate (per second) that is attributable to the space for the time elapsed.

Read I/O Rate
The Read I/O rate (per second) that is attributable to the space for the time elapsed.

Write I/O Rate
The Write I/O rate (per second) that is attributable to the space for the time elapsed.

Total I/O Count
The total I/O count that is attributable to the space for the time elapsed.

Read I/O Count
The number of reads that are attributable to the space for the time elapsed.

Write I/O Count
The number of writes that are attributable to the space for the time elapsed.

Volume Thread Activity by Spacename:

This panel shows volume activity information for each thread that generated I/O activity to the spacename during the collection interval. Use this information to analyze which threads are generating I/O activity for a single volume from a DB2 spacename perspective.

If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.
### VOLUME THREAD ACTIVITY BY SPACENAME

**OJT3**

<table>
<thead>
<tr>
<th>Interval Time</th>
<th>Interval Elapsed</th>
<th>Volume/Unit</th>
<th>Total I/O Rate/sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:05:00</td>
<td>00:03:29</td>
<td>PM05DB/4C2F</td>
<td>.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device Type</th>
<th>DB2 I/O Rate/sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>3390</td>
<td>.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Database</th>
<th>Spacename</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN00212</td>
<td>FOO</td>
</tr>
</tbody>
</table>

---

#### Navigation

For additional information about other topics, use the PF keys.

#### Fields

**Interval Time**

The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

**Interval Elapsed**

The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

**Volume/Unit**

The name and address of the volume.

**Total I/O Rate/sec**

The total number of I/Os per second for the volume. This value is from an MVS perspective. If the volume is shared by multiple MVS systems, this value might not reflect all I/O activity to the volume.

**Device Type**

The device type of the volume displayed.

**DB2 I/O Rate/sec**

The total number of I/Os per second (for the volume) originating from the DB2 subsystem being monitored. This is a subset of total I/Os per second if I/O to the volume is also occurring from address spaces other than the DB2 subsystem being monitored.

**Database**

The name of the database for which thread activity has occurred.

**Spacename**

The name of the space for which thread activity has occurred.

**Planname**

The name of the plan associated with the thread.

**Authid**

The authid associated with the thread.

**Correlation**

The correlation ID associated with the thread.
Total I/O Rate
The total I/O rate (per second) that is attributable to the spacename for the time elapsed.

Read I/O Rate
The Read I/O rate (per second) that is attributable to the spacename for the time elapsed.

Write I/O Rate
The Write I/O rate (per second) that is attributable to the spacename for the time elapsed.

Total I/O Count
The total I/O count that is attributable to the spacename for the time elapsed.

Read I/O Count
The Read I/O count that is attributable to the spacename for the time elapsed.

Write I/O Count
The Write I/O count that is attributable to the spacename for the time elapsed.

Volume Dataset/Extent Activity:
This panel shows activity information for each extend that incurred I/O activity to a single volume during the collection interval. Use this information to analyze I/O activity for a single volume from a DB2 database/spacename/data set perspective.

| OBJECT ANALYSIS: Enter a selection letter on the top line. |
| + C-THREAD ACTIVITY |
| VOLUME DATASET/EXTENT ACTIVITY |
| OJV4 |
| + Interval Time = 00:05:00 | Interval Elapsed = 00:02:59 |
| + Volume/Unit = PMO5DB/4C2F | Total I/O Rate/sec = .0 |
| + Device Type = 3390 | DB2 I/O Rate/sec = .0 |
| + Database = DSN00212 | Spacename = F00 | DSN = 001 |
| + * |
| + Low Extent | High Extent | Page/CCHH | Page/CCHH |
| + ------ | ------ | ----- | ----- |
| + 001 | 000000 | 000000 | 0.0 |
| + 06870000 | 0687000E | 2 | 1 | 1 |

If you move the cursor to any entry in a column and press FI0, OMEGAMON XE for DB2 PE will sort on that column.

Navigation
For additional information about
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.
Fields

Interval Time
The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

Interval Elapsed
The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

Volume/Unit
The name and address of the volume.

Total I/O Rate/sec
The total number of I/Os per second for the volume. This value is from an MVS perspective. If the volume is shared by multiple MVS systems, this value might not reflect all I/O activity to the volume.

Device Type
The device type of the volume displayed.

DB2 I/O Rate/sec
The total number of I/Os per second (for the volume) originating from the DB2 subsystem being monitored. This is a subset of total I/Os per second if I/O to the volume is also occurring from address spaces other than the DB2 subsystem being monitored.

Database
The name of the selected database.

Spacename
The name of the selected space.

DSN
The sequence number of the selected data set.

Extent
The number of an extent that incurred I/O activity.

Each of the following fields includes two values for each extent. The values are displayed one above the other; for example, the Read I/O rate is displayed above the Read I/O count.

Low Page/CCHH
The starting page number (top line) and cylinder/head address (bottom line) of the extent.

High Page/CCHH
The ending page number (top line) and cylinder/head address (bottom line) of the extent.

Total I/O Rates/Counts
The total I/O rate per second (top line) and count (bottom line) that is attributable to the extent for the time elapsed.

Read I/O Rates/Counts
The Read I/O rate per second (top line) and count (bottom line) that is attributable to the extent for the time elapsed.

Write I/O Rates/Counts
The Write I/O rate per second (top line) and count (bottom line) that is attributable to the extent for the time elapsed.
Volume Thread Activity by Dataset:

This panel shows volume activity information for each thread that generated I/O activity to the data set during the collection interval. Use this information to analyze which threads are generating I/O activity for a single volume from a DB2 data set perspective.

If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

Navigation

For additional information about other topics, use the PF keys.

Fields

Interval Time
The collection interval currently in use by the object analysis collector. At the end of this time interval, the collector resets its collection statistics.

Interval Elapsed
The elapsed time within the current collection interval. It is the period of time for which the displayed information is applicable.

Volume/Unit
The name and address of the volume.

Total I/O Rate/sec
The total number of I/Os per second for the volume. This value is from an MVS perspective. If the volume is shared by multiple MVS systems, this value might not reflect all I/O activity to the volume.

Device Type
The device type of the volume displayed.

DB2 I/O Rate/sec
The total number of I/Os per second (for the volume) originating from the DB2 subsystem being monitored. This is a subset of total I/Os per second if I/O to the volume is also occurring from address spaces other than the DB2 subsystem being monitored.

Database
The name of the database for which thread activity has occurred.
Spacename
The name of the space for which thread activity has occurred.

DSN
The name of the data set for which thread activity has occurred.

Plannname
The name of the plan associated with the thread.

Authid
The authid associated with the thread.

Correlation
The correlation ID associated with the thread.

Total I/O Rate
The total I/O rate (per second) that is attributable to the data set for the time elapsed.

Read I/O Rate
The Read I/O rate (per second) that is attributable to the data set for the time elapsed.

Write I/O Rate
The Write I/O rate (per second) that is attributable to the data set for the time elapsed.

Total I/O Count
The total I/O count that is attributable to the data set for the time elapsed.

Read I/O Count
The Read I/O count that is attributable to the data set for the time elapsed.

Write I/O Count
The Write I/O count that is attributable to the data set for the time elapsed.

Display Options For Volume Activity Summary Display:

Use this panel to specify filtering criteria for the output that is displayed in the Volume Activity Summary panel.

<table>
<thead>
<tr>
<th>ZOJVO</th>
<th>VTM</th>
<th>02</th>
<th>V540.#P SE12 11/06/13 10:32:27 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>&gt; Help PF1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Back PF3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&gt; DISPLAY OPTIONS FOR VOLUME ACTIVITY SUMMARY DISPLAY</td>
</tr>
</tbody>
</table>

- VOLUME
  Filter display output by volume name
- UNIT
  * by volume unit address
- VOLUME
  * by volume utilization
- VOLUME
  * by volume service
- TOTALIO
  * by volume total I/O rate
- DB2IO
  * by volume DB2 I/O rate
- DB2PERC
  * by volume total DB2 I/O %
- RATE
  Display Volume rates or counts (yes/no)

Navigation

For additional information about other topics, use the PF keys.
Fields

**VOLUME**=

Enter a volume name (maximum 6 characters) if you want to limit the displayed information to a particular volume or group of volumes.

You can specify a wildcard by entering a question mark (?), or you can use an asterisk (*) for generic filtering. For example, VOL* would select all volumes that begin with VOL, and VOL??2 would select all volumes that begin with VOL, end with 2, and have any two characters in between.

**UNIT**=

If you want to display only volume activity information that applies to a particular volume address or group of addresses, enter a value (maximum 4 characters).

You can specify a wildcard by entering a question mark (?), or you can use an asterisk (*) for generic filtering.

**VOLUTIL**

If you want to display only volume activity information where the volume utilization is greater than n percent, enter a number from 0 to 100.

**VOLSERV**

If you want to display only volume activity information where the average volume service time is greater than n, enter a number from 0 to 1000.

**TOTALIO**

If you want to display only volume activity information where the volume's total I/O rate per second is greater than n, enter a number from 0 to 999.

**DB2IO**

If you want to display only volume activity information where the volume's DB2 I/O rate per second is greater than n, enter a number from 0 to 999.

**DB2PERC**

If you want to display only volume activity information where the percentage of total DB2 I/O attributable to the volume is greater than n percent, enter a number from 0 to 100.

**RATE**=

If you want to display volume activity information as rates rather than counts, enter YES. The default is NO. Rates are calculated dividing each count field by the interval elapsed time.

**Dataset Extend Activity**

This panel shows activity information for each database/spacename/data set that has acquired additional extents since object analysis collection was started. Use this information to analyze data set extent activity.
If you move the cursor to any entry in a column and press F10, OMEGAMON XE for DB2 PE will sort on that column.

Navigation

For additional information about
• related topics, select one of the options on the top of the panel.
• other topics, use the PF keys.

Fields

Database
The name of a database that owns the space that incurred extend activity.

Spacename
The name of a space that incurred extend activity.

DSN
The relative number of a data set that incurred extend activity.

Accumulated Extents
The number of data set extents allocated since object analysis collection was started.

Start Object Analysis Collection
Use this panel to start the object analysis collector for the monitored DB2. This collector gathers data that is displayed on the object analysis panels.
Navigation
For additional options, use the PF keys.

**Stop Object Analysis Collection**
Use this panel to stop the object analysis collector for the monitored DB2.

```
> Help PF1
> OJTM VTM Q2 V540.4P SE12 11/06/13 11:10:26 2
                          Back PF3
> OBJECT ANALYSIS: Enter a selection letter on the top line.
> A-START +STOP
> STOP OBJECT ANALYSIS COLLECTORS
> To STOP Object Analysis and Volume Analysis collectors remove the '>
> preceding the following command and press the ENTER key
> OJTM
```

Navigation
For additional options, use the PF keys.

**DB2 Connect Server**
Select this main menu option for information about DB2 Connect Servers that serve as DB2 Connect gateways and are connected to the selected DB2 subsystem.

Other DB2 Connect Server information is displayed in panels that are documented in "Thread Activity" on page 921 and "Resource Managers and Other DB2 Subsystem Information menu" on page 1110.

The DB2 Connect Server panel lists all DB2 Connect Servers that serve as DB2 Connect gateways and are connected to the selected DB2 subsystem. If no DB2 Connect Server is connected to the selected DB2 subsystem, message No DB2 Connect Server connections is displayed.

```
> Help PF1  Up PF7  Down PF8  Zoom PF11
> IBM-590C1A1DE1 9.76.24.33  N/P  ACTIVE  DB2
> IBM-590C1A1... 9.65.68.52  N/P  INACTIVE  N/P
> IBM-588F56F... 9.76.6.137  N/P  INACTIVE  N/P
```

Navigation
You can scroll through the list using F7 and F8, or select a particular list item and press F11 (Zoom). For more information, see the description of panel "DB2 Connect/Gateway Statistics" on page 1432.
Fields

DB2C Master
Shows the name of the member of the data sharing group that controls DB2 Connect monitoring for the group. If N/A is shown, the DB2C Master is currently being changed. For more information, see the description of panel “Redirect Monitoring to Another DB2” on page 900.

Name
Shows the name in the database manager configuration file at the client node. It identifies the client node that is running the application.

IP Address
Shows the current IP address.

Node Name
Shows the name of the node being monitored by the database system monitor. It identifies the database server node being monitored.

Status
Shows whether the server is active or inactive.

Server Name
Shows the name of the database manager instance for which the snapshot was taken.

If the system contains more than one instance of the database manager, this name is used to uniquely identify the instance for which the snapshot call was issued. Along with configuration NNAME at monitoring (server) node, this information can be useful if you are saving your monitor output in a file or database for later analysis, and you need to differentiate the data from different instances of the database manager.
**DB2 Connect/Gateway Statistics**

This panel shows statistics details about a selected DB2 Connect gateway.

<table>
<thead>
<tr>
<th>ZDBC</th>
<th>VTM</th>
<th>O2</th>
<th>V540./C</th>
<th>SZ91</th>
<th>07/31/13 17:06:43 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Help PF1 Back PF3 Up PF7 Down PF8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DB2 Connect/Gateway: Enter a selection letter on the top line.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DB2 Connect/Gateway Statistics B-Tasks List C-Performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>D-Package Statistics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DB2 Connect/Gateway Statistics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Name: IBM-590C1A1DE1 IP Addr: 9.76.24.33 Srv Inst Name: DB2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gateway Snapshot Time: 2013-07-31-17.03.26.974000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>dbcd</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DB2 Connect Information DB2 Connect Agents</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Name = IBM-590C1A1DE1 Registered = 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IP Address = 9.76.24.33 Max Registered = 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Node Name = N/P Wait For Token = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Node Number = 0 Max Wait Token = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Srv Product/Version ID = SQL09010 From Pool = 16160</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Srv Instance Name = DB2 Create Empty Pool = 21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Srv Version = 7 Stolen = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Time Zone Displacement = -7h 0mn Idle = 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Server Status = ACTIVE Max Coordinating = 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Max Overflow = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inactive DRDA = N/P</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Connection Switch = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Private Memory = 25231360</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Connections Sorts</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Current = 2 Sort Heap Allocated = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Attempted = 35</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Wait for Host Reply = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Wait Client Send Request = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Remote Connection = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Remote Conn Executing in DBM = 0</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about

- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

**Fields**

**Name**  Shows the name in the database manager configuration file at the client node. It identifies the client node that is running the application.

**IP Addr**  Shows the current IP address.

**Srv Inst Name**  Shows the name of the database manager instance for which the snapshot was taken.

**Gateway Snapshot Time**  Shows the date and time when the snapshot of displayed data was taken.

**DB2 Connect information:**
Name  Shows the name in the database manager configuration file at the client node. It identifies the client node that is running the application.

IP Address  Shows the current IP address.

Node Name  Shows the name of the node being monitored by the database system monitor. It identifies the database server node being monitored.

Node Number  Shows the number assigned to the node in the db2nodes.cfg file.

Srv Product/Version ID  Shows the product and version that is running on the DB2 data server in the form pppvvvrnm, where:
  • ppp stands for SQL
  • vv identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
  • rr identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
  • m identifies a 1-digit modification level

Srv Instance Name  Shows the name of the database manager instance for which the snapshot was taken.

Srv Version  Shows the version of the DB2 data server returning the information.

Time Zone Displacement  Shows the number of hours and minutes that the local time zone is displaced from Greenwich Mean Time (GMT).

Server Status  Shows whether the DB2 data server is active or inactive.

Connections:

Current  Shows the number of applications that are currently connected to the database.

Attempted  Shows the total number of current connections initiated from remote clients to the instance of the database manager that is being monitored.

Wait for Host Reply  Shows the current number of connections to the host databases that are handled by the DB2 Connect gateway and are waiting for a reply from the host.

Wait for Client Send Request  Shows the current number of connections to the host databases that are handled by the DB2 Connect gateway and are waiting for the client to send a request.

Remote Connection  Shows the current number of connections initiated from remote clients to the instance of the database manager that is being monitored.
Remote Conn Executing In DBM
Shows the number of remote applications that are currently connected to a
database and are processing a unit of work within the database manager
instance being monitored.

DB2 Connect Agents:
Registered
Shows the number of agents that are registered in the database manager
instance that is being monitored.

Max Registered
Shows the maximum number of agents that the database manager has
registered at the same time since it was started.

Wait for Token
Shows the number of agents waiting for a token so they can perform a
transaction in the database manager.

Max Wait for Token
Shows the maximum number of agents that have been waiting for a token
at the same time since the database manager was started.

From Pool
Shows the maximum number of agents that have been waiting for a token
at the same time since the database manager was started.

Create Empty Pool
Shows the number of agents created because the agent pool was empty.

Stolen
Shows the number of times that agents are stolen from an application.

Idle
Shows the number of agents in the agent pool that are currently
unassigned to an application.

Max Coordinating
Shows the maximum number of coordinating agents working at one time.

Max Overflow
Shows the number of times a request to create a new agent was received
when the MAXAGENTS configuration parameter had already been
reached.

Inactive DRDA
Shows the number of connections made by a subagent to the database at
the node.

Connection Switch
Shows the number of times that an agent from the agent pool was primed
with a connection and was stolen for use with a different DRDA database.

Private Memory
Shows the amount of private memory that the instance of the database
manager has committed at the time of the snapshot.

Sorts:
Sort Heap Allocated
Shows the total number of allocated pages of sort heap space for all sorts
at the level chosen and at the time of the snapshot was taken.
**DB2 Connect/Gateway Tasks List**

This panel shows DB2 Connect/Gateway task list information about a selected DB2 Connect gateway. Use this panel to display further details for a selected task.

---

<table>
<thead>
<tr>
<th>Name</th>
<th>Owner</th>
<th>Gway User</th>
<th>System</th>
<th>ID</th>
<th>Time</th>
<th>Proc Process</th>
<th>CPU%</th>
<th>Memory Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>NetClient.exe</td>
<td>N/P</td>
<td>5212</td>
<td>00:00:17:00.000000</td>
<td>00:00:43.000000</td>
<td>13</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>svchost.exe</td>
<td>N/P</td>
<td>2044</td>
<td>00:34:35:96.7296</td>
<td>00:21:51.967296</td>
<td>3</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>db2b2p.exe</td>
<td>N/P</td>
<td>1480</td>
<td>00:00:00:00.000000</td>
<td>00:00:00.000000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>db2.exe</td>
<td>N/P</td>
<td>10K</td>
<td>00:00:00:00.000000</td>
<td>00:00:00.000000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cmd.exe</td>
<td>N/P</td>
<td>6300</td>
<td>00:00:00:00.000000</td>
<td>00:00:00.000000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB2PEAgent.exe</td>
<td>N/P</td>
<td>9060</td>
<td>00:00:00:00.000000</td>
<td>00:00:00.000000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cmd.exe</td>
<td>N/P</td>
<td>8676</td>
<td>00:00:00:00.000000</td>
<td>00:00:00.000000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>winvnc.exe</td>
<td>N/P</td>
<td>6708</td>
<td>00:00:02:00.000000</td>
<td>00:00:15.000000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>wmpsvse.exe</td>
<td>N/P</td>
<td>9940</td>
<td>00:00:51:00.000000</td>
<td>00:01:13:00.0000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ntaskldr.exe</td>
<td>N/P</td>
<td>8064</td>
<td>00:00:33:00.000000</td>
<td>00:00:15:00.0000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>nlnotes.exe</td>
<td>N/P</td>
<td>10K</td>
<td>00:00:47:00.000000</td>
<td>00:00:29:00.0000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rotatelogs.exe</td>
<td>N/P</td>
<td>7768</td>
<td>00:00:00:00.000000</td>
<td>00:00:01:00.0000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rotatelogs.exe</td>
<td>N/P</td>
<td>6364</td>
<td>00:00:00:00.000000</td>
<td>00:00:01:00.0000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>httpd.exe</td>
<td>N/P</td>
<td>5160</td>
<td>00:00:09:00.000000</td>
<td>00:01:11:00.0000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rotatelogs.exe</td>
<td>N/P</td>
<td>7952</td>
<td>00:00:00:00.000000</td>
<td>00:00:01:00.0000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rotatelogs.exe</td>
<td>N/P</td>
<td>7504</td>
<td>00:00:00:00.000000</td>
<td>00:00:01:00.0000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>httpd.exe</td>
<td>N/P</td>
<td>6404</td>
<td>00:00:00:01:00.0000</td>
<td>00:00:03:00.0000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>java.exe</td>
<td>N/P</td>
<td>6780</td>
<td>00:02:42:00.000000</td>
<td>00:04:39:00.0000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KfwServices.exe</td>
<td>N/P</td>
<td>5772</td>
<td>00:02:22:00.000000</td>
<td>00:02:11:00.0000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ndsmain.exe</td>
<td>N/P</td>
<td>5476</td>
<td>00:00:27:00.000000</td>
<td>00:02:10:00.0000</td>
<td>0</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Navigation**

You can scroll through the list using F7 and F8, or select a particular list item and press F11 (Zoom) for additional information. See “DB2 Connect/Gateway Task Detail fields” on page 1436.

For additional information about

- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

**Fields**

**Name**  Shows the name in the database manager configuration file at the client node. It identifies the client node that is running the application.

**IP Addr**  Shows the current IP address.

**Srv Inst Name**  Shows the name of the database manager instance for which the snapshot was taken.
Gateway Snapshot Time
Shows the date and time when the snapshot of displayed data was taken.

Task list column headers:

Process Name
Shows the name of the process (truncated to 15 characters, if it is longer).

Process Owner Name
Shows the session ID that owns the process.

Gateway Process ID
Shows the numerical identifier that uniquely distinguishes a running process.

User Process Time
Shows the total user CPU time, in seconds and microseconds, used by the database manager agent process, the unit of work, or the statement.

System Process Time
Shows the total system CPU time, in seconds and microseconds, used by the database manager agent process, the unit of work, or the statement.

CPU% Usage
Shows the percentage of time that a process used the CPU since the last update.

Memory Usage
Shows the current working set of a process, in KB.

DB2 Connect/Gateway Task Detail fields
The DB2 Connect/Gateway Task Detail panel shows further details about a selected task.

---
> Help PF1 Back PF3
> *****************************************************
> DB2 Connect/Gateway Task Detail
> + Name: MINCHENKOV-S IP Addr: 9.157.132.217 Srv Inst Name:DB2
dbtd
> + + Process Name : DB2PEAgent.exe
> + + Owner Name = N/P
> + + Gateway Process ID = 10596
> + + CPU% Usage = 0
> + + Memory Usage = N/P
> + + Process Time
> + + Process Time (User)
> + + User = 00:00:07.000000
> + + System = 00:00:20.000000
> + + Total = 00:00:27.000000
> *****************************************************
---

Process Time (User)
Shows the user process time.
Process Time (System)
Shows the system process time.

Process Time (Total)
Shows the total process time (sum of user and system process time).

**DB2 Connect/Gateway Performance**
This panel shows performance information about a selected DB2 Connect gateway.

---

**Navigation**
For additional information about
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

**Fields**

**Name**  Shows the name in the database manager configuration file at the client node. It identifies the client node that is running the application.

**IP Addr**  Shows the current IP address.

**Srv Inst Name**  Shows the name of the database manager instance for which the snapshot was taken.

**Gateway Snapshot Time**  Shows the date and time when the snapshot of displayed data was taken.

**Total Statement Time**  For a DCS statement, this field shows the elapsed time between the time the statement was sent from the DB2 Connect gateway to the host for processing and the time at which the result was received from the host.

**Time in DB2 Connect**  For a DCS statement, this field shows the elapsed time for processing an SQL request at a host database server.

**Time on DB2 Host**  Shows the total time, in seconds and microseconds, that was spent executing a particular statement in the SQL cache.
Time in Network Connection
Shows the total time, in seconds and microseconds, at the DB2 Connect gateway to process an application request (since the connection was established), or to process a single statement.

DB2 Connect/Gateway Package Statistics
This panel shows package statistics information about a selected DB2 Connect gateway.

<table>
<thead>
<tr>
<th>Name</th>
<th>Grp</th>
<th>Time</th>
<th>Network Avg</th>
<th>Resp Avg</th>
<th>Req Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM00829</td>
<td>2</td>
<td>00:00:00.95</td>
<td>00:00:00.237794</td>
<td>1364</td>
<td>79</td>
</tr>
<tr>
<td>PM00829</td>
<td>2</td>
<td>00:00:00.95</td>
<td>00:00:00.237794</td>
<td>1364</td>
<td>79</td>
</tr>
<tr>
<td>PM00829</td>
<td>2</td>
<td>00:00:00.65</td>
<td>00:00:00.242909</td>
<td>695</td>
<td>246</td>
</tr>
</tbody>
</table>

Navigation
For additional information about
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

Fields
Name      Shows the name in the database manager configuration file at the client node. It identifies the client node that is running the application.
IP Addr    Shows the current IP address.
Srv Inst Name Shows the name of the database manager instance for which the snapshot was taken.
Gateway Snapshot Time Shows the date and time when the snapshot of displayed data was taken.
Parent DB Name Shows the name of the remote database to which the remote application is connected.
Statement Group Shows the number of statements with outbound bytes.
Network Time Shows the difference between the value for the TIMES FOR SAMPLE SQL STATEMENT - TOTAL STATEMENT TIME field and the value of the TIMES FOR SAMPLE SQL STATEMENT - TIME ON DB2 HOST field.
Average Network Time
Shows the result of the value for the NETWORK TIME field, divided by the number of SQL chains being transferred.

Average Response Size Outbound
Shows the number of bytes per SQL statement received by the DB2 Connect gateway from the host, excluding communication protocol overhead, divided by the number of SQL chains being transferred.

Average Request Size Outbound
Shows the number of bytes per SQL statement sent by the DB2 Connect gateway to the host, excluding communication protocol overhead, divided by the number of SQL chains being transferred.

Address Space Information
Select this main menu option for information about DB2 address spaces.

Address Space Information and OMEGAMON Commands menu
This menu shows actual address space information. Use this menu to navigate to detailed information about address spaces or to issue OMEGAMON XE for DB2 PE commands.

The address space names shown in the above figure are samples. Your actual address space names are shown in the panel.

If the Distributed Data Facility is not active, N/A is displayed next to the letter D.

Navigation
For additional information about
• related topics, select one of the options from the menu.
• other topics, use the PF keys.

Virtual Storage Map
This panel shows the amount of virtual storage currently in use and the amount available for use in the specified address space.
This panel requires special authorization because its use causes additional system overhead to collect the necessary data. Type /PWD on the top line of the panel, enter a valid password when requested, then press Enter. Thereafter, OMEGAMON XE for DB2 PE displays the requested information.

**Navigation**

For additional information about
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.
Fields

DA41MSTR
   The name of the job running in this address space. (In this case, DA41MSTR.)

ASID   The address space identification number.

collected at
   The time at which OMEGAMON XE for DB2 PE collected the information for this virtual storage map.

System Area (extended)
   The size of the system area in the extended private area.

Available (extended)
   The amount of extended private area available for use. The boundary between the extended private area available for the user and the extended private area for the system is labeled Extended User Area Limit on the map.

User area (extended)
   The size of the user area in the extended private area.

System Area (private)
   The size of the system area in the private area.

Available (private)
   The amount of private area available for use. The boundary between the private area available for the user and the private area for the system is labeled User Area Limit on the map.

User area (private)
   The size of the user area in the private area.

DB2 Address Space Allocated DDnames and Datasets
This panel shows all ddnames allocated to a jobstep and their corresponding device addresses, data set names, and volume serial numbers (including dynamically allocated ddnames) for the specified address space.

This panel requires special authorization because its use causes additional system overhead to collect the necessary data. Type /PWD on the top line of the panel, enter a valid password when requested, then press Enter. Thereafter, OMEGAMON XE for DB2 PE displays the requested information.
Navigation

For additional information about

- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

Fields

**DA41MSTR**

The name of the job running in this address space. (In this case, DA41MSTR.)

**ASID**

The address space identification number.

**collected at**

The time at which OMEGAMON XE for DB2 PE collected the information for this address space.

**DDname**

The ddnames allocated to this job. If the **DDname** field is blank, the data set is part of a concatenation with preceding data sets.

**Addr**

The addresses of the devices allocated to this job.

**VolSer**

The volume serial numbers of the devices allocated to this job.

**Sta,Dsp**

The status and disposition of the devices allocated to this job.

**DSname**

The names of the data sets allocated to this job.

You can type a 2- or 3-digit number after DDNS (DDNSnn or DDNNnn) to suppress the display of the first \(m\) or \(m\n\) lines of output. This ability is useful if all of the ddnames do not fit on one panel.

If you type an **X** before DDNS (XDDNS), OMEGAMON XE for DB2 PE displays the following additional information about the ddname:
• LRECL
• BLKSZ
• RECFM
• ORG
• Password protection
• Number of EXCPs for each data set
• TIoT address for each TCB group

No additional SRBs are scheduled to display this information. OMEGAMON XE for DB2 PE collected all of the data when you selected this panel but only displays it when you type the X.

**Job Information and Start Time**

This panel displays miscellaneous information about the specified address space.

This panel requires special authorization because its use causes additional system overhead to collect the necessary data. Type /PWD on the top line of the panel, enter a valid password when requested, then press Enter. Thereafter, OMEGAMON XE for DB2 PE displays the requested information.

---

**Navigation**

For additional information about

• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

**Fields**

**DA41MSTR**

The name of the job running in this address space. (In this case, DA41MSTR.)

**ASID**

The address space identification number.

**collected at**

The time at which OMEGAMON XE for DB2 PE collected the information for this address space.

**Job started at**

The time and date on which this job started executing.

**MSGCLASS**

The system message class associated with the job.

**Jobpack Area Modules**

This panel displays information about the modules currently loaded into the user's jobpack area for the specified address space.
This panel requires special authorization because its use causes additional system overhead to collect the necessary data. Type /PWD on the top line of the panel, enter a valid password when requested, then press Enter. Thereafter, OMEGAMON XE for DB2 PE displays the requested information.

<table>
<thead>
<tr>
<th>Module</th>
<th>Entry</th>
<th>Length</th>
<th>Users</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN3RSRB</td>
<td>94A83C10</td>
<td>00001270</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNLFR</td>
<td>99BD7B80</td>
<td>00001038</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>ERB3XDRS</td>
<td>A0F866B8</td>
<td>00000908</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSN3RSGN</td>
<td>9F0E64D8</td>
<td>00000448</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSN3RATH</td>
<td>9F1D64F8</td>
<td>00000290</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSN3OR004</td>
<td>A095380</td>
<td>00000178</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSN3OR003</td>
<td>800012F6C</td>
<td>00000CC0</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNLDTMD</td>
<td>A0F07ABB</td>
<td>00001900</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNLDTMF</td>
<td>9EB0C3D0</td>
<td>000003FF0</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNWZPM</td>
<td>A0EBF8B</td>
<td>00000400</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNWZPS</td>
<td>9D098174</td>
<td>000015C0</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSN3ZD0G</td>
<td>A0EBF8B</td>
<td>00000260B</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNWZSA</td>
<td>9EB60F54</td>
<td>000003F70</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNWZXT</td>
<td>800009F90</td>
<td>00000F60</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNWZCK</td>
<td>A0EBF8B</td>
<td>00001088</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNWZSS</td>
<td>A0EBF8B</td>
<td>00000098</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNWZIT</td>
<td>A0EBF8B</td>
<td>00000180C</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSN3R3SA</td>
<td>A0EBF8B</td>
<td>000017000</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSN3MGP</td>
<td>9A6AEF90</td>
<td>0000260B</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSN3MLP</td>
<td>A0EBF8B</td>
<td>000005000</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNL002</td>
<td>A0EBF8B</td>
<td>000007000</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNL003</td>
<td>80C42990</td>
<td>000003F80</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNVRCT1</td>
<td>A0966B8B</td>
<td>00000588</td>
<td>0</td>
<td>RENT,REUS,AUTH,ALIAS(DSNVRCT )</td>
</tr>
<tr>
<td>DSNVEUS4</td>
<td>A0EBF8B</td>
<td>000002000</td>
<td>2</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSNVEUS1</td>
<td>A0EBF8B</td>
<td>000020000</td>
<td>0</td>
<td>RENT,REUS,AUTH,ALIAS(DSNVEUS4)</td>
</tr>
<tr>
<td>DSNVEUS3</td>
<td>A0EBF8B</td>
<td>000030000</td>
<td>64</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSN9SCN8</td>
<td>9EFDF70</td>
<td>00000948</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
<tr>
<td>DSN9SCN9</td>
<td>9EFDF70</td>
<td>00000948</td>
<td>1</td>
<td>RENT,REUS,AUTH</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

**Fields**

**DA41MSTR**

The name of the job running in this address space. (In this case, DA41MSTR.)

**ASID**

The address space identification number.

**collected at**

The time at which OMEGAMON XE for DB2 PE collected the information about these modules.
Module
The module names allocated to this address space.
Entry
The entry points of the modules allocated to this user.
Length
The length of the modules allocated to this user.
Users
The number of users currently using this module.
Attributes
The attributes associated with this module.

You can type a 2- or 3-digit number after MODS (MODSn or MODnmm) to suppress the display of the first nn or nnn lines of output. This is useful if all of the module names do not fit on one panel.

Region and Program Information
This panel displays information available from the private area.

---

This panel requires special authorization because its use causes additional system overhead to collect the necessary data. Type /PWD on the top line of the panel, enter a valid password when requested, then press Enter. Thereafter, OMEGAMON XE for DB2 PE displays the requested information.
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

DA41MSTR
The name of the job running in this address space. (In this case, DA41MSTR.)

ASID
The address space identification number.

collected at
The time at which OMEGAMON XE for DB2 PE collected the information for this address space.

Job Step Pgm
The name of the job step program currently executing.

TCBs
The number of TCBs currently attached.

Datasets
The number of data sets currently in use.

Modules
The number of modules currently in use.

Step started at
The time the current step started executing.

now in step # n of m
The number of the current step and the total number of steps in the job.

Each of the following fields is displayed twice: once to describe the region below the 16 MB line and once to describe the region above that line.

Total private region
The total size of the private area, including areas that cannot be allocated.

Unused
The amount of the total private area not currently in use.

Region requested
The amount specified on the REGION JCL parameter.

Region limit
The region limit that the IEALIMIT exit imposes.

Low PVT in use
The storage that the REGION parameter limits. This includes all of the user subpools.

Unallocated
The storage not allocated to subpools.

Free
The storage allocated to subpools but not currently GETMAINed.

High PVT in use
Includes LSQA, SWA, and subpools 229 and 230. This value is allocated from the top of the user's region downward and is not limited by the REGION JCL parameter.
Start of SYSREG
The beginning address of the area of storage reserved for use by the region control task.

End of SYSREG
The ending address of the area of storage reserved for use by the region control task.

Start of low PVT
The beginning address of the storage that the REGION parameter limits.

End of low PVT
The ending address of the storage that the REGION parameter limits.

Current top
The highest allocated address in the low PVT area at the current time.

Limit of region
The ending address of the low PVT area.

Start of high PVT
The beginning address of the high PVT area.

End of high PVT
The ending address of the high PVT area.

DB2 Storage Allocated by Subpool
This panel shows information about current virtual storage allocations for each storage subpool for the specified address space.

This panel requires special authorization because its use causes additional system overhead to collect the necessary data. Type /PWD on the top line of the panel, enter a valid password when requested, then press Enter. Thereafter, OMEGAMON XE for DB2 PE displays the requested information.
### Navigation

For additional information about
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

### Fields

**Subpool Information**

**DA41MSTR**  
The name of the job running in this address space.

**ASID**  
The address space identification number.

**collected at**  
The time at which OMEGAMON XE for DB2 PE collected the information for these modules.

**Sbp-K**  
Subpool number and protect key (decimal). Subpools are displayed for the jobstep TCB and below.
Alloc  Amount of virtual storage currently allocated to the subpool (in 4K increments).
Real   Amount of real storage supporting the virtual allocation.
#Blks  Number of allocated blocks.
Addr   The address of the first block allocated.
Free   Number of free bytes (hex) within the allocation.
#Blks  Number of free blocks.
Mxfree Size (hex) of the largest free block within the subpool.
Program Program name of the TCB associated with these subpools.
Own|Shr  Status of the subpool, owned or shared.

Task Private Area Summary
PVT-Lo Task private storage below the 16M line.
PVT-Hi Task private storage above the line.
Subtot Summary of private storage above and below the line.

Address Space Private Area Summary
Tot-Lo Total private area allocated below the line for all tasks in the address space.
Tot-Hi Total private area allocated above the line for all tasks in the address space.
Totals Total private area allocated for all tasks in the address space, both above and below the line.

You can type a 2-digit number after SUBP (SUBPnn) to suppress the display of the first nn lines of output. This ability is useful if all of the subpool names do not fit on one panel.

If you want to display subpools for all TCBs within the address space type an X before SUBP (XSUBP).

Task Control Block Structure
This panel displays the current TCB structure for the target user (the DB2 system services address space, DB2 database services address space, DB2 Internal Resource Lock Manager (IRLM) address space, or the DDF address space).

This panel requires special authorization because its use causes additional system overhead to collect the necessary data. Type /PWD on the top line of the panel, enter a valid password when requested, then press Enter. Thereafter, OMEGAMON XE for DB2 PE displays the requested information.
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

DA41MSTR

The name of the job running in this address space. (In this case, DA41MSTR.)

ASID

The address space identification number.

collected at

The time at which OMEGAMON XE for DB2 PE collected the information for this TCB structure.

Program

Load module name of the most recently created request block (RB) for each TCB.

Mother

The program name of the mother TCB of the program TCB.

Daughter

The program name of the daughter TCB of the program TCB.

Sister

The program name of the oldest sister TCB of the program TCB.

Jobstep

The name of the current job step.

Figure 6 on page 1451 shows a graphic representation of the information about a typical TCB structure shown on the DB2 Address Space TCB Structure panel.
If you type an A before TCBS (ATCBS), OMEGAMON XE for DB2 PE displays the actual TCB address under each TCB program name. This information can be useful if several TCBs in the same step invoke the same program. If you type an X before TCBS (XTCBS), OMEGAMON XE for DB2 PE displays two extra lines for each TCB. The first line shows the storage protect key for the TCB and indicates whether the address space is APF authorized.

The second line indicates that the TCB is either DISPATCHABLE or NON-DISPATCHABLE. For those TCBs that cannot be dispatched, a short explanation is displayed to indicate which non-dispatchability bit was set.

You can type a 2-digit number after TCBS (TCBSnn) to suppress the display of the first nn lines of output. This ability is useful if all of the TCB names do not fit on one panel.

**Local System Queue Area**

This panel shows the amount of local system queue area (LSQA) storage that is currently allocated and the amount of storage that is available to be used above and below the 16M line in the specified address space.

This panel requires special authorization because its use causes additional system overhead to collect the necessary data. Type /PWD on the top line of the panel, enter a valid password when requested, then press Enter. Thereafter, OMEGAMON XE for DB2 PE displays the requested information.

```
+-----------------------------------+-----------+----------+-------------+----------------+---------------+-----------+----------+----------------+-----------+----------+---------------+
|                                  | Allocated | Percent  | Available  | Largest     | Available     | For User   |          |                |          |          |               |
|                                  | _________ | _________| _________  | _______     | _______      | _________ | _________ | _______      | _________ | _________ | _______      |
| Below 16M line:                 | 245K      | 2.7%      | 9108K     | 8780K       | 8780K        | 8780K     | 8780K     | 8780K        | 8780K     | 8780K     | 8780K        |
| Above 16M line:                 | 22135K    | 1.4%      | 1520M     | 1498M       | 1498M        | 1498M     | 1498M     | 1498M        | 1498M     | 1498M     | 1498M        |
```

**Figure 6. Typical TCB Structure**

Chapter 5. Monitoring
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

DA41MSTR
  The name of the job that is running in this address space. (In this case, DA41MSTR.)

ASID
  The address space identification number.

collected at
  The time at which OMEGAMON XE for DB2 PE collected the information for this TCB structure.

Allocated
  The size of the storage which is currently in use.

Percent Allocated
  The percentage of allocated memory versus the whole amount of memory (Allocated / Available * 100).

Available
  The overall available LSQA storage, this includes the allocated LSQA/SWA that is available plus the available user private.

Largest available
  The largest available contiguous storage area.

Available For User Pvt
  The LSQA eligible storage that is available for the private usage of the user.

OMEGAMON Commands

Use this panel to issue session and maintenance commands that are not on the OMEGAMON XE for DB2 PE product panels.

For information about security levels of authorized commands, see Configuration and Customization.

Navigation

For additional information about other topics, use the PF keys.

Commands

The fields in this panel vary according to the command issued. To issue a command that begins with a forward slash (/), type the command on the top line of the panel and press Enter. To issue a command that begins with a period (.) or
any letter, type the command on any line of the general display area (any line below the prompt) and press Enter. The commands you can issue are described below in alphabetical order.

...bb  Clears the panel from the command down to the end of the logical panel (b indicates a blank).

====  Draws a separator line across the panel.

The format is:

c====aa

This command repeats the characters aa across the panel. You can use any two characters as a separator line.

On the 3279 color terminal with extended color on, the optional label c specifies the color of the separator line with the first letter of the color name. It can be: (R)ed, (B)lue, (G)reen, (W)hite, (T)urquoise, (Y)ellow, or (P)ink.

For example, the following command creates a line of red pluses across the panel preceded by 4 equal signs.

R====++

The line looks like this:

+++++++++++++++++++++++++++

/ATTN  Emulates the PA1 (program attention) key. /ATTN clears the panel, resets your password to zero, returns to default basic color settings, and turns off extended color.

/AUP  Enables (/AUP ON) or disables (/AUP OFF) automatic update mode. /AUP applies in VTAM mode only. Automatic update mode is similar to running OMEGAMON XE for DB2 PE in dedicated mode, because the panel updates at regular intervals without pressing Enter. .AUP performs the same functions.

Important: Some network programs do not support automatic update mode (for example, a program that emulates a terminal for your OMEGAMON XE for DB2 PE VTAM mode session).

.AUP  Enables (.AUPON) or disables (.AUPOFF) automatic update mode. If you type .AUP (without ON or OFF), OMEGAMON XE for DB2 PE displays the current automatic update mode status. .AUP applies in VTAM mode only. Automatic update mode is similar to running OMEGAMON XE for DB2 PE in dedicated mode, because the panel updates at regular intervals without pressing Enter. /AUP performs the same functions.

Important: Some network programs do not support automatic update mode (for example, a program that emulates a terminal for your OMEGAMON XE for DB2 PE VTAM mode session).

/BOTTOM  Scrolls to the bottom of the logical panel.

CN  Allocate/open (.CN OP) a secondary console, deallocate/close (.CN CL) a secondary console, swap master/secondary consoles (.CN SW), or set the address of the secondary console (.CNxxx).
In dedicated mode, you can set up a secondary OMEGAMON XE for DB2 PE console to be used for output only. The secondary console echos everything that is displayed on the primary console, but accepts no commands or input of any kind.

The secondary console must be the same terminal type as the primary console.

/D  Scrolls down the amount specified by its argument (/D cccc)

/D is an alias for /DOWN. See the description of the /DOWN command for information about the command arguments.

.D  Deletes nn lines (.Dbb nn) on the physical panel.

This command deletes lines beginning with the current line.

/DCL  Deletes all comment lines in the panel.

If you want to delete only those comment lines below a certain point in the panel, use the equivalent immediate command instead.

.DCL  Deletes all comment lines below its entry line.

If you want to delete all comment lines in the panel, use the equivalent INFO-line command instead. Unlike most other immediate commands, .DCL disappears after it executes.

.DDb  Deletes a block of data.

To delete a block of data from the physical panel, enter .DD on the first line of the block and .DD on the last line.

For example, the following command deletes 4 lines. The first blank line and the succeeding 3 lines are deleted and removed from the panel.

/DDb
  DISK  SYSB24  TS0021  SYSB21  MVS21
  DSKB  MVS21  PROD05  SYSA24
  .Dbb  150  334  D8B

DDEV

Displays DASD device statistics for all or specified volumes.

**Note:** RMF must be active to use this command because the data displayed is from RMF.

You must use the DDEV minor commands to specify the criteria under which the device statistics are displayed.

PDSK  Displays statistics for devices whose names meet a specified pattern. Type PDSK on a separate line after DDEV. You can use PDSK to display statistics for the following:

- All devices using PDSK and an asterisk (*).
  
  Example:
  
  DDEV
  PDSK*  

- A specific device using PDSK and a volume name. (volser).
  
  Example:
  
  DDEV
  PDSK OMON22

- A group of devices using PDSK and part of a volume name followed by the asterisk wildcard character (*).
Example:
DDEV
PDSK OMON*

**XDSK** Displays statistics for devices that exceed a specified threshold. To specify thresholds, enter one or more of the following XDSK minor commands, either before you type **DDEV**, or between **DDEV** and **XDSK**:

**AVQnnn**
Specifies the average IOS queue depth. Average length > mn.n.

**RSPnnn**
Specifies the average total response time > nnn milliseconds.

**IOSnnn**
Specifies the average device queue time > nnn milliseconds.

**CONnnn**
Specifies the average device connect time > nnn milliseconds.

**DSCnnn**
Specifies the average device disconnect time > nnn milliseconds.

**DUTnnn**
Specifies the average device utilization > nnn %.

**PNDnnn**
Specifies average device request pending time > nnn milliseconds.

**Example:**
The following command displays statistics for devices whose utilization is greater than 30%.

DDEV
DUT 30
XDSK

Sample Output: The following example shows the fields displayed by the DDEV command (with either PDSK or XDSK). If you enter **DDEV** without a minor command, only the first line of output is displayed.

<table>
<thead>
<tr>
<th>DDEV Interval Start Time: 10:44:02</th>
<th>Elapsed: 3:30 MN</th>
<th>Length: 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>pdsk OMON* Volser Pattern</td>
<td>-----------------</td>
<td>------------</td>
</tr>
<tr>
<td>+ Volser I/O per second Util% Avg.Q Resp = IOSQ + Pend + Conn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ 148 OMON27 .1 1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ 151 OMON28 .2 .6 12.5 .3 6.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ 153 OMON29 23.0 .2 2.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Interval Start Time**
The start time of the RMF interval during which these statistics are being collected.

**Elapsed**
The number of minutes and seconds elapsed since the beginning of this RMF interval.
Length
The length of this RMF interval in minutes and seconds.

The first column contains the device address in hexadecimal notation (for example, 14B).

Volser Volume name.

I/O per second
I/O rate for this device.

Util % Device utilization percentage.

Avg Q Average I/O queue depth.

Resp Average total device response time in milliseconds.

IOSQ Average I/O queue time in milliseconds.

Pend Average pending time in milliseconds.

Conn Average connect time in milliseconds.

Disc Average disconnect time in milliseconds.

/DEF Sets definition mode (/DEF cccc).

ON Defines a panel space, which includes commands that comment themselves out or otherwise change form after execution. /DEF ON inhibits automatic updating of a dedicated or VTAM mode session. After you set definition mode with /DEF ON, it remains in effect until you issue /DEF OFF, or save or replace the panel space.

HOLD Same as ON argument, but definition mode remains in effect after you save a panel space. It is only canceled when you issue /DEF OFF. Use this option when you want to save two or more panels in a row without reactivating definition mode each time.

OFF Restores normal panel updating (cancels the effect of /DEF ON or /DEF HOLD).

DELT Deletes a panel space from main storage or the user’s panel space library (RKO2PCSV). It does not delete from the IBM-supplied panel space library (RKO2PROC).

The format is:
DELTc aaaaaaaa

c One of the following arguments that specifies the location of the panel space. Enter it in column 6:
I Deletes from main storage (in-storage) only.
D Deletes from RKO2PCSV only.
B or b Deletes from both main storage and RKO2PCSV (default).

aaaaaaa The panel space name you want to delete. Specify the name starting in column 8.

Note: OMEGAMON XE for Db2 PE does not substitute special characters for the DELT command. You must enter the real member name.
For example, the following command deletes panel space SAMPLE from main storage.

DELTI SAMPLE

/DOWN

Scrolls down the amount of lines specified by argument cccc.

/DOWN works only if the number of logical rows (LROWS) is defined to a number greater than the number of physical rows on this terminal. This definition can be changed with the LROWS startup parameter.

The format is:

/DOWN cccc

where cccc is one of the following:

- nnn: Scrolls nnn lines (from 1 - 999).
- BOT: Scrolls to the last logical row.
- CSR: Scrolls according to the current location of the cursor. If the cursor is on the INFO-line, the scroll amount is a page.
- MAX: Scrolls down the number of LROWS defined for your terminal.
- PAGE: Scrolls down so that the current cursor position is at the bottom of the physical panel. This is the default.

For example, the following command scrolls the display 24 lines (one panel and one line on a 3278 model 2 terminal).

/DOWN 24

If you assign the /DOWN command to a PF key (the default is F20), you can type any of the optional arguments on the INFO-line before you press the PF key. OMEGAMON XE for DB2 PE interprets the entry as if you type the command plus the argument.

/D is an alias for /DOWN.

.DSA

Sets and displays authorization to list or zap non-shareable data-only spaces. The .DSA command provides a mechanism to limit the scope of the listing and zapping commands to data-only spaces that have been defined by the owner as shareable by other address spaces.

Command operands:

- ON: Turns on data-only space authorization. Access is allowed to all data-only spaces.
- OFF: Turns off data-only space authorization. Access is restricted to shareable spaces only.

Entering .DSA with no operand displays the current status of data-only space authorization.

.EXP

Displays the expiration date after which OMEGAMON XE for DB2 PE will not function.

Product updates contain new features, support for new IBM releases, enhanced operations, and maintenance. It is in your best interest to reinstall the product each time it is updated to keep current with enhancements and updates. For more information, see Configuration and Customization.

.FGO

Provides fast access to panel space cccccc.
The .FGO (Fast GO) command is used when creating panel spaces to fetch the next panel space of a series. Panel spaces can be chained together and executed very quickly, bypassing the panel display and the OMEGAMON XE for DB2 PE cyclical wait.

.FGO has a conditional panel fetch feature that fetches a panel space only if a condition is true.

Command operands:

cccccccc
    Specifies the name of a panel space.

CPSER
    Compares the CPU serial number.

MODE
    Compares the 3-character OMEGAMON XE for DB2 PE mode ID as displayed on the INFO-line (for example, DED, VTS, VTM).

OPSYS
    Compares the 3-character ID for the operating system level (NSE, SE2, SP3, XA1).

SMFID
    Compares the 4-character SMF ID.

UNIT
    Compares the terminal address of the primary OMEGAMON XE for DB2 PE console (only in dedicated mode).

USER
    Compares the suffix of the user profile.

&VAR
    Sets any comparison. The keyword and argument can be any variable name set with the .VAR command or any OMEGAMON XE for DB2 PE-defined variable.

=  Keyword equals argument. The equal sign can be entered without blanks on either side of it.

EQ  Keyword equals argument. Same as equal sign (=).

GE  Keyword is greater than or equal to argument.

GT  Keyword is greater than argument.

LE  Keyword is less than or equal to argument.

LT  Keyword is less than argument.

NE  Keyword is not equal to argument.

argument
    The argument is a 1- to 8-character value to which OMEGAMON XE for DB2 PE compares the keyword.

Example:

To fetch panel space SAMPLE only if the terminal address 05E1, enter:

.FGO SAMPLE UNIT=05E1

or

.FGO SAMPLE UNIT EQ 05E1

To protect against the possibility of a looping condition caused by the .FGO command, OMEGAMON XE for DB2 PE limits the number of consecutive fetches allowed (64 by default). After the limit is reached, .FGO acts like
.SGO (Screen Go) so that executing panel spaces will display on each cycle. Therefore, if there was a loop caused by .FGO panel spaces, correct the condition and re-enable .FGO with the FGOLOOP keyword of the .SET command.

Because FGOLOOP=ON causes .FGO not to bypass the OMEGAMON XE for DB2 PE cycle and the terminal display, you can turn it on to test your panel space fetch routines.

If multiple .FGO commands are displayed on one panel, the last one that is executable takes precedence.

See also the .SGO command.

GDFN

Defines an exception group for exception analysis.

You can use GDFN to define a group to which exceptions can be assigned, to add exceptions to an existing group, to delete exceptions from a specific group, and to delete an entire group.

Note: An exception can be associated with only one group at a time. You can delete an exception from one group and reassign it to another group.

The format is:

GDFN GROUP=cc, NAME='cc..cc', LIST=cc,aa,
DELETE=EXCEPTION, DELETE=GROUP,POSITION=nn

GROUP=cc

The 2-character exception group ID. For an existing group, use this keyword to display only the entries for that group.

NAME='cc..cc'

A 25-character user-defined description of the exception group. Enclose in single quotes (') if there are blanks, special characters, or single quotes (') in the name.

LIST=cc,aa

Identifies the exceptions to be added to or deleted from the specified exception group.

DELETE=EXCEPTION

Causes the deletion of the exceptions specified with LIST= from the group specified by GROUP=.

POSITION=nn

Specifies the order of the display.

/H

Describes the HELP facilities.

/H is an alias for /HELP

/HELP

Describes the HELP facilities.

The help panel space informs you how to find out more about the functions, features, and operation of OMEGAMON XE for DB2 PE.

Note: This command works with or without a forward slash (/).

/HOLD

Controls the execution of OMEGAMON XE for DB2 PE commands.

/HOLD ON suspends command execution until you enter /HOLD OFF. /HOLD OFF returns to normal OMEGAMON XE for DB2 PE command execution.
The /HOLD command is designed for users of VM/PASSTHRU. If you are not a user of VM/PASSTHRU, /HOLD functions the same as placing the cursor in column 1, row 1.

.I Inserts \(nn\) blank lines (.Ibnn) in the panel.

.ILC Displays INFO-line commands or their help text.

The format is:

.ILC /cccccc

The variable /cccccc is an INFO-line command name. (The forward slash (/) is optional.) To display all of the INFO-line commands and their aliases, enter the .ILC command without a command name.

To display help text for a specific INFO-line command, enter .ILC followed by the command.

.LOG Controls the OMEGAMON XE for DB2 PE REPORT log:

.LOGOUT Prints the current log and leaves it open. The command comments itself out to prevent the log from automatically resetting again on the next cycle.

.LOGPUSH Saves the status of the log (ON or OFF), so that this status can be restored when you execute .LOGPOP. This capability can be used to manipulate the log's status in panel spaces invoked by .F60 or .S60, then return it to its original state after these panel routines are complete. One of the following messages is displayed on the same line as the command:

>> Log inactive. Status saved. <<

or

>> Log active. Status saved. <<

.LOGPOP Restores the log to the status in effect when you executed the last .LOGPUSH. One of the following messages is displayed on the same line as the command.

>> Log status restored to inactive. <<

or

>> Log status restored to active. <<

If you enter .LOG without an argument, OMEGAMON XE for DB2 PE displays the current status of the log.

/LOG is the equivalent INFO-line command; however, it does not accept the PUSH and POP arguments.

.LOGOUT Sends the current OMEGAMON XE for DB2 PE REPORT log to the printer.

/O is an alias for /LOG with the OUT argument.

OMEGAMON XE for DB2 PE dynamically allocates REPORT to a SYSOUT equals A file with FREE equals CLOSE. This means that every time you enter the /LOGOUT command, the REPORT log is automatically spun off.
.LOG performs the same functions as /LOG, and additionally accepts the PUSH and POP arguments.

LSCR Loads panel space members from the panel space library to main storage.
You can make panel spaces more available and more easily fetched by loading them into main storage with LSCR. For example, if a disk is not available, you can continue to invoke the panel spaces that you loaded into main storage with LSCR.

The format is:
LSCR cccccccc cccccccc . . . cccccccc

The variables cccccccc are panel space names. Specify panel space member names starting in column 8. You can load as many members as can fit on the input line.

For example, in the next command, OMEGAMON XE for DB2 PE attempts to load panel spaces ZZ1, ZZ2, and ZZ3 from the O2PROC data set to main storage.

LSCR ZZ1 ZZ2 ZZ3

If OMEGAMON XE for DB2 PE cannot find panel space ZZ1, it displays the following messages:
+ OB1507 Member not found - ZZ1
+ OB1508 2 members loaded

MCHN
Scans common storage.
This command requires special authorization because its use causes additional system overhead to collect the necessary data. Before OMEGAMON XE for DB2 PE displays this data, you must enter a valid password using the /PWD command.

MCHN scans the elements of a table for a string of hex or character values. If the scan is successful, OMEGAMON XE for DB2 PE displays the table element that contains the string.

MCHN searches the address space in which OMEGAMON XE for DB2 PE resides. Use this command primarily to examine the MVS common area. Use XMCH to search other address spaces.

The format is:
MCHN c addr,string,olen,chain,dlen

The format of the output:

- B or b hex and character (default)
- C character only
- X hex only

addr The address of the first table element that OMEGAMON XE for DB2 PE scans.

string The hex string that OMEGAMON XE for DB2 PE uses for the scan. If you enclose it in single quotes ('), OMEGAMON XE for DB2 PE assumes it is a character string.

Note: OMEGAMON XE for DB2 PE interprets two single quotes (' '), within a character string as a single quote (').
olen The offset (in hex bytes) to the string in the table element; the comparison starts at this point. You can precede olen by a plus sign (+) or a minus sign (-).

chain The offset (in hex bytes) to the chain pointer (the location in the table element that contains the address of the next table element). You can precede chain by a plus sign (+) or minus sign (-).

dlen The number of bytes (1 to 8 hex digits) that OMEGAMON XE for DB2 PE displays if the scan is successful. The display starts at the beginning of the string. The default is 16 \((X \cdot 10)\) bytes.

Ensure that addr is the starting point of a table element. The address at addr + chain points to the next table element. The scan ends when the value at addr + chain is one of the following:

- 0
- -1
- addr (the table is a ring)

You can specify, modify, or pre-define an address (addr) for a storage display or modification command. An address consists of an anchor, optional modifiers, and an optional pre-defined name.

An anchor is the base address of an address specification. It can be:

absolute
A hexadecimal number:

<table>
<thead>
<tr>
<th></th>
<th>1 to 6 digits</th>
<th>1 to 8 digits</th>
</tr>
</thead>
<tbody>
<tr>
<td>370</td>
<td>A</td>
<td>XA/ESA</td>
</tr>
</tbody>
</table>

symbolic
1- to 8-alphanumeric characters, including @, #, and $.

You can supply one or more modifiers to change the location that the anchor points to. A modifier can be:

offset A plus sign (+) or minus sign (-), followed by a hexadecimal number:

<table>
<thead>
<tr>
<th></th>
<th>1 to 6 digits</th>
<th>1 to 8 digits</th>
</tr>
</thead>
<tbody>
<tr>
<td>370</td>
<td>A</td>
<td>XA/ESA</td>
</tr>
</tbody>
</table>

This modifier specifies a location at a known offset (positive or negative) from the anchor address.

indirect
One of the following symbols:

<table>
<thead>
<tr>
<th></th>
<th>for 24-bit (370) addressing</th>
<th>for 31-bit (XA/ESA) addressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This modifier indicates that the location pointed to is itself an address.

You can use these modifiers to create powerful and versatile address expressions. For example, the following address expression locates the TIOI of the currently executing MVS task:

\(10\%+4\%+C\%\)
10% Treats the data at location X'10' as a 24-bit address. This is the address of the MVS CVT.

% This second % treats the data at the start of the CVT as a 24-bit address. The first word of the CVT contains the address of a doubleword (8 bytes). The doubleword contains:
  • the address of the next TCB to dispatch (bytes 0 to 3)
  • the address of the currently dispatched TCB (bytes 4 to 7)

+4% Adds X'04' to the address of the doubleword, and then treats the data at the displacement as a 24-bit address. This is the address of the currently dispatched TCB.

+c% Adds X'0C' to the address of the TCB, and then treats the data at the displacement as a 24-bit address. This is the address of the TIOT.

You can specify or reference an address by a name consisting of 1- to 8-alphanumeric characters, including @, #, and $. The following command specifies address names.

The example below shows a typical MCHN command. In this example, MCHN scans a table that starts at location AAB6C8 and looks for the string D6C30199 that begins at the eighth byte of the table element; the address of the next table element is in the fourth word. By default, this command displays 16 bytes of the table element in hex and character notation.

MCHN AAB6C8,D6C30199,8,4

The following output is displayed if the scan is successful:

Addr=007DA000
MCHN AAB6C8,D6C30199,8,4
+ 0000 E2E2C3E3 00000000 D6C30199 00000000 *SSCT OC r
*

MLST
Displays bytes of memory from commonly addressable storage.

This command requires special authorization because its use causes additional system overhead to collect the necessary data. Before OMEGamon XE for DB2 PE displays this data, you must enter a valid password using the /PWD command.

MLST displays the contents of commonly addressable storage such as the
  • common storage area (CSA)
  • system queue area (SQA)
  • nucleus

The format is:
MLSTc addr,dlenc

c The format of the output:
  B or b hex and character (default)
  C character only
  X hex only
The first address of storage that OMEGAMON XE for DB2 PE displays. For more information about how to specify an address, see the MCHN command.

**dlen**

The number (1 to 8 hex digits) of bytes that OMEGAMON XE for DB2 PE displays. The default is 16 (X'10') bytes.

The following examples show uses of the MLST command.

**MLST** lists 32 (X'20') bytes starting at address 1EB0 in character format:

MLSTC 1EB0,20

Typical output is:

MLSTC 1EB0,20 Addr= 00001EB0
+000 *............h.... .....167.........*

MLST lists 16 (X'10') bytes starting at address FF32D6 in both hex and character formats:

MLSTFF32C1+15,10

Typical output is:

MLSTFF32C1+15,10 Addr= 00FF32D6
+000 20280010 A1B00FF9 82F00FF 20400000 *....h.9b0... .*

**.MOD** Shows OMEGAMON XE for DB2 PE module names and addresses.

The optional suffix A (**MODA**) lists the module names in alphabetical order.

This command provides debugging information, including module names and start addresses. If OMEGAMON XE for DB2 PE encounters a program check, this information is useful to IBM Customer Support.

**MSCN**

Displays the location in storage of a specific string.

This command requires special authorization because its use causes additional system overhead to collect the necessary data. Before OMEGAMON XE for DB2 PE displays this data, you must enter a valid password using the /PWD command.

**MSCN** scans the common area and the address space in which OMEGAMON XE for DB2 PE resides for a string of hex or character values. If the scan is successful, OMEGAMON XE for DB2 PE displays the string. To scan the DB2 private area, use the XMSC command.

The format is:

MSCNc addr,string,slen dlen

**c**

The format of the output:

**B** or **b**  Hex and character (default)

**C**  Character only

**X**  Hex only
The first address of storage that OMEGAMON XE for DB2 PE scans. For more information about how to specify an address, see the \texttt{MCHN} command.

\textbf{string} The hex string OMEGAMON XE for DB2 PE uses for the scan. If you enclose it in single quotes ('), OMEGAMON XE for DB2 PE assumes it is a character string.

\textbf{Note}: OMEGAMON XE for DB2 PE interprets two single quotes ('') within a character string as a single quote ('').

\textbf{slen} The number (1 to 8 hex digits) of bytes that OMEGAMON XE for DB2 PE scans. The default is 256 (X'100') bytes.

\textbf{dlen} The number (1 to 8 hex digits) of bytes that OMEGAMON XE for DB2 PE displays if the scan is successful. The display starts at the beginning of string. The default is 16 (X'10') bytes.

In the next example, \texttt{MSCN} scans the first 1000 bytes of the TIOT entry for the character string \texttt{O2HELP} and displays 14 hex bytes starting at that point. The display is in both hex and character formats.

\texttt{MSCN 10%%+4%+C%,'O2HELP',1000,14}

Typical output is:
\begin{verbatim}
MSCN 10%%+4%+C%,'O2HELP',1000,14 Addr=0061701C
+ 0000 D6C3C8C5 D37D4040 60BCA000 80001B00 *O2HELP
*.......*
+ 0010 14010100 ......... *
\end{verbatim}

\textbf{MZAP} Modifies the contents of the common area or the OMEGAMON XE for DB2 PE private area.

This command requires special authorization because it can perform potentially dangerous functions. Before OMEGAMON XE for DB2 PE executes this command, you must enter a valid password using the /PWD command.

\textbf{Important}: \texttt{MZAP} is powerful. Use it with care.

\texttt{MZAP} modifies the contents of commonly addressable storage such as the

- common storage area (CSA)
- system queue area (SQA)
- nucleus

Note the following:

- Some commonly addressable storage requires no authorization or special key to modify; however, some areas are store-protected. To modify these areas you must supply the action character in the label field of the \texttt{MZAP} command. You can also use \texttt{MZAP} to zap storage in the OMEGAMON XE for DB2 PE address space for debugging purposes. You can zap as many bytes as fit on a line at one time, but the verify and replace code lengths must be the same.

- If you use \texttt{MZAP} to modify storage in the Pageable Link Pack Area (PLPA), \texttt{MZAP} automatically does a long-term page-fix to ensure that the storage remains modified. If the pagefix is necessary, OMEGAMON XE for DB2 PE displays the message:

\texttt{PAGE(S) FIXED}
With 370, **MZAP** cannot zap the PLPA of a processor that has PLPA protection.

The format is:

```
MZAP  addr,ver,rep
```

*a* If required, an action character in column 1:

- Changes to a comment character (>) after the command executes.
- Does not change to a comment character after the command executes. Use this action character to repeat the command.

**addr**

The address of the string OMEGAMON XE for DB2 PE might modify. For more information about how to specify an address, see the **MCHN** command.

**ver**

The verify string; OMEGAMON XE for DB2 PE modifies storage only if it finds this string at **addr**.

**rep**

The replacement string. If OMEGAMON XE for DB2 PE finds **ver** at **addr, rep** replaces **ver**.

The strings **ver** and **rep** must be the same length.

In the first example, **MZAP** changes a fullword at location 6764 from X’0A’ to X’64’.

**MZAP** 6744+20,0000000A,00000064

In the next example, **MZAP** changes an X’FF to X’00 at location EA65C0.

**MZAP**  EA65C0,FF,00

/O  Prints the existing OMEGAMON XE for DB2 PE REPORT log without closing the log.

The /O command is an alias for /LOG with the OUT argument. See the description of the /LOG command for complete information about the /O command.

**OSPC**  Lists the attributes of the owner of a data-only space.

The format is:

```
OSPC  spacename
```

where **spacename** is the name of the data-only space you want to list. If you do not enter a name, **OSPC** lists all data spaces and hiperspaces. You can also enter 1 to 7 characters, and **OSPC** displays any space names that begin with the specified character string.

**OSPC** displays the following information about the specified space: type of space, ASID of the owning TCB, jobname of the owning TCB, address of the owning TCB.

/P  Prints the current logical panel.

The /P command is an alias for /PRINT. See the description of the /PRINT command for complete information about this command.

**.PCS**  Displays OMEGAMON XE for DB2 PE program check statistics.
These statistics are used for debugging information. If OMEGAMON XE for DB2 PE takes a program check, this information is useful to IBM Customer Support.

**.PFK** Displays/resets PF key definitions.

The format is:

```
c.PFK nn=aaaaaa/*bbb...bbb
```

*(blank)*

Without operands, **.PFK** displays all current PF key settings. PF keys without assignments are not shown in the panel.

c Label E for redefining several PF keys at once.

nn PF key number.

aaaaaaa Screen space name (1 to 8 characters) or INFO-line command (/cccccc).

/*bbb... Comment of up to 32 characters (bbb...), following the forward slash (/) and asterisk (/*).

You can define up to 99 physical and logical PF keys.

The PF keys that you define with **.PFK** are in effect only for that OMEGAMON XE for DB2 PE session. At startup, OMEGAMON XE for DB2 PE executes the panel space @ZPFKDEF, which contains default PF key assignments. To make these assignments permanent, change them in the @ZPFKDEF panel space.

For example, the following command sets PF15 to issue the /STOP INFO-line command for this session.

```
.PFK 15=/STOP /* Stops OMEGAMON XE for DB2 PE
```

Type comment text following a forward slash (/) and asterisk (/*): Use the same format to assign panel space names to PF keys. For example, the following command sets PF26 to call the panel space DISKS for this session.

```
.PFK 26=DISKS /* DASD information
```

To delete a definition, enter a single underscore (_) for the definition. For example, the following command deletes the definition for PF18.

```
.PFK 18=_
```

You can redefine several PF keys at once without having to type the **.PFK** command for each one. To do so, use the following procedure.

1. Type **E.PFK** OMEGAMON XE for DB2 PE provides an extended display of all current PF key assignments, and inserts **.PFK** before each key number, as shown below.

```
+ PFK07=/UP /* SCROLL UP
+ PFK08=/DOWN /* SCROLL DOWN
- .
+ PFK11=/ZOOM /* ZOOMING FEATURE
```
2. For each new assignment, blank out the plus sign (+) in front of each .PFK and type the new assignment following the equal sign.

3. Press Enter.

The assignments remain in effect for the duration of the session.

If you want to call panel spaces with PF keys, allocate an O2PROC library.
To call a panel space assigned to a PF key, press the associated PF key or type its number on the INFO-line.

/PRINT
Prints the current logical panel.
When the panel prints, a >LOGGED< message is displayed on the INFO-line.
/P is an alias for /PRINT.

.PRM Displays current values of the OMEGAMON XE for DB2 PE startup command parameters.
This command displays applicable OMEGAMON XE for DB2 PE startup parameters in the following order.

IOMODE=cc
The current OMEGAMON XE for DB2 PE I/O mode. This is the 2-character code entered as the mode in the startup parameters.

SYS=cccc
The current OMEGAMON XE for DB2 PE system ID. This is the same system ID that is displayed on the INFO-line.

USER=cc
The user profile identifier. This is the same identifier that is displayed on the INFO-line.

ROWS=nn
The number of rows on the physical terminal.

LROWS=nnn
The number of logical rows for the output area.

COLS=nnn
The number of columns on the physical terminal.

UNIT=ccc
The terminal address of a dedicated OMEGAMON XE for DB2 PE session.

.PRT Prints the specified portion of the panel to the report file.
The format is:
.PRTc

Without an argument, .PRT prints a panel image from the INFO-line to the line that contains the .PRT command. After the partial panel prints, .PRT changes to a comment.
The optional argument H (.PRTH) prevents the .PRT command from commenting itself out so that it logs these lines continually.

/PWD Specifies an OMEGAMON XE for DB2 PE password or reauthorizes a session.
The format is:
/PWD userid

You can use the /PWD command in three ways. They are:
1. To authorize your session for internal security. Enter the /PWD command on the INFO-line. The system prompts you for a password.

   /PWD____________< You enter >
   _______________Enter Password< Result >

   The password is not displayed in the panel as you type it. It remains in effect until you reset it.

1. To reset the security level to 0 after your authorized session. Type /PWD on the INFO-line as in the example, but instead of entering a password, just press Enter. Authorization is cleared.

2. The /PWD command can be entered with your user ID to do the following:
   - Log onto an existing OMEGAMON XE for DB2 PE session and reauthorize external security to your level for the session.
   - In dedicated mode, gain access to external security.

When you use the /PWD command with your user ID to log onto an existing session, you cannot update your password.

See Configuration and Customization for details about the security features.

RENM

Renames a panel in RKO2PCSV or main storage.

RENM renames panel spaces only in main storage (in-storage) and RKO2PCSV. It does not rename IBM-supplied panel spaces in the library pointed to by the ddname O2PROC.

The new format is:

RENMc aaaaaaaa bbbbbbbb

c     Specifies the location of the renamed panel space.

   B or b Rename in both main storage and RKO2PCSV. This is the default.

   D Rename in RKO2PCSV only.

   I Rename in main storage (in-storage) only.

aaaaaaa The old name of the panel space.

bbbbbbbb The new name of the panel space.

Note: OMEGAMON XE for DB2 PE does not substitute special characters for the RENM command. You must enter the actual member name.

/REP

Replaces the existing saved panel space of the same name.

Use /REP in place of /SAVE if you want to replace an existing saved panel space in the user-defined panel space library pointed to by ddname RKO2PCSV.

The format is:

/REP ccccccdd,a
Specifies the panel space name (1 to 8 characters).

One of three arguments that might follow the panel space name. The argument is separated from the panel space name with a comma (,).

B  Replaces in both main storage and RKO2PCSV.
D  Replaces in RKO2PCSV only.
I  Replaces in main storage (in-storage) only.

The default is wherever OMEGAMON XE for DB2 PE finds the panel space.

OMEGAMON XE for DB2 PE substitutes a D for a dot (.) in panel names.

The size of the panel space is the number of lines to the last non-blank line in the panel space.

The following example replaces the current panel space SAMPLE with the currently-entered panel space in both main storage and RKO2PCSV.

/REP SAMPLE,B

The default cursor position is the first position of the INFO-line. However, if you want to save the cursor in any position in the panel, type /REP on the INFO-line but do not press Enter. Move the cursor to the position you want and then press Enter to execute /REP. The cursor displays in that position whenever OMEGAMON XE for DB2 PE invokes the panel.

If you want to look at or edit a panel using a text editor, be aware of the following:

- CURS=(n,m) is displayed at the top-left corner of the INFO-line to indicate the cursor position in the saved panel.
- The variable n specifies the cursor row position, and m specifies the column position.
- You can add or change the cursor position in a saved panel using a text editor by adding or changing CURS=(n,m)

Note: /R is not an alias for /REP. It is an alias for /RETURN. /REP does not have an alias.

/RESHOW

Displays a new copy of the current panel.

.RTN

Terminates an ASF or TSF sequence and returns to the calling panel space.

The .RTN command is required at the bottom of the last panel space in an automatic panel facility (ASF) or timed panel facility (TSF) sequence. It returns to the calling panel space and re-enables exception analysis for further automatic calls. You can turn on ASF from the Exception Logging panel (page Exception Logging Menu) or the panel that sets analysis options for individual exceptions (page Set Exception Analysis Options).

The format is:

n .RTNcc aaaaaaaa

n  The optional label n specifies the number of cycles to delay the return to the calling panel space. The value of n can be the numbers 1 to 9 or the letters A to Z (representing 10 to 35). Each
time the panel updates, \( n \) decrements by 1. When \( n=0 \), the current panel executes and OMEGAMON XE for DB2 PE fetches the next panel space.

For example, the following command returns to the calling panel space after 7 cycles.

\[ .\text{RTN} \]

\( cc \)  The variable \( cc \) is the NR (no reset) argument. It prevents the \( .\text{RTN} \) command from automatically resetting the automatic update interval and the log status.

\[ \texttt{aaaaaaa} \]

This optional argument specifies a panel space for ASF or TSF to return to other than the calling panel space.

The \( .\text{RTN} \) command automatically resets the automatic update interval and the log status to that in effect when the ASF or TSF sequence began, unless NR is specified (see \( cc \) above).

\( /S \)  Saves the specified new panel.

The format is:

\[ /S \texttt{cccccccc},a \]

\( /S \) is an alias for \( /\text{SAVE} \). See the description of the \( /\text{SAVE} \) command for complete information.

\( /\text{SAVE} \)  Saves the specified new panel.

The \( /\text{SAVE} \) command works only if you have an RKO2PCSV data set and \texttt{cccccccc} does not already exist. If \texttt{cccccccc} already exists, use \( /\text{REP} \).

The format is:

\[ /\text{SAVE} \texttt{cccccccc},a \]

\texttt{cccccccc}  Specifies the panel name (1 to 8 characters).

\texttt{a}  One of three arguments that might follow the panel space name. The argument is separated from the panel space with a comma (,).

\texttt{B}  Saves the panel space to both RKO2PCSV and main storage (in-storage panel facility).

\texttt{D or b}  Saves the panel space to RKO2PCSV only (default).

\texttt{I}  Saves the panel space to main storage only.

OMEGAMON XE for DB2 PE substitutes a D for a dot (.) in panel space names.

This next example saves the current panel SAMPLE in both main storage and RKO2PCSV.

\[ /\text{SAVE} \texttt{SAMPLE},b \]

The default cursor position is the first position of the INFO-line. However, if you want to save the cursor in any position in the panel, type \( /\text{SAVE} \) on the INFO-line but do not press Enter. Move the cursor to the position you want and then press Enter to execute \( /\text{SAVE} \). The cursor displays in that position whenever OMEGAMON XE for DB2 PE invokes the panel.
If you want to look at or edit a panel space using a text editor, be aware of the following:

- CURS=(n,m) is displayed at the top left corner of the INFO-line to indicate the cursor position in the saved panel.
- The variable n specifies the cursor row position, and m specifies the column position.
- You can add or change the cursor position in a saved panel using a text editor by adding or changing CURS=(n,m).

/S is an alias for /SAVE.

SCHN Scans data-only space control blocks for a string of data and displays the location.

Use SCHN to search chained control blocks located in a data-only space for the occurrence of a specific string of data. SCHN scans data-only space storage until either a match to the string is found, the chain loops, or the address of the next control block is zero.

The format is:

\texttt{SCHN jobname,spacename,addr,string,off1,off2,plen}

\textit{a} A required action character in column 1:

- Changes to a comment character (>) after the command executes.
- Does not change to a comment character after the command executes. Use this action character to repeat the command.

\textit{c} The format of the output:

- \texttt{B} or \texttt{b} hex and character (default)
- \texttt{C} character only
- \texttt{X} hex only

\textit{jobname} The jobname or ASID in decimal of the owner of the data-only space.

\textit{spacename} The name of the data-only space.

\textit{addr} The starting address of the scan. For more information about how to specify an address, see the \texttt{MCHN} command.

\textit{string} The comparison string for the scan, which can be either a hexadecimal string or a character string surrounded by single quotes (').

\textit{off1} The offset from the beginning of the control block to the location of the comparison string. This value might be preceded by a plus (+) or a minus (-) sign.

\textit{off2} The offset from the beginning of the control block to the fullword address of the next control block. This value might be preceded by a plus (+) or a minus (-) sign.

\textit{plen} The length of print display. The default is 1 line or 16 bytes.
**SCRN**  Lists panel member names.

The format is:

```
SCRNc aa bb
```

- **c** Enter one of the following arguments in column 6 to specify the source of the member list.
  - **B** or **b** Lists all panels in both disk data sets (RKO2PCSV) and main storage (default).
  - **C** Lists all panels in disk data sets only.
  - **X** Lists all panels in main storage (in-storage) only.

- **aa bb** Lists all panels beginning with characters *aa* to *bb* (start *aa* in column 8).
- **a** Lists all panels beginning with character(s) *a* (start *a* in column 8).

The following example lists all panels stored in both disk data sets and main storage that have names starting with C or D.

```
SCRNB C D
```

The next example lists all panels in main storage from PA to PA999999.

```
SCRNI PA*
```

or

```
SCRNI PA PA
```

**.SGO**  Goes to panel *cccccccc* on next update.

The format is:

```
n.SGO cccccccc keyword{=| aa }argument
```

With the **.SGO** command panels can branch to other panels.

For example, the following command fetches panel SAMPLE on the next cycle.

```
SGO SAMPLE
```

With the optional value *n* you can delay the fetch of panel *cccccccc* for *n* cycles. The value of *n* can be between 1 and 35. Use the numbers 1 to 9 or the letters A to Z (to represent 10 to 35 cycles). Each time the panel updates, *n* decrements by one. When *n* equals 0, panel *cccccccc* is fetched on the next cycle.

The next example delays fetch of panel SAMPLE for 11 cycles, and fetches it on the next cycle after *n* equals 0.

```
B.SGO SAMPLE
```

**Conditional Parameters**

The **.SGO** command also has a conditional panel fetch feature that fetches a panel only if a condition is true. The condition is expressed as follows:

```
.SGO cccccccc keyword{=| aa }argument
```

The *keyword* can be one of the following:

**CPSER=**

- Compares the CPU serial number.
MODE=
    Compares the 3-character OMEGAMON XE for DB2 PE mode ID
    (displayed on the INFO-line). For example, DED, VTS, VTT, VTM.

OPSYS=
    Compares the 3-character ID for the operating system level (XA1).

SMFID=
    Compares the 4-character SMF ID.

UNIT=
    Compares the terminal address of the primary OMEGAMON XE
    for DB2 PE console (only in dedicated mode).

USER=
    Compares the 2-character suffix of the user profile.

The relational operator is either an equal sign (=) or a 2-character operator
aa separated by blanks. The operator aa can be:

   EQ  Keyword equals argument. Same as equal sign (=).
   GE  Keyword is greater than or equal to argument.
   GT  Keyword is greater than argument.
   LE  Keyword is less than or equal to argument.
   LT  Keyword is less than argument.
   NE  Keyword is not equal to argument.

The argument is a 1- to 8-character value to which OMEGAMON XE for
DB2 PE compares the keyword.

For example, to fetch panel SAMPLE only if you are running in an XA
environment, enter:

    .SGO SAMPLE OPSYS=XA1

or

    .SGO SAMPLE OPSYS EQ XA1

Note: A blank is not a valid keyword, relation, or argument. Additionally,
if you use a variable as the keyword or argument, the variable cannot
begin with a blank.

When you use the 2-character operator aa instead of the equal sign =, there
must be at least one blank separating the keyword, operator, and
argument. The equal sign requires no separation.

If multiple .SGO commands are displayed on one panel, the last one that is
executable takes precedence.

See the .FG0 command for other methods to fetch panels.

SLST    Displays bytes of memory from data-only space storage.

The format is:

    aSLSTc jobname,spacename,addr,plen

    a    A required action character in column 1:
          - Changes to a comment character (>) after the command executes.
<      Does not change to a comment character after the command executes. Use this action character to repeat the command.

c     Specifies the format of the output:
   B or b  dump format (default)
   C     character only
   X     hex only

jobname
   The jobname or ASID in decimal of the owner of the data-only space.

spacename
   The name of the data-only space.

addr
   The starting address of the data. For more information about how to specify an address, see the MCHN command.

plen
   The number (1 to 8 hex digits) of bytes to print. The default is 16 (X'10') bytes or 1 line.

SLST lists memory from data-only spaces. When necessary, an SRB will be scheduled into the address space of the TCB owning the data-only space to be listed.

Here is an example of using SLST.
<SLST MYJOB, MYSPACE, 1000, 20
+Storage at 00001000 in dataspace MYSPACE, job MYJOB ASID=12
+ 0000   E3C5E2E3 40C4C1E3 C140E207 C1C3C540   *TEST DATA SPACE *
+ 0010   F0F1F2F3 F4F5F6F7 F8F9C1C2 C3C4C5C6   *0123456789ABCDEF*

SSCN  Scans data-only space storage for the occurrence of a specific string of data.

Command format:
ASSCNc jobname, spacename, addr, string, len1, len2

a     A required action character in column 1:
   -      Changes to a comment character (>) after the command executes.
   <      Does not change to a comment character after the command executes. Use this action character to repeat the command.

c     Specifies the format of the output:
   B or b  dump format (default)
   C     character only
   X     hex only

jobname
   The jobname or ASID in decimal of the owner of the data-only space.

spacename
   The name of the data-only space.

addr
The starting address of the scan. For more information about how to specify an address, see the \texttt{MCHN} command.

\textit{string} \quad The comparison string for the scan. Either a hexadecimal string or a character string surrounded by single quotes (').

\textit{len1} \quad The length to scan in hex. Default is 256 (\texttt{x'100'}) bytes.

\textit{len2} \quad The length of print display. Default is 1 line or 16 (\texttt{x'10'}) bytes.

\texttt{SSCN} scans data-only space storage until a match to the string is found or the length of storage specified is exhausted. When necessary, an SRB is scheduled into the address space of the TCB owning the data-only space to be scanned.

Following is a sample \texttt{SSCN} display.

```
<SLST MYJOB,MYSERVER,1000,20
+Storage at 00000000 in datasetspace MYSERVER, job MYJOB ASID=12
+ 0000  E3C5E2E3 40C4C1E3 C149E207 C1C35440  *TEST DATA SPACE *
+ 0010  F0F1F2F3 F4F5F6F7 F8F9F1C2 C3C4C5C6  *0123456789ABCDEF*

/STOP Stops OMEGAMON XE for DB2 PE.
STOP performs the same function.

STOP Stops OMEGAMON XE for DB2 PE.
/STOP performs the same function.

\texttt{SZAP} \quad Modifies the contents of data-only space storage.

\textbf{Caution:} \quad There is a potential integrity exposure with the use of \texttt{SZAP} on hiperspaces. \texttt{SZAP} uses HSPSERV to read in a page of data from the target hiperspace, check the data, alter the data, and finally use HSPSERV to write the page back to the hiperspace. If someone else is writing to the same page of the hiperspace during this process, the newly entered data could get lost. There is no available enqueue mechanism to guard against this exposure.

The format is:

```
-SZAP \textit{jobname},\textit{spacename},\textit{addr},\textit{vercode},\textit{repcode}
```

- \quad Action character required for execution.

\textit{jobname} \quad Jobname or ASID in decimal of the owner of the data-only space.

\textit{spacename} \quad The name of the data-only space.

\textit{addr} \quad The starting address of the data. For more information about how to specify an address, see the \texttt{MCHN} command.

\textit{vercode} \quad The current code to be verified in hexadecimal.

\textit{repcode} \quad The replacement code in hexadecimal.

The lengths of \textit{vercode} and \textit{repcode} must match.

When necessary, an SRB is scheduled into the address space of the TCB owning the data-only space to be zapped. Here is an example of using \texttt{SZAP}. 

1476 \quad IBM Db2 Performance Expert on z/OS
Scrolls to the top of the logical panel.

The times panel facility (TSF) schedules certain panel spaces not on an exception basis, but rather at specified times of day or at specified intervals. For example, you might want to issue a DB2 trace command automatically at 2:00 p.m. every weekday, and then turn it off again at 2:15. You can also invoke a panel space and have its commands executed and logged at regular intervals, such as every hour.

To use TSF, follow this procedure.

1. Create any panel spaces you want TSF to invoke. You can use the .SGO or .FGO command to chain panels together, and .RTN to end the cycle. Special considerations for creating panel spaces in TSF are discussed later in this topic.

2. Turn on TSF with the TSF keyword of the OPTN command.

3. The .TSF00 command lists all entries in the TSF table. The TSF table is delivered with 99 blank entries. For example:

   .TSF00
   + 1 Time=0000 SS=*NONE* DAY=DAILY
   + 2 Time=0000 SS=*NONE* DAY=DAILY
   + 3 Time=0000 SS=*NONE* DAY=DAILY
   + 4 Time=0000 SS=*NONE* DAY=DAILY

   Enter .TSFnn to display entry nn in the TSF table. To define an entry, type .TSF followed by the number of the entry. For example, type .TSF01 to produce:

   .TSF01 Time=0000 SS=*NONE* DAY=DAILY

   You can type the new entry over the current entry, press Enter, and the value is reset.

   If you want to change an entry that is not displayed on the physical panel, you can specify an argument to skip nn entries. Type .TSF00 20 to display entries 21 through 99 in the TSF table, skipping the first 20.

   Following are the keywords and valid entries.

---

**Time**

Specifies the time of day (from 0000 to 2400) to invoke the panel. **TIME=+nn** invokes the panel every **nn** minutes.

**Note:** The panel space does not execute while the **TIME=+nn** entry remains on your current panel.

**SL or SS**

Specifies the panel space to invoke if TSF is in effect. SS specifies the panel space to invoke, but does not turn on the log. SL automatically turns on the REPORT log when the panel is fetched, and panel space logging starts. You must specify either SS or SL for TSF to function.

**DAY**

Valid entries for day of week are MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY, WEEKDAY, WEEKEND, and DAILY. The days of the month are also valid entries (numerals 1 through 31). The default value is DAILY. You can abbreviate the input as long as it is unique and the day of the week is recognized.
You can specify day combinations by enclosing the names of the days within parentheses, and by separating each day with either a comma or a blank.

Here is an example of five **TSF** entries.

<table>
<thead>
<tr>
<th>TSF</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSF01</td>
<td>EXECUTES and logs panel space WENDSHFT at 6:00 p.m. daily.</td>
</tr>
<tr>
<td>TSF02</td>
<td>EXECUTES panel space WEEKSTRT at 6:00 a.m. every MONDAY.</td>
</tr>
<tr>
<td>TSF03</td>
<td>EXECUTES and logs panel space NOONTIME at 12:00 p.m. every Thursday and Friday</td>
</tr>
<tr>
<td>TSF04</td>
<td>EXECUTES panel space MONTHEND on the 30th of each month at 8:00 a.m.</td>
</tr>
<tr>
<td>TSF05</td>
<td>EXECUTES and logs panel space STATUS every 30 minutes every day.</td>
</tr>
</tbody>
</table>

**/U** Scrolls up the amount of lines specified by argument ****ccc****.

**/U** is an alias for **/UP**. See the description of the **/UP** command for complete information.

**/UP** Scrolls up the amount of lines specified by argument ****ccc****.

The **/UP** command works only if you set the number of logical rows (LROWS) to a number greater than the number of physical rows on this terminal when you initialize OMEGAMON XE for DB2 PE.

The format is:

```
/UP  cccc
```

**nmm** Scrolls **nmm** lines (from 1 to 999).

**CSR** Scrolls according to the current location of the cursor. If the cursor is on the INFO-line, the scroll amount is a page.

**MAX** Scrolls to the top of the panel.

**PAGE** Scrolls so that the current cursor position is at the top of the panel (default).

**TOP** Scrolls to the top of the panel.

The following example scrolls up 20 lines.

```
/UP  20
```

If you have assigned the **/UP** command to a PF key (the default is PF19), you can type any of the optional arguments on the INFO-line before you press the PF key, and OMEGAMON XE for DB2 PE interprets the entry as if you had typed the command plus the arguments.

**/U** is an alias for **/UP**.

**.VTM** Displays terminal ID and session information for all users logged onto OMEGAMON XE for DB2 PE in VTAM mode.
A user running in a multi-session environment moderated by O2VTAM can use this command to display information about other O2VTAM users. Operations personnel can use this command to monitor and manage access to the VTAM environment.

The `.VTM` command displays the following information: user ID, terminal ID, mode, session start date and time, date and time of last update. (User ID is displayed only if external security is being used to control logon access.)

### .WAT

Waits `nn` seconds (.WAT`nn`) before executing all commands below.

The `.WAT` command provides a delay mechanism for the execution of commands that require information from a currently executing command. This command is useful when you want a delay between operator commands.

### XGRP

Invokes exception analysis for exception group `cc`.

The format is:

```
XGRPcc
```

The XGRP command only invokes exceptions of a certain group. In this sense, it is merely a subset of the `EXSY` command.

The variable `cc` indicates the exception group type. These types are:

- `CI` CICS exceptions
- `IM` IMS exceptions
- `SY` system exceptions
- `TH` thread exceptions

### XGSW

Set exception group switch settings. In addition to the control available over each individual exception, you can override certain options for an entire exception group.

The format is:

```
XGSW GROUP=`cc` STATE=cccc
```

**GROUP**

Any two unique alphanumeric characters to specify the group. Use this keyword to display only entries for a particular group.

**STATE**

Controls whether the exception is in any of these five states:

- **ON** Invokes this exception during the current session.
- **OFF** Does NOT invoke this group of exceptions during the current session.
- **TEST** Forces a sample warning message, even if the exception condition is not presently occurring, for purposes of training or demonstration. (When a message has been displayed because of TEST mode, a `T` is displayed in column 2 of the message lines.)
- **NULL** Specifies the individual exception is to maintain control rather than the group switch. This is the default.
Scans DB2 storage.

This command requires special authorization because its use causes additional system overhead to collect the necessary data. Before OMEGAMON XE for DB2 PE displays this data, you must enter a valid password using the /PWD command.

XMCH scans the elements of a table for a string of hex or character values. If the scan is successful, OMEGAMON XE for DB2 PE displays the table element that contains the string.

Use XMCH to search DB2 address spaces. Use MCHN to search the address space in which OMEGAMON XE for DB2 PE resides.

The format is:

```
XMCh targ,addr,string,olen,chain,dlen
```

a An action character in column 1:

- Changes to a comment character (>) after the command executes.

< Does not change to a comment character after the command executes. Use this action character to repeat the command.

c The format of the output:

C character only

X hex only

targ The target DB2 address space. It can be:

nnnn decimal ASID number

cccccccc jobname

If you do not specify a DB2 address space, an error message is displayed.

addr The address of the first table element OMEGAMON XE for DB2 PE scans. For more information about how to specify an address, see the MCHN command.

string The hex string that OMEGAMON XE for DB2 PE uses for the scan. If you enclose it in single quotes ('), OMEGAMON XE for DB2 PE assumes it is a character string.

Note: OMEGAMON XE for DB2 PE interprets two single quotes (') within a character string as a single quote (').

olen The offset (in hex bytes) to the string in the table element; the comparison starts at this point. You can precede olen by a plus sign (+) or minus sign (-).

chain The offset (in hex bytes) to the chain pointer (the location in the table element that contains the address of the next table element). You can precede chain by a plus sign (+) or minus sign (-).

dlen The number of bytes (1 to 8 hex digits) that OMEGAMON XE for DB2 PE displays if the scan is successful. The display starts at the beginning of the table element. The default is 16 (X'10') bytes.
Ensure that $addr$ is the starting point of a table element. The address at $+\text{chain}$ points to the next table element. The scan ends when the value at $addr + \text{chain}$ is one of the following:

- 0
- -1
- $addr$ (the table is a ring)

The example below shows a typical XMCH command. In this example, XMCH scans a table in the target DB2 address space that starts at location AAB6C8 and looks for the string D6C30199 that begins at the eighth byte of the table element. The address of the next table element is in the fourth word. By default, this command displays 16 bytes of the table element in hex and character format.

```
>XMCH USER14,AAB6C8,D6C30199,8,4
```

The following output is displayed if the scan is successful:

```
>XMCH USER14,AAB6C8,D6C30199,8,4
>Storage at 007DA000 in USER14 ASID=21:
> 0000 E2E2C3E3 00000000 D6C30199 00000000 *SSCT OC r *
```

**XMLS**

Displays DB2 storage.

This command requires special authorization because its use causes additional system overhead to collect the necessary data. Before OMEGAMON XE for DB2 PE displays this data, you must enter a valid password using the `/PWD` command.

XMLS displays bytes of storage from a DB2 address space.

The format is:

```
 oXMLSc targ,addr,len
```

- $a$ is an action character in column 1:
  - - Changes to a comment character (>) after the command executes.
  - < Does not change to a comment character after the command executes. Use this action character to repeat the command.

- $c$ is the format of the output:
  - B or b hex and character (default)
  - C character only
  - X hex only

- $targ$ is the target DB2 address space. It can be:
  - $nnnn$ decimal ASID number
  - $cccccccc$ jobname

If you do not specify a DB2 address space, an error message is displayed.

- $addr$
The first address of storage that OMEGAMON XE for DB2 PE displays. For more information about how to specify an address, see the MCHN command.

len The number (1 to 8 hex digits) of bytes that OMEGAMON XE for DB2 PE displays. The default is 16 (X'10') bytes.

The following examples show uses of the XMLS command.

In the first example, XMLS displays 32 (X'20') bytes from address space 21, starting at address 1EB0, in character format.
-XMLSC 21,1EB0,20

Typical output is:
>XMLSC 21,1EB0,20
>storage at 00001EB0 ASID=21:
>0000 *ABCDEFGH IJKLMNOPQRSTUVWXYZ0123456

In the second example, XMLS displays 16 (X'10') bytes from the target DB2 address space specified by the jobname USER14, starting at 1EB0 in both hex and character formats.
-XMLS USER14,1EB0,10

Typical output is:
>XMLS USER14,1EB0,10
>storage at 00001EB0 in USER14 ASID=21:
>0000 C1C2C3C4 C5C6C7C8 09010203 D4D5D6D7 *ABCDEFHIJKLMNOP*

In the third example, XMLS displays 16 (X'10') bytes from address space 21, starting at FF32D6 in hex and character format. The less than symbol (<) prevents OMEGAMON XE for DB2 PE from commenting out the command.
<XMLSB 21,FF32C1+15,10

Typical output is:
<XMLSB 21,FF32C1+15,10
+storage at 00FF32D6 in DB2 ASID=21:
+0000 4AA800F7 D3700000 00000000 000000F8 *y..7L............8*

XMSC

Scans DB2 storage.

This command requires special authorization because its use causes additional system overhead to collect the necessary data. Before OMEGAMON XE for DB2 PE displays this data, you must enter a valid password using the /PWD command.

XMSC scans a DB2 address space for a string of hex or character values. If the scan is successful, OMEGAMON XE for DB2 PE displays the string.

The format is:
\texttt{aXMSc c targc,addr,string,slen,dlen}

\texttt{a} An action character in column 1:

- Changes to a comment character (>) after the command executes.
< Does not change to a comment character after the command executes. Use this action character to repeat the command.

c The format of the output:
- B or b hex and character (default)
- C character only
- X hex only

targ The target DB2 address space. It can be:
- nnnn decimal ASID number
- ccccccc jobname

If you do not specify a DB2 address space, an error message is displayed.

addr The start address of the scan. For more information about how to specify an address, see the MCHN command.

string The hex string that OMEGAMON XE for DB2 PE uses for the scan. If you enclose it in single quotes ('), OMEGAMON XE for DB2 PE assumes it is a character string.

Note: OMEGAMON XE for DB2 PE interprets two single quotes (') within a character string as a single quote (')

slen The number (1 to 8 hex digits) of bytes that OMEGAMON XE for DB2 PE scans. The default is 256 (X'100') bytes.

dlen The number of bytes (1 to 8 hex digits) that OMEGAMON XE for DB2 PE displays if the scan is successful. The display starts at the beginning of the table element. The default is 16 (X'10') bytes.

In the next example, XMSC scans 1000 bytes in the target DB2 address space specified by the jobname USER14, starting at location 515988 for the character string WORKAREA. If the scan is successful, OMEGAMON XE for DB2 PE displays 14 hex bytes in hex and character format starting at WORKAREA.

-XMSC USER14,515988,'WORKAREA',1000,14

The following output is displayed if the scan is successful:

> storage at 00515988 in USER14 ASID=21:
> 1B8 E60D9D02 C19C5C1 00000000 00000000 WORKAREA.......*
> 1C8 000C002C *....*

XMZP Modifies another user's private storage area.

This command requires special authorization because it can perform potentially dangerous functions. Before OMEGAMON XE for DB2 PE executes this command, you must enter a valid password using the /PWD command.

Important: XMZP is powerful. Use it with care.
XMZP modifies the contents of the indicated private storage area.

The format is:

\[ \text{aXMZP, target, address, verify, replacement} \]

- **a** An action character in column 1:
  - Changes to a comment character (>) after the command executes.
  - Does not change to a comment character after the command executes. Use this action character to repeat the command.

- **target** The target DB2 address space. It can be:
  - decimal ASID number
  - jobname

If you do not specify a DB2 address space, an error message is displayed.

- **address** The address of the string OMEGAMON XE for DB2 PE might modify. For more information about how to specify an address, see the \texttt{MCHN} command.

- **verify** The verify string; OMEGAMON XE for DB2 PE modifies storage only if OMEGAMON XE for DB2 PE finds this string at \texttt{address}. If OMEGAMON XE for DB2 PE does not find the string, it displays what is actually at \texttt{address}.

- **replacement** The replacement string. If OMEGAMON XE for DB2 PE finds \texttt{verify} at \texttt{address}, \texttt{replacement} replaces \texttt{verify}.

**Note:** The strings \texttt{verify} and \texttt{replacement} must be the same length.

In this example, XMZP changes a byte at location A0160 in the master scheduler address space.

\[-XMZP, *MASTER*, A0160, 0A, 64\]

In the next example, XMZP changes a halfword at C4834 in the PRODJOB address space from X’1854’ to X’0700’.

\[-XMZP, PRODJOB, C4834, 1854, 0700\]

- **ZAP** Displays the maintenance level of the OMEGAMON XE for DB2 PE realtime modules.

- **/ZOOM** Invokes the navigational zoom feature using the cursor as a pointer.

The zooming feature is designed to simplify the investigation of system conditions by supplying a detailed level of information at the touch of the zoom key. **/ZOOM** substitutes whatever value the cursor is on for a variable contained in a predefined panel space. The variable substitution allows the zooming panel space to have multiple uses.

To illustrate the use of the zooming feature, the following discusses three types of applications. First, you should be aware of the following points:
• By default, OMEGAMON XE for DB2 PE is delivered with the /ZOOM INFO-line command assigned to PF key F11 so you can use the zooming panel spaces with a single key. For this discussion, F11 is referred to as the zoom key.

• Zooming panel spaces must be set up before using /ZOOM. These panel spaces can contain one or more of the following variables.

&ZOOM
Data found at the cursor location.

&ZOOMA
Command argument field (columns 6 and 7).

&ZOOMC
Command or exception name field (columns 2 to 5).

&ZOOML
Command label field (column 1).

&ZOOMS
Originating panel space.

OMEGAMON XE for DB2 PE provides sample zooming panel spaces that you can use to become familiar with both the setup of a zooming panel space and the types of commands for which /ZOOM is most appropriate. To see the names of those panel spaces, use the SCRn command and look for panel spaces beginning with @Z.

Following are three illustrations of using the zooming feature:

1. This first example uses a panel space that is supplied on your OMEGAMON XE for DB2 PE tape. The example is easier to understand if you actually execute the commands on your system while you follow the discussion.

   a. Type the command THDA. THDA produces a list of active threads.

   

<table>
<thead>
<tr>
<th>THDA</th>
<th>ZALLT</th>
<th>VTAM 02</th>
<th>V500./C $DB2 mm/dd/yy</th>
<th>12:06:26</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ 00:53:59.05</td>
<td>PLAN0090</td>
<td>12.2%</td>
<td>In-DB2</td>
<td>6231</td>
</tr>
<tr>
<td>+ 00:12:37.16</td>
<td>PLAN0100</td>
<td>11.1%</td>
<td>In-SQL-Call</td>
<td>1943</td>
</tr>
<tr>
<td>+ 00:09:29.27</td>
<td>PLAN0001</td>
<td>2.0%</td>
<td>In-DB2</td>
<td>1111</td>
</tr>
</tbody>
</table>

   THDA &ZOOM ACT replaces the variable &ZOOM with the planname over the cursor. The result might look like this:

   

   PLAN &ZOOM ACT

   b. To examine one of the threads more closely, place your cursor under the planname you want to query, PLAN0001 in this case, and press F11. OMEGAMON XE for DB2 PE looks for a panel space starting with @ZSM and ending with the command name that precedes the cursor. OMEGAMON XE for DB2 PE finds the panel space @ZSMTHDA:

   

<table>
<thead>
<tr>
<th>THDA</th>
<th>ZALLT</th>
<th>VTAM 02</th>
<th>V500./C $DB2 mm/dd/yy</th>
<th>12:06:26</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ 00:53:59.05</td>
<td>PLAN0090</td>
<td>12.2%</td>
<td>In-DB2</td>
<td>6231</td>
</tr>
<tr>
<td>+ 00:12:37.16</td>
<td>PLAN0100</td>
<td>11.1%</td>
<td>In-SQL-Call</td>
<td>1943</td>
</tr>
<tr>
<td>+ 00:09:29.27</td>
<td>PLAN0001</td>
<td>2.0%</td>
<td>In-DB2</td>
<td>1111</td>
</tr>
</tbody>
</table>

   /ZOOM replaces the variable &ZOOM with the planname over the cursor. The result might look like this:
### Profile Maintenance Facility

Select this main menu option for information about the Profile Maintenance Facility.

### Customizing and storing session characteristics in profiles

Use the Profile Maintenance Facility to customize characteristics of your active OMEGAMON XE for DB2 PE session and to store these characteristics in a profile. You can also change and delete existing profiles.

Profiles are identified by 2-character profile suffixes. The profile to be used for an OMEGAMON XE for DB2 PE session can be specified in the panel described in “Logging on to the Classic Interface” on page 887 or as parameter of the Logon command (see “Directly logging on to the Classic Interface from native VTAM” on page 888).

c. You can now place your cursor on a different planname and press F11 again to receive the same detail on another thread. A zooming panel space can display more detailed analyses of any thread.

2. Suppose that the THDA command in example 1 was originally executed as part of a different panel space (not a zooming panel space) that you had been using. We will call that panel space THREADS. If the @ZSMTHDA panel space ended with the command, .SGO &ZOOMS, the &ZOOMS variable would pick up the value of the originating panel space (THREADS) and OMEGAMON XE for DB2 PE would return to THREADS after the @ZSMTHDA panel space executed.

3. Suppose that you have issued the exception analysis command, LEXY, and an exception condition is displayed (LEXY) that you want to investigate further. Assuming that you have a predefined panel space named @ZSMcccc where cccc is the name of the exception, place your cursor under the exception name on the LEXY panel and press F11. OMEGAMON XE for DB2 PE will execute the commands on your @ZSMcccc panel space to give you a detailed analysis of the condition.
The profile being in use in an active OMEGAMON XE for DB2 PE session is displayed on the top line of most panels after the version number (for example, V540.AZ indicates that the user profile AZ is in use).

The default IBM profile: OMEGAMON XE for DB2 PE contains a default profile, identified by the 2-character profile suffix #P. This profile contains session configuration options needed to initialize an OMEGAMON XE for DB2 PE session and default exception analysis thresholds.

The default IBM profile ensures that you can always initiate an OMEGAMON XE for DB2 PE session, even if no other profiles are defined. This profile is always available and cannot be changed.

The installation profile: A so called installation profile, identified by the 2-character profile suffix /I, can be set up during the installation of OMEGAMON XE for DB2 PE. This profile can contain a set of session and exception analysis options that the installer specifies for all OMEGAMON XE for DB2 PE sessions at your installation. The installation profile can contain overrides of IBM profile options and additional options that are installation-specific or that are not contained in the IBM profile.

If an installation profile exists, your OMEGAMON XE for DB2 PE session is started with a concatenation of the default IBM profile and the installation profile.

User profiles: OMEGAMON XE for DB2 PE users can create one or more user profiles, identified by two alphanumeric characters, to customize their individual OMEGAMON XE for DB2 PE sessions. A user profile can contain profile options that override options specified in the default IBM profile and the installation profile, as well as additional options.

Panels for profile management: You can customize and maintain profiles through the following panels:

- “Profile Maintenance menu” on page 1488
- “Set Display Options” on page 1488
- “Set Control Function Options” on page 1492
- “Set Printer and Routing Options” on page 1494
- “Set Exception Analysis Message Option” on page 1495
- “Set Performance Options” on page 1496
- “Set Background Exception Processing” on page 1497
- “Exception Analysis Options menu” on page 1498
- “Set Exception Analysis Options” on page 1498
- “List Profiles” on page 1506
- “Describe a Profile” on page 1506
- “Save New/Altered User Profile” on page 1507
- “Delete User Profile” on page 1508
- “Save New/Altered Installation Profile” on page 1508
- “Delete Installation Profile” on page 1509
- “Change Profile” on page 1510
- “Exception Logging menu” on page 1510
- “Set XLF Printer and Routing Options” on page 1511
- “Set DB2/IRLM Messages that MSGE Exception Monitors” on page 1513
Profile Maintenance menu

This menu is the first menu for the Profile Maintenance Facility. From this menu you can access panels to change the characteristics of exceptions, change options for the current OMEGAMON XE for DB2 PE session, save, delete, change, and list profiles, or add descriptions to profiles.

```
> Help PF1
> P.
> Type a selection letter on the top line and press ENTER.

===============================================================================
PROFILE MAINTENANCE MENU
_ A SESSION OPTIONS ..... Set session options
  B EXCEPTION ANALYSIS... Exception analysis options
  C LIST PROFILES ....... List profiles
  D DESCRIBE PROFILE .... Describe a profile
  E SAVE USER ............ Save new/altered user profile
  F DELETE USER .......... Delete user profile
  G SAVE INSTALL ........ Save new/altered installation profile
  H DELETE INSTALL ...... Delete installation profile
  I LOGGING ............... Exception and automatic screen logging
  J MESSAGES ............. Set DB2/IRLM messages that MSGE exception monitors
  L Filtering ............ Set Thread Filtering
===============================================================================
```

Navigation

For additional options
- select one of the options from the menu.
- use the PF keys.

Set Display Options

Use this panel to set options that control how OMEGAMON XE for DB2 PE operates on your terminal, such as colors, audible alarms, exception message logging (XLF), automatic panel logging (ASF), and the timed panel facility (TSF).
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

You can change the values on the Set Display Options panel. To modify a setting, move the cursor to the value you want to change, type the new value over the current value, and press Enter to record the change.

ASF The current status of the automatic panel facility (ASF). Permitted values are ON and OFF. The default is OFF.

BELL The current status of the audible alarm (ON or OFF). The default is OFF.

BELLINT The minimum interval for audible alarm. The default is 5.00 seconds. The maximum interval is 99.00 seconds.

DATEFORMAT The display format of the date. Specify the format as USA (mm/dd/yy) or EUROPEAN (dd/mm/yy). The default is USA.

FIRSTSCREEN The first panel that OMEGAMON XE for DB2 PE displays after the copyright panel. You cannot change this value. The panels are arranged for easy access to product information.

LOG The current status of the log function (ON or OFF). The default is OFF. When the log function is ON, the current logical panel is logged each time you press Enter (or at regular intervals, if you are in automatic update.
mode). See field PAGELIMIT in “Set Control Function Options” on page 1492 about the size of the REPORT file.

MINORCASE
The type of letters OMEGAMON XE for DB2 PE uses to display minor commands (upper or lower case). The default is LOWER.

SCREENCASE
The type of letters OMEGAMON XE for DB2 PE uses to display its output in the panel (upper or mixed case). The default is MIX.

SCROLL
The amount to scroll the page. The default is a full page (PAGE). It can also be the position of the cursor (CSR).

TSF
The current status of the timed panel facility (TSF). Permitted values are ON and OFF. The default is OFF.

XLF
The current status of the Exception Logging Facility (XLF). Permitted values are ON and OFF. The default is OFF.

ZEROS
The type of zero display. When this parameter is ON, OMEGAMON XE for DB2 PE displays the number 0 in fields that have a value of 0. When this parameter is OFF, OMEGAMON XE for DB2 PE displays a blank in these fields. OMEGAMON XE for DB2 PE does not save the value of this field in a profile. This value will return to the default each session.

Display
Determines the type of entries that are acceptable in several other fields in this panel. If you want to change the display settings and save the changes in a profile, Profile Definition Mode must be turned ON before you make the changes.

BASIC
Sets the intensity of field types (for example, major and minor commands) on monochrome terminals and non-EDS (extended data stream) color terminals. Permitted values are High and Low.

Note: When the BASIC display option is used on color devices that can support EDS, OMEGAMON XE for DB2 PE will treat that device as a 4-base color terminal (non-EDS).

HIGH
All fields are displayed in high intensity.

LOW
All fields are displayed in low intensity.

COLOR
For color EDS terminals only: Sets the color of each field. Color names are red, green, white, blue, pink, yellow, and turquoise.

Note: If you do not have a color terminal, setting Display to COLOR can cause your OMEGAMON XE for DB2 PE session to terminate.

If OMEGAMON XE for DB2 PE is provided a color value instead of an intensity value, or vice versa, it makes the following internal conversion:
- On a non-EDS terminal, values of green and blue translate to low intensity. All other color values translate to high intensity.
On an EDS terminal, a value of HI translates to the color red; a value of LO translates to the color green.

**ProfileDefinitionMode**
Controls the definition of color and highlighting within a user profile.

**OFF**
Changes affect only the current OMEGAMON XE for DB2 PE session.

**ON**
Intended when creating or changing a user profile. After defining the settings, issue a profile save command for these definitions to be saved and reused. Setting this keyword to ON permits to configure options for different types of terminals on the same panel. If you want to save color setting changes in a profile, Profile Definition Mode must be turned ON before you make the changes.

**ExtendedHighlighting**
Used only with devices that support the extended data stream.

**OFF**
Extended highlighting features are not available. Use with non-EDS devices.

**ON**
Extended highlighting features are available. When Display=COLOR, this value is automatically set to ON. (Extended attributes are not supported in ISPF mode.)

*CAUTION:*
Do not set ExtendedHighlighting to ON unless you have a terminal that supports an extended data stream (or unless you have ProfileDefinitionMode is ON). If you do this accidentally, you can get a PROGnnn or a panel erasure error. You can press the ATTN or PA1 key to resume the session, but be aware that this action also clears the current security authorization and the current panel.

**Major**
Controls color (LOW) or highlighting (HIGH) for major commands and their output.

**Minor**
Controls color (LOW) or highlighting (HIGH) for minor commands and their output.

**Immed**
Controls color (LOW) or highlighting (HIGH) for immediate commands and their output.

**Default**
Controls color (LOW) or highlighting (HIGH) for other unprotected fields (for example, error message text, help text).

**XACB Display Options**
Controls exception analysis message text. The fields Clr1 through Clr7 can be used as substitutes for the color names (Red, Blue, and so on) or highlighting (High and Low) when customizing exception messages with the XACB command.

The following table shows the possible variations of settings according to the type of terminal you are supporting.
<table>
<thead>
<tr>
<th>If you have...</th>
<th>and you want...</th>
<th>keywords and possible settings are...</th>
</tr>
</thead>
<tbody>
<tr>
<td>A non-EDS terminal</td>
<td>some fields in high intensity and some fields in low intensity</td>
<td>Display=BASIC&lt;br&gt;ExtendedHighlighting=OFF&lt;br&gt;Major, Minor, Immed, XACB options=HI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(All other settings default to HI)</td>
</tr>
<tr>
<td></td>
<td>all fields in high intensity</td>
<td>Display=HI&lt;br&gt;ExtendedHighlighting=OFF&lt;br&gt;(All other settings default to HI)</td>
</tr>
<tr>
<td></td>
<td>all fields in low intensity</td>
<td>Display=LO&lt;br&gt;ExtendedHighlighting=OFF&lt;br&gt;(All other settings default to LO)</td>
</tr>
<tr>
<td>A monochrome EDS terminal</td>
<td>some fields in high intensity and some fields in low intensity, plus blinking,</td>
<td>Display=BASIC&lt;br&gt;ExtendedHighlighting=ON&lt;br&gt;Major, Minor, Immed, XACB options=HI</td>
</tr>
<tr>
<td></td>
<td>underscoring, or reverse video</td>
<td>(All other settings default to HI)</td>
</tr>
<tr>
<td></td>
<td>all fields in high intensity, plus blinking, underscoring, or reverse video</td>
<td>Display=HI&lt;br&gt;ExtendedHighlighting=ON&lt;br&gt;(All other settings default to HI)</td>
</tr>
<tr>
<td></td>
<td>all fields in low intensity plus blinking, underscoring, or reverse video</td>
<td>Display=LO&lt;br&gt;ExtendedHighlighting=ON&lt;br&gt;(All other settings default to LO)</td>
</tr>
<tr>
<td>A color EDS terminal</td>
<td>to specify the color of each field, plus blinking, underscoring, or reverse</td>
<td>Display=COLOR&lt;br&gt;ExtendedHighlighting=ON&lt;br&gt;Major, Minor, Immed, XACB options=color</td>
</tr>
<tr>
<td></td>
<td>video</td>
<td></td>
</tr>
</tbody>
</table>

**Set Control Function Options**

Use this panel to set options that control the way OMEGAMON XE for DB2 PE operates on your terminal, such as the size of the OMEGAMON XE for DB2 PE log file and how often OMEGAMON XE for DB2 PE updates the panel.
### Navigation

For additional information about
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

### Fields

You can change the values in the Set Control Function Options panel. To modify a setting, move the cursor to the value you want to change, type the new value over the current value, and press Enter to record the change.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGOLIMIT</td>
<td>The maximum number of consecutive .FGO panels that can execute when OMEGAMON XE for DB2 PE detects a loop and FGOLOOP is ON. The default is 64. The maximum number is 1000.</td>
</tr>
<tr>
<td>FGOLOOP</td>
<td>.FGO loop detection (ON/OFF). If OMEGAMON XE for DB2 PE detects an .FGO loop, it causes .FGO to work like .SGO so that the user can eliminate the loop.</td>
</tr>
<tr>
<td>GDEVUCBS</td>
<td>This setting does not apply to OMEGAMON XE for DB2 PE for DB2.</td>
</tr>
<tr>
<td>INTERVAL</td>
<td>The interval (in seconds) between automatic updates. The default is 5.00. The maximum is 99.00.</td>
</tr>
<tr>
<td>IODELAY</td>
<td>The number of cycles to hold the panel when the cursor moves. The default is 1. The maximum is 100.</td>
</tr>
<tr>
<td>LOOPCOUNT</td>
<td>The maximum number of control blocks that can be tested when executing the Examine Address Space panels before OMEGAMON XE for DB2 PE detects a loop. The default is 15000. The maximum is 60000.</td>
</tr>
<tr>
<td>LOOPTIME</td>
<td>The threshold (in seconds and hundredths of seconds) for the</td>
</tr>
</tbody>
</table>
OMEGAMON XE for DB2 PE built in loop detection when executing the Examine Address Space panels. The default is 25.00. The maximum is 99.

PAGELIMIT
The size (in pages) of the REPORT file used to log OMEGAMON XE for DB2 PE panels. The default is 400. The maximum is 99999. This number decreases dynamically as the log prints to reflect the number of pages remaining in the log before this limit is reached. Consequently, be sure to check this parameter (and reset it, if necessary) before saving a profile.

PEEKSIZE
The size (in bytes) of the buffer for the Examine Address Space panels. The default is 32768. The maximum is 204800.

STATUSMODE
This setting does not apply to OMEGAMON XE for DB2 PE.

OCMDMASTER
Sets the default console ID if none was specified with the OCMD command. Default is ON.

ON Master console.
OFF Console 00.

Set Printer and Routing Options
Use this panel to set options that control the way OMEGAMON XE for DB2 PE logs output.

Navigation
For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

**Fields**

To modify an option, move the cursor between the name of the setting you want to change and the **Pending** column, type the new value, and press Enter. To save your changes, delete the comment character (>) next to **.LOGOUT** and press Enter. This releases the current log, moves the **Pending** values to the **Current** column, and reallocates the log using the new values.

**Note:** When a value is displayed within parentheses, it means that the field is inactive.

**.LOGOUT**

Prints the current log and leaves it open. OMEGAMON XE for DB2 PE places a comment character in front of **.LOGOUT** so that the log is reset only on cycles when you remove the comment character (>).

**copy**
The number of copies to print.

**ddnm**
Overrides the standard OMEGAMON XE for DB2 PE ddname. When DDNM is active, **sout** and its related parameters (copy, dest, dstu, form, and hold) are inactive. The ddname must be allocated within the O2CI started task JCL.

**dest**
The destination to receive the report. The default is NONE, which sends the output to the local printer. The device can be a terminal, a node, a remote workstation, a local device or group of devices, or a user ID.

**dstu**
The destination user ID to receive the report.

**fold**
Changes lowercase characters to uppercase. The default is YES.

**form**
The name of the form on which to print. The default is NONE. This means that OMEGAMON XE for DB2 PE uses the form defined as your installation's default. If you change NONE to some other value (such as HOLE), you can type an asterisk (\*) to return to NONE.

**hold**
Specifies that the output be placed in the hold queue. The default is NO.

**id1**
Requests separator pages and page headers that identify output from different OMEGAMON XE for DB2 PE sessions.

**id2**
Defines up to 16 characters to be shown on the left of the separator page, justified below the ID1 heading. ID1 must be set to use ID2.

**id3**
Defines up to 16 characters to be shown centered on the separator page, below the ID1 heading. ID1 must be set to use ID3.

**id4**
Defines up to 16 characters to be on the right of the separator page, justified below the ID1 heading. ID1 must be set to use ID4.

**lnct**
Sets the REPORT file line count. The default is 60 lines.

**sout**
Specifies the SYSOUT class for the output.

**Set Exception Analysis Message Option**

Use this panel to set a message that OMEGAMON XE for DB2 PE displays on the Exception Messages panels when no OMEGAMON XE for DB2 PE exceptions are tripping.
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

XTXT  Sets the message text.

You can change the message that OMEGAMON XE for DB2 PE displays when no exceptions have exceeded their threshold values. To change the message, type the new message next to XTXT within single quotes (') and press Enter to record the change.

Set Performance Options

Use this panel to set certain performance options, such as how OMEGAMON XE for DB2 PE uses storage.

Because this panel contains options that can have a great effect on the system, this panel might require special authorization. If OMEGAMON XE for DB2 PE prompts you for authorization, first type /PWD on the top line of the panel. Then type your password and press Enter.
Navigation

For additional information about
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

Fields

NONSWAP
This field does not apply to OMEGAMON XE for DB2 PE because OMEGAMON XE for DB2 PE always sets its storage to nonswappable.

PAGEFIX
Makes OMEGAMON XE for DB2 PE storage page-fixed (ON or OFF). The default is OFF.

RESERVE
Controls whether a DASD RESERVE is issued when OMEGAMON XE for DB2 PE saves a panel into its panel data set, RKO2PCSV, or a profile into its profile data set, RKO2PFSV (ON or OFF). The default is OFF.

If you change the setting of this option, the new setting takes effect immediately.

TSOPFIX
This field does not apply to OMEGAMON XE for DB2 PE. Use the PAGEFIX option.

Note: RESERVE is the only option that takes effect immediately if you change it. All other option settings take effect only after they are saved in a profile that is used in a subsequent session.

Set Background Exception Processing

Use this panel to turn background exception processing on and off.

When you set this option to OFF, CPU use will be reduced, assuming the XLF and ASF options are OFF and that foreground exception processing (EXSY/LEXSY) is OFF.

Important: When the command E. is used to fastpath to the exceptions panel, ZEXSY, an incorrect exception analysis can occur if XOPT is set to OFF. Hit Enter to refresh the panel and display the correct exception status.
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

OMEGAMON XE for DB2 PE does not display any fields in this panel.

Exception Analysis Options menu

Use this menu to select the type of exception for which you want to set or change the exception analysis options.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

> Help PF1
> P.B
> Type a selection letter on the top line and press ENTER.

===============================================================================

A SYSTEM .............. Set exception analysis options for System exceptions
B THREAD .............. Set exception analysis options for Thread exceptions
C CICS ................. Set exception analysis options for CICS exceptions
D IMS .................. Set exception analysis options for IMS exceptions
E SINGLE ............... Set options for individual exception

===============================================================================

Navigation

For additional options, choose one of the options from the menu.

Fields

When you choose an exception type (for example, Thread) from the Exception Analysis Options Menu, OMEGAMON XE for DB2 PE displays a list of the exceptions in that group. You can then select a specific exception to set or view its characteristics.

If you select the Single option, OMEGAMON XE for DB2 PE displays a panel on which you can enter the name of the exception you want to view or change.

Set Exception Analysis Options

Use this panel to view and change the current characteristics of an exception and to add, delete, or display filtering rules for THREAD exception processing.

The following example shows the exception analysis options for an ARCM exception:
SET EXCEPTION ANALYSIS OPTIONS FOR ARCM EXCEPTION

> Warns when thread backout processing is waiting for an archive tape mount.

> To change the value of an exception option, type the new value over the current one. Press ENTER to record the change.

XACB LIST=ARCM
: ARCM
+ DISPLAY Parameters: THRESHOLD Parameters: XLF Parameters:
: State=ON Threshold=N/A Auto=OFF
: Group=TH Display=CLR3 Log=OFF
: Bell=OFF Attribute=NONE Limit=5 (5)
: BOX Parameters: CYCLE Parameters: Repeat=YES
: Boxchar=NO BOX ExNyc=0 Persist=1
: Boxclr=NONE Stop=0 (0) SL=ZTHLOG
: Boxattr=NONE Cumulative=0

XTHD ARCM
: FUNCTION=ADD(01)
| (DIS/ADD/Del)
+
+ RULE=01 Thread Exception Rule Parameters:
: PLAN=________ AUTHID=________ CONNTYPE=________
: CICS Parameters: CICSTRAN=________ CICSCONN=________
: IMS Parameters: PSBNAME=________ IMSID=________
: PACKDBRM=________
: PAKCOLID=________
: CORRID=________
: REQLOC=________
: THRDTYPE=________
: EXCLUDE=YES

Navigation

For additional information about other topics, use the PF keys.

Fields

cccc Exception name.

DISPLAY Parameters

State One of the following:

ON Checks for this exception condition during the current OMEGAMON XE for DB2 PE session.

OFF Does not check this exception condition during the current OMEGAMON XE for DB2 PE session.

TEST Sets exception analysis into a test mode for this exception condition.

If you set the exception state to TEST and you type the word FORCE after the exception name, OMEGAMON XE for DB2 PE displays the exception message text below the parameters with T in column 2 of the exception text and also on the Exception Messages panel.

Note: Because OMEGAMON XE for DB2 PE cannot provide a current value for the exception, the message text substitutes the value with an n variable.

Chapter 5. Monitoring 1499
**Group** Displays the 2-character exception group identifier.

- **CI** for CICS
- **SY** for system
- **TH** for thread

**Bell** Specifies whether the audible alarm on the terminal sounds when this exception occurs.

- **ON** The bell sounds. This works only if the system bell is set to ON on the Set Display Options panel.
- **OFF** The bell does not sound.

**BOX Parameters**

**Boxchar**
Specifies a box character enclosed in single quotes, or the string NO BOX (without quotes), which is the default. If Boxchar is NO BOX, OMEGAMON XE for DB2 PE does not place any box around the exception. Also, Boxclr and Boxattr is set to NONE.

Do not use a single quote (') as a box character, because it is the delimiter. To use an ampersand as a box character, type two ampersands (Boxchar is '&&').

**Boxclr** Sets the color or intensity of the exception box. (If you set Boxchar=NO BOX, OMEGAMON XE for DB2 PE sets Boxclr=NONE.)

On 4-color or noncolor terminals the value can be:

- **HI** Highlights the message.
- **LO** Does not highlight the message.
- **DEFAULT** Uses the value of the default field on the Set Display Options panel.

On 7-color terminals the value can be:

- **RE** Sets the box red.
- **BL** Sets the box blue.
- **YE** Sets the box yellow.
- **PI** Sets the box pink.
- **GR** Sets the box green.
- **TU** Sets the box turquoise.
- **WH** Sets the box white.
- **DEFAULT** Uses the value of the default field on the Set Display Options panel.

Boxclr can also be set to the variables Clr1 through Clr7. They are associated with the colors listed before and follow the same order. To set these values, see the Set Display Options panel.

**Boxattr**
For 7-color terminals, sets one of the following additional highlight
attributes (with extended color support) for the box. (If you set Boxchar at
NO BOX, OMEGAMON XE for DB2 PE sets Boxattr at NONE.)

**BLINK**
Turns on blinking for the exception.

**RVRS** Displays message in reverse video.

**UNDR** Underscores message.

**NONE** Uses the default extended highlight attributes.

*Note:* If you do not set color and highlighting attributes for the box, OMEGAMON XE for DB2 PE uses those that you set for the exception.

**THRESHOLD Parameters**

**Threshold**
Exception threshold. For exceptions that monitor an action, not a value, this setting is N/A.

**Display**
Sets the exception message display color or intensity.

The variables *Clr1* through *Clr7* specify the exception display color. Set the associated values with the Set Display Options panel.

On terminals that use extended color support (set with the XACB Display Options field on the Set Display Options panel), the color codes are:

- **RE** Sets message red.
- **BL** Sets message blue.
- **YE** Sets message yellow.
- **PI** Sets message pink.
- **GR** Sets message green.
- **TU** Sets message turquoise.
- **WH** Sets message white.
- **NONE** Specifies the hardware default colors.

On terminals that do not use extended color support, the intensity can be:

- **HI** Highlights the message.
- **LO** Does not highlight the message.

**Attribute**
For 7-color terminals, sets one of the following extended highlight attribute (with extended color support) for the exception.

**BLINK**
Turns on blinking for the exception.

**RVRS** Displays message in reverse video.

**UNDR** Underscores message.
NONE
Uses the default extended highlight attributes.

**CYCLE Parameters**

ExNcyc
Sets the frequency for checking the exception at every \( n \) OMEGAMON cycles. If this parameter is set to 0 or 1, exception checking will occur during every OMEGAMON cycle. If this field is set to a higher number, exception checking will only occur each time the specified number of cycles elapses. The default setting for ExNcyc is 0.

Stop
Sets a monitoring limit for an exception to \( n \) trips. After the exception trips \( n \) times, the exception will not monitor or display it during the current OMEGAMON XE for DB2 PE session, unless you reset this parameter. The (\( m \)) value indicates the number of times the exception has already tripped since you last reset the STOP parameter. The default value for STOP is 0, which means that there is no limit to the number of times the exception can be tested and displayed.

Cumulative
Indicates how many times the exception has tripped during the current OMEGAMON XE for DB2 PE session.

**XLF Parameters**

Auto
Controls the status of ASF (automated panel facility) for this exception. Can be ON or OFF.

Log
Controls the status of XLF (Exception Logging Facility) for this exception. Can be ON or OFF.

Limit
Limits the number of times XLF or ASF is invoked if the exception occurs. If you enter 0, no events are logged. If you enter NONE, the exception invokes XLF and/or ASF each time the exception occurs.

The number that is displayed in parentheses is the number of invocations remaining before the limit is reached. If Limit is NONE, the parenthetical value is not displayed, because there is no limit to the number of invocations.

Repeat
Specifies that the exception is to be logged each time the PERSIST threshold is reached (YES), or that it is to be logged only the first time the PERSIST threshold is reached (NO).

Persist
Specifies the number of OMEGAMON XE for DB2 PE cycles during which the exception must trip before XLF or ASF logs the exception and/or detail panel.

SS/SL
This parameter might first be displayed on your panel as SS. Change the parameter to SL for proper logging.
- SS specifies the screen space to invoke if ASF is in effect.
- SL logs the screen space execution on the REPORT LOG.

The following panels have been predefined for this purpose:

**ZCILOG**
Details about the CICS exceptions.
Exception Rules

Note that, before OMEGAMON XE for DB2 PE processes exception rules, it applies global exclude rules to exclude threads from all thread exception processing. You can specify your own exclude rules.

For the non-excluded threads OMEGAMON XE for DB2 PE processes rules for an exception in the order in which the rules are numbered on the Rules for an Exception panel. Once a thread meets the criteria of a rule, exception rule processing stops. Therefore, specific rules must precede the more general and inclusive rules. See the online help F1 (Help) for an example.

The following fields are displayed at the bottom of the panel when you select a THREAD type exception:

FUNCTION
Use this field to specify what you want to accomplish. Enter one of the following commands, followed by a rule number in parentheses:

Dis Displays the rules. You can specify a rule number, for example Dis(12), to access a particular rule without using the scroll key. You can specify an asterisk (*), for example Dis(*), to display all rules for an exception.

After rules are displayed, you can change the contents of any field.

Add Adds a new rule or changes the order of existing rules. For example, if you enter Add(03), a new rule is created after rule 2 and all following rules are renumbered.

Del Deletes a rule. For example, if you enter Del(05), rule 5 is deleted and all following rules are renumbered.

To change the order of existing rules, use Add to place the rule where you want it and Del to remove the rule from its previous position.

RULE The rule number.

Use the following thread exception rule parameters to specify the conditions under which you want each exception to trip or to be excluded.

PLAN The plan names for which this exception will trip.

AUTHID The authorization ID for which this exception will trip.

CONNTYPE The connection type for which this exception will trip. Possible values:

• Batch
- CICS
- Dist(ributed)
- IMS
- TSO
- Utility

CICSTRAN
The CICS transaction ID for which this exception will trip.
If you specify this parameter, you must also specify CONNTYPE=CICS.

CICSCONN
The CICS task name (job name) for which this exception will trip.
If you specify this parameter, you must also specify CONNTYPE=CICS.

PSBNAME
The IMS PSB name for which this exception will trip.
If you specify this parameter, you must also specify CONNTYPE=IMS.

IMSID
The IMS subsystem name for which this exception will trip.
If you specify this parameter, you must also specify CONNTYPE=IMS.

PACKDBRM
The name of the package or DBRM for which this exception will trip.

PAKCOLID
The name of the collection for which this exception will trip.

CORRID
The name of the correlation ID for which this exception will trip.

REQLOC
The name of the requesting location for which this exception will trip.

THRDTYPE
The number from the following list for which this exception will trip:
- 1 - normal threads
- 2 - allied distributed threads
- 3 - command threads
- 4 - distributed database access threads
- 5 - INDOUBT threads
- 6 - parallel task threads
- 8 - system threads

THRESHOLD
The threshold that the exception is to use. This value will override the value set with the XACB command.

EXCLUDE
Specifies whether to exclude thread exceptions with specified criteria from exception analysis reporting.
YES Excludes all thread exceptions with the specified parameters.
NO Includes all thread exceptions with the specified parameters.
Using Masking Characters

Masking is possible on the following fields:
- PLAN
- AUTHID
- CICSTRAN
- CICSCONN
- PSBNAME
- IMSID

Two types of masking are possible:
- A generic mask is defined by using an asterisk (*). This type of mask is used if you want to mask the first character or more of the field. For example, ABC* allows any value for that field that begins with the characters ABC.
- A single-character replacement mask is defined by using one or more question marks (?). This type of mask is used if specific positions within a field are to be masked. For example, MY???PLN allows for any characters in the places of the question marks. A possible value would be MY_ACT_PLN.

Detailed Exception Rules Example

This example explains the rules that you can define for ETIM exceptions. The ETIM exception critical threshold is 600 seconds. You notice that KO2PLAN threads are frequently tripping this threshold. Because it is normal for these threads to stay active for long periods of time, you are not concerned about their elapsed time.

To qualify the threads that cause this exception to trip, you can set up the following rules:

To qualify the threads that cause this exception to trip, you can set up the following rules:

<table>
<thead>
<tr>
<th>Rule</th>
<th>Plan</th>
<th>Authid</th>
<th>Conn</th>
<th>Threshold</th>
<th>Excl</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>KO2PLAN</td>
<td>OMEUSER</td>
<td>BATCH</td>
<td>300</td>
<td>NO</td>
</tr>
<tr>
<td>02</td>
<td>BATCH</td>
<td>1200</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>KO2PLAN</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Rule 1 identifies the group of threads for plan KO2PLAN. Because these jobs run fast, you specify the critical threshold as 300 seconds.
- Rule 2 specifies that the threshold for all other batch threads should have a much higher threshold of 1200 seconds.
- Rule 3 specifies that all remaining KO2PLAN threads are to be excluded from this exception.

The default critical ETIM threshold for all threads not affected by these rules is still 600 seconds.

If you would reverse the order of rules 1 and 3, rule 1 would nullify the criteria in rule 3 and would exclude all KO2PLAN threads from this exception.

If you would reverse the order of rules 1 and 2, the threshold of 1200 seconds for all batch threads would nullify the threshold of 300 seconds for the KO2PLAN batch threads.
List Profiles
This panel shows a list of all panel profiles available for use.

<table>
<thead>
<tr>
<th>ZLIST</th>
<th>VTM</th>
<th>O2</th>
<th>V540.#P</th>
<th>DA41</th>
<th>11/06/13 11:27:15 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Help PF1</td>
<td>Back PF3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; P.C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

> PPRF LIST
> RKO2PSV  DSN=SYSIPMD.O310.V540.SE12.RKO2PSV
> Dataset empty
> RKO2PROF  (Dup.)  DSN=SYSIPMD.O310.V540.SE12.RKO2PROF
> RKO2PROF +01  DSN=SYSIPMD.O310.V540.SE12.RKO2PROF
>
<table>
<thead>
<tr>
<th>Profile ID</th>
<th>Description</th>
<th>Date Modified</th>
</tr>
</thead>
<tbody>
<tr>
<td>O2USER#P</td>
<td>USER PROFILE</td>
<td>10/04/10</td>
</tr>
</tbody>
</table>

Navigation
For additional information about other topics, use the PF keys.

Fields
PPRF LIST
Lists the installation profile and all user profiles available for use.

Describe a Profile
This panel allows you to add a one-line description to a profile.

<table>
<thead>
<tr>
<th>ZDESC</th>
<th>VTM</th>
<th>O2</th>
<th>V540.#P</th>
<th>DA41</th>
<th>11/06/13 11:27:58 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Help PF1</td>
<td>Back PF3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; P.D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

> To add a description to this profile, type the description between the single quotes that follow the colon on the last line. Press ENTER to record the change. To save the description with this profile, select SAVE USER or SAVE INSTALL from the Profile Maintenance Menu.

PPRF COMMENT
: 'USER PROFILE'

Navigation
For additional information about other topics, use the PF keys.

Fields
PPRF COMMENT
Adds a 1-line description to the current profile.

You must save the description in a profile for it will be displayed on the List Profiles panel. To save a description in a user profile, use the Save
New/Altered User Profile panel. To save a description with the installation profile, use the Save New/Altered Installation panel.

**Save New/Altered User Profile**
Use this panel to save a new or altered user profile. A saved user profile can be used in subsequent OMEGAMON XE for DB2 PE sessions.

You can change the setting of any user profile at any time during an OMEGAMON XE for DB2 PE session. OMEGAMON XE for DB2 PE only uses the changed setting during the current session.

If you want to use the changed settings during another OMEGAMON XE for DB2 PE session, save the profile by using the Save New/Altered User Profile panel.

---

**Navigation**

For additional options, use the PF keys.

**Fields**

**PPRF SAVE**

Saves the specified user profile. To specify a user profile, type a space followed by the profile's 2-character suffix after PPRF SAVE and press Enter. You can specify this suffix in the USER= startup parameter to start subsequent sessions.

When you press Enter, OMEGAMON XE for DB2 PE examines whether a profile with the specified name exists. If the profile does not exist, OMEGAMON XE for DB2 PE saves the profile with the specified name. If such a profile already exists, OMEGAMON XE for DB2 PE displays a confirmation panel, whether you want to replace the existing profile.

OMEGAMON XE for DB2 PE saves the profile in the rhilev.RKO2PFSV data set. However, OMEGAMON XE for DB2 PE does not permit to change the /C profile.
Delete User Profile

Use this panel to delete a user profile.

To delete the user profile, space over the comment character (>) that precedes PPRF DELETE. Then, type a space followed by the profile's 2-character suffix after PPRF DELETE. Press ENTER to record the change.

Navigation

For additional options, use the PF keys.

Fields

PPRF DELETE

Deletes the specified user profile.

To delete a user profile, type a space followed by the profile's 2-character suffix after PPRF DELETE and press Enter.

When you press Enter, OMEGAMON XE for DB2 PE examines whether a profile with the specified name exists. If the profile exists, you are asked to confirm the delete request. If the profile does not exist, OMEGAMON XE for DB2 PE displays a message. However, OMEGAMON XE for DB2 PE does not permit to delete the /C profile.

You can delete a profile at any time. An active session is not affected if the corresponding profile is deleted.

Save New/Altered Installation Profile

Use this panel to save a new or altered installation profile. A saved installation profile can be used in subsequent OMEGAMON XE for DB2 PE sessions.

You can change the setting of the installation profile at any time during an OMEGAMON XE for DB2 PE session. OMEGAMON XE for DB2 PE only uses the changed setting during the current session.

If you want to use the changed settings again during another OMEGAMON XE for DB2 PE session, save the profile by using the Save New/Altered Installation Profile panel.
Because this panel contains options that can have a great effect on the system, this panel might require special authorization. If OMEGAMON XE for DB2 PE prompts you for authorization, first type /PWD on the top line of the panel. Then type your password and press Enter.

**Navigation**

For additional options, use the PF keys.

**Fields**

**IPRF SAVE**

Saves the installation profile.

When you space over the comment character (replace it by a space character) and press Enter, OMEGAMON XE for DB2 PE displays a confirmation panel, whether you want to save the installation profile. Profiles that are saved with this panel automatically get the profile prefix /I).

**Delete Installation Profile**

Use this panel to delete the installation profile.

```
>IPRF DELETE
```

Because this panel contains options that can have a great effect on the system, this panel might require special authorization. If OMEGAMON XE for DB2 PE prompts you for authorization, first type /PWD on the top line of the panel. Then type your password and press Enter.

**Navigation**

For additional information about other topics, use the PF keys.

**Fields**

**IPRF DELETE**

Deletes the installation profile.

When you space over the comment character (replace it by a space character) and press Enter, OMEGAMON XE for DB2 PE asks you to confirm that you want to delete the installation profile. However, OMEGAMON XE for DB2 PE does not permit to delete the /C profile.

You can delete a profile at any time. An active session is not affected if the corresponding profile is deleted.
Change Profile
Use this panel to change the currently used profile to a different one.

Because this panel contains options that can have a great effect on the system, this panel might require special authorization. If OMEGAMON XE for DB2 PE prompts you for authorization, first type /PWD on the top line of the panel. Then type your password and press Enter.

Navigation
For additional information about other topics, use the PF keys.

Fields
CPRF xx
Changes the profile.

When you space over the comment character (replace it by a space character) and press Enter, OMEGAMON XE for DB2 PE asks you to confirm that you want to change the currently used profile.

Exception Logging menu
This menu provides navigation options to panels on which you can set printer and routing options for XLF and ASF.

In addition, this menu includes selections that turn logging on and off and cause the logs to be printed. (These selections do not navigate to other panels, but a message will be displayed on the menu to inform you that the action you requested has been performed, for example, EXCEPTION LOGGING FACILITY IS ON.)
Enter a selection letter on the top line.

EXCEPTION LOGGING

To log specific exceptions, first select the exception options from the Profile menu. For the exceptions you want to log, set LOG=ON for XLF and AUTO=ON for ASF. The screen named in the SL field will be logged when ASF is activated below and the specified exceptions are tripped.

A XLF OPTIONS ....... Set Exception Logging Facility printer/routing options
B XLF ON ............ Turn on Exception Logging Facility
C XLF OFF ............ Turn off Exception Logging Facility
D XLF PRINT ........ Print Exception Logging Facility log (XLFLOG)
E ASF OPTIONS ....... Set Automatic Screen Facility printer/routing options
F ASF ON ............ Turn on Automatic Screen Facility
G ASF OFF ............ Turn off Automatic Screen Facility
H ASF PRINT ........ Print Automatic Screen Facility log (REPORT)

Navigation

For additional options
• select one of the options from the menu.
• use the PF keys.

Set XLF Printer and Routing Options

Use this panel to set options that control how the Exception Logging Facility logs exception messages.

Note: If you selected option E (ASF Options) from the Exception Logging Menu, a panel very similar to this one is displayed. The option settings on the Set ASF Printer and Routing Options panel reflect the settings on the Set Printer and Routing Options panel (see “Set Printer and Routing Options” on page 1494). That is, there are two sets of options: one for exception logging (XLF) and one for all other output logging (including ASF).
Navigation

For additional options, use the PF keys.

Fields

To modify an option, move the cursor between the name of the setting you want to change and the **Pending** column, type the new value, and press Enter. To save your changes, delete the comment character (>) next to .XLFOUT and press Enter. This releases the current log, moves the **Pending** values to the **Current** column, and reallocates the log using the new values.

**Note:** When a value is displayed within parentheses, it means that the field is inactive.

**.XLFOUT**

Prints the current log and leaves it open. OMEGAMON XE for DB2 PE places a comment character (>) next to .XLFOUT so that the log is reset only on cycles when you remove the comment character (>).

**copy** The number of copies to print.

**ddnm** Overrides the standard OMEGAMON XE for DB2 PE ddname. When ddnm is active, sout and its related parameters (copy, dest, dstu, form, and hold) are inactive. The ddname must be allocated within the O2CI started task JCL.

**dest** The destination to receive the report. The default is NONE, which sends the output to the local printer. The device can be a terminal, a node, a remote workstation, a local device or group of devices, or a user ID.

**dstu** The destination user ID to receive the report.

**fold** Changes lowercase characters to uppercase. The default is YES.

**form** The name of the form on which to print. The default is NONE. This means

---

<table>
<thead>
<tr>
<th>Option</th>
<th>Pending</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>copy</td>
<td>1</td>
<td>(+DYNAMIC)</td>
</tr>
<tr>
<td>ddnm</td>
<td>+NONE+</td>
<td>+NONE+</td>
</tr>
<tr>
<td>dest</td>
<td>+None*</td>
<td>+None*</td>
</tr>
<tr>
<td>dstu</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>hold</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>id1</td>
<td>'USER'</td>
<td>'USER'</td>
</tr>
<tr>
<td>id2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>id3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>id4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lnc</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>sout</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>

---

*IBM Db2 Performance Expert on z/OS*
that OMEGAMON XE for DB2 PE uses the form defined as your installation’s default. If you change NONE to some other value (such as HOLE), you can type an asterisk (*) to return to NONE.

**hold** Specifies that the output be placed in the hold queue. The default is NO.

**id1** Requests separator pages and page headers that identify output from different OMEGAMON XE for DB2 PE sessions.

**id2** Defines up to 16 characters to be shown on the left of the separator page, justified below the ID1 heading. ID1 must be set to use ID2.

**id3** Defines up to 16 characters to be shown centered on the separator page, below the ID1 heading. ID1 must be set to use ID3.

**id4** Defines up to 16 characters to be shown on the right of the separator page, justified below the ID1 heading. ID1 must be set to use ID4.

**lnct** Sets the XLFLOG file line count. The default is 60 lines.

**sout** Specifies the SYSOUT class for the output.

### Set DB2/IRLM Messages that MSGE Exception Monitors

Use this panel to add or delete the DB2 and IRLM messages that you want the MSGE exception to monitor.

<table>
<thead>
<tr>
<th>XMSG</th>
<th>VTM</th>
<th>O2</th>
<th>V540.4P DA41 11/06/13 11:36:53 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;</td>
<td>Help PF1 Back PF3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; P.J</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

> SET DB2/IRLM MESSAGES THAT MSGE EXCEPTION MONITORS

> To add a DB2 or IRLM message to the list shown below, type its message identifier, which can be up to 8 characters, on the broken line next to Add=. To delete a message, type its identifier next to Delete=. Press ENTER to record the change.

XMSG

+ DSN001I DSN010E DSN011E DSN025W DSX030W DSX050N DSX051N
+ DSX052N DSX053N

: Add =
: Delete =

> ===---------------------------------------------------------------------

### Navigation

For additional information about other topics, use the PF keys.

### Fields

**XMSG**

The lines below XMSG define the IDs of the DB2 and Internal Resource Lock Manager (IRLM) messages that OMEGAMON XE for DB2 PE exception analysis is tracking.

**Add** Type the ID of an additional DB2 or IRLM message that you want OMEGAMON XE for DB2 PE exception analysis to track, and press Enter. You can add more than one ID at a time by typing the IDs on the Add line with a space between them.

**Note:** If you want to add a group of messages that have the same initial characters, you can save time by entering only those characters. For example, if you enter DSN, XMSG will monitor all messages that begin with DSN.
Delete  Type the ID of a DB2 or IRLM message that you no longer want OMEGAMON XE for DB2 PE exception analysis to track and press Enter. You can delete more than one ID at a time by typing the IDs on the Delete line with a space between them.

Note: If you want to delete a group of messages that have the same initial characters, you can save time by entering only those characters. For example, if you enter DSN, XMSG will no longer monitor messages that begin with DSN.

Filter Options For Thread Activity Displays
Use this panel to save filter criteria to a specified profile, to activate a different profile, or to specify filter criteria that you want to use in the thread activity panels for the remainder of the session. You can use these filtering options together with the thread commands. If more than one parameter is specified, the requests are connected using a logical AND operator. To specify a reset, type character R in column 1 in front of THFL.

To view this panel select option L on panel “Profile Maintenance menu” on page 1488. The content of this panel is identical to panel “Filter Options For Thread Activity Displays” on page 1069.
Thread Filtering Specification

===============================================================================
Filter Options For Threads
> To save filters in the user profile remove the > from the PPRF command and
> optionally add a 2 character profile suffix. Use IPRF for install profile
> PPRF SAVE
> To change profiles remove the > from the CPRF command and enter the 2
> character suffix. Use CPFI to switch to installation profile
> CPRF xx
> TFL
>
+ Specify the values to be used as filtering criteria for Thread
+ Activity displays. Wildcard values * (multiple characters) or
+ ? (single character) may be specified for character values.
>
+ Specify the following filters to be applied within DB2
+ :
  PLAN     = _______ (plan name)
  AUTHID   = _______ (authorization id)
  CONNID   = _______ (connection id)
  LOCATION = ___________ (location)
  PARENTACE= _______ (parent ace for parallel tasks)
  CORRID   = _______ (correlation id)
  ENDUSERID= _______ (end user id)
  WORKSTATION= ___________ (workstation)
  TRANSACTIONID= ___________ (transaction id)
+ Specify the following filters to be applied within OMEGAMON
+ :
  PACKAGE/DBRM = _______ (name )
  COLLECTION   = ___________ (collect id)
  DB2STAT      = ___________ (db2 status)
  GETPAGES     > _______ (number of getpages)
  UPDATES      > _______ (number of page updates)
  COMMITS      > _______ (number of commits)
  ELAPTIME     > _______ (elapsed time - in seconds)
  ELAPTIME/COMMIT> _______ (elapsed time per commit)
  DB2TIME      > _______ (In DB2 time - in seconds)
  DB2TIME/COMMIT> _______ (In DB2 time per commit)
  PROCESSINGINDB2 = ___ (Status Active in DB2)
  THREADLIM    = _______ (Limit on number of threads returned)
===============================================================================

Fields

Note: For details about operators and wildcard characters use online help F1 (Help). Most fields are only applicable for active threads.

The following fields enable OMEGAMON XE for DB2 PE to send filters to DB2 as well as to apply “post-filtering” of data returned from DB2. These filters can improve the performance in your environment.

The following fields provide filtering within DB2:

**PLAN**  The DB2 plan name of the active thread. You can specify up to 8 characters.

**AUTHID**  The DB2 thread authorization identifier of the active thread. You can specify up to 8 characters.

**CONNID**  The DB2 connection identifier of the active thread. You can specify up to 8 characters.
LOCATION
The name of the location requesting information. You can specify up to 16 characters. The field will either filter on the requesting location (QW01488L, for example, for distributed database access threads), or the DB2 location (QW0148LN) if the requesting location field is not filled by DB2.

PARENTACE
The agent control element (ACE) token. Specify the parent ACE for the parallel task. You can specify up to 8 digits. A value of 0 filters out child parallel tasks from the Thread Activity displays.

CORRID
The correlation identifier. You can specify up to 12 characters. If the application requestor is a DB2 system, this is the same correlation ID assigned at the requestor. If the application requestor is not DB2, this is the name of the job, task, or process that is being serviced.

Note: This field is case sensitive. It is not converted to uppercase.

ENDUSERID
The end user's work station user ID. You can specify up to 16 characters. This can be different from the authorization ID used to connect to DB2. It contains blanks if the client does not supply this information.

Note: This field is case sensitive. It is not converted to uppercase.

WORKSTATION
The workstation identifier. You can specify up to 18 characters. It contains blanks if the client does not supply this information.

Note: This field is case sensitive. It is not converted to uppercase.

TRANSACTIONID
The name of the transaction or application that the end user is running. It identifies the application that is currently running, not the product that is used to run the application. You can specify up to 32 characters. This field contains blanks if the client does not supply this information.

Note: This field is case sensitive. It is not converted to uppercase.

The following fields enable filtering of the data returned from DB2 and are applied by OMEGAMON XE for DB2 PE:

PACKAGE/DBRM
The DB2 package name or DBRM name of the active thread. You can specify up to 8 characters.

COLLECTION
The package collection identifier of the active thread. You can specify up to 18 characters.

DB2STAT
The DB2 status. You can specify up to 12 characters. For definitions of all possible status values, see "DB2 Thread Status".

GETPAGES
The number of Getpage requests issued by the active thread since thread creation. You can specify up to 9 digits.
**UPDATES**
The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2’s internal Deferred Write algorithm, not immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative. This file is applicable for active threads only. You can specify up to 9 digits.

**COMMITS**
The number of times the thread successfully completed commit processing. DB2 resets the commit count at thread create and signon. If Signon is not driven, the count is cumulative. You can specify up to 9 digits.

**ELAPTIME**
The elapsed time since thread creation. You can specify up to 9 digits.

**ELAPTIME/COMMIT**
Average elapsed time between commits. If the number of commits is zero this field is the same as ELAPTIME. You can specify up to 9 digits.

**DB2TIME**
The total In-DB2 elapsed time in seconds for an active thread. You can specify up to 9 digits.

**DB2TIME/COMMIT**
Average In-DB2 elapsed time between commits. If the number of commits is zero this field is the same as DB2TIME. You can specify up to 9 digits.

**PROCESSING-IN-DB2**
Values YES, NO or blank.

**YES**
Only threads that are in a status that is active in DB2 are shown. If a thread is executing in the application it is not shown. The following thread statuses are processing in DB2:

- IN-DB2
- IN-TRIGGER
- IN-COMMAND
- IN-STOR-PROC
- IN-USER-FUNC
- IN-TERM-THRD
- WAIT-LOCK
- WAIT-GLBLOCK
- WAIT-MSGSEND
- WAIT-ARCHIVE
- WAIT-REMSQL
- WAIT-CONVLIM
- WAIT-TERM-TH
- WAIT-SP-STOP
- WAIT-SP-SCHD
- SP/UDF-INACT
- WAIT-SYNC-IO
- WAIT-SERVICE
- WAIT-ASYNCRD
- WAIT-ASYNCWR
- WAIT-LOGQSCE
- WAIT-PGLATCH
- WAIT-DRNLOCK
- WAIT-CLAIMER
- WAIT-ARCREAD
- WAIT-LOCKPIP
- WAIT-LOCKPQS
- WAIT-SWITCH
- WAIT-ACCEL
- WAIT-LOB
- WAIT-COMMIT
- WAIT-CL3LOCK
- IN-SQL-SORT
- IN-SQL-CALL
- WAIT-REMREQ
- IN-BIND-DYNM
- IN-ACCEL
- IN-AUTO-PROC

**NO** Only threads that are not in an active status in DB2 are shown.

**Blank** This filter is not used.

Threads accelerated by the IBM Db2 Analytics Accelerator for z/OS are considered as being processed in DB2.

**THREADLIM**
A numeric value causing OMEGAMON XE for DB2 PE to stop retrieving instrumentation records from DB2. This field can have a positive impact on realtime and system performance, but can also result in an incomplete thread list if it is less than the number of threads actually running in DB2 at the time the list is retrieved. The default setting (blank or 0) allows all records retrieved by DB2 to flow to OMEGAMON XE for DB2 PE. You can specify up to 9 digits.

**Near-term history information**
OMEGAMON XE for DB2 PE shows near-term history information about statistics and thread activities that were completed in the near past (opposed to snapshot information, which is periodically gathered and might even report information about currently active tasks).

Near-term history information is gathered and stored by the Near-Term History Data Collector of OMEGAMON XE for DB2 PE. Up to 96 intervals of recent DB2 activities can be stored. OMEGAMON XE for DB2 PE continuously deletes the oldest data to maintain the most recent intervals. The Configuration Tool is used to specify the intervals per hour and the maximum number of hours that data should be gathered and stored.

**Note:** To view near-term history information online, the Near-Term History Data Collector must be running. For instructions on starting the Near-Term History Data Collector, see [Configuration and Customization](#).

There are two panels for each type (for example, buffer pool) of near-term history data. One panel provides information for all the report intervals in storage. The other panel can be used to zoom in on one interval at a time for detailed information.
Near-term history data is stored in main memory, so it is available to all OMEGAMON XE for DB2 PE sessions as long as the Near-Term History Data Collector is running. If the collector is stopped and restarted, the near-term history data buckets will be empty and ready to begin saving data again.

Besides near-term history information, select this menu path for information about the Near-Term History Data Collector. One panel shows the current collection options (for example, collection interval and data storage selections). The other panel provides information about the data that has been collected since the Near-Term History Data Collector was started.

**Near-Term History Information menu**

This menu provides access to panels that display information about near-term history statistics, near-term thread history, and the Near-Term History Data Collector.

```
> ZHIST VTM 02 V540.4P DA41 11/06/13 11:38:53 2
> Help PF1
> H.

> Enter a selection letter on the top line.
> NEAR-TERM HISTORY INFORMATION MENU

A STATISTICS ............ Near-Term History Statistics Information
B THREAD HISTORY........ Near-Term Thread History Information
C COLLECTOR INFORMATION .. Near-Term History Data Collector Information
```

**Navigation**

The Near-Term History Information menu displays navigation options to other panels.

**Statistics**

Provides access to the following near-term history statistics information:

- “Subsystem Support Manager Statistics Summary by Report Interval” on page 1521
- “Subsystem Support Manager Statistics Detail” on page 1522
- “Bind Statistics Summary by Report Interval” on page 1525
- “Bind Statistics Detail” on page 1526
- “Buffer Pool Statistics Summary by Report Interval” on page 1529
- “Buffer Pool Statistics Detail” on page 1531
- “Group Buffer Pool Statistics Summary by Report Interval” on page 1540
- “Group Buffer Pool Statistics Detail” on page 1541
- “Distributed Data Facility Statistics Summary by Report Interval” on page 1545
Thread History

Provides access to the following near-term thread history information:

- "Near-Term Thread History Filter Options" on page 1606
- "Near-Term Thread History Filter Options - Confirmation" on page 1609
- "Thread History By Report Interval" on page 1611
- "Thread History By Plan" on page 1613
- "Thread History By Authid" on page 1615
- "Thread History By Plan, Authid" on page 1616
- "Thread History By Authid, Plan" on page 1618
- "Thread History Summary" on page 1621
- "Thread History By Subinterval" on page 1624
- "Thread History By Correlation ID" on page 1626
- "Thread History Buffer Pool Summary" on page 1628
- "Thread History DB2 Time Summary" on page 1629
- "Thread History DB2 Lock/Scan/Sort Summary" on page 1631
- "Thread History Times Summary" on page 1633
- "Thread History Detail" on page 1634
- "Thread History Lock Waits" on page 1641
- "Thread History Lock/Claim/Drain Activity" on page 1651
- "Thread History Global Lock Activity" on page 1653
- "Thread History SQL Counts" on page 1660
- "Thread History Dynamic SQL Calls" on page 1656
- "Thread History Buffer Pool Activity" on page 1672
- "Thread History Resource Limit Statistics" on page 1675
- "Thread History Distributed Activity" on page 1677
- "Thread History Package Summary" on page 1682
- "Thread History Package Detail" on page 1684
- "Thread History Sort and Scan Activity" on page 1689
- "Thread History Group Buffer Pool Activity" on page 1692
Collector Information

Provides access to information about the activity of the current Near-Term History Data Collector and about the records that have been collected.

- “Near-Term History Data Collection Options” on page 1698
- “Near-Term History Data Record Information” on page 1700
- “Near-Term History Data Collector Dataset Status” on page 1702

Subsystem Support Manager Statistics Summary by Report Interval

This panel provides an overview of the DB2 activity that was recorded during a series of report intervals.

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Collection Interval</th>
<th>Report Interval</th>
<th>Combine Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/06 09:39</td>
<td>11/06 11:39</td>
<td>1 min</td>
<td>1 min</td>
<td>NONE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interval</th>
<th>Create Thread/Minute</th>
<th>Total Commit/Minute</th>
<th>Total Aborted Commits</th>
<th>Reqs</th>
<th>Cthread</th>
<th>Queued</th>
<th>Indoubt Threads</th>
<th>EOT+EOM Abends</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/06 11:39</td>
<td>0.00</td>
<td>43.00</td>
<td>86</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11/06 11:37</td>
<td>0.00</td>
<td>74.00</td>
<td>74</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11/06 11:36</td>
<td>0.00</td>
<td>72.00</td>
<td>72</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11/06 11:35</td>
<td>0.00</td>
<td>74.00</td>
<td>74</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11/06 11:34</td>
<td>0.00</td>
<td>72.00</td>
<td>72</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11/06 11:33</td>
<td>0.00</td>
<td>74.00</td>
<td>74</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11/06 11:32</td>
<td>0.00</td>
<td>72.00</td>
<td>72</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11/06 11:31</td>
<td>0.00</td>
<td>74.00</td>
<td>74</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11/06 11:30</td>
<td>0.00</td>
<td>72.00</td>
<td>72</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Navigation

For additional information about

- a report interval, move the cursor to the line you want and press F11 (Zoom). (Each date/time displayed reflects the end of an interval.)
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

Fields

Collection Interval

The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start

The start time of the first interval in this display.
Report Interval
This field determines the report interval. It is set on the Near-Term History Report Option panel.

Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

- **HOURLY**
  Data will be reported in hourly intervals.
- **NONE**
  Data will be reported in the time unit specified by the collection interval.

End
The end time of the last interval in this display.

Interval
Provides the date and time that mark the end of the report interval.

Create Thread/Minute
The number of successful Create Thread requests per minute.

Total Commit/Minute
The number of commit requests per minute.

Total Commits
Includes read-only, single-phase, and phase 2 commit requests.

Abort Reqs
The number of events that resulted in successfully backing out a unit of recovery.

Queued at Cthread
The number of Create Thread requests that had to wait because no thread was available.

Indoubt Threads
The number of indoubt threads. A unit of recovery (thread) goes indoubt when a failure occurs between commit phase 1 and commit phase 2.

EOT+EOM Abends
The total number of end-of-task and end-of-memory abends.

Subsystem Support Manager Statistics Detail:
This panel shows detailed information about DB2 activity during a selected report interval, including statistics related to Create Thread, Signon, Commit, and abnormal termination activity.
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Collection Interval
The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start  The start time of the interval currently displayed.

Report Interval
This field determines the report interval. It is set on the Near-Term History Report Option panel.
Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

**HOURLY**
Data will be reported in hourly intervals.

**NONE**
Data will be reported in the time unit specified by the collection interval.

End
The end time of the interval currently displayed.

Identify Requests
Successful connections to DB2 from an allied address space.

Signon Requests
Successful requests to identify a new user for IMS or CICS. Thread Signon processing is applicable only in CICS-DB2 and IMS-DB2 attachment environments.

Create Thread Requests
Successful Create Thread requests.

Create Thread Waits
Create thread requests that had to wait because no thread was available.

Terminate Thread Requests
Successful thread terminations.

Single Phase Commit Requests
Successful commit requests that took place in a single-phase commit environment, for example, TSO.

Read Only Commit Requests
A read-only commit occurs if no DB2 resources have been changed since the last commit for IMS or CICS applications. DB2 performs both phases of the commit process during phase 1.

Commit Phase 1 Requests
Commit phase 1 requests in a two-phase-commit environment, for example, CICS and IMS.

Commit Phase 2 Requests
Commit phase 2 requests in a two-phase-commit environment, for example, CICS and IMS.

Abort Requests
Events that resulted in successfully backing out a unit of recovery.

Total Commit Requests
Includes single-phase, read-only, and phase 2 commit requests.

Indoubt Threads
The number of indoubt threads. A thread goes indoubt when a failure occurs between commit phase 1 and commit phase 2.

Indoubts Resolved
Successful resolutions, either automatic or manual, of indoubt threads.

Abends Detected - End of Task
Tasks that abended while connected to DB2.
Abends Detected - End of Memory
The number of times a non-DB2 address space was deleted by MVS while connected to DB2.

High Water Mark for IDFORE
The maximum number of users that are identified to DB2 from TSO foreground at the same time.

High Water Mark for IDBACK
The maximum number of concurrent connections identified to DB2 from batch.

High Water Mark for CTHREAD
The maximum number of allied threads that are allocated concurrently.

Bind Statistics Summary by Report Interval
This panel provides an overview of the bind activity that was recorded during a series of report intervals.

Navigation
For additional information about
• a report interval, move the cursor to the required line and press F11 (Zoom).
  (Each date/time displayed reflects the end of an interval.)
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields
Collection Interval
The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.
Start  The start time of the first interval in this display.

Report Interval  
This field determines the report interval. It is set on the Near-Term History Report Option panel.

Combine Level  
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

- **HOURLY**  
  Data will be reported in hourly intervals.

- **NONE**  
  Data will be reported in the time unit specified by the collection interval.

End  The end time of the last interval in this display.

Interval  Provides the date and time that mark the end of the report interval.

Auto Bind Attempt  
The number of times an automatic bind was attempted.

Auto Bind Success  
The number of times an automatic bind attempt succeeded.

Static Bind Attempt  
The number of bind subcommands issued, including the Bind Add and Bind Replace subcommands for plans or packages.

Static Bind Success  
The number of bind subcommands that succeeded.

Rebind Attempt  
The number of attempts to rebind a plan or package.

Rebind Success  
The number of successful attempts to rebind a plan or package.

Free Attempt  
The number of attempts to free a plan or package.

Free Success  
The number of successful attempts to free a plan or package.

Bind Statistics Detail:

This panel shows detailed information about bind activity during a selected report interval.
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Collection Interval
The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start The start time of the interval currently displayed.

Report Interval
This field determines the report interval. It is set on the Near-Term History Report Option panel.
Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

**HOURLY**
Data will be reported in hourly intervals.

**NONE**
Data will be reported in the time unit specified by the collection interval.

End
The end time of the interval currently displayed.

For each of the following fields, the following statistics are provided:

**INTERVAL QUANTITY**
The amount of activities that occur during the interval.

**/MINUTE**
Rate per minute. The number under /MINUTE (in parentheses) is the number of minutes in the interval.

**/THREAD**
Rate per thread. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.

**/COMMIT**
Rate per Commit. The number under /COMMIT (in parentheses) is the number of Commit requests (including abort requests) during the interval.

**Automatic Bind Plan Attempts**
The attempts of DB2 to perform an automatic bind of a plan.

**Automatic Bind Plan Successes**
The successful attempts of DB2 to perform an automatic bind of a plan.

**Automatic Bind Pkg Attempts**
The attempts of DB2 to perform an automatic bind of a package.

**Automatic Bind Pkg Successes**
The successful attempts of DB2 to perform an automatic bind of a package.

**Static Bind Plan Attempts**
Represents the bind plan subcommands issued, including the Bind Plan Add and Bind Plan Replace subcommands.

**Static Bind Plan Successes**
Represents the bind plan subcommands that succeeded.

**Static Bind Pkg Attempts**
Represents the bind package subcommands issued, including the Bind Package Add and Bind Package Replace subcommands.

**Static Bind Pkg Successes**
Represents the bind package subcommands that succeeded.

**Rebind Plan Attempts**
Attempts to rebind a plan.

**Rebind Plan Successes**
Successful attempts to rebind a plan.

**Rebind Pkg Attempts**
Attempts to rebind a package.
Rebind Pkg Successes
Successful attempts to rebind a package.

Free Plan Attempts
Attempts to free a plan.

Free Plan Successes
Successful attempts to free a plan.

Free Pkg Attempts
Attempts to free a package.

Free Pkg Successes
Successful attempts to free a package.

Plan Allocation Attempts
The requests from the attachment facility to DB2 to allocate a bound plan for a user.

Plan Allocation Successes
Successful plan allocation attempts.

Package Allocation Attempts
The requests from the attachment facility to DB2 to allocate a bound package for a user.

Package Allocation Successes
Successful package allocation attempts.

Auth Check Attempts
Authorization checks for all plans.

Auth Check Successes
Successful authorization checks.

Auth Check Using Cache
Successful authorization checks that were performed using cache.

Auth Check Public Authority
Successful authorization checks that were performed based upon execute authority granted to public.

Test binds (No Plan ID)
Bind subcommands that were issued without a plan ID.

Buffer Pool Statistics Summary by Report Interval
This panel provides an overview of the buffer pool activity that was recorded during a series of report intervals.
### Highlighting

OMEGAMON XE for DB2 PE highlights some fields in this panel to draw your attention to their current status:

**Table 117. Highlighted fields in Buffer Pool Statistics Summary by Report Interval panel**

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pages in Use</td>
<td>BMTH</td>
<td>The percentage of pages in use has reached the predetermined threshold.</td>
</tr>
</tbody>
</table>

### Navigation

For additional information about

- another buffer pool, enter the buffer pool ID next to HBPS.
- a report interval, move the cursor to the required line and press F11 (Zoom).
  
  (Each date/time displayed reflects the end of an interval.)
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.
Fields

Collection Interval
The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start
The start time of the first interval in this display.

Report Interval
This field determines the report interval. It is set on the Near-Term History Report Option panel.

Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

HOURLY
Data will be reported in hourly intervals.

NONE
Data will be reported in the time unit specified by the collection interval.

End
The end time of the last interval in this display.

Interval
Provides the date and time that mark the end of the report interval.

Pages in Use
A snapshot value of the current number of nonstealable buffers. A nonstealable buffer is either one which has an outstanding Getpage (that is, someone is currently looking at this page), or one which has been updated and not yet written out to DASD.

Prefetch Requests
The total number of Prefetch requests. This is the sum of Sequential, List, and Dynamic Prefetch requests.

Prefetch Failures
The number of Sequential Prefetch failures for the buffer pool during the interval. This includes failures that occurred because the SPTH threshold was reached and because the maximum number of concurrent prefetches was reached.

Getpages/Sync I/O
The ratio of Getpage requests to synchronized Read I/Os.

Pages/Write I/O
The ratio of page writes to physical I/Os.

DMTH
The number of times the Data Manager threshold was reached.

Buffer Pool Statistics Detail:

This panel provides detailed near-term history information about activity in a specified DB2 buffer pool during a selected report interval.

You can view information about a different buffer pool by entering a buffer pool ID (for example, 1 or 32K) next to HBPD.
ZHPD VTM O2 V540./C SEL1 01/04/16 21:21:08 2
> Help PF1 Back PF3 Up PF7 Down PF8
> Enter a selection letter on the top line.
> A-SUBSYSTEM SUPPORT B-BIND F-BUFFER POOL V-BUFFER POOL
> E-DISTRIBUTED DATABASE F-EDM G-LOG MANAGER H-OPEN/CLOSE
> I-QUAL/QUAL/SPORT J-LOCK/CLAIM/ORAIN K-GLOBAL LOCK L-DB2 COMMANDS
> M-THREAD HISTORY
> BUFFER POOL STATISTICS DETAIL
> HBPD 0
> + Collection Interval: 1 min Start: 07/31 21:20
> + Report Interval: 1 min Combine Level: NONE End: 07/31 21:21
> +
> + Virtual Buffer Pool Size= 5000 VPOOL Frame Size = 4K
> + VPOOL Buffers Allocated = 5000 Minimum VPOOL Size = 0
> + VPOOL Buffers in Use = 29 Maximum VPOOL Size = 0
> +
> + VPOOL Buffers to be Del = 0 Auto Size = N
> + Use Count = 65 Page Fix = N
> + VP Sequential Thresh = 80% Deferred Write Thresh = 30% Vert Deferred Write Thresh = 5%
> + VP Parallel Seq Thresh = 50% Sysplex Parallel Thresh = 0%
> +
> + Getpages per Sync I/O = .00 Pages Written per Write I/O = .00
> + Prefetch per I/O = .00 Pages Read per Prefetch = .00
> + Seq Prefetch per I/O = .00 Pages Read per Seq Prefetch = .00
> + List Prefetch per I/O = .00 Pages Read per List Prefetch = .00
> + Dyn Prefetch per I/O = .00 Pages Read per Dyn Prefetch = .00
> + Max Concur Prefetch = 0 Workfile Maximum = 0
> + BP Hit % - Random = .0% Virtual Page Steal Method = LRU
> + BP Hit % - Sequential = 99.9% Random Getpage Buffer Hit = 337
> + LWM Buffers on SLRU = 316 HighM Buffers on SLRU = 316
>
> +
> + INTERVAL /MINUTE /THREAD /COMMIT
> + QUANTITY ( 1 ) ( 0 ) ( 0 )
> +
> + Getpage Requests 0 .00 .00 .00
> + Getpage Requests - Sequential 0 .00 .00 .00
> + Getpage Req - Seq Ovfl 0 .00 .00 .00 *DB2 12
> + Getpage Requests - Random 0 .00 .00 .00
> + Getpage Req - Random Ovfl 0 .00 .00 .00 *DB2 12
> + Getpage Failed - VPOOL Full 0 .00 .00 .00
> + Getpage Failed - Cond Request 0 .00 .00 .00
> + Getpage Failed - Cond SeqReq 0 .00 .00 .00
> +
> + Sync Read 1/O Operations 00 .00 .00 .00
> + Sync Read 1/O - Sequential 0 .00 .00 .00
> + Sync Read 1/O - Seq Ovfl 0 .00 .00 .00 *DB2 12
> + Sync Read 1/O - Random 00 .00 .00 .00
> + Sync Read 1/O - Random Ovfl 0 .00 .00 .00 *DB2 12
> + Pages Read via Seq Prefetch 0 .00 .00 .00
> + Seq Prefetch 1/O Operations 0 .00 .00 .00
> + Sequential Prefetch Requests 0 .00 .00 .00
> + Pages Read via List Prefetch 0 .00 .00 .00
> + List Prefetch 1/O Operations 0 .00 .00 .00
> + List Prefetch Requests 0 .00 .00 .00
> + Pages Read via Dyn Prefetch 0 .00 .00 .00
> + Dyn Prefetch 1/O Operations 0 .00 .00 .00
> + Dyn Prefetch Requests 0 .00 .00 .00
> + Prefetch Failed - No Buffer 0 .00 .00 .00
> + Prefetch Failed - No Engine 0 .00 .00 .00
Highlighting

OMEGAMON XE for DB2 PE highlights some fields in this panel to draw your attention to their current status:

Table 118. Highlighted fields on Buffer Pool Statistics Detail panel

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Pages in Use</td>
<td>BXPN</td>
<td>The pages in use exceeded the minimum defined.</td>
</tr>
<tr>
<td></td>
<td>BMAX</td>
<td>The pages in use reached the maximum defined.</td>
</tr>
<tr>
<td></td>
<td>BMTH</td>
<td>The percentage of pages in use has reached the predetermined threshold.</td>
</tr>
</tbody>
</table>

Navigation

For additional information about
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.
Fields

Collection Interval
The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start  The start time of the interval currently displayed.

Report Interval
This field determines the report interval. It is set on the Near-Term History Report Option panel.

Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

HOURLY
Data will be reported in hourly intervals.

NONE
Data will be reported in the time unit specified by the collection interval.

End  The end time of the interval currently displayed.

Virtual Buffer Pool Size
The number of buffers allocated for an active virtual buffer pool.

VPOOL Frame Size (QDBPFRAM)
For the Frame Size attribute, you can specify the values 4K, 1M, or 2G.
This applies to DB2 11 and higher.

VPOOL Buffers Allocated
The number of virtual buffer pool pages that were allocated at the end of the interval.

Minimum VPOOL Size (QDBPVPMI)
The VPSIZEMIN attribute.
This applies to DB2 11 and higher.

VPOOL Buffers in Use
The number of virtual buffer pool pages that were in use (nonstealable) at the end of the interval.

Maximum VPOOL Size (QDBPVPMA)
The VPSIZEMAX attribute.
This applies to DB2 11 and higher.

VPOOL Buffers to be Del
The number of pages to be deleted from an active virtual buffer pool as a result of pool contraction.

Auto Size
Determines whether Auto Size is used. You can specify Y (YES) or N (NO).

Use Count
The number of open tablespaces or indexspaces in this buffer pool.

Page Fix
Determines whether a page is fixed in real storage when it is first used. You can specify Y (YES) or N (NO).
VP Sequential Thresh
Sequential Steal threshold for the virtual buffer pool VPSSEQT. The percentage of the virtual buffer pool that might be occupied by sequentially accessed pages. If set to zero, prefetch is disabled.

Vert Deferred Write Thresh
Vertical Deferred Write threshold for the virtual buffer pool VDWQT. The percentage of the buffer pool that might be occupied by updated pages from a single data set.

VP Parallel Seq Thresh
Parallel I/O sequential threshold VPPSEQT. This threshold determines how much of the virtual buffer pool might be used for parallel I/O operations. It is expressed as a percentage of VPSEQT. If set to zero, I/O parallelism is disabled.

Sysplex Parallel Thresh
Virtual buffer pool assisting parallel sequential threshold. This threshold determines how much of the virtual buffer pool might support parallel I/O operations from another DB2 in a data sharing group.

Getpages per Sync I/O
The ratio of Getpage requests to Read I/Os.

Pages Written per Write I/O
The ratio of page writes to physical I/Os.

Prefetch per I/O
The ratio of Prefetch requests to physical I/Os.

Pages Read per Prefetch
The ratio of pages read by Prefetch processing to total Prefetch requests. This includes both Sequential Prefetch and List Prefetch.

Seq Prefetch per I/O
The ratio of pages read by Sequential Prefetch to Sequential Prefetch I/O.

Pages Read per Seq Prefetch
The ratio of pages read by Sequential Prefetch requests to Sequential Prefetch requests.

List Prefetch per I/O
The ratio of List Prefetch requests to List Prefetch I/Os.

Pages Read per List Prefetch
The ratio of pages read by List Prefetch to List Prefetch requests.

Dyn Prefetch per I/O
The ratio of Dynamic Prefetch request to Dynamic Prefetch I/Os.

Pages Read per Dyn Prefetch
The ratio of pages read by Dynamic Prefetch to Dynamic Prefetch request.

Max Concur Prefetch I/O
The highest number of concurrent prefetch I/O streams that were allocated to support I/O parallelism.

Workfile Maximum
The maximum number of workfiles that have been allocated during sort/merge processing.
BP Hit % - Random
The percentage of times that DB2 performed a Getpage operation with a random request and the page was already in the buffer pool. A DASD read was not required.

Virtual Page Steal Method
Determines when and whether performance-critical objects in buffer pools are removed from buffer pools when the space is needed by other objects. Valid values:

- **LRU**  “Least Recently Used” objects are removed first.
- **FIFO**  Oldest objects are removed first (First-In-First-Out).
- **NONE**  Objects are not removed from buffer pool (no page stealing). This setting provides the highest availability for business-critical objects.

BP Hit % - Sequential
The percentage of times that DB2 performed a Getpage operation with a sequential request and the page was already in the buffer pool. A DASD read was not required.

Random Getpage Buffer Hit
The number of times that the random Getpage request has a buffer hit and the buffer is on the least-recently-used (SLRU) chain. DB2 11 and later. (Field name: QBSTRHS)

LWM Buffers on SLRU
The minimum number of buffers on the sequential least-recently-used (SLRU) chain in the last statistical period. This is the low-water mark (LWM) within an interval. DB2 11 and later. (Field name: QBSTSMIN)

HWM Buffers on SLRU
The maximum number of buffers on the sequential least-recently-used (SLRU) chain in the last statistical period. This is the low-water mark (LWM) within an interval. DB2 11 and later. (Field name: QBSTSMAX)

For each of the following fields, the following statistics are provided:

**INTERVAL QUANTITY**
The amount of activities that occur during the interval.

**/MINUTE**
Rate per minute. The number under /MINUTE (in parentheses) is the number of minutes in the interval.

**/THREAD**
Rate per thread. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.

**/COMMIT**
Rate per Commit. The number under /COMMIT (in parentheses) is the number of Commit requests (including abort requests) during the interval.

Getpage Requests
Getpage request operations for the buffer pool during the interval.

Getpage Requests - Sequential
Number of Getpage requests issued by sequential access requestors.

Getpage Requests - Random
Number of Getpage requests issued by random access requestors.
Getpage Requests - Seq Ovfl
The number of sequential GETPAGE requests using overflowed buffers. DB2 12 and later.

Getpage Requests - Random Ovfl
The number of non-sequential GETPAGE requests using overflowed buffers. DB2 12 and later.

Getpage Failed - VPOOL Full
Number of Getpage failures due to unavailable buffers because the virtual buffer pool was full.

Getpage Failed - Cond Request
Number of conditional Getpage requests that could not be satisfied for this buffer pool. A conditional Getpage is used with parallel I/O processing only.

Getpage Failed - Cond SeqReq
The number of conditional sequential getpage requests that failed because the page is not in the buffer pool.

Sync Read I/O Operations
Synchronous read operations done by DB2 during the interval.

Sync Read I/Os - Sequential
Number of synchronous Read I/O operations performed by sequential requests.

Sync Read I/Os - Random
Number of synchronous Read I/O operations performed by random requests.

Sync Read I/Os - Seq Ovfl
The number of synchronous Read I/O operations performed for sequential GETPAGE requests using overflowed buffers. DB2 12 and above. (QBSTASSE)

Sync Read I/Os - Random Ovfl
The number of synchronous Read I/O operations performed for non-sequential GETPAGE requests using overflowed buffers. DB12 and above. (QBSTASYN)

Page-in Required for Read I/O
Number of page-ins required for Read I/O.

Pages Read via Seq Prefetch
Pages read as a result of Sequential Prefetch requests.

Seq Prefetch I/O Operations
Number of asynchronous Read I/Os caused by Sequential Prefetch.

Sequential Prefetch Requests
Sequential Prefetch requests for the buffer pool during the interval.

Pages Read via List Prefetch
Number of pages read because of List Prefetch.

List Prefetch I/O Operations
Number of asynchronous Read I/Os caused by List Prefetch.

List Prefetch Requests
List Prefetch requests for the buffer pool during the interval.
Pages Read via Dyn Prefetch
Number of pages read because of Dynamic Prefetch. Dynamic prefetch is triggered because of sequential detection.

Dyn Prefetch I/O Operations
Number of asynchronous Read I/Os caused by Dynamic Prefetch.

Dyn Prefetch Requests
Dynamic Prefetch requests for the buffer pool.

Prefetch Failed - No Buffer
Failures of Sequential Prefetch because the Sequential Prefetch threshold (SPTH) was reached.

Prefetch Failed - No Engine
Failures of Sequential Prefetch because the maximum number of concurrent Sequential Prefetches was reached. (You cannot change this maximum value.)

Parallel Group Requests
Number of requests made for processing queries in parallel.

Prefetch I/O Streams Reduced
Number of requested prefetch I/O streams that were denied because of a buffer pool shortage. This applies only for nonworkfile pagesets for queries that are processed in parallel.

I/O Parallelism Downgraded
Number of times the requested number of buffers to allow a parallel group to run to the planned degree could not be allocated because of a buffer pool shortage.

Prefetch Quan Reduced to 1/2
Number of times the Sequential Prefetch quantity was reduced from normal to one-half of normal. This is done to continue to allow execution concurrently with parallel I/O.

Prefetch Quan Reduced to 1/4
Number of times the Sequential Prefetch quantity was reduced from one-half to one-quarter normal.

Pages Added to LPL
The number of times one or more pages are added to logical page lists (LPL). (Field name: QBSTLPL)

Length of SLRU=VPSEQT
The number of times when the length of the sequential least-recently-used (SLRU) chain equals the sequential steal threshold VPSEQT. DB11 and later. (Field name: QBSTHST)

Pages Updated
Updates to pages in the buffer pool during the interval.

Pages Written
Buffer pool pages written to DASD during the interval.

Page-in Required for Write I/O
Number of page-ins required for Write I/O operations.

Write I/O Operations
Writes performed by media manager for both synchronous and asynchronous I/O.
Immediate (Sync) Writes
immediate Writes to DASD during the interval. This value is incremented when 97.5% of the buffer pool pages are in use. In addition, DB2 might flag buffer pool pages for immediate Write during checkpoint processing and when a database is stopped.

Note: Consider the value of DMTH (Data Manager threshold) when interpreting this value. If DMTH is zero, this value is probably insignificant.

Write Engine Not Available
Writes that were deferred because DB2 reached its maximum number of concurrent Writes.

Vert Defer Wrt Thresh Reached
The number of times the Vertical Deferred Write threshold was reached.

Deferred Write Thresh Reached
Deferred Write threshold (DWTH) was reached. This occurs when DB2 uses 50% of the buffer pool minimum value, or if a data set has updated 10% of the pages or 64 pages, whichever is greater. At this threshold, DB2 forces writes in an effort to free pool space.

Data Manager Thresh Reached
Data Manager threshold (DMTH) was reached. This occurs when DB2 uses 95% of the buffer pool minimum value and begins to operate at the row level rather than the page level. When this occurs, CPU usage rises significantly.

Successful VPOOL Expand/Contr
Number of successful virtual buffer pool expansions or contractions because of the ALTER BUFFERPOOL command.

VPOOL Expand Failed
Number of virtual buffer pool expansion failures.

Successful Dataset Opens
The number of successful data set Open operations during the interval.

DFHSM Recall
Attempts to access data sets that were migrated by DFHSM.

DFHSM Recall Timeouts
Unsuccessful attempts to recall data sets because the timeout threshold (DSNZP ARM RECALLD) was exceeded.

Sort/Merge Passes
Number of merge passes for DB2 sort/merge processing.

Sort/Merge Workfile Requests
Number of workfiles requested during sort/merge processing.

Sort/Merge Workfile Req Denied
Number of requests for workfiles denied during sort/merge processing due to insufficient buffer resources.

Sort/Merge Pass - Buff Short
Number of times that sort/merge could not efficiently perform due to insufficient buffer resources. This field is incremented when the number of workfiles allowed is less than the number of workfiles requested.
**Workfile Prefetch Disabled**
Number of times workfile prefetch was not scheduled because the prefetch quantity was zero.

**Workfile Create Failed-No Buff**
Number of times a workfile was not created due to insufficient buffers (MVS/XA) only.

**Destructive Read Requests**
Number of pages requested for destructive read processing.

**Destructive Read Page Dequeue**
Number of pages dequeued for destructive read processing.

**Group Buffer Pool Statistics Summary by Report Interval**
This panel provides an overview of the group buffer pool activity that was recorded during a series of report intervals.

This panel is only available in a data sharing environment.

<table>
<thead>
<tr>
<th>ZHGBS</th>
<th>VTM</th>
<th>O2</th>
<th>V540.1P</th>
<th>SN112</th>
<th>11/06/13</th>
<th>11:49:28</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;</td>
<td>Help PF1</td>
<td>Back PF3</td>
<td>Up PF7</td>
<td>Down PF8</td>
<td>Sort PF10</td>
<td>Zoom PF11</td>
<td></td>
</tr>
<tr>
<td>&gt;</td>
<td>H.A.D</td>
<td>&gt;</td>
<td>Enter a selection letter on the top line.</td>
<td>&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;</td>
<td>A-SUBSYSTEM SUPPORT</td>
<td>B-BIND</td>
<td>C-BUFFER POOL</td>
<td>*-GROUP BP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;</td>
<td>E-DISTRIBUTED DATABASE</td>
<td>F-EDM POOL</td>
<td>G-LOG MANAGER</td>
<td>H-OPEN/CLOSE</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>&gt;</td>
<td>I-SQL/RID/PARALLEL/PROC</td>
<td>J-LOCK/CLAIM/DRAIN</td>
<td>K-GLOBAL LOCK</td>
<td>L-DB2 COMMANDS</td>
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<tr>
<td>&gt;</td>
<td>O-OPTIONS</td>
<td></td>
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===============================================================================

<table>
<thead>
<tr>
<th>GROUP BUFFER POOL STATISTICS SUMMARY BY REPORT INTERVAL</th>
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<tr>
<td>HGBS 0</td>
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<tr>
<td>+ Collection Interval: 1 min Start: 11/06 11:44</td>
</tr>
<tr>
<td>+ Report Interval: 1 min Combine Level: NONE End: 11/06 11:49</td>
</tr>
<tr>
<td>+</td>
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<tr>
<td>+ *</td>
</tr>
<tr>
<td>+ Interval</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>+ 11/06 11:49</td>
</tr>
<tr>
<td>+ 11/06 11:48</td>
</tr>
<tr>
<td>+ 11/06 11:47</td>
</tr>
<tr>
<td>+ 11/06 11:46</td>
</tr>
<tr>
<td>+ 11/06 11:45</td>
</tr>
</tbody>
</table>

===============================================================================

**Navigation**

For additional information about
- detailed statistics about a report interval, move the cursor to the line you want and press F11 (Zoom). Each date/time displayed reflects the end of an interval.
- a different buffer pool, enter a buffer pool ID next to HGBS.
- related topics, select one of the options from the menu.
- other topics, use the PF keys.

**Fields**

**Collection Interval**
The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.
**Start**  The start time of the first interval in this display.

**Report Interval**  
This field determines the report interval. It is set on the Near-Term History Report Option panel.

**Combine Level**  
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

- **HOURLY**  
  Data will be reported in hourly intervals.

- **NONE**  
  Data will be reported in the time unit specified by the collection interval.

**End**  The end time of the last interval in this display.

**Interval**  
Provides the date and time that mark the end of the report interval.

**Total Reads**  
The total number of reads to the group buffer pool.

**Read Hit %**  
The percentage of all Reads to the group buffer pool for which the needed data was found and returned to the member.

**Pages Not Returned - R/W Int %**  
The percentage of all Reads to the group buffer pool where

- the data was not found in the group buffer pool and the member had to go to DASD to read the page, and
- other members had read/write interest in the pageset, so DB2 created a directory entry for this page if it did not already exist.

**Read/Write Failed**  
The number of Read or Write requests to the group buffer pool that failed because of a lack of storage resources.

**Total Writes**  
The total number of writes to the group buffer pool.

**Pages Castout**  
The number of pages that this member has castout to DASD from the group buffer pool.

**Group Buffer Pool Statistics Detail:**

This panel shows detailed near-term history information about activities in a specified DB2 group buffer pool during a specified report interval.

This panel is only available in a data sharing environment.

You can view information about a different group buffer pool by entering a buffer pool ID next to HGBD.
Navigation

For additional information about
• related topics, select one of the options from the menu.
• other topics, use the PF keys.

Fields

Collection Interval

The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start

The start time of the first interval in this display.

Report Interval

This field determines the report interval. It is set on the Near-Term History Report Option panel.

Combine Level

This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:
DATA will be reported in hourly intervals.

None
DATA will be reported in the time unit specified by the collection interval.

End
The end time of the last interval in this display.

Allocated Size
The allocated size of the group buffer pool in 4KB blocks.

Current Directory/Data Ratio
The current ratio of directory entries to data pages.

Checkpoint Interval
The checkpoint interval for the group buffer pool, in minutes.

Pending Directory/Data Ratio
The pending ratio of directory entries to data pages. This value will be different from the current ratio if an ALTER GROUPBUFFERPOOL command has been issued with a new value for the RATIO parameter. The change will not take effect until the next time the group buffer pool is allocated.

GBP Castout Threshold
Group buffer pool castout threshold. When the number of changed pages in the group buffer pool exceeds this threshold, castout will be initiated. You can change this value with the GBPOOLT parameter on the ALTER GROUPBUFFERPOOL command.

Number Directory Entries
The actual number of allocated directory entries.

Castout Class Threshold
Group buffer pool castout class threshold. When the number of changed pages for a particular castout class exceeds this threshold, castout will be initiated. You can change this value with the CLASST parameter on the ALTER GROUPBUFFERPOOL command.

Number of Data Pages
The actual number of allocated data pages.

Read Hit %
The percentage of all Reads to the group buffer pool for which the needed data was found and returned to the member.

For each of the following fields, the following statistics are provided:

INTERVAL QUANTITY
The amount of activities that occur during the interval.

/Minute
Rate per minute. The number under /MINUTE (in parentheses) is the number of minutes in the interval.

/Thread
Rate per thread. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.

/Commit
Rate per Commit. The number under /COMMIT (in parentheses) is the number of Commit requests (including abort requests) during the interval.
Reads - Cross Invalidation: Data Returned
The number of reads to the group buffer pool required because the page in the member’s buffer pool was invalidated, where the data was found and returned to the member.

Reads - Cross Invalidation: Data not in GBP-R/W Interest
The number of reads to the group buffer pool required because the page in the member’s buffer pool was invalidated, where:
• The data was not found in the group buffer pool and the member had to go to DASD to read the page
• Other members had read/write interest in the pageset, so DB2 created a directory entry for this page if it did not already exist.

Reads - Page Not Found: Data Returned
The number of reads to the group buffer pool required because the page was not in the member’s buffer pool where the data was found and returned to the member.

Reads - Page Not Found: Data not in GBP-R/W Interest
The number of reads to the group buffer pool required because the page was not in the member’s buffer pool, where:
• The data was not found in the group buffer pool and the member had to go to DASD to read the page
• Other members had read/write interest in the pageset, so DB2 created a directory entry for this page if it did not already exist.

Writes - Synchronous: Changed Pages
The number of changed pages that are synchronously written to the group buffer pool. Pages can be forced out before the application commits if a buffer pool threshold is reached, or when P-lock negotiation forces the pages on the Vertical Deferred Write queue to be written to the group buffer pool.

Writes - Synchronous: Clean Pages
The number of clean pages that are synchronously written to the group buffer pool. DB2 writes clean pages for pagesets and partitions defined with GBPCACHE ALL.

Writes - Asynchronous: Changed Pages
The number of changed pages asynchronously written to the group buffer pool. Pages can be forced out before the application commits if a buffer pool threshold is reached, or when P-lock negotiation forces the pages on the Vertical Deferred Write queue to be written to the group buffer pool.

Writes - Asynchronous: Clean Pages
The number of clean pages asynchronously written to the group buffer pool. DB2 writes clean pages for pagesets and partitions defined with GBPCACHE ALL.

Write Failed - No Storage
The number of group buffer pool write requests that failed because of a shortage of coupling facility resources.

Pages Castout to DASD
The number of pages that this member has castout to DASD from the group buffer pool.

GBP Castout Threshold Reached
The number of times that castout was initiated because the group buffer pool castout threshold was reached.
Castout Class Threshold Reached

The number of times that castout was initiated because the castout class threshold was reached.

Other Requests

The number of other requests.

Distributed Data Facility Statistics Summary by Report Interval

This panel provides an overview of the DDF activity that was recorded during a series of report intervals.

<table>
<thead>
<tr>
<th>Interval</th>
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<tr>
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<tr>
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</tr>
<tr>
<td>07/11 11:15</td>
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</tbody>
</table>

Navigation

For additional information about

- a report interval, move the cursor to the required line and press F11 (Zoom). (Each date/time displayed reflects the end of an interval.)
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

Fields

Collection Interval

The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start

The start time of the first interval in this display.

Report Interval

This field determines the report interval. It is set on the Near-Term History Report Option panel.
Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

**HOURLY**
Data will be reported in hourly intervals.

**NONE**
Data will be reported in the time unit specified by the collection interval.

End  The end time of the last interval in this display.

Interval  Provides the date and time that mark the end of the report interval.

# of Rmts
The number of remote DB2s with which the local DB2 communicated during a given interval.

Total SQL
The total SQL calls sent and received by the local DB2.

Total Rows
The total rows of data sent and received by the local DB2.

Total Msgs
The total VTAM messages sent and received by the local DB2.

Total Bytes
The total bytes sent and received by the local DB2.

Total Commit
The total number of Commit operations performed. This is the sum of the single-phase and two-phase commits performed.

Total Abort
The total number of rollback operations performed. This is the sum of the single-phase rollback operations and two-phase backouts performed.

Total Conv
The total conversations sent and received by the local DB2.

Total ConvQ
The total number of conversations queued by DDF.

Distributed Data Facility Statistics Detail:

This panel provides detailed near-term history statistics about DDF activity for a selected report interval, formatted by remote DB2 location.
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Collection Interval

The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start
The start time of the interval currently displayed.

Report Interval

This field determines the report interval. It is set on the Near-Term History Report Option panel.

Combine Level

This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

HOURLY

Data will be reported in hourly intervals.

NONE

Data will be reported in the time unit specified by the collection interval.

End
The end time of the interval currently displayed.
DDF Send Rate
The rate at which data was sent by DDF, in bytes, KB, MB, GB per minute.

DDF Receive Rate
The rate at which data was received by DDF, in bytes, KB, MB, GB per minute.

Resync Attempts
The number of resynchronization connects attempted with all remote locations. Used only for two-phase commit.

Resync Successes
The number of resynchronization connects that succeeded with all remote locations. Used only for two-phase commit.

Cold Start Connections
The number of Cold Start connections with all remote locations. Used only for two-phase commit.

Warm Start Connections
The number of Warm Start connections with all remote locations. Used only for two-phase commit.

DBAT Queued
Number of times a database access thread (DBAT) had to wait because the maximum number of concurrent DBATs (MAXDBAT) was reached.

Conversation Dealloc
The number of conversations deallocated because the ZPARM limit for the maximum connected remote threads (both active and inactive) was reached.

HWM Remote Connections
The high-water mark (HWM) of inactive and active remote threads.

HWM Active DBATs
The high-water mark (HWM) of active database access threads (DBATs). If the INACTIVE option is specified, it is possible for this value and the current number of active DBATs to exceed MAXDBAT. This occurs because DB2 allows CONNECTs to be processed even if MAXDBAT has been exceeded. After connect processing is complete, if MAXDBAT is still exceeded, then the DBAT is made inactive.

HWM Inactive DBATs
The high-water mark (HWM) of inactive database access threads.

Max DB Access (MAXDBAT)
The maximum number of database access threads allowed for the DB2 being monitored (determined by the setting of MAXDBAT in DSNZPARM).

Remote statistics: The following group of fields occurs for each remote DB2 location with which the local DB2 subsystem communicated, either as a requester or a responder, during the report interval. Each sent/received field generates two rows of output; the top row is the sent value, and the bottom row is the received value.

Remote Location Name
The name of a remote location with which the local DB2 communicated. The statistics immediately below this field pertain to this location.

Conversations Queued
The number of conversations queued by DDF.
Indoubts/Remote
The number of threads that became indoubt with the remote location as coordinator.

SQL Sent/Recv
The number of SQL calls sent to and from the remote location.

Row Sent/Recv
The number of rows sent to and from the remote location.

Message Sent/Recv
The number of VTAM messages sent to and from the remote location.

Byte Sent/Recv
The number of bytes sent to and from the remote location.

Commit Sent/Recv
The number of commits sent to and from the remote location.

Abort Sent/Recv
The number of aborts sent to and from the remote location.

Conv Sent/Recv
The number of conversations sent to and from the remote location.

Blocks Sent/Recv
Number of blocks sent to and from the remote location, if using block fetch mode.

**EDM Pool Statistics Summary by Report Interval**

This panel provides an overview of the Environmental Descriptor Manager (EDM) pool activity that was recorded during a series of report intervals.

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<th></th>
<th>ZHEDS</th>
<th>VTM</th>
<th>02</th>
<th>V540.#P</th>
<th>SC11</th>
<th>07/11/16 19:18:55</th>
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<td>Back PF3</td>
<td>Up PF7</td>
<td>Down PF8</td>
<td>Zoom PF11</td>
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<td>Enter a selection letter on the top line.</td>
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<tr>
<td>A-SUBSYSTEM SUPPORT</td>
<td>B-BIND</td>
<td>C-BUFFER POOL</td>
<td>D-GROUP BP</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>E-DISTRIBUTED DATABASE</td>
<td>F-EDM POOL</td>
<td>G-LOG MANAGER</td>
<td>H-OPEN/CLOSE</td>
<td></td>
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<td>I-SQL/RID/PARALLEL/PROC</td>
<td>J-LOCK/CLAIM/DRAIN</td>
<td>K-GLOBAL LOCK</td>
<td>L-DB2 COMMANDS</td>
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<table>
<thead>
<tr>
<th>EDM POOL STATISTICS SUMMARY BY REPORT INTERVAL</th>
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</thead>
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<td>+</td>
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<tr>
<td>+</td>
</tr>
<tr>
<td>+</td>
</tr>
<tr>
<td>+</td>
</tr>
</tbody>
</table>
Highlighting

The following table shows the field that might be highlighted in the panel above to indicate the current status:

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pages in Use %</td>
<td>EDMU</td>
<td>The utilization of the EDM pool has reached or exceeded the specified threshold.</td>
</tr>
</tbody>
</table>

Navigation

For additional information about

- a report interval, move the cursor to the required line and press F11 (Zoom). (Each date/time displayed reflects the end of an interval.)
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

Fields

Collection Interval
The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start
The start time of the first interval in this display.

Report Interval
This field determines the report interval. It is set on the Near-Term History Report Option panel.

Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

- **HOURLY**
  Data will be reported in hourly intervals.
- **NONE**
  Data will be reported in the time unit specified by the collection interval.

End
The end time of the last interval in this display.

Interval
Provides the date and time that mark the end of the report interval.

DBD Pages
The number of pages used for database descriptors (DBDs).

DBD Load %
The percentage of DBD requests that resulted in DBD loads from DASD.

CT Pages
The number of pages used for cursor tables (CTs).

CT Load %
The percentage of CT requests that resulted in CT loads from DASD.
PT Pages
   The number of pages used for package tables (PTs).

PT Load%
   The percentage of PT requests that resulted in PT loads from DASD.

DSC Loads
   Dynamic SQL caches (DSCs) that had to be loaded from DASD.

DSC Load%
   The percentage of dynamic SQL cache requests that resulted in DSC loads
   into pool. This value should be kept low.

EDM Pool Statistics Detail:

This panel provides detailed information about the activity in and the performance
of the Environmental Descriptor Manager (EDM) pool during a specified report
interval.

Dependent on the DB2 version you are using, the content of the EDM POOL
STATISTICS DETAIL panel is different.

The following examples of this panel show the fields that are specific to a
particular DB2 version.

If DB2 11 is used, the EDM POOL STATISTICS DETAIL panel additionally displays
the following fields:

Shareable Static SQL Requests (QISEKSPG)
   The number of shareable static SQL statement requests.
   This applies to DB2 11 or higher.

Total Allocation Shareable Static SQL (QISEKSPA8)
   The total storage that is allocated to shareable static SQL statements.
   This applies to DB2 11 or higher.

For DB2 11 and later:
**EDM POOL STATISTICS DETAIL**

**HEDD**

<table>
<thead>
<tr>
<th>Pool Usage</th>
<th>Pages</th>
<th>Pct</th>
<th>Percent of Total EDM Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>--10---20---30---40---50---60---70---80---90--100</td>
</tr>
<tr>
<td><strong>DBD Pool:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>25600</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>DBD Held</td>
<td>108</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Stealable</td>
<td>13</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Free</td>
<td>25492</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>In Use</td>
<td>95</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><strong>SKEL Pool:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>25600</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>SKCT Held</td>
<td>8</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>SKPT Held</td>
<td>124</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Stealable</td>
<td>132</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Free</td>
<td>25468</td>
<td>99%</td>
<td></td>
</tr>
<tr>
<td>In Use</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><strong>STMT Pool:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>28346</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>STMT Held</td>
<td>28338</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Free</td>
<td>8</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

- **Shareable Static SQL Requests**: 11
- **Total Allocation for Shareable Static SQL**: 0
- **Plan Below the Bar Allocation**: 0
- **Package Below the Bar Allocation**: 0
- **Plan Above the Bar Allocation**: 21120
- **Package Above the Bar Allocation**: 106624
If DB2 10 is used, the EDM POOL STATISTICS DETAIL panel additionally displays the following fields:

**xProc Request**

The total number of xProc requests.

**xProc Total Allocation**

The total number of pages that are allocated for xProcs.

For DB2 10:
<table>
<thead>
<tr>
<th>Pool Usage</th>
<th>Pages</th>
<th>Pct</th>
<th>Percent of Total EDM Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBD Pool:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>25600</td>
<td>100%</td>
<td>---10---20---30---40---50---60---70---80---90---100</td>
</tr>
<tr>
<td>Held</td>
<td>169</td>
<td>1%</td>
<td>&gt; . . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>Stealable</td>
<td>83</td>
<td>0%</td>
<td>. . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>Free</td>
<td>25431</td>
<td>99%</td>
<td>. . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>In Use</td>
<td>86</td>
<td>0%</td>
<td>. . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>SKEL Pool:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>25600</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Held</td>
<td>1</td>
<td>0%</td>
<td>. . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>SKPT Held</td>
<td>22</td>
<td>0%</td>
<td>. . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>Stealable</td>
<td>23</td>
<td>0%</td>
<td>. . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>Free</td>
<td>25577</td>
<td>100%</td>
<td>. . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>In Use</td>
<td>0</td>
<td>0%</td>
<td>. . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>STMT Pool:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>28346</td>
<td>100%</td>
<td>---10---20---30---40---50---60---70---80---90---100</td>
</tr>
<tr>
<td>Held</td>
<td>4</td>
<td>0%</td>
<td>. . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>Free</td>
<td>28342</td>
<td>100%</td>
<td>. . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>xProc Request</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>xProc Total Allocation</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan Below the Bar Allocation</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Package Below the Bar Allocation</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan Above the Bar Allocation</td>
<td>21120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Package Above the Bar Allocation</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OMEGAMON XE for DB2 PE highlights some fields in this panel to draw your attention to their current status:

**Table 120. Highlighted fields in EDM Pool Statistics Detail panel**

<table>
<thead>
<tr>
<th>Field</th>
<th>Exception</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pages In Use</td>
<td>EDMU</td>
<td>The utilization of the EDM pool has reached or exceeded the specified threshold.</td>
</tr>
<tr>
<td>Pct In Use</td>
<td>EDMU</td>
<td>The utilization of the EDM pool has reached or exceeded the specified threshold.</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

**Fields**

The following fields are common to all DB2 versions:

**Collection Interval**

The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

**Start**

The start time of the interval currently displayed.
Report Interval
This field determines the report interval. It is set on the Near-Term History Report Option panel.

Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

HOURLY
Data will be reported in hourly intervals.

NONE
Data will be reported in the time unit specified by the collection interval.

End
The end time of the interval currently displayed.

Pool Usage
The following types of EDM pools are available:
- EDM Database Descriptor (DBD) Pool
- EDM Statement (STMT) Pool
- EDM Skeleton (SKEL) Pool

For the above pool types, the following information is displayed. It is based on a snapshot of the data that is taken at the end of the report interval.

Pages
The number of pages that is dedicated to a particular type of pool usage.

PCT
The percentage of the EDM pool dedicated to that type of usage.

Total
The total number of pages in this type of type of EDM pool. For DB2 12 the Total Pages is based on DSNZPARM configured Maximum.

Held
The number of pages held in this type of type of EDM pool.

CT Held
Pages held in RDS pool for the cursor tables.
This applies only to DB2 9, below and above the bar usage.

PT Held
Pages held in RDS pool for the package tables.
This applies only to DB2 9, below and above the bar usage.

SKCT Held
Pages held in SKEL pool for skeleton cursor tables.

DBD Held
Pages held in DBD pool.

STMT Held
Pages held in STMT pool.

Stealable
The total number of pages that can be reused.

Free
The number of pages currently not used by any object in this type of EDM pool.

In Use
The number of pages that are used in this type of EDM pool.
This applies only to DBD and SKEL pools.

The percentage of DBD In Use is calculated like this:
\[((\text{In Use} - \text{ Stealable/Reusable})/\text{Total})\times100\]

The percentage of SKEL in Use is calculated like this:
\[((\text{SKCTs + SKPTs} - \text{ Stealable/Reusable})/\text{Total})\times100\]

\text{xProc Request}
\hspace{1cm} The total number of xProc requests.

\text{xProc Total Allocation}
\hspace{1cm} The total number of pages that are allocated for xProcs.

\text{Shareable Static SQL Requests (QISEKSPG)}
\hspace{1cm} The number of shareable static SQL statement requests.
\hspace{1cm} This applies to DB2 11 or higher.

\text{Total Allocation Shareable Static SQL (QISEKSPA8)}
\hspace{1cm} The total storage that is allocated to shareable static SQL statements.
\hspace{1cm} This applies to DB2 11 or higher.

\text{Plan Below the Bar Allocation}
\hspace{1cm} The amount of storage below the bar that was allocated for plans.

\text{Package Below the Bar Allocation}
\hspace{1cm} The amount of storage below the bar that was allocated for packages.

\text{Plan Above the Bar Allocation}
\hspace{1cm} The amount of storage above the bar that was allocated for plans.

\text{Package Above the Bar Allocation}
\hspace{1cm} The amount of storage above the bar that was allocated for packages.

\text{Failures due to DBD Pool Full}
\hspace{1cm} Failures that occurred because the DBD pool is full. DB2 10 and DB2 11 only.

\text{Failures due to STMT Pool Full}
\hspace{1cm} Failures that occurred because the STMT pool is full. DB2 10 and DB2 11 only.

\text{Failures due to SKEL Pool Full}
\hspace{1cm} Failures that occurred because the SKEL pool is full. DB2 10 and DB2 11 only.

For each of the following fields, the following statistics are provided:

\text{INTERVAL QUANTITY}
\hspace{1cm} The amount of activities that occur during the interval.

\text{/MINUTE}
\hspace{1cm} Rate per minute. The number under /MINUTE (in parentheses) is the number of minutes in the interval.

\text{/THREAD}
\hspace{1cm} Rate per thread. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.

\text{/COMMIT}
\hspace{1cm} Rate per Commit. The number under /COMMIT (in parentheses) is the number of Commit requests (including abort requests) during the interval.
Database Descriptor (DBD) Reqs
The number of requests for database descriptors.

DBD Loads
The number of database descriptors that had to be loaded from DASD.

% of DBD Loads from DASD
The percentage of DBD requests that resulted in DBD loads from DASD.
This value should be kept low; 20% or lower is considered acceptable.

Cursor Table (CT) Reqs
The number of requests for cursor tables.

CT Loads
The number of cursor tables that had to be loaded from DASD.

% of CT Loads from DASD
The percentage of CT requests that resulted in CT loads from DASD. This value should be kept low; 20% or lower is considered acceptable.

Package Table (PT) Reqs
The number of requests for package tables.

PT Loads
The number of package tables that had to be loaded from DASD.

% of PT Loads from DASD
The percentage of PT requests that resulted in PT loads from DASD. This value should be kept low; 20% or lower is considered acceptable.

Dynamic Sql (DSC) Reqs
The number of requests to cache dynamic SQL.

DSC Loads
The number of dynamic SQL caches that had to be loaded from DASD.

CATALOG Loads
Dynamic SQL cache statements that had to be loaded from CATALOG.
DB2 12 and later. (Field name: QISEDPSF)

% of CATALOG Loads into Pool
The percentage of dynamic SQL cache requests that resulted in CATALOG loads into the EDMpool. The higher the value, the more stabilized queries from catalog are used to avoid full prepare. Formula for calculation: QISEDPSF/QISEDSG. DB2 12 and later.

% of DSC Loads into Pool
The percentage of dynamic SQL cache requests that resulted in DSC loads into pool. This value should be kept low.

PKG Search Not Found
If a package is bound by using a wild card (*) for the package names, in the form of PKLIST(COL1.*,COL2.*,....), EDM generates a NOT-FOUND record to avoid future I/O if a collection ID/package name combination does not exist.

This field shows how often a cached record was located during package binding.

PKG Search Not Found Insert
If a package is bound by using a wild card (*) for the package names, in
the form of PKLIST(COL1.*, COL2.*....), EDM generates a NOT-FOUND record to avoid future I/O if a collection ID/package name combination does not exist.

This field shows how often a record was removed from the cache during package binding.

**PKG Search Not Found Delete**

If a package is bound by using a wild card (*) for the package names, in the form of PKLIST(COL1.*, COL2.*....), EDM generates a NOT-FOUND record to avoid future I/O if a collection ID/package name combination does not exist.

This field shows how often a record was removed from the cache during package binding.

**Number of Statements**

The number of statements in the EDM pool.

**Log Manager Statistics Summary by Report Interval**

This panel shows an overview of the DB2 log manager activity that was recorded during a series of report intervals.

<table>
<thead>
<tr>
<th>Collection Interval</th>
<th>Start</th>
<th>Combine Level</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 min</td>
<td>11/06 11:44</td>
<td>NONE</td>
<td>11/06 11:59</td>
</tr>
</tbody>
</table>

| +          | +          | +          | Archive |
|----------+-----------+-----------+---------|
| Interval | Total Reads | Read Delay | Total Writes | Write Delay | BSDS Access | Archive Read Allocs | Archive Write Allocs |
| 11/06 11:59 | 0          | 0         | 16          | 0          | 2          | 0          | 0                   |
| 11/06 11:57 | 0          | 0         | 15          | 0          | 2          | 0          | 0                   |
| 11/06 11:56 | 0          | 0         | 15          | 0          | 0          | 0          | 0                   |
| 11/06 11:55 | 0          | 0         | 15          | 0          | 0          | 0          | 0                   |
| 11/06 11:54 | 0          | 0         | 248         | 0          | 0          | 0          | 0                   |
| 11/06 11:53 | 0          | 0         | 15          | 0          | 2          | 0          | 0                   |
| 11/06 11:52 | 0          | 0         | 15          | 0          | 0          | 0          | 0                   |
| 11/06 11:51 | 0          | 0         | 15          | 0          | 0          | 0          | 0                   |
| 11/06 11:50 | 0          | 0         | 15          | 0          | 2          | 0          | 0                   |
| 11/06 11:49 | 0          | 0         | 36          | 0          | 2          | 0          | 0                   |
| 11/06 11:48 | 0          | 0         | 190535      | 0          | 533        | 0          | 1                   |
| 11/06 11:47 | 0          | 0         | 109757      | 0          | 5          | 0          | 0                   |
| 11/06 11:46 | 0          | 0         | 57855       | 0          | 5          | 0          | 0                   |
| 11/06 11:45 | 0          | 0         | 15          | 0          | 2          | 0          | 0                   |

**Navigation**

For additional information about

- a report interval, move the cursor to the line you want and press F11 (Zoom). (Each date/time displayed reflects the end of an interval.)
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.
**Fields**

**Collection Interval**  
The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

**Start**  
The start time of the first interval in this display.

**Report Interval**  
This field determines the report interval. It is set on the Near-Term History Report Option panel.

**Combine Level**  
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

- **HOURLY**  
  Data will be reported in hourly intervals.

- **NONE**  
  Data will be reported in the time unit specified by the collection interval.

**End**  
The end time of the last interval in this display.

**Interval**  
Provides the date and time that mark the end of the report interval.

**Total Reads**  
The number of times DB2 read a log record.

**Read Delay**  
The number of log reads that were delayed.

**Total Writes**  
The number of times DB2 externalized log records, both synchronously and asynchronously.

**Write Delay**  
The number of times DB2 tried to place log records in the output buffer but could not find an available buffer.

**BSDS Access**  
The number of times the bootstrap data set access routine was called.

**Archive Read Allocs**  
The number of archive read allocations, which is an indicator of archive log open/close activity.

**Archive Write Allocs**  
The number of archive write allocations, which is an indicator of archive log open/close activity.

**Log Manager Statistics Detail:**

This panel provides detailed information about the logging and archiving activity of the DB2 log manager during a selected report interval.
Navigation

For additional information about

- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.
Fields

Collection Interval
The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start
The start time of the interval currently displayed.

Report Interval
This field determines the report interval. It is set on the Near-Term History Report Option panel.

Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

   HOURLY
   Data will be reported in hourly intervals.

   NONE
   Data will be reported in the time unit specified by the collection interval.

End
The end time of the interval currently displayed.

High Used Log Record RBA
The relative byte address (RBA) of the record that was being logged at the end of the interval.

Number of Bytes Used
The number of bytes of the log data set that were used during the interval.

For each of the following fields, the following statistics are provided:

INTERVAL QUANTITY
The amount of activities that occur during the interval.

/MINUTE
Rate per minute. The number under /MINUTE (in parentheses) is the number of minutes in the interval.

/THREAD
Rate per thread. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.

/COMMIT
Rate per Commit. The number under /COMMIT (in parentheses) is the number of Commit requests (including abort requests) during the interval.

Reads from Output Buffers
The Reads that were satisfied from the output buffers.

Reads from Active Log
The Reads that were satisfied from the active log.

Reads from Archive Log
The Reads that were satisfied from the archive log.

Reads Delayed - Tape Contention
The number of reads delayed because a tape volume was already in use.
Reads Delayed - No Tape Unit
Number of archive log reads that were delayed because of unavailable tape units, or because the maximum amount of read parallelism is being used (not likely).

Look-Ahead Tape Mounts Attempted
Number of look-ahead tape mounts attempted.

Look-Ahead Tape Mounts Performed
Number of successful look-ahead tape mounts.

Write NOWAIT Requests
The times DB2 externalized log records asynchronously.

Write FORCE Requests
The times DB2 externalized log records synchronously.

Write Delayed - No Buffer
DB2 attempts to place log records in the output buffer when no log buffer could be found.

Write Active Log Buffers
Calls to the log write routine.

Active Log CIs Created
Active log control intervals created.

Archive Log Read Allocations
Archive read allocations, which reflect archive log open/close activity.

Archive Log Write Allocations
Archive write allocations, which reflect archive log open/close activity.

Archive Log CIs Offloaded
Number of active log control intervals offloaded to archive data sets.

BSDS Access Requests
Calls to the bootstrap data set access routine.

Checkpoints
The number of checkpoints DB2 takes since startup.

IFI Abends
The count of IFI abends.

IFI Unrecog Func
The count of IFI unrecognized functions.

IFI Command Reqs
The count of IFI command requests.

IFI READA Reqs
The count of IFI READA requests.

IFI READS Reqs
The count of IFI READS requests.

IFI WRITE Reqs
The count of IFI WRITE requests.

Data Capture Invoked
The number of log records retrieved for which data capture processing is invoked.
Data Capture READS
   The number of data capture log reads for processing IFI requests for IFCID 0185.

Data Capture Rec Returned
   The number of data capture log records returned.

Data Capture Row Returned
   The number of data capture data rows returned.

Data Capture Desc Returned
   The number of data capture data descriptions returned.

Data Capture Desc Performed
   The number of data capture describes performed.

Data Capture Table Returned
   The number of data capture tables returned.

Rollup (Threshold)
   The number of rollup accounting records that are written because the rollup threshold is exceeded.

Rollup (Storage)
   The number of rollup accounting records that are written because the rollup accounting storage threshold is exceeded.

Rollup (Stallness)
   The number of rollup accounting records that are written because the staleness threshold is exceeded.

Rollup (Non Qual)
   The number of records that failed to qualify for accounting rollup because all rollup key fields are NULL, or NULL values are not permitted.

Open/Close Statistics Summary by Report Interval
   This panel shows an overview of the Open/Close activity that is recorded during a series of report intervals.
Navigation

For additional information about
• a report interval, move the cursor to the line you want and press F11 (Zoom).
  (Each date/time displayed reflects the end of an interval.)
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Collection Interval
The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start
The start time of the first interval in this display.

Report Interval
This field determines the report interval. It is set on the Near-Term History Report Option panel.

Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

HOURLY
Data will be reported in hourly intervals.
NONE
Data will be reported in the time unit specified by the collection interval.

End
The end time of the last interval in this display.

Interval
Provides the date and time that mark the end of the report interval.

High Water Open DS
Maximum number of data sets open at any given time.

Current Open DS
The current number of open data sets.

Not-in-use DS Request
The number of requests to open a data set that was on the Deferred Close queue. When this occurs, a physical data set Open is not necessary.

Not-in-use DS Closed
Number of not-in-use data sets that were closed because the total number of open data sets reached the Deferred Close threshold. The Deferred Close threshold is based on the smaller of the values of DSMAX or the MVS DD limit.

DS Conv to Read-only
Number of infrequently updated data sets converted from a read-write state to a read-only state (pseudo-close). The SYSLGRNG entry is closed at this time.

Open/Close Statistics Detail:

This panel provides detailed information about open and close data set activity occurring within the DB2 subsystem during a selected report interval.
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Collection Interval
The time interval specified for the collection of near-term history data. This
unit of time was specified when the Near-Term History Data Collector was
started.

Start
The start time of the interval currently displayed.

Report Interval
This field determines the report interval. It is set on the Near-Term History
Report Option panel.

Combine Level
This field reflects the selected combine level. If Combine Level is NONE,
the report interval is the same as the collection interval. Possible values:

HOURLY
Data will be reported in hourly intervals.

NONE
Data will be reported in the time unit specified by the collection
interval.

End
The end time of the interval currently displayed.

Current Number Open Datasets
A snapshot value of the current number of open database data sets.

High-water Mark Open Datasets
The maximum number of data sets open at any one time since DB2 was
started.

High-water Mark Not-in-use Datasets
The maximum number of pagesets that are not in use but are not
physically closed.

Current Number Not-in-use Datasets
The current number of open pagesets that are not in use but are not
physically closed.

For each of the following fields, the following statistics are provided:

INTERVAL QUANTITY
The amount of activities that occur during the interval.

/MINUTE
Rate per minute. The number under /MINUTE (in parentheses) is the
number of minutes in the interval.

/THREAD
Rate per thread. The number under /THREAD (in parentheses) is the
number of Create Threads during the interval.

/COMMIT
Rate per Commit. The number under /COMMIT (in parentheses) is the
number of Commit requests (including abort requests) during the interval.
Not-in-use Datasets Requested
Number of requests to open a data set that was on the Deferred Close queue. When this occurs, a physical data set Open is not necessary.

Not-in-use Datasets Closed
Number of not-in-use data sets that were closed because the total number of open data sets reached the Deferred Close threshold. The Deferred Close threshold is based on the smaller of the values of DSMAX or the MVS DD limit.

Datasets Converted to Read-Only
Number of infrequently updated data sets converted from a Read-Write to a Read-Only state (pseudo-close). The SYSLGRNG entry is closed at this time.

SQL Statistics Summary by Report Interval
This panel shows an overview of the SQL activity that was recorded during a series of report intervals.

<table>
<thead>
<tr>
<th>Interval</th>
<th>Manipulative (DML)</th>
<th>Control (DCL)</th>
<th>Definitional (DDL)</th>
</tr>
</thead>
<tbody>
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<td>Quantity /Minute</td>
<td>Quantity /Minute</td>
<td>Quantity /Minute</td>
</tr>
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Navigation
For additional information about
- a report interval, move the cursor to the line you want and press F11 (Zoom). (Each date/time displayed reflects the end of an interval.)
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.
Fields

Collection Interval
The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start
The start time of the first interval in this display.

Report Interval
This field determines the report interval. It is set on the Near-Term History Report Option panel.

Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

- HOURLY
  Data will be reported in hourly intervals.

- NONE
  Data will be reported in the time unit specified by the collection interval.

End
The end time of the last interval in this display.

Interval
Provides the date and time that mark the end of the report interval.

Manipulative (DML)
The quantity and rate per minute of DML (data manipulative language) statements during the interval.

Control (DCL)
The quantity and rate per minute of DCL (data control language) statements during the interval.

Definitional (DDL)
The quantity and rate per minute of DDL (Data Definition Language) statements during the interval.

SQL/RID Pool/I/O Parallelism Statistics Detail:
This panel shows detailed information about SQL, RID Pool, I/O Parallelism, and Stored Procedure activity during a selected report interval.
Enter a selection letter on the top line.

**SQL/RID Pool/I/O Parallelism Statistics Detail**

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<tr>
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<th>INTERVAL</th>
<th>THREAD</th>
<th>COMMIT</th>
<th>% OF DML</th>
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<table>
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<tr>
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<th>COMMIT</th>
<th>% OF DML</th>
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IBM Db2 Performance Expert on z/OS
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<th>SQL Definitional (DDL)</th>
<th>INTERVAL /MINUTE</th>
<th>/THREAD</th>
<th>/COMMIT</th>
<th>% OF DDL</th>
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<td>+ Ran Seq (No ESA Sort)</td>
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<tr>
<td>+ Ran Seq (Negotiate)</td>
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<td>+ One DB2 (Coord=NO)</td>
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<td>+ One DB2 (DCL GTT)</td>
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<td>+ Groups Intended</td>
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<td>+ Array Expansions</td>
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<td>+ Sparse IX (Disabled)</td>
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<td>+ Sparse IX (Built WF)</td>
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<td>+ Fetched 1 Block Only</td>
<td>0 .00 .00 .00 +DB2 12</td>
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<td>+ Pipes Allocated</td>
<td>0 .00 .00 .00 +DB2 12</td>
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<tr>
<td>+ Pipes Disabled</td>
<td>0 .00 .00 .00 +DB2 12</td>
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<td>+ Abended</td>
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<tr>
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<tr>
<td>+ Rejected</td>
<td>0 .00 .00 .00</td>
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</tbody>
</table>
### Monitoring Outputs

**User Defined Functions**
- Executed: 0.00 0.00 0.00
- Abended: 0.00 0.00 0.00
- Timed Out: 0.00 0.00 0.00
- Rejected: 0.00 0.00 0.00

**Triggers**
- Stmt Triggers Executed: 0.00 0.00 0.00
- Row Triggers Executed: 0.00 0.00 0.00
- SQL Error in Trigger: 0.00 0.00 0.00
- Maximum Nested SQL: 0.00 0.00 0.00

**Dynamic SQL**
- Prepares (Copy Found): 17 1.88 1.88 .58
- Prepares (Catalog Fnd): 0 0.00 0.00 0.00
- Prepares (Copy NFound): 8 0.88 0.88 .27
- Prepares (Restrict IX): 0 0.00 0.00 0.00
- KeepDyn (Implicit): 0 0.00 0.00 0.00
- KeepDyn (Avoided): 0 0.00 0.00 0.00
- KeepDyn (Exceed Limit): 0 0.00 0.00 0.00
- KeepDyn (Invalidated): 0 0.00 0.00 0.00
- Literals (Parsed): 0 0.00 0.00 0.00
- Literals (Replaced): 0 0.00 0.00 0.00
- Literals (Matched): 0 0.00 0.00 0.00
- Literals (Duplicated): 0 0.00 0.00 0.00

**ROW ID**
- Successful: 0 0.00 0.00 0.00
- Revert to Index: 0 0.00 0.00 0.00
- Revert to TS Scan: 0 0.00 0.00 0.00

**Row Processing**
- Rows Fetched: 0 0.00 0.00 0.00
- Rows Inserted: 1 0.50 0.00 1.00
- Rows Updated: 0 0.00 0.00 0.00
- Rows Deleted: 0 0.00 0.00 0.00

**Currently Committed**
- Insert Rows Skipped: 0 0.00 0.00 0.00
- Delete Rows Accessed: 0 0.00 0.00 0.00
- Update Rows Accessed: 0 0.00 0.00 0.00
**Navigation**

For additional information about

- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

**Fields**

**Collection Interval**

The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

**Start**

The start time of the interval currently displayed.

**Report Interval**

This field determines the report interval. It is set on the Near-Term History Report Option panel.

**Combine Level**

This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

- **HOURLY**
  - Data will be reported in hourly intervals.

- **NONE**
  - Data will be reported in the time unit specified by the collection interval.

**End**

The end time of the interval currently displayed.

---

**Table**

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<th>/MINUTE</th>
<th>/THREAD</th>
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**Other topics, use the PF keys.**
Maximum Degree of Parallelism Executed

The maximum degree of parallel I/O processing for all parallel groups. This is a high-water mark.

For each field described below the following statistics are provided:

- The amount of activities that occur during the interval.
- Rate per minute during the last cycle. The number under /MINUTE is the number of minutes in the interval.
- Rate per thread during the last cycle. The number under /THREAD is the number of Create Threads during the interval.
- Rate per Commit during the last cycle. The number under /COMMIT is the number of commit requests (including abort requests) during the interval.
- Percentage of DML, DCL, or DDL during the last cycle.

SQL Manipulative (DML):

**SELECT**

SELECT statements executed to retrieve rows from a DB2 table.

**INSERT**

INSERT statements executed to add rows to a DB2 table.

**UPDATE**

UPDATE statements executed to alter existing rows in a DB2 table.

**MERGE**

The number of times a MERGE statement is executed.

**DELETE**

DELETE statements executed to remove rows from a DB2 table.

**DESCRIBE**

DESCRIBE statements executed to obtain information about prepared SQL statements.

**DESCRIBE TABLE**

DESCRIBE TABLE statements executed to obtain information about a table or view.

**PREPARE**

Occasions when SQL statements were dynamically prepared for execution.

**OPEN CURSOR**

OPEN statements executed to prepare cursors for subsequent Fetch operations.

**FETCH**

FETCH statements executed to retrieve rows from DB2 tables.

**CLOSE CURSOR**

CLOSE statements executed to close previously opened cursors.

**REFRESH TABLE**

Number of refresh table statements. DB2 12 and later. (Field name: QXTREFTBL)

**Total DML**

All data manipulative language statements.

SQL Control (DCL):

**CALL**

CALL statements executed to invoke a stored procedure.
CONNECT (Type 1)
CONNECT (Type 1) statements executed to connect an application process to a designated server.

CONNECT (Type 2)
CONNECT (Type 2) statements executed to connect an application process to a designated server.

GRANT
GRANT statements issued to extend DB2 privileges to users.

LOCK TABLE
LOCK TABLE statements issued to lock a tablespace or table in a segmented tablespace.

RELEASE
RELEASE statements executed to place one or more connections in the released state.

REVOKE
REVOKE statements issued to revoke users’ DB2 privileges.

SET CONNECTION
SET CONNECTION statements executed to establish the application server of the process.

SET CURRENT DEGREE
SET CURRENT DEGREE statements executed to assign a value to the CURRENT DEGREE special register.

SET CURRENT RULES
SET CURRENT RULE statements executed to assign a value to the current rules special register.

SET CURRENT SQLID
SET CURRENT SQLID statements issued to change your current authorization ID.

SET HOST VARIABLE
SET host-variable statements issued.

SET CURRENT PATH
SET CURRENT PATH statements issued to assign a value to the CURRENT PATH special register.

SET CURRENT PRECISION
The number of Set Current Precision statements.

ASSOCIATE LOCATOR
The number of ASSOCIATE LOCATOR statements issued.

ALLOCATE CURSOR
The number of ALLOCATE CURSOR statements issued.

HOLD LOCATOR
The number of Hold Locator statements.

FREE LOCATOR
The number of Free Locator statements.

TRANSFER OWNERSHIP
Number of transfer ownership statements. DB2 12 and later. (Field name: QXTRNOWN)
Total DCL
   All data control language statements.

SQL Definitional (DDL):

CREATE TABLE
   CREATE TABLE statements issued to define a DB2 table.

CREATE GBL TEMP TABLE
   The number of Create Global Temporary Table statements issued to create
   a description of a temporary table at the current server.

DCL GBL TEMP TABLE TH
   The number of SQL Declare Global Temporary Table statements.

CREATE AUX TABLE
   The number of Create Auxiliary Table statements.

CREATE INDEX
   CREATE INDEX statements issued to establish indexes on DB2 tables.

CREATE TABLESPACE
   CREATE TABLESPACE statements issued to establish DB2 tablespaces.

CREATE DATABASE
   CREATE DATABASE statements issued to establish DB2 databases.

CREATE STOGROUP
   CREATE STOGROUP statements issued to establish DB2 storage groups.

CREATE SYNONYM
   CREATE SYNONYM statements issued to create alternate names for DB2
   tables and views.

CREATE VIEW
   CREATE VIEW statements issued to establish views of DB2 tables.

CREATE ALIAS
   CREATE ALIAS statements issued to achieve "location transparency" of
   DB2 tables. This field is used primarily to refer to tables and views from
   remote DB2 subsystems in a distributed environment.

CREATE TRIGGER
   CREATE TRIGGER statements issued to define a trigger in a schema and
   build a trigger package at the current server.

CREATE DISTINCT TYPE
   CREATE DISTINCT TYPE statements issued to define a distinct type,
   which is a data type that a user defines. A distinct type must be sourced
   on one of the built-in data types.

CREATE FUNCTION
   CREATE FUNCTION statements issued to register a user-defined function
   with an application server. You can register the following types of
   functions with this statement: external scalar, external table, and sourced.

CREATE PROCEDURE
   CREATE PROCEDURE statements issued to define a stored procedure.

CREATE SEQUENCE
   The number of Create Sequence statements.

CREATE ROLE
   The number of Create Role statements.
CREATE TRUSTED CTX
The number of Create Trusted CTX statements.

CREATE MASK/PERM
The number of Create Mask or Create Permission statements.

CREATE VARIABLE
The number of Create Variable statements. DB2 11 and later.

DROP TABLE
DROP TABLE statements issued to remove tables from DB2 databases.

DROP INDEX
DROP INDEX statements issued to remove indexes from DB2 tables.

DROP TABLESPACE
DROP TABLESPACE statements issued to delete tablespaces.

DROP DATABASE
DROP DATABASE statements issued to delete databases.

DROP STOGROUP
DROP STOGROUP statements issued to delete storage group definitions.

DROP SYNONYM
DROP SYNONYM statements issued to delete alternative table names and view names.

DROP VIEW
DROP VIEW statements issued to delete table views.

DROP ALIAS
DROP ALIAS statements issued to delete view and table aliases from the DB2 catalog.

DROP PACKAGE
DROP PACKAGE statements issued to delete packages.

DROP TRIGGER
DROP TRIGGER statements issued to delete triggers.

DROP FUNCTION
DROP FUNCTION statements issued to delete user-defined functions.

DROP DISTINCT TYPE
DROP DISTINCT TYPE statements issued to delete user-defined data types.

DROP PROCEDURE
DROP PROCEDURE statements issued to delete stored procedures.

DROP SEQUENCE
The number of Drop Sequence statements.

DROP TRUSTED CTX
The number of Drop Trusted CTX statements.

DROP ROLE
The number of Drop Role statements.

DROP MASK/PERM
The number of Drop Mask or Drop Permission statements.

DROP VARIABLE
The number of Drop Variable statements. DB2 11 and later.
ALTER TABLE
ALTER TABLE statements issued to change table attributes.

ALTER INDEX
ALTER INDEX statements issued to change index attributes.

ALTER TABLESPACE
Alter Tablespace statements issued to change tablespace attributes.

ALTER STOGROUP
ALTER STOGROUP statements issued to add devices to and delete devices from storage groups.

ALTER VIEW
Number of Alter View statements.

ALTER DATABASE
ALTER DATABASE statements issued to change database attributes.

ALTER FUNCTION
ALTER FUNCTION statements issued to change the description of an external scalar or external table function at the current server.

ALTER PROCEDURE
ALTER PROCEDURE statements issued to change the description of a stored procedure at the current server.

ALTER SEQUENCE
The number of Alter Sequence statements.

ALTER TRUSTED CTX
The number of Alter Trusted CTX statements.

ALTER JAR
The number of Alter Jar statements.

ALTER MASK/PERM
The number of Alter Mask or Alter Permission statements.

RENAME TABLE
RENAME TABLE statements issued to rename an existing table.

RENAME INDEX
The number of Rename Index statements.

TRUNCATED TABLE
The number of Truncated Table statements issued to rename an existing table.

COMMENT ON
COMMENT ON statements issued to add or replace comments for user-defined objects (tables, views, columns, and sets of columns) in the DB2 catalog.

LABEL ON
LABEL ON statements issued to add or replace labels in DB2 catalog descriptions of tables, views, columns, and sets of columns.

Total DDL
All Data Definition Language statements.

RID List Processing: For each field described below the following statistics are provided:
• The amount of activities that occur during the interval.
• Rate per minute.
• Rate per thread.
• Rate per Commit.

For high water mark fields, N/A is displayed for rate fields. For interval quantity fields, the high water mark value is displayed at the end of the interval.

**Successful**

Number of times RID list processing was used when accessing a DB2 table.

This field is incremented once for a given table access for Index Access with list prefetch and for Multiple Index Access.

**Not Used (No Storage)**

Number of times RID list processing was terminated because of insufficient storage to hold the list of RIDs.

**Not Used (Max Limit)**

Number of times RID list processing was terminated because the number of RIDs would exceed a RID limit or threshold.

**To WF (No Storage)**

The number of times a RID list overflows to a work file because RIDPOOL storage is not available to hold the list of RIDs.

**To WF (Max Limit)**

The number of times a RID list overflows to a work file because the number of RIDs exceeds internal limits.

**Interrupted (No Stor)**

The number of times a RID list append for a Hybrid Join is interrupted because RIDPOOL storage is not available to hold the list of RIDs. This is the number of times DB2 interrupted the RID phase and switched to the Data phase.

**Interrupted (Max Lmt)**

The number of times a RID list append for a Hybrid Join is interrupted because the number of RIDs exceeds internal limits. This is the number of times DB2 interrupted the RID phase and switched to the Data phase.

**Skipped (Adaptive IX)**

The number of times a DM is not called for RID list retrieval for multiple index access or LPF because it was not necessary due to Runtime Adaptive Index processing being able to predetermine the outcome. DB2 12 and later. (Field name: QXRSDMAD)

**Skipped (Index Known)**

The number of times a RID list retrieval for multiple index access was skipped because it was not necessary due to DB2 being able to predetermine the outcome of index ANDing or ORing.

**Term (No Storage)**

The number of times RID list processing exhausted virtual storage.

**Term (> RDS Limit)**

The number of times RID list processing terminated because the number of RID entries was greater than the RDS limit. The RDS limit is the maximum (25% of table size, number of RIDs that can fit into the guaranteed number of RID blocks).
Term (> DM Limit)
The number of times RID list processing terminated because the number of RID entries was greater than the DM limit. The DM limit is approximately 26 million RIDs.

Term (> PROC Limit)
The number of times the maximum RID pool storage was exceeded. The default maximum RID pool size is the minimum (install value pool size, 10GB).

HWM RID Blks Inuse
The number of RID blocks currently in use.

Curr RID Blks Inuse
The highest number of RID blocks in use at any one time since DB2 startup time.

HWM RID Blks in WF
The highest number of RID blocks overflowed (stored) to a work file at any time since DB2 startup.

Curr RID Blks in WF
The number of RID blocks currently residing in work file storage.

Query Parallelism: For each field described below the following statistics are provided:
• Total quantity, which reflects the amount of activities since DB2 was started.
• Interval quantity, which reflect activity during the last cycle.
• Rate per minute during the last cycle.
• Rate per thread during the last cycle.
• Rate per Commit during the last cycle.

HWM degree Parallism
Maximum degree of parallelism among the parallel groups to indicate the extent to which query parallelism applies.

Max Degree (Planned)
The planned maximum degree of parallelism for a parallel group. This value is the optimal degree of parallelism that can be obtained at execution time after host variables or parameter markers are resolved and before buffer pool negotiation and system negotiation are performed. DB2 11 and later.

Max Degree (Estimated)
The estimated maximum degree of parallelism for a parallel group. This value is estimated at bind time, based on the cost formula. If a parallel group contains a host variable or parameter marker, the estimate is based on assumed values. DB2 11 and later.

Max Degree (Executed)
Total number of parallel groups executed.

Ran Planned
Total number of parallel groups that have a planned degree greater than one at run time and were executed to the same degree because of sufficient storage on the buffer pool.

Ran Reduced (Storage)
Total number of parallel groups that have a planned degree greater
than one at run time but were processed to a parallel degree less than planned because of a storage shortage or contention on the buffer pool.

**Ran Reduced (Negotia)**
Number of parallel group degree to be reduced due to system negotiation result of system stress level. DB2 11 and later.

**Ran Seq (Cursor)**
Total number of parallel groups which fell back to sequential mode because the cursor might be used in UPDATE/DELETE.

**Ran Seq (No Buffer)**
Total number of parallel groups that have a planned degree greater than one at run time, but fell back to sequential mode because of storage shortage or contention on the buffer pool.

**Ran Seq (No ESA Sort)**
Total number of parallel groups which fell back to sequential mode due to lack of ESA sort support.

**Ran Seq (No ESA Enc)**
Total number of parallel groups executed in sequential mode due to the unavailable enclave. This applies only to DB2 9.

**Ran Seq (Autonomous)**
Total number of parallel groups which fell back to sequential mode due to executing under an autonomous procedure. This applies only to DB2 11 or higher.

**Ran Seq (Negotiate)**
Number of parallel groups that is degenerated to sequential mode due to system negotiation result of system stress level.
This applies only to DB2 11 or higher.

**One DB2 (Coord=No)**
Total number of parallel groups that are executed on a single DB2 because the COORDINATOR subsystem parameter is set to NO. When the statement is bound, the COORDINATOR subsystem parameter is set to YES. This situation might also occur when a plan or package is bound on a DB2 where the COORDINATOR subsystem parameter is set to YES, but is run on a DB2 where the subsystem parameter COORDINATOR is set to NO.

**One DB2 (Isolation)**
Total number of parallel groups that are executed on a single DB2 because of repeatable-read or read-stability isolation.

**One DB2 (DCL GTT)**
Total number of parallel groups that are part of a query block. The query block is using an UDF. It is executed on a single DB2 because a Declared Temporary Table exists in the application process. Neither the query block nor the parallel group is referencing a Declared Temporary Table. A parallel group might use or might not use an UDF.

**Groups Intended**
Total number of parallel groups that are intended to run across the data sharing group. This count is only incremented on the parallelism coordinator at run time.
Groups Skipped
The number of times that the parallelism coordinator must bypass a DB2 when distributing tasks because there is not enough buffer pool storage on one or more DB2 members.

This field is incremented only on the parallelism coordinator. It is only incremented once per parallel group even though it is possible that more than one DB2 systems have a buffer pool shortage for that parallel group. The purpose of this count is to indicate when there are not enough buffers on a member. Therefore, this count is incremented only when the buffer pool is defined to allow parallelism. For example, if VPXPSEQT is set to 0 on an assistant, DB2 does not send parallel work to the assistant, but this count is not incremented.

Reform (Config)
Total number of parallel groups for which DB2 reformulated the parallel portion of the access path because the sysplex configuration is different from the sysplex configuration at bind time. This counter is only incremented by the parallelism coordinator at run time.

Reform (No Buffer)
Total number of parallel groups for which DB2 reformulated the parallel portion of the access path because there was not enough buffer pool resource. This counter is only incremented by the parallelism coordinator at run time.

Miscellaneous
Incremental Bind
Occurrences of incremental bind, which take place upon execution of a DB2 plan that is bound as VALIDATE(RUN).

Max SQL Levels
The maximum level of nested SQL cascading. This includes cascading because of triggers, UDFs, and stored procedures.

Max LOB Storage (MB)
Maximum storage that is used for LOB values.

Max XML Storage
Maximum storage that is used for XML values.

Array Expansions
The number of times an array variable is expanded beyond 32K.
This applies to DB2 11 or higher.

Sparse IX (Disabled)
The number of times that sparse index is disabled because of insufficient storage.
This applies to DB2 11 or higher.

Sparse IX (Built WF)
The number of times that sparse index built a physical work file for probing.
This applies to DB2 11 or higher.

Fetched 1 Block Only (QXR1BOAD)
The number of times 1 block is fetched and there were no further fetches. DB2 12 and later.
Pipes Allocated (QXR1INPA)
The number of data manager fast insert pipes allocated since DB2 restart.
DB2 12 and later.

Pipes Disabled (QISTINPD)
The number of data manager fast insert pipes disabled since DB2 restart.
DB2 12 and later.

Stored procedures: For each field described below the following statistics are provided:
- Total quantity, which reflects the amount of activities since DB2 was started.
- Interval quantity, which reflects activity during the last cycle.
- Rate per minute during the last cycle.
- Rate per thread during the last cycle.
- Rate per Commit during the last cycle.

Abended
CALL statements executed to invoke a stored procedure that terminated abnormally.

Timed Out
CALL statements executed to invoke a stored procedure that timed out while waiting to be scheduled.

Rejected
CALL statements executed to invoke a stored procedure that was in the STOP ACTION(REJECT) state.

User Defined Functions: For each field described below the following statistics are provided:
- Total quantity, which reflects the amount of activities since DB2 was started.
- Interval quantity, which reflects activity during the last cycle.
- Rate per minute during the last cycle.
- Rate per thread during the last cycle.
- Rate per Commit during the last cycle.

Executed
The number of user-defined functions (UDFs) executed.

Abended
The number of times a UDF abended.

Timed Out
The number of times a UDF timed out when waiting to be scheduled.

Rejected
The number of times a UDF was rejected.

Triggers: For each field described below the following statistics are provided:
- Total quantity, which reflects the amount of activities since DB2 was started.
- Interval quantity, which reflects activity during the last cycle.
- Rate per minute during the last cycle.
- Rate per thread during the last cycle.
- Rate per Commit during the last cycle.

Stmt Triggers Executed
The number of times a statement trigger was activated.
Row Triggers Activated
The number of times a row trigger was activated.

SQL Error in Trigger
The number of times an SQL error occurred during execution of a triggered action.

Dynamic SQL
Prepares (Copy Found)
The number of times a PREPARE request is satisfied by making a copy from the prepared statement cache.

Prepares (Catalog Found)
The number of times a PREPARE request is satisfied by making a copy from the stabilized statement in SYSIBM.SYSDYNQRY catalog table. The stabilized statement search is done only when no matching statement is found in the prepared statement cache. DB2 12 and later. (Field name: QXSTSFND)

Prepares (Copy NFound)
The number of times a PREPARE request is received but a matching statement is not found in the prepared statement cache. Cache search is only done for DML SQL and only if cache option is active.

Prepares (Restrict IX)
The number of PREPARE requests for which the use of index/indexes are restricted because the index is in a pending state.

KeepDyn (Implicit)
The number of times the following actions occurred:
• An implicit PREPARE is performed because the KEEPDYNAMIC(YES) option is used
• An OPEN, EXECUTE, or DESCRIBE of a dynamic statement occurred after a COMMIT, however, DB2 no longer had a valid copy of the executable version of the prepared statement.

KeepDyn (Avoided)
The number of times that a PREPARE is avoided because KEEPDYNAMIC(YES) is used together with prepared statement caching, and DB2 still had the copy of the executable version of the prepared statement.

KeepDyn (Exceed Limit)
The number of times that an executable copy of a prepared statement is discarded because the MAXKEEPD system limit is exceeded.

KeepDyn (Invalidated)
The number of times that a prepared statement is purged from the cache because a DROP, ALTER, or REVOKE statement is issued on a dependent object.

Literals (Parsed)
The number of times DB2 parsed dynamic statements because CONCENTRATE STATEMENTS WITH LITERALS behavior is in effect for the prepare of the statement for the dynamic statement cache.

Literals (Replaced)
The number of times DB2 replaced at least one literal in a dynamic statement because CONCENTRATE STATEMENTS WITH LITERALS is in effect for the prepare of the statement for dynamic statement cache.
Literals (Matched)
The number of times DB2 found a matching reusable copy of a dynamic statement in statement cache during preparation of a statement that had literals replaced because of CONCENTRATE.

Literals (Duplicated)
The number of times DB2 created a duplicate statement instance in the statement cache for a dynamic statement that had literals replaced by CONCENTRATE STATEMENTS WITH LITERALS behavior and the duplicate statement instance was needed because a cache match failed because of literal reusability criteria.

Row ID

Successful
The number of times that direct row access was successful.

Revert to Index
The number of times an attempt to use direct row access reverted to using an index to locate a record.

Revert to TS Scan
The number of times an attempt to use direct row access reverted to using a table space scan to locate a record.

Rows Processing

Rows Fetched
The number of fetched rows.

Rows Inserted
The number of inserted rows.

Rows Updated
The number of updated rows.

Rows Deleted
The number of deleted rows.

Currently Committed

Insert Rows Skipped
The number of rows that are skipped by read transactions because uncommitted inserts are performed when current committed read is in effect for fetch operations.

Delete Rows Accessed
The number of rows that are skipped by read transactions because uncommitted deletes are performed when current committed read is in effect for fetch operations.

Update Rows Accessed
The number of rows that are accessed by read transactions while uncommitted updates existed because currently committed read behavior is in effect for fetch operation.

Workfile Database (WFDB)

Curr WFDB For TS (KB)
Current total storage (KB) that is configured for all table spaces in the WFDB.
This applies to DB2 11 or higher.

**DGTT WF configured (KB)**
Total preferred STORAGE (KB) that is configured for DGTTs in the WFDB.
This applies to DB2 11 or higher.

**WF Stor Configed (KB)**
Total preferred STORAGE (KB) that is configured for work files in the WFDB.
This applies to DB2 11 or higher.

**System WKDB threshold**
The value in percent (%) for the threshold of the system-level WFDB space usage alert.
Valid values: 0 - 100
This applies to DB2 11 or higher.

**Max Total Storage**
The maximum total storage (KBs) that is used in the WFDB at system level for DGTTs and work files since DB2 is started. After restart, this value starts again with 0.

**HWM DGTT WF Stor (KB)**
The highest total storage (KB) that is used for DGTTs by all agents on the system since DB2 is started.
This applies to DB2 11 or higher.

**HWM WF Storage (KB)**
The highest total storage (KB) that is used for work files by all agents on the system since DB2 is started.
This applies to DB2 11 or higher.

**Curr DGTT WF Stor (KB)**
Current total storage (KB) that is used for DGTTs by all agents on the system since DB2 is started.
This applies to DB2 11 or higher.

**Curr WF Storage (KB)**
The current total storage (KB) that is used for work files by all agents on the system since DB2 started.
This applies to DB2 11 or higher.

**Storage in 4K TS**
Current 4KB table space storage that is used (KB).

**Storage in 32K TS**
Current 32KB table space storage that is used (KB).

**32K used instead of 4K**
The number of times a 32KB page TS is used when a 4KB page TS is to be preferred but not available.

**4K used instead of 32K**
The number of times a 4KB page TS is used when a 32KB page TS is to be preferred but not available.
HWM DM WF Count
High watermark count (maximum number) of SORT-related DM in-memory work files that are active at any point in time since DB2 is started.

HWM NSort WF Count
High watermark count (maximum number) of non-SORT-related DM in-memory work files that are active at any point in time since DB2 is started.

This applies to DB2 11 or higher.

Curr DM WF Count
The number of times SORT-related DM in-memory work files are currently active.

Curr NSort WF Count
The number of times non-SORT related DM in-memory work files are currently active.

This applies to DB2 11 or higher.

HWM DM WF size (KB)
High watermark count of maximum space in KB that is used for the active DM In-Memory work files at any point in time since DB2 is started.

Curr DM WF size (KB)
Total space in KB that is used for the currently active DM In-Memory work files.

HWM Sort WF Count
High watermark count (maximum number) of Sort-Inmem work files that are active at any point in time since DB2 is started.

Curr Sort WF Count
The number of times Sort-Inmem work files are currently active.

HWM Sort WF size (KB)
High watermark count of maximum space that is used for the active Sort-Inmem work files at any point in time since DB2 is started.

Curr Sort WF size (KB)
Total Space that is used for the currently active Sort-Inmem work files.

WF Overflow to TS
The number of times the type-2 in-memory work files overflow into a physical tablespace since DB2 is started.

This applies to DB2 11 or higher.

WF Not Created(NoStor)
The number of times a work file is not created as any type of DM in-memory work file because of critical storage conditions since DB2 is started.

This applies to DB2 11 or higher.

Agent Max Storage
The limit of the maximum storage per agent (KB).

Number of Max Exceeded
The number of times the maximum storage limit is exceeded.

Agent WFDB threshold
The value for the threshold of the agent-level WFDB space usage alert.
Valid values: 0 - 100.

This applies to DB2 11 or higher.

HWM WFDB by Thread(KB)

The highest amount of WFDB storage (KB) that is used by any thread on the system since DB2 is started.

This applies to DB2 11 or higher.

Lock Manager Statistics Summary by Report Interval

This panel provides an overview of the locking activity that was recorded during a series of report intervals.

<table>
<thead>
<tr>
<th>Collection Interval</th>
<th>Report Interval</th>
<th>Combine Level</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 min</td>
<td>1 min</td>
<td>NONE</td>
<td>11/06 11:44</td>
<td>11/06 12:00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interval</th>
<th>Deadlocks</th>
<th>Timeouts</th>
<th>Total Suspend</th>
<th>Total Lock Reqs</th>
<th>Escalate to SHR</th>
<th>Escalate to EXC</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/06 11:59</td>
<td>0</td>
<td>12</td>
<td>227</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11/06 11:58</td>
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<td>6</td>
<td>160</td>
<td>0</td>
<td>0</td>
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<tr>
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<td>0</td>
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<td>133</td>
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<td>11/06 11:55</td>
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<td>0</td>
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</tbody>
</table>

Navigation

For additional information about

- a report interval, move the cursor to the line you want and press F11 (Zoom). Each date/time displayed reflects the end of an interval.
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

Fields

Collection Interval

The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start

The start time of the first interval in this display.
Report Interval
This field determines the report interval. It is set on the Near-Term History Report Option panel.

Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

**HOURLY**
Data will be reported in hourly intervals.

**NONE**
Data will be reported in the time unit specified by the collection interval.

End
The end time of the last interval in this display.

Interval
Provides the date and time that mark the end of the report interval.

Deadlocks
The total number of deadlocks detected during the interval.

Timeouts
The total number of times a suspension of a unit of work lasted longer than the Internal Resource Lock Manager (IRLM) timeout value.

Total Suspends
The total number of suspensions of a unit of work.

Total Lock Reqs
The number of requests to IRLM to obtain, change, query, and release locks, and also other IRLM requests.

Escalate to SHR
The number of times the allowable number of locks per tablespace was exceeded, causing a page (IS) lock to escalate to a shared (S) lock.

Escalate to EXC
The number of times the allowable number of locks per tablespace was exceeded, causing a page (IX) lock to escalate to an exclusive (X) lock.

Lock Manager Statistics Detail:
This panel shows detailed information about locking and claim and drain activity during a selected report interval.
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Collection Interval
The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start The start time of the interval currently displayed.

Report Interval
This field determines the report interval. It is set on the Near-Term History Report Option panel.

Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

HOURLY
Data will be reported in hourly intervals.
NONE
  Data will be reported in the time unit specified by the collection interval.

End  The end time of the interval currently displayed.

For each of the following fields, the following statistics are provided:

INTERVAL QUANTITY
  The amount of activities that occur during the interval.

/MINUTE
  Rate per minute. The number under /MINUTE (in parentheses) is the number of minutes in the interval.

/THREAD
  Rate per thread. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.

/COMMIT
  Rate per Commit. The number under /COMMIT (in parentheses) is the number of Commit requests (including abort requests) during the interval.

Deadlocks Detected
  The number of deadlocks detected.

Timeouts Detected
  Occasions when suspension of a unit of work lasted longer than the Internal Resource Lock Manager (IRLM) timeout value.

Susp Detected - Lock Only
  Suspensions of a unit of work because a lock could not be obtained.

Susp Detected - Latch Only
  DB2 internal latch suspensions.

Susp Detected - Other
  Suspensions caused by something other than locks and latches.

Lock Escalations - to Shared
  Occasions when the allowable number of locks per tablespace was exceeded, causing a page (IS) lock to escalate to a shared (S) lock.

Lock Escalations - to Exclusive
  Occasions when the allowable number of locks per tablespace was exceeded, causing a page (IX) lock to escalate to an exclusive (X) lock.

Lock Requests
  Requests to IRLM to obtain a lock on a resource.

Unlock Requests
  Requests to IRLM to unlock a resource.

Query Requests
  Requests to IRLM to query a lock.

Change Requests
  Requests to IRLM to change a lock.

Other IRLM Requests
  Requests to IRLM to perform a function other than those listed before.

Claim/Drain information:
Claim Requests
Number of claim requests.

Unsuccessful Claim Requests
Number of unsuccessful claim requests.

Drain Requests
Number of drain requests.

Unsuccessful Drain Requests
Number of unsuccessful drain requests.

Global Lock Statistics Summary by Report Interval
This panel provides an overview of the global locking activity that was recorded during a series of report intervals.

<table>
<thead>
<tr>
<th>Collection Interval</th>
<th>Start</th>
<th>Report Interval</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 min</td>
<td>07/31 20:41</td>
<td>1 min</td>
<td>07/31 21:43</td>
</tr>
</tbody>
</table>

Fields

Collection Interval
The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

Start
The start time of the first interval in this display.

Report Interval
This field determines the report interval. It is set on the Near-Term History Report Option panel.
Combine Level
This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

**HOURLY**
Data will be reported in hourly intervals.

**NONE**
Data will be reported in the time unit specified by the collection interval.

End
The end time of the last interval in this display.

Interval
Provides the date and time that mark the end of the report interval.

Total XES Requests
The total number of lock, change, and unlock requests that were propagated to MVS either synchronously or asynchronously.

Total Suspends
The total number of XES requests that resulted in a suspension. This includes suspends for Internal Resource Lock Manager (IRLM) global contention, XES global contention, or false contention.

Total P-Locks
The total number of lock, change, and unlock requests for P-locks.

Total Negotiate
The number of times that this DB2 member was driven to negotiate a P-lock.

Incompat Retained
The number of global lock or change requests that failed because of an incompatible retained lock. Certain P-locks can be retained because of a system failure. Another DB2 member cannot access the data that the retained P-lock is protecting unless it requests a P-lock in a compatible state.

False Contention
The rate of false contentions to real contentions.

Global Lock Statistics Detail:
This panel shows detailed information about global locking activity in a data sharing environment during a selected report interval.
### GLOBAL LOCK STATISTICS DETAIL

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1 min</td>
</tr>
<tr>
<td>Start</td>
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<tr>
<td>Report Interval</td>
<td>1 min</td>
</tr>
<tr>
<td>Combine Level</td>
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</tr>
<tr>
<td>End</td>
<td>11/06 11:48</td>
</tr>
<tr>
<td>Total Global Contention</td>
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</tr>
<tr>
<td>P-Lock/Notify Engines</td>
<td>500</td>
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<tr>
<td>False Contention</td>
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#### INTERVAL QUANTITY

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<tr>
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<tr>
<td>2</td>
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<tr>
<td>7</td>
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<thead>
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<tr>
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<tr>
<td>7</td>
<td>22.57</td>
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<tr>
<td>2</td>
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<tr>
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<th>QUANTITY</th>
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<tr>
<td>2</td>
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<tr>
<td>7</td>
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<tr>
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<td>25.86</td>
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<td>2</td>
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<table>
<thead>
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</thead>
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<td>7</td>
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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
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<tr>
<td>7</td>
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<table>
<thead>
<tr>
<th>INTERVAL /MINUTE</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>2</td>
<td>0.00</td>
</tr>
<tr>
<td>7</td>
<td>0.00</td>
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<table>
<thead>
<tr>
<th>INTERVAL /MINUTE</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>2</td>
<td>0.00</td>
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<tr>
<td>7</td>
<td>0.00</td>
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<table>
<thead>
<tr>
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<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>2</td>
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<tr>
<td>7</td>
<td>0.00</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERVAL /MINUTE</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>7</td>
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</tbody>
</table>

### Fields

#### Collection Interval

The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

#### Start

The start time of the interval currently displayed.

#### Report Interval

This field determines the report interval. It is set on the Near-Term History Report Option panel.

#### Combine Level

This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

**HOURLY**

Data will be reported in hourly intervals.
NONE
Data will be reported in the time unit specified by the collection interval.

End
The end time of the interval currently displayed.

Total Global Contention
The percent of synchronous XES lock, change, or unlock requests that resulted in global contention.

False Contention Percentage
The rate of false contentions to real contentions. This number should be no more than 50%.

P-Lock/Notify Engines
The number of engines available for P-lock exit or notify exit requests.

For each of the following fields, the following statistics are provided:

INTERVAL QUANTITY
The amount of activities that occur during the interval.

/THREAD
Rate per thread. The number under /THREAD (in parentheses) is the number of Create Threads during the interval.

/COMMIT
Rate per Commit. The number under /COMMIT (in parentheses) is the number of Commit requests (including abort requests) during the interval.

P-lock Lock Requests
Number of lock requests for P-locks. A P-lock is a physical lock used only in a data sharing environment to provide consistency of data cached in different DB2 subsystems.

P-lock Change Requests
Number of change requests for P-locks.

P-lock Unlock Requests
Number of unlock requests for P-locks.

XES Lock Requests
The number of lock requests (both logical and physical) that were propagated to MVS XES synchronously under the caller's execution unit. This count does not include suspended requests. Only the most restrictive lock for a particular resource is propagated to XES and the coupling facility.

XES Unlock Requests
The number of unlock requests (both logical and physical) that are propagated to MVS XES synchronously under the caller's execution unit. This count does not include suspended requests.

XES Change Requests
The number of change requests (both logical and physical) that were propagated to MVS XES synchronously under the caller's execution unit. This count does not include suspended requests.

XES Asynchronous Requests
The number of L-locks and P-locks propagated to XES asynchronously. This occurs when a new inter-DB2 interest occurs on a parent resource or when a request completes after the requestor's execution unit has been suspended.
Suspends-IRLM Global Contention
The number of suspends due to Internal Resource Lock Manager (IRLM) global resource contentions. IRLM lock states were in conflict and inter-system communication is required to resolve the conflict.

Suspends-XES Global Contention
The number of suspends due to MVS XES global resource contentions that were not IRLM-level contentions. The XES lock states were in conflict, but the IRLM lock states were not.

Suspends-False Contention
The number of suspends caused by MVS XES false contentions. XES detects hash class contention when two different locks on different resources hash to the same entry in the coupling facility lock table. The requester is suspended until it is determined that no real lock contention exists.

Negotiate Pageset P-Locks
The number of times this DB2 member was driven to negotiate a pageset/partition P-lock because of changing inter-DB2 interest levels on the pageset/partition.

Negotiate Page P-Locks
The number of times this DB2 member was driven to negotiate a page P-lock because of inter-DB2 P-lock contention.

Negotiate Other P-Locks
The number of times this DB2 member was driven to negotiate a P-lock type other than pageset/partition or page.

Negotiate P-Lock Change
The number of times a P-lock change request was issued during P-lock negotiation.

Incompatible Retained Locks
The number of global lock or change requests that failed because of an incompatible retained lock. Certain P-locks can be retained because of a system failure. Another DB2 member cannot access the data that the retained P-lock is protecting unless it requests a P-lock in a compatible state.

Notify Messages Sent
The number of notify messages sent.

Notify Messages Received
The number of notify messages received.

Engine Not Available
The number of times an engine was not available for a P-lock exit or a notify exit request.

Very Conditional Rejections
The number of rejections of very conditional requests which could not get processed because of the heuristic algorithm used by XES.

DB2 Command Statistics By Report Interval
This panel provides an overview of DB2 command activity recorded during a series of report intervals.

You can view detailed statistics by zooming in on that interval.
### Navigation

For additional information about

- a report interval, move the cursor to the required line and press F11 (Zoom).
  (Each date/time displayed reflects the end of an interval.)
- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

### Fields

#### Collection Interval

The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

#### Start

The start time of the first interval in the display.

#### Report Interval

This field determines the report interval. It is set on the Near-Term History Report Option panel.

#### Combine Level

This field reflects the selected combine level. If Combine Level is NONE, the report interval is the same as the collection interval. Possible values:

<table>
<thead>
<tr>
<th>Interval</th>
<th>DATABASE</th>
<th>TRACE</th>
<th>LOG</th>
<th>INDOUBT</th>
<th>THREAD</th>
<th>BUFFER</th>
</tr>
</thead>
<tbody>
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</table>

===============================================================================

**H.A.L**

Enter a selection letter on the top line.

> A-SUBSYSTEM SUPPORT  B-BIND  C-BUFFER POOL  D-GROUP BP
> E-DISTRIBUTED DATABASE  F-EDM POOL  G-LOG MANAGER  H-OPEN/CLOSE
> I-SQL/RID/PARALLEL/PROC  J-LOCK/CLAIM/DRAIN  K-GLOBAL LOCK  +*DB2 COMMANDS
> O-OPTIONS

---

IBM Db2 Performance Expert on z/OS
HOURLY
Data will be reported in hourly intervals.

NONE
Data will be reported in the time unit specified by the collection interval.

For each field described below the following statistics are provided:
• The amount of activities that occur during the interval.
• Rate per minute during the interval.
• Percentage of total commands during the interval.

START/STOP DATABASE
The number of Start and Stop Database commands executed this interval to change the availability of specified databases.

START/STOP/MODIFY TRACE
The number of Start, Stop, and Modify Trace commands executed this interval to trace activity in the DB2 subsystem.

ARCHIVE LOG
The number Archive Log commands executed to initiate a DB2 active log switch.

RECOVER/RESET INDOUBT
The number of Recover and Reset Indoubt commands executed this interval to recover or purge indoubt threads.

CANCEL DDF THREAD
The number of Cancel DDF Thread commands executed this interval to cancel a distributed thread.

ALTER BUFFERPOOL
The number of ALTER BUFFERPOOL commands executed this interval to alter attributes for active or inactive buffer pools.

DB2 Command Statistics Detail:
This panel provides detailed statistics about DB2 command activity during a selected report interval.
<table>
<thead>
<tr>
<th>Command</th>
<th>Quantity</th>
<th>Interval % of Total</th>
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<td>ALTER GROUPBUFFERPOOL</td>
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<td>ALTER UTILITY</td>
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<td>CANCEL (DF) THREAD</td>
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<tr>
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<td>0.00</td>
</tr>
<tr>
<td>SET SYSPARM</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>DISPLAY DDF</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>ACCESS DATABASE</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>START PROFILE</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>STOP PROFILE</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>DISPLAY PROFILE</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>MODIFY DDF</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>ACTIVATE FUNCTION LEVEL</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>START DYNQUERYCAPTURE</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>STOP DYNQUERYCAPTURE</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>DISPLAY DYNQUERYCAPTURE</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>UNRECOGNIZED COMMAND</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>0</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Navigation

For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Collection Interval
The time interval specified for the collection of near-term history data. This
unit of time was specified when the Near-Term History Data Collector was
started.

Start
The start time of the interval currently displayed.

Report Interval
This field determines the report interval. It is set on the Near-Term History
Report Option panel.

Combine Level
This field reflects the selected combine level. If Combine Level is NONE,
the report interval is the same as the collection interval. Possible values:

HOURLY
Data will be reported in hourly intervals.

NONE
Data will be reported in the time unit specified by the collection
interval.

End
The end time of the interval currently displayed.

For each field described below the following statistics are provided:
• Interval quantity, which is the activity during the interval.
• Rate per minute during the interval.
• Percentage of total commands during the interval.

ALTER BUFFERPOOL
ALTER BUFFERPOOL commands executed to alter attributes for active or
inactive buffer pools.

ALTER GROUPBUFFERPOOL
ALTER GROUPBUFFERPOOL commands executed to alter attributes for group
buffer pools.

ALTER UTILITY
ALTER UTILITY commands executed to change the values of certain
parameters of an execution of the REORG utility that uses SHRLEVEL
REFERENCE or CHANGE.

ARCHIVE LOG
ARCHIVE LOG commands executed to initiate a DB2 active log switch.

CANCEL (DDF) THREAD
CANCEL DDF THREAD commands executed to cancel a distributed thread.

DISPLAY ARCHIVE
DISPLAY ARCHIVE commands executed to display input archive log
information.
DISPLAY BUFFERPOOL
DISPLAY BUFFERPOOL commands executed to display statistics for active or inactive buffer pools.

DISPLAY DATABASE
DISPLAY DATABASE commands executed to display status information about tablespaces and indexspaces within a database.

DISPLAY GROUP
DISPLAY GROUP commands executed to display statistics about the data sharing group to which the DB2 subsystem belongs.

DISPLAY GROUPBUFFERPOOL
DISPLAY GROUPBUFFERPOOL commands executed to display attributes of group buffer pools.

DISPLAY LOCATION
DISPLAY LOCATION commands executed to display statistics of threads with distributed relationships.

DISPLAY PROCEDURE
DISPLAY PROCEDURE commands execute to display statistics about stored procedures.

DISPLAY RLIMIT
DISPLAY RLIMIT commands executed to display the current status of the resource limit facility.

DISPLAY THREAD
DISPLAY THREAD commands executed to display status information about DB2 threads.

DISPLAY TRACE
DISPLAY TRACE commands executed to display a list of active traces.

DISPLAY UTILITY
DISPLAY UTILITY commands executed to display status information about DB2 utility jobs.

DISPLAY FUNCTION
DISPLAY FUNCTION specific commands executed to display statistics about external user-defined functions accessed by DB2 applications.

DISPLAY LOG
DISPLAY LOG commands executed to display log information and the status of the offload task.

MODIFY TRACE
MODIFY TRACE commands executed to change the IFCIDs being traced for an active trace.

RECOVER BSDS
RECOVER BSDS commands executed to recover a boot strap data set that has been disabled by an error.

RECOVER INDOUBT
RECOVER INDOUBT commands executed to recover threads left in the indoubt status.

RESET GENERICLU
RESET GENERICLU commands executed to purge information stored by VTAM in the coupling facility for one or more partners of a particular DB2 subsystem.
RESET INDOUBT
commands executed to purge indoubt thread information.

SET ARCHIVE
commands executed to change the maximum tape units and the deallocation time parameters originally set in the installation parameters.

START DATABASE
commands executed to make stopped databases available for use.

START DB2
commands executed.

START DDF
commands executed to start the distributed data facility.

START PROCEDURE
commands executed to activate the definition of a stored procedure which is stopped, or which refreshes a stored procedure that is cached.

START RLIMIT
commands executed to start the resource limit facility.

START TRACE
commands executed to begin collection of DB2 trace records.

START FUNCTION
specific commands executed to activate an external function that is stopped. Built-in functions or user-defined functions that are sourced on another function cannot be started.

STOP DATABASE
commands executed to make specified databases unavailable for use.

STOP DB2
commands executed.

STOP DDF
commands executed to stop the distributed data facility.

STOP PROCEDURE
commands executed to prevent DB2 from accepting SQL CALL statements for one or more stored procedures.

STOP RLIMIT
commands executed to stop the resource limit facility.

STOP TRACE
commands executed to stop collection of DB2 trace records.

STOP FUNCTION
specific commands executed to prevent DB2 from accepting SQL statements with invocations of the specified functions. You cannot stop built-in functions or user-defined functions that are sourced on another function.

TERM UTILITY
commands executed to terminate execution of a utility job.
SET LOG
SET LOG commands executed to modify the checkpoint frequency specified during installation.

DISPLAY ACCEL
Display Accelerator commands that are executed to display details about accelerators that are connected to the current subsystem.

START ACCEL
Start Accelerator commands that are executed to activate an accelerator.

STOP ACCEL
Stop Accelerator commands that are executed to deactivate an accelerator.

SET SYSPARM
The number of DB2 SET SYSPARM commands that are issued. This includes normal and abnormal completion of the command.

DISPLAY DDF
The number of DB2 DISPLAY DDF commands that are issued. This includes normal and abnormal completion of the command.

ACCESS DATABASE
The number of DB2 ACCESS DATABASE commands that are issued. This includes normal and abnormal completion of the command.

START PROFILE
The number of DB2 START PROFILE commands that are issued. This includes normal and abnormal completion of the command.

STOP PROFILE
The number of DB2 STOP PROFILE commands that are issued. This includes normal and abnormal completion of the command.

DISPLAY PROFILE
The number of DB2 DISPLAY PROFILE commands that are issued. This includes normal and abnormal completion of the command.

MODIFY DDF
The number of DB2 MODIFY DDF commands that are issued. This includes normal and abnormal completion of the command.

This field is only displayed for DB2 10 or above.

ACTIVATE FUNCTION LEVEL (Q9STCTEN)
The number of DB2 ACTIVATE FUNCTION LEVEL commands issued. This includes normal and abnormal completion of the command. DB2 12 and later.

START DYNQUERYCAPTURE (Q9STCTSQ)
The number of DB2 START DYNQUERYCAPTURE commands issued. This includes normal and abnormal completion of the command. DB2 12 and later.

STOP DYNQUERYCAPTURE (QSTCTXQ)
The number of DB2 STOP DYNQUERYCAPTURE commands issued. This includes normal and abnormal completion of the command. DB2 12 and later.

DISPLAY DYNQUERYCAPTURE (Q9STCTDQ)
The number of DB2 DISPLAY DYNQUERYCAPTURE commands issued. This includes normal and abnormal completion of the command. This field only shown for DB2 12 and later.
**Near-Term History Report Option**

This panel shows the current data collection interval and the number of intervals that have been collected since the Near-Term History Data Collector was started. Use this panel to set the combine level for near-term history reporting.

```
> A-SUBSYSTEM SUPPORT   B-BIND   C-BUFFER POOL   D-GROUP BP
> E-DISTRIBUTED DATABASE F-EDM POOL G-LOG MANAGER H-OPEN/CLOSE
> I-SQL/RID/PARALLEL/PROC J-LOCK/CLAIM/DRAIN K-GLOBAL LOCK L-DB2 COMMANDS
> *-OPTIONS
> NEAR-TERM HISTORY REPORT OPTION
> HOPT
> + Collection Interval = 1 minute
> + Number of Intervals Collected = 18
> + Report Combine Level = NONE (NONE, HOURLY)
```

**Navigation**

For additional information about other topics, use the PF keys.

**Fields**

**Collection Interval**

The time interval specified for the collection of near-term history data. This unit of time was specified when the Near-Term History Data Collector was started.

**Number of Intervals Collected**

The number of intervals' worth of data that has been collected since the Near-Term History Data Collector was started. The interval that is currently in progress is not included in this count.

The maximum of 288 can be stored is 288, which is equivalent to the number of five-minute intervals during 24 hours).

**Report Combine Level**

Use this field to establish the report interval for near-term history reporting. Possible values:

**HOURLY**

Data will be reported in hourly intervals.

**NONE**

Data will be reported in the time unit specified by the collection interval.

**Note:** To change this setting permanently, save your user profile. Select the Save User option from the Profile Maintenance Menu.
Near-Term Thread History Filter Options
Use this panel to specify the reporting period for which you want to view near-term thread history information, the intervals into which the report is divided, and filter options that restrict the data that is displayed on subsequent thread history panels.

Using this panel, you can set the following options:

- **Time of oldest available record**: Displays the earliest time that thread data was collected to active data sets. Displays N/A if no thread data is collected.
  - This is either the time stamp of the first IFCID 3 record or, if detail is not being collected, the oldest near-term thread summary record.

- **Time of latest record**: Displays the most recent time that thread data was collected to active data sets. Displays N/A if no thread data is collected.
  - This is either the time stamp of the last IFCID 3 record or, if detail is not being collected, the last near-term thread summary record.

### Filters

- **Field filter options**: Specify filter options then press ENTER to continue.

<table>
<thead>
<tr>
<th>Field</th>
<th>Example 1</th>
<th>Example 2</th>
<th>Example 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLAN</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
</tr>
<tr>
<td>AUTHID</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
</tr>
<tr>
<td>CONNID</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
</tr>
<tr>
<td>CONNTYPE</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
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</tr>
<tr>
<td>PACKAGE</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
</tr>
<tr>
<td>CORRID</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
</tr>
<tr>
<td>GETPAGES</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
</tr>
<tr>
<td>DEADLK/TIMEOUT</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
</tr>
<tr>
<td>LOCK-ESCAL</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
</tr>
<tr>
<td>COMMIT</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
</tr>
<tr>
<td>DB2-CPU-TIME</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
</tr>
<tr>
<td>DB2-ELAP-TIME</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
</tr>
<tr>
<td>IO-WAIT-TIME</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
<td>_______ _______ _______ _______</td>
</tr>
</tbody>
</table>

### Navigation

For additional information about other topics, use the PF keys.

### Fields

**Information about available data:**

**Time of oldest available record**
- Displays the earliest time that thread data was collected to active data sets.
- Displays N/A if no thread data is collected.

This is either the time stamp of the first IFCID 3 record or, if detail is not being collected, the oldest near-term thread summary record.

**Time of latest record**
- Displays the most recent time that thread data was collected to active data sets.
- Displays N/A if no thread data is collected.

This is either the time stamp of the last IFCID 3 record or, if detail is not being collected, the last near-term thread summary record.
Total number of records
Displays the number of thread records (IFCID 3) that are collected to active data sets. Displays 0 if no detail thread records are collected.

Filter options limiting the time: Specify an absolute or relative time range of at most 24 hours for the reporting period for which you want to view near-term thread history information. The specified time range should be within the range of collected data.

START-DATE/TIME
Specify an absolute start date and time. START-DATE/TIME and RELATIVE-START are mutually exclusive.
You can specify the date and time in U.S., European, or ISO format.

DATE
- mm/dd/yyyy (U.S.)
- dd.mm.yyyy (European)
- yyyy-mm-dd (ISO)

TIME
- hh:mm (U.S.)
- hh.mm (European, ISO)

END-DATE/TIME
Specify an absolute end date and time. END-DATE/TIME and RELATIVE-END are mutually exclusive.
You can specify the date and time in U.S., European, or ISO format.

DATE
- mm/dd/yyyy (U.S.)
- dd.mm.yyyy (European)
- yyyy-mm-dd (ISO)

TIME
- hh:mm (U.S.)
- hh.mm (European, ISO)

RELATIVE-START
Specify a start time relative to the current time, as the number of minutes or hours before the current time. The default value is one hour. RELATIVE-START and START-DATE/TIME are mutually exclusive.

RELATIVE-END
Specify an end time relative to the specified start time, as the number of minutes or hours after START-DATE/TIME or RELATIVE-START. RELATIVE-END and END-DATE/TIME are mutually exclusive.

REPORT-INTERVAL
Specify a report interval by which the report period is partitioned, from 5 to 60 minutes, in five minute increments. The value must be some multiple of the Near-Term History Data Collector summary record write frequency.

Filter options to be used at interval display level: You can use these options to filter near-term history data at thread summary (interval) display level.

PLAN
You can specify up to five plan names that you want to be displayed on subsequent thread history panels. You can enter multiple values including wildcards. You can compare values using the equal (=) or not equal (^=, <> ) comparison operators. Use the equal operator to OR multiple values. Use the not equal operator to AND multiple values.
AUTHID
You can specify up to five authorization ids that you want to be displayed on subsequent thread history panels. You can enter multiple values including wildcards. You can compare values using the equal (=) or not equal (^=, <>) comparison operators. Use the equal operator to OR multiple values. Use the not equal operator to AND multiple values.

CONNID
You can specify up to five connection ids that you want to be displayed on subsequent thread history panels. You can enter multiple values including wildcards. You can compare values using the equal (=) or not equal (^=, <>) comparison operators. Use the equal operator to OR multiple values. Use the not equal operator to AND multiple values.

CONNTYPE
You can specify up to five connection types that you want to be displayed on subsequent thread history panels.
- TSO TSO foreground and background (QWHCTSO)
- CALLATCH
  - DB2 call attach (QWHDB2C)
- CICS CICS attach (QWHCCICS)
- DL/I DL/I batch (QWHCDLIB)
- IMSBPP
  - IMS attach BMP (QWHCIMSB)
- IMSMPP
  - IMS attach MPP (QWHCIMSM)
- IMSCTRL
  - IMS control region (QWHCICTL)
- IMSBMP
  - IMS transaction BMP (QWHCTBMP)
- IMS All IMS threads including DL/I batch (QWHCDLIB + QWHCIMSB + QWHCIMSM + QWHCICTL + QWHCTBMP)
- SYSDIR
  - System directed access (data base access threads) (QWHCDUW)
- APPLDIR
  - Application directed access (data base access threads) (QWHCRUW)
- DIST
  - Data base access threads (System-directed and Application-directed) (QWHCDUW + QWHCRUW)
- BATCH
  - DB2 call attach (QWHDB2C)

Filter options to be used only at thread detail display level: You can use these options to filter near-term history data at thread detail display level.

PACKAGE
You can specify up to five package ids that you want to be displayed on subsequent thread history panels. You can enter multiple values including wildcards. You can compare values using the equal (=) or not equal (^=, <>) comparison operators. Use the equal operator to OR multiple values. Use the not equal operator to AND multiple values.

CORRID
You can specify up to five correlation ids that you want to be displayed on subsequent thread history panels. You can enter multiple values including wildcards. You can compare values using the equal (=) or not equal (^=, <>) comparison operators. Use the equal operator to OR multiple values. Use the not equal operator to AND multiple values.
GETPAGES
Specify the minimum number of Getpage requests that you want to be displayed on subsequent thread history panels. You can compare values using the equal (=) or not equal (^=, <> ) comparison operators. Use the equal operator to OR multiple values. Use the not equal operator to AND multiple values.

DEADLK/TIMEOUT
Specify the minimum number of deadlocks and lock timeouts that you want to be displayed on subsequent thread history panels. You can compare values using the equal (=) or not equal (^=, <> ) comparison operators. Use the equal operator to OR multiple values. Use the not equal operator to AND multiple values.

LOCK-ESCAL
Specify the minimum number of lock escalations that you want to be displayed on subsequent thread history panels. You can compare values using the equal (=) or not equal (^=, <> ) comparison operators. Use the equal operator to OR multiple values. Use the not equal operator to AND multiple values.

COMMIT
Specify the minimum number of commits that you want to be displayed on subsequent thread history panels. You can compare values using the equal (=) or not equal (^=, <> ) comparison operators. Use the equal operator to OR multiple values. Use the not equal operator to AND multiple values.

DB2-CPU-TIME
Specify the minimum amount of DB2 processor time that you want to be displayed on subsequent thread history panels. You can compare values using the equal (=) or not equal (^=, <> ) comparison operators. Use the equal operator to OR multiple values. Use the not equal operator to AND multiple values.

DB2-ELAP-TIME
Specify the minimum amount of DB2 elapsed time that you want to be displayed on subsequent thread history panels. You can compare values using the equal (=) or not equal (^=, <> ) comparison operators. Use the equal operator to OR multiple values. Use the not equal operator to AND multiple values.

IO-WAIT-TIME
Specify the minimum amount of I/O wait time that you want to be displayed on subsequent thread history panels. You can compare values using the equal (=) or not equal (^=, <> ) comparison operators. Use the equal operator to OR multiple values. Use the not equal operator to AND multiple values.

Near-Term Thread History Filter Options - Confirmation
This panel shows the reporting and filtering options that you have specified on the Near-Term Thread History Filter Options panel.
The following options have been specified, to view Thread History
press ENTER, to modify these options or CANCEL press PF3.

**Near-Term Thread History Filter Options - Confirmation**

- **HAFD**
  - Date and time options in effect for Thread History displays
  - Start = 1 hour ago
  - For = 1 hour or up to the Thread History display time
  - Report Interval = 15 minutes
  - Filter options in effect for Thread History displays
    - Plan Name =
    - Authorization Id =
    - Connection Id =
    - Connection Type =
    - Package =
    - Correlation Id =
    - Getpages >
    - Deadlock/timeout >
    - Lock-escal >
    - Commit >
    - DB2-CPU-TIME >
    - DB2-ELAP-TIME >
    - IO-WAIT-TIME >

To modify any option value, press F3, which returns you to the Near-Term Thread History Filter Options panel.

**Navigation**

For additional information about
- overview of thread activity, press Enter.
- other topics, use the PF keys.

**Fields**

- **Start** The start of the reporting period.
- **For** The minutes or hours of the reporting period.
- **Report Interval** The minutes by which the report period is partitioned.

- **Plan Name** The specified plan names.
- **Authorization Id** The specified authorization identifiers.
- **Connection Id** The specified connection identifiers.
- **Connection Type** The specified connection types.
- **Package** The specified package identifiers.
Correlation ID
The specified correlation identifiers.

Getpages
The specified number of Getpage requests.

Deadlock/timeout
The specified number of deadlocks and lock timeouts.

Lock-escal
The specified number of lock escalations.

Commit
The specified number of Commits.

DB2-CPU-TIME
The specified amount of DB2 processor time.

DB2-ELAP-TIME
The specified amount of DB2 elapsed time.

IO-WAIT-TIME
The specified amount of I/O wait time.

Thread History By Report Interval
This panel provides an overview of thread activity for the specified reporting period, divided into a series of report intervals.

Each time displayed in this panel reflects the start of an interval.

<table>
<thead>
<tr>
<th>Time</th>
<th>Thrd</th>
<th>Com</th>
<th>Abnt</th>
<th>DML</th>
<th>TOut</th>
<th>Elap</th>
<th>CPU Tm</th>
<th>Wait Tm</th>
<th>Getp</th>
<th>RIO</th>
</tr>
</thead>
</table>

Navigation

For additional information about a report interval, move the cursor to the line you want, enter one of the following selection letters, and press Enter.

A Thread history by Plan. For more information, see the description of panel “Thread History By Plan” on page 1613.
Thread history by Authid. For more information, see the description of panel “Thread History By Authid” on page 1615.

Thread history by Plan, Authid. For more information, see the description of panel “Thread History By Plan, Authid” on page 1616.

Thread history by Authid, Plan. For more information, see the description of panel “Thread History By Authid, Plan” on page 1618.

Thread history summary (no grouping). For more information, see the description of panel “Thread History Summary” on page 1621.

Thread summary by subinterval (the Near-Term History Data Collector summary record write frequency). This is valid only when the report interval is set to a multiple of the innate subinterval. For more information, see the description of panel “Thread History By Subinterval” on page 1624.

Thread history summary by correlation ID. For more information, see the description of panel “Thread History By Correlation ID” on page 1626.

* other topics, use the PF keys.

**Fields**

**Report Interval**
The time interval by which the report period is partitioned. For more information, see the description of panel “Near-Term Thread History Filter Options” on page 1606.

**Start**
The start date and time of the first interval in the display.

**Report Filtered**
This field shows YES if thread filter values were used to create this display. Otherwise, NO is displayed.

**End**
The end date and time of the last interval in the display.

**Time**
The time of the start of the report interval.

**Thrds**
The number of threads completed in this interval.

**Commit**
The number of successful commits performed in this interval. For attachments that use two-phase-commit protocol, this count represents the number of phase two commits. For others, this count represents the number of single-phase commit (sync) requests.

**Abort**
The number of successful rollbacks performed in this interval.

**DML**
The number of DML calls issued in this interval.

**DLk/TOut**
The number deadlocks and timeouts occurred in this interval.

**In-DB2 Elap Tm**
The elapsed time spent in DB2 for this interval. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.

**In-DB2 CPU Tm**
The CPU time spent in DB2 for this interval. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.
In-DB2 Wait Tm
The time spent waiting in DB2 for this interval. Accounting class 3 data is required. Displays N/A if accounting class 3 data is not available. DB2 Accounting class 3 wait events are:
• Synchronous I/O waits
• Asynchronous Read I/O waits
• Asynchronous Write I/O waits
• Lock/latch waits
• Page latch waits
• Drain lock waits
• Drain of claims waits
• DB2 service task waits
• Archive Log Mode (QUIESCE) waits
• Archive read from tape waits

Getpage
The number of Getpage requests issued in this interval.

GetP/RIO
The ratio of Getpage requests to synchronous Read I/Os for this interval.

Thread History By Plan
This panel provides information about thread activity grouped by plan for a selected report interval or subinterval.

<table>
<thead>
<tr>
<th>ZHAGPL</th>
<th>VTM</th>
<th>02</th>
<th>V540.4P</th>
<th>DA41</th>
<th>11/06/13 12:07:17 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Help PF1</td>
<td>Back PF3</td>
<td>Up PF7</td>
<td>Down PF8</td>
<td>Zoom PF11</td>
<td></td>
</tr>
</tbody>
</table>

> Enter a selection letter on the top line.
> *-BY PLAN B-BY AUTHID C-BY PLAN,AUTHID D-BY AUTHID,PLAN
> O-OPTIONS G-BY CORRID

 newsletters
This thread interval is 15 min.
Start: 11/06 10:15:00.000000
End: 11/06 10:29:59.999999

Plan
+ Dlck/ In-DB2 In-DB2 GetP
+ Plan Thds Commit Abbrt DML Tout Elap Tm CPU Tm Wait Tm Getpage RIO
+ DISTSERV 19 181 0 456 0 .5 .09 .2 650 .7K

Navigation
For additional information about
• a report interval, move the cursor to the line you want, enter one of the following selection letters, and press Enter.

B Thread history by Authid. For more information, see the description of panel “Thread History By Authid” on page 1615.

C Thread history by Plan, Authid. For more information, see the description of panel “Thread History By Plan, Authid” on page 1616.

D Thread history by Authid, Plan. For more information, see the description of panel “Thread History By Authid, Plan” on page 1618.
Thread history display options. For more information, see the description of the panel “Thread History Display Options” on page 1619.

Thread history summary by correlation ID. For more information, see the description of panel “Thread History By Correlation ID” on page 1626.

- threads associated with a plan, move the cursor to the line you want and press F11 (Zoom).
- other topics, use the PF keys.

Fields

Report Interval
The time interval by which the report period is partitioned. For more information, see the description of panel “Near-Term Thread History Filter Options” on page 1606.

Start
The start date and time of the first interval in the display.

Report Filtered
This field shows YES if thread filter values were used to create this display. Otherwise, NO is displayed.

End
The end date and time of the last interval in the display.

Plan
The DB2 plan name.

Thrds
The number of threads completed in this interval.

Commit
The number of successful commits performed by threads running this plan. For attachments that use two-phase-commit protocol, this count represents the number of phase two commits. For others, this count represents the number of single-phase commit (sync) requests.

Abort
The number of successful rollbacks performed by threads running this plan.

DML
The number of DML calls issued by threads running this plan.

DLk/TOut
The number deadlocks and timeouts that occurred for threads running this plan.

In-DB2 Elap Tm
The elapsed time spent in DB2 for threads running this plan. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.

In-DB2 CPU Tm
The CPU time spent in DB2 for threads running this plan. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.

In-DB2 Wait Tm
The time spent waiting in DB2 for threads running this plan. Accounting class 3 data is required. Displays N/A if accounting class 3 data is not available.

Getpage
The number of Getpage requests issued by threads running this plan.

GetP/RIO
The ratio of Getpage requests to synchronous Read I/Os for this interval.
Thread History By Authid
This panel provides information about thread activity grouped by authorization ID for a selected report interval or subinterval.

```
 Zhagau VTM 02 V540.DP DA41 11/06/13 12:07:30 2
> Help PF1 Back PF3 Up PF7 Down PF8 Zoom PF11
> Enter a selection letter on the top line.
> A-BY PLAN +B-Y AUTHID C-BY PLAN, AUTHID D-BY AUTHID, PLAN
> O-OPTIONS G-BY CORRID

HAGP
+ Report Interval: 15 mins Start: 11/06 10:15:00.000000
+ Report Filtered: NO End: 11/06 10:29:59.999999
auth
+ DLK/ In-DB2 In-DB2 In-DB2 GetP
+ Thrs Commit Abrt DML Tout Elap Tm CPU Tm Wait Tm Getpage R10
+-------- ----- ----- ---- ---- ----- ----- ----- ----- ----- ----
+MIS 19 181 0 456 0 .5 .09 .2 650 .7K

Navigation
For additional information about
• a report interval, move the cursor to the line you want, enter one of the following selection letters, and press Enter.
  A Thread history by Plan. For more information, see the description of panel “Thread History By Plan” on page 1613.
  C Thread history by Plan, Authid. For more information, see the description of panel “Thread History By Plan, Authid” on page 1616.
  D Thread history by Authid, Plan. For more information, see the description of panel “Thread History By Authid, Plan” on page 1618.
  O Thread history display options. For more information, see the description of the panel “Thread History Display Options” on page 1619.
  G Thread history summary by correlation ID. For more information, see the description of panel “Thread History By Correlation ID” on page 1626.
• threads associated with an authorization ID, move the cursor to the line you want and press F11 (Zoom).
• other topics, use the PF keys.

Fields
Report Interval
The time interval by which the report period is partitioned. For more information, see the description of panel “Near-Term Thread History Filter Options” on page 1606.
Start The start date and time of the interval currently displayed.
Report Filtered
This field shows YES if thread filter values were used to create this display. Otherwise, NO is displayed.
End The end time of the interval currently displayed.

Chapter 5. Monitoring  1615
Authid
The DB2 authorization identifier.

Thrds The number of threads completed for the authid.

Commit
The number of successful commits performed by threads run with this authid. For attachments that use two-phase-commit protocol, this count represents the number of phase two commits. For others, this count represents the number of single-phase commit (sync) requests.

Abort The number of successful rollbacks performed by threads run with this authid.

DML The number of DML calls issued by threads run with this authid.

DLk/Out
The number deadlocks and timeouts that occurred for threads run with this authid.

In-DB2 Elap Tm
The elapsed time spent in DB2 for threads run with this authid. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.

In-DB2 CPU Tm
The CPU time spent in DB2 for threads run with this authid. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.

In-DB2 Wait Tm
The time spent waiting in DB2 for threads run with this authid. Accounting class 3 data is required. Displays N/A if accounting class 3 data is not available.

Getpage
The number of Getpage requests issued by threads run with this authid.

GetP/RIO
The ratio of Getpage requests to synchronous Read I/Os for threads run with this authid.

Thread History By Plan, Authid
This panel provides information about thread activity grouped by plan and authid for a selected report interval or subinterval.
Navigation

For additional information about
• a report interval, move the cursor to the line you want, enter one of the following selection letters, and press Enter.

A Thread history by Plan. For more information, see the description of panel “Thread History By Plan” on page 1613.

B Thread history by Authid. For more information, see the description of panel “Thread History By Authid” on page 1615.

D Thread history by Authid, Plan. For more information, see the description of panel “Thread History By Authid, Plan” on page 1618.

O Thread history display options. For more information, see the description of the panel “Thread History Display Options” on page 1619.

G Thread history summary by correlation ID. For more information, see the description of panel “Thread History By Correlation ID” on page 1626.

• threads associated with a plan and authorization ID, move the cursor to the line you want and press F11 (Zoom).

• other topics, use the PF keys.

Fields

Report Interval
The time interval by which the report period is partitioned. For more information, see the description of panel “Near-Term Thread History Filter Options” on page 1606.

Start The start date and time of the interval currently displayed.

Report Filtered
This field shows YES if thread filter values were used to create this display. Otherwise, NO is displayed.

End The end time of the interval currently displayed.

Plan The DB2 plan name. The plan name is displayed only on the first line within a group. However, if you sort this panel on a field other than the Plan+Authid combination, the plan name is displayed on each line.

Authid
The DB2 authorization identifier of the threads.

Thrds The number of threads completed for the plan, authid.

Commit
The number of successful commits performed by this plan, authid. For attachments that use two-phase-commit protocol, this count represents the number of phase two commits. For others, this count represents the number of single-phase commit (sync) requests.

DML The number of DML calls issued.

In-DB2 Elap Tm
The elapsed time spent in DB2. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.
In-DB2 CPU Tm
The CPU time spent in DB2 for threads run with this authid. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.

In-DB2 Wait Tm
The time spent waiting in DB2. Accounting class 3 data is required. Displays N/A if accounting class 3 data is not available.

Getpage
The number of Getpage requests issued.

GetP/RIO
The ratio of Getpage requests to synchronous Read I/Os.

Thread History By Authid, Plan
This panel provides information about thread activity grouped by plan and authid for a selected report interval or subinterval.

Navigation
For additional information about a report interval, move the cursor to the line you want, enter one of the following selection letters, and press Enter.

A  Thread history by Plan. For more information, see the description of panel “Thread History By Plan” on page 1613.
B  Thread history by Authid. For more information, see the description of panel “Thread History By Authid” on page 1615.
C  Thread history by Plan, Authid. For more information, see the description of panel “Thread History By Plan, Authid” on page 1616.
O  Thread history display options. For more information, see the description of the panel “Thread History Display Options” on page 1619.
G  Thread history summary by correlation ID. For more information, see the description of panel “Thread History By Correlation ID” on page 1626.

• threads associated with an authorization ID and plan, move the cursor to the line you want and press F11 (Zoom).
• other topics, use the PF keys.
**Fields**

**Report Interval**
The time interval by which the report period is partitioned. For more information, see the description of panel “Near-Term Thread History Filter Options” on page 1606.

**Start**
The start date and time of the interval currently displayed.

**Report Filtered**
This field shows YES if thread filter values were used to create this display. Otherwise, NO is displayed.

**End**
The end time of the interval currently displayed.

**Authid**
The DB2 authorization ID. The authorization ID is displayed on the only first line within a group. However, if you sort this panel on a field other than the Authid+Plan combination, the authorization ID is displayed on each line.

**Plan**
The DB2 plan name.

**Thrds**
The number of threads completed for the authid,plan.

**Commit**
The number of successful commits performed by this authid,plan. For attachments that use two-phase-commit protocol, this count represents the number of phase two commits. For others, this count represents the number of single-phase commit (sync) requests.

**DML**
The number of DML calls issued.

**In-DB2 Elap Tm**
The elapsed time spent in DB2. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.

**In-DB2 CPU Tm**
The CPU time spent in DB2 for threads run with this authid. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.

**In-DB2 Wait Tm**
The time spent waiting in DB2. Accounting class 3 data is required. Displays N/A if accounting class 3 data is not available.

**Getpage**
The number of Getpage requests issued.

**GetP/RIO**
The ratio of Getpage requests to synchronous Read I/Os.

**Thread History Display Options**
This panel shows the thread history display options that you have specified on the Near-Term Thread History Filter Options panel.
To modify any option value, press F3, which returns you to the Near-Term Thread History Filter Options panel.

**Navigation**

For additional information about
- overview of thread activity, press Enter.
- other topics, use the PF keys.

**Fields**

**Start**  
The start of the reporting period.

**For**  
The minutes or hours of the reporting period.

**Report Interval**  
The minutes by which the report period is partitioned.

**Plan Name**  
The specified plan names.

**Authorization Id**  
The specified authorization identifiers.

**Connection Id**  
The specified connection identifiers.

**Connection Type**  
The specified connection types.

**Package**  
The specified package identifiers.

**Correlation ID**  
The specified correlation identifiers.
Getpages
The specified number of Getpage requests.

Deadlock/timeout
The specified number of deadlocks and lock timeouts.

Lock-escal
The specified number of lock escalations.

Commit
The specified number of Commits.

DB2-CPU-TIME
The specified amount of DB2 processor time.

DB2-ELAP-TIME
The specified amount of DB2 elapsed time.

IO-WAIT-TIME
The specified amount of I/O wait time.

Thread History Summary
This panel provides summary information about thread activity within a report interval.

<table>
<thead>
<tr>
<th>Time</th>
<th>Plan</th>
<th>Authid</th>
<th>Elapsed Time</th>
<th>CPU Time</th>
<th>SQL</th>
<th>Commit</th>
<th>Abrt</th>
<th>Pkg</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:29:44.922</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.25 .005</td>
<td>23</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:29:43.020</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>2.20 .008</td>
<td>40</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:28:46.916</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.33 .005</td>
<td>24</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:27:44.895</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.25 .005</td>
<td>23</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:26:46.850</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.33 .006</td>
<td>23</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:25:46.527</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.33 .005</td>
<td>24</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:24:46.866</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.36 .005</td>
<td>24</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:23:56.423</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.16 .001</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>STALE</td>
<td></td>
</tr>
<tr>
<td>10:23:44.839</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.27 .005</td>
<td>23</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:22:46.739</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.37 .005</td>
<td>24</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:21:53.019</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.44 .006</td>
<td>24</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:21:43.725</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>1.20 .006</td>
<td>21</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:20:46.830</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.45 .005</td>
<td>24</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:19:44.924</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.28 .005</td>
<td>23</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:19:42.953</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>1.34 .007</td>
<td>40</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:18:47.089</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.35 .005</td>
<td>24</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:17:45.072</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.37 .005</td>
<td>23</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:16:45.779</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.26 .005</td>
<td>23</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
<tr>
<td>10:15:45.582</td>
<td>DISTSERV</td>
<td>MIS</td>
<td>.35 .005</td>
<td>24</td>
<td>10</td>
<td>0</td>
<td>1</td>
<td>LIMIT</td>
<td></td>
</tr>
</tbody>
</table>

Navigation
For additional information about

Chapter 5. Monitoring 1621
• a particular thread, move the cursor to the thread information line and press F11 (Zoom).
• related topics, choose one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Report Interval
The time interval by which the report period is partitioned. For more information, see the description of panel “Near-Term Thread History Filter Options” on page 1606.

Start
The start date and time of the interval currently displayed.

Report Filtered
This field shows YES if thread filter values were used to create this display. Otherwise, NO is displayed.

End
The end time of the interval currently displayed.

End Time
The end time of the DB2 thread execution.

If this thread involves parallel processing or if it invokes autonomous procedures, one of the following identifiers is displayed after the elapsed time to provide more information about this thread:

* This thread is a parallel task initiated on behalf of another (originating) thread to process a query request in parallel.
A This thread is an autonomous procedure rollup record.
D This thread is a RRSAF/DDF rollup record due to ZPARM ACCUMACC >= 2.
O This thread is the originating thread that invokes autonomous procedures.
P This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity that is performed for this (originating) thread is reflected under the parallel tasks.
R This thread is a parallel task rollup record due to ZPARM PTASKROL = YES.

Plan
The DB2 plan name.

Authid
The DB2 authorization identifier of the thread.

Elapsed Time
The total elapsed time for the thread.

CPU Time
The amount of CP time used by the thread. This value reflects MVS TCB time for non-database access threads and SRB time for database access threads and parallel tasks. This time represents CP time only and does not include SE (Specialty Engine) time.

SQL
The total number of DCL, DDL, and DML SQL calls issued by the thread. COMMIT and ROLLBACK/ABORT are not included.
Commit
   The number of Commits performed by the thread.

Abt
   The number of aborts performed by the thread.

Pkg
   The number of package and DBRM executions for the thread. Accounting classes 7 and 8 are required. Displays N/A if accounting classes 7 and 8 are not available.

Term Status
   The status that indicates the reason for the thread termination.

READS
   IFI READ request.

RESIGN
   Same user signed on with same authentication identifier.

NEWUSE
   User signon.

DDFINA
   The distributed thread went inactive.

DEALLO
   Thread termination.

COMMIT
   RRSAF thread specified accounting interval = COMMIT.

EOT/TE
   End of task, application terminated normally.

EOT/AB
   End of task, application terminated abnormally.

EOM/AB
   End of memory, application terminated abnormally.

RES/IN
   Resolve indoubt processing.

FORCE
   Stop forced, MVS canceled DB2 or MVS forced DB2.

IEOT/T
   End of task, application terminated normally and is indoubt.

IEOT/A
   End of task, application terminated abnormally and is indoubt.

IEOM/A
   End of memory, application terminated abnormally and is indoubt.

IFORCE
   Stop forced, MVS canceled DB2 or MVS forced DB2, and the thread is indoubt.

STALE
   Staleness Threshold exceeded for DDF or RRSAF thread.

LIMIT
   DDF ROLLUP threshold limit exceeded.
STORAGE

Internal DB2 storage threshold was reached for DDF or RRSAF thread.

INACTIVE

Distributed database access thread termination.

Thread History By Subinterval

This panel provides information about thread activity for a selected interval from the Thread History by Report Interval panel.

Each time displayed in this panel reflects the start of a subinterval. The subinterval is determined by the near-term history data collection options keyword NTAINTE RVAL, which is specified by means of the Configuration Tool. For more information, see "Configuration and Customization."
Thread history by Authid, Plan. For more information, see the description of panel “Thread History By Authid, Plan” on page 1618.

Thread history summary (no grouping). For more information, see the description of panel “Thread History Summary” on page 1621.

Thread history summary by correlation ID. For more information, see the description of panel “Thread History By Correlation ID” on page 1626.

• other topics, use the PF keys.

Fields

Report Interval
The time interval by which the report period is partitioned. For more information, see the description of panel “Near-Term Thread History Filter Options” on page 1606.

Start
The start date and time of the first interval in the display.

Report Filtered
This field shows YES if thread filter values were used to create this display. Otherwise, NO is displayed.

End
The end time of the last subinterval in the display.

Time
The time of the start of the report subinterval.

Thrs
The number of threads completed in this subinterval.

Commit
The number of successful commits performed in this subinterval. For attachments that use two-phase-commit protocol, this count represents the number of phase two commits. For others, this count represents the number of single-phase commit (sync) requests.

Abort
The number of successful rollbacks performed in this subinterval.

DML
The number of DML calls issued in this subinterval.

DLk/TOut
The number deadlocks and timeouts occurred in this subinterval.

In-DB2 Elap Tm
The elapsed time spent in DB2 for this subinterval. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.

In-DB2 CPU Tm
The CPU time spent in DB2 for this subinterval. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.

In-DB2 Wait Tm
The time spent waiting in DB2 for this subinterval. Accounting class 3 data is required. Displays N/A if accounting class 3 data is not available. DB2 Accounting class 3 wait events are:
• Synchronous I/O waits
• Asynchronous Read I/O waits
• Asynchronous Write I/O waits
• Lock/latch waits
• Page latch waits
• Drain lock waits
- Drain of claims waits
- DB2 service task waits
- Archive Log Mode (QUIESCE) waits
- Archive read from tape waits

Getpage
The number of Getpage requests issued in this subinterval.

GetP/RIO
The ratio of Getpage requests to synchronous Read I/Os for this subinterval.

Thread History By Correlation ID
This panel provides information about thread activity grouped by correlation ID for a selected report interval or subinterval.

<table>
<thead>
<tr>
<th>HAGP</th>
<th>ZHAGTX</th>
<th>VTM</th>
<th>Q2</th>
<th>V540.49</th>
<th>DA4</th>
<th>11/06/13 12:10:49 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Help PF1 Back PF3 Up PF7 Down PF8 Zoom PF11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+----</td>
<td>------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;</td>
<td>Enter a selection letter on the top line.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;</td>
<td>A-BY PLAN B-BY AUTHID C-BY PLAN,AUTHID D-BY AUTHID,PLAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O-OPTIONS</td>
<td>+BY CORRID</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thread History by Correlation ID

Navigation
For additional information about
- a report subinterval, move the cursor to the line you want, enter one of the following selection letters, and press Enter.

A  Thread history by Plan. For more information, see the description of panel “Thread History By Plan” on page 1613.

B  Thread history by Authid. For more information, see the description of panel “Thread History By Authid” on page 1615.

C  Thread history by Plan, Authid. For more information, see the description of panel “Thread History By Plan, Authid” on page 1616.

D  Thread history by Authid, Plan. For more information, see the description of panel “Thread History By Authid, Plan” on page 1618.

O  Thread history display options. For more information, see the description of the panel “Thread History Display Options” on page 1619.

- threads associated with a correlation ID, move the cursor to the line you want and press F11 (Zoom).
- other topics, use the PF keys.
Fields

Report Interval
The time interval by which the report period is partitioned. For more information, see the description of panel “Near-Term Thread History Filter Options” on page 1606.

Start
The start date and time of the first interval in the display.

Report Filtered
This field shows YES if thread filter values were used to create this display. Otherwise, NO is displayed.

End
The end date and time of the last interval in the display.

Corrid
The DB2 correlation identifier.

Thrds
The number of completed threads for the correlation identifier.

Commit
The number of successful commits run with the correlation identifier. For attachments that use two-phase-commit protocol, this count represents the number of phase two commits. For others, this count represents the number of single-phase commit (sync) requests.

Abort
The number of successful rollbacks performed by threads running with the correlation identifier.

DML
The number of DML calls issued by threads running with the correlation identifier.

DLk/TOut
The number deadlocks and timeouts that occurred for threads run with the correlation identifier.

In-DB2 Elap Tm
The elapsed time spent in DB2 for threads run with the correlation identifier. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.

In-DB2 CPU Tm
The CPU time spent in DB2 for threads run with the correlation identifier. Accounting class 2 data is required. Displays N/A if accounting class 2 data is not available.

In-DB2 Wait Tm
The time spent waiting in DB2 for threads run with the correlation identifier. Accounting class 3 data is required. Displays N/A if accounting class 3 data is not available. DB2 Accounting class 3 wait events are:
- Synchronous I/O waits
- Asynchronous Read I/O waits
- Asynchronous Write I/O waits
- Lock/latch waits
- Page latch waits
- Drain lock waits
- Drain of claims waits
- DB2 service task waits
- Archive Log Mode(QUIESCE) waits
- Archive read from tape waits
Getpage
The number of Getpage requests issued by threads run with the correlation identifier.

GetP/RIO
The ratio of Getpage requests to synchronous Read I/Os for the correlation identifier.

Thread History Buffer Pool Summary
This panel provides summary information about thread buffer pool activity within a report interval.

<table>
<thead>
<tr>
<th>HATH</th>
<th>Report Interval: 15 mins</th>
<th>End Time</th>
<th>Plan</th>
<th>Authid</th>
<th>GetPage</th>
<th>Read I/O</th>
<th>GetP/RIO</th>
<th>Pfetch</th>
<th>Update</th>
<th>Write</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Start: 11/06 10:00:00.000000</td>
<td>+ 10:14:46.339 D DISTSERV MIS</td>
<td>38</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>End: 11/06 10:14:59.999999</td>
<td>+ 10:13:44.882 D DISTSERV MIS</td>
<td>37</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+ 10:12:45.707 D DISTSERV MIS</td>
<td>38</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+ 10:11:46.491 D DISTSERV MIS</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>13</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+ 10:11:32.884 D DISTSERV MIS</td>
<td>202</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Navigation
For additional information about
- a particular thread, move the cursor to the thread information line and press F1 (Zoom).
- related topics, choose one of the options at the top of the panel.
- other topics, use the PF keys.

Fields
Report Interval
The time of the thread summary report displayed.

Start
The start date and time of the interval currently displayed.

Report Filtered
This field shows YES if thread filter values were used to create this display. Otherwise, NO is displayed.

End
The end time of the interval currently displayed.

End Time
The end time of the DB2 thread execution.

If this thread involves parallel processing or if it invokes autonomous procedures, one of the following identifiers is displayed after the elapsed time to provide more information about this thread:
* This thread is a parallel task initiated on behalf of another (originating) thread to process a query request in parallel.

A This thread is an autonomous procedure rollup record.

D This thread is a RRSAF/DDF rollup record due to ZPARM ACCUMACC >= 2.

O This thread is the originating thread that invokes autonomous procedures.

P This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity that is performed for this (originating) thread is reflected under the parallel tasks.

R This thread is a parallel task rollup record due to ZPARM PTASKROL = YES.

Plan The DB2 plan name.

Authid The DB2 authorization identifier of the threads.

Getpage The number of Getpage requests issued.

Read I/O The number of synchronous Read I/Os performed.

GetP/RIO The ratio of Getpage requests to synchronous Read I/Os.

Pfetch The number of Prefetch requests issued.

Update The number of buffer pool page updates performed.

Immed Write The number of immediate (synchronous) writes performed.

**Thread History DB2 Time Summary**

This panel provides a summary of thread In-DB2 times for a selected report interval.
Navigation

For additional information about
• a particular thread, move the cursor to the thread information line and press F11 (Zoom).
• related topics, choose on of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Report Interval
The time of the thread summary report displayed.

Start
The start date and time of the interval currently displayed.

Report Filtered
This field shows YES if thread filter values were used to create this display. Otherwise, NO is displayed.

End
The end time of the interval currently displayed.

End Time
The end time of the DB2 thread execution.

If this thread involves parallel processing or if it invokes autonomous procedures, one of the following identifiers is displayed after the elapsed time to provide more information about this thread:

* This thread is a parallel task initiated on behalf of another (originating) thread to process a query request in parallel.

A This thread is an autonomous procedure rollup record.

D This thread is a RRSAF/DDF rollup record due to ZPARM ACCUMACC >= 2.

O This thread is the originating thread that invokes autonomous procedures.

P This thread is the parent or the originating thread of the parallel
tasks that are created to process a query request in parallel. Activity that is performed for this (originating) thread is reflected under the parallel tasks.

R  This thread is a parallel task rollup record due to ZPARM PTASKROL = YES.

Plan  The DB2 plan name.

Authid  The DB2 authorization identifier of the threads.

In-DB2 Elap Tm  The elapsed time spent in DB2. Accounting class 2 is required. Displays N/A if accounting class 2 data is not available.

In-DB2 CPU Tm  The CPU time spent in DB2. Accounting class 2 is required. Displays N/A if accounting class 2 data not available.

Waits  The total number of waits in DB2. Accounting class 3 is required. Displays N/A if accounting class 3 data is not available.

Wait Time  The time spent waiting in DB2. Accounting class 3 is required. Displays N/A if accounting class 3 data is not available.

I/O Waits  The total number of waits for I/O. Accounting class 3 is required. Displays N/A if accounting class 3 data is not available.

I/O Wait Tm  The time spent waiting for I/O. Accounting class 3 is required. Displays N/A if accounting class 3 data is not available.

Thread History DB2 Lock/Scan/Sort Summary  This panel provides a summary of thread lock, sort, and scan information for a selected report interval.
Navigation

For additional information about
• a particular thread, move the cursor to the thread information line and press F11 (Zoom).
• related topics, choose one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Report Interval
   The time of the thread summary report displayed.

Start   The start date and time of the interval currently displayed.

Report Filtered
   This field shows YES if thread filter values were used to create this display.
   Otherwise, NO is displayed.

End     The end time of the interval currently displayed.

End Time
   The end time of the DB2 thread execution.
   If this thread involves parallel processing or if it invokes autonomous procedures, one of the following identifiers is displayed after the elapsed time to provide more information about this thread:
   *
   This thread is a parallel task initiated on behalf of another (originating) thread to process a query request in parallel.
   A
   This thread is an autonomous procedure rollup record.
   D
   This thread is a RRSAF/DDF rollup record due to ZPARM ACCUMACC >= 2.
   O
   This thread is the originating thread that invokes autonomous procedures.
   P
   This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity that is performed for this (originating) thread is reflected under the parallel tasks.
   R
   This thread is a parallel task rollup record due to ZPARM PTASKROL = YES.

Plan     The DB2 plan name.

Authid   The DB2 authorization identifier of the threads.

Locks    The number of Internal Resource Lock Manager (IRLM) lock requests issued.

DLk/TOut The number of deadlocks and timeouts occurred.

Lock Waits
   The total number of waits because of lock or latch suspension. Accounting class 3 is required. Displays N/A if accounting class 3 data is not available.
Lock WaitTm
The time spent waiting as a result of lock or latch suspension. Accounting class 3 is required. Displays N/A if accounting class 3 data is not available.

TS Scan
The number of tablespace scans. Scan data required. Displays N/A if sort data is not available.

Sort
The number of sorts performed. Sort data required. Displays N/A if sort data is not available.

Recs Sorted
The total number of records sorted. Sort data required. Displays N/A if sort data is not available.

Thread History Times Summary
This panel provides time-based summary information of threads that completed within a report interval.

---

<table>
<thead>
<tr>
<th>Time</th>
<th>Plan</th>
<th>Authid</th>
<th>Elapsed CPU</th>
<th>In-DB2</th>
<th>In-DB2</th>
<th>SQL</th>
<th>GetPag</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:14:46.339</td>
<td>.45</td>
<td>.005</td>
<td>.05</td>
<td>.00</td>
<td>24</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>10:13:44.882</td>
<td>.26</td>
<td>.005</td>
<td>.01</td>
<td>.00</td>
<td>23</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>10:12:45.707</td>
<td>.36</td>
<td>.005</td>
<td>.01</td>
<td>.00</td>
<td>24</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>10:11:46.491</td>
<td>.44</td>
<td>.004</td>
<td>.02</td>
<td>.00</td>
<td>24</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>10:11:32.884</td>
<td>.90</td>
<td>.011</td>
<td>.15</td>
<td>.01</td>
<td>22</td>
<td>202</td>
<td></td>
</tr>
</tbody>
</table>
---

Navigation
For additional information about
- a particular thread, move the cursor to the thread information line and press F11 (Zoom).
- related topics, choose one of the options at the top of the panel.
- other topics, use the PF keys.

Fields
Report Interval
The timespan (to the nearest minute) of the report.

Start
The start date and time of the interval currently displayed.

Report Filtered
This field shows YES if thread filter values were used to create this display. Otherwise, NO is displayed.

End
The end time of the interval currently displayed.
End Time
The end time of the DB2 thread execution.

If this thread involves parallel processing or if it invokes autonomous procedures, one of the following identifiers is displayed after the elapsed time to provide more information about this thread:

* This thread is a parallel task initiated on behalf of another (originating) thread to process a query request in parallel.
A This thread is an autonomous procedure rollup record.
D This thread is a RRSAF/DDF rollup record due to ZPARM ACCUMACC >= 2.
O This thread is the originating thread that invokes autonomous procedures.
P This thread is the parent or the originating thread of the parallel tasks that are created to process a query request in parallel. Activity that is performed for this (originating) thread is reflected under the parallel tasks.
R This thread is a parallel task rollup record due to ZPARM PTASKROL = YES.

Plan The DB2 plan name.

Authid The DB2 authorization identifier of the threads.

Elapsed Time The total elapsed time for the thread.

CPU Time The amount of CP time used by the thread. This value reflects MVS TCB time for non-database access threads and SRB time for database access threads and parallel tasks. This time represents CP time only and does not include SE (Specialty Engine) time.

In-DB2 Elap Tm The elapsed time spent in DB2. Accounting class 2 is required. Displays N/A if accounting class 2 data is not available.

In-DB2 CPU Tm The CPU time spent in DB2. Accounting class 2 is required. Displays N/A if accounting class 2 data not available.

SQL The total number of DCL, DDL, and DML SQL calls issued by the thread. COMMIT and ROLLBACK/ABORT are not included.

Getpag The number of Getpage requests issued.

Thread History Detail
This panel provides detail information about the activity of a completed thread or parallel task.

A parallel task is a subtask that is created from an originating thread to process a part of a query.
### Thread History Details

**Thread:** Plan=DSNTEPS12  Conm=.reason  Corrid=HONGDGT8  Authid=HONG  
**Attach:** BATCH  DB2=DC11  MVS=PMO1  
**Time:** Start=06/30/2016 21:13:10.830412  End=06/30/2016 21:33:39.000595  
**Luvid:** DEIBMIPS.IPSAQC11.D0F943973839  
**Status:** Committed  
**Commits:** 1  
**Total Elapsed Time:** 00:00:28.152  
**Aborts:** 0  
**CPU Time:** 00:00:00.755  
**CPU Time:** 00:00:00.000  
**Total Stored Proc CPU:** 00:00:00.000  
**Store Proc Wait:** 00:00:00.000  
**Stored Proc Wait Cnt:** 0  
**Workfile Max Blocks:** 96768  
**Workfile Curr Blocks:** 4096  
**— In-DB2 Times —**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed</td>
<td>00:00:28.152</td>
</tr>
<tr>
<td>CP CPU</td>
<td>00:00:00.755</td>
</tr>
<tr>
<td>IIP CPU</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Stored ProcCPU Time</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>STP CP</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>STP IIP CPU</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>STP Elapsed Time Main</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>UDF CP CPU</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>UDF IIP CPU</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>UDF Elapsed Time Main</td>
<td>00:00:00.000</td>
</tr>
</tbody>
</table>

**— Waits —**

<table>
<thead>
<tr>
<th>Wait Reason</th>
<th>Count</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synchronous I/O Wait</td>
<td>3415</td>
<td></td>
</tr>
<tr>
<td>Asynchronous Read I/O Wait</td>
<td>308</td>
<td></td>
</tr>
<tr>
<td>Asynchronous Write I/O Wait</td>
<td>229</td>
<td></td>
</tr>
<tr>
<td>Local Lock/Latch Wait</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Page Lock Wait</td>
<td>1852</td>
<td></td>
</tr>
<tr>
<td>Drain Lock Wait</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Drain of Claims Wait</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Archive Log Mode(Quesce) Wait</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Archive Read from Tape Wait</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Switch to Open/Close Wait</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Switch to SysLGRNG Service Wait</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Switch to DMS Waits</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Other Service Waits</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Force at Commit Waits</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Log Write I/O Wait</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sync EX Unit Sw-com/abort/dealloc</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>LOB Materialization</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Latch Contention Wait</td>
<td>479</td>
<td></td>
</tr>
<tr>
<td>Autonomous Proc Wait</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Parallel Query Sync Wait</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Asynch IXLCACHE/IXLFCOMP</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Fast Insert Pipe Wait</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Accelerator Wait</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total Class 3 Wait Time</td>
<td>6290</td>
<td>00:00:26.062</td>
</tr>
</tbody>
</table>

---

Chapter 5: Monitoring 1635
Navigation

For additional information about
• related topics, choose one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.

Attach Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Attachment identifier:

Connection Type

The connection type is displayed in the first field:

APPLDIR Application directed access (data base access threads)

BATCH Other DB2 batch threads

CALLATCH DB2 call attach

CICS CICS attach

DLI DL/I batch

IMSBMP IMS attach BMP

IMSMPP IMS attach MPP

IMSCtrl IMS control region

IMSBMPB IMS transaction BMP

RRSAF Recoverable Resource Manager Services Attachment Facility

SYSDIR System directed access (data base access threads)

TSO TSO foreground and background
Utility Utility thread

**DB2** The DB2 subsystem identifier.

**MVS** The MVS system identifier.

**ORIGAUTH**
The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

**Time identifier:**

**Start** The start date and time of this thread execution.

**End** The end date and time of this thread execution.

**Distributed thread identifier:** The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

**Type** The distributed thread type.

**Distributed Allied**
A requesting thread; one that has issued an SQL call to a remote Db2 location.

**Database Access**
A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

**Db2=** The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

**Luwid** This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:

USCAC001.02D22A.A1FE8E04B9D4=8

**System**
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the **Attach** line identifies the user thread, if any, being served by the system thread.

**Data fields:**

**Termination Status**
The status that indicates the reason for the thread termination:

- READS
- RESIGNON
- NEWUSER
- DDFINACT
- DEALLOC
- COMMIT
- EOT/TERM
- EOT/ABND
Commits
The number of Commits performed by the thread.

Total Elapsed Time
The total elapsed time for the thread, in the format hh:mm:ss.th.

Aborts
The number of aborts performed by the thread.

Total CP CPU Time
The total central processor CPU time accumulated for the thread. This value includes only MVS TCB time. SRB time is not included.

Parallel Tasks
The number of parallel tasks that are created on behalf of this thread. Any activity that is performed on behalf of this thread by parallel tasks is not included in this thread. For a parallel task rollup record, this value is the number of child threads that are included in this record.

OR

Accounting Intervals
For a DDF or RRSAF rollup record, this value is the number of accounting intervals that are included in the record for the corresponding end user.

OR

Autonomous Procs
For an autonomous procedure rollup record, this value is the number of autonomous procedures that are included in this record.

This applies to DB2 11 and higher.

ZIIP CPU Time
The accumulated CPU time that is consumed while running on an IBM ZIIP in all environments.

Parallel Agents
For all non-rollup records, this value is always 0.

For a parallel query rollup record, this value is the number of parallel child agents rolled into this record.

For an autonomous procedure rollup record, this value is always 0.

For a DDF/RRSAF rollup record, this value is the number of parallel query child agents that rolled into this record. These agents are not counted in QWACPCNT.
This applies to DB2 10 and higher.

**Autonomous Count**
For non-rollup records, this is the number of autonomous procedures that are completed.
For parallel query rollup records, this value is always 0.
For autonomous procedure rollup records, this value is always 0.
For DDF/RRSAF rollup records, this is the number of autonomous procedures that are completed. These procedures are not counted in QWACPCNT.
This applies to DB2 11 and higher.

**IIP CPU Time**
The total amount of zIIP in-DB2 CPU time that is accumulated for the thread.

**Total Stored Proc CPU**
The total CPU time (TCB time) spend processing SQL CALL statements in the DB2 stored procedures address space.

**WorkFile:**

**Workfile Max Blocks**
Maximum number of workfile blocks being used by this agent at any given point in time (traditional workfile use, DGTT and DGTT indexes). DB2 12 and later.

**Workfile Curr Blocks**
Current number of workfile blocks being used by this agent (traditional workfile use, DGTT and DGTT indexes). DB2 12 and later.

**In-DB2 times:** In-DB2 times require an Accounting trace class 2. If this trace is not active, N/A is displayed.

**Elapsed Time**
The elapsed time spent in DB2 for the thread, in the format hh:mm:ss.th.

**CP CPU Time**
The In-DB2 CPU time accumulated for the thread. This includes only TCB time. SRB time is not included.

**Stored Procedure CPU Time**
The CPU (TCB) time spent in DB2 processing SQL CALL statements issued from stored procedures for this thread.

**UDF CP CPU Time**
The accumulated In-DB2 central processor CPU time consumed executing user defined functions (UDFs) on the main application execution unit. This time does not include SE CPU time.
Because these UDFs run entirely within DB2, this time represents class 1 and class 2 time.

**UDF IIP CPU Time**
The accumulated In-DB2 zIIP CPU time consumed executing user defined functions (UDFs) on the main application execution unit.
Because these UDFs run entirely within DB2, this time represents class 1 and class 2 time.
UDF Elapsed Time Main
The accumulated In-DB2 elapsed time consumed executing user-defined functions (UDFs) on the main application execution unit.

Because these UDFs run entirely within DB2, this time represents class 1 and class 2 time.

In-DB2 waits: Wait times require an Accounting trace class 2. If this DB2 trace is not active, N/A is displayed. For each of the following fields two values are provided:
• Time displays the total wait time that has elapsed
• Count displays the total number of waits.

Synchronous I/O Wait
Wait for synchronous I/O reads or writes.

Asynchronous Read I/O Wait
Wait for Read I/O performed under another thread (for example, list or Sequential Prefetch).

Asynchronous Write I/O Wait
Wait for Write I/O performed under another thread (for example, Deferred Writes).

Local Lock/Latch Wait
Wait for locks or latches.

Page Latch Wait
Wait for page latches.

Drain Lock Wait
Wait to acquire drain locks.

Drain of Claims Wait
Wait for claims to be released after acquiring drain lock.

Archive Log Mode(Quiesce) Wait
Wait for ARCHIVE LOG MODE(QUIESCE) command to complete.

Archive Read from Tape Wait
Waits for reads of archive log from tape.

Switch to Open/Close Wait
Waits for switches to the OPEN/CLOSE service.

Switch to SYSLGRNG Service Wait
Waits for switches to the SYSLGRNG recording service.

Switch to DMS Waits
Waits for switches to the database managed space (DMS).

Other Service Waits
Waits for switches to other DB2 service tasks.

Force at Commit Waits
Waits for force-at-commit DB2 service tasks.

Log Write I/O Wait
Waits due to Log write I/O

Sync EX Unit Sw-com/abort/dealloc
Waits due to synchronous execution switch for DB2 commit, abort, or deallocation processing.
LOB Materialization
Waits for TCP/IP LOB and XML materialization.

Latch Contention Wait
Waits due to page latch contention.

Autonomous PROC Wait (QWAC_AT_WAIT QWAC_AT_COUNT)
The amount of waits that are due to autonomous procedures.
This applies to DB2 11 and higher.

Parallel Query Sync Wait (QPAC_PQS_WAIT QPAC_PQS_COUNT)
The amount of waits after parallel query processing suspended waiting for parent/child to be synchronized.
This applies to DB2 11 and higher.

Asynch IXLCACHE/IXLFCOMP (QWAXIXLT)
The accumulated wait time for IXLCACHE and IXLFCOMP requests.

Fast Insert Pipe Wait
The accumulated wait time for a pipe wait. DB2 12 and later.

LOB Compression Wait
The accumulated wait time for LOB compression. DB2 12 and later.

Accelerator Wait (QWACAACW QPACAACC)
The accumulated wait time for requests to an accelerator. DB2 11 and later.

Total Class 3 Wait Time
The total class 3 wait time.

Thread History Lock Waits
This panel provides detailed information about lock waits that occurred for a thread.

Thread data must be collected by the Near-Term History Data Collector with the LOCKCONT(YES) or LOCKSUSP(YES) keywords. Otherwise, the panel displays a message that lock wait information is not available for a thread.
Navigation

For additional information about

• related topics, choose one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.

Attach Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Attachment identifier:

Connection Type The connection type is displayed in the first field:
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPLDIR</td>
<td>Application directed access (data base access threads)</td>
</tr>
<tr>
<td>BATCH</td>
<td>Other DB2 batch threads</td>
</tr>
<tr>
<td>CALLATCH</td>
<td>DB2 call attach</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLI</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>IMSBMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMSMPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMSCTRL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMSBMPB</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>RRSAF</td>
<td>Recoverable Resource Manager Services Attachment Facility</td>
</tr>
<tr>
<td>SYSDIR</td>
<td>System directed access (data base access threads)</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>Utility</td>
<td>Utility thread</td>
</tr>
<tr>
<td>DB2</td>
<td>The DB2 subsystem identifier.</td>
</tr>
<tr>
<td>MVS</td>
<td>The MVS system identifier.</td>
</tr>
<tr>
<td>ORIGAUTH</td>
<td>The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.</td>
</tr>
</tbody>
</table>

**Time identifier:**

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td>The start date and time of this thread execution.</td>
</tr>
<tr>
<td>End</td>
<td>The end date and time of this thread execution.</td>
</tr>
</tbody>
</table>

**Distributed thread identifier:** The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>The distributed thread type.</td>
</tr>
<tr>
<td>Distributed Allied</td>
<td>A requesting thread; one that has issued an SQL call to a remote Db2 location.</td>
</tr>
<tr>
<td>Database Access</td>
<td>A responding thread; one that is serving a remote Db2 location by responding to an SQL call.</td>
</tr>
<tr>
<td>Db2=</td>
<td>The Db2 subsystem ID, indicating the member of the data sharing group of this thread.</td>
</tr>
</tbody>
</table>
**Luwid**  This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:

\[ \text{luw-id}=\text{token} \]

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the *Luwid* field displays data like in the following example:

\[ \text{USCACO01.02D22A.A1FE6E04B9D4}=8 \]

**System**

The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the **Attach** line identifies the user thread, if any, being served by the system thread.

**Lock Contention (Timeout):** This section is displayed only when the thread execution ended due to a lock timeout and lock contention data was collected.

**Resource:**

The DB2 resource that was requested by the timed-out thread that was waiting for the resource.

The resource varies depending upon the type of lock requested. If it is possible, the DBid and the OBid of the resource are translated to the DBName and tablespace or to indexspace names.

Lock types such as DPAG, MDEL, TABL, or ROW might include a table record ID in the lock resource. The DBid and OBid of these resources cannot be translated. Therefore the values of the DBid and the OBid are displayed.

This field displays the following resources:

**Lock Type**

**Resource and Explanation**

**ALBP**  Alter buffer pool lock. BP=buffer pool ID

**BIND**  Autobind/remote bind lock.

**BMBA**  Buffer manager SCA MBA L-lock.

**BPPS**  Buffer manager pageset RR P-lock

- BP=buffer pool ID
- DB=database name
- PS=pageset name

**CCAT**  CATMAINT convert catalog lock.

**CDIR**  CATMAINT convert directory lock.

**CDRN**  Cursor Stability drain lock

- DB=database name
- PS=pageset name
- PT=partition

**CMIG**  CATMAINT migration lock.
COLL  Collection lock.
          COLL=collection ID

DBEX  Database exception LPL/GRECP lock.

DBXU  DB exception update lock.

DGTT  DGTT URID lock
          URID=unit of recovery ID

DPAG  Page lock in a tablespace
          • DB=database name
          • PS=pageset name
          • PG=page

DSET  Partitioned lock
          • DB=database name
          • PS=pageset name
          • PT=partition number

DTBS  Database lock.
          • DB=database name
          • PS=pageset name
          • PT=partition number

GRBP  Group buffer pool start/stop lock.
          BP=buffer pool ID

HASH  Hash anchor lock.
          • DB=database name
          • PS=pageset name
          • PG=page

IEOF  Index IEOF.
          • DB=database name
          • PS=pageset name
          • PT=partition

IPAG  Page lock in an indexspace
          • DB=database name
          • PS=pageset name
          • PG=page

MDEL  Mass delete lock.
          • DB=database name
          • PS=pageset name

PALK  • DB=database name
          • PS=pageset name
          • PT=partition

PBPC  Group Bp level castout P-lock.
PCDB  DDF CDB P-lock.
PDBD  PDBD P-lock.
PDSO  Pageset or dataset open lock
      • DB=database name
      • PS=pageset name
PITR  Index manager tree P-lock.
      • DB=database name
      • PS=pageset name
      • PT=partition
PPAG  Page P-lock.
PPSC  Pageset/partition level castout P-lock.
PPSP  Pageset/partition P-lock.
PRLF  RLF P-lock.
PSET  Pageset lock.
      • DB=database name
      • PS=pageset name
PSPI  Pageset piece lock.
      • DB=database name
      • PS=pageset name
RDRN  Repeatable read drain lock.
      • DB=dataset name
      • PS=pageset name
      • PT=partition
RSTR  SCA access for restart/redo lock.
      BMC-RSTP
ROW  Row lock.
SDBA  Start/stop lock on DBA table.
      • DB=dataset name
      • PS=pageset name
SKCT  Skeleton cursor table lock.
      PLAN=plan name
SKPT  Skeleton package table lock.
      TOKEN=(CONTOKEN) column from SYSIBM.SYSPACKAGE
SPRC  Sys Level PIT Recovery lock
      SYS_PITR
SREC  Log range lock.
      • DB=database name
      • TS=tablespace name
UIDA  Util I/O Damage Assessment
TABL  Table lock.
   • DBID=DBid
   • TABL=Tableid

UNDT  Resource ID (in hexadecimal).

UNKN  Lock without resource provided.
   • Resource does not exist.

UTEX  Utility exclusive execution lock
   • UTEXEC

UTID  Utility UID lock.
   • UID=utility id

UTOB  Utility Object Lock
   • DB=database name
   • PS=pageset name
   • PT=partition

UTSE  Utility serialization lock.
   • UTSERIAL

WDRN  Write drain lock.
   • DB=database name
   • PS=pageset name
   • PT=partition

Wait: This section provides information about the lock that ended due to timeout. This section includes the following information:

Lock Level
   The level or mode of the lock request. This information describes the level of resource access demanded by the lock request. Possible lock levels are:
   IS   Intent share
   IX   Intent exclusive
   NSU  Nonshared update
   S    Share
   SIX  Share intent exclusive
   U    Update
   UNS  Unprotected share
   X    Exclusive

Duration
   The duration of the requested lock. Possible duration categories are:

Allocation
   Lock is held until thread terminates or until plan is deallocated.
COMMIT
Lock is held until Commit is processed.

Commit+1
Lock is held until Commit is processed, unless Lock is needed to maintain the position of the cursor that was opened with the Hold attribute.

Free
Duration to free all locks.

Interest
Lock is held as long as DB2 has interest in the resource. This duration is used only for P-locks.

Manual
A lock of short duration that DB2 acquires to perform tasks such as authorization checking.

Manual+1
A lock of short duration that DB2 acquires to temporarily change from CS to RR during bind or DDL.

Plan
Lock is held until plan is deallocated.

Undetermined
Lock is held for undetermined duration.

IRLM Function
The type of request to the Internal Resource Lock Manager (IRLM). The possible request types are:

LOCK Lock request
UNLOCK Unlock request
CHANGE Change lock request

Request Type
The type of lock request. Possible types are:

Conditional Conditional lock request.
Unconditional Unconditional lock request.

Holder's Program Name
The plan name of the thread holding the resource. This might be an application plan name or a DB2 system plan name.

Holder's Call
Holder's package or DBRM name, which consists of the fields:
QW0172Q1
Program name
QW0172Q2
Package collection ID
QW0172Q3
Location name

Holder's Location
Holder's package or DBRM name, which consists of the fields:
Statement ID
The SQL statement identifier.

Statement Type
The SQL statement type.

Own
Lock ownership information. The following fields provide detailed information about the holders of incompatible locks on the resource that was requested by the timed-out thread.

Plan
The plan name of the lock owners.

Connid
The connection identifiers of the lock owners.

Corrid
The correlation identifier of the lock owners.

Luwid
The Logical Unit-of-Work identifier. This field is displayed only for database access threads (DBATs).

Lock Level
The level of the lock. (See possible lock levels listed for the *Wait:* section before).

Duration
The duration of the threads holding incompatible locks.

PWait
Priority waiter information. The following fields provide detailed information about any threads that were priority waiters for the resource during the lock request timeout.

Plan
The plan name of the priority waiter.

Connid
The connection identifiers of the priority waiter.

Corrid
The correlation identifier of the priority waiter.

Luwid
The logical unit-of-work identifier. This field is displayed only for database access threads (DBATs).

Lock Level
The level of the lock. For a list of lock levels, see the *Wait:* section above.

Duration
Indicates the duration of the requested lock. For a list of duration values, see the *Duration* section above.

Lock contention (deadlock): Deadlock information is displayed only when the thread ended due to a deadlock.

Time of Deadlock
The time that the locking deadlock occurred.

Deadlock Interval
The DB2 deadlock detection interval.
**Resource**
The DB2 resource that was requested by the deadlocked thread (see table above). The resource format varies depending upon the type of lock requested.

**Wait**
See Wait fields described under Timeout section above.

**Own**
See Own fields described under Timeout section above.

**DBMS Subsystem ID**
The database management subsystem identifier.

**Lock Suspension:** Lock suspension information is displayed only when lock suspension data was collected.

**Time**
The time that the lock was suspended.

**Resource**
The name of the resource for which the lock suspension occurred. The contents of this field depend on the Lock Type (see table above).

If the name of the resource is not available, N/A and the reason why the resource name is not available is displayed. One of the following reasons might be the cause:

- **Notify IRLM function**
  Anything to do with lock state, duration, etc. is invalid.

- **Query IRLM function**
  Anything to do with lock state, duration, etc. is invalid.

- **Change with non zero token**
  Change a non zero value indicates the lock to free. The values of resource and type are not valid.

- **Unlock with non zero token**
  Unlock a non zero value indicates the lock to free. The values of resource and type are not valid.

- **Lock with non zero token**
  Token should be zero on Lock.

**Reason for the suspend=XX**
Is displayed if none of the above reasons is found. See QW0044WS for possible XX values.

**Type**
The type of lock requested. This field determines the contents of the resource name (see table above).

**Lvl**
The level of the lock.

**Dur**
The duration of the requested lock. For a list of duration values, see the Wait section above.

**Elapsed**
The elapsed time (in seconds) for each suspended lock that was resumed.

**Resume**
The reason why the lock suspension was resumed. Possible reasons:

- **DEADLK**
  Deadlock

- **IDENT**
  Identify to IRLM
NORMAL
Normal resume

TIMOUT
Timeout

Thread History Lock/Claim/Drain Activity
This panel provides lock/claim/drain statistics such as the number of requests to acquire a lock and the number of pages that were locked for a thread.

<table>
<thead>
<tr>
<th>ZHTLOCT</th>
<th>VTM</th>
<th>02</th>
<th>V540.4P</th>
<th>SE12</th>
<th>11/06/13</th>
<th>13:46:21</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Help PF1</td>
<td>Back PF3</td>
<td>Up PF7</td>
<td>Down PF8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; THREAD HISTORY: Enter a selection letter on the top line.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; A-THREAD DETAIL  +-LOCK COUNTS  C-LOCK WAITS  D-GLOBAL LOCKS  E-SORT/SCAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; F-DYNAMIC SQL  G-SQL COUNTS  H-DISTRIBUTED  I-BUFFER POOL  J-GROUP BP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; K-PACKAGE SUMMARY  L-RES LIMIT  M-PARALLEL TASKS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Navigation
For additional information about
• related topics, choose one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Thread Identifier:

Plan  The DB2 plan name of the thread.

Connid  The DB2 connection identifier of the thread.

Corrid  The DB2 correlation identifier of the thread.

Authid  The DB2 authorization identifier of the thread.

Attachment identifier:

Connection Type  The connection type is displayed in the first field:

APPLDIR  Application directed access (data base access threads)
BATCH
  Other DB2 batch threads

CALLATCH
  DB2 call attach

CICS
  CICS attach

DLI
  DL/I batch

IMSBMP
  IMS attach BMP

IMSMPP
  IMS attach MPP

IMSCTRL
  IMS control region

IMSBMPB
  IMS transaction BMP

RRSAF
  Recoverable Resource Manager Services Attachment Facility

SYSDIR
  System directed access (data base access threads)

TSO
  TSO foreground and background

Utility
  Utility thread

DB2
  The DB2 subsystem identifier.

MVS
  The MVS system identifier.

ORIGAUTH
  The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Distributed thread identifier: The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.

Type
  The distributed thread type.

Distributed Allied
  A requesting thread; one that has issued an SQL call to a remote DB2 location.

Database Access
  A server thread; one that has received and is serving an SQL request from a remote DB2 location.

Luwid
  This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:
  \texttt{luw-id=token}

  The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:
  \texttt{USCACO01.O2D22A.A1FE8E0489D4=8}

Time identifier:
Start  The start date and time of this thread execution.

End    The end date and time of this thread execution.

Lock/Claim/Drain:

Lock Requests
Requests to Internal Resource Lock Manager (IRLM) to obtain a lock on a resource.

Deadlocks Detected
The number of deadlocks detected.

Unlock Requests
Requests to IRLM to unlock a resource.

Timeouts Detected
Occasions when suspension of a unit of work lasted longer than the IRLM timeout value.

Query Requests
Requests to IRLM to query a lock.

Change Requests
Requests to IRLM to change a lock.

Suspends - Latch Only
DB2 internal latch suspensions.

Other IRLM Requests
Requests to IRLM to perform a function other than those listed above.

Suspends - Other
Suspensions caused by something other than locks and latches.

Lock Escalations - to Shared
Occasions when the allowable number of locks per tablespace was exceeded, causing a page (IS) lock to escalate to a shared (S) lock.

Lock Escalations - to Exclusive
Occasions when the allowable number of locks per tablespace was exceeded, causing a page (IX) lock to escalate to an exclusive (X) lock.

Maximum Page/Row Locks
The maximum number of page locks held concurrently during the thread's execution. This count cannot exceed the value of the NUMLKUS (locks per user) installation parameter.

Claim/Drain information:

Claim Requests
The number of requests for a claim on a resource.

Claims Failed
The number of unsuccessful claim requests.

Drain Requests
The number of requests for a drain of claims.

Drains Failed
The number of unsuccessful drain requests.

Thread History Global Lock Activity
This panel provides information about global locking activity for an individual thread.
Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan      The Db2 plan name of the active thread.

Connid    The Db2 connection identifier of the active thread.

Corrid    The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid    The Db2 authorization identifier of the active thread.

Attach    Depending on the type of connection, the appropriate information is displayed.

   Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Attachment identifier:

Connection Type
The connection type is displayed in the first field:

APPLDIR       Application directed access (data base access threads)

BATCH         Other DB2 batch threads

CALLATCH      DB2 call attach

CICS          CICS attach

DLI           DL/I batch
IMSBMP
IMS attach BMP

IMSMPP
IMS attach MPP

IMSCTRL
IMS control region

IMSBMPB
IMS transaction BMP

RRSAF
Recoverable Resource Manager Services Attachment Facility

SYSDIR
System directed access (data base access threads)

TSO
TSO foreground and background

Utility
Utility thread

DB2
The DB2 subsystem identifier.

MVS
The MVS system identifier.

ORIGAUTH
The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Time identifier:

Start
The start date and time of this thread execution.

End
The end date and time of this thread execution.

Distributed thread identifier: The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

Type
The distributed thread type.

Distributed Allied
A requesting thread; one that has issued an SQL call to a remote Db2 location.

Database Access
A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

Db2=
The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

Luwid
This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:

USCAC001.02D22A.A1F8E04B9D4=8

System
The originating Db2 job name and the resource manager that is the source
of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

Global lock information:

**Thread History Dynamic SQL Calls**
This panel provides information about dynamic SQL calls that were issued by a completed thread.

You must specify the keyword **DYNAMICSQ(YES)** if thread data is collected; otherwise the panel displays a message that dynamic SQL information is not available for the thread.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LuwId</td>
<td>DEIBMIPS.IPSATE12.CC39197D8375</td>
<td></td>
</tr>
<tr>
<td>Call</td>
<td>SELECT Call=NEXT (FIRST/LAST/NEXT/PREV/+nnnnn/-nnnnn/Snnnn)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UPDATE WEATHER2 SET CITY = 'DELETED'</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Miniplan Generated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plan # 1 (Estimated Cost: 118)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Table: WEATHER2 Access Type: SEQUENTIAL SCAN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prefetch Activity: SEQUENTIAL</td>
<td></td>
</tr>
</tbody>
</table>

**Navigation**
For additional information about
• related topics, choose one of the options at the top of the panel.
• other topics, use the PF keys.

**Fields**

**Thread identifier:** This information identifies the thread to which the information in this panel applies.

**Plan**  The Db2 plan name of the active thread.

**Connid**  The Db2 connection identifier of the active thread.

**Corrid**  The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.
The Db2 authorization identifier of the active thread.

Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

The connection type is displayed in the first field:

- **APPLDIR**: Application directed access (data base access threads)
- **BATCH**: Other DB2 batch threads
- **CALLATCH**: DB2 call attach
- **CICS**: CICS attach
- **DLI**: DL/I batch
- **IMSBMP**: IMS attach BMP
- **IMSMPP**: IMS attach MPP
- **IMSCtrl**: IMS control region
- **IMSBMPB**: IMS transaction BMP
- **RRSAF**: Recoverable Resource Manager Services Attachment Facility
- **SYSDIR**: System directed access (data base access threads)
- **TSO**: TSO foreground and background
- **Utility**: Utility thread
- **DB2**: The DB2 subsystem identifier.
- **MVS**: The MVS system identifier.
- **ORIGAUTH**: The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

The start date and time of this thread execution.

The end date and time of this thread execution.

The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem:

- **Type**: The distributed thread type.
**Distributed Allied**
A requesting thread; one that has issued an SQL call to a remote Db2 location.

**Database Access**
A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

**Db2=** The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

**Luwid** This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:

USCAC001.02D22A.A1FE8E04B9D4=8

**System**
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

**Miniplan:**

**Select Call**
Specifies the next SQL statement that is displayed. Initially this panel displays the first SQL statement that was collected for the thread. Use these keywords to control the display:

FIRST First SQL statement encountered for the thread.

LAST Last SQL statement encountered for the thread.

NEXT Next SQL statement encountered for the thread.

PREV Previous statement encountered for the thread.

+nnnnn The nnnnn (1-99999) entry after the currently displayed SQL statement.

-nnnnn The nnnnn (1-99999) entry before the currently displayed SQL statement.

Snnnnn Statement number nnnnn.

**Plan #** The plan for a select block within the prepared SQL statement.

**Estimated Cost**
The cost factor for this SQL statement, generated by the DB2 Optimizer.

**Table** The name of the table that was accessed.

**Access Type**
The method by which the table was accessed. Possible values are:

Index Index was used to access table data.
Index (One-Fetch)
Index was used to determine which data page is needed for processing. This type of access is used for processing MIN and MAX functions.

Index (IN keyword)
Index was used to access table data for processing the IN keyword in SQL statements.

Index (Page Range)
Index was used to access table data in a particular page range.

Sequential Scan (Page Range)
All pages within a particular page range of the partitioned tablespace were accessed sequentially.

Sequential Scan
All pages in the tablespace (or table if the tablespace is segmented) were accessed sequentially.

Join Method
The type of join being performed. Possible values:
- Nested Loops
- Hybrid
- Merge Scan

Table Type
Indicates whether the table was the INNER or OUTER table for the join processing.

Prefetch Activity
The type of prefetch activity performed. If no prefetch was performed, this field is not displayed. Possible values are:
- Sequential
  Sequential Prefetch.
- List
  List Prefetch for one or more indexes.

Sort Activity
The reason for the sort. If no sort was performed, this field is not displayed. Possible values are:
- Uniq
  Sort to remove duplicate rows.
- Join
  Sort needed for join processing.
- Order
  Sort needed to satisfy Order By clause.
- Group
  Sort needed to satisfy Group By clause.
- Uniq(C)
  Sort to remove duplicate rows (composite table).
- Join(C)
  Sort needed for join processing (composite table).
- Order(C)
  Sort needed to satisfy Order By clause (composite table).
- Group(C)
  Sort needed to satisfy Group By clause (composite table).

Access Degree
The degree of parallelism used by the query. This is the number of parallel
I/O streams determined by the optimizer at PREPARE time. The actual number of I/O streams used at execution time can be different.

**Access Group ID**
The parallel group identifier used for accessing the new table. This is the identifier for a group of consecutive parallel operations. These parallel operations have the same number of I/O streams. The value is determined at PREPARE time and can be changed at execution time.

**Access Type**
The type of parallel processing to be used. Possible values are:

- **CPU**  CPU parallelism
- **I/O**  I/O parallelism

**Join Degree**
The degree of parallelism used in joining the composite table with the new table. This is the number of parallel I/O streams used for the join. The value is set at PREPARE time and can change at execution time.

**Join Group ID**
The value that is used to identify the parallel group when DB2 joins the composite table with the new table. This is determined at PREPARE time and could be different at execution time.

**Thread History SQL Counts**
This panel provides information about SQL calls that were issued by a completed thread. It also provides data definition and data manipulation statements.

With the information on this panel, you can obtain counts of the various SQL, RID pool, or Parallel activities of a completed thread. This helps you to determine the activities that use resources excessively. For example, a single SELECT command might result in many physical FETCHes.
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<td>Ran Seq (No ESA Sort)</td>
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<td>One DB2 (DCL GTT)</td>
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### Miscellaneous Triggers

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### Navigation

For additional information about
- related topics, choose one of the options at the top of the panel.
- other topics, use the PF keys.

### Fields

**Thread identifier:**

**Plan** The DB2 plan name of the thread.

**Connid** The DB2 connection identifier of the thread.

**Corrid** The DB2 correlation identifier of the thread.

**Authid** The DB2 authorization identifier of the thread.

**Attachment identifier:**

**Connection Type** The connection type is displayed in the first field:

- **APPLDIR** Application directed access (data base access threads)
- **BATCH** Other DB2 batch threads
CALLATCH
   DB2 call attach
CICS    CICS attach
DLI     DL/I batch
IMSBMP  IMS attach BMP
IMSMPP  IMS attach MPP
IMSCtrl IMS control region
IMSBMPB IMS transaction BMP
RRSAF   Recoverable Resource Manager Services Attachment Facility
SYSDIR  System directed access (data base access threads)
TSO     TSO foreground and background
Utility Utility thread
DB2     The DB2 subsystem identifier.
MVS     The MVS system identifier.
ORIGAUTH The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Time identifier:
Start    The start date and time of this thread execution.
End      The end date and time of this thread execution.

Distributed thread identifier: The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.
Type     The distributed thread type.

Distributed Allied
   A requesting thread; one that has issued an SQL call to a remote Db2 location.

Database Access
   A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

Db2=      The Db2 subsystem ID, indicating the member of the data sharing group of this thread.
Luwid     This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:
   luw-id=token
The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:

USCACO01.02D22A.A1FE8E0489D4=8

**System**

The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

**SQL counts fields:**

**Commit**

The number of times the thread successfully concluded Commit phase 2 processing.

**Abort**

A count of the number of times the thread has rolled back uncommitted data.

**Select**

The number of SELECT requests.

**Open Cursor**

The number of OPEN cursor statements issued by a thread.

**Close Cursor**

The number of CLOSE cursor statements issued by a thread.

**Fetch**

The number of FETCH requests.

**Insert**

The number of INSERT statements executed by the thread.

**Delete**

The number of DELETE statements issued by the thread.

**Update**

The number of UPDATE statements executed by the thread.

**Describe**

The number of DESCRIBE statements issued by the thread.

**Lock Table**

A count of the number of LOCK TABLE statements issued by the application (not the total number of tables locked by the thread).

**Prepare**

The number of PREPARE statements issued by a thread.

**Grant**

The total number of times SQL GRANT requests were issued from within the program.

**Revoke**

The total number of times SQL REVOKE requests were issued from within the program.

**Set Rules**

The number of SET CURRENT RULES statements executed by the thread.

**Increm Bind**

A count of the number of times the plan active in the thread was rebound. PREPARES are not included. This value should be zero in a production environment. The plan can be rebound with VALIDATE(BIND) to prevent incremental binds.

**Label/Comm On**

The number of LABEL ON and COMMENT ON statements issued by the thread.
Set SQLID
The number of SET SQLID requests issued by the thread.

Set Host Var
The number of SET host variable requests executed by the thread.

Set Connection
The number of SET CONNECTION statements executed by the thread.

Set Degree
The number of SET CURRENT DEGREE statements executed by the thread.

Connect Type 1
The number of CONNECT type 1 statements executed by the thread.

Connect Type 2
The number of CONNECT type 2 statements executed by the thread.

Set Path
The number of SET CURRENT PATH statements executed by the thread.

Rename table
The number of RENAME TABLE statements executed by the thread.

Hold Locator
The number of HOLD LOCATOR statements executed by the thread.

Free Locator
The number of FREE LOCATOR statements executed by the thread.

Release
The number of RELEASE statements executed by the thread.

Assoc Locator
The number of ASSOCIATE LOCATOR statements executed by the thread.

Alloc Cursor
The number of ALLOCATE CURSOR statements executed by the thread.

Merge
The number of MERGE statements executed by the thread.

Rename Index
The number of RENAME INDEX statements executed by the thread.

Truncate Table
The number of TRUNCATE TABLE statements executed by the thread.

Refresh Table
Number of refresh table statements. DB2 12 and later. (Field name: QXTREFTBL)

Transfer Owner
Number of transfer ownership statements. DB2 12 and later. (Field name: QXTRNOWN)

Creates, Drops, Alters:

Table The number of CREATE, DROP, or ALTER TABLE statements executed by the thread.

Index The number of CREATE, DROP, or ALTER INDEX statements executed by the thread.
Table Space
The number of CREATE, DROP, or ALTER TABLESPACE statements executed by the thread.

Data Base
The number of CREATE, DROP, or ALTER DATABASE statements executed by the thread.

Storage Group
The number of CREATE, DROP, or ALTER STOGROUP statements executed by the thread.

Synonym
The number of CREATE or DROP SYNONYM statements executed by the thread.

View
The number of CREATE or DROP VIEW statements executed by the thread.

Alias
The number of CREATE or DROP ALIAS statements executed by the thread.

Function
The number of CREATE, DROP, or ALTER FUNCTION statements executed by the thread.

Procedure
The number of CREATE, DROP, or ALTER PROCEDURE statements executed by the thread.

Sequence
The number of CREATE, DROP, or ALTER PROCEDURE statements executed by the thread.

Role
The number of CREATE, DROP, or ROLE statements executed by the thread.

Trusted CTX
The number of CREATE, DROP, or ALTER TRUSTED CONTENT statements executed by the thread.

Mask/Perm
The number of CREATE, DROP, or ALTER MASK/PERM statements executed by the thread.

Variable
The number of CREATE, or DROP Variable statements executed by the thread. DB2 11 and above.

Trigger
The number of CREATE or DROP DISTINCT TRIGGER statements executed by the thread.

Dist Type
The number of CREATE or DROP DISTINCT TYPE statements executed by the thread.

Aux Table
The number of CREATE AUXILIARY TABLE statements executed by the thread.

Package
The number of the DROP PACKAGE statements executed by the thread.
JAR  The number of ALTER JAR statements executed by the thread.

Glob Temp Tab  The number of CREATE GLOBAL TEMPORARY TABLE statements executed by the thread.

Declare GTT  The number of DECLARE GLOBAL TEMPORARY TABLE statements executed by the thread.

RID List:

Successful  The number of times RID list processing used. This field is incremented once for a given table access for Index Access with list prefetch and for Multiple Index Access.

To Workfile (No Storage)  The number of times a RID list was overflown to a work file because no RIDPOOL storage was available to hold the list of RIDs. DB2 10 and above.

Not Used (No Storage)  The number of times a RID list was not used for a given RID list process involving one index (Index Access with list prefetch) or involving multiple indexes (Multiple Index Access) because no storage was available to hold the list of RIDs.

To Workfile (Max Limit)  The number of times a RID list was overflown to a work file because the number of RIDs exceeded one or more internal limits. DB2 10 and above.

Not Used (Max Limit)  The number of times one or more RID lists were not used for a given RID list process involving one index (Index Access with list prefetch) or involving multiple indexes (Multiple Index Access) because the number of RIDs exceeded one or more internal limits.

Interrupted (No Storage)  The number of times a RID list append for a Hybrid Join was interrupted because no RIDPOOL storage was available to hold the list of RIDs (that is, number of times DB2 interrupted the RID phase and switched to the Data phase). DB2 10 and above.

Skipped (Index Known)  The number of times a RID list retrieval for multiple index access was skipped because it was not necessary due to DB2 being able to predetermine the outcome of index ANDing or ORing. DB2 10 and above.

Interrupted (Max Limit)  The number of times a RID list append for a Hybrid Join was interrupted because the number of RIDs exceeded one or more internal limits (that is, number of times DB2 interrupted the RID phase and switched to the Data phase). DB2 10 and above.

Skipped (Adaptive IX)  The number of times a DM is not called for RID list retrieval for multiple index access or LPF because it was not necessary due to Runtime Adaptive Index processing being able to predetermine the outcome. DB2 12 and later. (Field name: QXRSDMAD)
Query Parallelism fields:

**Max Degree (Planned)**
The planned maximum degree of parallelism for a parallel group. This value is the optimal degree of parallelism that can be obtained at execution time, after host variables or parameter markers are resolved, and before buffer pool negotiation and system negotiation are performed. DB2 11 and above.

**Parallel Group Degenerated**
Total number of parallel groups that changed to sequential mode during optimization, for reasons such as, the result of evaluation of a parallel group is that zero rows are returned, or a parallel group is partitioned on a single record. DB2 11 and above.

**Max Degree (Estimated)**
The estimated maximum degree of parallelism for a parallel group. This value is estimated at bind time, based on the cost formula. If a parallel group contains a host variable or parameter marker, the estimate is based on assumed values. DB2 11 and above.

**Reform Parallelism (Config Chg)**
The total number of parallel groups for which DB2 reformulated the parallel portion of the access path because the sysplex configuration was different from the sysplex configuration at bind time. This counter is only incremented by the parallelism coordinator at run time.

**Max Degree (Executed)**
Maximum degree of parallelism among the parallel groups to indicate the extent to which query parallelism applies.

**Reform Parallelism (No Buf)**
The total number of parallel groups for which DB2 reformulated the parallel portion of the access path because there was not enough buffer pool resource. This counter is only incremented by the parallelism coordinator at run time.

**Ran Planned**
The total number of parallel groups that have a planned degree greater than one at run time, and were executed to the same degree because of sufficient storage on the buffer pool.

**Total Parallel Groups**
The total number of parallel groups executed.

**Ran Reduced (Storage)**
The total number of parallel groups that have a planned degree greater than one at run time, but were processed to a parallel degree less than planned because of a storage shortage or contention on the buffer pool.

**Groups Intended**
The total number of parallel groups that were intended to run across the data sharing group. This count is only incremented on the parallelism coordinator at run time.

**Ran Reduced (Negot)**
The total number of parallel groups for which the degree of parallelism was reduced as a result of parallel system negotiation because system resources were constrained. DB2 11 and above.

**Members Skipped**
The number of times that the parallelism coordinator had to bypass a DB2 when distributing tasks because there was not enough buffer pool storage.
on one or more DB2 members. This field is incremented only on the 
parallelism coordinator, and it is only incremented once per parallel group, 
even though it is possible that more than one DB2 had a buffer pool 
shortage for that parallel group. The purpose of this count is to indicate 
when there are not enough buffers on a member. Therefore, this count is 
incremented only when the buffer pool is defined to allow parallelism. For 
example, if VPXPSEQT = 0 on an assistant, DB2 does not send parallel 
work there, but this count is not incremented.

Ran Seq (Cursor)
The total number of parallel groups which fell back to sequential mode 
because the cursor may be used in UPDATE/DELETE.

One DB2 (Coord=NO)
The total number of parallel groups executed on a single DB2 due to the 
COORDINATOR subsystem parameter being set to NO. When the 
statement was bound, the COORDINATOR subsystem parameter was set 
to YES. This situation can also occur when a plan or package is bound on 
one DB2 where COORDINATOR=YES but is run on a DB2 where 
COORDINATOR=NO.

Ran Seq (No Buffer)
The total number of parallel groups that have a planned degree greater 
than one at run time, but fell back to sequential mode because of storage 
shortage or contention on the buffer pool.

One DB2 (Isolation)
The total number of parallel groups executed on a single DB2 due to 
repeatable-read or read-stability isolation.

Ran Seq (No ESA Sort)
The total number of parallel groups that fell back to sequential operation 
because of a lack of ESA sort support.

One DB2 (DCL GTT)
The total number of parallel groups that are part of a query block using a 
UDF and executed on a single DB2 due to the existence of a Declared 
Temporary Table in the application process. Neither the query block nor 
the parallel group references a Declared Temporary Table, and a parallel 
group may or may not use a UDF.

Ran Seq (Autonomous)
The total number of parallel groups that changed to sequential mode 
because they were executing under an autonomous procedure. DB2 11 and 
above.

Ran Seq (Negotiate)
The total number of parallel groups that changed to sequential mode as a 
result of parallel system negotiation because system resources were 
constrained. DB2 11 and above.

Ran Seq (No ESA Enc)
The total number of parallel groups executed in sequential because Z/OS 
enclave services were unavailable. DB2 9 only.

Miscellaneous fields:
Maximum LOB Storage
The maximum storage used for LOB values, in Megabytes.
Maximum XML Storage
The maximum storage used for XML values.

Maximum Nested SQL
Maximum level of nested SQL cascading because of Triggers, User-Defined Functions, or Stored Procedures.

Array Expansions
The number of times an array variable was expanded to be larger than 32KB. DB2 11 and above.

Sparse IX (Disabled)
The number of times that sparse index was disabled because of insufficient storage. DB2 11 and above.

Sparse IX (Built WF)
The number of times that sparse index built a physical work file for probing. DB2 11 and above.

Fetched 1 Block Only (QXR1BOAD)
The number of times 1 block is fetched and there were no further fetches. DB2 12 and later.

Trigger fields:

Statement Trigger
Number of times a Statement Trigger is activated.

Row Trigger
Number of times a Row Trigger is activated.

SQL Errors
Number of times an SQL error occurred during execution of a triggered action.

Stored procedures:

Executed
The number of CALL statements executed by the thread.

Timed Out
The number of times an SQL CALL timed out waiting to be scheduled. No TCB was available in the stored procedures address space or the procedure was in the STOP ACTION(QUEUE) state.

Rejected
The number of times an SQL CALL was rejected because the procedure was in the STOP ACTION(REJECT) state.

Abended
The number of times a stored procedure terminated abnormally.

User-defined functions (UDF) fields:

Executed
The number of user-defined functions (UDFs) executed.

Abended
The number of times a UDF abended.

Timed Out
The number of times a UDF timed out when waiting to be scheduled.
Rejected
The number of times a UDF was rejected.

Prepare Statistics:

Prepares (Copy Found)
The number of times that DB2 satisfied a prepare request by making a copy of a statement in the Prepared Statement Cache.

Prepare (Copy Not Found)
The number of times that DB2 searched the Prepared Statement Cache but could not find a suitable prepared statement.

Prepares (Catalog Found)
The number of times a PREPARE request is satisfied by making a copy from the stabilized statement in SYSIBM.SYSDYNGRY catalog table. The stabilized statement search is done only when no matching statement is found in the prepared statement cache. DB2 12 and later. (Field name: QXSTSFND)

Prepare (Restrict IX)
The number of prepare statements for which the use of indexes was restricted because the indexes were in a pending state.

Literals (Parsed)
Number of times DB2 parsed dynamic statements because of CONCENTRATE STATEMENTS WITH LITERALS behaviour.

Literals (Replaced)
Number of times DB2 replaced at least one literal in a dynamic statement because of CONCENTRATE STATEMENTS WITH LITERALS behaviour.

Literals (Matched)
Number of times DB2 found a matching reusable copy of a dynamic statement in cache because of CONCENTRATE STATEMENTS WITH LITERALS behaviour.

Literals (Duplicated)
Number of times DB2 created a duplicate stmt instance in the statement cache because of CONCENTRATE STATEMENTS WITH LITERALS behaviour.

KeepDyn (Prepared)
The number of times that DB2 did an implicit prepare for a statement bound with KEEP_DYNAMIC(YES), because the Prepared Statement Cache did not contain a valid copy of the prepared statement.

KeepDyn (Avoided)
The number of times that DB2 did not prepare a statement bound with KEEP_DYNAMIC(YES), because the Prepared Statement Cache contained a valid copy of the prepared statement.

KeepDyn (Exceed Limit)
The number of times that DB2 discarded a prepared statement from the Prepared Statement Cache, because the number of prepared statements in the cache exceeded the value of subsystem parameter MAXKEEPD.

KeepDyn (Invalidated)
The number of times that DB2 discarded a prepared statement from the Prepared Statement Cache, because a program executed a DROP, ALTER, or REVOKE statement against a dependent object.
Direct Row Access fields:

Direct Access
The number of times that DB2 used Direct Row Access to locate a record.

Index Used
The number of times that DB2 attempted to use Direct Row Access but reverted to using an Index to locate a record.

TS Scan Used
The number of times that DB2 attempted to use Direct row Access but reverted to using a Table Space scan to locate a record.

Row Processing:

Rows Fetched
The number of rows fetched.

Rows Inserted
The number of rows inserted.

Rows Updated
The number of rows updated.

Rows Deleted
The number of rows deleted.

Thread History Buffer Pool Activity
This panel provides information about buffer pool activity for a completed thread.

| Thread identifier: This information identifies the thread to which the information in this panel applies. |
| Plan | The Db2 plan name of the active thread. |
| Connid | The Db2 connection identifier of the active thread. |
Corrid  The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid  The Db2 authorization identifier of the active thread.

Attach  Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Attachment identifier:

Connection Type
The connection type is displayed in the first field:

APPLDIR  Application directed access (data base access threads)

BATCH  Other DB2 batch threads

CALLATCH  DB2 call attach

CICS  CICS attach

DLI  DL/I batch

IMSBMP  IMS attach BMP

IMSMPP  IMS attach MPP

IMSCtrl  IMS control region

IMSBMPP  IMS transaction BMP

RRSAF  Recoverable Resource Manager Services Attachment Facility

SYSDIR  System directed access (data base access threads)

TSO  TSO foreground and background

Utility  Utility thread

DB2  The DB2 subsystem identifier.

MVS  The MVS system identifier.

ORIGAUTH  The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Distributed thread identifier: The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

Type  The distributed thread type.
Distributed Allied
A requesting thread; one that has issued an SQL call to a remote Db2 location.

Database Access
A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

Db2=
The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

Luwid
This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:
USCAC001.02022A.A1FE8E046894=8

System
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

Time identifier:
Start The start date and time of this thread execution.
End The end date and time of this thread execution.

Buffer pool:
Getpage Requests
The number of thread Getpage requests. This value includes conditional, unconditional, successful, and unsuccessful requests. A Getpage request might not actually result in physical I/O if the requested page is in the buffer pool.

Failed Getpage Requests
The number of times a conditional Getpage request could not be satisfied. A conditional Getpage will not wait for a page that is not currently in the buffer pool. A conditional Getpage is used with parallel I/O processing only.

Synchronous Read I/O
The number of synchronous Read I/O requests issued by the thread.

Getpage/Read I/O
The ratio of Getpage requests to the number of synchronous Read I/O requests. This value does not include Prefetch requests.

Page Updates
The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2's internal Deferred Write algorithm, not
immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative.

**Seq Prefetch Requests**
The number of Sequential Prefetch requests issued by the thread. Sequential Prefetch Read I/O is performed asynchronously to the user’s request.

**List Prefetch Requests**
The number of List Prefetch requests issued by the thread.

**Dynamic Prefetch Requests**
The number of Dynamic Prefetch requests issued by the thread.

**Prefetch Pages Read**
The number of pages read asynchronously for Prefetch.

**Immediate Writes**
The number of immediate (synchronous) Write I/O requests issued for a thread.

**BP Hit Percentage**
The percentage of Getpage requests for which the data was already in the buffer pool.

**Thread History Resource Limit Statistics**
This panel provides information about resource limits for a completed thread, such as the highest CPU time used by a thread and the number of times each thread exceeded the maximum CPU time limit.

---

**Navigation**
For additional information about

- related topics, choose one of the options at the top of the panel.
- other topics, use the PF keys.
Fields

Thread identifier:

Plan    The DB2 plan name of the thread.
Connid  The DB2 connection identifier of the thread.
Corrid  The DB2 correlation identifier of the thread.
Authid  The DB2 authorization identifier of the thread.

Attachment identifier:

Connection Type
The connection type is displayed in the first field:

- APPLDIR   Application directed access (database access threads)
- BATCH     Other DB2 batch threads
- CALLATCH  DB2 call attach
- CICS       CICS attach
- DLI        DL/I batch
- IMSBMP     IMS attach BMP
- IMSMPP     IMS attach MPP
- IMSCTRL    IMS control region
- IMSBMPB    IMS transaction BMP
- RRSAF      Recoverable Resource Manager Services Attachment Facility
- SYSDIR     System directed access (database access threads)
- TSO        TSO foreground and background
- Utility    Utility thread
- DB2        The DB2 subsystem identifier.
- MVS        The MVS system identifier.
- ORIGAUTH   The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Distributed thread identifier: The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.

Type    The distributed thread type.
Distributed Allied
A requesting thread; one that has issued an SQL call to a remote DB2 location.

Database Access
A server thread; one that has received and is serving an SQL request from a remote DB2 location.

Luwid
This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:
USCAC001.02022A.A1FE8E04B9D4=8

Time identifier:
Start The start date and time of this thread execution.
End The end date and time of this thread execution.

Resource limit:

Resource Limit Table Name in Use
The resource limit specification table used by the DB2 subsystem.

Resource Limit Origin
The origin of the resource limit in effect for this thread, if resource limiting was active.

Resource Limit in Effect (SUs)
The resource limit in MVS service units for the thread.

Resource Limit CPU Time Per SU
The number of CPU seconds per service unit. This is the ratio of the limit in CPU seconds to the limit in service units.

Resource Limit In Effect (CPU secs)
The resource limit in effect in CPU seconds.

Resource Limit High Water Mark (CPU)
The highest CPU time used for dynamic request since the thread was created.

Ratio of HWM to Resource Limit (CPU)
The ratio (in percent) of the high-water mark (HWM) to the CPU resource limit in effect.

Thread History Distributed Activity
This panel displays distributed SQL statistics for each remote DB2 location with which the thread has communicated either as a requestor or server.
Navigation

For additional information about
- related topics, choose one of the options at the top of the panel.
- other topics, use the PF keys.
Fields

Thread identifier:
Plan The DB2 plan name of the thread.

Connid
The DB2 connection identifier of the thread.

Corrid The DB2 correlation identifier of the thread.

Authid
The DB2 authorization identifier of the thread.

Attachment identifier:
Connection Type
The connection type is displayed in the first field:

APPLDIR Application directed access (data base access threads)

BATCH Other DB2 batch threads

CALLATCH DB2 call attach

CICS CICS attach

DLI DL/I batch

IMSBMP IMS attach BMP

IMSMPP IMS attach MPP

IMSCTRL IMS control region

IMSBMPB IMS transaction BMP

RRSAF Recoverable Resource Manager Services Attachment Facility

SYSDIR System directed access (data base access threads)

TSO TSO foreground and background

Utility Utility thread

DB2 The DB2 subsystem identifier.

MVS The MVS system identifier.

ORIGAUTH The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Distributed thread identifier: The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.

Type The distributed thread type.
**Distributed Allied**  
A requesting thread; one that has issued an SQL call to a remote DB2 location.

**Database Access**  
A server thread; one that has received and is serving an SQL request from a remote DB2 location.

**Luwid**  
This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:  
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the **Luwid** field displays data such as the following:  
USCAC001.02D22A.A1FE8E04B9D4=8

**Time identifier:**

**Start**  
The start date and time of this thread execution.

**End**  
The end date and time of this thread execution.

**Distributed TCP/IP Data:** If no TCP/IP data is available, N/A is displayed.

**Workstation Name**  
The end user’s workstation name.

**Transaction Name**  
The transaction or application name that the end user is running.

**TCP/IP Userid**  
The end user’s user ID.

**Distributed SQL Statistics:**

**Remote Location Name**  
The name of the remote location with which the local DB2 communicated. The statistics in this panel pertain to the remote location.

**Remote Product ID**  
The product identifier of the DB2 remote location. The format is:  
PPPVVRRR where PPP is the product identifier, VV is the version number, RR is the release number, and M is the modification level.

**Protocol Used**  
The distributed protocol used to communicate with the remote server. Possible values are APPLICATION for application directed access or SYSTEM for system directed access.

This field is blank if you are monitoring a database access thread.

**Conversations Queued**  
The number of conversations that were queued by DDF.

**Conv Deallocated**  
The number of conversations deallocated.

**Dist Local Elapsed**  
The time spent waiting for a response to a remote SQL request (includes remote DB2 processing time, VTAM processing time, and network time). This field is displayed only for distributed allied threads.
SQL Sent/Recv
The number of SQL calls sent to the location and number of SQL calls received from the location.

Row Sent/Recv
The number of rows sent to the location and number of rows received from the location.

Message Sent/Recv
The number of VTAM messages sent to the location and number of VTAM messages received from the location.

Byte Sent/Recv
The number of bytes sent to the location and number of bytes received from the location.

Commit Sent/Recv
The number of Commits sent to the location and number of commits received from the location.

Abort Sent/Recv
The number of aborts sent to the location and number of aborts received from the location.

Conv Sent/Recv
The number of conversations initiated from this location to the remote location and the number of conversations initiated from the remote location to this location.

Blocks Sent/Recv
The number of blocks sent to the location and number of blocks received from the location if using block mode.

The following field values are displayed only for 2-PHASE COMMIT:

Prepare Sent/Recv
The number of Prepare requests sent to the participant and number of requests received from the coordinator.

Last Agent Sent/Recv
The number of last agent requests sent to the coordinator and number of requests received from the initiator.

Commit Sent/Recv
The number of committed requests sent to the participant and number of requests received from the initiator.

Backout Sent/Recv
The number of backout requests sent to the participant and number of requests received from the coordinator.

Forget Sent/Recv
The number of forget requests sent to the participant and number of requests received from the coordinator.

Commit Resp Sent/Recv
The number of commit responses sent to the participant and number of requests received from the coordinator.

Backout Resp Sent/Recv
The number of backout responses sent to the participant and number of requests received from the coordinator.
Thread History Package Summary
This panel provides a list of programs (DMRMs or packages) that were executed by a completed thread.

Accounting classes 7 or 8 are required to display package information.

<table>
<thead>
<tr>
<th>ZHTPKG</th>
<th>VTM</th>
<th>Q2</th>
<th>V540.IP</th>
<th>SN12</th>
<th>11/06/13 15:25:47</th>
<th>2</th>
</tr>
</thead>
</table>

> Help PF1 Back PF3 Up PF7 Down PF8 Zoom PF11

> THREAD HISTORY: Enter a selection letter on the top line.

> A-THREAD DETAIL B-LOCK COUNTS C-LOCK WAITS D-GLOBAL LOCKS E-SORT/SCAN
> F-DYNAMIC SQL G-SQL COUNTS H-DISTRIBUTED I-BUFFER POOL J-GROUP BP
> *-PACKAGE SUMMARY L-RES LIMIT M-PARALLEL TASKS

===============================================================================

THREAD HISTORY PACKAGE SUMMARY

HPLN
+ Thread: Plan=RUNSPNA9 Connid=DB2CALL Corrid=MISRSP9 Authid=MIS
+ Attach: CALLATCH DB2=SN12 MVS=PM04
+ Luwid=DEIBMIPS.IPSATN12.CC3931107571
pkg
+
+
+ Package/DBRM Requests Elapsed Time CPU Time Waits Wait Time
+ ------------------ ---------- ---------- ---------- ----------
+ SPNAT9_NEWNAME_TES 3 00:00:09.209 00:05:07.396 79 00:00:00.432
+ RUNSPNA9 2 00:00:00.057 00:00:00.000 5 00:00:00.030

===============================================================================

Fields

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.

Attach Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

Attachment identifier:

Connection Type
The connection type is displayed in the first field:

APPLDIR Application directed access (data base access threads)

BATCH Other DB2 batch threads

CALLATCH DB2 call attach
CICS  CICS attach
DLI   DL/I batch
IMSBMP  IMS attach BMP
IMSMPP  IMS attach MPP
IMSCtrl   IMS control region
IMSBMPB  IMS transaction BMP
RRSAF   Recoverable Resource Manager Services Attachment Facility
SYSDIR  System directed access (data base access threads)
TSO    TSO foreground and background
Utility Utility thread
DB2    The DB2 subsystem identifier.
MVS    The MVS system identifier.
ORIGAUTH  The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Time identifier:
Start   The start date and time of this thread execution.
End     The end date and time of this thread execution.

Distributed thread identifier: The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.
Type    The distributed thread type.
Distributed Allied  A requesting thread; one that has issued an SQL call to a remote Db2 location.
Database Access  A responding thread; one that is serving a remote Db2 location by responding to an SQL call.
Db2=    The Db2 subsystem ID, indicating the member of the data sharing group of this thread.
Luwid   This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:
USCAC001.02022A.A1FE8E04B9D4=8
System
The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the **Attach** line identifies the user thread, if any, being served by the system thread.

Package summary:

**Package/DBRM**
The name of the program for which data is reported. Up to 18 characters of the package name are returned. An asterisk (*) is displayed after the program name of the last executed program.

**SQL Requests**
The number of SQL statements issued in this package or DBRM.

**Total Elapsed Time**
The total DB2 time that has elapsed while executing in this package or DBRM.

**Total CPU Time**
The total DB2 CPU time used while executing in this package or DBRM.

**Waits**
The total number of times that the thread had to wait for a class 8 event to complete while executing in this package or DBRM.

**Total Wait Time**
The total time spent waiting for a class 8 event to complete while executing in this package or DBRM.

**Thread History Package Detail**
This panel provides detailed Accounting information on a program (package or DBRM) that has been executed by this thread.

It provides information collected for Accounting trace classes 7 and 8. If these traces are not active, this information is not available.

DB2 accounting trace classes 7 and 8 must be started before the plan begins execution, or package information is not displayed:

- If only class 7 was started, the In-DB2 Times fields display data, and N/A is displayed for the Waits and Count fields.
- If only class 8 was started, the Waits and Count fields display data, and N/A is displayed for In-DB2 Times fields.
### Fields

**Thread identifier:** This information identifies the thread to which the information in this panel applies.

**Plan**  
The Db2 plan name of the active thread.

**Connid**  
The Db2 connection identifier of the active thread.

**Corrid**  
The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

**Authid**  
The Db2 authorization identifier of the active thread.

**Attach**  
Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).

**Attachment identifier:**

**Connection Type**  
The connection type is displayed in the first field:

---

<table>
<thead>
<tr>
<th>Fields</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thread identifier</td>
<td>This information identifies the thread to which the information in this panel applies.</td>
</tr>
<tr>
<td>Plan</td>
<td>The Db2 plan name of the active thread.</td>
</tr>
<tr>
<td>Connid</td>
<td>The Db2 connection identifier of the active thread.</td>
</tr>
<tr>
<td>Corrid</td>
<td>The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.</td>
</tr>
<tr>
<td>Authid</td>
<td>The Db2 authorization identifier of the active thread.</td>
</tr>
<tr>
<td>Attach</td>
<td>Depending on the type of connection, the appropriate information is displayed.</td>
</tr>
</tbody>
</table>

#### Time Information

<table>
<thead>
<tr>
<th>Time Information</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Time</td>
<td>03/18/2016 19:49:49.930017</td>
</tr>
<tr>
<td>End Time</td>
<td>03/18/2016 19:50:41.092444</td>
</tr>
</tbody>
</table>

#### SQL Request Count

- Total SQL Request Count = 30

#### Elapsed Time

- Elapsed Time: 00:00:00.045
- CPU Time: 00:00:00.017

#### Waits

<table>
<thead>
<tr>
<th>Type</th>
<th>Count</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synchronous I/O Wait</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Asynchronous Read I/O Wait</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Asynchronous Write I/O Wait</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Local Lock/Latch Wait</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Page Latch Wait</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Drain Lock Wait</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Drain of Claims Wait</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>DB2 Service Task Wait</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Archive Log Mode (Quiesce)</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Archive Read from Tape Wait</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Parallel Query Sync Wait</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>LOB Materialization Wait</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Accelerator Wait</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Pipe Wait</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
<tr>
<td>Total Class 3 Wait Time</td>
<td>0</td>
<td>00:00:00.000</td>
</tr>
</tbody>
</table>

---

Chapter 5. Monitoring 1685
APPLDIR
Application directed access (data base access threads)

BATCH
Other DB2 batch threads

CALLATCH
DB2 call attach

CICS
CICS attach

DLI
DL/I batch

IMSBMP
IMS attach BMP

IMSMPP
IMS attach MPP

IMSCTRL
IMS control region

IMSBMPB
IMS transaction BMP

RRSAF
Recoverable Resource Manager Services Attachment Facility

SYSDIR
System directed access (data base access threads)

TSO
TSO foreground and background

Utility
Utility thread

DB2
The DB2 subsystem identifier.

MVS
The MVS system identifier.

ORIGAUTH
The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Time identifier:
Start
The start date and time of this thread execution.

End
The end date and time of this thread execution.

Distributed thread identifier: The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

Type
The distributed thread type.

Distributed Allied
A requesting thread; one that has issued an SQL call to a remote Db2 location.

Database Access
A responding thread; one that is serving a remote Db2 location by responding to an SQL call.

Db2=
The Db2 subsystem ID, indicating the member of the data sharing group of this thread.
Luwid  This value consists of two parts: the logical unit of work ID (luw-id) and a
token. The token can be used in place of the luw-id in any Db2 command
that accepts luw-id as input. Format:
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME,
and a unique identifier (separated by periods). Thus, the Luwid field
displays data like in the following example:
USCAC001.02D22A.A1FE8E04B9D4=8

System
The originating Db2 job name and the resource manager that is the source
of the thread. An additional line below the Attach line identifies the user
thread, if any, being served by the system thread.

Package information:

Program
The program name for which data is reported. Up to 18 characters of the
package name are returned.

Type
The program type can be:
• PACKAGE
• DBRM
• PACKAGE-STORPROC, which means that the program is a package that
was loaded by a stored procedure.

Location
The name of the location where the package is executed. For remote
packages, times displayed represent the time spent locally to execute the
remote package.

Token
The consistency token.

Collection
The package collection ID. This field is displayed only if the program type
is PACKAGE.

SQL Request Count
The number of SQL statements issued. All DCL, DDL, and DML SQL
statements as well as some Statistic Counters from DSNDQXST are
included. COMMIT and ROLLBACK/ABORT are not included.

In-DB2 Times: In-DB2 times require an Accounting trace class 7. If this trace is not
active, N/A is displayed.

In-DB2 elapsed time
The elapsed time while processing this package or DBRM:

Total  The total time the thread spends processing this package or DBRM.

Current  The total time spent processing the currently active SQL statement.

In-DB2 CPU time
The CPU time spent processing this package or DBRM.

Total  The total time the thread spends processing this package or DBRM.

Current  The total time spent processing the currently active SQL statement.
Waits: Wait times require an Accounting trace class 8. If this trace is not active, N/A is displayed. The following Statistics information is provided for each field described below:

Count  The total number of waits.
Total   The total wait time.

Synchronous I/O Wait
Waits for synchronous I/O reads or writes.

Asynchronous Read I/O Wait
Waits for Read I/O performed under another thread (prefetch).

Asynchronous Write I/O Wait
Waits for Write I/O performed under another thread (deferred writes).

Local Lock/Latch Wait
Waits for locks or latches.

Page Latch Wait
Waits for page latch.

Drain Lock Wait
Waits to acquire DRAIN lock.

Drain of Claims Wait
Waits for claimers to be released after acquiring DRAIN lock.

DB2 Service Task Wait
Waits for DB2 services. The following types of DB2 services are included:
- Open/close of data set
- DFHSM recall of a data set
- SYSLGRNG update
- Define/extend/delete of data set
- Commit phase 2 for read only threads.

Starting from DB2 11, waits that are associated with autonomous procedures are also included.

Archive Log Mode(Quiesce) Wait
Waits for MODE(QUIESCE) command to complete.

Archive Read from Tape Wait
Waits for read of archive log from tape.

Parallel Query Sync Wait (QPAC_PQS_WAIT QPAC_PQS_COUNT)
The amount of waits after parallel query processing suspended waiting for parent/child to be synchronized.

This applies to DB2 11 and higher.

LOB Materialization Wait (QPACALBW QPACALBC)
Waits for TCP/IP LOB and XML materialization.

Accelerator Wait (QWACAAACW QPACAACC)
The accumulated wait time for requests to an accelerator. DB2 11 and later.

Pipe Wait (QOAC_PIPE_WAIT QPAC_PIPEWAIT_COUNT)
The accumulated wait time for a pipe while this package is being executed. DB2 12 and later.

Total Class 3 Wait Time
The total class 3 wait time.
Thread History Sort and Scan Activity

This panel displays sort and scan statistics, such as the number of sorts, the sort elapsed time, and the number of pages scanned by a completed thread.

You must specify SCAN(YES) or SORT(YES) when collecting thread data.

<table>
<thead>
<tr>
<th>ZHTSOCS</th>
<th>VT M O2</th>
<th>VS40. E</th>
<th>PM SAD</th>
<th>11/06/13 15:27:36</th>
<th>2</th>
</tr>
</thead>
</table>

**Navigation**

For additional information about

- related topics, choose one of the options at the top of the panel.
- other topics, use the PF keys.

**Fields**

**Thread identifier:**

**Plan** The DB2 plan name of the thread.

**Connid** The DB2 connection identifier of the thread.

**Corrid** The DB2 correlation identifier of the thread.

**Authid** The DB2 authorization identifier of the thread.

**Attachment identifier:**

**Connection Type**

The connection type is displayed in the first field:
APPLDIR
Application directed access (data base access threads)

BATCH
Other DB2 batch threads

CALLATCH
DB2 call attach

CICS
CICS attach

DLI
DL/I batch

IMSBMP
IMS attach BMP

IMSMPP
IMS attach MPP

IMSCtrl
IMS control region

IMSBMPB
IMS transaction BMP

RRSAF
Recoverable Resource Manager Services Attachment Facility

SYSDIR
System directed access (data base access threads)

TSO
TSO foreground and background

Utility
Utility thread

DB2
The DB2 subsystem identifier.

MVS
The MVS system identifier.

ORIGAUTH
The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Distributed thread identifier: The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.

Type
The distributed thread type.

Distributed Allied
A requesting thread; one that has issued an SQL call to a remote DB2 location.

Database Access
A server thread; one that has received and is serving an SQL request from a remote DB2 location.

Luwid
This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format: luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:

USCAC001.02D22A.A1FE8E0489D4=8
Time identifier:

Start  The start date and time of this thread execution.
End   The end date and time of this thread execution.

Sort statistics:

Number of Sorts
The total number of sorts performed for this thread.

Records Sorted
The total number of records sorted for this thread.

Sort Elapsed Time
The total time spent performing sort processing.

Sort CPU Time
The total CPU time spent performing sort processing.

Number of Work Files
The number of logical work files used during sort processing. This is a
high-water mark.

Work File Inserts
The number of records inserted into a work file during sort processing.

Work File Reads
The number of records retrieved from a work file during sort processing.

Scan statistics:

Rows Deleted - RI
The number of rows that were deleted or set to null to enforce referential
integrity constraints.

Pages Scanned - RI
The number of pages that were scanned to enforce referential integrity
constraints.

Type  The type of scan information displayed. Possible types:
INDEX
   Index scan
DATA  Data row scan
WORK
   Work file scan

Count  The number of times this thread generated a scan.

Rows Processed
The number of rows processed by the Data Manager.

Rows Updated
The number of rows updated by the Data Manager.

Rows Inserted
The number of rows inserted by the Data Manager.

Rows Deleted
The number of rows deleted by the Data Manager.

Pages Scanned
The number of pages scanned by the Data Manager.
Thread History Group Buffer Pool Activity

This panel provides a summary of group buffer pool usage for an individual thread.

Thread identifier: This information identifies the thread to which the information in this panel applies.

Plan The Db2 plan name of the active thread.

Connid The Db2 connection identifier of the active thread.

Corrid The Db2 correlation identifier of the active thread. If the correlation is not set, N/A is displayed.

Authid The Db2 authorization identifier of the active thread.

Attach Depending on the type of connection, the appropriate information is displayed.

Attach information is displayed only if the thread is a distributed allied thread (not for distributed database access threads).
Attachment identifier:

Connection Type
The connection type is displayed in the first field:

**APPLDIR**
Application directed access (data base access threads)

**BATCH**
Other DB2 batch threads

**CALLATCH**
DB2 call attach

**CICS**
CICS attach

**DLI**
DL/I batch

**IMSBMP**
IMS attach BMP

**IMSMPP**
IMS attach MPP

**IMSCtrl**
IMS control region

**IMSBMPB**
IMS transaction BMP

**RRSAF**
Recoverable Resource Manager Services Attachment Facility

**SYSDIR**
System directed access (data base access threads)

**TSO**
TSO foreground and background

**Utility**
Utility thread

**DB2**
The DB2 subsystem identifier.

**MVS**
The MVS system identifier.

**ORIGAUTH**
The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Time identifier:

**Start**
The start date and time of this thread execution.

**End**
The end date and time of this thread execution.

Distributed thread identifier: The following fields are displayed if the thread has a distributed relationship with a remote Db2 subsystem.

**Type**
The distributed thread type.

**Distributed Allied**
A requesting thread; one that has issued an SQL call to a remote Db2 location.

**Database Access**
A responding thread; one that is serving a remote Db2 location by responding to an SQL call.
Db2= The Db2 subsystem ID, indicating the member of the data sharing group of this thread.

Luwid This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any Db2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data like in the following example:

USCAC001.02D22A.A1FE8E0489D4=8

System The originating Db2 job name and the resource manager that is the source of the thread. An additional line below the Attach line identifies the user thread, if any, being served by the system thread.

Group buffer pool information:

Group Buffer Pool The group buffer pool ID.

Reads - Cross Invalidation: Data Returned The number of reads to the group buffer pool required because the page in the member's buffer pool was invalidated where the data was found and returned to the member.

Reads - Page Not Found: Data Returned The number of reads to the group buffer pool required because the page was not in the member's buffer pool where the data was found and returned to the member.

Reads - Cross Invalidation: Data not in GBP-R/W Int The number of reads to the group buffer pool required because the page in the member's buffer pool was invalidated, where:

- The data was not found in the group buffer pool and the member had to go to DASD to read the page
- Other members had read/write interest in the pageset, so DB2 created a directory entry for this page if it did not already exist.

Reads - Page Not Found: Data not in GBP-R/W Int The number of reads to the group buffer pool required because the page was not in the member’s buffer pool, where:

- The data was not found in the group buffer pool and the member had to go to DASD to read the page
- Other members had read/write interest in the pageset, so DB2 created a directory entry for this page if it did not already exist.

Reads - Cross Invalidation: Data not in GBP-No R/W Int The number of reads to the group buffer pool required because the page in the member's buffer pool was invalidated, where:

- The data was not found in the group buffer pool and the member had to go to DASD to read the page
- No other member had read/write interest in the pageset, so DB2 did not have to register the page, since another member cannot cause a cross-invalidation by updating a page.
Reads - Page Not Found: Data not in GBP-No R/W Int
The number of reads to the group buffer pool required because the page
was not in the member's buffer pool, where:

- The data was not found in the group buffer pool and the member had to
go to DASD to read the page
- No other member had read/write interest in the pageset, so DB2 did not
have to register the page, since another member cannot cause a
cross-invalidation by updating a page.

Read Hit Percentage
The percentage of all Reads to the group buffer pool for which the needed
data was found and returned to the member.

Read-to-Write Percentage
The ratio of reads to writes expressed as a percentage for the group buffer
pool.

Changed Pages Written
The number of changed pages written to the group buffer pool. Pages can
be forced out before the application commits if a buffer pool threshold is
reached, or when P-lock negotiation forces the pages on the vertical
Deferred Write queue to be written to the group buffer pool.

Clean Pages Written
The number of clean pages written to the group buffer pool. DB2 writes
clean pages for pagesets and partitions defined with GBPCACHE ALL.

Thread History Parallel Task Summary
This panel provides information about the activity of parallel tasks that executed
on behalf of a thread.

Parallel tasks are created when CPU parallelism is selected as the method for
processing an SQL query. Internally, parallel tasks are displayed as DB2 system
threads. The first line of information identifies the thread. The second line
identifies the thread's connection type and related information. The remaining lines
display summary accounting information for each parallel task.
Navigation

For more information about one of the following items, perform the corresponding task below:

• a particular parallel task, move the cursor to the task information line and press F11 (Zoom). The “Thread Detail” on page 923 panel is displayed (for that parallel task).
• exceptions that have tripped, type E.A on the top line of the panel.
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields

Thread identifier:

Plan  The DB2 plan name of the thread.

Connid  The DB2 connection identifier of the thread.

Corrid  The DB2 correlation identifier of the thread.

Authid  The DB2 authorization identifier of the thread.

Attachment identifier:

Connection Type

The connection type is displayed in the first field:

APPLDIR  Application directed access (data base access threads)

BATCH  Other DB2 batch threads

CALLATCH  DB2 call attach

CICS  CICS attach

DLI  DL/I batch

IMSBMP  IMS attach BMP

IMSMPP  IMS attach MPP

IMSCCTRL  IMS control region

IMSBMPB  IMS transaction BMP

RRSAF  Recoverable Resource Manager Services Attachment Facility

SYSDIR  System directed access (data base access threads)

TSO  TSO foreground and background

Utility  Utility thread
DB2  The DB2 subsystem identifier.
MVS  The MVS system identifier.

ORIGAUTH
The original (primary) DB2 authorization identifier of the thread. This field displays only when the original identifier is different from the Authid.

Distributed thread identifier: The following fields are displayed when the thread has a distributed relationship with a remote DB2 subsystem.

Type  The distributed thread type.

Distributed Allied
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This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:
USCAC001.O2D22A.A1FE8E04B9D4=8

Time Identifier task information:
Start  The start date and time of this thread execution.
End   The end date and time of this thread execution.

Parallel task information:
Start Time
The time the parallel task was created.
End Time
The time the parallel task ended.
CPU Time
The CPU time for the parallel task.

Getpage
The number of requests for pages.

Getpage requests are logical Read requests that might not actually result in physical I/O if the requested page is currently in the buffer pool. DB2 resets this count at create thread and signon.

Read I/O
The number of synchronous Read I/O operations.

Pfetch
The number of Sequential, List, and Dynamic Prefetch requests.

Waits
The number of waits in DB2. Accounting class 3 is required. N/A is displayed if the data is not available.
Wait Time
The time spent waiting in DB2. Accounting class 3 is required. N/A is displayed if the data not available.

Near-Term History Data Collection Options
This panel shows the specifications for the currently active Near-Term History Data Collector.

For example, you can see which DB2 subsystem is being monitored, which DB2 traces are turned on, and where the data is being stored. The values shown in this panel are determined by the content of the collection options data set member RKD2PAR(COPTcccc), where cccc specifies the DB2 subsystem being monitored. The values are set by means of the Configuration Tool and are applied when the Near-Term History Data Collector is started. More information about the content of the RKD2PAR(COPTcccc) member is described in Configuration and Customization.

Navigation
For additional information about
• related topics, select one of the options at the top of the panel.
• other topics, use the PF keys.

Fields
DB2sys
The identifier (1 to 4 characters) of the DB2 subsystem that is being monitored by the Near-Term History Data Collector.

Writeoption
The specified storage medium for trace data. Possible values are:
VSAM
The Near-Term History Data Collector stores the trace data in VSAM data sets.

VSAM,SEQ
The Near-Term History Data Collector stores the trace data in VSAM data sets and sequential data sets. Sequential data sets are either regular sequential data sets or Generation Data Group (GDG) data sets. This specification is made by means of the Configuration Tool.

Interval
The time interval for data collection.

ArchiveSEQ
If sequential data sets were specified as storage medium for trace data (WRITEOPTION(VSAM,SEQ) keyword in collection options member RKD2PAR(COPTcccc)), this entry displays the name of the data set member RKD2PAR(ARCScccc) that contains the JCL to archive the sequential data sets. cccc specifies the DB2 subsystem being monitored.

Tracebufsz
The size of the buffer on the START TRACE command.

Ifireadtime
The frequency of IFI reads on lightly loaded DB2s. The value is mmsshh, where mm stands for minutes, ss for seconds, and hh for 1/100s of a second.

Suspcoll
Flag indicating whether the data collection is to be suspended at times the VSAM data set is not available.

A near-term history VSAM data set is considered to be unavailable from the time all allocated file space is used until the end of a successful execution of the archive job.

Yes The Near-Term History Data Collector is requested to discard all collected data in memory until a VSAM data set becomes available gain for use.

No The Near-Term History Data Collector is requested to accumulate all collected data in memory until a VSAM data set becomes available gain for use.

PostPCT
A percentage value that determines when the Near-Term History Data Collector drains its IFI buffer on behalf of DB2.

Use this information to tune the Near-Term History Data Collector, if you often see the DB2 message DSNW133I. This value is used to compute a "high water mark" or threshold, which is a percentage of the total number of bytes in the IFI buffer. When this threshold is exceeded, DB2 posts the Near-Term History Data Collector to drain the buffer.

NTAInterval
Displays the Near-Term History sub-interval time. This value may be specified as minutes or seconds. This value is used to provide a secondary display of thread accounting data from a smaller period of time.

Sub-Interval periods may be displayed by entering F next to an interval of time on the THREAD HISTORY BY REPORT INTERVAL screen.
Statistics
Indicates whether a Statistics trace is active.

Accounting
Displays the number of each accounting trace class that is turned on.
Accounting class 11 is available from DB2 11 and later. When class 11 is on, class 1, 7, 8, and 10 are suppressed.

Sort summary
Indicates whether sort processing is active.

Lock contention
Indicates whether lock timeout and deadlock information is being collected.

Scan summary
Indicates whether scan processing is active.

Lock suspension
Indicates whether lock wait information is being collected.

Dynamic SQL
Indicates whether SQL text and access path information for dynamic SQL is being collected.

Negative SQL
Indicates whether information about SQL statements returning negative SQLCODE is being collected.

This entry is only shown if Negative SQL is specified in the Near-Term History configuration.

H2 Data Sets
The fully qualified names of the data sets that hold the trace data. The list of names varies depending on what media were specified with the Configuration Tool.

Filtering
Displays the specified filtering values. An asterisk (*) at the end of the filtering value means that all collected data begins with the characters that precede the asterisk. A question mark (?) at any position in the filtering value serves as a wildcard for a single character.

Near-Term History Data Record Information
This panel shows the type and number of records that have been collected and stored since the Near-Term History Data Collector was started. It also displays the timestamp of the first and last records of each type.
### Navigation

For additional information about

- related topics, select one of the options at the top of the panel.
- other topics, use the PF keys.

### Fields

#### Record Type

The type of record reported on this line. Possible values:

- **Accounting**
  - Accounting data.

- **DDF Section**
  - Distributed accounting data.

- **Pkg Section**
  - Package accounting data.

- **BP Section**
  - Buffer pool accounting data.

- **Acctg-Sum**
  - Summarized accounting data.

- **DDF Section**
  - Summarized distributed accounting data.

- **BP Section**
  - Summarized buffer pool accounting data.

- **Perf-Lock Cont**
  - Lock timeout and deadlock data.

- **Perf-lock Susp**
  - Lock suspension data.

---

<table>
<thead>
<tr>
<th>Record Type</th>
<th>Count</th>
<th>Timestamp of First Record</th>
<th>Timestamp of Last Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>68</td>
<td>2013-11-06-11.46.25.199182</td>
<td>2013-11-06-15.54.56.428105</td>
</tr>
<tr>
<td>DDF Section</td>
<td>6</td>
<td>2013-11-06-11.46.25.199182</td>
<td>2013-11-06-14.12.56.419060</td>
</tr>
<tr>
<td>Acctg Sum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDF Section</td>
<td>21</td>
<td>2013-11-06-13.30.48.299397</td>
<td>2013-11-06-14.00.54.084429</td>
</tr>
<tr>
<td>Perf-Lock Susp</td>
<td>31222</td>
<td>2013-11-06-11.44.27.353316</td>
<td>2013-11-06-15.56.12.708153</td>
</tr>
<tr>
<td>Perf-Dyn SQL</td>
<td>179750</td>
<td>2013-11-06-11.46.25.199000</td>
<td>2013-11-06-15.36.23.598174</td>
</tr>
</tbody>
</table>

---
Perf-Dyn SQL
SQL text and access path data.

Perf-Neg SQL
Data about SQL statements returning negative SQLCODE.

**Count**
The number of records of this type that have been collected and stored since the collector was started.

**Timestamp of First Record**
The date and time that the first record of this type was collected.

**Timestamp of Last Record**
The date and time that the last record of this type was collected; that is, the most recent record.

**Near-Term History Data Collector Dataset Status**
This panel displays the status and space utilization of the data sets used by the Near-Term History Data Collector.

This panel provides the following information:

- The name of the data set defined in the near-term history data collection options member.
- The status of the data set.
- The percentage of the space that is used by the data set.

<table>
<thead>
<tr>
<th>Dataset Name</th>
<th>Status</th>
<th>% Full</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYS1PMO.O310.D843SN11.SN12.RKD2VS01</td>
<td>AVAIL</td>
<td>100.0</td>
</tr>
<tr>
<td>SYS1PMO.O310.D843SN11.SN12.RKD2VS02</td>
<td>ACTIVE</td>
<td>1.6</td>
</tr>
<tr>
<td>SYS1PMO.O310.D843SN11.SN12.RKD2VS03</td>
<td>UNAVAIL</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Navigation**

For additional information about

- near-term history data collection options or record information, choose one of the menu options at the top of the panel.
- other topics, use the PF keys.

**Fields**

**H2 Dataset**
The name of the H2 (near-term history) data set defined in the near-term history data collection options member.

**Status**
The status of the H2 data set. Possible values:

- ACTIVE
- FULL
- AVAIL (available)
- UNAVAIL (unavailable)
The percentage of space used in this H2 data set.

SQL Performance Analyzer Reports

Select this main menu option to access the results from the DB2 SQL Performance Analyzer for z/OS (SQL PA).

SQL PA analyzes former and current SQL queries and report the results. Analyses can be initiated from the following panels:

- “SQL Call Being Executed” on page 948
- “EDM Snapshot Dynamic SQL Cache Statement Statistics Detail” on page 1170
- “Thread History Dynamic SQL Calls” on page 1656

The results from SQL PA are SQL Enhanced Explain reports, SQL Query Limits reports, and SQL Trace information.

The output provided by SQL PA reports is based on SQL PA configuration parameters that are applied by means of the Configuration Tool. During the customization the affected DB2 subsystems and Performance Warehouse options to be used by SQL PA are determined.

When an SQL performance analysis is requested, the OMEGAMON Collector silently submits a batch job that captures the analysis data and puts it into appropriate Performance Warehouse tables, from where it is retrieved and reassembled and presented as an SQL PA report.

SQL PA reports might be long. If you cannot page down to the end of a report, the “logical rows” session parameter value might be too low. Log on again, with the session parameter set to a higher value. You can set this parameter either on the OMEGAMON XE for DB2 PE Classic Interface panel or as a logon command parameter, for example logon applid(ipobd2c) data(lrows=9999).

SQL Performance Analysis: Available Reports

This panel lists currently available SQL PA reports. use this list to select a report, which provides access to panels that display detailed information about the selected report, or to perform maintenance actions on the listed reports.
Navigation

You can scroll through the list using F7 (Up) and F8 (Down), or select a particular list item and press F11 (Zoom) for additional information.

For additional options
• select one of the options from the menu.
• use the PF keys.

Actions

You can refresh the list of current SQL PA reports by pressing Enter.

Use F11 (Zoom) to obtain access to the different report types (Enhanced Explain, Query Limits, Trace).

You can apply the following maintenance actions on a single SQL PA report by typing the corresponding letter left to one of the listed reports. Some actions are permitted only if you are the creator of the report.

D-Delete
Creator only: Deletes a particular SQL PA report. Applicable if the report status is READY, FAILED, or CANCELED.

C-Cancel
Creator only: Cancels an active SQL PA invocation. Applicable if the report status is RUNNING. (The status changes to CANCEL. Keep hitting the Enter key until the status changes to CANCELED.)

B-Scope to Public
Creator only: Marks the report as public so that other users can see the report output. Applicable if the report status is READY, FAILED, or CANCELED.

P-Scope to Private
Creator only: Marks the report as private so that other users cannot see the report output. Applicable if the report status is READY, FAILED, or CANCELED.

Fields

Rept #  The unique report number (identical to the Performance Warehouse log identifier).

Status   The current status of the report.

SUCCESS  The report has completed successfully.

RUNNING  The report is currently running.

FAILED   The job for this reported has failed, based on the completion code from SQL PA.

CANCEL   There is a pending Cancel request for this SQL PA invocation.

CANCELED  The report request was canceled.

Plan     The plan from which the SQL was taken.
Package
The package from which the SQL was taken.

SQL St#  
The SQL statement number.

Date  
The date when the report was run.

Time  
The time when the report was run.

Creator
The creator of the report. The ID of the creator is dependent on a couple of factors:

- If the signon security interface has been enabled, the creator ID is the identification used by the user to sign on.
- If the security interface has not been enabled, but signon profiles are used, the creator ID is of the form OMUSERxx, where xx is the 2-character OMEGAMON profile name.
- If neither the signon exit nor signon profiles are used, a default ID of OMINSTAL is used.

Users can only see reports that they have created or reports that other users have marked as public.

Pub  
Indicator whether the report is currently public (Y) or private (N). Public reports are viewable by any user. Private reports are only viewable by the report's creator. Only the creator of the report can switch the status between Public and Private.

SQL Performance Analysis: Enhanced Explain
This panel shows an Enhanced Explain report of the report selected in the SQL Performance Analysis: Available Reports panel.
Navigation

You can scroll through the report using F7 (Up) and F8 (Down). F3 (Back) returns to the SQL Performance Analysis: Available Reports panel.

You can select a different report type by choosing one of the options from the menu.

SQL Performance Analysis: Query Limits

This panel shows a Query Limits report of the report selected in the SQL Performance Analysis: Available Reports panel.
Navigation

You can scroll through the report using F7 (Up) and F8 (Down). F3 (Back) returns to the SQL Performance Analysis: Available Reports panel.

You can select a different report type by choosing one of the options from the menu.

**SQL Performance Analysis: Trace**

This panel shows a Trace report of the report selected in the SQL Performance Analysis: Available Reports panel.
Navigation

You can scroll through the report using F7 (Up) and F8 (Down). F3 (Back) returns to the SQL Performance Analysis: Available Reports panel.

You can select a different report type by choosing one of the options from the menu.

SQL Performance Analysis: SYSPRINT

This panel shows a SYSPRINT report of the report selected in the SQL Performance Analysis: Available Reports panel.
Navigation

You can scroll through the report using F7 (Up) and F8 (Down). F3 (Back) returns to the SQL Performance Analysis: Available Reports panel.

You can select a different report type by choosing one of the options from the menu.

SQL Performance Analysis: ANLSQL

This panel shows the actual SQL statement that was analyzed by SQL PA for the report selected in the SQL Performance Analysis: Available Reports panel.
Navigation

You can scroll through the report using F7 (Up) and F8 (Down). F3 (Back) returns to the SQL Performance Analysis: Available Reports panel.

You can select a different report type by choosing one of the options from the menu.

SQL Performance Analysis: JOBERR

This panel shows diagnostics information, if the SQL PA job of the report selected in the SQL Performance Analysis: Available Reports panel failed.
Analyzing DB2 CPU Usage

This topic contains information about considerations for analyzing DB2 CPU usage.

DB2 CPU Usage

DB2 uses MVS cross memory services extensively in processing application requests. As a result, the majority of CPU time consumed in processing thread activity is attributed by MVS SRM to the thread-originating (user's) address space, not to one of the DB2 system address spaces (SSAS, DBAS, IRLM).

OMEGAMON XE for DB2 PE provides CPU use information for threads within DB2. In all cases in which CPU use is reported, the CPU rate is expressed in terms of 1-100%, regardless of the number of CPUs online in the processor complex.

The discussion below is designed to help you interpret and make use of the information provided by OMEGAMON XE for DB2 PE regarding CPU usage.

DB2 exploits MVS CPU timing services introduced in MVS/XA SP2.2 and MVS/ESA.

OMEGAMON XE for DB2 PE also exploits the new CPU timing services as it monitors a DB2 subsystem. To accurately interpret CPU utilization data reported by OMEGAMON XE for DB2 PE, first consider the type of DB2 attachment that is in use. That is, did the threads in question originate from a CICS attachment or from another type of attachment (IMS, TSO, and so on)?

CICS Attachments

For threads that originate from the CICS/DB2 attachment, the reported thread CPU usage is entirely attributable to the CICS/DB2 thread. In other words, it is entirely attributable to the CICS/DB2 attachment TCB servicing the thread. The CPU rate includes MVS TCB time only; SRB time is not included. Any CPU usage reported for CICS/DB2 threads is a subset of total CICS address space CPU utilization.

For example, assume that the total CICS address space CPU utilization is 50%, and two threads originate from the CICS connection. If one thread has a reported CPU rate of 5% and the other’s rate is 10%, the conclusion is that 15% of CICS address space CPU utilization is attributable to servicing DB2 requests. Also, 30% (15% / 50% = 30%) of total CICS address space utilization is attributable to servicing DB2 requests.

CPU utilization reported for CICS threads is the same, regardless of the version of the DB2 subsystem being monitored.

Non-CICS Attachments

Analysis of CPU use in non-CICS environments (IMS, TSO, CAF, batch, and utilities) must take several factors into account:

• thread status
• specific attachment environment

OMEGAMON XE for DB2 PE reports CPU use for the actual MVS TCB (subtask) that owns the active DB2 thread. SRB time is not included.

Thread Status:
Unlike the CICS attachment, non-CICS environments typically contain a single DB2 thread. Recognizing the status of that thread will help you determine whether the reported CPU use can be attributed to DB2 request activity.

For example, if thread status is In-SQL-Call, the CPU rate reported is indeed related to DB2 thread activity. However, if the thread status is Not-In-DB2, you can conclude that the CPU rate reported is attributable to application activity that is unrelated to DB2, although the application indeed still owns a DB2 thread (for example, an IMS transaction doing DL/I requests).

Attachment Environment:
The non-CICS attachment environments vary in the MVS task structure they use to service DB2 threads. Thus, your analysis must take into account the attachment type in use.

For example, an IMS attachment does not result in the creation of an MVS subtask to service a thread. In a TSO environment, however, an additional MVS TCB is created to service each thread.

The following examples explain the ways in which thread status, DB2 version, and attachment environment jointly affect your interpretation of the OMEGAMON XE for DB2 PE CPU use data.

Example 1

In a TSO attachment environment using SPUFI, program DSN is attached as an MVS daughter subtask in the TSO address space. The DSN subtask then attaches program DSNECP10, which is a daughter subtask of the DSN subtask. The DSNECP10 subtask is the actual MVS TCB that owns the DB2 thread. As a result, it is the CPU use of this MVS task that is being reported by OMEGAMON XE for DB2 PE.

If thread status indicates Not-In-DB2, OMEGAMON XE for DB2 PE will report that CPU use (MVS TCB CPU use) is 0.

Example 2

In an IMS environment, the IMS attachment does not attach a new MVS subtask to service the DB2 thread. As a result, the CPU use reported for IMS threads can reflect CPU time that is attributable to non-DB2 work. This means that you must take into account the status of the DB2 thread, as discussed above.

Example 3

Assume an application that creates multiple DB2 threads (executing concurrently), using the DB2 call attach facility (CAF).

The reported CPU use of a thread is always attributable to the MVS task that owns that thread. And you must consider the thread’s status to determine whether the reported CPU use is attributable to DB2 or to non-DB2 application activity.
Trace requirements for OMEGAMON XE for DB2 PE

This topic contains information about the trace requirements for OMEGAMON XE for DB2 PE.

Trace activation

To fully exploit OMEGAMON XE for DB2 PE’s realtime performance monitoring abilities, Accounting trace class 1 and class 2 must be active while OMEGAMON XE for DB2 PE is monitoring your DB2 system. If these traces are not active, specific data elements (listed in Table 121 on page 1714) will not be available to OMEGAMON XE for DB2 PE. Also, some data related to reusable threads becomes cumulative, instead of reflecting a single transaction (see Table 122 on page 1716).

To use the near-term history reporting facilities, you must activate some traces as well. Unlike the realtime portion of OMEGAMON XE for DB2 PE, near-term history reporting depends entirely on data supplied by traces. To determine exactly which traces you must activate to report on specific data elements, see the online data dictionary.

Realtime data fields for which data is unavailable

The following table lists the data fields that are available to OMEGAMON XE for DB2 PE’s realtime component only when certain Accounting traces are active. (When the required Accounting class is not active, OMEGAMON XE for DB2 PE displays N/A in the affected fields.) Each row in the table contains the name of an OMEGAMON XE for DB2 PE panel, the affected fields on that panel, and the Accounting trace class that makes data available to each field.
Table 121. Realtime data fields that depend on Accounting traces

<table>
<thead>
<tr>
<th>Panel name</th>
<th>Field names</th>
<th>Accounting traces</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Thread Detail” on page 923</td>
<td>Elapsed Time</td>
<td>Class 1</td>
</tr>
<tr>
<td></td>
<td>In-DB2 Time Total</td>
<td>Class 2</td>
</tr>
<tr>
<td></td>
<td>In-DB2 Time Current</td>
<td>Class 2</td>
</tr>
<tr>
<td></td>
<td>In-DB2 CPU Time Total</td>
<td>Class 2</td>
</tr>
<tr>
<td></td>
<td>In-DB2 CPU Time Current</td>
<td>Class 2</td>
</tr>
<tr>
<td></td>
<td>Synchronous I/O Wait Total</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Synchronous I/O Wait Current</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Asynchronous Read I/O Wait Total</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Asynchronous Read I/O Wait Current</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Asynchronous Write I/O Wait Total</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Asynchronous Write I/O Wait Current</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Lock/Latch Wait Total</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Lock/Latch Wait Current</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Page Latch Wait Total</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Page Latch Wait Current</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Drain Lock Wait Total</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Drain Lock Wait Current</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Drain of Claims Wait Total</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Drain of Claims Wait Current</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>DB2 Service Task Wait Total</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>DB2 Service Task Wait Current</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Archive Log Mode (Quiesce) Wait Total</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Archive Log Mode (Quiesce) Wait Current</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Archive Log Mode (Quiesce) Wait Current</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Archive Read from Tape Wait Total</td>
<td>Class 3</td>
</tr>
<tr>
<td></td>
<td>Archive Read from Tape Wait Current</td>
<td>Class 3</td>
</tr>
</tbody>
</table>
Table 121. Realtime data fields that depend on Accounting traces (continued)

<table>
<thead>
<tr>
<th>Panel name</th>
<th>Field names</th>
<th>Accounting traces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Package Detail</td>
<td>Elapsed Time</td>
<td>Class 1</td>
</tr>
<tr>
<td></td>
<td>In-DB2 Time Total</td>
<td>Class 7</td>
</tr>
<tr>
<td></td>
<td>In-DB2 Time Current</td>
<td>Class 7</td>
</tr>
<tr>
<td></td>
<td>In-DB2 CPU Time Total</td>
<td>Class 7</td>
</tr>
<tr>
<td></td>
<td>In-DB2 CPU Time Current</td>
<td>Class 7</td>
</tr>
<tr>
<td></td>
<td>Synchronous I/O Wait Total</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Synchronous I/O Wait Current</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Asynchronous Read I/O Wait Total</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Asynchronous Read I/O Wait Current</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Asynchronous Write I/O Wait Total</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Asynchronous Write I/O Wait Current</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Lock/Latch Wait Total</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Lock/Latch Wait Current</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Page Latch Wait Total</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Page Latch Wait Current</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Drain Lock Wait Total</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Drain Lock Wait Current</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Drain of Claims Wait Total</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Drain of Claims Wait Current</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>DB2 Service Task Wait Total</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>DB2 Service Task Wait Current</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Archive Log Mode (Quiesce) Wait Total</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Archive Log Mode (Quiesce) Wait Current</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Archive Read from Tape Wait Total</td>
<td>Class 8</td>
</tr>
<tr>
<td></td>
<td>Archive Read From Tape Wait Current</td>
<td>Class 8</td>
</tr>
<tr>
<td>Summary of DB2 Activity</td>
<td>Elapsed Time</td>
<td>Class 1</td>
</tr>
<tr>
<td></td>
<td>Getpage Rate</td>
<td>Class 1</td>
</tr>
<tr>
<td>Exception Messages</td>
<td>COMT</td>
<td>Class 1</td>
</tr>
<tr>
<td></td>
<td>ETIM</td>
<td>Class 1</td>
</tr>
<tr>
<td>Current SQL Counts</td>
<td>Aborts</td>
<td>Class 1</td>
</tr>
<tr>
<td></td>
<td>Commits</td>
<td>Class 1</td>
</tr>
</tbody>
</table>
Table 121. Realtime data fields that depend on Accounting traces (continued)

<table>
<thead>
<tr>
<th>Panel name</th>
<th>Field names</th>
<th>Accounting traces</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Threads Summary” Excluding Idle Threads” on page 921</td>
<td>Commit</td>
<td>Class 1</td>
</tr>
<tr>
<td></td>
<td>Elapsed</td>
<td>Class 1</td>
</tr>
<tr>
<td>Background Thread Summary</td>
<td>Commit</td>
<td>Class 1</td>
</tr>
<tr>
<td></td>
<td>Elapsed</td>
<td>Class 1</td>
</tr>
<tr>
<td>CICS Thread Summary</td>
<td>Commit</td>
<td>Class 1</td>
</tr>
<tr>
<td></td>
<td>Elapsed</td>
<td>Class 1</td>
</tr>
<tr>
<td>IMS Thread Summary</td>
<td>Commit</td>
<td>Class 1</td>
</tr>
<tr>
<td></td>
<td>Elapsed</td>
<td>Class 1</td>
</tr>
<tr>
<td>TSO Thread Summary</td>
<td>Commit</td>
<td>Class 1</td>
</tr>
<tr>
<td></td>
<td>Elapsed</td>
<td>Class 1</td>
</tr>
<tr>
<td>Distributed Database Access Thread Summary</td>
<td>Elapsed</td>
<td>Class 1</td>
</tr>
</tbody>
</table>

**Realtime data fields for which data is cumulative**

OMEGAMON XE for DB2 PE reports cumulative values for some fields when Accounting trace class 1 is not active. When Accounting trace class 1 is not active and the thread involved is reused, the value on OMEGAMON XE for DB2 PE displays is cumulative since thread creation. The following table contains the names of the fields that might contain cumulative data and the names of the panels on which they are displayed.

Table 122. Accounting trace class 1 - Cumulative data fields

<table>
<thead>
<tr>
<th>Panel name</th>
<th>Field names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thread Buffer Pool Activity</td>
<td>Getpage Requests</td>
</tr>
<tr>
<td></td>
<td>Getpages/Read I/O</td>
</tr>
<tr>
<td></td>
<td>Page Updates</td>
</tr>
<tr>
<td></td>
<td>List Prefetch Requests</td>
</tr>
<tr>
<td></td>
<td>Prefetch Pages Read</td>
</tr>
<tr>
<td></td>
<td>Immediate Writes</td>
</tr>
<tr>
<td></td>
<td>Failed Getpage Requests</td>
</tr>
<tr>
<td></td>
<td>Synchronous Read I/O</td>
</tr>
<tr>
<td></td>
<td>Sequential Prefetch Requests</td>
</tr>
<tr>
<td></td>
<td>Dynamic Prefetch Requests</td>
</tr>
<tr>
<td></td>
<td>Elapsed Time</td>
</tr>
<tr>
<td></td>
<td>ETIM</td>
</tr>
<tr>
<td></td>
<td>GETP</td>
</tr>
<tr>
<td></td>
<td>PREF</td>
</tr>
<tr>
<td></td>
<td>RIO</td>
</tr>
<tr>
<td>Summary of DB2 Activity</td>
<td>PGUP</td>
</tr>
</tbody>
</table>
Table 122. Accounting trace class 1 - Cumulative data fields  (continued)

<table>
<thead>
<tr>
<th>Panel name</th>
<th>Field names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exception Messages</td>
<td>Aborts, Alters, Connects Type 1, Connects Type 2, Commits</td>
</tr>
<tr>
<td>Current SQL Counts</td>
<td>Creates/Drops, Deletes, Describes, Fetches, Grants/Revokes, Incremental Binds, Inserts, Label/Comment Ons, Lock Tables, Open/Close Cursors, Prepares, Releases, Selects, Set Connections, Set Degrees, Set Host Variables, Set SQLIDs, Updates, Commit, Elapsed, Getpg, Update, Commit</td>
</tr>
</tbody>
</table>

“Threads Summary Excluding Idle Threads” [on page 921](#)

<table>
<thead>
<tr>
<th>CICS Thread Summary</th>
</tr>
</thead>
</table>

When Accounting trace class 1 is active, the values in these fields will still be cumulative if all of the following conditions are met:

- The thread involved was created as a reusable thread.
• The thread is actually being reused.
• Thread Signon was not driven for the new user of the thread.

**Lock types and lock levels**

This topic contains additional information about the lock types and lock levels that OMEGAMON XE for DB2 PE reports.

If a database is deleted or a data inconsistency problem exists, OMEGAMON XE for DB2 PE cannot translate the database name. It displays the resource ID instead of the database name.

If a pageset is deleted or a data inconsistency problem exists, OMEGAMON XE for DB2 PE cannot translate the pageset name. No information is displayed instead of the pageset name.

**Lock types**

The table in this section describes the lock types that are displayed by OMEGAMON XE for DB2 PE.

*Table 123. Lock types*

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACSC</td>
<td>The Accelerator Services commands (ACSC) lock.</td>
</tr>
<tr>
<td>ALBP</td>
<td>The Alter buffer pool (ALBP) lock indicates a lock on a buffer pool during execution of an ALTER BUFFERPOOL command.</td>
</tr>
<tr>
<td>BIND</td>
<td>The BIND lock indicates an autobind or remote bind lock.</td>
</tr>
<tr>
<td>BMBA</td>
<td>The Buffer manager SCA MBA (BMBA) L-lock.</td>
</tr>
<tr>
<td></td>
<td>The Buffer Manager (BM) gets this lock when it needs to read, insert, or update a multiple buffer pool (MBA) record in a Shared Communications Area (SCA).</td>
</tr>
<tr>
<td></td>
<td>(BMC_MBAO or BMC_MBAR)</td>
</tr>
<tr>
<td>BPPS</td>
<td>The Buffer Manager Pageset (BPPS) RR (repeatable read) P-lock:</td>
</tr>
<tr>
<td></td>
<td>• BP = buffer pool ID</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td>CCAT</td>
<td>The CATMAINT convert catalog (CCAT) lock is acquired when catalog conversion is performed.</td>
</tr>
<tr>
<td>CDDB</td>
<td>The Compress dictionary build (CDDB) lock.</td>
</tr>
<tr>
<td>CDIR</td>
<td>The CATMAINT convert directory (CDIR) lock is acquired when directory conversion is performed.</td>
</tr>
<tr>
<td>CDRN</td>
<td>The Cursor Stability drain (CDRN) lock is acquired to drain all CS read access to an object:</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PT = partition</td>
</tr>
<tr>
<td>CMDS</td>
<td>The DB2 Command Serialization (CMDS) lock.</td>
</tr>
<tr>
<td>CMIG</td>
<td>The CATMAINT migration (CMIG) lock is acquired when catalog migration is performed.</td>
</tr>
<tr>
<td>COLL</td>
<td>The Collection (COLL) lock</td>
</tr>
<tr>
<td>DBDL</td>
<td>The DBD load (DBDL) lock is the database descriptor load lock.</td>
</tr>
<tr>
<td>Lock type</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>DBEX</td>
<td>The Database exception (DBEX) lock indicates a lock on a &quot;Logical page list&quot; (LPL) or &quot;Group buffer pool recovery pending&quot; (GRECP) database exception status. This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>DBXU</td>
<td>The DB exception update lock is used for updating the database exception status.</td>
</tr>
<tr>
<td>DGTT</td>
<td>The DGTT URID lock is acquired to protect segments that belong to a Declared Global Temporary Table (DGTT). These segments are deallocated during Commit 1 by logging them and serializing them using the Unit of Recovery ID (URID) lock.</td>
</tr>
<tr>
<td>DPAG</td>
<td>The DB2 page (DPAG) lock in a tablespace. When programs read data or update data, they acquire a page lock containing the data.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PG = page</td>
</tr>
<tr>
<td>DSET</td>
<td>The partitioned lock.</td>
</tr>
<tr>
<td></td>
<td>A partitioned tablespace contains one or more partitions (up to 64). It is created when you create a table space using the SQL CREATE TABLESPACE statement with the NUMPARTS parameter.</td>
</tr>
<tr>
<td></td>
<td>Only one table can be stored on a partitioned tablespace. Each partition contains one part of a table. The partitioned lock only locks the partition with the data that is referenced.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PT = partition number</td>
</tr>
<tr>
<td>DTBS</td>
<td>The Database lock indicates a lock on the database.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PT = partition number</td>
</tr>
<tr>
<td>GRBP</td>
<td>The Group buffer pool (GRBP) start/stop lock.</td>
</tr>
<tr>
<td></td>
<td>BP=buffer pool ID</td>
</tr>
<tr>
<td>HASH</td>
<td>The Hash anchor (HASH) lock.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PG = page</td>
</tr>
<tr>
<td>HPSP</td>
<td>The Header Page (HP) Bucket or Stored Procedure (SP) Command lock.</td>
</tr>
<tr>
<td>IEOF</td>
<td>The Index end of file (IEOF) lock is acquired at the index end of file.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PT = partition</td>
</tr>
</tbody>
</table>

Chapter 5. Monitoring 1719
<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
</table>
| **IPAG**  | The Index page (IPAG) lock in an index space. When application programs read or update data, they acquire a lock on the page containing the index when indexing is used.  
  - DB = database name  
  - PS = pageset name  
  - PG = page |
| **IXKY**  | The Index key (IXKY) lock. |
| **LBLK**  | The Large object (LOB) lock. |
| **LPLR**  | The Logical page list recovery (LPLR) lock. |
| **MDEL**  | The Mass delete (MDEL) lock is acquired when doing a mass delete from a table (for example, when you DELETE FROM a table) within a segmented tablespace.  
  It is used to prevent another user from reusing freed segments before a delete operation is committed.  
  - DB = database name  
  - PS = pageset name |
| **PALK**  | The Partition lock.  
  - DB = database name  
  - PS = pageset name  
  - PT = partition |
| **PBPC**  | The Group BP level castout (PBPC) P-lock.  
  A physical lock acquired when a castout of a group buffer pool occurs. Castout is the process of writing pages in the group buffer pool out to DASD.  
  This lock is only used in a data sharing environment. |
| **PCDB**  | The DDF CDB P-lock.  
  A Distributed Data Facility communication database physical lock.  
  This lock is only used in a data sharing environment. |
| **PDBD**  | The DBD P-lock is a database descriptor physical lock.  
  This lock is only used in a data sharing environment. |
| **PDSO**  | The Pageset or partitioned pageset open lock.  
  If the data set supporting the tablespace that is referenced by the application is not opened, the program will acquire a lock to open the data set. The data set will stay open if CLOSE=NO is defined in the SQL statement creating the tablespace.  
  - DB = database name  
  - PS = pageset name |
| **PITR**  | The Index manager tree (PITR) is a physical lock (P-lock).  
  This lock is only used in a data sharing environment.  
  - DB = database name  
  - PS = pageset name  
  - PT = partition |
<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPAG</td>
<td>The Page P-lock is a physical lock on a page. This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>PPSC</td>
<td>The Pageset/partition level castout physical lock (P-lock). This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>PPSp</td>
<td>The Pageset/partition physical lock (P-lock). This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>PRLF</td>
<td>The Resource Limit Facility (RLF) physical lock (P-lock). This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>PSET</td>
<td>The Pageset (PSET) lock can be a tablespace or indexspace. A pageset containing DB2 tables is a tablespace. A pageset containing DB2 index structure is an indexspace. A pageset can be simple or partitioned. This lock type is for the simple pageset only. • DB = database name • PS = pageset name</td>
</tr>
<tr>
<td>PSPI</td>
<td>The Pageset piece (PSPI) lock. A pageset is a collection of pageset pieces. Each pageset piece is a separate VSAM data set. A simple pageset contains from 1 to 32 pieces. Each piece of a simple pageset is limited to 2 GB. Whenever a simple pageset piece reaches this size, another piece is allocated and the pageset grows. This is a lock on the expanded pageset piece.</td>
</tr>
<tr>
<td>RDBD</td>
<td>The Repair DBD (RDBD) lock is acquired when REPAIR DBD REBUILD is running (test/diagnose).</td>
</tr>
<tr>
<td>RDRN</td>
<td>The Repeatable Read drain (RDRN) lock is acquired to drain all RR access to an object. • DB = database name • PS = pageset name • PT = partition</td>
</tr>
<tr>
<td>RGDA</td>
<td>The Retry Getpage During Abort (RGDA) lock.</td>
</tr>
<tr>
<td>ROW</td>
<td>The Row lock indicates a lock on a row.</td>
</tr>
<tr>
<td>RSTR</td>
<td>The Shared Communications Area (SCA) restart (RSTR) lock indicates a lock on SCA access for restart/redo information. (BMC-RSTP)</td>
</tr>
<tr>
<td>SDBA</td>
<td>The Start/stop lock on DBA (SDBA) table indicates a lock on the table, tablespace, or database when a CREATE/DROP is processed against these objects. • DB = database name • PS = pageset name</td>
</tr>
<tr>
<td>SENV</td>
<td>The System environment (SYSENV) serialization lock.</td>
</tr>
</tbody>
</table>
Table 123. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
</table>
| SKCT      | The Skeleton cursor table (SKCT) lock indicates a lock on the application plan.  
PLAN=plan name |
| SKPT      | The Skeleton package table (SKPT) lock indicates a lock on the application package.  
TOKEN= the consistency token (CONTOKEN) column from SYSIBM.SYSPACKAGE. |
| SPRC      | The System level point in time (PIT) recovery lock.  
SYS_PITR |
| SREC      | The Log range lock.  
DB writes a record in the log range tablespace (SYSLGRNG) every time a tablespace is opened and updated, and updates SYSLGRNG whenever that tablespace is closed.  
The record contains the opening and/or closing log RBA (relative byte address) for the tablespace. When DB writes to SYSLGRNG, the program acquires a lock on the tablespace with updates.  
• DB = database name  
• TS = tablespace name |
| TABL      | The Table (TABL) lock on the table which resides in a segmented tablespace.  
• DBID = DBid  
• TABL = Tableid |
| UIDA      | The Util I/O Damage Assessment lock. |
| UNDT      | The Undetermined (UNDT) lock indicates that this lock cannot be determined because it is not part of the other listed lock types.  
Resource ID (in hexadecimal). |
| UNKN      | The Unknown (UNKN) lock indicates the resource does not exist. |
| UTEX      | The Utility exclusive execution (UTEX) lock.  
UTEXEC |
| UTID      | The Utility identifier (UTID) lock.  
UID=utility id |
| UTOB      | The Utility object (UTOB) lock.  
• DB = database name  
• PS = pageset name  
• PT = partition |
| UTSE      | The Utility serialization (UTSE) lock is required when running utility jobs.  
UTSERIAL |
Table 123. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
</table>
| WDRN      | The Write drain (WDRN) lock is acquired to drain all write access to an object.  
  - DB = database name  
  - PS = pageset name  
  - PT = partition |
| XMLK      | The XML lock. |

### Page lock levels

The table in this section describes the page lock levels that are displayed by OMEGAMON XE for DB2 PE.

#### Table 124. Page lock levels

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Shared</td>
<td>The lock owner and any concurrent programs might read, but not change the locked data.</td>
</tr>
<tr>
<td>U</td>
<td>Update</td>
<td>The lock owner can read the data, and intends to change it. Concurrent programs can acquire S locks and read the data; no other program can acquire a U lock.</td>
</tr>
<tr>
<td>X</td>
<td>Exclusive</td>
<td>The lock owner can read or change the locked data. No other program can acquire any lock on the data, or access the locked data at all.</td>
</tr>
</tbody>
</table>

### Tablespace lock levels

The following table describes the tablespace lock levels that are displayed by OMEGAMON XE for DB2:

#### Table 125. Tablespace lock levels

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS</td>
<td>Intent Share</td>
<td>The lock owner might read data in the tablespace, but not change it. Other programs might both read and change the data.</td>
</tr>
<tr>
<td>IX</td>
<td>Intent Exclusive</td>
<td>The lock owner and concurrent programs might read and change data in the tablespace.</td>
</tr>
<tr>
<td>S</td>
<td>Shared</td>
<td>The lock owner and any concurrent programs might read, but not change data in the tablespace.</td>
</tr>
</tbody>
</table>
Table 125. Tablespace lock levels (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIX</td>
<td>Share with Intent Exclusive</td>
<td>The lock owner might read and change data in the tablespace. Concurrent programs might read data in the tablesapce, but not change it.</td>
</tr>
<tr>
<td>X</td>
<td>Exclusive</td>
<td>The lock owner might read or change data in the tablespace. No other program might access the tablespace at all.</td>
</tr>
</tbody>
</table>

Internal lock types
OMEGAMON XE for DB2 PE also displays the following lock types that are used internally by DB2:

NSU  Non-shared update.
UNS  Unprotected share.

DB2 Thread Status Values
This topic contains a list of all possible values for the status of a DB2 thread. This field is displayed on thread summary and thread detail panels as Status, DB2 Status, or Thread Status.

The following list shows all possible values for the status of a DB2 thread:

NOT-AVAIL
The thread is not available

IN-ABORT
The thread is in abort processing.

IN-ACCEL
The thread is executing on IBM Db2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.
IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Fetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).
WAIT-CONVLRM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
• Inter-system communication within the data sharing group to determine if there is lock contention.
• A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MMSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.
WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to finish.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

The Enhanced 3270 User Interface

In conjunction with the IBM Tivoli OMEGAMON XE monitoring products, you can monitor the performance of the z/OS systems, applications, and devices in your environment by using the IBM Tivoli OMEGAMON enhanced 3270 user interface. You can also identify or troubleshoot problems with these monitored resources.

Who should read this information

This information is intended for IBM data server professionals who want to analyze and tune the performance of a DB2 database management system. It provides a quick overview of the workspaces of the enhanced 3270UI, their content, and their panel IDs. With this information, you can quickly navigate the enhanced 3270UI.
Always check the IBM DB2 and IMS Tools Library web page and the Tivoli library page for the most current version of this information:

- [OMEGAMON for Db2 Performance Expert on z/OS (PDFs and Techdocs on Db2 Tools Product Page)](https://www.ibm.com)
- [OMEGAMON for Db2 Performance Monitor on z/OS (PDFs and Techdocs on Db2 Tools Product Page)](https://www.ibm.com)

**Introduction**

The IBM Tivoli OMEGAMON enhanced 3270 user interface (enhanced 3270UI) is the latest generation of user interfaces for the OMEGAMON monitoring products.

The Enhanced 3270 User Interface offers integration capability with certain performance monitoring products. If you have IBM Db2 Query Monitor for z/OS and/or IBM OMEGAMON for CICS on z/OS you can see metrics originating from these products embedded in IBM OMEGAMON for Db2 Performance Expert (and Monitor) on z/OS screens. These products must be installed, configured, and running in the same OMEGAMON Monitoring environment. See the program directory and related PTFs for installation considerations.

**Using the enhanced 3270UI**

This document does not provide you with instructions about how to use the enhanced 3270UI. For a detailed description of the enhanced 3270UI together with information about how to use it, see [OMEGAMON Enhanced 3270 User Interface Knowledge Center](https://www.ibm.com).

For quick reference information about PF keys and icons, which you can use to navigate the enhanced 3270UI, see “User interface icons and PF keys” on page 1761.

**Navigating to KDPSTART**

When you log on to the enhanced 3270UI, the workspace Enterprise Summary (KOBSTART) is displayed. It shows data from the products that are installed on your system.

From this workspace you can drill down to any other screen.

However, depending on the following criteria, a different workspace might be displayed after the first logon to OMEGAMON for Db2 PE if:

- More than one product that supports the enhanced 3270UI is installed on your system
- A particular workspace is designated as the first workspace in the site profile or the user profile

**Panel navigation flowcharts**

[Figure 7 on page 1729](https://www.ibm.com) shows the panel navigation hierarchy for 'active datasharing groups' from the KDPSTART panel.
Figure 8 on page 1730 shows the panel navigation hierarchy for the 'active subsystems' selection after you have navigated to KDPSTART.
All Active DB2 Data Sharing Groups

The summary panel displays the DB2 data sharing groups that are active in your enterprise system.

It displays the general state and health of the active DB2 data sharing groups. This is the starting point for troubleshooting.

Navigating to All Active DB2 Sharing Groups

From **Enterprise Summary**, select the option **P** next to any DB2 subsystem to navigate to DB2 Main Screen. DB2 Main Screen consists of **All Active DB2 Data Sharing Groups**, followed by **All Active DB2 Subsystems**.

**Options menu**

The following options exist:

1. D Group Object Analysis Database Activity ([KDPGOATS](#))
2. F System SQL Counts ([KDPPSQL1](#))
3. G DSNZPARMs ([KDPPZSYS](#))
4. L Global Lock Conflicts ([KDPGLKGN](#))
5. O Group Object Analysis ([KDPGOA](#))
6. P Group Object Analysis Thread Database ([KDPGOATD](#))
7. Q Group Object Analysis Volume ([KDPGVOL](#))
8. S Global & Group Buffer Pools ([KDPPGPLL](#))
9. T DSG Active Threads ([KDPPTHRD](#))
10. V Group Object Analysis Volume Thread ([KDPGVOLT](#))
11. X Coupling Facility Details ([KDPXCFD](#))
12. H History

**Threads**

A view of thread activity for DB2 data sharing groups.

**T DSG Active Threads (KDPPTHRD):**

KDPPTHRD provides a global view of thread activity for an entire data sharing group.

With this information, you can identify all active application threads and track thread activity over a period of time. You can use the thread data to monitor...
critical application threads and to evaluate the thread elapsed times and the wait times for critical threads. You can also observe thread activity for threads within the same system, group, and member.

Navigating to KDPPTHRD

All Active DB2 Data Sharing Groups ➔ T DSG Group Active Threads

Select the corresponding tab to navigate to:

- **Coupling (KDPXCFD)**
  Connection status information for all connections to a coupling facility structure. See “X Coupling Facility Details (KDPXCFD)” on page 1740.

- **GOA (KDPGOA)**
  A global view of object allocation data for a specific data sharing group. See “O Group Object Analysis (KDPGOA)” on page 1737.

- **SQLC (KDPPSQL1)**
  Displays the system SQL counts for a thread for each member of a data sharing group. See “F Group SQL Counts (KDPPSQL1)” on page 1738.

- **DSNZPARMs (KDPPZSY)
  Displays information about DSNZPARM parameters that are related to thread management. See “G DSNZPARMs (KDPPZSYS)” on page 1735.

- **Lock conf (KDPGLKGN)**
  The lock conflicts that exist in a data sharing group. See “L Group Lock Conflicts (KDPGLKGN)” on page 1734.

- **Buf Pool (KDPPGPLL)**
  A summary of all group buffer pools for all members of a data sharing group. See “S Global and Group Buffer Pools (KDPPGPLL)” on page 1739.

Zoom-in from KDPPTHRD

- **C Cancel Thread (KDPTCANC)**
  Provides an option to cancel a thread.

- **O Thread Locks Owned (KDPTHRDL)**
  Detailed information about the locks and the claims that are owned by an individual thread.

- **S Thread Detail Accounting (KDPTHDA2)**
  The accounting classes 1 and 2 for a selected thread.

- **T Thread Detail SQL Text (KDPPSQLT)**
  The SQL statement that a DB2 thread is currently executing.

- **W Thread Detail Class 3 (KDPTHRHD3)**
  The accounting class 3 wait times for a selected thread.

- **Q Thread Statistics (KDPPTHDS)**
  Thread statistics for a specific application thread. If the application thread is a parallel thread, the table view displays thread statistics for all the associated parallel threads.

- **X Multi-Thread Cancel No Confirmation (KDPPTKAC)**
  Cancel multiple threads without being prompted individually to confirm each thread cancellation.
V Group Object Analysis Volume Thread (KDPGVOLT):

KDPGVOLT displays an overview of the performance of volumes that contain DB2 objects. With this information, you can evaluate DASD performance by volume.

Navigating to KDPGVOLT

All Active DB2 Data Sharing Groups → V Group Object Analysis Volume Thread

Select the corresponding tab to navigate to:

**GOA DB (KDPGOATS)**
A high-level analysis of getpage and I/O activity from a DB2 database perspective. See “D Group Object Analysis Database Activity (KDPGOATS)” on page 1736.

**GOA (KDPGOA)**
A global view of object allocation data for a specific data sharing group. See “O Group Object Analysis (KDPGOA)” on page 1737.

**GOA TDB (KDPGOATD)**
Object Analysis database use by thread for a data sharing group. See “P Group Object Analysis Thread Database (KDPGOATD)”.

**GOA VOL (KDPGVOL)**
An overview of the performance of the volumes that contain DB2 objects. See “Q Group Object Analysis Volume (KDPGVOL)” on page 1737.

**GOA VTH (KDPGVOLT)**
The volume activity by thread workspace. See “V Group Object Analysis Volume Thread (KDPGVOLT)”.

Zoom-in from KDPGVOLT

S Group Object Analysis Volume Detail (KDPGVOL2)
The thread activity by volume workspace.

P Group Object Analysis Thread Database (KDPGOATD):

KDPGOATD displays the usage of the Object Analysis database by thread for a data sharing group.

Navigating to KDPGOATD

All Active DB2 Data Sharing Groups → P Group Object Analysis Thread Database

Select the corresponding tab to navigate to:

**GOA (KDPGOA)**
A global view of object allocation data for a specific data sharing group. See “O Group Object Analysis (KDPGOA)” on page 1737.

**GOA DB (KDPGOATS)**
A high-level analysis of getpage and I/O activity from a DB2 database perspective. See “D Group Object Analysis Database Activity (KDPGOATS)” on page 1736.

**GOA TDB (KDPGOATD)**
Object Analysis database use by thread for a data sharing group. See “P Group Object Analysis Thread Database (KDPGOATD)”.

Chapter 5. Monitoring 1733
GOA VOL (KDPGVOL)
An overview of the performance of the volumes that contain DB2 objects. See “Q Group Object Analysis Volume (KDPGVOL)” on page 1737.

GOA VTH (KDPGVOLT)
The volume activity by thread workspace. See “V Group Object Analysis Volume Thread (KDPGVOLT)” on page 1733.

Zoom-in from KDPGOATD

S Group Object Analysis Spacename (KDPSPAC)
Provides information about the activity of DB2 databases and DB2 tablespaces. With this information, you can do a more detailed analysis of the activities for a DB2 databases and DB2 tablespaces.

L Group Lock Conflicts (KDPGLKGN)
KDPGLKGN displays the lock conflicts that exist in a data sharing group.

Navigating to KDPGLKGN
All Active DB2 Data Sharing Groups → L Group Lock Conflicts

Select the corresponding tab to navigate to:

Threads (KDPPTHRD)
Provides a global view of thread activity for an entire data sharing group. See “T DSG Active Threads (KDPPTHRD)” on page 1731.

Coupling (KDPXCFD)
Connection status information for all connections to a coupling facility structure. See “X Coupling Facility Details (KDPXCFD)” on page 1740.

GOA (KDPGOA)
A global view of object allocation data for a specific data sharing group. See “O Group Object Analysis (KDPGOA)” on page 1737.

SQLC (KDPPSQL1)
Displays the system SQL counts for a thread for each member of a data sharing group. See “F Group SQL Counts (KDPPSQL1)” on page 1738.

DSNZP ARMS (KDPPZSYS)
Displays information about DSNZPARM parameters that are related to thread management. See “G DSNZP ARMS (KDPPZSYS)” on page 1735.

Lock Conf (KDPGLKGN)
The lock conflicts that exist in a data sharing group. See “L Group Lock Conflicts (KDPGLKGN)”.

Buf Pool (KDPPGPLL)
A summary of all group buffer pools for all members of a data sharing group. See “S Global and Group Buffer Pools (KDPPGPLL)” on page 1739.

Zoom-in from KDPGLKGN

Thread Locks Owned (KDPPLK)
The locks and claims that are owned by a thread that is linked from the data sharing group Lock Conflicts workspace.
G DSNZPARMs (KDPPZSYS)
KDPPZSYS displays information about DSNZPARM parameters that are related to thread management. These parameters are defined on the DB2 panels DSNTIPE and DSNTIPE1.

Navigation to KDPPZSYS

All Active DB2 Subsystems → G DSNZPARMs

Select the corresponding tab to navigate to:

TRC (Trace Parameters KDPPZTRC)
Parameters that are related to the trace. These parameters are defined on the DB2 panel, DSNTIPN.

LOG (Logging Parameters KDPPZLOG)
Parameters that are related to the active log. These parameters are defined on the DB2 panel, DSNTIPL.

ARCH (Archiving Parameters KDPPZARC)
Parameters that are related to log archiving. These parameters are defined on the DB2 panels DSNTIPA and DSNTIPH.

CNTL (Authorization/RCF/DDF parameters KDPPZCTL)
Parameters that are related to operator functions. These parameters are defined on the DB2 panels DSNTIPO, DSNTIPP, DSNTIPP1, DSNTIPR and DSNTIPL.

IRLM (IRLM Parameters KDPZIRLM)
Parameters that are related to IRLM. These parameters are defined on the DB2 panels DSNTIP1 and DSNTIPJ.

STG (Storage Parameters KDPPZSTG)
DSNZPARM parameters that are related to storage and sizes. These parameters are defined on the DB2 panels DSNTIPC and DSNTIPD.

DSN (Dataset and Database parameters KDPPZDSN)
Parameters that are related to datasets and databases. These parameters are defined on DB2 panels DSNTIP7, DSNTIP71, DSNTIP91, and DSNTIPS.

DDCS (Data Definition Control Parameters KDPPZDDCS)
Parameters that are related to data. These parameters are defined on the DB2 panel DSNTIPZ.

DSG (Data Sharing Parameters KDPPZDSG)
The parameters that are related to data sharing. These parameters are defined on the DB2 panel DSNTIPK.

SP (Stored Procedure Parameters KDPPZSP)
DSNZPARM parameters that are related to Stored Procedures. These parameters are defined on the DB2 panel DSNTIPX.

UTIL (Utility Parameters KDPPZUTL)
DSNZPARM parameters that are related to utilities. These parameters are defined on DB2 the panels DSNTIP6, DSNTIP61, and DSNTIP62.

APPL (Application Parameters KDPPZAPP)
Parameters that are related to applications. These parameters are defined on the DB2 panels DSNTIPF, DSNTIP4, and DSNTIP41.
DATA (Data Parameters KDPPZDAT)
Parameters that are related to data. These parameters are defined on the DB2 panels DSNTIPA2, DSNTIPO3, and DSNTIPM.

PERF (Performance Parameters KDPPZPF)
Parameters that are related to performance and optimization. These parameters are defined on the DB2 panels DSNTIP8, DSNTIP81, and DSNTIP82.

BP (Buffer Pool Parameters KDPPZBP)
Parameters that are related to the Default Buffer Pools. These parameters are defined on the DB2 panel DSNTIP1.

OTHER (Other System Parameters KDPPZOTH)
Miscellaneous parameters that are defined on the DB2 panels DSN6SYSP, DSN6LOGP, DSN6ARVP, DSN6SPRM, DSN6FAC, and DSNHDECP.

Searching for DSNZPARM Parameters (KDPPZFND)
To search for a DSNZPARM parameter:
1. At the command line, enter either:
   - F
   - FIND
   - FINDM
   - FINDMENU
   The Find DSNZPARM Parameters (KDPZZFND) workspace is displayed.
2. Search for the parameter by field name or description.

Group object analysis
A global view of object allocation data for a specific DB2 data sharing group.

D Group Object Analysis Database Activity (KDPGOATS):
KDPGOATS displays a high-level analysis of getpage and I/O activity from a DB2 database perspective.

Navigating to KDPGOATS
All Active DB2 Data Sharing Groups → D Group Object Analysis Database Activity

Select the corresponding tab to navigate to:

GOA DB (KDPGOATS)
A high-level analysis of getpage and I/O activity from a DB2 database perspective. See "D Group Object Analysis Database Activity (KDPGOATS)."

GOA (KDPGOA)
A global view of object allocation data for a specific data sharing group. See "O Group Object Analysis (KDPGOA)" on page 1737.

GOA DB (KDPGOATS)
Object Analysis database use by thread for a data sharing group. See "P Group Object Analysis Thread Database (KDPGOATD)" on page 1733.

GOA VOL (KDPGVOL)
An overview of the performance of the volumes that contain DB2 objects. See "Q Group Object Analysis Volume (KDPGVOL)" on page 1737.
GOA VTH (KDPGVOLT)

The volume activity by thread workspace. See "V Group Object Analysis Volume Thread (KDPGVOLT)" on page 1733.

Zoom-in from KDPGOA

S Object Analysis Activity by Spacename (KDPGOAT2)

Information about the activity of a group object by table space. With this information, you can do a more detailed analysis of the activities for a DB2 tablespace.

O Group Object Analysis (KDPGOA):

KDPGOA displays global view of object allocation data for a specific data sharing group.

Navigating to KDPGOA

All Active DB2 Data Sharing Groups + O Group Object Analysis

Select the corresponding tab to navigate to:

GOA (KDPGOA)

A global view of object allocation data for a specific data sharing group. See "O Group Object Analysis (KDPGOA)."

GOA DB (KDPGOATS)

A high-level analysis of getpage and I/O activity from a DB2 database perspective. See "P Group Object Analysis Database Activity (KDPGOATS)" on page 1733.

GOA TDB (KDPGOATD)

Object Analysis database use by thread for a data sharing group. See "P Group Object Analysis Thread Database (KDPGOATD)" on page 1733.

GOA VOL (KDPGVOL)

An overview of the performance of the volumes that contain DB2 objects. See "Q Group Object Analysis Volume (KDPGVOL)."

GOA VTH (KDPGVOLT)

The volume activity by thread workspace. See "V Group Object Analysis Volume Thread (KDPGVOLT)" on page 1733.

Zoom-in from KDPGOA

S Object Analysis Activity by Spacename (KDPGOAT2)

Information about the activity of a group object by table space. With this information, you can do a more detailed analysis of the activities for a DB2 tablespace.

Q Group Object Analysis Volume (KDPGVOL):

KDPGVOL displays and overview of the performance of volume that contain DB2 objects. With this information you can evaluate DASD performance by volume.

Navigating to KDPGVOL

All Active DB2 Data Sharing Groups + Q Group Object Analysis Volume Group Statistics
Select the corresponding tab to navigate to:

**GOA DB (KDPGOATS)**
A high-level analysis of getpage and I/O activity from a DB2 database perspective. See "D Group Object Analysis Database Activity (KDPGOATS)" on page 1736.

**GOA (KDPGOA)**
A global view of object allocation data for a specific data sharing group. See "O Group Object Analysis (KDPGOA)" on page 1737.

**GOA TDB (KDPGOATD)**
Object Analysis database use by thread for a data sharing group. See "P Group Object Analysis Thread Database (KDPGOATD)" on page 1733.

**GOA VOL (KDPGVOL)**
An overview of the performance of the volumes that contain DB2 objects. See "Q Group Object Analysis Volume (KDPGVOL)" on page 1737.

**GOA VTH (KDPGVOLT)**
The volume activity by thread workspace. See "V Group Object Analysis Volume Thread (KDPGVOLT)" on page 1733.

**Zoom-in from KDPGVOL**

**D Group Object Analysis Database Activity (KDPGOATS)**
A high-level analysis of getpage and I/O activity from a DB2 database perspective. See "D Group Object Analysis Database Activity (KDPGOATS)" on page 1736.

**O Group Object Analysis (KDPGOA)**
A global view of object allocation data for a specific data sharing group. See "O Group Object Analysis (KDPGOA)" on page 1737.

**P Group Object Analysis Thread Database (KDPGOATD)**
Object Analysis database use by thread for a data sharing group. See "P Group Object Analysis Thread Database (KDPGOATD)" on page 1733.

**S. Group Object Analysis Volume Database (KDPGVDB)**
Displays information you can use to analyze I/O activity for a single volume in a DB2 database. Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**V Group Object Analysis Volume Thread (KDPGVOLT)**
The volume activity by thread workspace. See "V Group Object Analysis Volume Thread (KDPGVOLT)" on page 1733.

**H History**
Near-term History provides the capability to investigate problems that occurred in the recent past.

**F Group SQL Counts (KDPPSQL1)**
KDPPSQL1 displays the system SQL counts for Data Manipulation Language (DML) for each member of a data sharing group.

**Navigating to KDPPSQL1**
All Active DB2 Data Sharing Groups → F Group SQL Counts

Select the corresponding tab to navigate to:
DCL (Data Control Language KDPPSQL2)
The system SQL counts for the Data Control Language (DCL) for each member of a data sharing group.

DDL (Data Definition Language KDPPSQL3)
The system SQL counts for the Data Definition Language (DDL) for each member of a data sharing group.

RID (Record Identifier List Processing KDPPSQL4)
The system SQL counts for Record Identifier (RID) List Processing for each member of a data sharing group.

PARAL (Query Parallelism KDPPSQL5)
The system SQL counts for query parallelism for each member of a data sharing group.

NESTED (Stored Procedures, User Defined Functions, Triggers KDPPSQL6)
The system SQL counts for Stored Procedures, User Defined Functions, and Triggers for each member of a data sharing group.

PREP (Prepares KDPPSQL7)
The system SQL counts for Prepares for each member of a data sharing group.

ROWID (Row ID Access KDPPSQLD)
The system SQL counts for Row ID Access for each member of a data sharing group.

CON STMNT (Concentrate Literals KDPPSQL8)
The system SQL counts for Concentrate Literals for each member of a data sharing group.

USE COMMITTED (KDPPSQLA)
The system SQL counts for Use Committed for each member of a data sharing group.

WORKFILE (KDPPSQLB)
The system SQL counts for workfiles for each member of a data sharing group.

MISC (Miscellaneous KDPPSQLE)
The system miscellaneous SQL counts for each member of a data sharing group.

S Global and Group Buffer Pools (KDPPGPLL)
KDPPGPLL displays a summary of all group buffer pools for all members of a data sharing group.

Navigating to KDPPGPLL

All Active DB2 Data Sharing Groups → S Group Buffer Pools

Select the corresponding tab to navigate to:

Global Buffer Pools (KDPPGBPO)
The global buffer pools for all members of a data sharing group. See “Zoom-in from KDPPGBPO” on page 1740.

Group Buffer Pools (KDPPGPLL)
A summary of all group buffer pools for all members of a data sharing group.
**Zoom-in from KDPPGPLL**

**A Sync Read \ GBP Write (KDPPGBPS)**
Sync reads, writes and the hit ratio of a group buffer pool for all members of a data sharing group.

**B Prefetch \ Castout (KDPPGBPP)**
Prefetch information and castout information about a group buffer pool for all members of a data sharing group.

**L P-Locks (KDPPGBPL)**
The P-Lock information for a group buffer pool for all members of a data sharing group.

**S Secondary GBP (KDPPGBPC)**
The DB2 Group Buffer Pool secondary information for all members of a data sharing group.

**H History**
Near-term History provides the capability to investigate problems that occurred in the recent past.

**Zoom-in from KDPPGBPO**

**S Global Group Buffer Pool Details (KDPPGBPD)**
Group buffer pool detail for all members of a data sharing group.

**H History**
Near-term History provides the capability to investigate problems that occurred in the recent past.

**X Coupling Facility Details (KDPXCFD)**
KDPXCFD displays connection status information for all connections to a coupling facility structure.

**Navigating to KDPXCFD**

All Active DB2 Data Sharing Groups → X Coupling Facility Details

Select the corresponding tab to navigate to:

**Threads (KDPPTHRD)**
Provides a global view of thread activity for an entire data sharing group. See “T DSG Active Threads (KDPPTHRD)” on page 1731.

**Coupling (KDPXCFD)**
Connection status information for all connections to a coupling facility structure. See “X Coupling Facility Details (KDPXCFD).”

**GOA (KDPGOA)**
A global view of object allocation data for a specific data sharing group. See “O Group Object Analysis (KDPGOA)” on page 1737.

**SQLC (KDPPSQL1)**
Displays the system SQL counts for a thread for each member of a data sharing group. See “F Group SQL Counts (KDPPSQL1)” on page 1738.

**DSNZPARMS (KDPPZSYS)**
Displays information about DSNZPARM parameters that are related to thread management. See “G DSNZPARMs (KDPPZSYS)” on page 1735.
Lock Conf (KDPGLKGN)

The lock conflicts that exist in a data sharing group. See “L Group Lock Conflicts (KDPGLKGN)” on page 1734.

Buf Pool (KDPGPLL)

A summary of all group buffer pools for all members of a data sharing group. See “S Global and Group Buffer Pools (KDPGPLL)” on page 1739.

H History

Use near-term history to investigate problems that occurred in the recent past.

"H History" in the enhanced 3270UI refers to the OMEGAMON Family history based on the persistent datastore (PDS). For more information about historical workspaces, see [http://www-01.ibm.com/support/knowledgecenter/SSAUBV/com.ibm.omegamon_share.doc_6.3.0.2/e3270/near_term_history_intro.htm](http://www-01.ibm.com/support/knowledgecenter/SSAUBV/com.ibm.omegamon_share.doc_6.3.0.2/e3270/near_term_history_intro.htm)

For information about attribute groups that you need to enable historical collection for the workspaces, see “Enabling historical data collection in enhanced 3270UI” on page 1763.

All Active DB2 Subsystems

The summary panel KDPSTART displays the DB2 subsystems that are active in your enterprise system.

It displays the general state and health of the active DB2 subsystems. This is the starting point for troubleshooting.

Panel

![All Active DB2 Subsystems](image)

Figure 10. All Active DB2 Subsystems

For more information about panels and workspaces, see [http://www-01.ibm.com/support/knowledgecenter/SSAUBV/com.ibm.omegamon_share.doc_6.3.0.2/e3270/workspaces_overview_beacon.htm](http://www-01.ibm.com/support/knowledgecenter/SSAUBV/com.ibm.omegamon_share.doc_6.3.0.2/e3270/workspaces_overview_beacon.htm)

Options menu

The following options exist:

1. C CICS Threads (KDPCICTH)
2. G DSNZPARMS (KDPZSYS)
3. I IMS Connections (KDPIMS)
4. J DB2 Connect Server (KDPCONN)
5. K Key Performance Indicators Display (KDPKPII)
6. L Lock Conflicts (KDPLKC2)
7. M DB2 Messages (KDPMSGS)
8. S System Statistics (KDPSUBSM)
9. T Active Threads (KDPTHD52)
10. H History

**Threads**

View information about thread activity for DB2 subsystems.

**T Active Threads (KDPTHD52):**

KDPTHD52 displays a global view of thread activity for a specific DB2 subsystem.

It provides key performance data such as CPU rate, in-DB2 time, wait time, DB2 status, getpage, commits and updates that help you to identify any potential problem.

**Navigating to KDPTHD52**

All Active DB2 Subsystems → T Active Threads

Select the corresponding tab to navigate to:

**CICS (KDPTHCIS)**

Displays a CICS thread summary.

**Utilities (KDPUTILS)**

An overview of the active utilities. Workspace monitoring includes utilities that have not yet completed their run because of abnormal termination.

**Zoom-in from KDPTHD52 and KDPTHCIS**

**C Cancel Thread (KDPTCANC)**

Provides an option to cancel a thread.

**A Thread Detail Accelerator (KDPTHRDC)**

Information about accelerator metrics for an active thread.

**D Thread Detail Distributed (KDPTHDD2)**

Information about the VTAM APPC conversations and TCP/IP conversations of a distributed (DDF) thread.

**E Thread Detail Enclave (KDPTHDE2)**

Detailed information about the workload manager (WLM) enclave service periods.

**L Thread Detail Locks Owned (KDPTHRLD)**

Detailed information about the locks and the claims that are owned by an individual thread.

**N Thread Detail Long Names (KDPTHRDN)**

The long names (identification fields) that are associated with a specific thread.

**Q Thread Detail SQL Counts (KDPTSQL1)**

The SQL counts for the Data Manipulation Language (DML) for a thread.

**S Thread Detail Accounting (KDPTHDA2)**

The accounting classes 1 and 2 for a selected thread. From the CICS Transaction Details subpanel, zoom in to:

• **CICS Region Summary (KCPRGNS)** : zoom into:
- Take Actions on Task (KDPTASAP)
- D CICS DB2 Connection Summary (KCPD2S or KCPD2P)
- B CICS Bottlenecks (KDPBOTS)
- F CICS File/Data Resources (CICS File/Data option menu)
- R CICS Resources (CICS Resources option menu)
- S CICS Region Overview (KCPRGN)
- T CICS Task Summary (KDPTASS)
- Transaction ID: navigate to CICS workspace Transaction Details (KCPTTRN).
- Current Program ID: navigate to CICS workspace Program Details (KDPPRGD).
- Task Number: navigate to ICS workspace Details for Transaction Task (KCPTASD).

T Thread Detail SQL Text (KDPTSQL)
The SQL statement that a DB2 thread is currently executing.

U Thread CICS Connection (KDPTHCIC)
Zoom-in from KDPTHCIS only.
Display CICS connection information for a CICS thread.

W Thread Detail Class 3 (KDPTHRD3)
The accounting class 3 wait times for a selected thread.

X Multi-thread Cancel No Confirm
Cancel multiple threads without being prompted individually to confirm each thread cancellation.

C CICS Threads (KDPCICTH):

KDPCICTH provides an overview of DB2 thread activity that originate from connected CICS regions. It provides key performance data such as CPU rate, in-DB2 time, wait time, DB2 status, getpage, commits and updates that help you to spot any potential problem.

Navigating to KDPCICTH

All Active DB2 Subsystems → C CICS Threads

Select the corresponding tabs to navigate to:

Active Threads (KDPTHD52)
A global view of thread activity for a specific DB2 subsystem. It provides key performance data such as CPU rate, in-DB2 time, wait time, DB2 status, getpage, commits and updates that help you to identify any potential problem.

CICS Connections (KDPCICS)
An overview of DB2 thread activity that is originating from connected CICS subsystems. Information about the CICS regions that are attached to DB2. See "T Active Threads (KDPTHD52)" on page 1742.

Zoom-in from KDPCICTH

C Cancel Thread (KDPTCANC)
Provides an option to cancel a thread.
A Thread Detail Accelerator (KDPTHRDC)
Information about accelerator metrics for an active thread.

D Thread Detail Distributed (KDPTHDD2)
Information about the VTAM APPC conversations and TCP/IP conversations of a distributed (DDF) thread.

E Thread Detail Enclave (KDPTHDE2)
Detailed information about the workload manager (WLM) enclave service periods.

I Thread Detail Locks Owned (KDPTHRL)
Detailed information about the locks and the claims that are owned by an individual thread.

N Thread Detail Long Names (KDPTHLDN)
The long names (identification fields) that are associated with a specific thread.

Q Thread Detail SQL Counts (KDPTSQL1)
The SQL counts for the Data Manipulation Language (DML) for a thread.

S Thread Detail Accounting (KDPTHDA2)
The accounting classes 1 and 2 for a selected thread. From the CICS Transaction Details subpanel, zoom in to:

- CICS Region Summary (KCPRGNS) : zoom into:
  - ! Take Actions on Task (KDPTASAP)
  - D CICS DB2 Connection Summary (KCPD2S or KCPD2P)
  - B CICS Bottlenecks (KDPBOTS)
  - F CICS File/Data Resources (CICS File/Data option menu)
  - R CICS Resources (CICS Resources option menu)
  - S CICS Region Overview (KCPRGNO)
  - T CICS Task Summary (KDPTASS)
- Transaction ID: navigate to CICS workspace Transaction Details (KCPTRND).
- Current Program ID: navigate to CICS workspace Program Details (KDPPRGD).
- Task Number: navigate to ICS workspace Details for Transaction Task (KCPTASD).

T Thread Detail SQL Text (KDPTSQTLT)
The SQL statement that a DB2 thread is currently executing.

W Thread Detail Class 3 (KDPTHRD3)
The accounting class 3 wait times for a selected thread.

X Multi-thread Cancel No Confirm
Cancel multiple threads without being prompted individually to confirm each thread cancellation.

Zoom-in from KDPCICS

R CICS RCT Summary for Region (KDPCICST)
The CICS/DB2 Resource Control Table. This table shows the DB2 plan that is used for each CICS transaction.

S CICS Thread Summary (KDPCICT1)
CICS threads summary for a target CICS region.
IIMS Connections (KDPIMS):

KDPIMS provides an overview of the activity of each IMS region connected to DB2.

Navigating to KDPIMS

All Active DB2 Subsystems → I IMS Connections

Zoom-in from KDPIMS

IMS Region Information (KDPIMSRG)
Detailed status information for a specific IMS dependent region.

J DB2 Connect Server (KDPCONN):

KDPCONN displays key information about the active and inactive DB2 Connect gateways.

Navigating to KDPCONN

All Active DB2 Subsystems → J DB2 Connect Server

Zoom into, or select the corresponding tab to navigate to:

K. Package statistics (KDPCPKG)
Provides information about the size of the data exchanged between the DB2 Connect gateway and the host database and about the network time required. It enables you to measure the throughput between the host database and the DB2 Connect gateway and gives you a better idea of the database activity and network traffic at the application level.

P. Performance (KDPCPERF)
Displays the information obtained by running a sample SQL statement between the DB2 Connect gateway and the host database. It enables you to detect any bottlenecks.

S. Gateway statistics (KDPCONNS)
Statistics about the selected DB2 Connect gateway including details about the number of agents and pooled agents, the connections that are waiting for the host to reply, and the connections that are waiting for the client to send a request.

T. Task list (KDPCTASK)
Statistics about the processes at the selected DB2 Connect gateway, for example, the CPU and the working set. Use the information to determine whether the DB2 Connect gateway is overloaded by DB2 Connect or any other allocation application.

H. History
Near-term History provides the capability to investigate problems that occurred in the recent past.

G DSNZPARMS (KDPZSYS)
KDPZSYS displays information about DSNZParm parameters that are related to thread management. These parameters are defined on the DB2 panels DSNTIPE and DSNTIPE1.
Navigating to KDPZSYS

All Active DB2 Subsystems → G DSNZPARMS

Select the corresponding tab to navigate to:

**TRC (Trace Parameters KDPZTRC)**
Parameters that are related to the trace. These parameters are defined on the DB2 panel, DSNTIPN.

**LOG (Logging Parameters KDPZLOG)**
Parameters that are related to the active log. These parameters are defined on the DB2 panel, DSNTIPL.

**ARCH (Archiving Parameters KDPZARC)**
Parameters that are related to log archiving. These parameters are defined on the DB2 panels DSNTIPA and DSNTIPH.

**CNTL (Authorization/RLF/DDF parameters KDPZCTL)**
Parameters that are related to operator functions. These parameters are defined on the DB2 panels DSNTIPO, DSNTIPP, DSNTIPP1, DSNTIPR and DSNTIP5.

**IRLM (IRLM Parameters KDPZIRLM)**
Parameters that are related to IRLM. These parameters are defined on the DB2 panels DSNTIP1 and DSNTIPJ.

**STG (Storage Parameters KDPZSTG)**
DSNZPARM parameters that are related to storage and sizes. These parameters are defined on the DB2 panels DSNTIPC and DSNTIPD.

**DSN (Dataset and Database parameters KDPZDSN)**
Parameters that are related to datasets and databases. These parameters are defined on DB2 panels DSNTIP7, DSNTIP71, DSNTIP91, and DSNTIPS.

**DDCS (Data Definition Control Parameters KDPZDDCS)**
Parameters that are related to data. These parameters are defined on the DB2 panel DSNTIPZ.

**DSG (Data Sharing Parameters KDPZDSG)**
The parameters that are related to data sharing. These parameters are defined on the DB2 panel DSNTIPK.

**SP (Stored Procedure Parameters KDPZSP)**
DSNZPARM parameters that are related to Stored Procedures. These parameters are defined on the DB2 panel DSNTIPX.

**UTIL (Utility Parameters (KDPZUTIL)**
DSNZPARM parameters that are related to utilities. These parameters are defined on DB2 the panels DSNTIPI6, DSNTIPI61, and DSNTIPI62.

**APP (Application Parameters KDPZAPPL)**
Parameters that are related to applications. These parameters are defined on the DB2 panels DSNTIPF, DSNTIPO4, and DSNTIPO41.

**DATA (Data Parameters KDPZDATA)**
Parameters that are related to data. These parameters are defined on the DB2 panels DSNTIPA2, DSNTIPO3, and DSNTIPO3.

**PERF (Performance Parameters KDPZPERF)**
Parameters that are related to performance and optimization. These parameters are defined on the DB2 panels DSNTIP8, DSNTIP81, and DSNTIP82.
BP (Buffer Pool Parameters KDPZBP)
Parameters that are related to the Default Buffer Pools. These parameters are defined on the DB2 panel DSNTIP1.

OTHERS (Other System Parameters KDPZOTH)
Miscellaneous parameters that are defined on the DB2 panels DSN6SYSP, DSN6LOGP, DSN6ARVP, DSN6SPRM, DSN6FAC, and DSNHDECP.

ALL (DSNZPARM KDPZPARM)
Parameters that are related to DSNZPARM.

Searching for DSNZPARM Parameters (KDPZFIN)
To search for a DSNZPARM parameter:
1. At the command line, enter either:
   • F
   • FIND
   • FINDM
   • FINDMENU
   The Find DSNZPARM Parameters (KDPZFIN) workspace is displayed.
2. Search for the parameter by field name or description.

K Key Performance Indicators Display (KDPKPI1)
KDPKPI1 displays a summary of thread related Key Performance Indicators for a DB2 subsystem. It includes connections, transactions and locking Key Performance Indicators that help you quickly identify and resolve any performance issues. (Version 5.3.0 only)

Navigating to KDPKPI1
All Active DB2 Subsystems → K Key Performance Indicators Display

Select the corresponding tabs to navigate to:

Pools & Storage KPI (KDPKPI2)
A summary of pool and storage related Key Performance Indicators for a DB2 subsystem. It includes DB2 pools, storage, buffer pools, sorting and group buffer pools Key Performance Indicators, which can help you quickly identify and resolve any performance issues. (Version 5.3.0 and higher).

Miscellaneous KPI (KDPKPI3)
Miscellaneous Key Performance Indicators for a DB2 subsystem. It includes monitoring, logging, stored procedures, user defined functions and query parallelism Key Performance Indicators, which can help you quickly identify and resolve any performance issues. (Version 5.3.0 and higher).

System States (KDPKPI4)
Key DB2 system and thread related performance data. This data includes thread, stored procedures, user defined functions, triggers, locks, and open datasets, which can help you quickly identify and resolve any performance issues.
**Zoom-in from KDPKPI1**

Zoom-in to DBM1 and MVS Storage below 2GB (KDPSTO2A) from:

- Avg Thread Footprint

Zoom in to System Resource Manager (KDFSUSBM) from:

- Transactions Per Second
- Indoubt-URs
- Resync attempted

Zoom-in to Lock Conflicts (KDPLKC2) from:

- Deadlocks
- Timeouts
- Lock Escalations

**Zoom-in from KDPKPI2**

Zoom-in to Storage Subsystems (KDPSTO2A) from:

- EDM pool full
- ECSA used by DB2
- Real storage used by DB2

Zoom-in to Buffer Pools (KDPBP52) from:

- DM critical thresh reached
- DWQT reached
- Open DS thresh reached
- Pages read from Bps
- Pages read from DASD
- Migrated DS timed out
- Sort error BP shortage
- Merge error BP shortage
- Sort degraded BP too small

Zoom-in to Group Buffer Pools (KDPGPOOL) from:

- Write failed no storage
- Pages castout
- Class castout thresh reached
- GBP castout thresh reached

**Zoom-in from KDPKPI3**

Zoom-in to Log Manager (KDPLOGS9) from:

- Tape volume contention
- Output buffer full
- Bytes written to log
- Resource unavailable
- No QP BP shortage

**Locking Conflicts (KDPLKC2)**

KDPLKC2 displays the lock conflicts that exist for a DB2 subsystem.
Navigating to KDPLKC2

All Active DB2 Subsystems \(\rightarrow\) L Locking Conflicts

Zoom-in from KDPLKC2

Thread Locks Owned (KDPTHRDL)
Detailed information about the locks and the claims that are owned by an individual thread.

M DB2 Messages (KDPMSGS)
KDPMSGS displays critical DB2 messages sorted by message identification number.

Navigating to KDPMSGS

All Active DB2 Subsystems \(\rightarrow\) M DB2 Messages

Zoom-in from KDPMSGS

S Critical DB2 Messages (KDPMSGC)
Displays messages that can help you identify problems with your DB2 system.

H History DB2 Messages (KDPMSGH)
Display historical DB2 messages that can help you diagnose performance problems in the past.

S System Statistics (KDPSUBSM)
KDPSUBSM shows an overview of workload-related information about the DB2 subsystem that you are monitoring.

Navigating to KDPSUBSM

All Active DB2 Subsystems \(\rightarrow\) S System Statistics

Select the corresponding tab to navigate to:

BP (Buffer Pools KDPBP52)
A summary of the buffer pools that are configured and are in use for a DB2 subsystem. A drill down to buffer pool details is available. See “Navigating from BP (Buffer Pools KDPBP52)” on page 1750.

Log (Log Management KDPOGS9)
An overview of the DB2 log manager active logging and archiving activity.

EDM (EDM Pool KDPEDM2A)
An overview of the Environmental Descriptor Manager (EDM) pool activity that is connected with DB2.

SQL (SQL Count DML KDPSQL1)
The SQL counts for the Data Manipulation Language (DML) for a DB2 subsystem. See “Navigating from SQL Counts DML (KDPSQL1)” on page 1750.

DSQL (DB2 Dynamic SQL Cache Filter Options KDPDSQLF)
Filter options to manage the data returned from the Dynamic SQL cache especially when many rows are returned. The default filter option settings display the first 100 statements in descending order of the accumulated CPU time. The results are displayed in DB2 Dynamic SQL Cache Statement
Statistics (KDPDSQLS), see “Zoom-in from DB2 Dynamic SQL Cache Statement Statistics (KDPDSQLS)” on page 1751.

SSQL (Thread Detail SQL Text (KDPPSQLT) KDPSSQLS)
A summary of the contents of the Static SQL cache so that you can determine their performance. See “Zoom-in from T Thread Detail SQL Text (KDPPSQLT) (KDPSSQLS)” on page 1751.

Accelerators (KDPACCN)
Accelerator statistics for all configured accelerators. See “Zoom-in from Accelerators (KDPACCN)” on page 1751.

Storage (Storage Consumption KDPSTO2A)
The DB2 subsystem storage consumption. See “Navigating from Storage (KDPSTO2A)” on page 1751.

ZOS Statistics (KDPZOS)
Overall CPU usage, paging real and virtual storage usage by DB2.

Navigating from BP (Buffer Pools KDPBP52)
Select the corresponding tab to navigate to:

Group Buffer Pools (KDPGPOOL)
A list of active group buffer pools.

Global Buffer Pool (KDPGBPOL)
A summary of active group buffer pools for this member of the data sharing group.

Zoom-in from KDPBP52 and KDPGBPOL:

S. Buffer Pool Details (KDPBPD52)
The size and the usage of an individual DB2 buffer pool.

H History
Near-term History provides the capability to investigate problems that occurred in the recent past.

Zoom in from KDPGPOOL:

A Sync Read \ GBP Write (KDPGBPSY)
Sync reads, writes and the hit ratio of a group buffer pool.

B Prefetch \ Castout (KDPGBPPF)
Prefetch information and castout information about a group buffer pool.

L P-Locks (KDPGBPPLK)
The P-Lock information for a group buffer pool.

S Secondary GBP (KDPGBPSC)
The DB2 Group Buffer Pool secondary information.

H History
Near-term History provides the capability to investigate problems that occurred in the recent past.

Navigating from SQL Counts DML (KDPSQL1)

DCL (Data Control Language KDPSQL2)
The system SQL counts for Data Control Language (DCL) for a DB2 subsystem.
DDL (Data Definition Language KDPSQL3)
The system SQL counts for Data Definition Language (DDL) for a DB2 subsystem.

RID List Processing (KDPSQL4)
The system SQL counts for Record Identifier (RID) List Processing for a DB2 subsystem.

PARAL (Query Parallelism KDPSQL5)
The system SQL counts for Query Parallelism for a DB2 subsystem.

NESTED SQL (SQL Counts - SP/UDF/Triggers KDPSQL6)
The system SQL counts for Stored Procedures, User Defined Functions, and Triggers for a DB2 subsystem.

PREP (SQL Counts - Prepares KDPSQL7)
The system SQL counts for Prepares for a DB2 subsystem.

ROWID (Row ID KDPSQLD)
The system SQL counts for Row ID access for a DB2 subsystem.

CON STMPT (Concentrate Statements KDPSQL8)
The system SQL counts for Concentrate Literals for a DB2 subsystem.

USE COMMITTED (User Currently Committed KDPSQLA)
The system SQL counts for Use Committed for a DB2 subsystem.

WORKFILE (Workfile Storage KDPSQLB)
The system SQL counts for work files for a DB2 subsystem.

MISC (Miscellaneous KDPSQLE)
The system miscellaneous SQL counts for a DB2 subsystem.

Zoom-in from DB2 Dynamic SQL Cache Statement Statistics (KDPDQLSQL)

S. Statistics (KDPDSYST)
Displays the statistics for a statement in the Dynamic SQL cache.

T. SQL Text (KDPDYNTEX)
Displays the SQL text of statements in the Dynamic SQL cache.

Zoom-in from T Thread Detail SQL Text (KMPSTQ) (KDPSTQ)

S. Statistics (KMPSTA)
Displays the statistics for a statement in the Static SQL cache.

T. SQL Text (KMPSTATX)
Displays the SQL text of a statement in the Static SQL cache.

Zoom-in from Accelerators (KDPACCN)

Accelerator Perspective (KDPACC41)
Accelerator statistics for a selected accelerator.

DB2 Perspective (KDPACC42)
Accelerator statistics for a selected DB2.

Navigating from Storage (KDPSTO2A)

MVS (Storage Above 2 GB KDPSTA2A)
The MVS Storage Above 2 GB workspace provides an overview of MVS storage above the 2 GB bar. It shows information about storage allocation within the DBM1 and DIST address space.
Subsy Shr (Subsystem Shared Storage Above 2GB KDPSTO2B)
The Subsy Shr workspace displays subsystem shared storage above 2 GB including real storage and auxiliary storage.

Common (Common Storage Below and Above KDPSTC2A)
The Common Storage workspace provides an overview of the common storage above and below the 2 GB bar.

LPAR (MVS LPAR Shared Storage Above 2GB KDPSTOLA)
The LPAR workspace provides an overview of MVS LPAR shared storage above 2 GB.

Real Aux (Real and Auxiliary Storage KDPSTU2A)
The Real Aux workspace provides an overview of real and auxiliary storage allocation within DBM1 and DIST address space.

STMT (Shared Storage above 2GB KDPSTS2A)
The STMT workspace provides an overview of DB2 subsystem shared storage and shared variable storage above 2 GB.

IRLM (IRLM Storage KDPSTOIB)
The IRLM workspace provides an overview of DB2 IRLM storage allocation including HWM and thresholds.

H History
Use near-term history to investigate problems that occurred in the recent past.

"H History" in the enhanced 3270UI refers to the OMEGAMON Family history based on the persistent datastore (PDS). For more information about historical workspaces, see http://www-01.ibm.com/support/knowledgecenter/SSAUBV/com.ibm.omegamon_share.doc_6.3.0.2/e3270/near_term_history_intro.htm

For information about attribute groups that you need to enable historical collection for the workspaces, see "Enabling historical data collection in enhanced 3270UI" on page 1763.

Using thread history
OMEGAMON for DB2 thread history in the Enhanced 3270UI is the equivalent of near-term history in the Classic Interface.

Database administrators and systems analysts use thread history to analyze thread performance for recent DB2 application, system, and utility threads. Near-term history (Classic) and thread history (Enhanced 3270UI) data are stored in VSAM data sets. Thread history in the Enhanced 3270UI is approximately equivalent to "thread-related information" in the Classic Interface's near-term history.

An additional distinction is that thread history is different from a snapshot history. Thread history refers to completed thread activities, while snapshot history includes activities currently in progress.

For information on how to set up thread history collection, see Configuring thread history.

Several configuration parameters are required in order to enable thread history in the Enhanced 3270UI. See Parameters updated for thread history for information on thread history configuration parameters. In addition, the HOLDDATA information for this PTF contains installation instructions and post-configuration steps required to enable thread history.
**Viewing thread history**
This topic describes how to verify that the thread history data collector is running.

**About this task**

This task makes the following assumptions:
- Thread history data collector is running
- Tivoli Enterprise Monitoring Agent (TEMA) is running
- Tivoli Enterprise Monitoring Server (TEMS) is running
- Tivoli OMEGAMON Manager is running

**Procedure**

1. From the KOBSEVTS panel, which appears when you log in, select DB2. The active DB2 subsystems are displayed.
2. Enter R beside the name of the DB2 subsystem you want to verify. Press ENTER. If the thread history data collector is running for the DB2 subsystem you selected, the Thread History Selection panel (KDPHFIL1) is displayed. If the collector is not running, a message indicates that thread history is not active for DB2.

   **Note:** The R option is also available from KOBSTART and KDPSTART.

**Filtering thread history by time ranges (timespan)**
You can filter your thread history by time range, to identify threads with performance problems.

**About this task**

This task assumes the thread history data collector is running.

**Procedure**

1. From the KOBSEVTS panel, which appears when you log in, select DB2. This displays the active DB2 subsystems.
2. Enter R next to the DB2 subsystem you want to verify.
3. From the **Timespan** tab, you can specify that you want to select threads from a span of time counting back from the present, such as (1) five minutes or (2) 100 hours. Or you can specify (3) a historical time range, with a start and end date and time. For example, you can select threads for a time range starting at 09:32:01 on 05/15/2017 and ending at 11:32:01 on 05/19/17. Set the Minute(s), Hour(s), or Time Range specification you want to use, then enter 1, 2, or 3 to the left, where 1 is entered in this example:

   ![Timespan Table](image)
4. Select OK. The thread history summary is displayed.

**Filtering thread history by event counts and times**

You can filter your thread history by event counts and times, to identify threads with performance problems.

**About this task**

This task assumes the thread history data collector is running.

**Procedure**

1. From the KOBSEVTS panel, which appears when you log in, select DB2. This displays the active DB2 subsystems.
2. Enter R next to the DB2 subsystem you want to verify.
3. Select the Counts/Times tab. From this tab, you can specify that you want to select threads based on a range of system usage counts and CPU and database elapsed times. The supported operators are EQ (Equal), NE (Not Equal), LT (Less Than), LE (Less Equal), GT (Greater Than), GE (Greater Equal).
4. When you have specified the counts and times you want to monitor, select OK. The thread history summary is displayed.

**Filtering thread history by thread IDs**

You can filter your thread history by thread IDs, to identify threads with performance problems.

**About this task**

This task assumes the thread history data collector is running.

**Procedure**

1. From the KOBSEVTS panel, which appears when you log in, select DB2. This displays the active DB2 subsystems.
2. Enter R next to the DB2 subsystem you want to use.
3. From the Thread ID tab, you can select threads by ID, using criteria such as Plan Name, Auth ID, Connect, Con Type, Correlation ID, CICS TX, and IMS PSB. Note that Correlation ID is case sensitive. You can use the EQ ("equal") or NE ("not equal") operators to specify that you want to see results that match, or results that do not match, the string you enter. The question mark (?) wildcard can be used to represent one character in a string. For example, you might specify TS12?4 to see threads with Auth IDs such as TS1234 or TS1244. The asterisk (*) wildcard can be used to specify that you want to see any string. For example, you might specify OMPE* to see threads with Auth IDs such as OMPEADMIN or OMPETEST. When you use the asterisk wildcard, any characters you enter after the asterisk will be ignored. For example, OMPE*TEST would be treated the same as OMPE*. You cannot use the asterisk at the beginning of a string, for example *ABC. This would be treated as just a wildcard, with the ABC being ignored.
4. When you have specified the selection criteria you want to use, select OK. The thread history summary is displayed.

**Filtering thread history by end user**

You can filter your thread history by end user, workstation, transaction, role, trusted context, or accounting string, from the End User tab.
**About this task**

This task assumes the thread history data collector is running.

**Procedure**

1. From the KOBSEVTS panel, which appears when you log in, select DB2. This displays the active DB2 subsystems.
2. From KOBSTART or KDPSTART, enter R next to the DB2 subsystem you want to use.
3. Select the End User tab. From this tab, you can specify that you want to select threads based on any of several case sensitive criteria:
   - End User ID (up to 56 bytes)
   - Workstation name (up to 56 bytes)
   - Transaction Name (up to 56 bytes)
   - Role Name (up to 56 bytes if running in a trusted context)
   - Trusted Context (up to 56 bytes if running in a trusted context)
   - Accounting String: up to 56 bytes for the agent. For DSN type, it is the first 56 bytes of QMDAACCT. For JCC/SQL types, it is the first 56 bytes of QMDASUFX. For other types, it is the first 56 bytes of AMDAASTR. You can use the EQ (“equal”) or NE (“not equal”) operators to specify that you want to see results that match, or results that do not match, the string you enter. The question mark (?) wildcard can be used to represent one character in a string. For example, you might specify John?Smith to see threads with End User IDs such as JohnBSmith or JohnQSmith.
   - The asterisk (*) wildcard can be used to specify that you want to see any string. For example, you might specify John* to see threads with End User IDs such as JohnSmith or JohnJones. When you use the asterisk wildcard, any characters you enter after the asterisk will be ignored. For example, John*Smith would be treated the same as John*.
4. When you have specified the selection criteria you want to use, select OK. The thread history summary is displayed.

**Viewing summary of all selected history threads**

You can view a list of threads that meet your selection criteria.

**About this task**

This task assumes the thread history collector is running and you have identified one or more selection criteria you want to use to identify current or recent threads that may have performance problems.

For information on how to specify the criteria, see Using thread history.

Once you have specified the criteria, the thread summary is displayed. The summary shows columns of information that identify the workstation, transaction, user, usage, and other characteristics you can use to determine which threads need attention to improve system performance.

**Viewing thread history detail accounting**

The thread history accounting detail helps you diagnose performance problems.
About this task

This task assumes the thread history collector is running and you have identified one or more selection criteria you want to use to identify current or recent threads that may have performance problems.

For information on how to specify the criteria, see [Using thread history](#).

Procedure

1. In the Thread History Summary, select the thread you want accounting detail on, by typing $ next to it and pressing ENTER. The DB2 Thread History Detail Accounting panel is displayed.
2. The Accounting (Acct) and Class3 tabs present information about the thread, which you can use to diagnose performance problems.

Viewing thread history wait times

The Class 3 Wait Times information helps you diagnose performance problems.

About this task

This task assumes the thread history collector is running and you have identified one or more selection criteria you want to use to identify current or recent threads that may have performance problems.

For information on how to specify the criteria, see [Using thread history](#).

Procedure

1. From the Thread History Summary, select the thread you want accounting detail on, by entering W next to it and pressing ENTER. The DB2 Thread History Detail Wait Times panel is displayed.
2. Examine the information in the Class 3 tab to diagnose performance problems.

Configuring thread history

Several parameters are required to configure PARMGEN.

About this task

For information about PARMGEN, see the [Implementation scenarios](#) in the IBM Knowledge Center.

Procedure

1. Log into PARMGEN.
2. Use the instructions in the "Customizing the configuration profiles" step in the implementation scenario to edit the LPAR RTE configuration profile in the RTE's %RTE_HILEV%.%RTE_NAME% dataset and enable the following thread history parameters:
   - Verify that KD2_PFnn_HIS_START is set to Y.
   - Set KD2_PFnn_HIS_STORE to the value that includes THVSAM. If other options (for example, VSAM, SEQ) are included, make sure to set the dependent parameters such as KD2_PFnn_HIS_LOGn.
3. Set the following parameters to YES:
   - KD2_PFnn_THRDHIS_LOG_NUM
   - KD2_PFnn_THRDHIS_DYN_SQL
- KD2_PFnn_THRDHIS_LOCK_CNTN
- KD2_PFnn_THRDHIS_LOCK_SUSP
- KD2_PFnn_THRDHIS_SCAN_SUMM
- KD2_PFnn_THRDHIS_SORT_SUMM

**Note:** These parameters can be configured in PARMGEN, but they are not yet implemented for use with thread history in the Enhanced 3270UI.

4. Run the PARMGEN SPARSE and SUBMIT steps. The jobs that need to run will depend on your SMP/E maintenance and upgrade scenario. For example, you might just need to run the KCIJPW2R job, or you might need to run allocation jobs such as ALLOCDS, TCRV&dbid_ and/or HCRV&dbid. Consult the IBM Knowledge Center page on [SMP/E maintenance and upgrade scenarios](URL).

5. Verify that the COPT&dbid file is generated correctly. Check that the THRDL parameters are set according to the values you set in KD2_PFnn_THRDHIS_* in PARMGEN:

   - THRDLOG(7)
   - THRDDATASET(D01OMPE.VTS5815.DBA9.RKTH*)
   - THRDSQL(YES)
   - THRDCONT(YES)
   - THRDSUSP(YES)
   - THRDSAN(YES)
   - THRDSORT(YES)

6. Verify that all data sets mentioned in COPT&dbid member have been generated.

**Thread history parameters**

New PARMGEN parameters have been added, and existing parameters have new defaults or have been updated, for use with thread history. See the Parameter Reference for further information.

**Setting new PARMGEN parameters**

**About this task**

You can change the new PARMGEN parameters, then refresh the profile so your new settings take effect. Follow these steps to make changes:

**Procedure**

1. Log into PARMGEN.
2. Create a new runtime environment.
3. Check the profile to make sure these parameters are set to their default values, as indicated:
   - KD2_PFnn_HIS_VSAM_SU = MB
   - KD2_PFnn_HIS_VSAM_MB = 900
   - KD2_PFnn_HIS_ACCTG_CLASS = 1
   - KD2_PFnn_THRDHIS_DYN_SQL = N
   - KD2_PF_HIS_LOCK_CNTN = N
4. Verify that KD2_PFnn_HIS_START is set to Y.
5. Run the PARMGEN SPARSE and SUBMIT steps. Note that the SUBMIT step may fail if there is insufficient free space. SUBMIT will try to allocate VSAM data sets of 900 MB each.
6. Verify that all VSAM data sets mentioned in the COPTxxxx member are generated and that they have the length you specified. If the SUBMIT job failed, verify that the **. WKD2SAM (ALLOCDS) member, which is used for dataset allocation, has 900 MB.

**Saving disk space if thread history is not in use**

If you don’t need thread history, there are several ways you can save disk resources by disabling collection and storage of unnecessary data.

**About this task**

You can disable near term history data collection, sequential data collection, or Enhanced 3270UI thread history collection to save disk space.

By default, the thread history parameter (KD2_PFnn_HIS_STORE) is set to N. In such a case, the WRITEOPTION parameter is set to NONE and no data sets are allocated. If you change KD2_PFnn_HIS_STORE to Y, the WRITEOPTION parameter is set to VSAM, SEQ, THVSAM, or any combination of these, based on the value of the KD2_PFnn_HIS_START parameter. Corresponding data sets will be allocated as well.

**Note:** These space-saving steps will work only for new runtime environments (RTEs), as PARMGEN does not delete any thread history data sets allocated earlier.

If you are a new PARMGEN user, see Implementation scenarios in the OMEGAMON shared publications. This will explain how to use PARMGEN to configure OMEGAMON for DB2. The steps that follow assume that you have some knowledge of PARMGEN.

**Procedure**

1. Log into PARMGEN.
2. Create a new runtime environment (RTE).
3. Set the KD2_PFnn_HIS_STORE parameter to, for example, THVSAM.
4. Set the KD2_PFnn_HIS_START parameter to Y.
5. Update dependent parameters: data set number, since you selected the THVSAM option.
6. Run the $PARSE and SUBMIT steps in PARMGEN. The jobs that need to be run will depend on your SMP/E maintenance and upgrade scenario. For example, you may just need to run the KCIJPW2R job, or you may need to run allocation jobs such as ALLOCDS, TCRV&dbid, and HCRV&dbid. Consult the IBM Knowledge Center topic SMP/E maintenance and upgrade scenarios for more information.
7. Verify that the COPT&dbid file has been generated correctly.
8. Verify that all data sets mentioned in the COPT&dbid member have been generated.

**Thread history parameters example**

This code sample shows the thread history parameters fully configured.

**Thread history parameters**

```
* *******************************************************************
* OMEGAMON for DB2 PE Thread history data collector options for
* Classic & OMEGAMON enhanced 3270 user interface (TOM) thread history
* Notes:
```
1. OMEGAMON enhanced 3270UI thread history applies to V5.3.0 and higher versions only.

Your OMEGAMON for DB2 PE/PM version installed is:
- FMID HKDB530

2. COPTDBA9 NTH collector options only apply if the NTH enablement flag is set (KD2_PFnn_HIS_START = "Y")

Your NTH enablement flag is set to:
- KD2_PF01_HIS_START = "Y"

*******************************************************************
DB2SYS(DBA9)

For both OMEGAMON enhanced 3270UI and Classic NTH options:
* Note: WRITEOPTION(VSAM,SEQ,THVSAM) options (or a variation of any of these NTH storage options) are generated based on your KD2_PF01_HIS_STORE setting. If KD2_PF01_HIS_START = "N" (NTH collection is not enabled), WRITEOPTION defaults to WRITEOPTION(NONE)

THRDLOG(7)
THRDDATASET(
D01OMPE.VTS5815.DBA9.RKTH*
)
THRDDATASET(
D01OMPE.VTS5815.DBA9.RKTH*
)
THRDDATASET(
D01OMPE.VTS5815.DBA9.RKTH*
)
THRDDATASET(
D01OMPE.VTS5815.DBA9.RKTH*
)

* For both OMEGAMON enhanced 3270UI and Classic NTH options:
- ACCTG(1 2 3 7 8 10)
- +AUTH()
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MEMBER: KD2$PCOP

Purpose:

WCONFIG(KD2$PCOP) to identify additional H2DATASET() in WKD2PAR(COPT&dbid) OMEGAMON for DB2 Classic NTH history.

Instructions:

1. Add your additional H2DATASET() VSAM entries
   - D01OMPE.VTS5815.QA530.DBA9.RKD2VSnn
     (where nn = 08..60)
   - if you need more than 7 VSAMs as specified in the PARMGEN LPAR
   - RTE WCONFIG(QA530) profile's "KD2_PF01_HIS_Logn" parameter.
   - Note: Do not modify "DBA9" as this imbed will be used for each
     DB2-specific COPT&dbid NTH collector options member.

2. To allocate the additional RKD2VSnn VSAMs, use the tailored
   HCRV&dbid standalone RKD2VSnn allocation job in the
   RTE's RKD2SM dataset.

USER SECTION: IMBED FOR MEMBER WKD2PRF(COPT&dbid)

-----------------
BEGIN - USER SECTION: OVERRIDE -----------------
*D01OMPE.VTS5815.QA530.DBA9.RKD2VS08
*D01OMPE.VTS5815.QA530.DBA9.RKD2VS60

-----------------
END - USER SECTION: OVERRIDE ----------------

SEQDATASET(
  D01OMPE.VTS5815.QA530.TESTS(+1)
)
SPACE(CYL,10,2)

Adding Thread History Datasets

This topic discusses thread history datasets in OMEGAMON for Db2 on z/OS Performance Expert (OMPE) and explains how you can increase the number of datasets. The key is that you must restart the OMPE collector in order for new datasets to be recognized.

When you run OMPE with system substitution variables, a KCIPARSE step will run the next time OMPE starts. If you make changes to the permanent RKD2PAR file, the changes are not picked up until the next time KCIPARSE is run, which will happen when you start the OMPE collector.

The KCIPARSE step creates temporary files that are copies of the runtime files, but with substitutions made. The RKD2PAR file located where the COPT members are is copied to a temporary dataset. OMPE then runs from that temporary file; for example:

//KAND2PU DD DISP=SHR,
//DSN=&USERD2PU
//TMPD2PU DD DISP=(,PASS),DSN=&TMPD2PU,DSNTRY=(LIBRARY,1),
//UNIT=SYSDA,SPACE=(CYL,(5,5,440)),
//DCB=(RECFM=FB,LRECL=80,BLKSIZE=8880)

These startup messages show the RKD2PAR file as a temporary file:

K02Z056I OM02 V540 01-RKANPAR VOL=WKP100 DSN=SYS18283.T192035.RA000.OMPEPK3S.TMPPARU.H04
K02Z056I OM02 V540 02-RKANPAR VOL=WKP104 DSN=SYS18283.T192035.RA000.OMPEPK3S.TMPPARU.H04

IBM Db2 Performance Expert on z/OS
If you change the permanent RKD2P AR file, the change is not recognized until the next time KCIPARSE is run, when OMPE starts.

The only way to avoid this behavior is not to perform system variable substitution for the RKD2PAR dataset. In the OMPE Startup JCL, the following DSN names would have to be changed to the original names (not the temporary names):

```
//RKANPAR DD DISP=(OLD,PASS),
//DSN=*.KCIPARSE.TMPPARU
//DD DISP=(OLD,PASS),
//DSN=*.KCIPARSE.TMPD2PU
```

**Accessing information about buffer pool performance**

You can review buffer pool information (such as getpages and buffer pool hit ratios), to evaluate how well a thread is performing and to determine if excessive I/O is being consumed for a thread.

### About this task

**Note:** You can access information about buffer pool performance from either Db2 Active Threads or Thread History.

### Procedure

1. To access information about buffer pool performance from Db2 Active Threads:
   a. From the OMEGAMON main menu, select the **DB2** tab (KOBSDB2).
   b. In the entry field next to the appropriate Db2 subsystem, type **T** to access Db2 Active Threads panel (KDPTHD52).
   c. In the entry field next to the appropriate active thread:
      - Type **8** and press enter to access the Db2 Thread Detail Buffer Pool panel (KDPTHDBP). In the **Buffer Pools** section, type **S** next to the buffer pool of interest to access the DB2 Thread Detail Buffer Pool panel (KDPTHDBD).
      - Type **6** and press enter to access the Db2 Thread Detail Group Buffer Pool panel (KDPTHGBP). In the **Group Buffer Pools** section, type **S** next to the buffer pool of interest to access the DB2 Thread Detail Group Buffer Pool panel (KDPTHGBD).

2. To access information about buffer pool performance from Thread History:
   a. From the OMEGAMON main menu, select the **DB2** tab (KOBSDB2).
   b. In the entry field next to the appropriate DB2 subsystem, type **R**.
   c. On the Thread History Timespan Selection panel (KDPHFL1), specify the appropriate selection criteria and click **OK**.
   d. On the Thread History Summary panel (KDPHISTL) panel:
      - Type **B** and press enter to access the **DB2 Thread History Detail Buffer Pools > BP** tab (KDPHBP). In the **Buffer Pools** section, type **S** next to the buffer pool of interest to access the DB2 Thread History Detail Buffer Pool panel (KDPHBPD).
      - Type **G** and press enter to access the **DB2 Thread History Detail Buffer Pools > GBP** tab (KDPHGBP). In the **Group Buffer Pools** section, type **S** next to the buffer pool of interest to access the DB2 Thread History Detail Buffer Pool panel (KDPHGBPD).

### User interface icons and PF keys

Reference of PF keys and icons.
Icons

The enhanced 3270UI displays many different “icons” that perform various functions. Icons are typically displayed in reverse video white, which indicates an action occurs when you place your cursor on the icon and press Enter (or double-click if your emulator is configured to do so).

Table 126. Subpanel manipulation icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>∨</td>
<td>Collapse</td>
<td>Displays the header of the subpanel and no data</td>
</tr>
<tr>
<td>&gt;</td>
<td>Expand</td>
<td>Displays the entire subpanel with data</td>
</tr>
<tr>
<td>_</td>
<td>Minimize</td>
<td>Places the subpanel into the workspace footer</td>
</tr>
<tr>
<td></td>
<td>Maximize</td>
<td>Causes the subpanel to occupy the full screen</td>
</tr>
<tr>
<td></td>
<td>Normalize</td>
<td>Causes the subpanel to return from maximum size to normal size</td>
</tr>
<tr>
<td></td>
<td>Close</td>
<td>Removes the subpanel from the workspace</td>
</tr>
<tr>
<td>↑</td>
<td>Left arrow</td>
<td>Scrolls data to the left</td>
</tr>
<tr>
<td>→</td>
<td>Right arrow</td>
<td>Scrolls data to the right</td>
</tr>
<tr>
<td>↑</td>
<td>Up arrow</td>
<td>Scrolls data up</td>
</tr>
<tr>
<td>↓</td>
<td>Down arrow</td>
<td>Scrolls data down</td>
</tr>
<tr>
<td>▼▲</td>
<td>Sort</td>
<td>Denotes a column is sortable ascending/descending</td>
</tr>
<tr>
<td>◊</td>
<td>Static</td>
<td>Denotes a column is laterally non-scrollable</td>
</tr>
</tbody>
</table>

Table 127. Workspace operation icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MORE</td>
<td>More</td>
<td>Indicates that more subpanels exist above or below.</td>
</tr>
<tr>
<td>CANCEL</td>
<td>Cancel</td>
<td>Exits current workspace/popup without changes.</td>
</tr>
<tr>
<td>OK</td>
<td>OK</td>
<td>Confirms a change, effective for current session only.</td>
</tr>
<tr>
<td>SAVE</td>
<td>Save</td>
<td>Saves a change, persisted across session logoff/logon.</td>
</tr>
<tr>
<td>EXIT</td>
<td>Exit</td>
<td>Confirms you would like to proceed to the next panel.</td>
</tr>
</tbody>
</table>
Table 128. Application navigation icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>«</td>
<td>Open drawer</td>
<td>Reveals the Application Navigation Drawer, which displays more icons that you can use to navigate or display administrative workspaces</td>
</tr>
<tr>
<td>»</td>
<td>Close drawer</td>
<td>Closes the Application Navigation Drawer</td>
</tr>
<tr>
<td>HUB</td>
<td>Hub</td>
<td>Goes to the Hub Connectivity Administration workspace</td>
</tr>
<tr>
<td>RTE</td>
<td>RTE</td>
<td>Goes to the Runtime Environment workspace</td>
</tr>
<tr>
<td>NAV</td>
<td>Navigate</td>
<td>Opens a product navigation area in the footer area. The icons that you see represent OMEGAMON products that are installed and available to be invoked.</td>
</tr>
</tbody>
</table>

PF keys

The following Standard PF keys are defined.

Note: PF keys are not customizable.

Table 129. PF keys

<table>
<thead>
<tr>
<th>PF key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PF1</td>
<td>Provides help for column headings.</td>
</tr>
<tr>
<td>PF2</td>
<td>Reserved for future use.</td>
</tr>
<tr>
<td>PF3</td>
<td>Returns you to a previous workspace, or exits a popup.</td>
</tr>
<tr>
<td>PF4</td>
<td>Displays a list of filters for a workspace, if defined.</td>
</tr>
<tr>
<td>PF5</td>
<td>Find string in a PDS member.</td>
</tr>
<tr>
<td>PF6</td>
<td>Reserved for future use.</td>
</tr>
<tr>
<td>PF7</td>
<td>Scrolls a workspace or subpanel up.</td>
</tr>
<tr>
<td>PF8</td>
<td>Scrolls a workspace or subpanel down.</td>
</tr>
<tr>
<td>PF9</td>
<td>Displays the Product Navigation Array.</td>
</tr>
<tr>
<td>PF10</td>
<td>Scrolls a workspace or subpanel left.</td>
</tr>
<tr>
<td>PF11</td>
<td>Scrolls a workspace or subpanel right.</td>
</tr>
<tr>
<td>PF12</td>
<td>Retrieves previously entered command(s).</td>
</tr>
</tbody>
</table>

Associating a mouse click with the Enter key

If your emulator supports the option to associate a mouse click with the Enter key, you can use this feature to "double-click" where you normally "click and press Enter." Consult your emulator's documentation for details about how to enable this feature.

Enabling historical data collection in enhanced 3270UI

The enhanced 3270UI is designed for investigation of current problems or those that have occurred in the recent past.
Therefore, near-term history data can be displayed in the enhanced 3270UI workspaces. The Near-term history supports DB2 statistics, DSNZPARM, DB2 critical messages, DB2 connect server and object analysis.

Each workspace consists of one or multiple attribute groups. The history collection for the corresponding attribute groups must be started in order to see the history data in a workspace. Attribute groups that you need to enable historical collection for the workspaces are in Table 130 and Table 131.

Table 130. Workspace and attribute group cross reference for history collection for DB2 Subsystems.

For example, if you want to view the Group Buffer Pools history, you must start history collection for attribute group DB2 Group Coupling Facility, and DSG_GBP_Pool. Later, if you also want to see Global Buffer Pools history, then you start history collection for attribute group DSG_GBP_CF_Status.

<table>
<thead>
<tr>
<th>Workspace</th>
<th>Attribute group</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2 Main Screen</td>
<td>DB2 Group Coupling Facility</td>
</tr>
<tr>
<td>All Active DB2 Data Sharing Groups</td>
<td></td>
</tr>
<tr>
<td>Group Buffer Pools</td>
<td>DSG_GBP_Pool</td>
</tr>
<tr>
<td>Global Buffer Pools</td>
<td>DSG_GBP_CF_Status</td>
</tr>
<tr>
<td>Coupling Facility Details</td>
<td>DB2 Group Coupling Facility</td>
</tr>
<tr>
<td>Group Object Analysis</td>
<td>Group Object Analysis</td>
</tr>
<tr>
<td>Group Object Spacename</td>
<td>Group Object Spacename</td>
</tr>
<tr>
<td>Group Object Analysis Volume</td>
<td>GOA Volume Summary</td>
</tr>
<tr>
<td>Group Object Analysis Database Activity</td>
<td>GOA Volume Database Summary</td>
</tr>
<tr>
<td>DSG DSNZPARMs</td>
<td>DSG DSNZPARMs</td>
</tr>
<tr>
<td>DSG SQL Counts</td>
<td>DSG SQL Count</td>
</tr>
</tbody>
</table>

Table 131. Workspace and attribute group cross reference for history collection for DB2 Subsystems.

For example, if you want to see Subsystem Management history, you must start history collection for attribute group DB2 System Status, DB2 SRM Subsystem Statistics and DB2 SRM Subsystem. Later if you also want to see Group Buffer Pools history, then you start history collection for attribute group DB2 GBP Pool.

<table>
<thead>
<tr>
<th>Workspace</th>
<th>Attribute group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise summary</td>
<td>DB2 System Status</td>
</tr>
<tr>
<td>All Active DB2 Subsystems</td>
<td>DB2 System Status</td>
</tr>
<tr>
<td>DB2 Main Screen</td>
<td>DB2 System Status</td>
</tr>
<tr>
<td>Key Performance Indicators</td>
<td>DB2 System Status</td>
</tr>
<tr>
<td>DB2 Memory</td>
<td>DB2 System Status</td>
</tr>
<tr>
<td>DB2 Memory_DBM1_DIST</td>
<td>DB2 System Status</td>
</tr>
<tr>
<td>Subsystem Management</td>
<td>DB2 SRM Subsystem Statistics</td>
</tr>
<tr>
<td>Log Management</td>
<td>LOG Stats (DB2 Version 11)</td>
</tr>
<tr>
<td>EDM Pool</td>
<td>EDM Pool Statistics (DB2 Version 11)</td>
</tr>
<tr>
<td>Buffer Pools</td>
<td>EDM STATS (DB2 Version 11)</td>
</tr>
<tr>
<td></td>
<td>EDM Pool Statistics (DB2 Version 11)</td>
</tr>
<tr>
<td></td>
<td>EDM STATS (DB2 Version 11)</td>
</tr>
<tr>
<td></td>
<td>DB2 SRM BPM</td>
</tr>
<tr>
<td></td>
<td>DB2 SRM BPD</td>
</tr>
</tbody>
</table>
Table 131. Workspace and attribute group cross reference for history collection for DB2 Subsystems (continued).

For example, if you want to see Subsystem Management history, you must start history collection for attribute group **DB2 System Status, DB2 SRM Subsystem Statistics** and **DB2 SRM Subsystem**. Later if you also want to see Group Buffer Pools history, then you start history collection for attribute group **DB2 GBP Pool**.

<table>
<thead>
<tr>
<th>Workspace</th>
<th>Attribute group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Buffer Pools</td>
<td>DB2 GBP Pool</td>
</tr>
<tr>
<td>Global Buffer Pools</td>
<td>DB2 GBP CF Stats</td>
</tr>
<tr>
<td>DB2 Connect Server</td>
<td>DB2 CONNECT TASKLIST DB2 CONNECT PACKAGE</td>
</tr>
<tr>
<td>Storage Consumption</td>
<td>DB2 Memory DBM1 DIST DB2 Memory MVS Storage</td>
</tr>
<tr>
<td>DSNZPARMs</td>
<td>DB2 Parameters</td>
</tr>
<tr>
<td>System SQL Counts</td>
<td>Stat SQL Count SQL COUNTER</td>
</tr>
<tr>
<td>z/OS System Statistics</td>
<td>ZOS System Statistics</td>
</tr>
<tr>
<td>Accelerators</td>
<td>Accelerator Statistics</td>
</tr>
<tr>
<td>DB2 Message</td>
<td>DB2 Message</td>
</tr>
</tbody>
</table>

Reference list of workspace names and descriptions

The following table lists the OMEGAMON XE for DB2 on z/OS workspaces that are displayed in the enhanced 3270UI in alphabetical order.

Table 132. Workspaces of the enhanced 3270UI

<table>
<thead>
<tr>
<th>Panel Identification (ID)</th>
<th>Workspace Name</th>
<th>Workspace Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOBSTART</td>
<td>All Active DB2 Subsystems</td>
<td>A list of the DB2 subsystems that are active in your enterprise system. It shows the general state and health of the active DB2 subsystems. This is the starting point for troubleshooting.</td>
</tr>
<tr>
<td>KDPACCN</td>
<td>Accelerator Selection</td>
<td>Accelerator statistics for all configured accelerators. See <a href="#">&quot;Zoom-in from Accelerators (KDPACCN)&quot; on page 1751</a>.</td>
</tr>
<tr>
<td>KDPACC41</td>
<td>Accelerator Statistics for a Selected Accelerator</td>
<td>Accelerator statistics for a selected accelerator.</td>
</tr>
<tr>
<td>KDPACC42</td>
<td>Accelerator Statistics for a Selected DB2</td>
<td>Accelerator statistics for a selected DB2.</td>
</tr>
<tr>
<td>KDBPBDTDL</td>
<td>Buffer Pool Detail</td>
<td>The size and the usage of an individual DB2 buffer pool.</td>
</tr>
<tr>
<td>KDPBP52</td>
<td>Buffer Pools</td>
<td>A summary of the buffer pools that are configured and are in use for a DB2 subsystem. A drill down to buffer pool details is available. See <a href="#">&quot;Navigating from BP (Buffer Pools KDPBP52)&quot; on page 1750</a>.</td>
</tr>
<tr>
<td>KDBPBD52</td>
<td>Buffer Pool Details</td>
<td>The size and the usage of an individual DB2 buffer pool.</td>
</tr>
<tr>
<td>KDBPOOL</td>
<td>DB2 Buffer Pools</td>
<td>A list of active group buffer pools.</td>
</tr>
<tr>
<td>KDPCICS</td>
<td>DB2 CICS Connections</td>
<td>An overview of DB2 thread activity that is originating from connected CICS subsystems. Information about the CICS regions that are attached to DB2.</td>
</tr>
<tr>
<td>KDPCICST</td>
<td>CICS RCT Summary for Region</td>
<td>The CICS/DB2 Resource Control Table. This table shows the DB2 plan that is used for each CICS transaction.</td>
</tr>
</tbody>
</table>
Table 132. Workspaces of the enhanced 3270UI (continued)

<table>
<thead>
<tr>
<th>Panel Identification (ID)</th>
<th>Workspace Name</th>
<th>Workspace Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>KDPCICTH</td>
<td>CICS Threads</td>
<td>Provides an overview of DB2 thread activity that originate from connected CICS regions. It provides key performance data such as CPU rate, in-DB2 time, wait time, DB2 status, getpage, commits and updates that help you to spot any potential problem.</td>
</tr>
<tr>
<td>KDPCICT1</td>
<td>CICS Thread Summary</td>
<td>CICS threads summary for a target CICS region.</td>
</tr>
<tr>
<td>KDPCONN</td>
<td>DB2 Connect Server</td>
<td>Key information about the active and the inactive DB2 Connect gateways.</td>
</tr>
<tr>
<td>KDPCONNS</td>
<td>DB2 Connect/Gateway Statistics</td>
<td>Statistics about the selected DB2 Connect gateway including details about the number of agents and pooled agents, the connections that are waiting for the host to reply, and the connections that are waiting for the client to send a request.</td>
</tr>
<tr>
<td>KDPDDBZ</td>
<td>Navigation options popup</td>
<td></td>
</tr>
<tr>
<td>KDPCKG</td>
<td>Package Statistics</td>
<td>Provides information about the size of the data exchanged between the DB2 Connect gateway and the host database and about the network time required. It enables you to measure the throughput between the host database and the DB2 Connect gateway and gives you a better idea of the database activity and network traffic at the application level.</td>
</tr>
<tr>
<td>KDPCEPERF</td>
<td>DB2 Connect Performance</td>
<td>Displays the information obtained by running a sample SQL statement between the DB2 Connect gateway and the host database. It enables you to detect any bottlenecks.</td>
</tr>
<tr>
<td>KDPCTASK</td>
<td>DB2 Connect Tasks List</td>
<td>Statistics about the processes at the selected DB2 Connect gateway, for example, the CPU and the working set. Use the information to determine whether the DB2 Connect gateway is overloaded by DB2 Connect or any other allocation application.</td>
</tr>
<tr>
<td>KDPDSQLF</td>
<td>DB2 Dynamic SQL Cache Filter Options</td>
<td>Filter options to manage the data returned from the Dynamic SQL cache especially when many rows are returned. The default filter option settings display the first 100 statements in descending order of the accumulated CPU time.</td>
</tr>
<tr>
<td>KDPDYNST</td>
<td>Statistics</td>
<td>Displays the statistics for a statement in the Dynamic SQL cache.</td>
</tr>
<tr>
<td>KDPDYNST</td>
<td>SQL Text</td>
<td>Displays the SQL text of statements in the Dynamic SQL cache.</td>
</tr>
<tr>
<td>KDPEDMA</td>
<td>DB2 Environmental Descriptor Manager (EDM) Pool (DB2 10)</td>
<td>An overview of the Environmental Descriptor Manager (EDM) pool activity that is connected with DB2. The layout of the workspace depends on the DB2 version that is installed. The panel KDPEDMA applies to DB2 10.</td>
</tr>
<tr>
<td>KDPEDMB</td>
<td>DB2 Environmental Descriptor Manager (EDM) Pool (DB2 11)</td>
<td>An overview of the Environmental Descriptor Manager (EDM) pool activity that is connected with DB2. The layout of the workspace depends on the DB2 version that is installed. The panel KDPEDMB applies to DB2 11.</td>
</tr>
<tr>
<td>KDPEDM2A</td>
<td>DB2 Environmental Descriptor Manager (EDM) Pool</td>
<td>An overview of the Environmental Descriptor Manager (EDM) pool activity that is connected with DB2.</td>
</tr>
<tr>
<td>KDPGBPDT</td>
<td>DB2 Global Buffer Pool Detail</td>
<td>Details about a specific global buffer pool for a member of a data sharing group.</td>
</tr>
<tr>
<td>Panel Identification (ID)</td>
<td>Workspace Name</td>
<td>Workspace Content</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>KDPGBPLK</td>
<td>DB2 Group Buffer Pool P-Lock</td>
<td>The P-Lock information for a group buffer pool.</td>
</tr>
<tr>
<td>KDPGBPOL</td>
<td>Global Buffer Pool Summary</td>
<td>A summary of active group buffer pools for this member of the data sharing group.</td>
</tr>
<tr>
<td>KDPGBPPF</td>
<td>Group Buffer Pool Prefetch Castout</td>
<td>Prefetch information and castout information about a group buffer pool.</td>
</tr>
<tr>
<td>KDPGBPSC</td>
<td>Group Buffer Pool Secondary GBP</td>
<td>The DB2 Group Buffer Pool secondary information.</td>
</tr>
<tr>
<td>KDPGBPSY</td>
<td>Group Buffer Pool Sync and GBP write</td>
<td>Sync reads, writes and the hit ratio of a group buffer pool.</td>
</tr>
<tr>
<td>KDPGLKGN</td>
<td>Data Sharing Group Lock Conflicts</td>
<td>The lock conflicts that exist in a data sharing group. See “L Group Lock Conflicts (KDPGLKGN)” on page 1734.</td>
</tr>
<tr>
<td>KDPGOA</td>
<td>Group Object Analysis</td>
<td>A global view of object allocation data for a specific data sharing group. See “O Group Object Analysis (KDPGOA)” on page 1737.</td>
</tr>
<tr>
<td>KDPGOAS</td>
<td>DB2 Group Object Analysis Database Spacename</td>
<td>The table spaces within a database. With this information, you can do an analysis of a group object.</td>
</tr>
<tr>
<td>KDPGOATD</td>
<td>DB2 Group Object Analysis Thread Database</td>
<td>Object Analysis database use by thread for a data sharing group. See “P Group Object Analysis Thread Database (KDPGOATD)” on page 1733.</td>
</tr>
<tr>
<td>KDPGOATS</td>
<td>Group Object Analysis Database Activity</td>
<td>A high-level analysis of getpage and I/O activity from a DB2 database perspective. See “D Group Object Analysis Database Activity (KDPGOATS)” on page 1736.</td>
</tr>
<tr>
<td>KDPGOAT2</td>
<td>Group Object Activity by Tablespace</td>
<td>Information about the activity of a group object by table space. With this information, you can do a more detailed analysis of the activities for a DB2 tablespace.</td>
</tr>
<tr>
<td>KDPGPOOL</td>
<td>Group Buffer Pool Summary</td>
<td>A list of active group buffer pools. A drill down for more details is also available.</td>
</tr>
<tr>
<td>KDPGSPAC</td>
<td>Group Object Analysis Spacename</td>
<td>Provides information about the activity of DB2 databases and DB2 tablespaces. With this information, you can do a more detailed analysis of the activities for a DB2 databases and DB2 tablespaces.</td>
</tr>
<tr>
<td>KDPGSPAD</td>
<td>Group Object Analysis Spacename Detail</td>
<td>The Group Object Analysis tablespace detail workspace.</td>
</tr>
<tr>
<td>KDPGVDB</td>
<td>Group Object Volume Database</td>
<td>Displays information you can use to analyze I/O activity for a single volume in a DB2 database. Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.</td>
</tr>
<tr>
<td>KDPGVOL</td>
<td>Volume Activity</td>
<td>An overview of the performance of the volumes that contain DB2 objects. See “Q Group Object Analysis Volume (KDPGVOL)” on page 1737. With this information, you can evaluate DASD performance by volume.</td>
</tr>
<tr>
<td>KDPGVOLD</td>
<td>Volume Detail Activity</td>
<td>A detail view of the performance of volumes that contain DB2 objects. With this information, you can evaluate DASD performance.</td>
</tr>
<tr>
<td>KDPGVOLT</td>
<td>Volume Thread</td>
<td>The volume activity by thread workspace. See “V Group Object Analysis Volume Thread (KDPGVOLT)” on page 1733.</td>
</tr>
<tr>
<td>Panel Identification (ID)</td>
<td>Workspace Name</td>
<td>Workspace Content</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------------------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>KDPGVOL2</td>
<td>DB2 Group Object Analysis Volume Thread</td>
<td>The thread activity by volume workspace.</td>
</tr>
<tr>
<td>KDPIMS</td>
<td>IMS Connections</td>
<td>An overview of DB2 thread activity that is originating from connected IMS subsystems.</td>
</tr>
<tr>
<td>KDPIMSRG</td>
<td>IMS Region Information</td>
<td>Detailed status information for a specific IMS dependent region.</td>
</tr>
<tr>
<td>KDPKPI1</td>
<td>Key Performance Indicators</td>
<td>A summary of thread related Key Performance Indicators for a DB2 subsystem. It includes connections, transactions and locking Key Performance Indicators, which can help you quickly identify and resolve any performance issues. (Version 5.3.0 and higher).</td>
</tr>
<tr>
<td>KDPKPI2</td>
<td>Pools and Storage Key Performance Indicators</td>
<td>A summary of pool and storage related Key Performance Indicators for a DB2 subsystem. It includes DB2 pools, storage, buffer pools, sorting and group buffer pools Key Performance Indicators, which can help you quickly identify and resolve any performance issues. (Version 5.3.0 and higher).</td>
</tr>
<tr>
<td>KDPKPI3</td>
<td>Miscellaneous Key Performance Indicators</td>
<td>Miscellaneous Key Performance Indicators for a DB2 subsystem. It includes monitoring, logging, stored procedures, user defined functions and query parallelism Key Performance Indicators, which can help you quickly identify and resolve any performance issues. (Version 5.3.0 and higher).</td>
</tr>
<tr>
<td>KDPKPI4</td>
<td>System States</td>
<td>Key DB2 system and thread related performance data. This data includes thread, stored procedures, user defined functions, triggers, locks, and open datasets, which can help you quickly identify and resolve any performance issues.</td>
</tr>
<tr>
<td>KDPLKC2</td>
<td>Locking Conflicts</td>
<td>Displays the lock conflicts that exist for a DB2 subsystem.</td>
</tr>
<tr>
<td>KDPLOCKS</td>
<td>Lock Conflicts</td>
<td>An overview of the DB2 database lock conflicts.</td>
</tr>
<tr>
<td>KDPLOGSB</td>
<td>Log Manager</td>
<td>An overview of the DB2 log manager active logging and archiving activity.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>This workspace applies to DB2 11.</td>
</tr>
<tr>
<td>KDPLOGSM</td>
<td>Log Manager</td>
<td>An overview of the DB2 log manager active logging and archiving activity.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>This workspace applies to DB2 10.</td>
</tr>
<tr>
<td>KDPLOGS9</td>
<td>Log Manager</td>
<td>An overview of the DB2 log manager active logging and archiving activity.</td>
</tr>
<tr>
<td>KDPMSGC</td>
<td>Critical DB2 Messages</td>
<td>Displays messages that can help you identify problems with your DB2 system.</td>
</tr>
<tr>
<td>KDPMSGH</td>
<td>History DB2 Messages</td>
<td>Display historical DB2 messages that can help you diagnose performance problems in the past.</td>
</tr>
<tr>
<td>KDPMSGS</td>
<td>Critical DB2 Messages by Message ID</td>
<td>Critical DB2 messages sorted by message identification number.</td>
</tr>
<tr>
<td>KDPPGBPC</td>
<td>DB2 Group Buffer Pool Secondary Buffer Pools Group level</td>
<td>The DB2 Group Buffer Pool secondary information for all members of a data sharing group.</td>
</tr>
<tr>
<td>KDPPGBPD</td>
<td>DB2 Global Buffer Pool Detail</td>
<td>Group buffer pool detail for all members of a data sharing group.</td>
</tr>
<tr>
<td>KDPPGPLL</td>
<td>Global Buffer Pools</td>
<td>A summary of all group buffer pools for all members of a data sharing group. See &quot;Global and Group Buffer Pools (KDPPGPLL)&quot; on page 1739.</td>
</tr>
<tr>
<td>Panel Identification (ID)</td>
<td>Workspace Name</td>
<td>Workspace Content</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>KDPPGBPL</td>
<td>DB2 Group Buffer Pool P-Lock</td>
<td>The P-Lock information for a group buffer pool for all members of a data sharing group.</td>
</tr>
<tr>
<td>KDPPGBPO</td>
<td>DB2 Global Buffer Pools Summary</td>
<td>The global buffer pools for all members of a data sharing group. See “Zoom-in from KDPPGBPO” on page 1740.</td>
</tr>
<tr>
<td>KDPPGBPP</td>
<td>DB2 Group Buffer Pool Detail Castout</td>
<td>Prefetch information and castout information about a group buffer pool for all members of a data sharing group.</td>
</tr>
<tr>
<td>KDPPGBPS</td>
<td>DB2 group buffer Pool Sync and GBP write</td>
<td>Sync reads, writes and the hit ratio of a group buffer pool for all members of a data sharing group.</td>
</tr>
<tr>
<td>KDPPGPLL</td>
<td>DB2 Group Buffer Pool Statistics</td>
<td>A summary of all group buffer pools for all members of a data sharing group. See “S Global and Group Buffer Pools (KDPPGPLL)” on page 1739.</td>
</tr>
<tr>
<td>KDPPPLK</td>
<td>DB2 Thread Detail Locks Owned</td>
<td>The locks and claims that are owned by a thread that is linked from the data sharing group Lock Conflicts workspace.</td>
</tr>
<tr>
<td>KDPPSQLA</td>
<td>DB2 Group SQL Counts Use Committed</td>
<td>The system SQL counts for Use Committed for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPPSQLB</td>
<td>DB2 Group SQL Counts Workfiles</td>
<td>The system SQL counts for workfiles for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPPSQLD</td>
<td>DB2 Group SQL Counts Row ID Access</td>
<td>The system SQL counts for Row ID Access for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPPSQUEL</td>
<td>DB2 Group SQL Counts Miscellaneous</td>
<td>The system miscellaneous SQL counts for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPPSQL1</td>
<td>DB2 Group SQL Counts Data Manipulation Language (DML)</td>
<td>Displays the system SQL counts for a thread for each member of a data sharing group. See “F Group SQL Counts (KDPPSQL1)” on page 1738.</td>
</tr>
<tr>
<td>KDPPSQL2</td>
<td>DB2 Group SQL Counts Data Control Language (DCL)</td>
<td>The system SQL counts for the Data Control Language (DCL) for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPPSQL3</td>
<td>DB2 Group SQL Counts Data Definition Language (DDL)</td>
<td>The system SQL counts for the Data Definition Language (DDL) for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPPSQL4</td>
<td>DB2 Group SQL Counts Record Identifier (RID) List Processing</td>
<td>The system SQL counts for Record Identifier (RID) List Processing for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPPSQL5</td>
<td>DB2 Group SQL Counts Query Parallelism</td>
<td>The system SQL counts for query parallelism for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPPSQL6</td>
<td>DB2 Group SQL Counts for Stored Procedures, User Defined Functions and Triggers</td>
<td>The system SQL counts for Stored Procedures, User Defined Functions, and Triggers for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPPSQL7</td>
<td>DB2 Group SQL Counts for Prepares</td>
<td>The system SQL counts for Prepares for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPPSQL8</td>
<td>DB2 Group SQL Counts for Concentrate Literals</td>
<td>The system SQL counts for Concentrate Literals for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPTTHDS</td>
<td>Data Sharing Thread Statistics</td>
<td>Thread statistics for a specific application thread. If the application thread is a parallel thread, the table view displays thread statistics for all the associated parallel threads. With this information, you can investigate a thread that consumed excessive elapsed time.</td>
</tr>
<tr>
<td>Panel Identification (ID)</td>
<td>Workspace Name</td>
<td>Workspace Content</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>KDPPTHRD</td>
<td>Data Sharing Thread Activity</td>
<td>Provides a global view of thread activity for an entire data sharing group. With this information, you can identify all active application threads and track thread activity over a period of time. You can use the thread data to monitor critical application threads and to evaluate the thread elapsed times and the wait times for critical threads. You can also observe thread activity for threads within the same system, group, and member.</td>
</tr>
<tr>
<td>KDPPZAPP</td>
<td>DB2 Group DSNZPARAM Application Parameters</td>
<td>Parameters that are related to applications. These parameters are defined on the DB2 panels DSNTIPF, DSNTIP4, and DSNTIP1.</td>
</tr>
<tr>
<td>KDPPZARC</td>
<td>DB2 Group DSNZPARAM Archive Log Parameters</td>
<td>Parameters that are related to log archiving. These parameters are defined on the DB2 panels DSNTIPA and DSNTIPH.</td>
</tr>
<tr>
<td>KDPPZBP</td>
<td>DB2 Group DSNZPARAM Default Buffer Pool Parameters</td>
<td>Parameters that are related to the Default Buffer Pools. These parameters are defined on the DB2 panel DSNTIP1.</td>
</tr>
<tr>
<td>KDPPZCTL</td>
<td>DB2 Group DSNZPARAM Operator Functions Parameters</td>
<td>Parameters that are related to operator functions. These parameters are defined on the DB2 panels DSNTIPO, DSNTIPP, DSNTIPP1, DSNTIPR and DSNTIP5.</td>
</tr>
<tr>
<td>KDPPZDAT</td>
<td>DB2 Group DSNZPARAM Data Parameters</td>
<td>Parameters that are related to data. These parameters are defined on the DB2 panels DSNTIPA2, DSNTIPO3, and DSNTIPM.</td>
</tr>
<tr>
<td>KDPPZDDCS</td>
<td>DB2 Group DSNZPARAM Data Definition Control Parameters</td>
<td>Parameters that are related to data. These parameters are defined on the DB2 panel DSNTIPZ.</td>
</tr>
<tr>
<td>KDPPZDSG</td>
<td>DB2 Group DSNZPARAM Data Sharing Parameters</td>
<td>The parameters that are related to data sharing. These parameters are defined on the DB2 panel DSNTIPK.</td>
</tr>
<tr>
<td>KDPPZDSN</td>
<td>DB2 Group DSNZPARAM Dataset and Database Parameters</td>
<td>Parameters that are related to datasets and databases. These parameters are defined on DB2 panels DSNTIP7, DSNTIP71, DSNTIP91, and DSNTIPS.</td>
</tr>
<tr>
<td>KDPPZFND</td>
<td>Find DSNZPARAM Parameters</td>
<td>Parameters that are related to DSNZPARAM. With the information in this workspace, you can find DB2 parameters by field name or description for all members in a data sharing group.</td>
</tr>
<tr>
<td>KDPPZIRL</td>
<td>DB2 Group DSNZPARAM IRLM Parameters</td>
<td>Parameters that are related to IRLM. These parameters are defined on the DB2 panels DSNTIPI and DSNTIPJ.</td>
</tr>
<tr>
<td>KDPPZLOG</td>
<td>DB2 Group DSNZPARAM Active Log Parameters</td>
<td>Parameters that are related to the active log. These parameters are defined on the DB2 panel, DSNTIPL.</td>
</tr>
<tr>
<td>KDPPZOTH</td>
<td>DB2 Group DSNZPARAM Other Parameters</td>
<td>Miscellaneous parameters that are defined on the DB2 panels DSN6YSVP, DSN6LOGP, DSN6ARVP, DSN6PRM, DSN6FAC, and DSNHDECP.</td>
</tr>
<tr>
<td>KDPPZPF</td>
<td>DB2 Group DSNZPARAM Performance and Optimization</td>
<td>Parameters that are related to performance and optimization. These parameters are defined on the DB2 panels DSNTIP8, DSNTIP81, and DSNTIP82.</td>
</tr>
<tr>
<td>KDPPZPRM</td>
<td>DB2 Group All DSNZPARAM</td>
<td>Parameters that are related to DSNZPARAM.</td>
</tr>
<tr>
<td>KDPPZSP</td>
<td>DB2 Group DSNZPARAM Stored Procedure</td>
<td>DSNZPARAM parameters that are related to Stored Procedures. These parameters are defined on the DB2 panel DSNTIPX.</td>
</tr>
<tr>
<td>KDPPZSTG</td>
<td>DB2 Group DSNZPARAM Storage and sizes</td>
<td>DSNZPARAM parameters that are related to storage and sizes. These parameters are defined on the DB2 panels DSNTIPC and DSNTIPD.</td>
</tr>
<tr>
<td>Panel Identification (ID)</td>
<td>Workspace Name</td>
<td>Workspace Content</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>KDPPZSYS</td>
<td>DB2 Group DSNZPARM parameters</td>
<td>Displays information about DSNZPARM parameters that are related to thread management. See &quot;G DSNZPARMs (KDPPZSYS)&quot; on page 1735.</td>
</tr>
<tr>
<td>KDPPZTRC</td>
<td>DB2 Group DSNZPARM Trace</td>
<td>Parameters that are related to the trace. These parameters are defined on the DB2 panel, DSNTIPN.</td>
</tr>
<tr>
<td>KDPPZUTL</td>
<td>DB2 Group DSNZPARM Utility</td>
<td>DSNZPARM parameters that are related to utilities. These parameters are defined on DB2 the panels DSNTIP6, DSNTIP61, and DSNTIP62.</td>
</tr>
<tr>
<td>KDPSPAC</td>
<td>Group Object Analysis Space Name</td>
<td>Provides information about the activity of DB2 databases and DB2 tablespaces. With this information, you can do a more detailed analysis of the activities for a DB2 databases and DB2 tablespaces.</td>
</tr>
<tr>
<td>KDPSQLA</td>
<td>DB2 SQL Counts Use Committed</td>
<td>The system SQL counts for Use Committed for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPSQLB</td>
<td>DB2 SQL Counts Workfiles</td>
<td>The system SQL counts for workfiles for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPSQLD</td>
<td>DB2 SQL Counts Row ID Access</td>
<td>The system SQL counts for Row ID access for a DB2 subsystem.</td>
</tr>
<tr>
<td>KDPSQLE</td>
<td>DB2 SQL Counts Miscellaneous</td>
<td>The system miscellaneous SQL counts for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPSQL1</td>
<td>DB2 SQL Counts Data Manipulation Language (DML)</td>
<td>The SQL counts for the Data Manipulation Language (DML) for a DB2 subsystem. See &quot;Navigating from SQL Counts DML (KDPSQL1)&quot; on page 1750.</td>
</tr>
<tr>
<td>KDPSQL2</td>
<td>DB2 SQL Counts Data Control Language (DCL)</td>
<td>The system SQL counts for Data Control Language (DCL) for a DB2 subsystem.</td>
</tr>
<tr>
<td>KDPSQL3</td>
<td>DB2 SQL Counts Data Definition Language (DDL)</td>
<td>The system SQL counts for Data Definition Language (DDL) for a DB2 subsystem.</td>
</tr>
<tr>
<td>KDPSQL4</td>
<td>DB2 SQL Counts Record Identifier (RID) List Processing</td>
<td>The system SQL counts for Record Identifier (RID) List Processing for a DB2 subsystem.</td>
</tr>
<tr>
<td>KDPSQL5</td>
<td>DB2 SQL Counts Query Parallelism workspace</td>
<td>The system SQL counts for Query Parallelism for a DB2 subsystem.</td>
</tr>
<tr>
<td>KDPSQL6</td>
<td>DB2 SQL Counts for Stored Procedures, User Defined Functions and Triggers</td>
<td>The system SQL counts for Stored Procedures, User Defined Functions, and Triggers for a DB2 subsystem.</td>
</tr>
<tr>
<td>KDPSQL7</td>
<td>DB2 SQL Counts for Prepares</td>
<td>The system SQL counts for Prepares for a DB2 subsystem.</td>
</tr>
<tr>
<td>KDPSQL8</td>
<td>DB2 SQL Counts for Concentrate Literals</td>
<td>The system miscellaneous SQL counts for each member of a data sharing group.</td>
</tr>
<tr>
<td>KDPSSQLS</td>
<td>T Thread Detail SQL Text (KDPSSQLET)</td>
<td>A summary of the contents of the Static SQL cache so that you can determine their performance. See &quot;Zoom-in from T Thread Detail SQL Text (KDPSSQLET) (KDPSSQLS)&quot; on page 1751.</td>
</tr>
<tr>
<td>KDPSTART</td>
<td>DB2 Main</td>
<td>The active Data Sharing Groups and the active DB2 subsystems. From this workspace, you can drill down to any other screens.</td>
</tr>
<tr>
<td>KDPSTAST</td>
<td>Statistics</td>
<td>Displays the statistics for a statement in the Static SQL cache.</td>
</tr>
<tr>
<td>KDPSTATX</td>
<td>SQL Text</td>
<td>Displays the SQL text of statement in the Static SQL cache.</td>
</tr>
<tr>
<td>KDPSTA2A</td>
<td>MVS Storage above 2 GB</td>
<td>The MVS Storage Above 2 GB workspace provides an overview of MVS storage above the 2 GB bar. It shows information about storage allocation within the DBM1 and DIST address space.</td>
</tr>
<tr>
<td>Panel Identification (ID)</td>
<td>Workspace Name</td>
<td>Workspace Content</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>KDPSTC2A</td>
<td>Common storage below and above the 2 GB bar.</td>
<td>The Common Storage workspace provides an overview of the common storage above and below the 2 GB bar.</td>
</tr>
<tr>
<td>KDPSTOA2A</td>
<td>Storage Consumption DBM1 and MVS Storage Below 2 GB</td>
<td>The DB2 subsystem storage consumption for DBM1 Storage and MVS Storage below 2 GB. For DB2 10 or higher. Version 5.1.1.</td>
</tr>
<tr>
<td>KDPSTOA9</td>
<td>Storage Consumption DBM1 and MVS Storage Below 2 GB</td>
<td>The DB2 subsystem storage consumption for DBM1 and MVS Storage below 2 GB. Version 5.1.1.</td>
</tr>
<tr>
<td>KDPSTOBA</td>
<td>Storage Consumption Subsystem Shared Storage Above 2GB</td>
<td>The DB2 subsystem storage consumption for shared storage above 2 GB. For DB2 10 or higher. Version 5.2.0.</td>
</tr>
<tr>
<td>KDPSTOCA</td>
<td>Storage Consumption Common Storage Below and Above</td>
<td>The DB2 subsystem storage consumption for common storage below and above 2 GB. For DB2 10 or higher. Version 5.1.1</td>
</tr>
<tr>
<td>KDPSTOIB</td>
<td>Storage Consumption IRLM</td>
<td>The IRLM workspace provides an overview of DB2 IRLM storage allocation including HWM and thresholds. For DB2 11 or higher. Version 5.2.0.</td>
</tr>
<tr>
<td>KDPSTOLA</td>
<td>Storage Consumption LPAR</td>
<td>The LPAR workspace provides an overview of MVS LPAR shared storage above 2 GB. For DB2 10 or higher. Version 5.2.0.</td>
</tr>
<tr>
<td>KDPSTOM9</td>
<td>Storage Consumption Real and Auxiliary</td>
<td>The DB2 subsystem consumption in MB for real and auxiliary storage. Version 5.1.1.</td>
</tr>
<tr>
<td>KDPSTORA</td>
<td>Storage Consumption Storage Below 2 GB</td>
<td>The DB2 subsystem storage consumption for storage below 2 GB. For DB2 10 or higher. Version 5.1.1.</td>
</tr>
<tr>
<td>KDPSTOSA</td>
<td>Storage Consumption Shared Storage Above 2GB</td>
<td>The DB2 subsystem storage consumption for shared storage above 2 GB. For DB2 10 or higher. Version 5.1.1.</td>
</tr>
<tr>
<td>KDPSTOUA</td>
<td>Storage Consumption Real and Auxiliary Pages</td>
<td>The DB2 subsystem storage consumption for real and auxiliary pages. For DB2 10 or higher. Version 5.1.1.</td>
</tr>
<tr>
<td>KDPSTO2A</td>
<td>Storage Consumption</td>
<td>The DB2 subsystem storage consumption. See “Navigating from Storage (KDPSTO2A)” on page 1751</td>
</tr>
<tr>
<td>KDPSTO2B</td>
<td>Subsystem Shared Storage above 2 GB</td>
<td>The Subsy Shr workspace displays subsystem shared storage above 2 GB including real storage and auxiliary storage.</td>
</tr>
<tr>
<td>KDPSTS2A</td>
<td>Shared storage above 2 GB</td>
<td>The STMT workspace provides an overview of DB2 subsystem shared storage and shared variable storage above 2 GB.</td>
</tr>
<tr>
<td>KDPSTU2A</td>
<td>Real and auxiliary storage</td>
<td>The Real Aux workspace provides an overview of real and auxiliary storage allocation within DBM1 and DIST address space.</td>
</tr>
<tr>
<td>KDPSUBSM</td>
<td>System Resource Manager</td>
<td>An overview of workload related information about the DB2 subsystem that you are monitoring.</td>
</tr>
</tbody>
</table>
Table 132. Workspaces of the enhanced 3270UI (continued)

<table>
<thead>
<tr>
<th>Panel Identification (ID)</th>
<th>Workspace Name</th>
<th>Workspace Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>KDPTCANC</td>
<td>The Cancel Thread Pop-up</td>
<td>Provides an option to cancel a thread.</td>
</tr>
<tr>
<td>KDPTCAN2</td>
<td>Cancel Thread results</td>
<td>The results from the cancel thread command that was issued. Version 5.2.0.</td>
</tr>
<tr>
<td>KDPTHICIC</td>
<td>Thread CICS Connection</td>
<td>Display CICS connection information for a CICS thread.</td>
</tr>
<tr>
<td>KDPTHICIS</td>
<td>CICS</td>
<td>Displays a CICS thread summary.</td>
</tr>
<tr>
<td>KDPTHDA2</td>
<td>Thread Detail Accounting Class 1 and 2</td>
<td>The accounting classes 1 and 2 for a selected thread.</td>
</tr>
<tr>
<td>KDPTHDD2</td>
<td>Thread Detail Distributed</td>
<td>Information about the VTAM APPC conversations and TCP/IP conversations of a DDF thread.</td>
</tr>
<tr>
<td>KDPTHDE2</td>
<td>Thread Enclave Detail</td>
<td>Detailed information about the workload manager (WLM) enclave service periods.</td>
</tr>
<tr>
<td>KDPTHD52</td>
<td>Active Threads</td>
<td>A global view of thread activity for a specific DB2 subsystem. It provides key performance data such as CPU rate, in-DB2 time, wait time, DB2 status, getpage, commits and updates that help you to identify any potential problem.</td>
</tr>
<tr>
<td>KDPTHRD</td>
<td>Thread Summary</td>
<td>A global view of thread activity for a specific DB2 subsystem. You can sort differently by changing the Sort field.</td>
</tr>
<tr>
<td>KDPTHRDA</td>
<td>Thread Detail Accounting Class 1 and 2</td>
<td>The accounting classes 1 and 2 for a selected thread. Version 5.1.1.</td>
</tr>
<tr>
<td>KDPTHRDC</td>
<td>Thread Detail Accelerator</td>
<td>Information about accelerator metrics for an active thread.</td>
</tr>
<tr>
<td>KDPTHRDD</td>
<td>Distributed Thread Detail</td>
<td>Information about the VTAM APPC conversations and TCP/IP conversations of a DDF thread. Version 5.1.1.</td>
</tr>
<tr>
<td>KDPTHRDE</td>
<td>Thread Enclave Detail</td>
<td>Detailed information about the workload manager (WLM) enclave service periods. Version 5.1.1.</td>
</tr>
<tr>
<td>KDPTHRLD</td>
<td>Thread Locks Owned</td>
<td>Detailed information about the locks and the claims that are owned by an individual thread.</td>
</tr>
<tr>
<td>KDPTHRDN</td>
<td>Thread Detail Long Names</td>
<td>The long names (identification fields) that are associated with a specific thread.</td>
</tr>
<tr>
<td>KDPTHRD3</td>
<td>Thread Detail Accounting Class 3 Wait Times</td>
<td>The accounting class 3 wait times for a selected thread.</td>
</tr>
<tr>
<td>KDPTSQLD</td>
<td>Thread SQL Counts Row ID Access</td>
<td>The SQL counts for row ID access for a thread. Version 5.2.0.</td>
</tr>
<tr>
<td>KDPTSQLE</td>
<td>Thread SQL Counts Miscellaneous</td>
<td>The miscellaneous SQL counts for a thread. Version 5.2.0.</td>
</tr>
<tr>
<td>KDPTSQLT</td>
<td>Thread Detail SQL Text</td>
<td>The SQL statement that a DB2 thread is currently executing.</td>
</tr>
<tr>
<td>KDPTSQL1</td>
<td>Thread SQL Counts Data Manipulation Language (DML)</td>
<td>The SQL counts for the Data Manipulation Language (DML) for a thread. Version 5.2.0.</td>
</tr>
<tr>
<td>KDPTSQL2</td>
<td>Thread SQL Counts Data Control Language (DCL)</td>
<td>Displays the SQL counts for the Data Control Language (DCL) for a thread. Version 5.2.0.</td>
</tr>
<tr>
<td>KDPTSQL3</td>
<td>Thread SQL Counts Data Definition Language (DDL)</td>
<td>The SQL counts for the Data Definition Language (DDL) for a thread. Version 5.2.0.</td>
</tr>
<tr>
<td>KDPTSQL4</td>
<td>Thread SQL Counts Record Identifier (RID) List Processing</td>
<td>The SQL counts for the Record Identifier (RID) List Processing for a thread. Version 5.2.0.</td>
</tr>
</tbody>
</table>
Table 132. Workspaces of the enhanced 3270UI (continued)

<table>
<thead>
<tr>
<th>Panel Identification (ID)</th>
<th>Workspace Name</th>
<th>Workspace Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>KDPTSQL5</td>
<td>Thread SQL Counts Query Parallelism</td>
<td>The SQL counts for query parallelism for a thread. Version 5.2.0.</td>
</tr>
<tr>
<td>KDPTSQL6</td>
<td>Thread SQL Counts for Stored Procedures, User Defined Functions and Triggers</td>
<td>The SQL counts for Stored Procedures, User Defined Functions, and Triggers for a thread. Version 5.2.0.</td>
</tr>
<tr>
<td>KDPTSQL7</td>
<td>Thread SQL Counts for Preparates</td>
<td>The SQL counts for Preparates for a thread. Version 5.2.0.</td>
</tr>
<tr>
<td>KDPTSQL8</td>
<td>Thread SQL Counts for Concentrate Literals</td>
<td>The SQL counts for Concentrate Literals for a thread. Version 5.2.0.</td>
</tr>
<tr>
<td>KDPUTILS</td>
<td>Utility Jobs</td>
<td>An overview of the active utilities. Workspace monitoring includes utilities that have not yet completed their run because of abnormal termination.</td>
</tr>
<tr>
<td>KDPXCFD</td>
<td>Coupling Facility Connections</td>
<td>Connection status information for all connections to a coupling facility structure. See “X Coupling Facility Details (KDPXCFD)” on page 1740.</td>
</tr>
<tr>
<td>KDPZAPPL</td>
<td>DB2 DSNZPARM Application Parameters</td>
<td>Parameters that are related to applications. These parameters are defined on the DB2 panels DSNTIPF, DSNTIP4, and DSNTIP41.</td>
</tr>
<tr>
<td>KDPZARC</td>
<td>DB2 DSNZPARM Archive Log Parameters</td>
<td>Parameters that are related to log archiving. These parameters are defined on the DB2 panels DSNTIPA and DSNTIPIH.</td>
</tr>
<tr>
<td>KDPZBP</td>
<td>DB2 DSNZPARM Default Buffer Pool Parameters</td>
<td>Parameters that are related to the Default Buffer Pools. These parameters are defined on the DB2 panel DSNTIP1.</td>
</tr>
<tr>
<td>KDPZCTL</td>
<td>DB2 DSNZPARM Operator Functions Parameters</td>
<td>Parameters that are related to operator functions. These parameters are defined on the DB2 panels DSNTIPO, DSNTIPP, DSNTIPP1, DSNTIPIR and DSNTIPI5.</td>
</tr>
<tr>
<td>KDPZDATA</td>
<td>DB2 DSNZPARM Data Parameters</td>
<td>Parameters that are related to data. These parameters are defined on the DB2 panels DSNTIPA2, DSNTIPO3, and DSNTIPIH.</td>
</tr>
<tr>
<td>KDPZDDCS</td>
<td>DB2 DSNZPARM Data Definition Control Parameters</td>
<td>Parameters that are related to data. These parameters are defined on the DB2 panel DSNTIPIZ.</td>
</tr>
<tr>
<td>KDPZDSG</td>
<td>DB2 DSNZPARM Data Sharing Parameters</td>
<td>The parameters that are related to data sharing. These parameters are defined on the DB2 panel DSNTIPK.</td>
</tr>
<tr>
<td>KDPZDSN</td>
<td>DB2 DSNZPARM Dataset and Database Parameters</td>
<td>Parameters that are related to datasets and databases. These parameters are defined on the DB2 panels DSNTIPI7, DSNTIPI71, DSNTIPI91, and DSNTIPS.</td>
</tr>
<tr>
<td>KDPZFIND</td>
<td>Find DSNZPARM Parameters</td>
<td>DB2 parameters by field name or field description for a DB2 subsystem.</td>
</tr>
<tr>
<td>KDPZIRLM</td>
<td>DB2 DSNZPARM IRLM Parameters</td>
<td>Parameters that are related to IRLM. These parameters are defined on the DB2 panels DSNTIPI1 and DSNTIPI5.</td>
</tr>
<tr>
<td>KDPZLOG</td>
<td>DB2 DSNZPARM Active Log Parameters</td>
<td>Parameters that are related to the active log. These parameters are defined on the DB2 panel, DSNTIPI.</td>
</tr>
<tr>
<td>KDPZOS</td>
<td>z/OS System Statistics</td>
<td>Overall CPU usage, paging real and virtual storage usage by DB2.</td>
</tr>
<tr>
<td>KDPZOTH</td>
<td>DB2 DSNZPARM Other Parameters</td>
<td>Miscellaneous parameters that are defined on the DB2 panels DSN6SYSF, DSN6LOGF, DSN6ARVF, DSN6SPRM, DSN6FAC, and DSN6HDEC.</td>
</tr>
<tr>
<td>KDPZPERF</td>
<td>DB2 DSNZPARM Performance and Optimization</td>
<td>Parameters that are related to performance and optimization. These parameters are defined on the DB2 panels DSNTIP8, DSNTIP81, and DSNTIP82.</td>
</tr>
</tbody>
</table>
Table 132. Workspaces of the enhanced 3270UI (continued)

<table>
<thead>
<tr>
<th>Panel Identification (ID)</th>
<th>Workspace Name</th>
<th>Workspace Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>KDPZPARAM</td>
<td>DB2 All DSNZPARM</td>
<td>Parameters that are related to DSNZPARM.</td>
</tr>
<tr>
<td>KDPZSIP</td>
<td>DB2 DSNZPARM Stored Procedure</td>
<td>DSNZPARM parameters that are related to Stored Procedures. These parameters are defined on the DB2 panel DSNTIPX.</td>
</tr>
<tr>
<td>KDPZSTG</td>
<td>DB2 DSNZPARM Storage and sizes</td>
<td>DSNZPARM parameters that are related to storage and sizes. These parameters are defined on the DB2 panels DSNTIPC and DSNTIPD.</td>
</tr>
<tr>
<td>KDPZSYS</td>
<td>DB2 DSNZPARM Thread Management</td>
<td>DSNZPARM parameters that are related to thread management. These parameters are defined on the DB2 panels DSNTIPE and DSNTIPE1.</td>
</tr>
<tr>
<td>KDPZTRC</td>
<td>DB2 DSNZPARM Trace</td>
<td>Parameters that are related to the trace. These parameters are defined on the DB2 panel, DSNTIPN.</td>
</tr>
<tr>
<td>KDPZUTIL</td>
<td>DB2 DSNZPARM Utility</td>
<td>DSNZPARM parameters that are related to utilities. These parameters are defined on DB2 the panels DSNTIP6, DSNTIP61, and DSNTIP62.</td>
</tr>
</tbody>
</table>

**ISPF Online Monitor**

This information describes the ISPF Online Monitor of the following products:
- IBM OMEGAMON for Db2 Performance Expert on z/OS
- IBM OMEGAMON for Db2 Performance Monitor on z/OS

Always check the IBM DB2 and IMS Tools Library web page and the Tivoli library page for the most current version of this information:
- [OMEGAMON for Db2 Performance Expert on z/OS (PDFs and Techdocs on Db2 Tools Product Page)]
- [OMEGAMON for Db2 Performance Monitor on z/OS (PDFs and Techdocs on Db2 Tools Product Page)]

**Note:** As a result of an end-user interface-consolidation, the following ISPF Online Monitoring functions are not supported for DB2 11 or later.
- Display Thread Activity (option 3.1)
- Display Statistics (option 3.2)
- Display System Parameters (option 3.3)

Full real time monitoring support is supported by the VTAM end user interface, which is described in [Monitoring Performance from the OMEGAMON Classic Interface](#)

Until several unique ISPF Online Monitor functions become available through the OMEGAMON Classic Interface in stages, the ISPF Online Monitor functions and their descriptions are retained in here. Nevertheless, you are encouraged to familiarize yourself with the functions available through the OMEGAMON Classic Interface, which is described in [Monitoring Performance from the OMEGAMON Classic Interface](#)

The product often provides context-related online help information that can be invoked from menus, panels, and windows by using the PF key F1 or the Help button. Online help information is not necessarily repeated in this information,
especially if it is very detailed information that is of interest only when you actively work with a function. You are encouraged to use F1 or Help to see the entire available information.

**Overview of the ISPF Online Monitor**

The ISPF Online Monitor provides various functions to determine performance problems.

**Introduction to the ISPF Online Monitor**

This section describes how to invoke the ISPF Online Monitor and introduces the functions that are accessible through its main menu.

**Changed access path to the ISPF Online Monitor:**

When you start IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS from ISPF (Start EXEC FPEJINIT), the main menu is displayed.

```
FPEFMENU      IBM OMEGAMON for DB2 Performance Expert on z/OS

Select one of the following.

1. Create and execute reporting commands
2. View online DB2 activity - Classic Interface
3. View online DB2 activity - PE ISPF OLM
4. Maintain parameter data sets
5. Customize report and trace layouts
6. Exception profiling

Command ===> F1=Help  F2=Split  F3=Exit  F9=Swap  F12=Cancel
```

*Figure 11. Main menu*

This menu provides access to the OMEGAMON XE for DB2 PE functions and to the ISPF Online Monitor (option 3).

**Note:** The OMEGAMON XE for DB2 PE options shown on this menu (all, except option 3) are described in detail in *Monitoring Performance from the OMEGAMON Classic Interface*.

Nevertheless, for the time being, option 3 on the OMEGAMON XE for DB2 PE main menu invokes the ISPF Online Monitor, which was part of the predecessor products IBM DB2 Performance Expert for z/OS and IBM DB2 Performance Monitor for z/OS. The following topics introduce the options that are available for the ISPF Online Monitor.

**Performance data generation and online monitoring:**

DB2 generates trace data about its own performance and events in DB2 subsystems. However, DB2 does not provide any reporting facilities for analyzing this data. The Online Monitor provides you with the capability to view an active DB2 subsystem and identify performance problems online.

The Online Monitor displays subsystem-wide performance information, such as processor times, buffer pool usage, locking, log, and I/O activity. For an individual thread, the Online Monitor displays information such as the elapsed time, the time
spent in DB2, the time it was suspended, the read and write activity involved, the locks obtained, and the SQL statements executed.

The Online Monitor displays subsystem-wide DB2 performance information in a comprehensive form that is easy to understand and analyze. You can use the Online Monitor to:
- Determine total DB2 system performance and efficiency
- Measure an application’s performance and resource use
- Evaluate an application’s effect on other applications and the system
- Analyze and improve SQL statements
- Identify potential problems
- Determine tuning requirements for DB2.

When changes are made to an application or to the DB2 subsystem, the Online Monitor can help you determine the effects. This is very important for determining whether the changes increased or decreased performance.

When DB2 performance is not satisfactory, the Online Monitor can help you identify areas where tuning is required to optimize the performance of DB2. The Online Monitor can log DB2 activities and events and provide this information for later viewing to assist you in determining the cause of potential problems.

For a long-term view of DB2 performance, your needs are best served by the batch reporting capabilities.

**Overview of the ISPF Online Monitor functions:**

When you invoke the ISPF Online Monitor by selecting option 3 on the OMEGAMON XE for DB2 PE main menu, the Online Monitor Main Menu is displayed.

The Online Monitor Main Menu provides access to functions through sets of menus and panels.

![Online Monitor Main Menu](image)

**Figure 12. Online Monitor Main Menu**

**Display Thread Activity:**

Use this option to view detailed thread and locking information for all threads that are currently connected to a DB2 subsystem.
You can view active threads in a summary format, or examine them individually in greater detail.

When you select this option, the Thread Summary panel is displayed, listing all active threads. You can filter the list by using the QUALIFY command (see “QUALIFY command” on page 1867 for more information). You can also sort the list by using the SORT command (see “SORT command” on page 1870 for more information). You can select any active thread to display the Thread Detail panel, where you can examine the thread.

The Thread Detail panel provides an overview of key values for the selected thread. From the Thread Detail panel, you can access additional windows to view thread activity data in greater detail.

See “Displaying thread activity” on page 1824 for more information about viewing thread activity.

The headings, field labels, fields displayed, and the order they appear in the Thread Detail panel can be tailored. See “Customizing panels” on page 334 for more information.

Display Statistics:

Use this option to view important statistics and ratios of a DB2 subsystem in a summary format or in detail.

When you select this option, the DB2 Statistics Detail panel is displayed providing an overview of key statistics values for the system. From this panel, you can access additional windows to view statistics data in greater detail.

See “Viewing DB2 statistics” on page 1873 for more information.

The headings, field labels, fields displayed, and the order they appear in the DB2 Statistics Detail panel can be tailored. See “Customizing panels” on page 334 for more information.

Display System Parameters:

Use this option to view an overview of the current DSNZPARM values in effect for a DB2 subsystem including any changes to the buffer pool and group buffer pool parameters.

When you select this option, the DB2 System Parameters panel is displayed providing an overview of key system parameter values. From this panel, you can access additional windows providing system parameters information in greater depth.

See “Viewing system parameters” on page 1938 for more information.

The headings, field labels, fields displayed, and the order they appear in the DB2 System Parameters panel can be tailored. See “Customizing panels” on page 334 for more information.
Options:

You can use options to change the parameters affecting the behavior of your own Online Monitor session.

For example, you might want to specify the following options:

- Select the DB2 subsystem to be monitored.
- Display your installation-specific history parameters (only available if the data collector is installed at your site). See “OMEGamon Collector Purpose and function” on page 372 and the following sections for a description of the data collector.
- Control the writing of monitor records to an output data set.
- Set the default auto-display interval.
- Set several Interactive Report Facility (IRF) session options.
- Set the current SQLID for Explain processing.
- Allocate a larger storage area for thread summary information, if the default size is not sufficient.

See “Online Monitor options” on page 1789 for more information.

Collect Report Data - General:

Use this option to start and stop DB2 traces either manually or automatically by specified triggers. The resulting trace data can be directed to a data set for immediate input to batch reporting. The DB2 traces required are determined by the reports that you want to produce.

See the Reporting User’s Guide for more information.

Collect Report Data - For Buffer Pool Analysis:

Use this option to collect data for the buffer pool analysis function. The collected data is used to report buffer pool efficiency, and to simulate the effects buffer pool tuning actions before altering a buffer pool’s characteristics.

See the Buffer Pool Analyzer User’s Guide for more information.

Create and execute reporting commands:

This option invokes the Interactive Report Facility (IRF), which you can use to interactively create and execute batch report command streams.

See the Reporting User’s Guide for the description of the IRF and the Report Reference for reports generated by using the IRF.

Maintain parameter data sets:

Use this option to maintain the Exception Threshold data set, the correlation translation member, the timezone information member, and the MAINPACK definition member.

See the Reporting User’s Guide for more information.
**Explain:**

Use this option to examine the access path method chosen by DB2 for a given SQL statement in an easy-to-read format. The SQL statement you want to explain can be an existing entry in a specific PLAN_TABLE, an SQL statement from a previously bound plan or package, or a dynamically entered SQL statement.

You can view detailed information about packages, DBRMs, tables, indexes, and the SQL text. The SQL statement can be modified for online tuning.

You can also explain an SQL statement from within the thread activity function to explain a currently executing SQL statement, or from within an ISPF/PDF editor to explain an SQL statement imbedded in a source program or SPUFI input.

See “Monitoring the access path with Explain” on page 1921 for more information.

**Monitoring and problem determination**

This section describes how to monitor a DB2 subsystem and how to determine performance problems by using batch reports and the Online Monitor functions of OMEGAMON XE for DB2 PE.

You can use OMEGAMON XE for DB2 PE for continuous or periodic monitoring of a DB2 subsystem and for determining specific performance problems in DB2. OMEGAMON XE for DB2 PE can help you in:

- Determining how an application will perform or is performing over a period of time
- Indicating where there are tuning opportunities in your system
- Distinguishing among subsystem and application problems
- Monitoring an application in a detailed manner so you can identify problem areas
- Analyzing constraints acting on an application
- Determining the performance effects of any adjustments made within the DB2 subsystem
- Determining whether performance objectives are being met

OMEGAMON XE for DB2 PE offers different ways to monitor your subsystem depending on whether you want to see current or past activity. Use the Online Monitor to monitor an active subsystem as well as to view events that happened in the recent past. Use the Batch reports to examine performance problems in the more distant past and trends over a period of time.

The amount of data generated for monitoring a DB2 subsystem is vast, so limiting the amount of data to show only potential problem areas is essential. OMEGAMON XE for DB2 PE offers several ways of reducing the amount of data that needs to be examined, the most important is exception processing. Exception processing makes it easy for you to focus on possible performance problems by highlighting data that is outside defined thresholds. It is available in Batch reporting and the Online Monitor.

A good approach is to monitor an active DB2 subsystem using Online Monitor exception processing (you do not need to be logged on to have exception processing running) and to regularly generate Statistics and Accounting exception reports. Online Monitor exception processing alerts you to performance problems...
as soon as they occur, and the Accounting and Statistics reports give you a detailed picture of application and system performance over a period of time.

Deadlock and timeout participant details are available online through exception event processing. Consider generating deadlock and timeout traces regularly, because in this way information is available to help you investigate any locking problems in detail. There is no significant performance overhead on the DB2 side in collecting the data for these reports.

The best way to investigate performance trends is by producing Accounting and Statistics reports that are ordered by interval.

To detect problems as they occur, use the Online Monitor periodic exception processing. When you detect poor thread performance, you can examine the comprehensive performance data that is shown in Thread and Statistics panels. If you assume the problem is caused by SQL, you can analyze the access path using the online explain function.

If the problem occurred in the recent past, you can use the Online Monitor HISTORY command to view the events surrounding the problem without having to re-create it.

If the panels do not provide enough information to solve the problem, you can use the Online Monitor to collect instrumentation data for batch reports. You can specify the data collection to be triggered by exception thresholds; in this way you can minimize the time high-volume and high-cost traces are active and ensure that the data needed is collected at the right time.

OMEGAMON XE for DB2 PE provides a comprehensive set of reports with different levels of detail and for different areas of performance. This represents a top-down approach to problem determination: the most generic reports indicate the problem area and, if necessary, more details can be shown to narrow down the cause of the problem.

The DB2 operating environment:

The performance of a DB2 transaction or query is dependent not only on the performance of the DB2 subsystem, but also on the performance of the transaction manager, such as CICS or IMS, and the MVS system itself. Therefore the environment in which the DB2 subsystem is operating should be tuned before DB2 is tuned.

For example, if the MVS system is overloaded, tuning a DB2 subsystem is unlikely to improve DB2 system performance. DB2 performance can only be improved by reducing or balancing the load of the MVS system.

Specialized tools are available to monitor the different system components:
- CICSpex System Manager for CICS
- IMS/VS DC Monitor or IMSPARS for IMS
- RMF for MVS

The relationship between the different systems and performance tools is complex, however, it is not within the scope of this documentation. For more information, see [IBM Db2 for z/OS in the IBM Knowledge Center](https://www.ibm.com/support/knowledgecenter). It is assumed that the environment in which the DB2 subsystem is operating is well tuned.
Performance objectives and exception processing:

Before you can start monitoring the system, define your performance objectives on the basis of the business needs, the workload for the system, and the resources available. Typically, the objectives would include acceptable response times, average throughput, and system availability.

These objectives are usually formalized in service-level agreements between the users and the data processing groups in an organization. The agreements can include expectations of query response times and transaction throughput.

You can monitor how well these objectives are being met.

The most efficient way to do this is to set limits, exception thresholds, for key fields that reflect your performance objectives using exception processing.

Exception profiling can assist you in establishing exception thresholds. This facility sets exception thresholds automatically based on your application configuration. For reports, the Accounting TOP subcommand option is also useful in determining Accounting exception thresholds.

For example, you can monitor response times by setting exception thresholds for class 1 and class 2 elapsed times to reflect the acceptable response times for your environment. Class 1 elapsed time shows the thread time (from thread creation to thread termination) and class 2 time shows the time DB2 spent processing SQL statements.

Monitoring performance:

The key to effective performance monitoring is in identifying unusual situations and thereby limiting the amount of data that needs to be examined. In addition to exception processing, OMEGAMON XE for DB2 PE offers several other ways of filtering the data and highlighting potential problems.

The following options are available in Batch reporting:
- Filtering data by date and time (FROM and TO subcommand options)
- Filtering data by identifiers such as user ID (INCLUDE and EXCLUDE subcommand options)
- Filtering data by resource usage (TOP subcommand option)
- Ordering data on reports by interval (INTERVAL subcommand option)
- Summarizing and sorting data on SQL reports
- Tailoring report layouts for your own needs. The User-Tailored Reporting feature (UTR) and its use is described in detail in the Reporting User’s Guide

The following options are available in the Online Monitor:
- Qualify and sort functions
- History data collection with qualifications

Monitoring using reports:

You can filter the data shown in reports by using the INCLUDE and EXCLUDE subcommands to show, for example, information only for certain plans, authorization IDs, or locations. You can use the FROM and TO subcommands to filter data within specified times.
Another way to limit the data that needs to be examined is to use the TOP subcommand option to obtain a high water mark type of reporting on resource usage. The TOP lists, printed at the end of an Accounting report or trace, can identify the threads or users that have required the most use of the resources specified in the TOP subcommand option. Alternatively, you can use the TOP subcommand option with the ONLY keyword to filter entries based on resource usage and produce a report that shows only entries with the highest resource usage.

You can summarize data for certain periods by ordering your Accounting and Statistics reports by interval. For example, you can summarize data for the peak periods during the day.

If you produce SQL Activity reports and traces, potential problems can be highlighted by sorting and summarizing the information within the report and trace entries by several criteria. For example, a problem cursor can be identified by summarizing SQL activity by cursor and ordering the cursors by TCB times. The sorted entries provide an easy way to identify SQL statements that might be causing performance problems.

You can tailor your own report layouts and trace layouts with the User-Tailored Reporting feature (UTR). Use UTR to control the volume, contents, and layout of your traces and reports. The User-Tailored Reporting feature (UTR) and its use is described in detail in the Reporting User’s Guide.

Monitoring using the ISPF Online Monitor:

The ISPF Online Monitor qualify and sort functions can help you limit and prioritize the threads listed in the Thread Summary panel.

Use the qualify function to filter threads by OMEGAMON XE for DB2 PE identifiers, thread status, and thread type, and to effectively reduce the amount of data that needs to be examined. For example, to view only the active threads in lock wait status, qualify the threads by selecting the 1 field on the DB2 Thread Qualification Parameters window.

Use the sort function to specify the order in which the threads are listed. For example, to view the threads that are spending the most time within DB2, you can sort the threads by class 2 time in descending order. Threads in exception status are automatically sorted to the top of the list.

Observing performance trends:

You can use reports and graphs to summarize data over periods of several days, weeks, or months to observe trends in performance. Pay special attention to peak periods of activity, for new applications and for the system as a whole. During peak periods, constraints and response-time problems are most evident.

Some trends to look for are:

- Increases in response times, number of I/Os, resource contention, and processor usage
- Changing workload patterns over a period
- Changes in the transaction distribution and frequency
- Changes in the SQL activity pattern
Determining performance problems:

When you find that there are performance problems when you are monitoring the system, you can use several panels and reports to investigate the cause of the problems.

Problems detected in periodic exception processing:

If you use periodic exception processing in the Online Monitor and you are notified about a problem, examine the information in the Thread Activity panels or Statistics panels, depending on the type of problem.

- For system related problems, examine the Statistics panel and the DB2 System Parameters panel.
- For application related problems, examine the Thread Activity panels.

To view the past events surrounding the problem online, you can use the HISTORY command. The amount of available historical data is determined by installation-defined options. Note, however, that the batch reports are more comprehensive than the Online Monitor panels. Therefore, if the panels do not provide enough information to solve a problem, the Online Monitor Collect Report Data function should be used to gather information in a data set for input to the batch reports.

Problems detected in exception event processing:

If you detect a problem using the online exception event processing and the Online Monitor panels do not provide sufficient information to determine the cause, collect the appropriate trace data to produce Locking reports, I/O Activity reports, Audit reports, or Record Trace reports. This section describes how to proceed with specific exception events.

Deadlock or Timeout
If deadlocks or timeouts occur too often, generate a Lockout report to see which applications and objects are affected. Having identified the objects and applications causing the deadlocks or timeouts, use EXPLAIN to understand the locking behavior of the SQL statements or consider reorganizing the database.

EDM Pool Full
First check online or batch statistics to obtain more information about the EDM Pool situation. More details are provided in the I/O Activity EDM Pool report.

Authorization Failure
If authorization failures occur too often, generate an Audit authorization failure report for details.

Thread Commit Indoubt
Run a Record trace on the Statistics Class 4 IFCIDs to see details of communication problems. These are likely to be either VTAM or DB2 internal problems.

Coupling Facility Rebuild
Use the COLLECT command to automatically start tracing IFCID 268 (CF rebuild end) when a coupling facility rebuild starts, and run a Record trace for this IFCID. You can get more details about coupling facility behavior from RMF reports.
Problems detected in exception reports:

If you use an Accounting exception report to monitor your system, produce this report using the TOP or the INTERVAL subcommand option so that you can immediately focus on potential problem areas.

If you use an Statistics exception report to monitor your system, produce this report using the INTERVAL subcommand option so that you can immediately focus on potential problem areas.

Sometimes, however, you require more detailed reports to determine the exact cause of a problem.

System problems:

If exception processing indicates problems in system-wide resource usage and a Statistics trace does not clarify the reason for the problem, but points to EDM pool or logging activity, consider running I/O Activity reports. Or, if the Statistics trace indicates a problem with binds, generate Utility Activity reports. If the number of deadlocks is high, run Locking reports. If none of these report sets offer adequate information to determine the cause of the problem, you can run a Record trace to format the individual instrumentation records.

Application problems:

If exception processing indicates an application-related problem, which is typically indicated as an elapsed time problem for an application or a user, use Explain reports to determine the access path of the suspected plan. In addition, if necessary, generate Accounting traces by using the TOP subcommand option.

- If the Explain reports and the Accounting traces do not identify the reason for poor SQL performance, use SQL Activity reports for detailed information about the specific statement, such as scans or I/O per page set or sort specifics.
- If the Accounting traces indicate a locking problem, run Locking reports.
- If the problem seems to be with binds or DB2 utilities, run Utility Activity reports.

As with system-related problem determination, you can run a Record trace if none of these report sets provide adequate information.

Other uses for OMEGAMON XE for DB2 PE:

You can also use OMEGAMON XE for DB2 PE in application development and capacity planning.

The Explain and the SQL Activity reports can help you anticipate how an application will perform. The Online Monitor Explain and Source Explain functions as well as some functions of thread activity can assist you in tuning your application’s SQL online.

Accounting and Statistics reports that are ordered by INTERVAL are useful in capacity planning. Use these reports to identify peak periods in system activity as well as the need to adjust system resources.
How to use the ISPF Online Monitor

The following information describes how to use the ISPF Online Monitor, its parameters, help, keys, panels, and commands. It also describes some common problems that you might encounter when you use OMEGAMON XE for DB2 PE.

Using the ISPF Online Monitor

This section outlines the privileges and traces required to use the ISPF Online Monitor, shows how to change parameters that affect the behavior of an Online Monitor session, describes the online help, the default function key settings, how to move between Online Monitor panels, how to issue DB2 commands, global commands, and how to treat some common errors.

Required authority:

The information in this section applies only if you do not use the user authorization exit.

If the user exit is active, the description about the user authorization exit provided in IBM Db2 for z/OS in the IBM Knowledge Center applies.

To use the Online Monitor, you need the following authorities:

- Access to a DB2 subsystem
- EXECUTE authority on the Online Monitor plan. The plan name is KO2PLAN.
- MONITOR1 privilege
- Display trace privilege

You also need the DB2 authority for any DB2 commands you issue.

The following authorities are recommended:

- MONITOR2 or SYSADM privilege if you need access to the currently executing SQL statement
- DB2 privilege to start or stop a DB2 trace, if you want to collect report data

Important: Granting MONITOR2 privilege enables access to potentially sensitive data, for example, the SQL statement being executed.

Input data from DB2 monitor traces:

To use the Online Monitor, ensure that the DB2 monitor trace is active. Monitor trace class 1 is required to display data. Monitor trace classes 2, 3, 7, and 8 should also be activated.

As long as the monitor trace is active, there is no need to activate DB2 Statistics and Accounting traces.

Monitor trace class 2 provides DB2 processor and elapsed times for the Thread Activity panels and class 7 provides DB2 processor and elapsed times for packages. Monitor trace class 2 is also required for class 1 TCB time.

Monitor trace class 3 provides DB2 suspension times for the Thread Activity panels and class 8 provides DB2 suspension times for packages.
Note: The version and release numbers of the DB2 load library allocated to the Online Monitor session must match the version and release numbers of the DB2 subsystems being monitored.

To change the version of DB2 you are monitoring, exit from the Online Monitor and ISPF to reallocate the DB2 load library. For information about how to reallocate the DB2 load library at your site, consult your system programmer.

Accessing the ISPF Online Monitor:

To access the ISPF Online Monitor, start your IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS session from the TSO/ISPF environment (Start EXEC FPEJINIT).

When the IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS main menu (see Figure 11 on page 1776) is displayed, select option 3 (View online DB2 activity - PE ISPF OLM). This presents the Online Monitor Main Menu (see Figure 12 on page 1777).

Moving between panels:

When you have entered a command on the command line, or have entered the information required to complete a panel, press Enter.

To go back to a previous panel or menu, press F3 (Exit).

Each time you press Enter or F3 (Exit), data entered in that panel is validated. If an error is detected, an error message is displayed and the cursor is positioned on the field in error. If no error is detected, processing continues.

To leave a panel without saving the entries and return to the previous panel, or to cancel all windows, press F12 (Cancel).

You can move between various Online Monitor options by typing = followed by the Online Monitor Main Menu option number on the command line of any Online Monitor panel:

=1 Jumps to Display Thread Activity
=2 Jumps to Display Statistics
=3 Jumps to Display System Parameters
=4 Jumps to Options
=5 Jumps to Control Exception Processing
=6a Jumps to Collect Report Data - General
=6b Jumps to Collect Report Data - For Buffer Pool Analysis
=7 Jumps to Create and execute reporting commands
=8 Jumps to Maintain parameter data sets
=9 Jumps to Explain
=X Exits the Online Monitor
Updating values:

To refresh Thread Activity, Statistics, and System Parameters panels with new data from DB2, press Enter.

Values are not updated if:

- Any OMEGAMON XE for DB2 PE or ISPF command is entered on the command line
- Windows are selected for display
- Function keys are used

Note: The values shown in the Thread Summary and Threads Holding Resource panels are refreshed automatically each time the panels are displayed.

Leaving the ISPF Online Monitor:

To exit the ISPF Online Monitor from the Online Monitor Main Menu, press F3 (Exit) or F12 (Cancel). From any other Online Monitor panel, type =X on the command line and press Enter.

If any asynchronous tasks are active when you exit the Online Monitor, you are notified by one of the Asynchronous Task Termination panels. If the data collector is not active, the tasks are terminated when you exit the Online Monitor. If the data collector is active, you have the choice of leaving the selected tasks active or not when you exit the Online Monitor. See Figure 13 for an example of an Asynchronous Task Termination panel and to “OMEGAMON Collector purpose and function” on page 372 and the following sections for a description of the data collector.

<table>
<thead>
<tr>
<th>FPMEGP01</th>
<th>Asynchronous Task Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>====&gt;</td>
</tr>
</tbody>
</table>

Press Enter to exit the Online Monitor or request Exit or Cancel to return to the Online Monitor Main Menu.

Select an Exception task to keep it active. All non-selected tasks will be terminated when leaving the Online Monitor as well as all the DB2 traces started by the Collect Facility will be stopped.

<table>
<thead>
<tr>
<th>Exception/Collect tasks</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Periodic Exception</td>
<td>Not active</td>
</tr>
<tr>
<td>Exception Event</td>
<td>Not active</td>
</tr>
<tr>
<td>run 3pm today</td>
<td>Active</td>
</tr>
<tr>
<td>run at 10 today</td>
<td>Active</td>
</tr>
<tr>
<td>Collect Task C</td>
<td>Not active</td>
</tr>
<tr>
<td>Collect Task D</td>
<td>Not active</td>
</tr>
<tr>
<td>Collect Task for BPA</td>
<td>Not active</td>
</tr>
<tr>
<td>F1=Help</td>
<td></td>
</tr>
<tr>
<td>F2=Split</td>
<td></td>
</tr>
<tr>
<td>F3=Exit</td>
<td></td>
</tr>
<tr>
<td>F9=Swap</td>
<td></td>
</tr>
<tr>
<td>F12=Cancel</td>
<td></td>
</tr>
<tr>
<td>F17=Collect</td>
<td></td>
</tr>
</tbody>
</table>

Figure 13. Asynchronous Task Termination panel

To exit the Online Monitor from this window, press Enter. If the data collector is active, any tasks selected in this window remain active.

To return to the Online Monitor Main Menu, press F3 (Exit) or F12 (Cancel). All active tasks remain active.
Online Monitor options:

Use the Options panels to change parameters affecting the behavior of your Online Monitor session. To display the Options menu, select option 4 (Options) from the Online Monitor Main Menu.

You can select one of the following options from this menu:

- Select option 1 (DB2 Subsystem) to display either the DB2 Subsystems List window or DB2 Subsystem window, where you can select the DB2 subsystem to be monitored.

- Select option 2 (History Defaults) to display the History Defaults window, where you can display the installation-specified history defaults. This option is available only if a data collector is active for the DB2 subsystem you are monitoring. See "OMEGAMON Collector purpose and function" on page 372 and the following sections for a description of the data collector.

- Select option 3 (Monitor Output) to display the Monitor Output window, where you can control the writing of monitor records to an output data set.

- Select option 4 (Auto Display) to display the Auto Display window, where you can set the default interval for the AUTO command.

- Select option 5 (Session Options) to display the Session Options window, where you can set several options controlling the environment of your IRF session.

- Select option 6 (Current SQLID) to display the Current SQLID window, where you can specify a different SQL authorization ID for qualifying the unqualified tables in the statements being explained.

- Select option 7 (ISPF Online Monitor Memory Usage) to increase the default size of the internal storage area for displaying thread summary information from 1 MB to up to 4 MB. This might become necessary in large environments, if the amount of active DB2 threads cannot be displayed in the Thread Summary panel (typically revealed by message FPEM103 or FPEM546).

DB2 Subsystem windows:

Use the DB2 Subsystems List window to select the DB2 subsystem to be monitored.

Only the DB2 subsystems with data collectors started within the MVS system are listed on the DB2 Subsystems List window (see "OMEGAMON Collector purpose and function" on page 372).
“and function” on page 372 and the following sections for a description of the data collector). If many DB2 subsystems are listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

To display this window, select option 1 (DB2 Subsystem) from the Options menu.

```
DGOMDWSL  DB2 Subsystems List  ROW 1 TO 3 OF 3

Select the Data Collector to use or specify a DB2 subsystem ID

DB2 Subsystem  DSN1
               Data Collector  DB2 Location  DB2 Release
               DSNB        PM01DB11     V10
-              DSNC        PM01DC11     V10

******************************************************************************

Command ===  Scroll === CSR
F1=Help  F2=Split  F7=Up  F8=Down  F9=Swap  F12=Cancel
F16=Look  F17=Collect

Figure 15. DB2 Subsystems List window
```

The Data Collector column shows the data collector identifier.

The DB2 Location column shows the location as obtained from the trace records for the data collector.

The DB2 Release column shows the DB2 release level.

To monitor a DB2 subsystem that has an active data collector running, enter any character in the input field beside a data collector DB2 location and press Enter.

To monitor a DB2 subsystem that does not have an active data collector running, enter the name of the DB2 subsystem in the DB2 Subsystem field and press Enter.

If no data collectors are active on your MVS system, the window shown in Figure 16 is displayed instead.

**Note:** The version and release numbers of the DB2 load library allocated to the Online Monitor session must match the version and release numbers of the DB2 subsystems being monitored.

```
DGOMDWS1  DB2 Subsystem

Enter the subsystem ID of the DB2 subsystem to monitor and press Enter.

DB2 Subsystem ___

F1=Help  F2=Split  F9=Swap  F12=Cancel

Figure 16. DB2 Subsystem window
```
If the data collector is not installed at your site or the monitored DB2 subsystem does not have an active data collector running, the following Online Monitor functions are not available:

- Viewing past data
- Periodic exception processing while you are not logged on
- Exception event processing
- Collection of parallel tasks for query CP parallelism

Changing DB2 subsystems terminates all asynchronous tasks that were started using the Online Monitor. If you change DB2 subsystems while an asynchronous task is active, you are notified by the Asynchronous Task Termination panel. See [Figure 17](#).

If you work in split screen mode and you change the subsystem in one session, asynchronous tasks are terminated even if they were activated in the other session.

![DGOMGP03 Asynchronous Task Termination](#)

**Figure 17. Asynchronous Task Termination panel**

To change DB2 subsystems, press Enter. All asynchronous tasks are terminated.

To return to the previous panel without changing DB2 subsystems, press F3 (Exit) or F12 (Cancel). All active asynchronous tasks remain active.

**History Defaults window:**

Use the History Defaults window to view the history parameters that are currently in effect.

To display this window, select option 2 (History Defaults) from the Options menu.
By using the HISTORY command, you can view thread activity, statistics, and system parameters data previously gathered by the data collector. See "Viewing past data" on page 1807 for a complete description about how to view past performance data.

The History Collected field shows either YES or NO to indicate if any past data is available.

The History Interval field indicates how often DB2 instrumentation data is being gathered by the data collector. This field is a numeric value in seconds.

The History From field shows the date and time of the earliest history data available.

The History To field shows the date and time of the most recent history data available.

The Data for which History is stored field lists the types of data gathered by the data collector. This list includes the data types specified at data collector startup and subsequent changes made by the administrator users. Statistics history keeps subsystem-wide statistical information for a DB2 subsystem. For thread activity you can collect thread history individually in a summary format, in detail format, or in detail format with locking information, SQL statement, or both. System Parameters history keeps an overview of DSNZPARM values for a DB2 subsystem.

For more information about viewing past data, see "Viewing past data" on page 1807. For more information about data collector installation options, see IBM Db2 for z/OS in the IBM Knowledge Center.

Monitor Output window:

Use the Monitor Output window to enable or disable the writing of monitor output to a data set.

The main use of this option is to gather data for problem determination. Records in DPMOUT format that correspond to data shown in the Online Monitor panels.
are written to a data set whenever the display is updated. Output from the
Statistics and System Parameters panels can be used as input to the Batch Statistics
and System Parameter reports respectively. The output from the Thread Display
panels can only be processed by a batch Record trace.

To display this window, select option 3 (Monitor Output) from the Options menu.

```
DGOMDWMO Monitor Output
To write monitor output, enter 1 and dataset name and disposition
Write output ........ 2 1=yes 2=no
Dataset name ........ Disposition ........ 1 1=append 2=overwrite 3=new
F1=Help       F2=Split     F9=Swap     F12=Cancel
```

Figure 19. Monitor Output window

Use the Write output field to specify whether you want monitor output written to
a data set. Enter 1 in this field to enable the writing of monitor output to a data
set.

The Dataset name field requires the name of the data set to which the data is to be
written.

If you specify a disposition of 3 (new), the data set is dynamically allocated with
the following attributes:

**RECFM:**

```
VBS
```

**LRECL:**

```
32 756
```

**BLKSIZE:**

```
6 233
```

Auto Display window:

Use the Auto Display window to set the auto-display refresh interval for data
shown in the Online Monitor panels. When auto display is active, the values
displayed in the current panel are updated periodically, as specified in the Auto
Display window. If you activate auto-display mode while viewing past data, the
panel is updated with subsequent past records at every auto-display interval. The
time difference between these records is determined by the history interval when
the data was collected, and not by the current auto-display interval.

To display this window, select option 4 (Auto Display) from the Options menu.
Use the *Units* field to specify the unit of time that is to be associated with the value in the *Interval* field.

Use the *1* field to specify how frequently the panels are refreshed when the AUTO command is issued.

To start auto-display mode, type `AUTO` on any Thread Activity or Statistics panel command line and press Enter. To stop auto-display mode, press the Attention key. You cannot perform any other actions with your Online Monitor session while auto-display mode is running.

**Session options:**

Use the Session Options window to set several options controlling the environment of your Interactive Report Facility (IRF) session.

To display this window, select option 5 (*Session Options*) from the Options menu, or type `OPTIONS` on any command line and press Enter.

Use the *1* field to specify whether or not you want to be prompted each time you issue a delete, replace, or reset request.

Use the *1* field to specify the panel you want to start on. Possible values for this field are:

1. Create and execute reporting commands (DGOOMENU)
2. View online DB2 activity - Classic Interface (KO2MPSPF)
3. View online DB2 activity - PE ISPF OLM (FPEMMENU)
The 1 field applies to the execution of batch jobs.

Use the 1 field to specify the DPMPARMS data set to be used by the Online Monitor. The DPMPARMS data set contains information about exception thresholds, customized report layouts, time zone specifications, correlation ID translation, and the MAINPACK identifier. Only the correlation ID translation part is used by the Online Monitor.

Current SQLID window:

Use the Current SQLID window to specify a different SQL authorization ID for qualifying the unqualified tables in the statements being explained if they do not belong to a plan or package. The Current SQLID window is also used to qualify the plan table to be accessed.

To display this window, select option 6 (Current SQLID) from the Options menu.

If the 1 field in this window is not specified, it defaults to your user ID.

Online Monitor Memory Usage window:

Use the ISPF Online Monitor Memory Usage window to specify a different size of the internal storage area that the Online Monitor uses to display active thread information. You can specify a value of 1, 2, 3, or 4, which corresponds to 1 to 4 MB.

Typically, you only need to increase the size of this storage area if the Online Monitor complains about insufficient storage to display active thread information (message FPEM103 or FPEM546).

By default, the Online Monitor uses a 1 MB storage area. When you change the size, the change takes place when you select again option 3 (View online DB2 activity - PE ISPF OLM) from the OMEGAMON XE for DB2 PE main menu (shown in Figure 11 on page 1776). The specified value becomes the new default value and remains in effect until it is replaced by a different value.

To display this window, select option 7 (ISPF Online Monitor Memory Usage) from the Options menu.
Accessing online help:

You can access comprehensive panel help from any Online Monitor panel and field help from fields in these panels. Panel help shows general information that describes the purpose of the panel and the commands that are available from that panel, whereas field help shows a field description and system tuning information for that field if appropriate.

To view panel help, press F1 (Help). To view field help, move the cursor into the data area of the field and press F1.

To view help on the following topics, press F1 (Help) on the Online Monitor Main Menu:
- General information about the Online Monitor
- Authority required
- Online Monitor input data
- Moving between panels
- Updating values
- Online Monitor commands
- Function key default settings

Note:
1. In some panels where lists are shown, field help is not available on the list. Help on these lists is provided in the panel help instead.
2. The online help follows the standard conventions for help in the ISPF environment.

Function key default settings:

Use the function key default settings to view help, move between panels, or access certain Online Monitor and ISPF functions with a single keystroke.

Note:
- The Online Monitor is an ISPF application, and all normal ISPF behaviors apply.
- The default function key settings in help panels follow the standard conventions for help in the ISPF environment.

Table 133 on page 1797 describes the Online Monitor function keys, their default settings, their functions, and the Online Monitor panels on which they are available.
### Table 133. Function key default settings

<table>
<thead>
<tr>
<th>Function key</th>
<th>Default setting</th>
<th>Function</th>
<th>Online Monitor panels</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>HELP</td>
<td>Used to view help information for a panel or field.</td>
<td>All panels</td>
</tr>
<tr>
<td>F2</td>
<td>SPLIT</td>
<td>Used to divide the display into two logical displays separated by a horizontal line and starts another ISPF session, or changes the location of the horizontal line.</td>
<td>All panels</td>
</tr>
<tr>
<td>F3</td>
<td>EXIT</td>
<td>Used to validate and save the data entered in a panel, exit the panel, and return to the previous panel.</td>
<td>All panels that contain a command line</td>
</tr>
<tr>
<td>F4</td>
<td>PROMPT</td>
<td>Used to view a list of possible values for a field. The prompt fields are followed by a plus sign (+).</td>
<td>Some Collect Report Data panels and Exception Threshold Field Details panel</td>
</tr>
<tr>
<td>F5</td>
<td>AUTO</td>
<td>Used to refresh the data shown in the current panel periodically.</td>
<td>All Thread and Statistics panels</td>
</tr>
<tr>
<td></td>
<td>ADD</td>
<td>Used to add a new exception threshold entry.</td>
<td>Exception Threshold Field Details panel</td>
</tr>
<tr>
<td>F6</td>
<td>HISTORY</td>
<td>Used for viewing historical data in panels. Note: If your installation has installed the Online Monitor without the data collector, this function is not available.</td>
<td>All Thread Activity, Statistics, and System Parameters panels</td>
</tr>
<tr>
<td></td>
<td>DELETE</td>
<td>Used to delete an exception threshold entry.</td>
<td>Exception Threshold Field Details panel</td>
</tr>
<tr>
<td>F7</td>
<td>UP</td>
<td>Used to scroll toward the top of the data.</td>
<td>All scrolling panels</td>
</tr>
<tr>
<td>F8</td>
<td>DOWN</td>
<td>Used to scroll toward the bottom of the data.</td>
<td>All scrolling panels</td>
</tr>
<tr>
<td>F9</td>
<td>SWAP</td>
<td>Used to switch between ISPF sessions.</td>
<td>All panels</td>
</tr>
<tr>
<td>F10</td>
<td>QUALIFY</td>
<td>Used to filter the threads listed in the Thread Summary panel.</td>
<td>Thread Summary panel</td>
</tr>
<tr>
<td></td>
<td>DELTA</td>
<td>Used to begin delta processing mode that calculates the statistics values between the last two times you pressed Enter.</td>
<td>All Statistics panels</td>
</tr>
<tr>
<td></td>
<td>PREVIOUS</td>
<td>Used to display the previous exception threshold entry for a field.</td>
<td>Exception Threshold Field Details panel</td>
</tr>
<tr>
<td>F11</td>
<td>SORT</td>
<td>Used to sort the threads listed in the Thread Summary panel.</td>
<td>Thread Summary panel</td>
</tr>
<tr>
<td></td>
<td>INTERVAL</td>
<td>Used to establish a base point in time from which statistics are to be calculated.</td>
<td>All Statistics panels</td>
</tr>
<tr>
<td></td>
<td>NEXT</td>
<td>Used to display the next exception threshold entry for a field.</td>
<td>Exception Threshold Field Details panel</td>
</tr>
<tr>
<td>F12</td>
<td>CANCEL</td>
<td>Used to exit a panel without saving the entries, and return to the previous panel canceling all related panels.</td>
<td>All panels</td>
</tr>
<tr>
<td>F14</td>
<td>PURGE</td>
<td>Used to purge a thread currently processing in the DB2 subsystem you are monitoring. You require the DB2 privilege to perform CANCEL THREAD.</td>
<td>All Thread Activity panels</td>
</tr>
</tbody>
</table>
### Table 133. Function key default settings (continued)

<table>
<thead>
<tr>
<th>Function key</th>
<th>Default setting</th>
<th>Function</th>
<th>Online Monitor panels</th>
</tr>
</thead>
</table>
| F16          | LOOK            | Used to view the following exception information and authorization failures:  
|              |                 | • Periodic exceptions  
|              |                 | • Periodic exceptions messages  
|              |                 | • Display exceptions  
|              |                 | • Authorization failure summary  
|              |                 | • Exception event summary  
|              |                 | • Exception event messages  
|              |                 | All panels (except LOOK and related panels) |
| F17          | COLLECT         | Used to display the Collect Report Data panel, where you can collect specific DB2 instrumentation data and direct this data to a data set.  
|              |                 | All panels (except Collect Report Data panels) |
| F18          | EXPLAIN         | Used to explain the access path methods chosen by DB2 for a given SQL statement.  
|              |                 | All Thread panels that show the SQL statement |
| F19          | LEFT            | Used to scroll toward the left.  
|              |                 | Thread Summary panel |
| F20          | RIGHT           | Used to scroll toward the right.  
|              |                 | Thread Summary panel |
| F21          | EXPAND          | Used to expand a field content that is too long to fit in a panel into a separate window where the entire field content can be shown.  
|              |                 | All panels that contain information of a length that cannot be shown in the available panel space. |
| F22          | LEFT            | Used to scroll through a field content that is too long to fit in a panel, if the cursor is positioned on such a field.  
|              |                 | All panels that contain information of a length that cannot be shown in the available panel space. |
| F22          | RIGHT           | Used to scroll through a field content that is too long to fit in a panel, if the cursor is positioned on such a field.  
|              |                 | All panels that contain information of a length that cannot be shown in the available panel space. |

You can use the following ISPF commands to alter the function key settings:

**KEYLIST**
Changes the function key settings.

**FKA** Alternates between the function key long display format, short display format, and no function key display at all.

**PFSHOW**
Toggles on and off the display of function key settings.

**PFSHOW TAILOR**
Specifies how function keys are displayed.

All function keys correspond to a command entered on the command line. For example, typing the command CANCEL on the command line is the same as pressing the F12 (Cancel) key.
You can use the command line with the function keys to enter function parameters. To do this, type the parameters on the command line and press the function key to activate the command.

You can use the ISPF PANELID command to choose whether to display a panel ID on the top line of the panels. To toggle the panel ID display, type PANELID on the command line and press Enter.

**Issuing DB2 commands:**

Use the command DB2 to execute any DB2 command during your Online Monitor session. You can enter this command on the command line of any Online Monitor panel.

The command syntax is:

```plaintext
DB2 command text
```

*Figure 24. Syntax of the DB2 command*

The DB2 command accepts the following parameter:

**command text**

The DB2 command you want to execute.

For example:

```
DB2 DISPLAY THREAD(*)
```

Type DB2 and the **command text** on the command line and press Enter. The DB2 Command Output window is overlaid on the current panel, where you can view the DB2 command output. An example of the DB2 Command Output window is shown in [Figure 25 on page 1800](#).
If you issue the command DB2 without any parameters, the DB2 Command window is displayed. This window displays command lines on which you can issue DB2 commands. The window shows a list of the last ten DB2 commands that you entered.

---

Figure 25. DB2 Command Output window

If you issue the command DB2 without any parameters, the DB2 Command window is displayed.

---

Figure 26. DB2 Command window

This window displays command lines on which you can issue DB2 commands. The window shows a list of the last ten DB2 commands that you entered.
You can retrieve a command that is stored in the list by positioning the cursor under the command and pressing Enter. Then, the command is shown on the command line, where you can edit and then submit the command by pressing Enter again.

If a new or modified command is submitted, the command is added to the top of the list. If the command was not edited before submission, or the command was not submitted at all, the list is not updated.

**Note:** You cannot abbreviate the command **DB2**.

**Using the COLLECT command:**

Use the COLLECT command to display the Collect Report Data panel, where you can collect specific DB2 instrumentation data and direct this data to a data set.

The command syntax is:

```plaintext
COLLECT
```

To issue the COLLECT command, type `COLLECT` on the command line and press Enter. COLLECT can be truncated to a minimum of COL.

For more information about collecting report data, see the Reporting User’s Guide.

**Using the OPTIONS command:**

Use OPTIONS to display the Session Options window, where you can set several options controlling the environment of your Interactive Report Facility (IRF) session.

The command syntax is:

```plaintext
OPTIONS
```

Figure 27. Syntax of the OPTIONS command

To issue the OPTIONS command, type `OPTIONS` on any command line and press Enter. OPTIONS can be truncated to a minimum of OPT.

**Correlation ID translation:**

The correlation ID is a DB2 field that identifies the task executed by DB2.

The correlation ID contains:

- **Batch jobs**
  - Jobname

- **TSO applications**
  - Original authorization ID (the logon user ID)

- **Applications using the DB2 call attachment facility**
  - Original authorization ID (the logon user ID)

- **CICS transactions**
  - Connection type, thread type, thread number, and the transaction ID
IMS applications
PST number and PSBNAME of the application

RRS applications
The character string provided by the application during signon

Particularly for CICS and IMS it is useful to break the correlation ID into several parts, so that you can easily distinguish the transaction ID (for CICS threads) from the PSBNAME (for IMS threads).

The default translation:

OMEGAMON XE for DB2 PE breaks the correlation ID into parts by translating the correlation ID into two separate identifiers, the correlation name and the correlation number. Unless it was changed in your installation, this translation is based on the connection type of the thread.

Table 134. The 12-Byte Correlation ID field and the default translation

<table>
<thead>
<tr>
<th>Connection Type</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batch</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>TSO, DB2 call attach</td>
<td></td>
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<td>CICS</td>
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<td>IMS</td>
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<td>RRS</td>
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</tbody>
</table>

Changing the default translation:

You can override this default translation by using option 8 (Maintain parameter data sets) from the Online Monitor Main Menu. The correlation translation information is kept in the member CORRDATA of the DPMPARMS data set.

Each record in the CORRDATA member specifies the translation that is to be used for a specific connection ID. The connection ID is used here, not the connection type.

The translation is expressed as:
• Offset where the correlation name starts
• Length of the correlation name
• Offset where the correlation number starts
• Length of the correlation number

If OMEGAMON XE for DB2 PE does not find the connection ID for a given thread in the CORRDATA member, the default translation is used.

To activate the tailored correlation translation, issue the OPTIONS command and specify the DPMPARMS data set in the Session Options window.
How large and missing values are displayed:

Values shown in panels are either total values or average values.

If there is insufficient space to display a value in a field, a rounded value is shown followed by one of the following letters to indicate magnitude:

- **K** thousand (kilo - $10^3$)
- **M** million (mega - $10^6$)
- **G** billion (giga - $10^9$)
- **TT** trillion (tera - $10^{12}$)

The letter is displayed directly after the number, without blank spaces. There can, however, be decimal places, as in the following examples:

- Valid conversions of 12 345 include 12K, 12.35K, and 12.3K.
- Valid conversions of 1 234 567 include 1M, 1.2346M, and 1235K.

If a counter value or specific information in reports, in windows, or in panels is not shown, the following notation is used to indicate the reason:

- **N/A** Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
  - A counter is not available in one DB2 version.
  - Counters are mutually exclusive.

- **N/C** Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
  - A divide by zero (percentages, ratios).
  - Suppression of negative elapsed time values.
  - Required counter values for calculation marked as N/A or N/P.
  - Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

- **N/P** Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
  - When counter values are not generated because of operational conditions (a trace class is not active).
  - An application does not provide a value because it is optional.

Elapsed time formats:

This section shows the different time formats in which time values are presented.

- **dd hh:mm:ss.fffffffff**, where:
  - **dd** represents days
  - **hh** represents hours
  - **mm** represents minutes
  - **ss** represents seconds
  - **fffffffff** represents the fractions of a second up to 8 decimal places.

  For example, a time value of 1:30:25.10 represents 1 hour, 30 minutes, and 25.1 seconds.

  Some of the reports that use this format might not report days (dd) or hours (hh).

- **ssssssssss.fffffffff**, where:
  - **sssssssss** represents seconds
  - **fffffffff** represents the fractions of a second up to 8 decimal places.
The actual number of decimal places varies from one field to another.

Some time fields can be rounded. If there is insufficient space to print a time value, the time is rounded by removing decimal places as required. For elapsed times, a rounded value is printed.

**Date formats:**

The date format for the Online Monitor is taken from your ISPF environment, and is configured during ISPF installation.

**Displaying long names and values in scrollable fields:**

Certain identifiers, such as authorization IDs and program and collection names, can be up to 128 characters long. In general, if an identifier or any applicable field value is too long for the space available in a panel, the Online Monitor displays the information in a so-called scrollable field. To view the non-visible section of a scrollable field, you can place the cursor on the field and use an assigned function key to scroll through the information.

*Figure 28* shows a fictitious example of a panel with possible variations of scrollable fields. Relevant parts of the panel are in italics. The string `abcdefghijklmnopqrstuvwxyz` represents a hypothetical field value that is too long to fit into the available space (of whatever field).

- Variation 1 shows that the string is left-aligned and truncated at the right side (`uvwxyz` is not shown). A plus sign (+) follows the string, which indicates that more of the field’s content is available on the right side.
- Variation 2 shows that the string is right-aligned and truncated at the left side (`abcdef` is not shown). A minus sign (-) follows the string, which indicates that more of the field’s content is available on the left side.
- Variation 3 shows that the string is centered and truncated at the left and right sides (`abc` and `xyz` are not shown). A plus sign and a minus sign (+-) follow the string, which indicates that more of the field’s content is available on both sides.

![Figure 28](image-url) Fictitious panel with scrollable field variations

The plus and minus signs next to fields act as *scroll indicators.*
To view non-visible sections of an appropriate field, you need to position the cursor on the field and use the following function keys (the default function key settings are assumed).

- **F21 (Expand)** shows the field's content in a separate window, which is overlaid on the current panel. If the content exceeds the available width of this window, it continues on the next line. Pressing F3 (Exit) or F12 (Cancel) closes the window.

- **F22 (Left)** moves the begin of the shown field content toward the start of the actual content. The increment is the length of the available space, until the shown field content is left-aligned in the available space.

- **F23 (Right)** moves the end of the shown field content toward the end of the actual content. The increment is the length of the available space, until the shown field content is right-aligned in the available space.

These keys can be used in any meaningful order, provided the cursor is positioned on a scrollable field. Otherwise, pressing a key has no effect.

The mechanism described so far is applicable to input fields and output fields. When you type information in a field, you can use the same function keys to position the content of a field. However, a subtle distinction should be noted: In output fields potentially existing trailing space characters are treated as nonexistent. This means, you cannot accidentally scroll to a non-visible section of the field content. In input fields trailing space characters are considered valid. This means, when you scroll through an input field with a long sequence of space characters, the field might appear empty but in fact is not.

Finally, you can get help about the use of scrollable fields by positioning the cursor on the scroll indicator area (reserved for the -+ indicators) and pressing F1 (Help).

**Common errors using OMEGAMON XE for DB2 PE**

This section describes problems often encountered when you use OMEGAMON XE for DB2 PE. If you come across a problem, read this section before contacting IBM service.

**STEPLIB missing from IRF-generated JCL**

**Symptom**

The STEPLIB DD statement is missing from the Interactive Report Facility-generated JCL.

**Probable Cause**

Wrong option selected while running FPEJVARs.

**Explanation**

FPEJVARs is an EXEC provided with OMEGAMON XE for DB2 PE that displays a panel for setting up certain defaults. One of the options in this panel specifies whether the OMEGAMON XE for DB2 PE load library is in
the system LNKLIST concatenation. If this option is selected, no STEPLIB DD statement is in the IRF-generated JCL.

**Command not found**

**Symptom**
Message IKJ56500I Command xxx not found is issued during the execution of OMEGAMON XE for DB2 PE.

**Probable Cause**
The Program Control Facility (PCF) was not updated with the list of OMEGAMON XE for DB2 PE modules that are started as TSO command processors.

**Explanation**
The PCF performs a security check on all commands to examine if they are included in the PCF command list. See your system administrator to ensure that all necessary updates have been made. After the list has been updated, the commands can be used.

If you are running the ACF2 security program, the Command Limiting Table needs to be updated by adding FPEFMAIN, FPEMMAIN, and FPEF000.

**Insufficient storage to display thread activity information**

**Symptom**
Message FPEM103 Insufficient storage available for thread processing or message FPEM546 The area for handling all IFCID records is not large enough. VI IFCID records are suppressed is issued when one of the Thread Activity panels is invoked.

**Probable Cause**
Insufficient storage allocated to hold all active thread information.

**Explanation**
By default, the Online Monitor allocates at least 1 MB of storage to hold active thread information. If the amount of active threads grows, more storage might become necessary. Use the Options panel, option 7 (ISPF Online Monitor Memory Usage) and allocate a larger storage area. See “Online Monitor options” on page 1789 for more information. The new size is kept in member FPEFPROF of the ISPF profile data set (parameter IFIRALEN) and becomes active when the Online Monitor is restarted.

**STEPLIB missing from IRF-generated JCL:**

**Symptom:** The STEPLIB DD statement is missing from the Interactive Report Facility-generated JCL.

**Probable Cause:** Wrong option selected while running FPEJVARS.

**Explanation:** FPEJVARS is an EXEC provided with OMEGAMON XE for DB2 PE that displays a panel for setting up certain defaults. One of the options in this panel specifies whether the OMEGAMON XE for DB2 PE load library is in the system LNKLIST concatenation. If this option is selected, no STEPLIB DD statement is in the IRF-generated JCL.
Monitoring and tuning with the ISPF Online Monitor

The following information describes how to perform monitoring and tuning tasks with the ISPF Online Monitor, such as viewing past data and statistics, monitoring exceptions and thread activities, explaining SQL statements, and evaluating DB2 system parameters.

Viewing past data
You can recall and view statistics, thread activity, and system parameters data previously collected by the data collector. The data is gathered at installation-defined intervals.

See “OMEGAMON Collector purpose and function” on page 372 and the following sections for a description of the data collector.

You can view past data by issuing the HISTORY command or pressing F6 (History) in any panel that can display past data.

When viewing past data, the word HISTORY is displayed on the line following the heading of the current panel, as shown in Figure 29.

The date and time following the word HISTORY indicate when the data being displayed was collected.

Note: You can view past data only if the data collector is installed at your site.

Your installation can choose to collect data at the following levels:
- Thread Summary
- Thread Detail
- Thread Detail with locking information
- Thread Detail with SQL statement
- Thread Detail with locking information and SQL statement
- Statistics
- System Parameters

Historical data is kept in either a VSAM data set or data space. The data is gathered by the data collector. When the data set or data space is full, the data is written to the beginning again, writing over the earliest data gathered.

The availability of the data is limited by the collection rate, the size of the data space or data set used, the amount of historical data to be maintained, and the thread history qualification definitions (all of these are defined in the data collector startup parameters). For more information, see IBM Db2 for z/OS in the IBM Knowledge Center.

The data collector parameters can also be modified by the administrator user.

The syntax of the HISTORY command is:
The HISTORY command accepts the following parameters:

**OFF**  Returns the display to the current time.

**BACK**  Displays data for the previous interval. If no more data is available, data from the earliest available interval is displayed.

**FORWARD**  Displays information for the next available interval. If no data is available, data from the current time is displayed and processing continues as if HISTORY is OFF.

**date**  The date of the required information. If no date is specified, today’s date is assumed.

**hh:mm:ss**  The time of the required information. If no time is specified, the default is the time of the earliest available history record for the specified date. The seconds do not need to be specified.

**Note:** HISTORY can be truncated to a minimum of HIS.

If no data is available for the specified date and time, the next available record is displayed.

When a panel is refreshed while viewing past data, the panel is updated with data from the next stored record, just as if you had entered HISTORY FORWARD on the command line.

If no parameters are specified, the History window is displayed.

```
DGOMHWHY History
05/09/08 14:03
Date . . . . . . . . 03/16/08
Time . . . . . . . . 14:03:24
F1=Help  F2=Split  F9=Swap
F12=Cancel

Figure 31. History window
```

The current system date and time are the defaults for the History window.

**Note:** When monitoring with HISTORY OFF, it is possible to view data that cannot be viewed by using the HISTORY command. This occurs when the “current moment” does not coincide with the history collection interval. For example, when the history interval is 10 minutes in length and data is collected at 8:30 and 8:40, the data retrieved at 8:32 from DB2 is not subsequently retrievable using the HISTORY command.
A sample JCL is provided in library RK02SAMP(DGOMMJCL) that can be used to unload history VSAM data sets created by the data collector. After unloading, you can use the data as input to the batch Record trace function for problem determination. The sample JCL might need to be modified.

**Exception processing**

Exception processing is the most effective way of identifying performance problems. The first step in monitoring your DB2 system should always be to start thread and statistics exception processing.

Use Online Monitor exception processing to identify DB2 thread and statistics fields with values outside defined thresholds. This allows better management of service levels by identifying problems in the DB2 subsystem and threads causing performance problems.

By using display exception processing and periodic exception processing, you can monitor and identify:
- Threads that might be experiencing problems
- Subsystem-wide DB2 conditions that might be causing performance problems

By using exception event processing, you can monitor the following events:
- Deadlock
- Timeout
- EDM pool full
- Authorization failure
- Thread commit indoubt
- Coupling Facility (CF) rebuild/alter start
- CF rebuild/alter end
- Global trace started

The threshold values for thread activity and statistics fields are specified in the Exception Threshold data set. When exceptions are detected during your monitoring session, you are notified so that appropriate action can be taken. In addition, you can activate a user exit that can automatically trigger any immediate reaction, for example, issue an alert to NetView®.

You can view information about any of the exceptions using the Online Monitor **LOOK** command.

With exception processing, you can create the following two data sets for later analysis:
- The Exception Log data set (to print a list of exceptions or to load exception data into DB2)
- The Exception DPMOUT data set (records that had exceptions)

**Exception processing modes:**

This section describes the three basic types of exception processing available: display exception processing, periodic exception processing, and exception event processing.

**Display exception processing**

Use display exception processing to monitor the occurrence of a specific exception. This exception processing mode operates in the foreground of Online Monitor processing. With display exception processing you can view thread activity.
exceptions, and statistics exceptions in interval or delta processing mode. See "Statistics processing modes” on page 1874 for an explanation of delta and interval processing.

With display exception checking, fields shown in the current panel are checked whenever the display is refreshed with new or historical data. Fields with exception conditions are shown in reverse video, and the color of the field indicates the level of the exception. Warning level exceptions are highlighted in yellow, while Problem level exceptions are highlighted in red. These colors can differ if you have changed your ISPF default colors. Selection fields in the detail panels are also shown in reverse video if any of their lower level windows contain fields in exception status. The exception notifications are stored and can be examined using the LOOK command.

Periodic exception processing

Use periodic exception processing to periodically monitor thread activity fields and statistics fields for exception conditions. This processing mode runs in the background of Online Monitor processing. With periodic exception processing, data is tested for exception whenever the interval that you specified has elapsed (whether or not you are viewing the relevant data). If any Problem level exceptions are detected, the Exception Notification window is displayed. If only Warning level exceptions are detected, a message is displayed to notify that a periodic exception has occurred. This window is overlaid on the current panel and shows the number of periodic exceptions detected during the interval. The exception notifications are stored and can be examined using the LOOK command.

If the data collector is active, periodic exception processing can continue when you exit the Online Monitor. When you use the Online Monitor the next time, any periodic exceptions that were detected while you were not logged on are displayed. Periodic exception processing is not terminated until you stop it or until the data collector itself is terminated. If the data collector is not active, periodic exception processing terminates when you exit the Online Monitor.

Exception event processing

Use exception event processing to monitor the DB2 subsystem for the occurrence of particular events. This processing mode runs in the background of Online Monitor processing. The following events can be monitored:

- Deadlock
- Timeout
- EDM pool full
- Authorization failure
- Thread commit indoubt
- CF rebuild/alter start
- CF rebuild/alter end
- Global trace started
- Data set extension
- Unit of recovery problem
- Log space shortage

The events must be specified with the EXCEPTIONEVENT data collector parameter or in the Data Collector Parameters window before exception event
processing can be activated from the Exception Processor panel. For more information, see the IBM Db2 for z/OS in the IBM Knowledge Center.

When an exception event is detected, the Exception Notification window is displayed to notify you that an exception event has occurred. Exception event notifications are stored and can be examined using the LOOK command.

**Past data and exceptions**

Display exception processing operates with past data just as if the data had been retrieved directly from DB2. Exceptions are shown in reverse video and logged as normal.

Periodic exception processing and exception event processing do not report on past data. They report on current data, whether or not past data is currently being displayed.

**Exception Notification window:**

The Exception Notification window is displayed whenever periodic exception or exception event processing is active and either a problem level exception or an event exception is detected. This window is overlaid on the current panel and shows the number of periodic problem and warning level exceptions, and the number of exception events since the last exception notification or since exception processing was started.

If exception event processing is active, the Exception Notification window is shown, as in the following figure.

```
DGOMEPE1    Exception Notification
Time . . : 04/14/08  12:42:32

  Periodic Exceptions
    Problem . . . . . . . . : 0
    Warning . . . . . . . . : 0

  Exception Events
    Deadlock . . . . . . . . : 0
    Timeout . . . . . . . . : 0
    EDM Pool Full . . . . . : 0
    Authorization Failure . . : 1
    Thread Commit Indoubt . . : 0
    CF rebuild/alter start . . : 0
    CF rebuild/alter end . . . : 0
    Global trace started . . . : 0
    Data set extension . . . . : 0
    Unit of Recovery problem . . : 0
    Log space shortage . . . . : 0

F1=Help   F2=Split   F9=Swap
F12=Cancel
```

*Figure 32. Exception Notification window (exception event processing active)*

If exception event processing is not active, the Exception Notification window is shown, as in the following figure.
To exit the Exception Notification window and return to the panel you were viewing, press Enter or F12 (Cancel).

The Periodic Exceptions section of this window shows the number of Problem and Warning level periodic exceptions since the last time you were notified of an exception.

The Exception Events section of this window shows the number of exception events that occurred for various events since the last time you were notified of an exception. This field categorizes the seven different classes of exception events that can occur.

**Difference between batch and Online Monitor exception processing:**

The fundamental difference between batch and Online Monitor exception processing is that the Online Monitor shows an active view of DB2 subsystem activity (active threads), whereas batch exception processing shows activity that has been completed (threads that have ended). Therefore, the values shown by the Online Monitor and Batch are unlikely to match. For example, a thread shown to be in exception status in a Batch Accounting trace is not necessarily in exception status in the Online Monitor.

**How to define exception threshold values:**

This information shows where exception thresholds are defined.

This information has been consolidated in the Reporting User's Guide for consistency reasons.

**How to start exception processing:**

Exception processing is started from the Exception Processor panel. All exception processing functions are activated from this panel.

Figure 34 on page 1813 shows the Exception Processor panel.

Alternatively, exception processing can automatically be started when the OMEGAMON Collector is started.

**Starting exception processing when the OMEGAMON Collector is started:**

When the OMEGAMON Collector is started, its startup parameters determine whether exception events are to be processed. Dependent on which exception events are specified, the appropriate traces are started. If an Exception Threshold data set with exception criteria is already available, it can be specified in the
OMEGAMON Collector startup parameters. By this means, exception processing automatically starts with predefined exception thresholds whenever the OMEGAMON Collector is started.

For more information about the Exception Threshold data set, a sample data set provided with the product, its data set attributes, and how its content can be modified, see the Reporting User’s Guide.

For more information about OMEGAMON Collector startup parameters, see the topic about configuring OMEGAMON Collector for exception processing in Monitoring Performance from the OMEGAMON Classic Interface. The EXCEPTIONEVENT startup parameter determines the events, and the AUTODECPTHNAME startup parameter specifies the name of the Exception Threshold data set that is to be used at startup.

If this means of starting exception processing is used, and if the content of the Exception Threshold data set is modified while the OMEGAMON Collector is running, remember to refresh the environment if you want the new exception criteria to be recognized.

Refer to “How to restart exception processing (REINIT command)” on page 1816 for more details.

Starting exception processing from the Exception Processor panel:

Use the Exception Processor panel to activate and deactivate various exception processes by selecting exceptions under Activate/Deactivate Exception Processing.

To display this panel, select option 5 (Control Exception Processing) from the Online Monitor Main Menu.

![Exception Processor panel](image)

Figure 34. Exception Processor panel
Use the 1 field to specify whether the 1 field value is in seconds or minutes. This field is only required for periodic exception processing.

The 1 field specifies how often DB2 instrumentation data is gathered, examined for exceptions, and reported if an exception condition occurs. All periodic exception messages are gathered periodically as specified by this field, and reported when the display is refreshed. After the elapsed period, if any periodic exceptions have occurred, the Exception Notification window is displayed and shows the number of warning and problem exceptions. This field is only required for periodic exception processing.

You can request a Log File data set or DPMOUT data set to be written by selecting Log file data set output needed or DPMOUT data set output needed from the Exception Processor panel, respectively. When you request a log or DPMOUT file, the Exception Output Data Sets window is displayed. See "Exception Output Data Sets window" on page 1815 for details.

Previously selected fields are indicated by a greater than symbol (>).

The Exception threshold data set field contains the name of the Exception Threshold data set used as input to the exception processor. The data set is built using the Exception Threshold Field Details panel. The Online Monitor exception processor uses the information in this data set to test fields for exception conditions.

**Note:** A valid Exception Threshold data set needs to be specified in the Exception Processor panel before activating display exception, periodic exception, or exception event processing.

*Exception processing user exit:*

OMEGAMON XE for DB2 PE supports a user exit to enhance the exception processing capabilities. This exit can handle periodic exceptions and event exceptions. Therefore, you can start the exception user exit for periodic processing, event processing, or both, depending on which kind of exception processing you have activated in the Exception Processor panel.

You can activate the user exit together with periodic exception processing, event exception processing, or both. But you can also activate it when periodic exception processing, event exception processing, or both are already active.

To activate the user exit, type any character in the **User Exit** field. To deactivate the user exit, enter a blank in this field. The **User Exit** field is displayed only if the data collector is active.

Several users can invoke periodic exception processing or event exception processing simultaneously using different threshold data sets. The users can start or stop this user exit independently. The user exit routine can check for the user ID, the exception field name, the field value, or other characteristic items to select individual paths of processing.

OMEGAMON XE for DB2 PE provides a sample of the exception processing exit, called DGOMUPXT, which issues a message to the operator. The message text varies depending on whether the situation is an event exception or a periodic exception. For a description of the different formats of this message, see message number DGOV0100I in **Messages**.
You can modify DGOMUPXT according to your needs, for example, to examine the type of exception and perform any action necessary to handle the situation.

For more information, see [IBM Db2 for z/OS in the IBM Knowledge Center](https://www.ibm.com/support/knowledgecenter/)

**Exception Output Data Sets window:**

The Exception Output Data Sets window is displayed whenever you have requested a Log File or DPMOUT data set in the Exception Processor panel.

```
DGOMEPO3 Exception Output Data Sets
Specify the data set(s) to be used, and press Enter

Display log file data set
Name . . . . .
Disposition . . I 1=append 2=overwrite 3=new

Display DPMOUT data set
Name . . . . .
Disposition . . I 1=append 2=overwrite 3=new

Periodic log file data set
Name . . . . .
Disposition . . I 1=append 2=overwrite 3=new

Periodic DPMOUT data set
Name . . . . .
Disposition . . I 1=append 2=overwrite 3=new
```

**Figure 35. Exception Output Data Sets window**

Use this window to enter the names of the Exception Log data set and DPMOUT data set you want the exception processor to write to. If the data collector is active for your current subsystem, make sure that it is authorized to write to these data sets. Different data sets are used for display exceptions and periodic exceptions.

For data sets selected in the Exception Processor panel, a valid name is required. Do not specify a name for those data sets that were not selected. Therefore, if a LOG data set was selected but not a DPMOUT data set, then you must enter a valid name for the Exception Log data set, but not for the DPMOUT data set.

You can enter the name of an output Log File data set where exception conditions are written. An entry is written to the data set for each exception condition detected by the exception processor. This data set can subsequently be used as input to the DB2 LOAD utility, or printed using the Exception Log print utility.

See “Printing the Exception Log File data set” on page 1822 for more information.

For the layout of the Exception Log File data set, see “Layout of the Exception Log File output record” on page 1987.

You can enter the name of an output DPMOUT data set where DPMOUT-formatted records that contain exception conditions are written. This data set can be used as input to a batch Record trace or Statistics trace for a more detailed analysis of exception conditions. See the Report Reference for information about the layout of DPMOUT-formatted records.
The Disposition fields specify how the data is to be written to the data sets. Enter 1 (append) to append the data, 2 (overwrite) to overwrite the old data, or 3 (new) to dynamically allocate a new data set.

Press Enter to initialize exception processing and to activate the selected functions. If there are any errors during this process, a panel is displayed that shows the errors.

Starting display exception processing:

Display exception processing is started from the Exception Processor panel under Activate/Deactivate Exception Processing.

The Exception Processor panel is shown in Figure 34 on page 1813.

Enter any character in the following fields to activate display exception processing for the appropriate panels:
- Display thread summary
- Display thread detail
- Display statistics detail

Starting periodic exception processing:

Periodic exception processing is started from the Exception Processor panel under Activate/Deactivate Exception Processing.

The Exception Processor panel is shown in Figure 34 on page 1813.

Enter any character in the 1 field and specify the periodic exception units and interval under the Options field to activate periodic exception processing.

Starting exception event notification:

Exception event notification is started from the Exception Processor panel under Activate/Deactivate Exception Processing.

The Exception Processor panel is shown in Figure 34 on page 1813.

Enter any character in the Exception event notification field to activate exception event notification.

The events must be specified with the EXCEPTIONEVENT data collector parameter or from the Data Collector Parameters window of the administrator user dialog before exception event processing can be activated.

How to restart exception processing (REINIT command):

If the values in the Exception Threshold data set are changed during an Online Monitor session, the exception processor needs to be restarted (reinitialized) to load and use the new values.

Exception processing initialization occurs when you start display or periodic exception processing using the options in the Exception Processor panel as shown in Figure 34 on page 1813. You can reinitialize exception processing by stopping and starting exception processing from the Exception Processor panel.
You can also reinitialize exception processing by using the REINIT command. The command syntax is:

```
REINIT
```

Figure 36. Syntax of the REINIT command

Type REINIT (or a valid abbreviation, beginning with a minimum of REI) on any command line (except on the Asynchronous Task Termination panel) as long as exception processing is active, and press Enter.

Examining exception messages (LOOK command):

This section describes how to examine exception messages issued during exception processing using the LOOK command.

Whenever an exception occurs, an exception message is written to the appropriate exception list where it can be examined using the LOOK command.

The command syntax is:

```
LOOK
```

Figure 37. Syntax of the LOOK command

The LOOK parameters 1 to 6 correspond to the options on the Look Selections menu in Figure 38.

To display the Look Selections menu, type LOOK and press Enter on any command line, or press F16 (LOOK).

Figure 38. Look Selections menu

Use the Look Selections menu to reach panels that display exception messages and the status of exception processes. The list panels display the last 500 exceptions.
and authorization failures that occurred during your Online Monitor session. When this limit is reached, the oldest entries in the list are discarded as new entries are added. When these windows are first displayed, the bottom of the list is displayed and shows the most recent exceptions that occurred.

The following topics describe the windows that can be accessed from the Look Selections menu.

**Examining the Periodic Exceptions:**

To display the Periodic Exceptions List window, select option 1 (Periodic Exceptions) from the Look Selections menu or type LOOK 1 and press Enter on any command line.

```
DGOMLAXP   Periodic Exceptions List   Row 499 to 500 of 500

Periodic Interval started ...........: 03/30/08 08:52:04.10
Last Interval .................: 03/30/08 08:53:35.85

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Group</th>
<th>Subsystem</th>
<th>Member</th>
<th>Corrname</th>
<th>Field</th>
<th>Value</th>
<th>Compare</th>
<th>Threshold</th>
<th>Type</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:35:36</td>
<td>PMO1DLOC</td>
<td>GROUP001</td>
<td>N/P</td>
<td>MEMBER01</td>
<td>SLRSUSP</td>
<td>100</td>
<td>&gt;</td>
<td>0</td>
<td>Problem</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>13:21:28</td>
<td>PMO1DLOC</td>
<td>GROUP001</td>
<td>N/P</td>
<td>MEMBER01</td>
<td>ADRECETT</td>
<td>0.0</td>
<td>&lt;</td>
<td>100</td>
<td>Problem</td>
<td>Commit</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL ALL SUSPENSIONS

ELAPSED TIME IN APPLICATION (CLASS 1)

**************************** Bottom of data ****************************
```

**Figure 39. Periodic Exceptions List window**

Use this window to view the most recent periodic exceptions that have occurred. You can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

Select any of the entries listed in this window to display either the Thread Detail panel or DB2 Statistics Detail panel as appropriate, where you can examine the field causing the exception. Pressing F3 (Exit) or F12 (Cancel) returns you to the Periodic Exceptions List window. If the selected exception was caused by a thread that is no longer active, past data is automatically retrieved if available to display the thread.

For more information about history, see “Viewing past data” on page 1807.

This list is cleared if you exit the Online Monitor without an active data collector running.
Examining the Periodic Exceptions Messages:

To display the Periodic Exception Messages window, select option 2 (Periodic Exceptions Messages) from the Look Selections menu or type LOOK 2 and press Enter on any command line.

<table>
<thead>
<tr>
<th>DGOMLAMP</th>
<th>Periodic Exception Messages</th>
<th>ROW 1 TO 2 OF 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Message</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DGOM944</td>
<td>Periodic Exception Processor started at 03/30/08 08:52:04.100</td>
<td></td>
</tr>
<tr>
<td>DGOM945</td>
<td>Periodic Exception Processor stopped at 03/30/08 08:53:07.290</td>
<td></td>
</tr>
<tr>
<td>************ BOTTOM OF DATA ************</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Command ===> F1=Help F2=Split F3=Exit F7=Up F8=Down F9=Swap F12=Cancel

**Figure 40. Periodic Exception Messages window**

Use this window to view messages issued by the periodic exception processor. You can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

This list is cleared when you exit the Online Monitor.

Examining the Display Exceptions:

To display the Display Exception List window, select option 3 (Display Exceptions) from the Look Selections menu or type LOOK 3 and press Enter on any command line.
Use this window to view information about the latest display exceptions that have occurred during your Online Monitor session. You can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

This list is cleared when you exit the Online Monitor.

**Examining the Authorization Failure Summary:**

To display the Authorization Failure Summary window, select option 4 (Authorization Failure Summary) from the Look Selections menu or type LOOK 4 and press Enter on any command line.

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Group</th>
<th>Subsystem</th>
<th>Member</th>
<th>Corrname</th>
<th>Field</th>
<th>Value</th>
<th>Compare</th>
<th>Threshold</th>
<th>Type</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:35:36</td>
<td>PMO1DLOC</td>
<td>GROUP001</td>
<td>N/P</td>
<td>MEMBER01</td>
<td>N/P</td>
<td>N/P</td>
<td>100</td>
<td>&gt;</td>
<td>0</td>
<td>Problem</td>
<td>Total</td>
</tr>
<tr>
<td>13:21:28</td>
<td>PMO1DLOC</td>
<td>GROUP001</td>
<td>N/P</td>
<td>MEMBER01</td>
<td>N/P</td>
<td>N/P</td>
<td>&lt;</td>
<td>100</td>
<td>Problem</td>
<td>Commit</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 41. Display Exception List window**

**Figure 42. Authorization Failure Summary window**

Use this window to view a list of authorization failures. You can select any item from the list to display the Authorization Failure Detail window, where the
authorization failure can be examined in greater detail. You can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

**Examining the Exception Event Summary:** To display the Exception Event Summary window, select option 5 (Exception Event Summary) from the Look Selections menu or type LOOK 5 and press Enter on any command line.

![Exception Event Summary window](image)

**Figure 43. Exception Event Summary window**

Use this window to view the most recent exception events that occurred during your Online Monitor session. You can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

Select any event listed on the Exception Event Summary window for closer examination. When an exception event is selected, one of the following windows is displayed as determined by the type of event:

- EDM Pool Full Data window
- Deadlock Data window
- Timeout Data window
- Coupling Facility (CF) Rebuild/Alter Start Event window
- CF Rebuild End Event window
- CF Alter End Event window
- Unformatted Record panel (thread commit indoubt)
- Global trace started
- Data Set Extension Data window
- Unit of Recovery Inflight or Indoubt Data window
- Active Log Space Shortage Data window

For IFCID 337 (Lock Escalation) an IFCID 359 (Index Split) exception events no details are available because the ISPF Online Monitor runs in DB2 10 toleration mode only.

**Examining the Exception Event Messages:** To display the Exception Event Messages window, select option 6 (Exception Event Messages) from the Look Selections menu or type LOOK 6 and press Enter on any command line.
Use this window to view messages issued by the exception event processor. You can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

**Exception processor output data sets:**

Exception processing output data can be written to data sets. Use these data sets for further analysis of exception conditions.

**Note:** Always write monitor, trace, Exception Log File, and exception DPMOUT data to separate data sets.

**Exception Log File data set:**

You can specify a particular Exception Log File data set where information about exceptions is written. The contents of the Exception Log File data set can be either printed or loaded into a DB2 table for further investigation.

To retain log file data on the same data set across multiple Online Monitor sessions, specify APPEND for the disposition.

To dynamically allocate a new Exception Log File data set with the following attributes, specify NEW for the disposition:

**RECFM:**

VB

**LRECL:**

512

**BLKSIZE:**

4 096

The data set contains an entry for each field found in exception status.


**Printing the Exception Log File data set:**

You can print the contents of the Exception Log File data set using the Exception Log File print utility.

To use this utility, submit the sample member DGOMEJCL found in the RKO2SAMP library. This member is provided as an example and can be modified as required.
Performance Database:

Exception data can be loaded into OMEGAMON XE for DB2 PE’s Performance Database.

You can find CREATE TABLE DDL, LOAD, CREATE VIEW statements, and sample SQL queries in the RKO2SAMP library, in the following members:

**CREATE TABLE statement:**
- DGOECFIL

**LOAD utility control statement:**
- DGOELFIL

**Sample CREATE VIEW statement:**
- DGOEVFIL

**Sample SQL query:**
- DGOEQFIL

**Exception DPMOUT data set:**

You can specify a particular exception DPMOUT output data set. This data set holds the DB2 instrumentation records that contain at least one field in exception status, in DPMOUT format. You can use this data set as input to a batch Record trace or Statistics trace for a more detailed analysis of exception conditions.

To retain DPMOUT data on the same data set across multiple Online Monitor sessions, specify APPEND for the disposition.

To dynamically allocate a new DPMOUT data set with the following attributes, specify NEW for the disposition:

**RECFM:**
- VBS

**LRECL:**
- 32 756

**BLKSIZE:**
- 6 233

See the [Report Reference](#) for information about the layout of the DPMOUT record.

**Stopping exception processing:**

The different types of exception processing can be stopped using the Exception Processor panel by deselecting the appropriate fields under Activate/Deactivate Exception Processing.

[Figure 34 on page 1813](#) shows the Exception Processor panel.

If an exception task is active when you exit the Online Monitor, you are notified by one of the Asynchronous Task Termination panels. You can either keep selected tasks active (if the data collector is active) and exit the Online Monitor, or return to the Online Monitor Main Menu keeping all asynchronous tasks active.

See “Leaving the ISPF Online Monitor” on page 1788 for more information.
If an exception task is active when you change DB2 subsystems, you are notified by one of the Asynchronous Task Termination panels. You can either change DB2 subsystems and terminate all asynchronous tasks, or return to the previous panel keeping all asynchronous tasks active.

See “DB2 Subsystem windows” on page 1789 for more information.

If you work in split screen mode and you change the subsystem in one session, periodic exceptions are terminated even if they were turned on in the other session.

**Displaying thread activity**

Use the Thread Activity panels to examine information about the current activity of all active threads connected to a DB2 subsystem.

**Note:** This function is not supported for DB2 11.

From the Thread Summary panel you can view key values for all connected threads (qualified and sorted as you require). You can select any thread listed in the Thread Summary panel to display the Thread Detail panel for further investigation of the thread.

The Thread Detail panel provides an overview of all thread information categories and some more detailed values. If you select a category, a new window opens, with all information pertaining to this category.

The following table lists all Thread Activity panels shown in this section.

<table>
<thead>
<tr>
<th><strong>Table 135. List of all Thread Activity panels</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thread Activity panel name</strong></td>
</tr>
<tr>
<td>Thread Summary panel</td>
</tr>
<tr>
<td>Thread Detail panel</td>
</tr>
<tr>
<td>Thread Identification window</td>
</tr>
<tr>
<td>Requester Correlation Data window</td>
</tr>
<tr>
<td>Current Package/DBRM window</td>
</tr>
<tr>
<td>Thread Times window</td>
</tr>
<tr>
<td>Locking (IRLM) Activity window</td>
</tr>
<tr>
<td>Locked Resources window</td>
</tr>
<tr>
<td>Threads Holding Resource window</td>
</tr>
<tr>
<td>RID List Processing window</td>
</tr>
<tr>
<td>SQL Activity window</td>
</tr>
<tr>
<td>Buffer Manager Activity window</td>
</tr>
<tr>
<td>Buffer Pool Detail window</td>
</tr>
<tr>
<td>SQL Statement and Package window</td>
</tr>
<tr>
<td>Distributed Data window</td>
</tr>
<tr>
<td>Distributed Location Detail window</td>
</tr>
<tr>
<td>Distributed Conversation Detail window</td>
</tr>
<tr>
<td>IFI (Class 5) and Data Capture window</td>
</tr>
<tr>
<td>Query Parallelism Data window</td>
</tr>
</tbody>
</table>
Table 135. List of all Thread Activity panels (continued)

<table>
<thead>
<tr>
<th>Thread Activity panel name</th>
<th>Thread Activity panel content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Sharing Locking Activity window</td>
<td>Figure 70 on page 1859</td>
</tr>
<tr>
<td>Group Buffer Pools Activity window</td>
<td>Figure 71 on page 1860</td>
</tr>
<tr>
<td>Group Buffer Pool Detail window</td>
<td>Figure 72 on page 1861</td>
</tr>
<tr>
<td>Stored Procedures window</td>
<td>Figure 73 on page 1862</td>
</tr>
<tr>
<td>DB2 Thread Qual. Parameters window</td>
<td>Figure 83 on page 1868</td>
</tr>
<tr>
<td>DB2 Thread Sort Specification window</td>
<td>Figure 86 on page 1873</td>
</tr>
</tbody>
</table>

Display Thread Activity overview:

The Thread Summary panel shows a summary of all connected DB2 threads qualified and sorted as defined by the QUALIFY and SORT commands.

You can select individual threads for viewing from the Thread Summary panel, the Threads Holding Resource window, or the Periodic Exceptions List panel. Selecting a thread results in all currently displayed windows being removed and the Thread Detail panel being displayed for the newly selected thread. This thread then becomes the monitored thread for further examination using the Thread Activity panels. From the Thread Detail panel, you can view specific information about the monitored thread in greater detail. To do this, type any character in the selection field next to the corresponding headings and press Enter.

Data displayed in the current panel is refreshed whenever you press Enter without selecting a particular category to be displayed or executing a command.

Before you start displaying thread activity, ensure that the appropriate DB2 monitor trace classes are set on. At least monitor class 1 must be set on, but it is a good practice to also set on class 2 and class 3. If you also want to obtain class 5, 7, or 8 information, switch on the corresponding monitor trace class.

If display exception processing is active, any fields in exception status are shown in reverse video. If you are using a color terminal, fields in warning status are highlighted in yellow, while fields in problem status are highlighted in red. Furthermore, a pop-up window shows the number of display exceptions detected.

You can purge a thread currently processing in a DB2 subsystem from any Thread Activity panel using the PURGE command. You require the DB2 privilege to perform CANCEL THREAD. See “PURGE command” on page 1866 for more information about purging a thread.

For a DB2 thread that exploits parallelism, OMEGAMON XE for DB2 PE reports aggregated values across all parallel tasks that are created to execute SQL statements within the thread. Therefore, and because of the nature of parallel work, some counters (particularly processor and suspension fields) can show unexpected large values, which do not necessarily indicate problems. Sometimes these values are even larger than the entire wall-clock elapsed time. Besides query parallelism OMEGAMON XE for DB2 PE also reports DB2 utility parallelism. Further details are described in the following paragraph.
Accounting times:

Accounting times are usually the prime indicator of a performance problem and should be the starting point for analysis.

DB2 times are classified as follows:

- **Class 1** time shows the time the application spent since connecting to DB2, including time spent outside DB2.
- **Class 2** elapsed time shows the time spent in DB2. It is divided into CPU time and waiting time.
- **Class 3** elapsed time is divided into various waits, such as the duration of suspensions because of waits for locks and latches or waits for I/O.

Parallellism considerations:

This section applies to threads that exploit CP parallelism or utility parallelism.

If a thread exploits parallelism, several tasks (called parallel tasks) are scheduled to perform the parallel work. For each of these tasks an Accounting record is generated, which contains counters and timers for the work performed by the particular task. In addition, the Accounting record for the thread contains the details about non-parallel work within the thread and also some parallel work-related data.

OMEGAMON XE for DB2 PE summarizes all Accounting records generated for such a thread and presents them as one logical Accounting record. Table 136 on page 1827 describes which values are a combination of the originating task’s and parallel tasks’ values and which are taken from the originating task only.

To avoid incorrect time values, the data collector must be active with CCP=YES switched on if query parallelism or utility parallelism is used. In this case, the data collector can collect data of parallel tasks that have already terminated.

For Sysplex parallelism, thread activity information is only shown for the originating task and for those parallel tasks that are executing on the same member as the originating task. Parallel tasks that are executing on different members of the Sysplex group are ignored. Sysplex parallelism threads are marked by *$* next to the program name in the Thread Summary panel.

Especially interesting is the relationship between elapsed time, CPU time, and suspension times in the case of query parallelism or utility parallelism. The elapsed time is taken from the originating record while CPU and suspension times are calculated from all parallel and originating records. Consequently, both CPU time and suspension times can be larger than the elapsed time. Therefore, you can only get the full picture of the response time distribution if the times for each participating task are known. Produce a long Record trace for IFCID 3 using the Batch reporting facilities, especially if you suspect that the CPU times or suspension times for a thread where query parallelism or utility parallelism is used are large for other reasons than the times being added for several tasks. In a long Record trace, all Accounting records for parallel and originating threads are reported separately.
Table 136. Query parallelism related data

<table>
<thead>
<tr>
<th>Accounting Data</th>
<th>Derivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifiers (PRIMAUTH, PLANNAME, and so on)</td>
<td>Originating task</td>
</tr>
<tr>
<td>Class 1 elapsed time</td>
<td>Originating task</td>
</tr>
<tr>
<td>Class 1 TCB times</td>
<td>Separate counters for originating task and sum of all parallel tasks</td>
</tr>
<tr>
<td>Class 2 elapsed time</td>
<td>Originating task</td>
</tr>
<tr>
<td>Class 2 TCB times</td>
<td>Separate counters for originating task and sum of all parallel tasks</td>
</tr>
<tr>
<td>Class 7 elapsed time</td>
<td>Originating task</td>
</tr>
<tr>
<td>Class 7 TCB times</td>
<td>Separate counters for originating task and sum of all parallel tasks</td>
</tr>
<tr>
<td>Class 2 and class 7 DB2 entry/exit events</td>
<td>Originating task</td>
</tr>
<tr>
<td>Class 3 and class 8 times</td>
<td>Separate counters for originating task and sum of all parallel tasks</td>
</tr>
<tr>
<td>Class 3 and class 8 events</td>
<td>Sum of originating task and all parallel tasks</td>
</tr>
<tr>
<td>Class 5 times</td>
<td>Originating task</td>
</tr>
<tr>
<td>SQL counters</td>
<td>Originating task</td>
</tr>
<tr>
<td>RID List counters</td>
<td>Sum of originating task and all parallel tasks</td>
</tr>
<tr>
<td>Query Parallelism counters</td>
<td>Originating task</td>
</tr>
<tr>
<td>Locking (including data-sharing-specific) counters</td>
<td>Sum of originating task and all parallel tasks</td>
</tr>
<tr>
<td>RLF data</td>
<td>Originating task</td>
</tr>
<tr>
<td>Buffer Pools counters</td>
<td>Sum of originating task and all parallel tasks</td>
</tr>
<tr>
<td>Group Buffer Pools counters</td>
<td>Sum of originating task and all parallel tasks</td>
</tr>
<tr>
<td>DDF counters</td>
<td>Originating task</td>
</tr>
<tr>
<td>Data Capture counters</td>
<td>Originating task</td>
</tr>
</tbody>
</table>

Thread Summary panel:

Use the Thread Summary panel to view a list of active threads connected to the DB2 subsystem.

To display the Thread Summary panel, select option 1 (Display Thread Activity) from the Online Monitor Main Menu.

When the Thread Summary panel is initially displayed, class 1 and class 2 elapsed times are shown. Additional information is available to the right of the panel. You can press F20 (Right) to view the portions of the panel that are not displayed. [Figure 45 on page 1828][Figure 46 on page 1828][Figure 47 on page 1829] and [Figure 48 on page 1829] show the Thread Summary panel with all its possible fields.

Some fields can have values that are longer than the space available to show them in this panel. When this happens, the last character in the field is replaced with an asterisk (*) to indicate that the reported value is truncated.
DGOMTPLS 17:11  Thread Summary  SORT QUALIFY  ROW 1 TO 2 OF 2

PMO5D851  D851 V10

To display a thread, place any character next to it, then press Enter.

<table>
<thead>
<tr>
<th>Primauth</th>
<th>Plannam</th>
<th>Location</th>
<th>Program</th>
<th>on Requesting Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>USERT003</td>
<td>DSNESPCS</td>
<td>DSNES6M68</td>
<td>1.567556 0.004357 0.001148</td>
<td></td>
</tr>
<tr>
<td>USERT004</td>
<td>DSNUTILS</td>
<td>DSNES6M68</td>
<td>1.910917 0.006301 0.003724</td>
<td></td>
</tr>
</tbody>
</table>

-- End of Thread list --

Command ===>
F1=Help  F2=Split  F3=Exit  F5=Auto  F6=History  F7=Up
F8=Down  F9=Swap  F10=Qualify  F11=Sort  F12=Cancel  F16=Look
F17=Collect  F19=Left  F20=Right  F22=Purge

Figure 45. Thread Summary panel

DGOMTPLS 17:11  Thread Summary  SORT QUALIFY  ROW 1 TO 2 OF 2

PMO5DLOC  DSN1 V10  GROUP001 MEMBER01

To display a thread, place any character next to it, then press Enter.

<table>
<thead>
<tr>
<th>Primauth</th>
<th>Plannam</th>
<th>Class</th>
<th>Program</th>
<th>-- Elapsed --</th>
<th>-------</th>
<th>CPU -------</th>
</tr>
</thead>
<tbody>
<tr>
<td>USERT003</td>
<td>DSNESPCS</td>
<td>1</td>
<td>DSNES6M68</td>
<td>1.567556 0.004357 0.001148</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USERT004</td>
<td>DSNUTILS</td>
<td>1</td>
<td>DSNES6M68</td>
<td>1.910917 0.006301 0.003724</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

-- End of Thread list --

Command ===>
F1=Help  F2=Split  F3=Exit  F5=Auto  F6=History  F7=Up
F8=Down  F9=Swap  F10=Qualify  F11=Sort  F12=Cancel  F16=Look
F17=Collect  F19=Left  F20=Right  F22=Purge

Figure 46. Thread Summary panel (scrolled right once)
When the data collector is active, the Thread Summary panel also shows, besides other threads, the threads initiated by OMEGAMON XE for DB2 PE. Threads are collected for data collector tasks and for each Host Online Monitor user and Workstation Online Monitor user.

If many threads are active, use F7 (Up) and F8 (Down) to browse the list.

```
To display a thread, place any character next to it, then press Enter.

<table>
<thead>
<tr>
<th>Primauth</th>
<th>Planname</th>
<th>Program</th>
<th>Requesting</th>
<th>Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>_USERT003</td>
<td>DSNESPCS</td>
<td>DSNESM68</td>
<td>DSNAPC7</td>
<td>N/P</td>
</tr>
<tr>
<td>_USERT004</td>
<td>DSNUTILS</td>
<td>DSNESM68</td>
<td>DSNAPC7</td>
<td>N/P</td>
</tr>
</tbody>
</table>

-- End of Thread list --
```

Figure 47. Thread Summary panel (scrolled right twice)

When the data collector is active, the Thread Summary panel also shows, besides other threads, the threads initiated by OMEGAMON XE for DB2 PE. Threads are collected for data collector tasks and for each Host Online Monitor user and Workstation Online Monitor user.

If many threads are active, use F7 (Up) and F8 (Down) to browse the list.

```
To display a thread, place any character next to it, then press Enter.

<table>
<thead>
<tr>
<th>Primauth</th>
<th>Planname</th>
<th>Program</th>
<th>Requesting</th>
<th>Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>_USERT003</td>
<td>DSNESPCS</td>
<td>DSNESM68</td>
<td>DSNAPC7</td>
<td>N/P</td>
</tr>
<tr>
<td>_USERT004</td>
<td>DSNUTILS</td>
<td>DSNESM68</td>
<td>DSNAPC7</td>
<td>N/P</td>
</tr>
</tbody>
</table>

-- End of Thread list --
```

Figure 48. Thread Summary panel (scrolled right three times)
You can filter threads from being displayed in this panel using the QUALIFY command (see “QUALIFY command” on page 1867). You can also specify the order in which the threads are listed using the SORT command (see “SORT command” on page 1870).

The 1 field displays one of the following values:

- **DB2** The thread is currently processing within DB2.
- **I/O** The thread is performing I/O activity within DB2.
- **LOCK** The thread is engaged in locking activity within DB2.
- **EOT** The thread is in end-of-task processing.
- **APPL** Processing is occurring within the application.
- **I/S** The thread is in identify or signon state.
- **QUE** The value specified for MAXUSERS in the DB2 Install panel DSNTIPE has been met and the thread creation is queued until an available slot is found.
- **SP** The thread is running a stored procedure and is currently processing within DB2.
- **SPA** The thread is running a stored procedure, and processing is occurring outside DB2 (in stored procedure application code).
- **SPW** The thread is waiting for a stored procedure to be scheduled within DB2.
- **NTCB** Recoverable Resource Manager Services Attach Facility (RRSAF) agent has no TCB.

The identifier fields Primauth, Plannname, Package or DBRM, Connection ID, and Status are highlighted in yellow when the status is DB2. Threads that are in I/O, Lock, SP, or SPW status are also highlighted in yellow because these are subsets of the DB2 status. The other fields in the Thread Summary panel are highlighted in reverse video when they are in exception status.

An asterisk (*) is shown to the left of the 1 field if the thread type is ALLIED DISTRIBUTED or DBAT.

When display exception processing is active, the exception fields displayed in the Thread Summary panel are checked for an exception condition each time the panel data is refreshed.

If you are filtering the threads listed in this panel, only the listed threads are checked for exception conditions. Threads in exception status are sorted to the top of the display, with problem level exceptions first and warning level exceptions second.

From the Thread Summary panel, you can select any thread to display the Thread Detail panel, where the thread can be examined in greater detail.

**Thread Detail panel:**

Use the Thread Detail panel to view detailed information about the thread being monitored. From the Thread Detail panel, you can reach the Category windows, which show selected information about the monitored thread in greater detail.
To display the Thread Detail panel, select any active thread listed in the Thread Summary panel, Threads Holding Resource window, or the Periodic Exceptions List panel.

Some fields can have values that are longer than the space available to show them in this panel. When this happens, the last character in the field is replaced with an asterisk (*) to indicate that the reported value is truncated.

**Note:** The Thread Detail panel displayed at your site might have been tailored by your installation and consequently might not necessarily match the panel example shown in this information.

![Thread Detail panel](image)

If you have enabled display exception processing, all fields in exception status are shown in reverse video, and the color indicates the level of the exception. **Warning** level exceptions are highlighted in yellow, while **problem** level exceptions are highlighted in red. Categories that can be selected from this panel are shown in reverse video when their next level windows contain fields in exception status.

If DBRM is used, the Current Package field displayed in the Thread Detail panel is shown as Current DBRM instead.
The following list describes some of the important fields that are shown in this panel:

**Type**  The type of the thread being monitored.

- **ALLIED** The thread is not involved in any distributed activity.
- **A-DIST** The thread is initiated by a DB2 attach and requests data from one or more server locations.
- **DBAT** The thread is initiated by, and performing work on behalf of, a remote (requester) location.
- **D-DIST** Distributed database access thread, both a DDF server and requester.

It is important to know whether the thread is involved in distributed activity, because this can affect the fields that should be monitored. For example, if the thread is involved in distributed activity, the class 1 elapsed time is higher than if there was no distributed activity, because this time includes network time.

**Class 1 Times**
This field shows the elapsed time and the CPU time for the processing performed and includes the time spent not only in DB2 but also in the application.

CPU time is the sum of:
- The agent’s CPU (TCB) time
- The CPU time spent in stored procedures
- The accumulated processing time of the parallel tasks (if query parallelism or utility parallelism is used)

**Class 2 Times**
This field shows the elapsed time and the CPU time for the processing performed in DB2 only. Elapsed time includes wait times.

CPU time is the sum of:
- The agent’s CPU (TCB) time
- The CPU time spent in stored procedures
- The accumulated processing time of the parallel tasks (if query parallelism or utility parallelism is used)

For threads that exploit query parallelism or utility parallelism, class 2 CPU time can be larger than class 2 elapsed time because the CPU time includes the execution time of all parallel threads. To separate the agent’s CPU time from the sum of all parallel tasks’ CPU times, select Times, which displays the Thread Times window. See also the discussion at the beginning of “Accounting times” on page 339.

**Class 3 Times**
This field shows the total time spent waiting because of class 3 suspensions. For threads that exploit query parallelism or utility parallelism, wait times are summed for the originating task and all parallel tasks. See also the discussion at the beginning of “Accounting times” on page 339.

**Suspensions**
This field includes all types of lock suspensions.

**Getpage requests**
This field shows the number of Getpage requests. Reducing Getpage requests reduces CPU usage and improves performance. Fewer Getpage
requests also result in fewer synchronous reads, because fewer pages that are not in the buffer pool must be fetched.

**Prefetch reads**
This includes number of Prefetch reads done because of Sequential Prefetch, List Prefetch, and Dynamic Prefetch.

**Synchronous I/O**
This includes both synchronous reads and synchronous writes.

**Thread Activity windows:**
You can access several windows from the Thread Detail panel. To reach a window, type any character in the space beside the heading you want. Several windows can be accessed simultaneously. The windows are overlaid in the Thread Detail panel. To leave the current window and proceed with the next window, press F3 (Exit). To cancel all windows and return to the Thread Detail panel, press F12 (Cancel).

**Thread Identification window:**
Use the Thread Identification window to examine the identification data about the thread being monitored. To display this window, select Thread Identification from the Thread Detail panel.

Some fields can have values that are longer than the space available to show them in this panel. When this happens, the last character in the field is replaced with an asterisk (*) to indicate that the reported value is truncated.

<table>
<thead>
<tr>
<th>DGOMTWID</th>
<th>Thread Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>More: - +</td>
<td></td>
</tr>
<tr>
<td>Status . . . . . . . . . . : In DB2</td>
<td></td>
</tr>
<tr>
<td>Origin . . . . . . . . . . : USER029+</td>
<td></td>
</tr>
<tr>
<td>Parallelism . . . . . . . . . . . . . . : CP</td>
<td></td>
</tr>
<tr>
<td>Correlation . . . . . . . . . . . . . . : USER029</td>
<td></td>
</tr>
<tr>
<td>Requesting . . . . . . . . . . . . . . : PM05LB5LOCATI</td>
<td></td>
</tr>
<tr>
<td>LUW Network ID . . . . . . . . . . . . . . : APCNET</td>
<td></td>
</tr>
<tr>
<td>LUW LU Name . . . . . . . . . . . . . . : SYDAPC6</td>
<td></td>
</tr>
<tr>
<td>LUW Instance Number . . . . . . . . . . : X'AB0C8B03FF31'</td>
<td></td>
</tr>
<tr>
<td>LUW Sequence Number . . . . . . . . . . : 1</td>
<td></td>
</tr>
<tr>
<td>Command ====&gt;</td>
<td></td>
</tr>
<tr>
<td>F1=Help F2=Split F3=Exit F5=Auto F6=History F7=Up</td>
<td></td>
</tr>
<tr>
<td>F8=Down F9=Swap F10=Cancel F16=Look F17=Collect F22=Purge</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 50. Thread Identification window**

From the Thread Identification window, you can select Requester Correlation to display the Requester Correlation Data window.

The following list describes some of the important fields that are shown in this window:

**Status** The status of the thread. If Parallelism is ‘CP’, the status ‘In DB2’ means that the originating task is in DB2.
**Primauth**

The primary authorization ID from connection or signon. This is SYSOPR for MVS operator commands and DB2 system internal agents. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it is not the same as the original primary authorization ID. Distributed authorization ID translation can also change the primary authorization ID.

**Planname**

The name of the plan produced during the bind process and used by DB2 to process SQL statements encountered during statement execution. Examples of plan names are DSNUTIL for utility, DSNBIND for bind activity, DISTSERV for remote unit of work, and the application plan name for CICS and IMS.

**Correlation Name**

The correlation name for the thread.

For further details, see “Correlation ID translation” on page 1801.

**Correlation Number**

The correlation number for the thread.

For further details, see “Correlation ID translation” on page 1801.

**LUW Network ID**

The logical unit of work ID (LUWID), consisting of the network ID, LU name, instance number, and sequence number, identifies a thread within a network and is used to correlate local and remote activity for a single distributed transaction.

**LUW LU Name**

See LUW Network ID.

**LUW Instance Number**

See LUW Network ID.

**LUW Sequence Number**

See LUW Network ID.

**RRSAF Accounting token**

This field shows the Accounting token as defined during signon for a thread using the RRS attachment facility.

**Recovery token**

This field is used to correlate Online Monitor display with a CICS inquire task display.

**Requester Correlation Data window:**

Use the Requester Correlation Data window to view information about the correlation data belonging to the originator (initial requester) of the distributed transaction. One of four different Requester Correlation Data windows is displayed depending on the requester type.

The following figure shows an example of a Requester Correlation Data window.
Current Package/DBRM window:

To display this window, select Current Package or Current DBRM from the Thread Detail panel. One of two possible windows is displayed depending on whether the thread currently uses a package or a DBRM.

Some fields can have values that are longer than the space available to show them in this panel. If this happens, the last character in the field is replaced with an asterisk (*) to indicate that the reported value is truncated.

Figure 51. Requester Correlation Data window for a DB2 Requester
Use the Current Package window to view information about the location, identification, and execution times of various functions performed by or on the current package.

Some fields can have values that are longer than the space available to show them in this panel. When this happens, the last character in the field is replaced with an asterisk (*) to indicate that the reported value is truncated.
Use the Current DBRM window to view information about the identification and execution times of various functions performed by or on the current DBRM.

See "Accounting times" on page 339 for a discussion of how to interpret the time values for threads that exploit query parallelism or utility parallelism. These considerations apply to class 7 times (for elapsed times and CPU times) and to class 8 times (for suspension times).

The following list describes some of the important fields that are shown in this window:

**Not accounted**
This is derived as Waiting time - Suspension time (Class 8) TCB. It includes CPU wait times, paging, and open/close activity.

**Suspensions (Class 8)**
If Waiting time and Suspension time (Class 8) are almost the same, examine the reasons for suspensions that caused the wait. Otherwise, examine the Not accounted field in the Thread Times window.

**Locks and latches**
This field shows the duration of suspensions resulting from a lock or latch not being available immediately on request. If the suspension time is high, examine the Locking (IRLM) Activity window.

**Synchronous I/O**
This field shows the accumulated I/O elapsed wait time for I/O performed under this thread. This field is for synchronous I/O only. It includes synchronous Read and Write I/O. If the time per I/O is high, one typical problem is an interference by Prefetch or Deferred Write I/O.

**Other read I/O**
This field includes waits caused by Read I/O performed under another thread, for example, Sequential Prefetch, List Prefetch, or Dynamic Prefetch.

If the value in this field is high, the problem could be an I/O bound query using Prefetch or an I/O contention. If it is an I/O bound query, DEGREE...
ANY could drastically improve elapsed time of such a query. The application is accessing data from a busy data set/volume/control unit and is continually being suspended. The DBA and the MVS system programmer should be consulted.

Other write I/O
This field includes waits caused by Write I/O performed under another thread, for example, asynchronous Write.

If the value in this field is high, the problem could be I/O contention. The application is accessing data from a busy data set/volume/control unit and is continually being suspended. The DBA and the MVS system programmer should be consulted to resolve possible data set placement problems.

Too small a buffer pool for sort and other updated data could also cause this problem.

Services task switch
Included here are waits because of OPEN/CLOSE data set, SYSLGRNX update, COMMIT PHASE II for UPDATE threads, HSM recall for data set, data space manager services, DEFINE, EXTEND, and DELETE data set, and the log I/Os for COMMIT and UPDATE processing.

Wait times in COMMIT are reported in the following fields:

**TSO/CAF/Batch single phase commit:**
SER.TASK SWTCH

**CICS/IMS phase 1 commit:**
SYNCHRON. I/O

**CICS/IMS phase 2 commit:**
SER.TASK SWTCH

This means, for example, that an IMS COMMIT used to have 2 synchronous I/O suspensions, whereas now it has 1 synchronous I/O suspension and 1 service task suspension.

Both single and dual logs result in the same count.

There is no overlap between the elapsed time reported in this field and the other class 3 elapsed times. If service task suspensions overlap other types of suspensions, the other types of suspensions are ignored.

Preformatting the data sets is probably most important in terms of service task suspension.

**Archive log (quiesce)**
Included here are waits because of processing of the ARCHIVE command (not the time for the ARCHIVE command to complete).

Avoid issuing ARCHIVE LOG QUIESCE during peak periods.

**Archive log read**
Accumulated wait time for archive reads (from tape).

**Drain lock**
The time spent waiting because of drain lock suspensions. If the value is large, it can indicate that the execution of a utility affects the SQL.

**Claim release**
The time spent waiting for claims to be released.
Page latch

The time spent waiting for page latch contentions.

Thread Times window:

Use the Thread Times window to investigate the response times of different actions performed by the thread.

See "Accounting times" on page 339 for a discussion on how to interpret the time values for threads that exploit query parallelism or utility parallelism.

To display this window, select Times from the Thread Detail panel.

<table>
<thead>
<tr>
<th>DGOMTWTLI</th>
<th>Thread Times</th>
<th>More - +</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class 1</td>
<td>Class 2</td>
</tr>
<tr>
<td>Elapsed time</td>
<td>In Appl</td>
<td>In DB2</td>
</tr>
<tr>
<td></td>
<td>29.504644</td>
<td>1.188735</td>
</tr>
<tr>
<td>CPU time</td>
<td>0.135267</td>
<td>0.064602</td>
</tr>
<tr>
<td>TCB</td>
<td>0.135267</td>
<td>0.064602</td>
</tr>
<tr>
<td>TCB - Stored Proc</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>Parallel tasks</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>Waiting time</td>
<td>N/A</td>
<td>1.121289</td>
</tr>
<tr>
<td>Suspension time</td>
<td>N/A</td>
<td>1.121289</td>
</tr>
<tr>
<td>TCB</td>
<td>N/A</td>
<td>1.121289</td>
</tr>
<tr>
<td>Parallel tasks</td>
<td>N/A</td>
<td>0.000000</td>
</tr>
<tr>
<td>Not accounted</td>
<td>N/A</td>
<td>0.002844</td>
</tr>
<tr>
<td>Time</td>
<td>1.121289</td>
<td>73</td>
</tr>
<tr>
<td>Event</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Suspensions</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>(Class 3)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Locks and latches</td>
<td>0.000000</td>
<td>0</td>
</tr>
<tr>
<td>Synchronous I/O</td>
<td>0.389523</td>
<td>57</td>
</tr>
<tr>
<td>Other read I/O</td>
<td>0.762766</td>
<td>16</td>
</tr>
<tr>
<td>Other write I/O</td>
<td>0.000000</td>
<td>0</td>
</tr>
<tr>
<td>Services Task switch</td>
<td>0.000000</td>
<td>0</td>
</tr>
<tr>
<td>Archive log (quiesce)</td>
<td>0.000000</td>
<td>0</td>
</tr>
<tr>
<td>Archive log read</td>
<td>0.000000</td>
<td>0</td>
</tr>
<tr>
<td>Drain lock</td>
<td>0.000000</td>
<td>0</td>
</tr>
<tr>
<td>Claim release</td>
<td>0.000000</td>
<td>0</td>
</tr>
<tr>
<td>Page latch</td>
<td>0.000000</td>
<td>0</td>
</tr>
<tr>
<td>Stored procedures</td>
<td>0.000000</td>
<td>0</td>
</tr>
<tr>
<td>Notify messages</td>
<td>0.000000</td>
<td>0</td>
</tr>
<tr>
<td>Global contention</td>
<td>0.000000</td>
<td>0</td>
</tr>
<tr>
<td>DB2 entry/exit events</td>
<td>195</td>
<td></td>
</tr>
<tr>
<td>Non stored procedures</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Stored procedures</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Class 5 (IFI)</td>
<td>Eapsed Time</td>
<td>N/P</td>
</tr>
<tr>
<td>TCB Time</td>
<td>N/P</td>
<td></td>
</tr>
</tbody>
</table>

Figure 54. Thread Times window

Class 1, 2, and 3 times can help guide your investigation into application performance and tuning.

Class 2 and 3 times are reported only if monitor trace classes 2 and 3 are active.

Class 2 and 3 times are not updated until the thread completes its current call to DB2. For example, during execution of a long running SQL statement, class 2 and 3 times are not updated until after the SQL process has ended. Consequently, class 2 and 3 times are estimated when the thread is in DB2.
The following list describes some of the important fields that are shown in this window:

**Suspensions (Class 3)**
Total time spent waiting because of various suspensions covered by monitor trace class 3.

**Locks and latches**
This field shows the duration of suspensions resulting from a lock or latch not being available immediately on request. If the suspension time is high, examine further the Locking block in the Accounting report.

**Synchronous I/O**
This field shows the accumulated I/O elapsed wait time for I/O performed under this thread. This field is for synchronous I/O only. It includes synchronous Read and Write I/O. If the time per I/O is high, one typical problem is an interference by Prefetch or Deferred Write I/O. The I/O scheduling enhancement in current DB2 releases should reduce this problem by assigning higher I/O priority to synchronous I/O over asynchronous I/O.

**Other read I/O**
This field includes waits caused by Read I/O performed under another thread, for example, Sequential Prefetch, List Prefetch, or Dynamic Prefetch.

If the value in this field is high, the problem could be an I/O bound query using Prefetch or an I/O contention. If it is an I/O bound query, DEGREE ANY could drastically improve elapsed time of such a query. The application is accessing data from a busy data set/volume/control unit and is continually being suspended. The DBA and the MVS system programmer should be consulted.

**Other write I/O**
This field includes waits caused by write I/O performed under another thread, for example, asynchronous write.

If the value in this field is high, the problem could be I/O contention. The application is accessing data from a busy data set/volume/control unit and is continually being suspended. The DBA and the MVS system programmer should be consulted to resolve possible data set placement problems.

Too small a buffer pool for sort and other updated data could also cause this problem.

**Archive log (quiesce)**
Included here are waits because of processing of the ARCHIVE command (not the time for the ARCHIVE command to complete).

Avoid issuing ARCHIVE LOG QUIESCE during peak periods.

**Archive log read**
Accumulated wait time for archive Reads (from tape).

**Drain lock**
The time spent waiting because of drain lock suspensions. If the value is large, it can indicate that the execution of a utility affects the SQL.

**Claim release**
The time spent waiting for claims to be released.
Deadlocks

The time spent waiting for page latch contentions.

Locking (IRLM) Activity window:

Use the Locking (IRLM) Activity window to view information about locking activity for the thread being monitored.

To display this window, select Locking Activity from the Thread Detail panel.

<table>
<thead>
<tr>
<th>DGOMTWLK</th>
<th>Locking (IRLM) Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>More:</td>
<td>+</td>
</tr>
<tr>
<td>Lock and latch suspensions</td>
<td>1</td>
</tr>
<tr>
<td>Elapsed time</td>
<td>0.000355</td>
</tr>
<tr>
<td>Timeouts</td>
<td>0</td>
</tr>
<tr>
<td>Deadlocks</td>
<td>0</td>
</tr>
<tr>
<td>Lock requests</td>
<td>19</td>
</tr>
<tr>
<td>Unlock requests</td>
<td>18</td>
</tr>
<tr>
<td>Change requests</td>
<td>1</td>
</tr>
<tr>
<td>Query requests</td>
<td>0</td>
</tr>
<tr>
<td>Other IRLM requests</td>
<td>0</td>
</tr>
<tr>
<td>Suspensions - lock</td>
<td>0</td>
</tr>
<tr>
<td>Suspensions - latch</td>
<td>1</td>
</tr>
<tr>
<td>Suspensions - other</td>
<td>0</td>
</tr>
<tr>
<td>Lock escalations - shared</td>
<td>0</td>
</tr>
<tr>
<td>Lock escalations - exclusive</td>
<td>0</td>
</tr>
<tr>
<td>Maximum page or row locks held</td>
<td>2</td>
</tr>
<tr>
<td>Claim requests</td>
<td>6</td>
</tr>
<tr>
<td>Unsuccessful claim requests</td>
<td>0</td>
</tr>
<tr>
<td>Drain requests</td>
<td>0</td>
</tr>
<tr>
<td>Unsuccessful drain requests</td>
<td>0</td>
</tr>
</tbody>
</table>

Command ==>
F1=Help F2=Split F3=Exit F5=Auto F6=History
F7=Up F8=Down F9=Swap F12=Cancel F16=Look
F17=Collect F22=Purge

Figure 55. Locking (IRLM) Activity window

Deadlocks and timeouts displayed in this window can indicate the existence of locking problems. These problems can be further investigated using the Locked Resources window to examine resources that are either locked by or, if they are locked by another thread, unavailable to, the monitored thread.

The following list describes some of the important fields that are shown in this window:

**Timeouts**

Number of times lock suspension ultimately resulted in a timeout. This happens when a requester for a lock on a resource has waited longer than the installation-specified RESOURCE TIMEOUT limit in the DB2 Install panel DSNTIPI.

**Deadlocks**

Number of times lock suspension ultimately resulted in a deadlock. This happens when two or more application processes each hold locks on resources that the others need, without which they cannot proceed. A single process accessing data through an unclustered index can sometimes experience a deadlock between a data page and an index page. If deadlocks are not very frequent, they might not affect performance.
Lock requests
Number of times a lock on a resource was requested.

Change requests
Number of times a lock change was requested, for example, to promote a shared page lock to exclusive lock.

Suspensions - lock
Number of resource conflicts. A suspension is a wait for a lock, and each of these waits can adversely affect application performance. The suspension might ultimately result in normal resumption, timeout, or deadlock. The number of lock suspensions is a function of the lock requests. Lock suspensions (or conflicts) can occur on either lock requests or change requests.

The ratio of suspensions to lock requests is largely application dependent.

Lock escalations - shared
Count of lock escalations to shared mode. Number of times the LOCKS PER TABLE(SPACE) parameter in the DB2 Install panel DSNTIPJ was exceeded and the table space lock was promoted from a page lock (IS) to a table space lock (S) for this thread. Escalation can cause unpredictable response times. The lock escalation to shared mode should only happen on an exception basis. For example, if a REPEATABLE READ application references most pages in a table.

Lock escalations - exclusive
Count of lock escalations to exclusive mode. Number of times the LOCKS PER TABLE(SPACE) parameter in the DB2 Install panel DSNTIPJ was exceeded and the table space lock was promoted from a page lock (IX) to a table space lock (X) for this thread. Escalation can cause unpredictable response times. The lock escalation to exclusive mode should happen rarely, for example, if an application updates many pages in a table without issuing commits.

Check the exception event display for deadlocks occurring against the agent that causes the lock escalation. In a transaction processing environment, a moderate level of lockout is tolerable. If many escalations cause deadlocks and timeouts, you can change the escalation threshold value. Use of ANY is extremely desirable to prevent unnecessary and expensive page locks, for example locking all pages in a table space.

Lock escalations, shared or exclusive, should not be expected in a transaction environment.

If escalation occurs when LOCKSIZE ROW or LOCKSIZE PAGE is specified, the lock is escalated to the table level for a segmented table space and to the table space level for a nonsegmented table space.

A new clause LOCKMAX has been added to the CREATE TABLESPACE statement. This provides for control of the maximum number of locks for an individual table space in addition to the system-wide NUMLKTS parameter currently provided.

The default is LOCKMAX 0 to ensure that PAGE level locking is consistent with previous releases of DB2. If LOCKSIZE ANY is specified, DB2 chooses LOCKSIZE PAGE LOCKMAX SYSTEM.

Escalation is now possible with PAGE locking by specifying the LOCKMAX clause. This provides for initial PAGE level locking with escalation to table or table space locking for segmented and nonsegmented
table spaces respectively, based on the number of locks specified on the LOCKMAX clause. To disable escalation, specify LOCKMAX 0.

For high volume updates where contention is an issue, use type-2 indexes and specify one of the following:

- LOCKSIZE PAGE
- LOCKSIZE ROW for the high contention tables to improve concurrency. However, LOCKSIZE ROW should be considered only as an exceptional case, because of a potential for significant overhead. In fact, it is even possible that LOCKSIZE ROW causes deadlocks, which would not happen with LOCKSIZE PAGE.

Omitting LOCKMAX results in LOCKMAX 0, which disables escalation. If escalation is to be allowed, users should carefully consider the threshold at which it should take place for each individual table.

Maximum page or row locks held

Count of the maximum number of page or row locks concurrently held against all table spaces by a single thread during its execution. This count cannot exceed the value of the “LOCKS PER USER” DB2 installation parameter (panel DSNTIPJ). After the limit is reached, the next attempt to obtain a lock results in a RESOURCE UNAVAILABLE return code, and the SQL request is not processed.

Locking considerations

The following aspects should be considered if concurrency is an issue:

- Consistent data access sequence in applications
- The mix of concurrent processing types (batch and transaction)
- IRLM startup procedure options and DB2 installation options
- DDL LOCKSIZE
- DDL LOCKMAX
- BIND parameters

See [IBM Db2 for z/OS in the IBM Knowledge Center](https://www.ibm.com) for detailed information.

Locked Resources window:

Use the Locked Resources window to view the list of thread resources that are either locked by or, if they are locked by another thread, unavailable to, the monitored thread. If many resources are listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

The resources are listed in the following sequence:
1. Resources that cause this thread to be suspended
2. Resources that cause other threads to be suspended
3. Resources that are held by more than one thread
4. Resources that are held only by this thread

To display this window, select Locked Resources from the Thread Detail panel.
From this window you can display all holders and requesters of any DB2 resource listed. Select any locked resource from this window to display the Threads Holding Resource window, where you can examine a list of threads competing for the resource. For more information, see "Threads Holding Resource window."

You can use the Locked Resources window and the Threads Holding Resource window to examine potential timeouts and deadlocks and to determine whether DB2 resource contention is the cause for long running threads. Whenever a long class 3 lock/latch elapsed time is indicated in the Thread Detail or Thread Times panels, you can use the Locked Resources window to check for suspensions.

The following list describes some of the important fields that are shown in this window:

**Type** This field shows the resource involved.

- **PAGESET** indicates that the object is either a table space or index. The ACQUIRE and RELEASE parameters for the plans, and the RELEASE parameter for the packages involved should be investigated if the lock is suspended.

- **DATAPAGE/ROW** indicates the object is an actual page of data. Check the ISOLATION level for the plans and packages if the lock is suspended.

- **INDEX** indicates the object is an index page or a subpage. The number of subpages per page in the index should be investigated if the lock is suspended.

- **PAGE** indicates the object is a data page. In this case the request type is always LATCH, which indicates a page latch request.

*Threads Holding Resource window:*

Use the Threads Holding Resource window to view information about the locked resource selected from the Locked Resource window. The Threads Holding Resource window displays a list of all holders and requesters of the locked resource. If many threads are listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.
To display the Threads Holding Resource window, select any locked resource listed in the Locked Resources window. The Threads Holding Resource window is then displayed. To leave the window and return to the Locked Resources window, press F3 (Exit). To leave the window and return to the Thread Detail panel, press F12 (Cancel).

The appearance of the Threads Holding Resource window differs depending on the type of resource being held by the monitored thread. Figure 57 shows an example of a Threads Holding Resource window.

![Figure 57. Threads Holding Resource window](image)

You can display the Thread Detail panel for any of the threads listed in these windows by typing any character in the selection field beside the thread and pressing Enter.

Use the Threads Holding Resource window and the Locking (IRLM) Activity window to examine timeout or deadlock situations or to determine whether DB2 resource contention is the cause for long running threads.

**RID List Processing window:**

Use the RID List Processing window to view information about the number of successful and unsuccessful RID (Record ID) list processing operations performed. This information can help you determine the maximum number of RID blocks to allocate for optimum system performance.

To display this window, select RID List Processing from the Thread Detail panel.
The following list describes some of the important fields that are shown in this window:

**Successful**
A nonzero value in this field indicates that DB2 has used List Prefetch activity. If you are looking at a transaction and List Prefetch is used, you might want to look into the access path selection.

**Not used - no storage**
Number of times RID list processing was terminated because of insufficient storage.

This failure occurs when a RID list was not used for a given RID list process involving one or more indexes because no storage was available to hold the list of RIDs.

**Not used - limit exceeded**
Number of times RID list processing was terminated because of one or more internal limits exceeded.

The cause of the failure should be investigated, either from statistics record or from performance trace, before increasing the RID list storage size. Without proper investigation, merely increasing the RID list storage size might not solve the problem.

**SQL Activity window:**
Use the SQL Activity window to view the number of executions of SQL statements during the processing of a DB2 application, for the monitored thread.

To display this window, select SQL Activity, Commits, and Rollbacks from the Thread Detail panel.
The SQL executed for the thread being monitored displays the number of times specific SQL statements were executed for the thread being monitored.

The SQL Activity window consists of the following sections:

<table>
<thead>
<tr>
<th>Command</th>
<th>F1=Help</th>
<th>F2=Split</th>
<th>F3=Exit</th>
<th>F4=Auto</th>
</tr>
</thead>
<tbody>
<tr>
<td>F6=History</td>
<td>F7=Up</td>
<td>F8=Down</td>
<td>F9=Swap</td>
<td></td>
</tr>
<tr>
<td>F12=Cancel</td>
<td>F16=Look</td>
<td>F17=Collect</td>
<td>F22=Purge</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 59. SQL Activity window (Thread Activity)**

<table>
<thead>
<tr>
<th>SQL Activity</th>
<th>More:</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incremental bind</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Reoptimization</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Prepare statement match</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Prepare statement no match</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Implicit prepare</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Prepare from cache</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Cache limit exceeded</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Prepare statement purged</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Commit</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Rollback</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Changes/Commit</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Total DML</td>
<td>108</td>
<td></td>
</tr>
<tr>
<td>Select</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Insert</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Update</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Delete</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Prepare</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Describe</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Describe table</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Open</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Close</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Fetch</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Total DCL</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Lock table</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Grant</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Revoke</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Set SQLID</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Set host variable</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Set current degree</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Connect type 1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Connect type 2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Set connection</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Release</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Set current rules</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>SQL call</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Associate locators</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Allocate cursor</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total DDL</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Rename table</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Comment on</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Label on</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Create</td>
<td>Drop</td>
<td>Alter</td>
</tr>
<tr>
<td>Table</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Temp. Table</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Index</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Tablespace</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Database</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Stogroup</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Synonym</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>View</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Alias</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Package</td>
<td>N/A</td>
<td>0</td>
</tr>
</tbody>
</table>
Total DML
This section shows the number of executions performed by various SQL statements concerning the manipulation of data.

Total DCL
This section shows the number of executions performed by various SQL statements concerning the controlling of various activities.

Total DDL
This section shows a table that contains the number of executions performed by various DDL SQL statements for each of the applicable object types. These SQL statements are used to create, drop, and alter objects.

If you are looking at a transaction and there are nonzero values for Describe, Describe Table, or Prepare, it is an indication that the transaction is involved in dynamic SQL activity. However, this is unlikely and you can investigate further.

If you are looking at a transaction, it is unlikely that you would see any SQL DCL or SQL DDL activity. However, if there is any SQL DDL activity, be sure to use frequent commits to minimize DB2 catalog contention.

The following list describes some of the important fields that are shown in this window:

Incremental bind
The number of incremental binds that took place.

If a plan is bound with VALIDATE(RUN), DB2 performs validity checks at bind time and rechecks any failures at run time. This can result in catalog contention and degraded application performance, depending on the number of statements flagged and how many times they are executed. Avoid VALIDATE(RUN) as much as possible. Ensure that all objects are created and all privileges are granted before bind, and select the VALIDATE(BIND) option.

In addition to plans bound with VALIDATE(RUN), this counter is incremented for plans using DB2 private protocol.

Reoptimization
The total number of times reoptimization of the access path for static and dynamic SQL queries occurred during execution time.

Reoptimization can be triggered by the option REOPT(VARS) for BIND and REBIND PLAN and PACKAGE. Reoptimization is intended for statements with host variables, parameter markers, and special registers with access paths that are so inappropriate that the performance improvement of the reoptimized path outweighs the overhead caused by the reoptimization.

Commit
The number of Commit phase 1, Commit phase 2, read only Commit and single phase Commits (syncs) that completed successfully.

Changes/Commit
This ratio shows the inserts, updates, and deletes per commit and rollback.

This ratio is useful in monitoring the frequency of Commits. Too many updates per commit means a long running unit of recovery, which degrades IRLM performance and can prolong recovery in case of a failure.
Too few updates per commit hampers performance, since log writes are involved. If necessary, look into the application to establish commit points appropriately.

The commit frequency can vary between online transactions and batch jobs.

**Buffer Manager Activity window:**

Use the Buffer Manager Activity window to view all buffer pools used by the thread.

To display this window, select Buffer Manager Activity from the Thread Detail panel.

```
<table>
<thead>
<tr>
<th>Buffer Pool ID</th>
<th>Getpage Requests</th>
<th>Buffer Pool Hit ratio</th>
<th>Synchronous Read I/O</th>
<th>Buffer Updates</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP0</td>
<td>111</td>
<td>75.7</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>BP7</td>
<td>300</td>
<td>53.2</td>
<td>0</td>
<td>125</td>
</tr>
<tr>
<td>BP32K7</td>
<td>311</td>
<td>47.3</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>622</td>
<td>47.8</td>
<td>0</td>
<td>200</td>
</tr>
</tbody>
</table>

--- End of Buffer Pool List ---
```

**Figure 60. Buffer Manager Activity window**

You can select any buffer pool ID listed in this window to display the Buffer Pool Detail window, where you can view information about read and write activity both to and from that particular buffer pool, or select Total to view information about all of the listed buffer pools combined.

By examining buffer pool read and write activity, you can determine the buffer pool sizes for optimum system performance.

**Buffer Pool Detail window:**

Use the Buffer Pool Detail window to view information about the buffer pool selected from the Buffer Manager Activity window. These statistics show read and write activity both to and from that buffer pool. If Total was selected from the Buffer Manager Activity window, this window displays the combined statistics of all buffer pools used by the thread.

To display this window, select a buffer pool ID or Total from the Buffer Manager Activity window.
Note: For enhanced system performance, ensure that buffer pools are large enough to store frequently used data in virtual storage, which can reduce the number of I/O operations necessary.

The following list describes some of the important fields that are shown in this window:

**Buffer pool hit ratio (%)**
The total number of Getpage operations, minus the number of pages read from a hard disk drive (both synchronously and using Prefetch), divided by the total number of Getpage operations, multiplied by 100.

**Getpage requests**
Number of Getpage requests.

**Buffer updates**
Number of buffer updates. A nonzero value indicates either SQL INSERT, UPDATE, DELETE activity, merge scan join, and/or activity on the workfiles because of internal sort.

**Sequential prefetch requests**
Number of times Sequential Prefetch reads were requested. Table space scans and nonmatching index scans generally use Sequential Prefetch.

**List prefetch requests**
Number of times List Prefetch reads were requested. List Prefetch is always used to access data in multiple index access, and to access data from the inner table during a hybrid join. List Prefetch is usually employed with a single index when the index has a cluster ratio lower than 80%. List Prefetch is sometimes used on indexes with a high cluster ratio if the amount of data estimated to be accessed is too small to make Sequential Prefetch efficient, but large enough that more than one synchronous Read is needed.

**Dynamic prefetch requests**
Number of times Dynamic Prefetch reads were requested. Dynamic Prefetch is typically used for a SELECT or UPDATE that is run repeatedly, accessing the index for each access.

**Synchronous read I/O**
Number of synchronous Read I/O operations.

Figure 61. Buffer Pool Detail window (Thread Activity)
Synchronous writes

Total number of immediate Writes for a page. Although an immediate Write should be rare, a small nonzero value is always expected. A large value indicates that the system needs tuning.

SQL Statement and Program window:

Use the SQL Statement and Package window to view information about the current SQL statement being executed or the last SQL statement that was executed by the thread.

To display this window, select SQL Statement from the Thread Detail panel. One of two possible windows is displayed depending on whether the thread is using a package or a DBRM. Only the SQL Statement and Package window is shown here in this section.

Some fields can have values that are longer than the space available to show them in this panel. When this happens, the last character in the field is replaced with an asterisk (*) to indicate that the reported value is truncated.

```
DGOMTWCS SQL Statement and Program

More: +

SQL Statement: SELECT * FROM SYSIBM.SYSTABLES WHERE CREATOR='POD'

Location: PMO1D711
Collection ID: DSNESPCS
Program name: DSNESM68
Nested activity name: N/P
Program type: Package
Consistency token: X'149EEA901A79FE48'
Version: N/P
Statement type: CLOSE
Statement number: 0
Current SQL ID: POD
Bind type: Dynamic
Cached dynamic SQL identifier: N/A
Thread status: In DB2
Database name: N/P
Page set name: N/P
Page number: N/P
Elapsed time: N/P
CPU time: N/P

Used Buffer Pools
Getpages: N/P
Synch read I/O: N/P

Command ==> F1=Help F2=Split F3=Exit F5=Auto F6=History
           F7=Up  F8=Down  F9=Swap F12=Cancel F16=Look
           F17=Collect F18=Explain F22=Purge

Figure 62. SQL Statement and Program window
```

DB2 trace class 9 must be active to show information for the following fields:

- Database name
- Page set name
- Page number
- Elapsed time
- CPU time
- Getpages
- Synch Read I/O
If class 9 is not active N/P is shown.

Use the selection fields to view the complete SQL statement text or information about the buffer pools used during the execution of the query.

**SQL Statement Text window:**

The SQL statement is displayed regardless of whether the agent is currently executing in DB2.

```
DGOMTWC2       SQL Statement  Row 1 to 6 of 6

Program name . . . . . . . . . : DSNESM68
SQL Statement
SELECT * FROM SYSIBM.SYSTABLES WHERE CREATOR='POD' OR CREATOR='JHS' OR CREATOR='REI' OR CREATOR='SYSADM' OR CREATOR='XRK' OR CREATOR='CDL' OR CREATOR='DB3704' OR DBNAME='DSNOB01' OR DBNAME='DSNOB04' OR DBNAME='DSNOB06' OR DBNAME='DSNLST' OR DBNAME='DSNRG70' OR DBNAME='DSNRG76' OR DBNAME='DSNRG78' OR DBNAME='JHSTEST' OR DBNAME='DSNATPOB' ORDER BY CREATOR,DBID,DBID DESC
******************************************************************************** Bottom of data ********************************************************************************

Command ===> F1=Help  F2=Split  F3=Exit  F5=Auto  F6=History  F7=Up
F8=Down   F9=Swap   F12=Cancel   F16=Look   F17=Collect   F18=Explain
F22=Purge
```

*Figure 63. SQL Statement Text window*

The SQL statement is displayed only if you have MONITOR2 or SYSADM privilege. If the SQL statement text is long, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the text.

**Note:** The SQL statement text can be truncated, depending on the size of the statement and the DB2 version. If the agent is processing an SQL CALL statement, the name of the stored procedure is shown in the Stored procedure field.

You can examine the access paths and processing methods chosen by DB2 for the SQL statement shown in this window. To do this, press F18 (Explain) or type EXPLAIN and press Enter on the command line. See "Monitoring the access path with Explain" on page 1921 for more information.

**Used Buffer Pools window:**

This window shows details of the buffer pools used for the execution of the SQL statement. For each buffer pool, the number of Getpage operations and the number of synchronous Read I/O operations is shown.
Distributed Data window:

Use the Distributed Data window to view a list of serving locations that are communicating with the thread. If many locations are listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

To display this window, select Distributed Data from the Thread Detail panel.

Some fields can have values that are longer than the space available to show them in this panel. When this happens, the last character in the field is replaced with an asterisk (*) to indicate that the reported value is truncated.

```
DGOMTWC3  Used Buffer Pools  Row 1 to 2 of 2

<table>
<thead>
<tr>
<th>Buffer pool name</th>
<th>Getpage requests</th>
<th>Synchronous read I/O requests</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP0</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>17</td>
<td>0</td>
</tr>
</tbody>
</table>

*************** Bottom of data ***************
```

Figure 64. Used Buffer Pools window

The Distributed Data Facility (DDF) enables an application process connected to one RDB (Relational Database) subsystem to access data residing on other RDB subsystems.

From the Distributed Data window and its lower level windows, you can examine any serving location communicating with the thread, and view any conversations sent between the thread and that serving location in detail. Select any serving location listed in this window to display the Distributed Location Detail window for further examination.

```
DGOMTWDD  Distributed Data

For additional details, type any character next to location, then press Enter.

<table>
<thead>
<tr>
<th>Location</th>
<th>Messages</th>
<th>Messages</th>
<th>Requester</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSNAPC0</td>
<td>66</td>
<td>66</td>
<td>7.5908</td>
</tr>
<tr>
<td>DSNAPC9</td>
<td>12345</td>
<td>12345</td>
<td>6.2222</td>
</tr>
</tbody>
</table>

-- End of Distributed Data --
```

Figure 65. Distributed Data window (Thread Activity)
The combination of the Buffer Manager Activity window, SQL Statement and Package/DBRM window, and Distributed Data window can provide a picture of where allied-distributed thread time is spent.

**Note:** This window does not apply to allied threads.

**Distributed Location Detail window:**

Use the Distributed Location Detail window to view information about the serving location selected from the Distributed Data window. This window displays a list of conversations between the thread and this serving location. If many conversations are listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

To display this window, select any serving location listed in the Distributed Data window.

---

For additional details, place any character next to conversation, then press Enter.

<table>
<thead>
<tr>
<th>Remote Location</th>
<th>: DSNAPCO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product ID</td>
<td>: DB2</td>
</tr>
<tr>
<td>Product Version</td>
<td>: V10 R1 M0</td>
</tr>
<tr>
<td>Requester elapsed</td>
<td>: 7.5908</td>
</tr>
<tr>
<td>Messages Sent</td>
<td>: 66</td>
</tr>
<tr>
<td>Messages Received</td>
<td>: 66</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>State</th>
<th>Type</th>
<th>Time of last message</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEND</td>
<td>APPL-DIR</td>
<td>03:27:51.15</td>
</tr>
<tr>
<td>ALLOC</td>
<td>SYST-DIR</td>
<td>02:37:52.12</td>
</tr>
</tbody>
</table>

---

**Figure 66. Distributed Location Detail window**

From this window you can select any conversation listed to display the Distributed Conversation Detail window, where the conversation can be examined in greater detail.

The following list describes some of the important fields that are shown in this window:

**Requester elapsed**

This field shows the elapsed time spent at the requester between the sending of the SQL statement and the receipt of the answer from the server. This includes the processing time in DB2, VTAM, and the network.

If this value is large, it could indicate block fetch might not have been used.

**Messages Received**

This field shows the count of the messages the requester location received from the server location.

More messages might be sent from the server location than are received by the requester location because of the manner in which distributed SQL statements are processed internally.
Remote Elapsed
This field shows the elapsed time spent at the server between the actual receipt of the SQL statement and until the answer is sent to VTAM.

This is not applicable to the Distributed Relational Database Architecture (DRDA).

Comparison of this time with elapsed time (class 2) reveals how much time is spent by the allied distributed thread in remote processing.

Remote CPU
This field shows the CPU time spent at the server from the actual receipt of the SQL statement until the answer is sent to VTAM.

This is not applicable to DRDA.

Distributed Conversation Detail window:
Use the Distributed Conversation Detail window to examine the conversation selected from the Distributed Location Detail window. This window displays information about just one of the conversations sent between the monitored thread and the serving location selected from the Distributed Data window. To display this window, select any conversation listed in the Distributed Location Detail window.

The following list describes some of the important fields that are shown in this window:

**Conversation active flag**
This field indicates either:
- DB2 has transferred control of the thread to the network on this conversation.
- The agent is suspended in DB2 and is waiting for notification from the network that the event is completed (asynchronous requests).
- None of the above.

**Connection ID**
This 64-bit string uniquely identifies the connection on which the conversation is executing.

For VTAM connections, this is the VTAM-defined session instance identifier of the session on which the conversation is executing.

**Distributed Conversation Detail window**

Figure 67. Distributed Conversation Detail window
For TPC/IP connections, this is the 32-bit IP address of the remote site, followed by DB2’s 16-bit TCP/IP port number and the remote site’s 16-bit TCP/IP port number.

Network connection type
This field indicates which type of network connection is used, TCP/IP or VTAM.

IFI (Class 5) and Data Capture window:
Use the IFI (Class 5) and Data Capture window to view the number of IFI calls made, the CPU time spent processing these calls, and to examine statistics on data capture activity for the thread.

To display this window, select IFI (Class 5) and Data Capture from the Thread Detail panel.

<table>
<thead>
<tr>
<th>Command</th>
<th>IFI (Class 5) and Data Capture</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1=Help</td>
<td>Elapsed time ........................ : 11.3441</td>
</tr>
<tr>
<td>F6=History</td>
<td>TCB time .......................... : 7.8120</td>
</tr>
<tr>
<td>F17=Collect</td>
<td>Describe time ...................... : 3.9182</td>
</tr>
<tr>
<td>F2=Purge</td>
<td>Log extraction time ......... : 1.2334</td>
</tr>
<tr>
<td>F22=Purge</td>
<td>IFI calls .......................... : 3</td>
</tr>
<tr>
<td>F9=Swap</td>
<td>Log reads performed ............. : 1</td>
</tr>
<tr>
<td>F12=Cancel</td>
<td>Log records captured ............ : 15</td>
</tr>
<tr>
<td>F16=Look</td>
<td>Data rows returned ............. : 11</td>
</tr>
<tr>
<td>F5=Auto</td>
<td>Data descriptions returned ...... : 2</td>
</tr>
<tr>
<td>F3=Exit</td>
<td>Describes performed ............ : 2</td>
</tr>
<tr>
<td>F10=Split</td>
<td>Tables returned .................. : 2</td>
</tr>
</tbody>
</table>

Figure 68. IFI (Class 5) and Data Capture window

Query Parallelism Data window:
Use the Query Parallelism Data window to view information about the number of parallel groups executed for the thread and to find out whether the type or degree of parallelism was changed at run time.

To display this window, select Query Parallelism Data from the Thread Detail panel.
The main objective of query parallelism is to improve query response times.

By examining the information displayed in this window, you can discover the number of parallel groups that have fallen back to sequential mode and determine the cause.

The following list describes some of the important fields that are shown in this window:

**Maximum Degree of Parallelism**
Maximum degree of parallelism executed among all parallel groups. This field indicates the extent to which query parallelism applies.

The degree can be set on the BIND and REBIND commands or the SET CURRENT DEGREE statement. The default is set by the CURRENT DEGREE installation parameter. If a query is I/O bound, I/O parallelism can help reduce the response time. If a query is CPU bound, query CP parallelism can reduce the response time. If both conditions apply, the benefits for the query can be very large.

**Parallel Groups Executed**
Total number of parallel groups that have been executed.

**Planned Parallel Degree**
Total number of parallel groups that executed to the planned parallel degree. This field is incremented by one for each parallel group that executed with the planned degree of parallelism (as determined by DB2).

**Reduced Parallel Degree - No buffer**
Total number of parallel groups that processed to a parallel degree less than planned because of a storage shortage or contention on the buffer pool. If this field is not zero, increase the size of the current buffer pool by using the ALTER BUFFERPOOL command, or use the ALTER TABLESPACE statement to assign table spaces accessed by this query to a different buffer pool.

---

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Degree of Parallelism</td>
<td>5</td>
</tr>
<tr>
<td>Parallel Groups Executed</td>
<td>1</td>
</tr>
<tr>
<td>Number of Parallel Groups executed with Planned Parallel Degree</td>
<td>1</td>
</tr>
<tr>
<td>Reduced Parallel Degree - No buffer</td>
<td>0</td>
</tr>
<tr>
<td>One DB2</td>
<td></td>
</tr>
<tr>
<td>COORDINATOR Parm = NO</td>
<td>0</td>
</tr>
<tr>
<td>Isolation Level</td>
<td>0</td>
</tr>
<tr>
<td>Fall back to sequential mode</td>
<td>0</td>
</tr>
<tr>
<td>Cursor</td>
<td>0</td>
</tr>
<tr>
<td>No ESA</td>
<td>0</td>
</tr>
<tr>
<td>No buffer</td>
<td>0</td>
</tr>
<tr>
<td>MVS/ESA Enclave Services</td>
<td>0</td>
</tr>
<tr>
<td>Member skipped (%)</td>
<td>0</td>
</tr>
<tr>
<td>Parallelism Disabled by RLF</td>
<td>NO</td>
</tr>
</tbody>
</table>

*Figure 69. Query Parallelism Data window (Thread Activity)*
One DB2 COORDINATOR Parm = NO
The total number of parallel groups scheduled for Sysplex query parallelism, but executed on a single DB2 because of the COORDINATOR subsystem value being set to NO. When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a DB2 subsystem with COORDINATOR=YES, but is run on a DB2 subsystem with COORDINATOR=NO.

One DB2 Isolation Level
The total number of parallel groups scheduled for Sysplex query parallelism, but executed on a single DB2 because of repeatable-read or read-stability isolation.

Cursor
Total number of parallel groups that fall back to sequential operation because of a cursor that can be used for update or delete.

No ESA
Total number of parallel groups that fall back to sequential operation because of a lack of MVS/ESA sort support.

No buffer
Total number of parallel groups which fall back to sequential mode because of storage shortage or contention on the buffer pool.

Member skipped (%)
The percentage of Sysplex parallel groups that were not distributed as planned.

This field indicates situations where a member has insufficient buffers and so the parallelism coordinator has to bypass a DB2 when distributing tasks.

Parallelism Disabled by RLF
This field indicates whether parallelism was disabled by RLF governing for dynamic SQL statements of this thread.

Query Parallelism Considerations:

Query parallelism is suited to both data-intensive and complex queries. A query is data-intensive if it has a high ratio of I/O compared to CPU and complex if it requires a high use of CPU to resolve complex predicates and functions.

In general queries are suited to query parallelism when the following apply:
- Partitioned table space
- Fast n-way processor
- Adequate buffer space to cater for multiple parallel tasks
- Dedicated environment

Query I/O parallelism works best when there is:
- High ratio of I/O time to CPU time
  - Large record size
  - Very large tables
  - Query which scans many rows but returns few
  - Table space scan rather than index scan

Query CP processing works best when there is:
- High ratio of CPU time to I/O time
- Complex or many predicates
- Complex many level subqueries
- Column and scalar functions
- Multi-way joins
- Grouping and ordering clauses
- Type 2 Index access and tablespace scans

*Data Sharing Locking Activity window*:

Use the Data Sharing Locking Activity window to view information about data sharing locking activity for the monitored thread.

To display this window, select Data Sharing Locking Activity from the Thread Detail panel. This selection is only available if the monitored DB2 subsystem is part of a data sharing group.

The following list describes some of the important fields that are shown in this window:

**Lock requests**

The number of lock requests for P-locks or locks that are acquired and owned by the DB2 subsystem. This means that P-locks are not owned by threads. A P-lock can be requested on behalf of the subsystem under a user TCB.

**Lock requests - XES**

The number of lock requests propagated to XES (L-lock or P-lock) synchronously (under the caller’s execution unit). If the request suspends for any reason, this counter is not incremented.

The following fields contain the global lock suspend counts for P-locks or L-locks:

**IRLM global contention**

The number of suspends because of IRLM global resource contention. IRLM lock states were in conflict.
XES global contention
The number of suspends because of XES global resource contention, but no IRLM global resource contention. XES lock states were in conflict, but the IRLM lock states were not.

Suspensions - False contention and conversion
Summation of false contentsions (see below) and sync-to-async heuristic conversions. Conversions are done when XES determines that it is more efficient to drive the request asynchronously to the CF.

False contention
The number of false contentions encountered on this z/OS image. A false contention occurs when different resource names hash to the same entry in the CF lock table. The CF detects contention within the hash entry, and XES uses inter-system messaging to determine that no actual resource contention exists. This counter is maintained on a per-LPAR basis. Therefore this counter will over-report false contentions in cases where multiple members from the same data sharing group run on the same z/OS image. The counter is not present (N/P) if data is unavailable because of errors from the IXLMG service.

Incompatible retained lock
The number of global lock or change requests denied or suspended because of an incompatible retained lock.

Group Buffer Pools Activity window:

Use the Group Buffer Pools Activity window to view all group buffer pools used by the thread. If many group buffer pools are listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

To display this window, select Group Buffer Pools Activity from the Thread Detail panel. This selection is only available if the monitored DB2 subsystem is part of a data sharing group.

--- Table ---

<table>
<thead>
<tr>
<th>Group Buffer</th>
<th>Data Returned</th>
<th>Read (XI)</th>
<th>No Data Returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBP0</td>
<td>15</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>GBP2</td>
<td>6</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>GBP32K7</td>
<td>3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>24</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

--- Figure 71. Group Buffer Pools Activity window ---

You can select any group buffer pool ID listed in this window to display the Group Buffer Pool Detail window, where you can view information about read and
write activity both to and from that particular group buffer pool, or select Total to view read and write activity on all of the listed group buffer pools combined.

**Group Buffer Pool Detail window:**

Use the Group Buffer Pool Detail window to view information about the group buffer pool selected from the Group Buffer Pools Activity window. These statistics show read and write activity both to and from that buffer pool. If Total was selected from the Group Buffer Pools Activity window, the Group Buffer Pool Detail window shows combined statistics on all group buffer pools used by the thread.

![Group Buffer Pool Detail window](image)

The following list describes some of the important fields that are shown in this panel:

**Data returned (Cross invalidation)**

The number of synchronous coupling facility Read requests caused by the page in the member’s buffer pool that is marked invalid. Data is returned from the group buffer pool.

**No data returned (Cross invalidation)**

The number of synchronous coupling facility Read requests caused by the page in the member’s buffer pool that is marked invalid. Data is not returned from the group buffer pool but from a hard disk drive.

**Data returned (Not Found)**

The number of synchronous coupling facility Read requests necessary because the requested page was not found in the buffer pool. Data was returned from the coupling facility.

**No data returned (Not Found)**

The number of synchronous coupling facility Read requests necessary because the requested page was not found in the buffer pool. Data is not returned from the group buffer pool but from a hard disk drive.
Read prefetch
The number of pages read from the group buffer pool because of Prefetch under the control of the agent.

Changed pages written
The number of changed pages synchronously written from the member’s virtual pool to the group buffer pool.

Clean pages written
The number of clean pages synchronously written from the member’s virtual pool to the group buffer pool.

Unregister page
The number of coupling facility requests to unregister a page.

Stored Procedures window:
Use the Stored Procedures window to view the stored procedures activity for the thread being monitored.

To display this window, select Stored Procedures from the Thread Detail panel.

<table>
<thead>
<tr>
<th>Command</th>
<th>Stored Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL statements executed</td>
<td>0</td>
</tr>
<tr>
<td>Procedure abends</td>
<td>0</td>
</tr>
<tr>
<td>CALL statement timeouts</td>
<td>0</td>
</tr>
<tr>
<td>CALL statements rejected</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 73. Stored Procedures window

CALL statements executed
Total number of SQL CALL statements that were executed for the current thread.

Procedure abends
The number of times a stored procedure terminated abnormally.

CALL statement timeouts
The number of times an SQL CALL statement timed out while waiting to be scheduled.

CALL statements rejected
The number of times an SQL CALL statement was rejected because of the procedure being in the STOP ACTION(REJECT) state.

Thread Activity commands:
The commands in this section apply to Thread Activity panels. Commands are typed on a panel command line. Some commands are assigned to function keys. A list of active function keys is displayed at the bottom of each panel. You can abbreviate commands down to three characters in length. For example, the AUTO command can be abbreviated to AUT.
**AUTO command:**

Use the AUTO command to refresh values displayed in panels without having to press Enter. When you activate auto-display mode, the displayed values are updated periodically, as specified by the AUTO command. You cannot perform any other tasks with your Online Monitor session while auto-display mode is running.

The command syntax is:

```
AUTO [integer [SECONDS] [MINUTES]]
```

**Parameters of the AUTO command**

The AUTO command accepts the following parameters:

- **integer** Optional. Specifies the auto-display interval. The valid ranges are:
  - 1 to 7 200 seconds
  - 1 to 120 minutes
- **SECONDS** Optional. Specifies the auto-display unit in seconds. If no unit is specified, the default is seconds. If this parameter is specified, integer should also be specified.
- **MINUTES** Optional. Specifies the auto-display unit in minutes. If this parameter is specified, integer should also be specified.

If no parameters are specified, the values in the Auto Display window are used.

**Starting Auto Display mode**

To start Auto Display mode, type AUTO followed by any parameters on the command line and press Enter. You can abbreviate the AUTO command to AUT, the SECONDS to S, and the MINUTES to M.

To stop Auto Display, press the attention key.

**Note:** While the Online Monitor is executing a DB2 call (IFI or SQL), pressing the attention key might not stop the auto-display mode. An ‘A’ is displayed every time the key is pressed until attention processing is available again. For example, this is the case when the Online Monitor is issuing SQL statements to resolve names of locked resources.

**Examples of the AUTO command**

- AUTO 5 refreshes the panel with updated values every 5 seconds
- AUTO 1 MIN refreshes the panel with updated values every minute
- AUTO 10 refreshes the panel with updated values every 10 seconds
- AUTO uses the values specified in the Auto Display window
Examples of the AUTO command:

- AUTO 5 refreshes the panel with updated values every 5 seconds
- AUTO 1 MIN refreshes the panel with updated values every minute
- AUTO 10 refreshes the panel with updated values every 10 seconds
- AUTO uses the values specified in the Auto Display window

EXPLAIN command:

Use the EXPLAIN command to examine the access path methods that were chosen by DB2 for the currently executing SQL statement of a thread.

The EXPLAIN command can be issued from the following Thread Activity windows:

- SQL Statement and Package
- SQL Statement and DBRM

The EXPLAIN command can also be issued from the Thread Detail panel if it has been tailored to show the SQL statement text.

The command syntax is:

```
EXPLAIN
```

Figure 75. Syntax of the EXPLAIN command

Invoking Explain

To examine the access path methods chosen by DB2 for an SQL statement shown in a Thread Activity panel, type EXPLAIN on the command line and press Enter. EXPLAIN can be truncated to a minimum of EXP.

For more information about how to explain an SQL statement, see “Monitoring the access path with Explain” on page 1921.

HISTORY command:

Use the HISTORY command to view past data that was previously collected by the data collector. The data is gathered at installation-defined intervals. The date and time in the panels that support history indicate when the data being displayed was collected.

You can only view past data if the data collector is active for the subsystem you are monitoring and if it was started with the parameter HISTORY=YES. See “OMEGAMON Collector purpose and function” on page 372 for information about the data collector.

The command syntax is:
Parameters of the HISTORY command

The HISTORY command accepts the following parameters:

- **OFF**  
  Returns the display to the current time.

- **BACK**  
  Displays data for the previous interval. If no more data is available, data from the earliest available interval is displayed.

- **FORWARD**  
  Displays information for the next available interval. If no more data is available, data from the current time is displayed and processing continues as if HISTORY is OFF.

- **date**  
  The date of the required information. If no date is specified, today’s date is assumed.

- **hh:mm:ss**  
  The time of the required information. If no time is specified, the default is the time of the earliest available history record for the specified date. The seconds do not need to be specified.

If no data is available for the specified date and time, the next available record is displayed.

If you do not specify any parameters, the History window is displayed. The current system date and time are the defaults for the History window.

Viewing past data

To view past data, type HISTORY followed by any parameters on the command line and press Enter. HISTORY can be truncated to a minimum of HIS.

RESET command:

Use RESET to stop threads from being qualified and sorted in the Thread Summary panel.

The command syntax is:

```
RESET
```

Resetting thread display

To issue the RESET command, type RESET on the command line of the Thread Summary panel and press Enter. RESET can be truncated to a minimum of RES.
**PURGE command:**

Use the PURGE command to purge a thread that is currently processing in the DB2 subsystem you are monitoring. You need the DB2 privilege to perform CANCEL THREAD.

The PURGE command can be issued from any Thread Activity panel.

The command syntax is:

```
PURGE
```

*Figure 78. Syntax of the PURGE command*

**Purging a thread**

To purge a thread listed in the Thread Summary panel, type `PURGE` on the command line, select the listed thread you want to purge, and press Enter. PURGE can be truncated to a minimum of `PUR`.

To purge the thread being monitored from the Thread Detail panel or any of its lower level windows, type `PURGE` on the command line and press Enter.

After issuing the PURGE command, the Purge Thread Confirmation window is displayed.

*Figure 79. Purge Thread Confirmation*

To confirm the purge request, press Enter. To cancel the request and not purge the thread, press F12 (Cancel).

If you purge the thread currently being monitored from the Thread Detail panel or any of its lower level windows, you are returned to the Thread Summary panel.

*Purging a thread:* To purge a thread listed in the Thread Summary panel, type `PURGE` on the command line, select the listed thread you want to purge, and press Enter. PURGE can be truncated to a minimum of `PUR`.

To purge the thread being monitored from the Thread Detail panel or any of its lower level windows, type `PURGE` on the command line and press Enter.

After issuing the PURGE command, the Purge Thread Confirmation window shown in *Figure 80 on page 1867* is displayed.
To confirm the purge request, press Enter. To cancel the request and not purge the thread, press F12 (Cancel).

If you purge the thread currently being monitored from the Thread Detail panel or any of its lower level windows, you are returned to the Thread Summary panel.

**QUALIFY command:**

Use the QUALIFY command to filter the threads shown in the Thread Summary panel. If qualify is active, only threads that match the OMEGAMON XE for DB2 PE identifiers you specified in the DB2 Thread Qualification Parameters window are shown. You can use the QUALIFY command only from the Thread Summary panel.

Thread qualification remains active until deactivated either by a QUALIFY OFF command or the RESET command, even across Online Monitor sessions.

The command syntax is:

![QUALIFY Syntax](image)

**Figure 81. Syntax of the QUALIFY command**

**Parameters of the QUALIFY command:**

The QUALIFY command provides the parameters ON and OFF.

**ON** Activates the qualify function based on values previously entered in the DB2 Thread Qualification Parameters window.

**OFF** Deactivates qualify.

If no parameters are specified, the DB2 Thread Qualification Parameters window is displayed.

**Filtering threads:**

To filter the threads shown in the Thread Summary panel, type QUALIFY followed by any parameters on the Thread Summary panel command line and press Enter. QUALIFY can be truncated to a minimum of QUA.

When qualify is active, the word QUALIFY is displayed in the Thread Summary panel header as shown in the following example:
When the QUALIFY command is issued without parameters, the DB2 Thread Qualification Parameters window is displayed. The content of the window differs depending on the version of DB2 in use.

Parameters entered in the DB2 Thread Qualification Parameters window are saved for subsequent sessions. The saved values are used until they are changed.

You can qualify threads by entering any character string in one or more fields in the DB2 Thread Qualification Parameters window. Only threads that match the specified values are displayed in the Thread Summary panel.

You activate qualify from the DB2 Thread Qualification Parameters window by pressing F3 (Exit). To return to the Thread Summary panel without activating qualify, press F12 (Cancel).

**OMEGAMON XE for DB2 PE identifiers:**

The identifier values can be specified in generic form. Place an asterisk (*) in the field to indicate that any value in that character position is valid.
The following rules apply:

- An asterisk in the first character position, followed by blanks, processes all values in that field.
- An asterisk at the end of a character string processes all values beginning with that character string.
- An asterisk in the middle of a character string processes any value in that single character position.

**Note:** If you leave the value blank for the Plan Name or 1 fields, only threads with blank values for these OMEGAMON XE for DB2 PE identifiers are displayed. If you leave the value blank for any of the other OMEGAMON XE for DB2 PE identifiers, an asterisk (*) is inserted by default and all values in that field are processed.

**Thread status:**

Place any character beside each status to be included in the threads displayed.

- I/S The thread is in identify or signon state
- Queued The thread is queued
- **In Application**
  - Processing is occurring within the application
- **In Application Stored Procedure**
  - The thread is running a stored procedure application
- **In DB2**
  - The thread is currently processing within DB2
- **In Lock Wait**
  - The thread is currently suspended waiting for a lock
- **In I/O**
  - The thread is currently in input or output status
- **In DB2 Stored Procedure**
  - The thread is running a stored procedure within DB2
- **In DB2 Stored Procedure Wait**
  - The thread is waiting for a stored procedure to be scheduled within DB2
- **In EOT**
  - The thread is currently in end-of-task processing.

**Thread type:**

Place any character beside each type of thread to be included in the Thread Summary panel.

- **Allied** The thread is only doing local processing.
- **Allied-Distributed**
  - The thread is involved in distributed activity and is requesting data from a remote system.
- **Database Access Thread (DBAT)**
  - The thread is doing work locally on behalf of an allied-distributed or DBAT-distributed thread created at another site.
Example with the DB2 Thread Qualification Parameters window:

This section describes the effects of various parameters entered in the DB2 Thread Qualification Parameters window.

The DB2 Thread Qualification Parameters window is shown in Figure 83 on page 1868.

Primary Authorization ID . . . . . . . . .U**R*

This line of the window specifies that only threads with the following authorization IDs are shown:
• Beginning with U
• With any characters in positions 2 and 3
• With an R in position 4
• With any characters in positions 5 through 8

Planname . . . . . . . . . . . . . . . . .PLANX

This line of the window specifies that only threads with the DB2 plan name PLANX are shown.

Package/DBRM
Connection ID
Correlation ID
Requesting location
Connection Type

These lines specify that all threads meeting the previous specifications are displayed, regardless of connection ID, correlation ID, requesting location, connection type, or package details.

Note: The 1 field applies to the requesting location for distributed threads, and applies to the local location for allied threads.

Thread Status

The thread status field selections specify that all threads meeting the previous specifications are displayed, except those in I/S status.

Thread Type

The thread type field selections specify that only allied threads meeting the previous specifications are displayed.

SORT command:

Use the SORT command to specify the order in which threads are listed in the Thread Summary panel. The threads can be sorted by one or more OMEGAMON XE for DB2 PE identifiers. You can use this command only from the Thread Summary panel.

The command syntax is:
Parameters of the SOR T command:

The SOR T command provides the parameters ON, OFF, DESCENDING, and ASCENDING.

**ON**
Activates sort.
Values previously specified in the DB2 Thread Sort Specification window are used.

**OFF**
Deactivates sort.

**fieldid**
Identifies a field used for sorting threads and activates sort. You can specify multiple fields. The threads are sorted by the order of the specified fields.

**DESCENDING**
Specifies that the threads are to be sorted in descending sequence. This parameter can be abbreviated to D. This is the default.

**ASCENDING**
Specifies that the threads are to be sorted in ascending sequence. This parameter can be abbreviated to A.

**Note:**
1. If only one field is specified in a SOR T command, you do not need to specify the sequence. The sequence is descending by default.
2. If multiple fields are specified, the sequence (ascending or descending) needs to be specified for each field except the last one.
3. All parameters specified in the command are separated by a single space.

The following table lists all fields that you can use with the SOR T command. The field identifiers can be truncated. Uppercase letters indicate the shortest valid abbreviation for each field identifier.

**Table 137. Sort fields**

<table>
<thead>
<tr>
<th>Field</th>
<th>Field ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Authorization ID</td>
<td>PRImauth</td>
</tr>
<tr>
<td>Plan Name</td>
<td>PLannname</td>
</tr>
<tr>
<td>Package/DBRM Program name</td>
<td>PROgram</td>
</tr>
<tr>
<td>Package Collection ID</td>
<td>COLlection</td>
</tr>
<tr>
<td>Correlation ID</td>
<td>CORrelation</td>
</tr>
<tr>
<td>Connection ID</td>
<td>CONNect</td>
</tr>
<tr>
<td>Connection Type</td>
<td>CONNType</td>
</tr>
<tr>
<td>Thread Status</td>
<td>Status</td>
</tr>
<tr>
<td>Request Count</td>
<td>REQUests</td>
</tr>
</tbody>
</table>
Table 137. Sort fields (continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Field ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requesting Location</td>
<td>REQLoc</td>
</tr>
<tr>
<td>Class 1 elapsed time</td>
<td>C1Elapsed</td>
</tr>
<tr>
<td>Class 1 CPU time</td>
<td>C1Cpu</td>
</tr>
<tr>
<td>Class 2 elapsed time</td>
<td>C2Elapsed</td>
</tr>
<tr>
<td>Class 2 CPU time</td>
<td>C2Cpu</td>
</tr>
<tr>
<td>Class 3 time</td>
<td>C3Elapsed</td>
</tr>
</tbody>
</table>

Sorting threads:

To sort the threads shown in the Thread Summary panel, type SORT (or one of its abbreviations) followed by any parameters on the command line of the Thread Summary panel and press Enter.

When sort is active, the word SORT is displayed in the Thread Summary panel header as shown in the following example:

Figure 85. Thread Summary panel showing sort active

If sort is issued without any parameters, the DB2 Thread Sort Specification window is displayed. Parameters entered in this window are saved for subsequent sessions.

Use the DB2 Thread Sort Specification window to specify a thread summary SORT profile. To activate sort from the DB2 Thread Sort Specification window, press F3 (Exit). To return to the Thread Summary panel without activating sort, press F12 (Cancel).

Example 1 of the SORT command:

In this example of the DB2 Thread Sort Specification window, the threads are sorted first by Connection type in ascending sequence, and next by Thread status in descending sequence.
Example 2 of the SOR T command:

This example shows a SOR T command that specifies to sort the threads by different items and the items in different sorting sequences.

Command ===>

This command specifies the following:
1. The threads are sorted first by primary authorization ID in ascending sequence.
2. The threads are ordered next by class 1 elapsed time in descending sequence.
3. The threads are sorted next by thread status. The sequence is descending by default.

Viewing DB2 statistics

The Online Monitor statistics panels provide an overview of DB2 system activity. Use these panels to view important ratios and DB2 statistics values.

Note: This function is not supported for DB2 11.

Most DB2 statistics field values accumulate while the DB2 subsystem is active. When DB2 is started, the accumulation process begins and continues until the DB2 subsystem is stopped. There are, however, certain fields that are not cumulative. Some are reported as “snapshot” values, and some are reported as “high water mark” values. A snapshot value is a current value, and is updated each time the statistics values are displayed. A high water mark is a maximum value since startup, and is updated each time the statistics values are displayed.
Fields that are not snapshot or high water mark values are known as delta values. They are derived differently for each of the statistics processing modes. They are calculated by the statistics display. For further details, see “Interval processing mode” on page 1875 and “Delta processing mode” on page 1876.

**List of all Statistics panels**

The following list covers all Statistics panels that are described in this section:

- DB2 Statistics Detail panel
- EDM Pool window
- Buffer Manager window
- Buffer Pool window
- Locking Activity window (Statistics)
- Open/Close Management window
- Bind Processing window
- Plan and Package Allocation window
- Log Manager window
- Subsystem Service window
- SQL Activity window (Statistics)
- Query Parallelism Data window (Statistics)
- RID List Processing window (Statistics)
- Distributed Data window (Statistics)
- Remote Location window
- Statistics CPU Times and Other Data window
- DB2 Commands window
- DB2 Instrumentation window
- DB2 IFC Destinations window
- Data Capture window
- Data Sharing Locking Activity window
- Group Buffer Pools Activity window
- Group Buffer Pool Detail window
- Global Group Buffer Pool Statistics window
- Global GBP Statistics Detail window
- Stored Procedures window

**Statistics processing modes:**

There are three different modes of display available for the statistics panels: regular mode, interval mode, and delta mode. Interval mode and delta mode determine the time over which delta values are accumulated. Deltas are not calculated in regular mode. Whenever option 2 (Display Statistics) is selected from the Online Monitor Main Menu, regular mode is activated.

To operate in either interval mode or delta mode, enter an INTERVAL or DELTA command on the command line of any statistics panel.

Statistics values are updated when:

- You press Enter in any statistics panel, with the command line blank and no windows selected.
You issue an INTERVAL, DELTA, or RESET command.

You activate auto-display mode, which updates values automatically at a time interval that you specify.

**Note:** The auto-display function needs to be disabled before an INTERVAL, DELTA, or RESET command is issued. To stop auto-display, press the Attention key. The auto-display function can be activated again after the processing mode command is issued.

### Regular processing mode

This is the default mode of operation whenever you select option 2 (Display Statistics) from the Online Monitor Main Menu. In this mode, the delta values displayed are accumulated since DB2 startup. No calculations are performed on the statistics values in this mode. You must be in interval or delta processing mode to use display exception processing. Use the RESET command to return to regular mode.

### Interval processing mode

To activate interval processing mode, type INTERVAL on the command line of any statistics panel and press Enter. In interval processing mode, the delta values displayed are accumulated since the last time the INTERVAL command was entered on the command line. When interval mode is activated while viewing past data, the values are accumulated between the history time shown when the INTERVAL command was issued and the current history time.

Use interval mode to isolate DB2 statistics activity beginning at a specified time. Interval processing can help indicate the existence of a problem when running with exception processing. When you select interval processing mode, all statistics field values (except high water mark and snapshot fields) are cleared and begin the accumulation process from the start. The first values displayed after the INTERVAL command is issued represent the values from the newly-established base point to the first statistics record pair (IFCID 1 and IFCID 2) encountered after the INTERVAL command. Thereafter, the values are updated each time you press Enter. The auto-display function can be activated with interval processing mode. Statistics values are then updated automatically at the time interval that you specified. A new base point can be established by repeating the INTERVAL command.

If interval processing mode is activated, all statistics panels operate in interval mode. The time elapsed since the base point was established is displayed on the line under the heading of each statistics panel, as shown in the following figure:

![Figure 87. DB2 Statistics Detail panel showing interval active](image)

Interval mode remains active until either it is turned off or you return to the main menu. You can deactivate interval mode using the RESET or DELTA command from any statistics panel. Use the RESET command to return to regular mode.
Delta processing mode:

To activate delta processing mode, type `DELTA` on the command line of any statistics panel and press Enter. In delta processing mode, the values are accumulated between the last two times you pressed Enter. When delta mode is activated while viewing past data, delta processing uses the currently shown history time and the next available history snapshot to accumulate the values.

Use delta processing to isolate DB2 statistics activity that occurs between two specified points in time. Delta mode operates similarly to the Batch statistics trace. When you initiate delta mode, DB2 statistics field values are reported in time slices. A new base point is established each time the displayed values are updated. With the exception of the high water mark and snapshot fields mentioned previously, all statistics field values reflect the activity since the previous display update.

After delta is activated, all statistics panels operate in delta mode. The elapsed time since the last `DELTA` command was entered or since the last time Enter was pressed is displayed on the line under the heading as shown in the following figure:

![Figure 88. DB2 Statistics Detail panel showing delta active](1876 IBM Db2 Performance Expert on z/OS)

Delta mode remains active until you deactivate it or you return to the main menu. You can turn off delta mode using the RESET or INTERVAL command from any statistics panel.

Snapshot fields:

The table in this section lists a selection of snapshot fields and their corresponding Statistics panels.

<table>
<thead>
<tr>
<th>Statistics panel</th>
<th>Field</th>
<th>Panel ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2 Statistics Detail</td>
<td>EDM Pool pages in use (%)</td>
<td>DGOMSPSM</td>
</tr>
<tr>
<td>EDM Pool</td>
<td>EDM Pool pages in use (%)</td>
<td>DGOMSWEP</td>
</tr>
<tr>
<td></td>
<td>Pages in EDM Pool</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Free pages in free chain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pages used for CT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pages used for SKCT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pages used for PT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pages used for SKPT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pages used for DBD</td>
<td></td>
</tr>
<tr>
<td>Buffer Pool - General</td>
<td>Current active buffers</td>
<td>DGOMSWBR</td>
</tr>
<tr>
<td></td>
<td>Buffers allocated for virtual buffer pool</td>
<td></td>
</tr>
<tr>
<td>Buffer Pool - Work File Operations</td>
<td>Maximum concurrent workfiles</td>
<td>DGOMSWBV</td>
</tr>
</tbody>
</table>
### Table 138. Snapshot fields (continued)

<table>
<thead>
<tr>
<th>Statistics panel</th>
<th>Field</th>
<th>Panel ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open/Close Management</td>
<td>Open data sets - Current</td>
<td>DGOMSOC2</td>
</tr>
<tr>
<td></td>
<td>Open data sets - With CLOSE(NO)</td>
<td>DGOMSWOC</td>
</tr>
<tr>
<td></td>
<td>Open data sets - Not in use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Data sets on Deferred Close queue - Current</td>
<td></td>
</tr>
<tr>
<td>Query Parallelism Data</td>
<td>Maximum Degree of Parallelism</td>
<td>DGOMSWQP</td>
</tr>
<tr>
<td>RID List Processing</td>
<td>RID blocks allocated - Current</td>
<td>DGOMSWRP</td>
</tr>
<tr>
<td>Distributed Data</td>
<td>Inactive DBATs - Current</td>
<td>DGOMSWDD</td>
</tr>
<tr>
<td></td>
<td>Active DBATs - Current</td>
<td></td>
</tr>
</tbody>
</table>

**High water mark fields:**

The table in this section lists high water mark fields and their corresponding Statistics panels.

### Table 139. High water mark fields

<table>
<thead>
<tr>
<th>Statistics panel</th>
<th>Field</th>
<th>Panel ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2 Statistics Detail</td>
<td>Open data sets - High Water Mark</td>
<td>DGOMSPSM</td>
</tr>
<tr>
<td>Buffer Pool - Query Parallelism</td>
<td>Concurrent streams - high water mark</td>
<td>DGOMSWBU</td>
</tr>
<tr>
<td>Open/Close Management</td>
<td>Open data sets - HWM</td>
<td>DGOMSWOC</td>
</tr>
<tr>
<td></td>
<td>Data sets on Deferred Close queue - Maximum</td>
<td></td>
</tr>
<tr>
<td>RID List Processing</td>
<td>RID blocks allocated - Maximum</td>
<td>DGOMSWRP</td>
</tr>
<tr>
<td>Distributed Data</td>
<td>Inactive DBATs - HWM</td>
<td>DGOMSWDD</td>
</tr>
<tr>
<td></td>
<td>Active DBATs - HWM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total DBATs - HWM</td>
<td></td>
</tr>
</tbody>
</table>

**Statistics panel overview:**

The DB2 Statistics Detail panel shows a summary of key statistics values. From this panel, you can reach windows that provide statistics data in greater detail.

Moving between statistics panels does not cause the values shown to be updated. Data displayed in the current panel is refreshed whenever you press Enter without selecting a window to be displayed or executing a command.

**DB2 Statistics Detail panel:**

Use the DB2 Statistics Detail panel to view key DB2 performance data and percentages and important DB2 thresholds. The DB2 Statistics Detail panel should be used as a regular check of the DB2 performance.

To display the DB2 Statistics Detail panel, select option 2 (Display Statistics) from the Online Monitor Main Menu.
Note: The DB2 Statistics Detail panel displayed at your site might have been tailored by your installation and consequently might not necessarily match the panel example shown in this information.

<table>
<thead>
<tr>
<th>Command</th>
<th>F1=Help</th>
<th>F2=Split</th>
<th>F3=Exit</th>
<th>F4=Move</th>
<th>F5=Auto</th>
<th>F6=History</th>
<th>F7=Up</th>
<th>F8=Down</th>
<th>F9=Swap</th>
<th>F10=Delta</th>
<th>F11=Interval</th>
<th>F12=Cancel</th>
<th>F16=Look</th>
</tr>
</thead>
</table>

Figure 89. DB2 Statistics Detail panel

From this panel, you can display windows that show statistics about various aspects of the system. Type any character in the selection field next to the corresponding heading and press Enter. Multiple windows can be selected simultaneously.

If you have enabled display exception processing, all fields in exception status are shown in reverse video, and the color indicates the level of the exception. Warning level exceptions are highlighted in yellow, while problem level exceptions are highlighted in red. Selection fields in this panel are shown in reverse video when their next level windows contain fields in exception status.
The following list describes some of the important fields that are shown in this panel:

**EDM Pool pages in use (%)**
The percentage of pages in the EDM pool that have been used or are currently in use (snapshot value). This means, it shows the number of nonstealable pages.

During peak periods, the value in this field should be between 80 and 100 percent. Because stealable pages are not represented here, a value close to 100 percent does not necessarily indicate an EDM pool constraint. As the value approaches 100, examine the efficiency ratios to verify that acceptable levels are met. If the EDM pool is too small, it causes increased I/O activity in database DSNDB01, table spaces DBD01 and SCT02.

*Note:* The EDM pool use varies across the day. It is not only the pages that are in use, but also the pages that are not in use, waiting to avoid I/O, that are important for performance.

**Synchronous Reads**
Number of synchronous read I/O operations performed by sequential and random requests.

**Deadlocks**
Number of times lock suspensions ultimately resulted in a deadlock. This happens when two or more application processes each hold locks on resources that the others need, without which they cannot proceed. Deadlocks result principally from an application design problem. Ensure that all applications accessing the same tables access them in the same order. Deadlocks can also occur through index page splits if there is high insert activity. In this case, it is suggested to set SUBPAGES to 1 for the index.

**Timeouts**
Number of times lock suspensions ultimately resulted in a timeout. This happens when a requester for a lock on a resource has waited longer than the installation-specified RESOURCE TIMEOUT limit in the DB2 Install panel DSNTIPI.

**Reads satisfied - Archive Log**
Number of times DB2 needed to read log records, and had to go to the archive log for the records. The value for this should ideally be zero.

**System event checkpoints**
The value in this field indicates the frequency of DB2 checkpoints. For example, if the statistics interval is 30 minutes and the value of this field is 15, DB2 is taking checkpoints every 2 minutes.

**PREPARE Detail**
Select this field to display the PREPARE Detail panel.

**Prepare**
The number of prepares. It reflects the number of real PREPARE commands received by DB2. If the PREPARE is satisfied by getting a copy from the cache rather than by the traditional prepare process, the count is incremented. If the prepares are done under control of KEEP_DYNAMIC(YES), the count is not incremented.
DB2 Statistics windows:

You can access the following windows from the DB2 Statistics Detail panel. To reach a window, type any character in the space beside the heading you want. Multiple windows can be accessed simultaneously. The windows are overlaid on the DB2 Statistics Detail panel. To leave the current window and proceed with the next window, press F3 (Exit). To cancel all windows and return to the DB2 Statistics Detail panel, press F12 (Cancel).

EDM Pool window:

Use the EDM Pool window to examine statistics on the efficiency of the EDM buffer pool, and to determine the size of the EDM pool for optimum system performance.

To display this window, select EDM Pool from the DB2 Statistics Detail panel.

Figure 90. EDM Pool window

The EDM pool size should be large enough to store the cursor tables (CTs), package tables (PTs), and database descriptors (DBDs) for the most frequently used applications.

The following list describes some of the important fields that are shown in this panel:

EDM Pool pages in use (%)

The percentage of the EDM pool pages that are in use. If this percentage is
consistently less than 50%, the EDM pool size is probably too large. The size can be reduced without affecting the efficiency ratios (CT requests/CT not in EDM pool, PT requests/PT not in EDM pool, and DBD requests/DBD not in EDM pool) significantly. However, driving the EDM pool toward 100% usage can cause performance problems.

EDM pool use varies during the day. It is not only the pages that are in use, but also the pages that are not in use, waiting to avoid I/O, that are important for performance.

CT requests/CT not in EDM pool
Ratio of number of requests for CT sections and number of times CT sections were not already in the EDM pool.

PT requests/PT not in EDM pool
Ratio of number of requests for PT sections and number of times PT sections were not already in the EDM pool.

DBD requests/DBD not in EDM pool
Ratio of number of requests for DBDs and number of times DBDs were not already in the EDM pool.

Buffer Manager window:

Use the Buffer Manager window to view a list of active buffer pools and to examine synchronous reads and important threshold information.

To display this window, select Buffer Manager from the DB2 Statistics Detail panel.

--- End of Buffer Pool List ---

Figure 91. Buffer Manager window

The buffer manager is one of the major components involved in DB2 system performance. The buffer manager’s most significant role in performance is to reduce I/O activity, and to perform required I/O in an efficient manner.

Buffer pools should be large enough to store frequently used data in virtual storage to reduce physical I/Os. However, to minimize paging I/O, choose buffer pool sizes that can be backed by real or expanded storage.

Select any active buffer pool listed in the Buffer Manager window to display the Buffer Pool window, where you can view further details about an individual buffer
pool. Multiple windows can be accessed simultaneously by selecting multiple fields. The windows are overlaid on the Buffer Manager window. To leave the current window and proceed with the next window, press F3 (Exit). To cancel all windows and return to the DB2 Statistics Detail panel, press F12 (Cancel).

**Buffer Pool Management in DB2**

Use these buffer pool statistics in conjunction with the system parameters panels. The statistics panels show when various thresholds have been reached or exceeded, the system parameters panels show what the buffer pool settings currently are. You can alter buffer pool settings dynamically using the DB2 ALTER BUFFERPOOL command.

*Buffer Pool windows:*

Use the Buffer Pool window to view important statistics about an active buffer pool.

To display the Buffer Pool window, select any active buffer pool listed in the Buffer Manager window.

On the Buffer Pool window, select the required type of information. A further window then displays the requested information. Use the scrolling keys F7 (Up) and F8 (Down) to view the portions of the window not displayed.

<table>
<thead>
<tr>
<th>DGOMSWBY</th>
<th>Buffer Pool BP1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>____________________________</td>
</tr>
<tr>
<td></td>
<td>For details, type any character next to heading, then press Enter.</td>
</tr>
<tr>
<td></td>
<td>- General</td>
</tr>
<tr>
<td></td>
<td>- Read Operations</td>
</tr>
<tr>
<td></td>
<td>- Write Operations</td>
</tr>
<tr>
<td></td>
<td>- Query Parallelism</td>
</tr>
<tr>
<td></td>
<td>- Sort/Merge Work File Operations</td>
</tr>
</tbody>
</table>

F1=Help    F3=Exit    F5=Auto    F6=History    F7=Up
F8=Down    F10=Delta   F11=Interval  F12=Cancel  F16=Look
F17=Collect

*Figure 92. Buffer Pool window*

Depending on your selection one of the following windows is displayed. Each window is followed by a description of some of the important fields shown in this window.
Buffer pool hit ratio (%)

The total number of Getpage operations, minus the number of pages read from a hard disk drive (both synchronously and using Prefetch), divided by the total number of Getpage operations, multiplied by 100.

Current active buffers

Total number of current active (nonstealable) buffers at the moment the statistics were collected. A buffer critical condition is only shown if it occurs at that moment. The buffer pool might be too small if the number of active buffers is greater than the Deferred Write threshold (DWQT) of the buffer pool.

Figure 93. Buffer Pool – General window
Getpage requests

- **Total**: 103519
- **Sequential access only**: 10883

Synchronous reads

- **Total**: 14720
- **Sequential access only**: 2900

Sequential prefetch - Reads

- **Requested**: 1104
- **Reads**: 1087
- **Pages read**: 10895

List prefetch

- **Requested**: 4
- **Reads**: 0
- **Pages read**: 0

Dynamic prefetch

- **Requested**: 242
- **Reads**: 242
- **Pages read**: 1936

Prefetch disabled

- **No buffer**: 12
- **No read engine**: 0

Page-ins required for read I/O: 185

---

**Figure 94. Buffer Pool – Read Operations window**

**Getpage requests - Total**

The number of Getpage requests issued by sequential and random requests.

**Synchronous reads - Total**

The number of synchronous read I/O operations performed by sequential and random requests.

**Sequential prefetch - Reads**

The number of times Sequential Prefetch reads were performed.

**Sequential prefetch - Pages read**

Number of pages read because of Sequential Prefetch.

The ratio of Sequential prefetch - Pages read to Sequential prefetch - Reads is between 0 and 32. Normally 32 is the maximum Prefetch quantity for table space scans, whether data or index.

**List prefetch - Reads**

Number of times List Prefetch reads were performed.

**List prefetch - Pages read**

Number of pages read because of List Prefetch.

The ratio of List prefetch - Pages read to List prefetch - Reads is between 0 and 32.

**Dynamic prefetch - Reads**

Number of times Dynamic Prefetch reads were performed.
Dynamic prefetch - Pages read
Number of pages read because of Dynamic Prefetch performed because of sequential detection.

The ratio of Dynamic prefetch - Pages read to Dynamic prefetch - Reads is between 0 and 32.

Prefetch disabled - No buffer
Number of times Sequential Prefetch was disabled because buffers were not available. This is the number of times the Sequential Prefetch threshold was reached. This fixed threshold is experienced if 90% of the pages in the buffer pool are unavailable. This has a significant effect on large and frequent scans that use Sequential Prefetch.

<table>
<thead>
<tr>
<th>DGOMSWBT</th>
<th>Buffer Pool BP1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Write Operations</td>
</tr>
</tbody>
</table>

Buffer updates: 4706
Pages written: 2077
Synchronous writes: 5
Asynchronous writes: 2025
Write engine not available: 0

Thresholds reached:
Deferred write: 0
Vertical deferred write: 1742
Data Manager critical: 0

Page-ins required for write I/O: 0

Buffer Pool – Write Operations window

Buffer updates
Number of times pages were updated in the buffer pool.

Pages written
Number of pages written. This field contains the number of pages in the buffer pool written to a hard disk drive.

Synchronous writes
Total number of immediate Writes for a page.

An immediate Write can occur when:
- Data set is closed
- DB2 Checkpoint is taken
- Immediate Write threshold (97.5% pages in the buffer pool are unavailable), which is a fixed threshold
- a Write engine is not available

Asynchronous writes
Number of asynchronous Write I/O operations performed by media manager to a direct access storage device.

Thresholds reached - Deferred write
Number of times the Deferred Write threshold was reached. This threshold is a percentage of the virtual buffer pool that might be occupied by unavailable pages, including both updated pages and pages in use.

F1=Help F2=Split F3=Exit F5=Auto F6=History
F7=Up F8=Down F9=Swap F10=Delta F11=Interval
F12=Cancel F16=Look F17=Collect
Thresholds reached - Vertical deferred write
Number of times the Vertical Deferred Write threshold was reached. This
threshold is expressed as a percentage of the virtual buffer pool that might
be occupied by updated pages from a single data set.
When this threshold is reached, Writes are scheduled for that data set.

Thresholds reached - Data manager critical
Number of times the data manager critical threshold was reached. This
fixed threshold is experienced if 95% of the pages in the buffer pool are
unavailable. This has a significant effect on CPU usage.

<table>
<thead>
<tr>
<th>DGOMSWBU</th>
<th>Buffer Pool BP1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Query Parallelism</td>
</tr>
</tbody>
</table>

Prefetch I/O streams
Concurrent streams - high water mark ................. : 2
Streams reduced - buffer shortage ................. : 0
Parallel query requests ....................... : 44
Reduced parallel query requests ................. : 0
Prefetch quantity reduced to 1/2 ................. : 0
Prefetch quantity reduced to 1/4 ................. : 0

F1=Help  F2=Split  F3=Exit  F5=Auto  F6=History
F7=Up    F8=Down  F9=Swap  F10=Delta F11=Interval
F12=Cancel F16=Look F17=Collect

Figure 96. Buffer Pool – Query Parallelism window

<table>
<thead>
<tr>
<th>DGOMSWBV</th>
<th>Buffer Pool BP1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Sort/ Merge Work File Operations</td>
</tr>
</tbody>
</table>

Maximum concurrent work files ......................... : 0
Requested for all merge passes ......................... : 0
Not Created - no buffer .......................... : 0
Prefetch not scheduled - zero quantity ........ : 0
Pages marked to destruct .............................. : 0
Pages not written .................................. : 0
Merge passes requested ............................... : 0
Degraded - low buffers .............................. : 0
Workfile requests rejected - low buffers .......... : 0

F1=Help  F2=Split  F3=Exit  F5=Auto  F6=History
F7=Up    F8=Down  F9=Swap  F10=Delta F11=Interval
F12=Cancel F16=Look F17=Collect

Figure 97. Buffer Pool – Sort/ Merge Work File Operations window

Not created - no buffer
The number of times a workfile could not be created because of insufficient
buffer resources during sort processing.

Prefetch not scheduled - zero quantity
The number of workfile Prefetches rejected because of a zero Prefetch
quantity.
Degraded - low buffers
The number of times that a merge pass could not be efficiently performed because of a shortage of space in the buffer pool.

Workfile requests rejected - low buffers
The number of workfiles (runs) that were rejected during all merge passes because of shortage of space in the buffer pool.

Locking Activity window:

Use the Locking Activity window to view statistics on lock suspensions, timeouts, deadlocks, and lock escalations.

To display this window, select Locking Activity from the DB2 Statistics Detail panel.

Application deadlocks and timeouts should be avoided if possible. Unusually high values for these fields indicate the existence of a problem application. Exception events and console messages indicate deadlock participants. Use history to view details of the event surrounding the deadlock. You can use the Locked Resources window in thread activity to investigate thread resources locked or held.

Lock escalation counts greater than zero usually indicate an application process that updates more pages than expected. If this is not the case, examine fields Max page locks per table space and Max locks per user in the DB2 System Parameters panel to determine whether to increase DSNZPARM fields NUMLKTS and NUMLKUS (LOCKS PER TABLE(SPACE) and LOCKS PER USER respectively in the INSTALL DB2 - IRLM PANEL 2 panel DSNTIPJ).
The following list describes some of the important fields that are shown in this panel:

**Lock requests**
Number of times a lock on a resource was requested.

**Suspensions - lock**
Number of resource conflicts. A suspension is a wait for a lock and each of these waits can contribute adversely to DB2 performance. The suspension can ultimately result in normal resumption, or, in the case of lock contention, in a timeout or deadlock. The number of lock suspensions is a function of the lock requests. Lock suspensions (or conflicts) can occur on either lock request or change request.

**Lock escalations - shared**
Count of lock escalations to shared mode. Number of times the LOCKS PER TABLE(SPACE) parameter in the DB2 Install panel DSNTIPJ was exceeded and the table space lock was promoted from a page lock (IS) to a table space lock (S). Escalation can cause unpredictable response times. The lock escalation to shared mode should only happen on an exception basis. For example, a REPEATABLE READ application references most pages in a table.

**Lock escalations - exclusive**
Count of lock escalations to exclusive mode. Number of times the LOCKS PER TABLE(SPACE) parameter in the DB2 Install panel DSNTIPJ was exceeded and the table space lock was promoted from a page lock (IX) to a table space lock (X). Escalation can cause unpredictable response times. The lock escalation to exclusive mode should only happen on an exception basis. For example, an application updates most pages in a table.

Lock escalations, shared or exclusive, should not be expected in a transaction environment.

**Locking Considerations**

The following aspects should be considered if concurrency is an issue.
- Consistent data access sequence in applications
- The mix of concurrent processing types (batch and transaction)
- IRLM startup procedure options and DB2 installation options
- DDL LOCKSIZE
- DDL LOCKMAX
- BIND parameters

See [IBM Db2 for z/OS in the IBM Knowledge Center](https://www.ibm.com/support/knowledgecenter/SSEPGG_12.1.0/com.ibm.db2.luw.admin.performance.doc/doc/pd/pd Shelf000.html) for detailed information.

**Open/Close Management window:**

The Open/Close Management window displays statistics on data set activity and drain requests. Use the Open/Close Management window to determine the number of open data sets, the number of drain requests, the number of page sets available to drain, and the number of successful and failed drains.

To display this window, select Open/Close Management from the DB2 Statistics Detail panel.
The following list describes some of the important fields that are shown in this panel:

**Open data sets - High water mark**

The maximum number of data sets open concurrently (high water mark).

Monitor this field to see whether you are reaching the maximum number of open data sets permissible for your system. The maximum number of open data sets depends on the MVS version, modifications to your system, and various other factors. See [z/OS information in the IBM Knowledge Center](https://www.ibm.com/support/knowledgecenter) for the maximum number of open data sets permissible for your system.

**Bind Processing window**

Use the Bind Processing window to view statistics on plans successfully bound, attempts to REBIND a plan, automatic binds, and attempts to FREE a plan.

To display this window, select **Bind Processing** from the DB2 Statistics Detail panel.
### Bind Processing window

The Bind Processing window consists of the following sections:

**Bind**

This section shows statistics on bind events. These events occur when an explicit DB2 BIND subcommand is issued to bind a plan or package.

**Rebind**

This section shows statistics on rebind events. These events occur when an explicit DB2 REBIND subcommand is issued to rebind an existing plan or package.

**Autobind**

This section shows statistics on autobind events. These events occur if the plan becomes invalid since the last time the plan was bound. In this case, DB2 rebinds the plan before the plan is executed.

**Free**

This section shows statistics on free events. These events occur when an explicit DB2 FREE subcommand is issued to remove a DB2 plan or package from the DB2 catalog and directory.

---

#### Plan and Package Allocation window:

Use the Plan and Package Allocation window to check plan and package allocation attempts and successes, and authorization management attempts and successes.
To display this window, select Plan/Package Allocation, Authorization Management from the DB2 Statistics Detail panel.

<table>
<thead>
<tr>
<th>DGOMSWSV Plan and Package Allocation</th>
<th>INTERVAL 2:48.421</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plan Allocation</strong></td>
<td></td>
</tr>
<tr>
<td>Attempts</td>
<td>111</td>
</tr>
<tr>
<td>Successful</td>
<td>107</td>
</tr>
<tr>
<td><strong>Package Allocation</strong></td>
<td></td>
</tr>
<tr>
<td>Attempts</td>
<td>11</td>
</tr>
<tr>
<td>Successful</td>
<td>11</td>
</tr>
<tr>
<td><strong>Plan Authorization Management</strong></td>
<td></td>
</tr>
<tr>
<td>Attempts</td>
<td>206</td>
</tr>
<tr>
<td>Successful</td>
<td>206</td>
</tr>
<tr>
<td>Successful without catalog access</td>
<td>65</td>
</tr>
<tr>
<td>Successful public plan</td>
<td>65</td>
</tr>
<tr>
<td><strong>Package Authorization Management</strong></td>
<td></td>
</tr>
<tr>
<td>Successful</td>
<td>3</td>
</tr>
<tr>
<td>Successful public</td>
<td>1</td>
</tr>
<tr>
<td>Unsuccessful - catalog required</td>
<td>1</td>
</tr>
<tr>
<td>Overwritten authid in cache</td>
<td>1</td>
</tr>
<tr>
<td>Overwritten in cache</td>
<td>1</td>
</tr>
<tr>
<td>Command ===&gt;</td>
<td></td>
</tr>
<tr>
<td>F1=Help</td>
<td>F2=Split</td>
</tr>
<tr>
<td>F3=Exit</td>
<td>F5=Auto</td>
</tr>
<tr>
<td>F6=History</td>
<td>F7=Up</td>
</tr>
<tr>
<td>F8=Down</td>
<td>F9=Swap</td>
</tr>
<tr>
<td>F10=Delta</td>
<td>F11=Interval</td>
</tr>
<tr>
<td>F12=Cancel</td>
<td>F16=Look</td>
</tr>
<tr>
<td>F17=Collect</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 101. Plan and Package Allocation window**

**Successful without catalog access**

The number of successful authorization checks not using the DB2 catalog, that is, using plan cache checks and public checks.

For transaction level security, ENABLE and DISABLE on BIND PACKAGE should be used to ensure adequate security. Granting execute authority on the plan to public might be quite adequate. See [IBM Db2 for z/OS in the IBM Knowledge Center](https://www.ibm.com/support/knowledgecenter) for more information.

**Log Manager window:**

Use the Log Manager window to check Read and Write activity both to and from the log.

To display this window, select Log Manager from the DB2 Statistics Detail panel.
### Figure 102. Log Manager window

If a high percentage of reads comes from the archive log, it might be necessary to increase the size of the active log. For example, a large update job with few commits could fill the active log forcing an archive. If the job fails, recovery is required to retrieve records from the archive log. Archive activity can be expensive in terms of response time, especially if the archive log is placed on slow devices such as tape or cartridge.

The following list describes some of the important fields that are shown in this panel:

#### Reads delayed - Tape volume contention
Number of read accesses delayed because of tape volume contention (that is, a tape volume was already in use by another thread).

#### Reads delayed - Unavailable resource
Number of read accesses delayed because of an unavailable resource. This can be because of an insufficient number of tape units allocated, or because the archive log read service task is not available.

#### Write output log buffers
The number of Write requests issued irrespective of single or dual logging. This field is updated once per buffer Write. The update value is either one or two I/Os, depending on which logging option is chosen (single or dual). This should have a value consistent with the known workload update rate.
Unavailable output log buffers
This field shows how many times a Write request to the active log had to wait because no buffer was available. The value should ideally be zero as these waits should not occur. If these waits do occur, the output buffer might be too small, or the size of the write threshold might be too close to the size of the output buffer.

Active log - Control intervals created
Number of active log output control intervals created. Log records are placed sequentially in output log buffers, which are formatted as VSAM control intervals. The control intervals are written to a set of predefined active log data sets, which are used sequentially and recycled.

A useful ratio is: Write output log buffers divided by Active log - Control intervals created.

Logging Considerations
- Minimize device contention on the log data sets by placing data sets correctly. If you use dual logging, do not place both logs on the same volume.
- Avoid waits that occur because no log buffer is available.
- Define enough active log data sets to prevent DB2 from waiting while a log is archived.
- Make the active logs large enough that backouts do not have to use the archive log.
- Consider the 3990 DASD FAST WRITE controller for the log. Performance measurements have shown that sequential access mode with DASD FAST WRITE provided substantially better performance than native DASD when the amount of log data written per commit was 24 KB or less. DASD FAST WRITE performance was comparable to that of native DASD when 48 KB of log data was written to DASD for each commit. When more than 48 KB was written, native DASD performed better than DASD FAST WRITE. Therefore there might be a need to determine in which environments log performance is critical to assess the value of DASD FAST WRITE.

Subsystem Service window:
Use the Subsystem Service window to view DB2 subsystem activity, such as connections to DB2, threads, commits, and units of recovery. You can examine these statistics to determine the work load of various subsystem functions, and to help you adjust DB2 system parameters for optimum system performance.

To display this window, select Subsystem Service from the DB2 Statistics Detail panel.
### Subsystem Service

**Interval:** 2:48.421

<table>
<thead>
<tr>
<th>Command</th>
<th>More:</th>
<th>-</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create thread</td>
<td>168</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signon</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminate</td>
<td>107</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rollback</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synchs (single phase commit)</td>
<td>106</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queued at create thread</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Commits

<table>
<thead>
<tr>
<th>Phase</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>1</td>
</tr>
<tr>
<td>Phase 2</td>
<td>0</td>
</tr>
<tr>
<td>Read only</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Subsystem allied memory

<table>
<thead>
<tr>
<th>Event</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of task</td>
<td>3</td>
</tr>
<tr>
<td>End of memory</td>
<td>0</td>
</tr>
</tbody>
</table>

#### System event checkpoints

- Count: 2

#### Units of Recovery

- Indoubt resolved: 0
- Gone indoubt: 0

#### Command Line

- F1=Help
- F2=Split
- F3=Exit
- F5=Auto
- F6=History
- F7=Up
- F8=Down
- F9=Swap
- F10=Delta
- F11=Interval
- F12=Cancel
- F16=Look
- F17=Collect

---

**Figure 103. Subsystem Service window**

The following list describes some of the important fields that are shown in this panel:

**Identify**

The number of successful connections to DB2 from an allied address space (for example TSO, BATCH, CICS, IMS, CAF, RRSAF, or UTILITY).

**Create thread**

The number of threads created. Thread creation can be a significant part of the cost in a short transaction. Thread reuse (discussed in "Thread Reuse" on page 1895) can help improve performance.

**Signon**

The number of Signons that have occurred in IMS or CICS. If the number of Signons is greater than the number of Create Thread occurrences, some threads have been reused. In the case of the TSO attachment facility and the call attachment facility (CAF), there is no sign-on, because the user is identified when the TSO address space is connected.

**Terminate**

The number of threads that have been terminated. The value of this field is usually greater than the number of Create Thread occurrences, because it also includes the termination of connections to DB2 (IDENTIFY) and other internal counts.

**Synchs (single phase commit)**

The number of Commits from TSO, CAF, and UTILITY environments.

**Queued at create thread**

The number of Create Thread requests queued. This count does not include DBATs.
Monitoring this field is useful in determining the right setting for the MAX
USERS option in the DSNITPE installation panel. This parameter controls
the number of threads (excluding DBATs) in the DB2 system.

**Rule of thumb:** About 1% thread queuing is acceptable.

**Commits - Phase 1**
The number of successful requests for COMMIT PHASE 1 of two-phase
commit (BEGIN COMMIT). IMS, CICS, and RRS applications use the
PREPARE and COMMIT sequence to commit work. This value does not
include successful single-phase commits.

**Commits - Phase 2**
The number of successful requests for COMMIT PHASE 2. IMS, CICS, and
RRS applications use the PREPARE and COMMIT sequence to commit
work. This value does not include successful single-phase commits. A
nonzero value for this field indicates that updates have occurred.

**Commits - Read only**
The number of times read operations were completed in a two-phase
commit environment.

**System event checkpoints**
A count of the number of checkpoints DB2 has taken. The checkpoint
interval is defined by the number of log records that you specify for the
checkpoint frequency (LOGLOAD in DSN6SYSP). A checkpoint is taken
when the specified number of log records have been written. A checkpoint
is also taken each time DB2 switches to a new active log data set. If the
statistics interval is 30 minutes and the value of this field is 15, then DB2 is
taking checkpoints every 2 minutes.

**Thread Reuse:**

The term *thread reuse* only applies to IMS and CICS attachments. In the case of the
TSO attachment facility and the call attachment facility (CAF), threads cannot be
reused, because the threads are allocated to the user address space.

Thread reuse should be considered in the following cases:

- **If transaction volume is high:**
  High volume transactions should achieve a high percentage of thread reuse. If
  threads are reused on low volume transactions, the number of threads needed
  increases because these threads are not automatically terminated by IMS when
  not being used. This can result in too many idle threads for the level of the DB2
  workload. Under CICS, protected threads are terminated after the purge cycle if
  no transaction eligible to reuse the thread has been received.

- **If thread creation cost is significant:**
  As a rule of thumb, more than 5% of the total CPU cost of transaction
  processing is considered significant.

The ACQUIRE and RELEASE parameters of BIND should be specified to minimize
the thread creation cost, while providing the needed concurrency:

- **If most of the application plan’s SQL statements are executed, then
  ACQUIRE(ALLOCATE) is cheaper than ACQUIRE(USE).**

- **If only a small number of the SQL statements are executed, ACQUIRE(USE)
  becomes cheaper and improves concurrency, because the required resources are
  only acquired (locked) when the plan actually references (uses) them. An
example would be a generalized plan used by many different transactions. It would contain multiple logic paths referencing different tables.

If packages are involved, ACQUIRE(USE) is always implicitly used.

- Concurrency in thread reuse is based on page locking provided by the IS and IX intent locks, whose duration is governed by ACQUIRE and RELEASE of BIND. RELEASE(DEALLOCATE) is recommended for thread-reuse transactions to reduce transaction CPU time.

When thread reuse is implemented, monitor the EDM pool. It should be sufficient in size to accommodate expanding plans where the next transaction requires additional plan sections over those already part of the EDM pool.

*SQL Activity window:*

Use the SQL Activity window to view subsystem-wide SQL activity for determining the SQL workload on the system. This information displays the number of times each SQL statement has been executed. To display this window, select SQL Activity from the DB2 Statistics Detail panel.
Figure 104. SQL Activity window (Statistics)

The SQL Activity window consists of the following sections:

**Total DML (Data Manipulation Language)**

This section shows the number of executions performed by various SQL statements concerning the manipulation of data.

**Total DCL (Data Control Language)**

This section shows the number of executions performed by various SQL statements concerning the controlling of various activities.
Total DDL (Data Definition Language)
This section shows a table that contain the number of executions performed by various DDL SQL statements for each of the applicable object types. These SQL statements are used to create, drop, and alter objects.

Incremental Binds
This field is the number of INCREMENTAL BINDs.
If a plan is bound with VALIDATE(RUN), DB2 performs validity checks (such as authorizations and existence of referenced DB2 objects) at bind time and rechecks any failures at run time. This can result in catalog contention and degraded application performance, depending on the number of statements flagged and the number of times they are executed. Therefore VALIDATE(RUN) should be avoided as much as possible. Ensure that all objects are created and all privileges are granted before binding, and select the VALIDATE(BIND) option.
In addition to plans bound with VALIDATE(RUN), this counter is incremented for plans using DB2 private protocol.

PREPARE Detail window:
Use the PREPARE Detail window to view information about the treatment of PREPARE commands and information about kept dynamic statements and dynamic cached statements.
To display this window, select PREPARE Detail from the DB2 Statistics Detail panel.

<table>
<thead>
<tr>
<th>Command</th>
<th>F1=Help</th>
<th>F2=Split</th>
<th>F3=Exit</th>
<th>F5=Auto</th>
<th>F6=History</th>
<th>F9=Swap</th>
<th>F10=Delta</th>
<th>F11=Interval</th>
<th>F12=Cancel</th>
</tr>
</thead>
</table>

Figure 105. PREPARE Detail window (Statistics)
The following list describes some of the important fields that are shown in this panel:

Prepares satisfied
The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.

Prepares received
The number of times a PREPARE command was received, but a matching statement was not found in the prepared statement cache. Cache search is only done for DML SQL.

Prepares implicit
The number of times an implicit prepare was performed because KEEPDYNAMIC(YES) was used and an open, execute, or describe for a dynamic SQL statement has occurred after a commit.
Prepares avoided
The number of times a prepare was avoided because the
KEEPDYNAMIC(YES) bind option was used and an open, execute, or
describe for a dynamic SQL statement has occurred after a commit.

Kept dynamic statement discarded
The number of times a kept dynamic statement was discarded because the
MAXKEEPD system limit has been reached.

Dynamic cache statement purged
The number of times a dynamic cached statement was purged from the
cache because a dependent object was dropped or altered.

Query Parallelism Data window:
Use the Query Parallelism Data window to view information about the total
number of parallel groups executed and to find out whether the type or degree of
parallelism was changed at run time.

To display this window, select Query Parallelism Data from the DB2 Statistics
Detail panel.

<table>
<thead>
<tr>
<th>DGOMSWQP</th>
<th>Query Parallelism Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERVAL</td>
<td>3:32.419</td>
</tr>
<tr>
<td>More: - +</td>
<td></td>
</tr>
<tr>
<td>Maximum Degree of Parallelism . . . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>Parallel Groups executed . . . . . . . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>Number of Parallel Groups executed with Planned Parallel Degree . . . . . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>Reduced Parallel Degree . . . . . . . . . . . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>No buffer . . . . . . . . . . . . . . . . . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>One DB2 COORDINATOR Parm = NO . . . . . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>isolation level . . . . . . . . . . . . . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>Fall back to sequential mode . . . . . . . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>Cursor . . . . . . . . . . . . . . . . . . . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>No ESA . . . . . . . . . . . . . . . . . . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>No Buffer . . . . . . . . . . . . . . . . . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>MVS/ESA Enclave Services . . . . . . . . . . . : 0</td>
<td></td>
</tr>
<tr>
<td>Member skipped (%) . . . . . . . . . . . . . . : 3</td>
<td></td>
</tr>
</tbody>
</table>

Command ===> F1=Help F2=Split F3=Exit F5=Auto
F6=History F9=Swap F10=Delta F11=Interval
F12=Cancel

Figure 106. Query Parallelism Data window (Statistics)

The main objective of query parallelism is to improve query response times.

Query parallelism is suited to data-intensive and complex queries. A query is
data-intensive if it has a high ratio of I/O compared to CPU. A query is complex if it
requires a high use of CPU to resolve complex predicates and functions.

By examining the information displayed in this window, you can view the number
of parallel groups that have fallen back to sequential mode and determine the
cause.
The following list describes some of the important fields that are shown in this panel:

**Number of Parallel Groups executed with - One DB2 - COORDINATOR Parm = NO**
The total number of parallel groups scheduled for Sysplex query parallelism, but executed on a single DB2 because of the COORDINATOR subsystem parameter set to NO. When the statement was bound, the COORDINATOR subsystem parameter was set to YES. The same can happen when a package or plan is bound on a DB2 subsystem with COORDINATOR = YES, but is run on a DB2 subsystem with COORDINATOR = NO.

**Number of Parallel Groups executed with - One DB2 - Isolation level**
The total number of parallel groups scheduled for Sysplex query parallelism, but executed on a single DB2 because of repeatable-read or read-stability isolation.

**Member skipped (%)**
The percentage of parallel groups that were not distributed as planned. The purpose of this count is to indicate situations with insufficient buffers on a member so that the parallelism coordinator has to bypass a DB2 when distributing tasks.

**RID List Processing window:**

Use the RID List Processing window to view the number of blocks concurrently allocated for RID entries (maximum and current), and the number of times RID list processing has been terminated.

To display this window, select RID List Processing from the DB2 Statistics Detail panel.

```
<table>
<thead>
<tr>
<th>DGOMSWRP</th>
<th>RID List Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>INTERVAL 3:32.419</td>
</tr>
<tr>
<td></td>
<td>More: - +</td>
</tr>
<tr>
<td></td>
<td>RID blocks allocated</td>
</tr>
<tr>
<td></td>
<td>Maximum: 6</td>
</tr>
<tr>
<td></td>
<td>Current: 0</td>
</tr>
<tr>
<td></td>
<td>Terminated</td>
</tr>
<tr>
<td></td>
<td>No storage: 0</td>
</tr>
<tr>
<td></td>
<td>RDS limit exceeded: 0</td>
</tr>
<tr>
<td></td>
<td>DM limit exceeded: 0</td>
</tr>
<tr>
<td></td>
<td>Process limit exceeded: 0</td>
</tr>
<tr>
<td>Command:</td>
<td>F1=Help  F2=Split  F3=Exit  F5=Auto</td>
</tr>
<tr>
<td></td>
<td>F6=History  F9=Swap  F10=Delta  F11=Interval</td>
</tr>
<tr>
<td></td>
<td>F12=Cancel  F16=Look  F17=Collect</td>
</tr>
</tbody>
</table>
```

**Figure 107. RID List Processing window (Statistics)**

RID list processing can terminate because the number of RID entries exceeds the RDS limit, the number of RID entries exceeds the data manager limit, or because the maximum RID list storage is exceeded.

The following list describes some of the important fields that are shown in this panel:
**Terminated - No storage**

Number of times RID list processing was terminated because of insufficient storage.

This failure occurs when the 2 GB limit is reached. You cannot increase virtual storage beyond 2 GB.

**Terminated - RDS limit exceeded**

The number of times RID list processing was terminated because either the number of RID entries was greater than the maximum limit of 25% of the table size, or because the number of RID entries that can fit into the guaranteed number of RID blocks was exceeded. The latter can only happen when RID blocks allocated - Maximum approaches the RID list storage size. There is one guaranteed RID block.

**Terminated - DM limit exceeded**

Number of times RID list processing was terminated because the number of RID entries exceeded the Data Manager limit of 16 million.

**Terminated - Process limit exceeded**

Number of times RID list processing was terminated because of the maximum RID list storage used.

The size is determined by the installation parameter RID POOL SIZE (DB2 Install panel DSNTIPC). It can be 0, or between 16 KB and 1 GB.

The general formula for calculating the RID pool size is:

\[
\text{Number of concurrent RID processing activities} \times \\
\text{average number of RIDs} \times 2 \times 5 \text{ bytes per RID}
\]

**Distributed Data window:**

Use the Distributed Data window to view subsystem-wide Distributed Data Facility (DDF) activity, and to examine a list of remote locations involved in this activity. If many remote locations are involved in distributed activity, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

To display this window, select Distributed Data from the DB2 Statistics Detail panel.
From this window, you can select any remote location listed to display the Remote Location window, where the remote location can be examined in greater detail.

**DBATs queued - maximum active**

Monitoring this field is useful in developing the right setting for the DSNTIPE parameter MAX REMOTE ACTIVE. This parameter controls the number of DBATs that can be concurrently active in the DB2 system.

**Rule of thumb:** About 1% DBAT queuing is acceptable.

**Note:** The Distributed Data window is not accessible if there is no distributed activity.

**Notes® on MAX REMOTE ACTIVE:**

The MAX REMOTE ACTIVE option in the Install panel DSNTIPE specifies the number of database access threads that can be active at the same time as opposed to MAX USERS in the same panel which specifies the maximum number of allied threads. The combined maximum allowed for MAX USERS and MAX REMOTE ACTIVE cannot exceed 2 000.

MAX REMOTE CONNECTED in the DB2 Install panel DSNTIPE represents the number of database access threads that can concurrently exist. This number cannot exceed 25 000.

The total number of inactive database access threads is the difference between MAX REMOTE CONNECTED and MAX REMOTE ACTIVE.

An installation might choose, by means of DDF THREADS in the DB2 Install panel DSNTIPR, to have database access threads considered inactive when the last operation of the thread was a commit or rollback, all packages used by the database access thread had the RELEASE (COMMIT) option, and the thread holds
no database locks (including not having any cursors open with the HOLD option). When this is the case, the thread is removed from active thread lists and moved to inactive thread lists.

If the limit set by MAX REMOTE ACTIVE parameter is reached, remote SQL requests are queued until a DBAT can be created. The number of times queuing occurred is shown by the field DBATs queued - maximum active. If necessary, the value of MAX REMOTE ACTIVE should be increased.

Remote Location window:

Use the Remote Location window to view statistics regarding the distribution of data by the remote location selected from the Distributed Data window. These statistics show the number of distributed data events performed at this remote location.

To display this window, select any remote location listed in the Distributed Data window.

```
DGOMSWRL  Remote Location

INTERVAL  6:35,240

Remote Location: DRDA REMOTE LOC

Conversations queued: 0
SQL statements bound: 6002
Limited block fetch: 0
Message buffer rows: 0

Remote Location as coordinator:
  Threads went indoubt: 0
  Commits performed: 0
  Rollbacks performed: 0

Transactions: 12 0
Conversations: 12 0
SQL statements: 10003 0
Commits: 9 0
Rollbacks: 2 0
Rows: 0 1
Messages: 10022 10016
Bytes: 4261K 2948K
Blocks: 0 0
Prepare requests: 0 0
Last agent requests: 0 0
Two phase commit requests: 0 0
Two phase rollback requests: 0 0
Forget responses: 0 0
Commit responses: 0 0
Backout responses: 0 0

Command ==> F1=Help  F2=Split  F3=Exit  F5=Auto  F6=History
          F7=Up   F8=Down  F9=Swap  F10=Delta  F11=Interval
          F12=Cancel  F16=Look  F17=Collect
```

Figure 109. Remote Location window

To leave the Remote Location window and return to the Distributed Data window, press F3 (Exit). To leave the Remote Location window and return to the DB2 Statistics Detail panel, press F12 (Cancel).
The following list describes some of the important fields that are shown in this panel:

**Remote Location**
Location name of the remote location with which DDF data is associated, or, for DRDA protocol, this field contains the string DRDA REMOTE LOCS. Statistics for all remote locations accessed by DRDA protocol are grouped under the location name DRDA REMOTE LOCS. For DB2 private protocol, statistics are gathered independently for each remote location.

**Conversations queued**
The number of conversation requests that are queued by the Distributed Data Facility and are waiting for allocation.
If this number is high, consider tuning VTAM.

**Limited block fetch**
The number of times a switch was made from continuous to limited block fetch mode. This value applies only to DB2 private protocol.
If this number is high, consider tuning VTAM.

**CPU Times and Other Data window:**
Use the CPU Times and Other Data window to view statistics on the work that various address spaces have accumulated.

To display this window, select CPU Times and Other Data from the DB2 Statistics Detail panel.
The 1 fields display statistics on the accumulated CPU processing time spent in various address spaces, and on various tasks. Use these statistics to examine system usage, and to determine if there are any problem areas consuming more CPU time than expected. If the Distributed Data Facility (DDF) is not installed, N/P is displayed in the DDF address space time fields.

The 1 fields show the number of calls made to the instrumentation facility interface (IFI) by various functions, and the number of IFI abnormal terminations.

From the CPU Times and Other Data window, you can reach windows that display information about DB2 commands, instrumentation record counts, IFC destination data, and data capture.

**DB2 Commands window:**

Use the DB2 Commands window to view the total number of executions of various DB2 commands, whether or not they completed successfully.

To display this window, select DB2 Commands from the CPU Times and Other Data window.

---

### Figure 110. Statistics CPU Times and Other Data window

The 1 fields display statistics on the accumulated CPU processing time spent in various address spaces, and on various tasks. Use these statistics to examine system usage, and to determine if there are any problem areas consuming more CPU time than expected. If the Distributed Data Facility (DDF) is not installed, N/P is displayed in the DDF address space time fields.

The 1 fields show the number of calls made to the instrumentation facility interface (IFI) by various functions, and the number of IFI abnormal terminations.

From the CPU Times and Other Data window, you can reach windows that display information about DB2 commands, instrumentation record counts, IFC destination data, and data capture.

**DB2 Commands window:**

Use the DB2 Commands window to view the total number of executions of various DB2 commands, whether or not they completed successfully.

To display this window, select DB2 Commands from the CPU Times and Other Data window.

---

**Table: CPU Times and Other Data**

<table>
<thead>
<tr>
<th></th>
<th>TCB</th>
<th>SRB</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Services</td>
<td>0.54272</td>
<td>0.18774</td>
<td>0.73047</td>
</tr>
<tr>
<td>Database Services</td>
<td>0.65193</td>
<td>0.37567</td>
<td>1.02761</td>
</tr>
<tr>
<td>IRLM</td>
<td>0.02337</td>
<td>0.01779</td>
<td>0.04116</td>
</tr>
<tr>
<td>DDF address space</td>
<td>0.11245</td>
<td>0.03937</td>
<td>0.15183</td>
</tr>
</tbody>
</table>

**DB2 Application Programming Interface**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Abends</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrecognized</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Command requests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>READA requests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>READS requests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRITE requests</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Miscellaneous**

- Log RBA: X'000000000EBBC7E6'
- Reason invoked: IFI READS
- Columns bypassed: 89321

---

**Command ===>>**

F1=Help      F2=Split  F3=Exit      F5=Auto  F6=History
F7=Up        F8=Down   F9=Swap      F10=Delta F11=Interval
F12=Cancel   F16=Look  F17=Collect
### DB2 Commands window

#### DB2 Instrumentation window:

Use the DB2 Instrumentation window to view the number of records successfully written by the DB2 instrumentation facility to SMF, GTF, and OPx destinations, and the number of records where a Write was attempted but did not succeed.

To display this window, select Instrumentation Record Counts from the CPU Time and Other Data window.

---

**Figure 111. DB2 Commands window**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1=Help</td>
<td>F2=Split</td>
</tr>
<tr>
<td>F3=Exit</td>
<td>F4=Auto</td>
</tr>
<tr>
<td>F6=History</td>
<td>F7=Up</td>
</tr>
<tr>
<td>F8=Down</td>
<td>F9=Swap</td>
</tr>
<tr>
<td>F10=Delete</td>
<td>F11=Interval</td>
</tr>
<tr>
<td>F12=Cancel</td>
<td>F16=Look</td>
</tr>
<tr>
<td>F17=Collect</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start database</td>
<td>0</td>
</tr>
<tr>
<td>Start trace</td>
<td>2</td>
</tr>
<tr>
<td>Start DB2</td>
<td>1</td>
</tr>
<tr>
<td>Start RLIMIT</td>
<td>0</td>
</tr>
<tr>
<td>Start DDF</td>
<td>0</td>
</tr>
<tr>
<td>Start Procedure</td>
<td>0</td>
</tr>
<tr>
<td>Display database</td>
<td>0</td>
</tr>
<tr>
<td>Display thread</td>
<td>0</td>
</tr>
<tr>
<td>Display utility</td>
<td>0</td>
</tr>
<tr>
<td>Display trace</td>
<td>4</td>
</tr>
<tr>
<td>Display RLIMIT</td>
<td>0</td>
</tr>
<tr>
<td>Display location</td>
<td>0</td>
</tr>
<tr>
<td>Display archive</td>
<td>0</td>
</tr>
<tr>
<td>Display bufferpool</td>
<td>0</td>
</tr>
<tr>
<td>Display Groupbufferpool</td>
<td>0</td>
</tr>
<tr>
<td>Display Group</td>
<td>0</td>
</tr>
<tr>
<td>Display Procedure</td>
<td>0</td>
</tr>
<tr>
<td>Stop database</td>
<td>0</td>
</tr>
<tr>
<td>Stop trace</td>
<td>1</td>
</tr>
<tr>
<td>Stop DB2</td>
<td>0</td>
</tr>
<tr>
<td>Stop RLIMIT</td>
<td>0</td>
</tr>
<tr>
<td>Stop DDF</td>
<td>0</td>
</tr>
<tr>
<td>Stop Procedure</td>
<td>0</td>
</tr>
<tr>
<td>Cancel thread</td>
<td>0</td>
</tr>
<tr>
<td>Recover BSDS</td>
<td>0</td>
</tr>
<tr>
<td>Recover Indoubt</td>
<td>0</td>
</tr>
<tr>
<td>Reset Indoubt</td>
<td>0</td>
</tr>
<tr>
<td>Reset Genericlu</td>
<td>0</td>
</tr>
<tr>
<td>Modify trace</td>
<td>0</td>
</tr>
<tr>
<td>Term utility</td>
<td>0</td>
</tr>
<tr>
<td>Archive log</td>
<td>0</td>
</tr>
<tr>
<td>Set archive</td>
<td>0</td>
</tr>
<tr>
<td>Alter bufferpool</td>
<td>0</td>
</tr>
<tr>
<td>Alter Groupbufferpool</td>
<td>0</td>
</tr>
<tr>
<td>Unrecognized commands</td>
<td>0</td>
</tr>
</tbody>
</table>

**DB2 Commands window**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1=Help</td>
<td>F2=Split</td>
</tr>
<tr>
<td>F3=Exit</td>
<td>F4=Auto</td>
</tr>
<tr>
<td>F6=History</td>
<td>F7=Up</td>
</tr>
<tr>
<td>F8=Down</td>
<td>F9=Swap</td>
</tr>
<tr>
<td>F10=Delete</td>
<td>F11=Interval</td>
</tr>
<tr>
<td>F12=Cancel</td>
<td>F16=Look</td>
</tr>
<tr>
<td>F17=Collect</td>
<td></td>
</tr>
</tbody>
</table>

---

**Figure 111. DB2 Commands window**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1=Help</td>
<td>F2=Split</td>
</tr>
<tr>
<td>F3=Exit</td>
<td>F4=Auto</td>
</tr>
<tr>
<td>F6=History</td>
<td>F7=Up</td>
</tr>
<tr>
<td>F8=Down</td>
<td>F9=Swap</td>
</tr>
<tr>
<td>F10=Delete</td>
<td>F11=Interval</td>
</tr>
<tr>
<td>F12=Cancel</td>
<td>F16=Look</td>
</tr>
<tr>
<td>F17=Collect</td>
<td></td>
</tr>
</tbody>
</table>

---

**DB2 Commands window**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1=Help</td>
<td>F2=Split</td>
</tr>
<tr>
<td>F3=Exit</td>
<td>F4=Auto</td>
</tr>
<tr>
<td>F6=History</td>
<td>F7=Up</td>
</tr>
<tr>
<td>F8=Down</td>
<td>F9=Swap</td>
</tr>
<tr>
<td>F10=Delete</td>
<td>F11=Interval</td>
</tr>
<tr>
<td>F12=Cancel</td>
<td>F16=Look</td>
</tr>
<tr>
<td>F17=Collect</td>
<td></td>
</tr>
</tbody>
</table>

---

**DB2 Commands window**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1=Help</td>
<td>F2=Split</td>
</tr>
<tr>
<td>F3=Exit</td>
<td>F4=Auto</td>
</tr>
<tr>
<td>F6=History</td>
<td>F7=Up</td>
</tr>
<tr>
<td>F8=Down</td>
<td>F9=Swap</td>
</tr>
<tr>
<td>F10=Delete</td>
<td>F11=Interval</td>
</tr>
<tr>
<td>F12=Cancel</td>
<td>F16=Look</td>
</tr>
<tr>
<td>F17=Collect</td>
<td></td>
</tr>
</tbody>
</table>
Unsuccessful writes can be caused by buffer full conditions or other failures.

**DB2 IFC Destinations window**

Use the DB2 IFC Destinations window to view the number of instrumentation records that are written to IFC destinations, and the number of various failures.

To display this window, select **IFC Destination Data** from the CPU Times and Other Data window.

<table>
<thead>
<tr>
<th>Destination</th>
<th>Written</th>
<th>Not Written</th>
<th>Buffer Overrun</th>
<th>Not Accepted</th>
<th>Write Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMF</td>
<td>27</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>GTF</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OP1</td>
<td>1</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>OP2</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>OP3</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>OP4</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>OP5</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>OP6</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>OP7</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>OP8</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>RES</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Figure 112. DB2 Instrumentation window

The IFC destinations in this window are:

- **SMF**  System management facility
- **GTF**  Generalized trace facility
- **OP1 to OP8**  Output buffer destinations
- **RES**  Resident trace table.
Use this window to examine instrumentation record Write activity, and identify possible problems. A nonzero value in the Not Written column can indicate a problem. In this case, check for nonzero values in the Buffer Overrun, Not Accepted, and Write Failure columns to determine the possible cause.

**Data Capture window:**

Use the Data Capture window to view statistics on data capture activity.

To display this window, select Data Capture from the CPU Times and Other Data window.

<table>
<thead>
<tr>
<th>DGOMSWCD</th>
<th>Data Capture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>INTERVAL 16:14.034</td>
</tr>
<tr>
<td></td>
<td>Log reads performed .............................: 1</td>
</tr>
<tr>
<td></td>
<td>Log records captured ............................: 15</td>
</tr>
<tr>
<td></td>
<td>Log records returned ...........................: 11</td>
</tr>
<tr>
<td></td>
<td>Data rows returned .............................: 79</td>
</tr>
<tr>
<td></td>
<td>Data descriptions returned ....................: 2</td>
</tr>
<tr>
<td></td>
<td>Describes performed ............................: 2</td>
</tr>
<tr>
<td></td>
<td>Tables returned ...............................: 2</td>
</tr>
</tbody>
</table>

Figure 114. Data Capture window

The following list describes some of the important fields that are shown in this panel:

- **Log reads performed**
  The total number of data capture log reads for processing IFI READS requests for IFCID 185.

- **Log records captured**
  The number of log records retrieved for which data capture processing was invoked.

- **Log records returned**
  The total number of data capture log records returned.

- **Data rows returned**
  The total number of data capture data rows returned.

- **Data descriptions returned**
  The total number of data capture data descriptions returned.

- **Describes performed**
  The total number of data capture describes performed.

  A data capture describe is the process of getting descriptive information about a DB2 table from the catalog.

- **Tables returned**
  The total number of data capture tables returned to the caller of an IFI READS call for IFCID 185.
**Data Sharing Locking Activity window:**

Use the Data Sharing Locking Activity window to view statistical information about data sharing locking activity for the DB2 subsystem.

To display this window, select Data Sharing Locking Activity from the DB2 Statistics Detail panel. This selection is only available if the monitored DB2 subsystem is part of a data sharing group.

![Data Sharing Locking Activity window](image)

**Figure 115. Data Sharing Locking Activity window**

A logical lock (L-lock) is a lock used by transactions to control intra-DB2 and inter-DB2 data concurrency between transactions. A physical lock (P-lock) is a lock used only by data sharing and is acquired by DB2 to provide consistency on data cached in different DB2 subsystems. P-locks are owned by the subsystem, not by the transaction. XES is the Cross System Extended Services component of MVS. For more information about locking in a data sharing environment, see *DB2 Data Sharing: Planning and Administration*.

The following list describes the fields shown in this window:
Global contention rate (%)
The total number of suspends because of contention, divided by the total number of requests that went to XES (excluding asynchronous requests), multiplied by 100.

P-locks -- Lock requests
The number of lock requests for P-locks.

P-locks - Unlock requests
The number of unlock requests for P-locks.

P-locks - Change requests
The number of change requests for P-locks.

Synchronous XES - Lock requests
The number of lock requests propagated to MVS XES synchronously.

Synchronous XES - Unlock requests
The number of resources synchronously propagated to MVS XES by unlock requests.

Synchronous XES - Change requests
The number of change requests propagated to MVS XES synchronously.

Asynchronous XES - Resources
The number of resources propagated to MVS XES asynchronously by IRLM.

Suspensions - IRLM global contention
The number of suspensions because of IRLM global contention. IRLM lock states were in conflict.

Suspensions - XES global contention
The number of suspensions because of MVS XES global contention. MVS XES lock states were in conflict, but IRLM was not.

Suspensions - False contention and conversion
Summation of false contentions (see below) and sync-to-async heuristic conversions. Conversions are done when XES determines that it is more efficient to drive the request asynchronously to the CF.

False contention
The number of false contentions encountered on this z/OS image. A false contention occurs when different resource names hash to the same entry in the CF lock table. The CF detects contention within the hash entry, and XES uses inter-system messaging to determine that no actual resource contention exists. This counter is maintained on a per-LPAR basis. Therefore this counter over-reports false contentions in cases where multiple members from the same data sharing group run on the same z/OS image. The counter is not present (N/P) if data is unavailable because of errors from the IXLMG service.

Incompatible retained lock
The number of global lock or change requests rejected or suspended because of an incompatible retained lock.

Notify messages sent
The number of notify messages sent.

Notify messages received
The number of notify messages received.
P-lock/notify exits - Maximum engines
The maximum number of engines available for P-lock exit or notify exit requests.

P-lock/notify exits - Engines unavailable
The number of times an engine is not available for P-lock exit or notify exit requests.

P-lock negotiation - Pageset/partition
The number of times this DB2 was driven to negotiate a page set or partition P-lock because of changing inter-DB2 interest levels on the page set or partition.

P-lock negotiation - Page
The number of times this DB2 was driven to negotiate a page P-lock because of inter-DB2 P-lock contention.

P-lock negotiation - Other
The number of times this DB2 was driven to negotiate another P-lock type (other than pageset/partition or page).

P-lock negotiation - Change
The number of times a P-lock change request was issued during P-lock negotiation.

Group Buffer Pools Activity window:
Use the Group Buffer Pools Activity window to view all group buffer pools used by the DB2 subsystem. If there are many group buffer pools listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

Figure 116. Group Buffer Pools Activity window
You can select any group buffer pool ID listed in this window to display the Group Buffer Pool Detail window, where you can view Read and Write activity both to and from that particular group buffer pool, or select Total to view Read and Write activity on all of the listed group buffer pools combined.
Use the Group Buffer Pool Detail window to view statistics on the group buffer pool selected from the Group Buffer Pools Activity window. These statistics show Read and Write activity both to and from that buffer pool. If Total was selected from the Group Buffer Pools Activity window, the Group Buffer Pool Detail window shows combined statistics on all group buffer pools used by the thread.

**Figure 117. Group Buffer Pool Detail window**

The following list describes some of the important fields that are shown in this panel:

**Synchronous read (Cross invalidation) - Data returned**

The number of synchronous coupling facility read requests caused by the page in the member’s buffer pool that is marked invalid. Data is returned from the group buffer pool.
Synchronous read (Cross invalidation) - No data returned
The number of synchronous coupling facility read requests caused by the page in the member’s buffer pool that is marked invalid. Data is not returned from the group buffer pool but from a hard disk drive.

Synchronous read (not found) - Data returned
The number of synchronous coupling facility read requests necessary because the requested page was not found in the buffer pool. Data was returned from the coupling facility.

Synchronous read (not found) - No data returned
The number of synchronous coupling facility read requests necessary because the requested page was not found in the buffer pool. Data is not returned from the group buffer pool but from a hard disk drive.

Unregister page
The number of times DB2 unregistered interest to the group buffer pool for a single page. This is generally done by DB2 when it steals pages from the local buffer pool that belong to group buffer pool dependent page sets or partitions.

Clean pages - Written asynchronously
The number of clean pages asynchronously written from the member’s virtual pool to the group buffer pool. If a buffer pool threshold is reached, pages can be forced out before the application commits. This can also happen when P-lock negotiation forces the pages on the Vertical Deferred Write queue to be written to the group buffer pool.

Asynchronous read - Data returned
The number of coupling facility reads for Prefetch, in which data was returned from the coupling facility.

Asynchronous read - No data returned
The number of coupling facility reads for Prefetch, in which data was not returned from the coupling facility, and a coupling facility directory entry was created, if it did not already exist.

Pages Castout
The number of pages cast out from the group buffer pool to a hard disk drive.

Unlock castout
The number of times DB2 issued an unlock request to the coupling facility for castout I/Os that have completed. When pages are in the process of being cast out to a hard disk drive, they are locked for castout in the coupling facility. The castout lock is not an IRLM lock. Its purpose is to enforce that only one system can cast out a given page at a time.

Read castout class
The number of requests made to the group buffer pool to determine which pages belonging to a given page set or partition are cached in the group buffer pool as changed pages and therefore need not be cast out.

The read castout class request is issued by the page set or partition castout owner and by the group buffer pool structure owner when the GBPOOLT threshold has been reached.

Read castout statistics
The number of requests issued by the group buffer pool structure owner when the GBPOOLT threshold has been reached. These requests are to
determine which castout classes have changed pages. Read castout statistics requests are usually issued only once or twice for each occurrence of the GBPOOL T threshold.

**Read directory info**
The number of requests (issued by the group buffer pool structure owner) for group buffer pool checkpoints to read the directory entries of all changed pages in the group buffer pool, so that the oldest recovery LRSN (Log Record Sequence Number, displayed in message DSNB798I) can be recorded and used for recovery purposes in case the group buffer pool fails. Read directory information requests might have to be issued several times for each group buffer pool checkpoint to read the directory entries for all changed pages.

**Read storage statistics**
The number of times DB2 requested statistics information from the group buffer pool. Usually this number should be relatively low. Requests for statistics information are issued once per group buffer pool checkpoint by the group buffer pool structure owner. They are also issued for DISPLAY GROUPBUFFERPOOL GDETAIL requests and to record IFCID 254.

**Register page**
The number of times DB2 registered interest to the group buffer pool for a single page. These are register-only requests, which means that DB2 does not request that data is returned for the page. DB2 knows that there is no data cached in the group buffer pool for this page. The only purpose of the register page request is to create a directory entry for the page for cross-invalidation when downgrading the P-lock on a page set or partition from S mode to IS mode, or from SIX mode to IX mode.

**Delete name**
The number of times DB2 issued a request to the group buffer pool to delete directory and data entries associated with a given page set or partition. DB2 issues this request when it converts a page set or partition from group buffer pool dependent to not group buffer pool dependent, and also for GBPCACHE ALL objects when the first DB2 member opens the object.

**Read failed - no storage**
The number of coupling facility read requests that could not complete because of a lack of coupling facility storage resources. If the value of this counter is constantly high, consider increasing the group buffer pool size.

**Write failed - no storage**
The number of coupling facility Write requests that could not complete because of a lack of coupling facility storage resources. If the value of this counter is constantly high, consider increasing the group buffer pool size.

**Global Group Buffer Pool Statistics window:**
Use the Global Group Buffer Pool Statistics window to view various information about the number of coupling facility read requests for the group buffer pools.

While the Group Buffer Pools Activity window and the Group Buffer Pool Detail window display statistics on the group buffer pool usage of the currently monitored subsystem, the Global Group Buffer Pool Statistics window below and the associated Global GBP Statistics Detail window provide information about the group buffer pool usage across the entire data sharing group.
If there are many group buffer pools listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

To display this window, select Global Group Buffer Pool Statistics from the DB2 Statistics Detail panel. This selection is only available if the monitored DB2 subsystem is part of a data sharing group.

You can select any group buffer pool listed in this window to display the Global GBP Statistics Detail window, where you can view more information about the buffer pool in greater detail.

**Global GBP Statistics Detail window:**

Use the Global GBP Statistics Detail window to view statistics on coupling facility activity for the group buffer pool selected from the Global Group Buffer Pool Statistics window.
The following list describes some of the important fields that are shown in this panel:

**Read miss assignment suppressed**

The number of coupling facility read requests for a page, in which data was not returned, where the page name was not assigned in the coupling facility directory, and where directory name assignment is suppressed.

DB2 requests suppression of the directory entry assignment in cases where it does not have to register the page to coupling facility for cross-invalidation (XI). This is the case when DB2 is the only one in the group with Read/write interest in the page set or partition.

**Read miss name assigned**

The number of coupling facility read requests for a page, in which data was not returned, where the page name was not assigned in the coupling facility directory, but a directory entry was successfully assigned to the new name.

**Read miss cache full**

The number of coupling facility read requests for a page, in which the page name was not assigned to a coupling facility directory entry and where name assignment could not complete because of a lack of coupling facility storage resources.

**Stor ed Procedures window:**

Use the Stored Procedures window to view activity on calls made to stored procedures.
The following list describes the fields shown in this window:

**CALL statements executed**
The number of SQL CALL statements executed.

**Procedure abends**
The number of times a called stored procedure terminated abnormally.

**CALL statement timeouts**
The number of times an SQL CALL statement timed out while waiting to be scheduled.

**CALL statements rejected**
The number of times an SQL CALL statement was rejected because of the procedure being in the STOP ACTION (REJECT) state.

**Statistics commands:**
You can type statistics commands on any statistics panel command line, or invoke them using the function keys. A list of active function keys is displayed at the bottom of each panel. You can abbreviate commands down to three characters in length. For example, the AUTO command can be abbreviated to AUT.

**AUTO command:**
Use the AUTO command to refresh values displayed in panels without having to press Enter. When you activate auto-display mode, the displayed values are updated periodically, as specified by the AUTO command. You cannot perform any other tasks with your Online Monitor session while auto-display mode is running.

The command syntax is:

```
AUTO [integer SECONDS | MINUTES]
```

**Parameters of the AUTO command**
The AUTO command accepts the following parameters:

- `integer` Optional. Specifies the auto-display interval. The valid ranges are:
• 1 to 7 200 seconds
• 1 to 120 minutes

SECONDS
Optional. Specifies the auto-display unit in seconds. If no unit is specified, the default is seconds. If this parameter is specified, integer should also be specified.

MINUTES
Optional. Specifies the auto-display unit in minutes. If this parameter is specified, integer should also be specified.

If no parameters are specified, the values in the Auto Display window are used.

Starting Auto Display mode

To start Auto Display mode, type AUTO, followed by any parameters, on the command line and press Enter. The AUTO command can be abbreviated to AUT, the SECONDS to S, and the MINUTES to M.

To stop Auto Display, press the attention key.

**Note:** While the Online Monitor is executing a DB2 call (IFI or SQL), pressing the attention key might not stop the auto-display mode. An ‘A’ is displayed every time the key is pressed until attention processing is available again. For example, this is the case when the Online Monitor is issuing SQL statements to resolve names of locked resources.

Examples of the AUTO command
• AUTO 5 refreshes the panel with updated values every 5 seconds
• AUTO 1 MIN refreshes the panel with updated values every minute
• AUTO 10 refreshes the panel with updated values every 10 seconds
• AUTO uses the values specified in the Auto Display window

**DELTA command:**

Use the DELTA command to view subsystem-wide DB2 statistics activity between the times that you press Enter.

The command syntax is:

```
DELTA
```

*Figure 122. Syntax of the DELTA command*

Selecting delta processing

To select delta processing mode, type DELTA on the command line and press Enter. DELTA can be truncated to a minimum of DEL.

Each time you press Enter, the displayed values are updated to reflect the system activity since the previous display update. If auto-display mode is active, the values are updated on each auto-display interval.

When DELTA is active, the DELTA time is displayed on the message line.
To return to regular mode, issue the \text{RESET} command.

\textit{INTERVAL command:}

Use the \texttt{INTERVAL} command to view an accumulation of statistics data from a specified point in time.

The command syntax is:

\begin{verbatim}
  INTERVAL
\end{verbatim}

\textit{Figure 123. Syntax of the \texttt{INTERVAL} command}

\textbf{Selecting interval processing}

To select interval processing mode, type \texttt{INTERVAL} on the command line and press Enter. \texttt{INTERVAL} can be truncated to a minimum of \texttt{INT}.

When you invoke interval mode, the time of the current display is used as a base point for further displays. Each time you press Enter to update the display in interval mode, the statistics data is accumulated from that base point. If the auto-display function is active, the values are updated automatically from the base point with each auto-display cycle.

When \texttt{INTERVAL} is active, the interval elapsed time is displayed on the message line.

To return to regular mode, issue the \texttt{RESET} command.

\textit{RESET command:}

Use \texttt{RESET} to deactivate delta or interval processing mode and revert back to regular display mode.

The command syntax is:

\begin{verbatim}
  RESET
\end{verbatim}

\textit{Figure 124. Syntax of the \texttt{RESET} command}

\textbf{Resetting the processing mode}

To deactivate delta or interval processing mode and revert back to regular display mode, type \texttt{RESET} on the command line and press Enter. \texttt{RESET} can be truncated to a minimum of \texttt{RES}.

\textit{HISTORY command:}

Use the \texttt{HISTORY} command to view past data that was previously collected by the data collector. The data is gathered at installation-defined intervals. The date and time in the panels that support history indicate when the data being displayed was collected.
You can only view past data if the data collector is active for the subsystem you are monitoring and if it was started with the parameter HISTORY=YES. See “OMEGAMON Collector purpose and function” on page 372 for information about the data collector.

The command syntax is:

```
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>Returns the display to the current time.</td>
</tr>
<tr>
<td>BACK</td>
<td>Displays data for the previous interval. If no more data is available, data from the earliest available interval is displayed.</td>
</tr>
<tr>
<td>FORWARD</td>
<td>Displays information for the next available interval. If no more data is available, data from the current time is displayed and processing continues as if HISTORY is OFF.</td>
</tr>
<tr>
<td>date</td>
<td>The date of the required information. If no date is specified, today’s date is assumed.</td>
</tr>
<tr>
<td>hh:mm:ss</td>
<td>The time of the required information. If no time is specified, the default is the time of the earliest available history record for the specified date. The seconds do not need to be specified.</td>
</tr>
</tbody>
</table>
```

If no data is available for the specified date and time, the next available record is displayed.

If you do not specify any parameters, the History window is displayed. The current system date and time are the defaults for the History window.

**Viewing past data**

To view past data, type HISTORY followed by any parameters on the command line and press Enter. HISTORY can be truncated to a minimum of HIS.

**History and statistics processing modes:**

History can be active simultaneously with either interval or delta processing mode.

Delta processing helps isolate DB2 statistics activity that occurs between user-specified points in time. When History is invoked, the delta is the time between the currently displayed statistical data and the data requested by the HISTORY command. The two sets of statistics records are checked to determine the oldest to avoid the calculation of negative DELTA values.
Interval processing helps isolate DB2 statistics activity beginning at a certain point in time. When History is invoked, the interval is the time between the first statistics data encountered after the INTERVAL command and the statistics data requested by the HISTORY command. The two sets of statistics records are checked to determine the oldest to avoid the calculation of negative INTERVAL values.

**Monitoring the access path with Explain**

Online Monitor Explain provides a real-time analysis of the access path methods that are chosen by DB2 for a given SQL statement. You can also modify the SQL statement text and reexplain it. This provides you with the ability to tune a DB2 subsystem while you are online.

This topic describes how to select the SQL statement you want to explain from within the Online Monitor or from within an ISPF/PDF editor, the authorization required to use Explain, performance considerations, tuning advice, and the DB2 Explain Output panel.

Online Monitor Explain is based on DB2’s SQL Explain function. However, it translates the more important PLAN_TABLE codes into full English sentences, so you do not need to know the values and columns of the PLAN_TABLE. In addition, Online Monitor Explain provides direct access to related catalog information (the catalog statistics of the tables and indexes that are used in the SQL statement).

**Authorizations required to use Explain:**

To explain an SQL statement, you need DB2 EXECUTE privilege on the OMEGAMON XE for DB2 PE Explain plan defined at installation. The name of this plan is KO2EXPL.

The following DB2 PLAN_TABLE privileges might also be required:

- Explain an entry in a plan table.
  You require DB2 SELECT privilege on the PLAN_TABLE.
- Explain an SQL statement from a previously bound plan or package.
  You require DB2 SELECT privilege on the plan or package owner’s PLAN_TABLE. If you do not have the privilege, a dynamic Explain of the statement is performed if you have UPDATE privilege on your own PLAN_TABLE.
- Explain an SQL statement entered in the panel.
  You require DB2 UPDATE privilege on your own PLAN_TABLE.
- Explain an SQL statement from a Thread Activity window.
  You require DB2 SELECT privilege on the plan or package owner’s PLAN_TABLE. If you do not have the privilege, a dynamic Explain of the statement is performed if you have UPDATE privilege on your own PLAN_TABLE.
- CREATE or ALTER a plan table.
  You require a minimum of CREATETAB authority on the database that the PLAN_TABLE is created in, or ALTER authority to modify the PLAN_TABLE.

**Performance considerations:**

The execution time to explain a plan or package depends on the number of rows in the accessed PLAN_TABLE. If the table has many rows, you can improve
performance by creating an index on PROGNAME, QUERYNO. Alternatively, delete unnecessary rows from your PLAN_TABLE.

**What to look for in Explain information:**

When an SQL statement is explained, it is important that the explaining takes place on the production DB2 subsystem, or at least on a DB2 subsystem where the catalog statistics have been updated to reflect the real production system in terms of table size, available indexes, and other key values. You can specify the “current server” on which Explain is to be executed. This option makes it possible that you are connected to a DB2 test subsystem while you execute the Explain on the remote production system.

The following Explain information can be useful in determining why an application does not perform as expected:

- **Access path chosen**
  Table space scans and nonmatching index scans should be avoided, unless you intend to access all rows in a given table or the table is very small. If the table has one or more indexes, try to reconstruct the SQL statement in such a way that DB2 chooses a better access path. If there is no index, consider creating one.

- **Index-Only-Access**
  When you only select a few column values, consider the possibility of including these few columns in the column list of one of the indexes. In this way, all requested data can be found in the index. The access path message informs you if you succeed in doing so. Likewise, if you select a maximum value, consider building a descending index on that column (or an ascending index, if you select a minimum value). In this way, you can even avoid the scanning of leaf pages in the index structure.

- **Clustering versus clustered**
  If a clustering index has been chosen by DB2, ensure that the actual index is clustered. In the Index Information window, if the clustered value is NO, or if the cluster ratio is less than 95%, the table space might need a reorganization to bring the data rows into clustering sequence.

- **Number of matching columns**
  On the Plan Table Data panel, if DB2 has selected a matching index scan, you should verify in the Index Information window that the number of columns used in the index is what you expect.

- **Active pages versus pages with rows**
  Verify that the number of pages with rows is approximately the same as active pages, especially if you are performing table space scans. The value shown in the 1 field in the Table Information window should be as close as possible to 100 percent.

- **Number of tables per table space**
  On the Table Space Information window, you should monitor the Tables field. This field shows the number of tables located in the table space. If the access path is Tablespace scan and the table space is not segmented, there should be only one table in the table space. In a nonsegmented table space, all tables are scanned, not only the selected table.

- **Host variable definitions versus column definitions**
  An inconsistent definition of host variables shown in the Host Variable Definition window, compared to the corresponding column definitions shown in the Key Column Selection window, can indicate an inefficient access path selection, resulting from a possible disqualification of index usage. If, for
example, an index column is defined as 3 characters, and that column is being compared in a WHERE-clause with a host variable defined as 4 characters, then DB2 does not base its access path selection on the mentioned index. You should verify that a column and a host variable being compared in a WHERE-clause have compatible definitions.

Plan table considerations:

Whenever an SQL statement is explained, the result is written as an entry into a plan table. When the Explain function performs a dynamic Explain, the result is written to the PLAN_TABLE of the current SQLID. The current SQLID is either the same ID as the one used for your Online Monitor session or the ID that you specify in the Explain Menu. You can then examine the explained SQL statement residing in the plan table by using the DB2 Explain Output panel and its associated windows.

If you request a dynamic Explain of an SQL statement, and if you do not have an up-to-date plan table, one of these windows is displayed:
- If a plan table currently does not exist, the "Create Plan Table window" prompts you to create a plan table.
- If a plan table exists, but does not match your current version of DB2, the "Upgrade Plan Table window" prompts you to upgrade the plan table.

Create Plan Table window

If a plan table does not exist when a dynamic Explain is required, the Create Plan Table window is displayed.

Use the Create Plan Table window to specify the database name (optional), and table space name of the table to be created (optional). If neither are entered, a plan table is created in the default database DSNDB04. If this database does not exist or you do not have sufficient authority, an error message is displayed.

Upgrade Plan Table window

If a plan table exists but does not match your current version of DB2, the Upgrade Plan Table window is displayed. Use this window to confirm that the table definition be upgraded to match your current version of DB2.
You can explain an SQL statement by various actions.

- Entering the EXPLAIN command or pressing F18 (Explain) in any Thread Activity panel in either the SQL Statement and Package window or SQL Statement and DBRM window.
  The current SQL statement is then explained.
- Selecting option 9 (Explain) from the Online Monitor Main Menu.
  The Explain Menu is displayed, where you can select one of four options for explaining an SQL statement.
- Marking a range of lines to be explained from within an ISPF/PDF editor and issuing the EXPLAIN command from the editor command line.
  See "ISPF Online Monitor Source Explain" on page 1934 for more information.

The SQL statement is then explained and the result displayed in the DB2 Explain Output panel.

Figure 128 shows the flow of the Explain process.
Selecting Explain from the Online Monitor Main Menu

You can access Explain by selecting option 9 (Explain) from the Online Monitor Main Menu. See Figure 12 on page 1777 for an example of the Online Monitor Main Menu.

The Explain Menu is displayed, where you can select one of four methods for specifying the SQL statement you want explained.

Explaining an SQL statement from an ISPF/PDF editor

You can explain an SQL statement that is imbedded in a source program or SPUFI input from an ISPF/PDF editor. To do this, specify a range of source lines to explain using the E line prefix command, then type EXPLAIN on the command line and press Enter. Any valid SQL statements within the specified range can then be selected from a list for Explain processing. For more information about source Explain, see “ISPF Online Monitor Source Explain” on page 1934.

If Explain executed successfully, the DB2 Explain Output panel is displayed. For more information about the DB2 Explain Output panel, see “Explain output (DB2 Explain Output panel)” on page 1932.

Explain Menu:

Use the Explain Menu to specify the DB2 subsystem where the Explain request is to be performed (optional), a different SQL authorization ID for qualifying the unqualified tables in the statements being explained, and to select an option for explaining an SQL statement. To display the Explain Menu, select option 9 (Explain) from the Online Monitor Main Menu.

<table>
<thead>
<tr>
<th>DGOMYPMN</th>
<th>Explain Menu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local location . . . . . . : PM0DB2A SDA2 V10</td>
<td></td>
</tr>
<tr>
<td>Current server . . . . . . : PM0DB2A SDA2 V10</td>
<td></td>
</tr>
<tr>
<td>Change current server if required, then select one of the following.</td>
<td></td>
</tr>
<tr>
<td>1. Explain an existing entry in the plan table</td>
<td></td>
</tr>
<tr>
<td>2. Explain a package's SQL statement</td>
<td></td>
</tr>
<tr>
<td>3. Explain a DBRM's SQL statement</td>
<td></td>
</tr>
<tr>
<td>4. Enter an SQL statement to be explained</td>
<td></td>
</tr>
<tr>
<td>Current server . . . . . . : PM0DB2A +</td>
<td></td>
</tr>
<tr>
<td>Current SQLID . . . . . . . : PMDEV51 +</td>
<td></td>
</tr>
<tr>
<td>Command ====&gt;</td>
<td></td>
</tr>
<tr>
<td>F1=Help F2=Split F3=Exit F9=Swap F12=Cancel F21=Expand F22=Left</td>
<td></td>
</tr>
<tr>
<td>F23=Right</td>
<td></td>
</tr>
</tbody>
</table>

Figure 129. Explain Menu

Use the Current server field to specify the DB2 subsystem where you want the Explain request to be performed. This field makes it possible that you are connected to a DB2 test subsystem while you execute the Explain on the remote production system. The default value is the local location.
Use the Current SQL ID field to specify a different SQL authorization ID for qualifying the unqualified tables in the SQL statements to be explained. The Current SQL ID field can also be used to qualify the plan table to be accessed. The default value is your user ID.

Whenever package or DBRM SQL statements are explained, the package or plan owner is used to qualify unqualified SQL statements. The package or plan owner is used to qualify the plan table.

From this window, you can select one of the following options:

- Select option 1 (Explain an existing entry in the plan table) to display the Plan Table Entry window, where you can interpret an existing entry in your plan table, or in another user's plan table if you have the required DB2 authority.
- Select option 2 (Explain a package's SQL statement) to display the Package SQL Statement window, where you can explain an SQL statement for a previously bound package.
- Select option 3 (Explain a DBRM's SQL statement) to display the DBRM SQL Statement window, where you can explain an SQL statement for a previously bound plan.
- Select option 4 (Enter an SQL statement to be explained) to display the SQL Text Entry window, where you can explain a dynamic SQL statement. After you specified the query number, the SQL Text Edit panel is displayed, where you can enter and explain a dynamic SQL statement.

Use these options, and related windows, to select the SQL statement you want to explain. The SQL statement is then explained, and the result displayed in the DB2 Explain Output panel.

**Explain existing entry in Plan Table:**

Use the Plan Table Entry window to explain an entry in your plan table or, if you have the required DB2 authority, an entry in another user's plan table. Regardless of the user specified, a DB2 plan table needs to exist for that user.

To display this window, select option 1 from the Explain Menu.

---

**Figure 130. Plan Table Entry window**

<table>
<thead>
<tr>
<th>Local location</th>
<th>Owner of plan table</th>
<th>Query number</th>
<th>Plan name</th>
<th>Program name</th>
<th>Version</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMODB2A SDA2 V10</td>
<td>PMDEV51</td>
<td></td>
<td>DGO@TPG1</td>
<td>DGO@TPG1</td>
<td></td>
<td>F1=Help F2=Split F3=Exit F9=Swap F12=Cancel F21=Expand</td>
</tr>
</tbody>
</table>
Enter a user ID in the Owner of plan table field, or leave this field blank to specify your own plan table. Then specify the Query number of the plan table entry you want to explain.

If the 1 field is left blank, all entries are listed that match the plan name, program name, and version that you specified. Leaving any of these criteria fields blank is equivalent to specifying an asterisk (*), which matches all entries. The Plan Table Entry List panel is then displayed, which lists all matching entries in the plan table.

After selecting an entry in a plan table, the entry is processed and the result is shown in the DB2 Explain Output panel.

**Plan Table Entry List panel:**

Use the Plan Table Entry List panel to select an entry from the list of entries belonging to the plan table. If many table entries are listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

![Plan Table Entry List panel](image)

**Figure 131. Plan Table Entry List panel**

After making a selection, the entry is processed and the result is shown in the DB2 Explain Output panel.

**Explain an SQL statement of a package:**

Use the Package SQL Statement window to explain an SQL statement of a previously bound package.

To display this window, select option 2 from the Explain Menu.
To explain an SQL statement from this window, type the collection identifier, package name, and version into the appropriate fields and press Enter. Wildcards are accepted in these fields. Empty fields are equivalent to asterisks (*), which is the default. The Package Version List panel is then displayed, where you can select a package from a list of all matching packages.

**Package Version List panel:**

The Package Version List panel shows a list of packages that match the fields specified in the Package SQL Statement window. If many packages are listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

**Figure 133. Package Version List panel**

From this window, you can select a package to display the SQL Statement List panel, where you can examine a list of SQL statements belonging to the package.

**SQL Statement List panel (Packages):**

The SQL Statement List panel shows a list of SQL statements for the selected package. For each item listed, the statement number and the first 60 characters of the SQL statement text are shown. If many SQL statements are listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list. Use the key F21 (Expand) to browse the SQL statement.
From this window, you can select the SQL statement to be explained. The SQL statement is then processed and the result is shown in the DB2 Explain Output panel.

**Explain an SQL statement of a DBRM:**

Use the DBRM SQL Statement window to explain an SQL statement of a previously bound plan.

To display this window, select option 3 from the Explain Menu.

![Figure 134. SQL Statement List panel](image)

![Figure 135. DBRM SQL Statement window](image)

To explain an SQL statement from this window, type the DBRM name and plan name into the appropriate fields and press Enter. Wildcards are accepted in these fields. Empty fields are equivalent to asterisks (*), which is the default. The DBRM and Plan List panel is then displayed, where you can select a DBRM from a list of all matching DBRMs and plans.

**DBRM and Plan List panel:**

The DBRM and Plan List panel shows a list of DBRMs and plans matching the fields specified in the DBRM SQL Statement window. If many items are listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.
From this window, you can select any DBRM listed to display the SQL Statement List panel, where you can examine a list of SQL statements belonging to the DBRM.

**SQL Statement List panel (DBRMs):**

The SQL Statement List panel shows a list of SQL statements for the selected DBRM. This window shows the statement number and the first 60 characters of the SQL statement text for each item listed. If many SQL statements are listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list. Use the key F21 (Expand) to browse the SQL statement.

**Figure 136. DBRM and Plan List panel**

From this window, you can select an SQL statement to be explained. The SQL statement is then processed and the result is shown in the DB2 Explain Output panel.

**Explain dynamic SQL statement:**

Use the SQL Text Entry window and its associated SQL Text Edit panel to enter an SQL statement to be explained.
To display this window, select option 4 from the Explain Menu.

![Figure 138. SQL Text Entry window](image)

In this window, enter the query number you want to assign to the SQL statement. The query number identifies in the plan table the SQL statement that you are entering. If no query number is specified, the default is 999 735 912.

The 1 field specifies whether the SQL statement is eligible for query parallelism. If you enter a forward slash (/) in this field, the current degree of parallelism is set to ANY. Otherwise, the current degree of parallelism is set to 1.

After you press Enter, the Edit SQL Text panel is displayed, where you can enter the SQL statement text you want to explain.

**SQL Text Edit panel:**

Use this panel to view or modify the full text of an SQL statement for purposes of online tuning, or to create an SQL statement to be explained.

This panel is displayed by pressing Enter in the SQL Text Entry window, or by selecting the 1 field from the DB2 Explain Output panel.

![Figure 139. SQL Text Edit panel](image)

From this panel, you can enter a new (or modify an existing) SQL statement to assess the effect on access path selection. The statement can be adjusted and then explained again to dynamically assess the effect.

You can enter SQL text that exceeds the display depth by using the scrolling keys F7 (Up) and F8 (Down).

To process and explain the entered SQL text, press F3 (Exit). The DB2 Explain Output panel is displayed with a confirmation message.
To ignore the changes and return to the previous panel, press F12 (Cancel).

**Explain output (DB2 Explain Output panel):**

Use the DB2 Explain Output panel and Catalog Table windows to investigate the access path methods of an explained SQL statement. Information regarding packages, DBRMs, table spaces, tables, indexes, and column attributes can also be viewed.

Use the DB2 Explain Output panel to examine the results of an explain request.

When an SQL statement has been chosen for explanation, the following processing depends on the origin of the statement:

**Explain existing entry in the plan table**

The specified PLAN_TABLE entry is shown as a result of the explain request.

**Explain a package's SQL statement**

The plan table of the package owner is searched to check whether the SQL statement has been explained during BIND. If the search is successful, this PLAN_TABLE entry is taken. If the search is not successful, a dynamic explain is performed, that is, SQL EXPLAIN is invoked for the statement. Then the result of this explain is displayed.

The plan table is searched by using the bind time of the package. There might be multiple occurrences of the package with different bind times. For example, the Db2 system catalog might contain the latest package that is created by the Db2 command BIND or REBIND. It might also contain a former package version that is activated by the Db2 command REBIND SWITCH.

**Explain a DBRM's SQL statement**

The plan table of the DBRM owner is searched to check whether the SQL statement has been explained during BIND. If the search is successful, this PLAN_TABLE entry is taken. If the search is not successful, a dynamic explain is performed, that is, SQL EXPLAIN is invoked for the statement. Then the result of this explain is displayed.

**SQL statement to be explained has been entered**

A dynamic explain is performed, that is, SQL EXPLAIN is invoked for the statement, and the result is displayed.

**SQL statement is modified in DB2 Explain Output panel**

A dynamic explain is performed, that is, SQL EXPLAIN is invoked for the modified statement and the new result is displayed.

Only the DB2 Explain Output panel for packages (DGOMYPKM) is shown in this section.
The DB2 Explain Output panel is divided into three sections:

- The first section of the panel shows the plan name, and information about the package or DBRM that contains the SQL statement. You can select this section for further investigation of the package, DBRM, or plan name associated with the SQL statement.

- The second section of the panel, titled SQL Text, shows the first 150 characters of the SQL statement text. You can view or modify the full SQL statement text by selecting the input field shown beside the SQL text. The SQL Text Edit panel is then displayed. For more information about the SQL Text Edit panel, see “SQL Text Edit panel” on page 1931. After the SQL text is modified, the SQL statement is reexplained, and the new result is shown in the DB2 Explain Output panel. From this section you can also reach windows that provide information about the host variable definitions.

- The third section of the panel, titled Access path summary, shows information about the access path methods chosen by DB2 for each of the individual query blocks and steps required to execute the SQL statement. Each step also shows a list of the tables and indexes accessed for that step. You can select any table or index listed in a step for further investigation. You can also display the raw PLAN_TABLE data for a step. This also provides online access to help information for PLAN_TABLE columns, similar to the information in DB2 SQL Reference for the EXPLAIN statement.

If the execution of the SQL statement contains many steps, you can use the scrolling keys F7 (Up) and F8 (Down) to browse through the steps.
Online Monitor EXPLAIN command:

Use the EXPLAIN command to explain the currently executing SQL statement in the Thread Activity panels.
- SQL Statement and Package
- SQL Statement and DBRM

Note: If the Thread Detail panel has been modified to show the SQL statement text, you can use the EXPLAIN command from the Thread Detail panel as well.

If the explain request was successful, the DB2 Explain Output panel is displayed.

The command syntax is:

```
EXPLAIN
```

Figure 141. Syntax of the EXPLAIN command

Note: EXPLAIN can be truncated to a minimum of EXP.

For a description of the DB2 Explain Output panel, see “Explain output (DB2 Explain Output panel)” on page 1932.

ISPF Online Monitor Source Explain:

Use Source Explain to explain SQL statements that are embedded in a source program or SPUFI input. Source explain is performed from within the ISPF/PDF editor.

The following languages are supported:
- Assembler
- C
- COBOL
- FORTRAN
- PL/I
- SPUFI

Note: Ensure that Source Explain is installed at your site. Before you activate Source Explain, make sure that the DB2 load library is allocated to your TSO ISPF session.

To explain an SQL statement while editing a source program (or SPUFI input), specify the lines you want to have explained by using the ISPF/PDF editor line prefix command E, type EXPLAIN on the command line, and press Enter.

You can use the line prefix command E like this:

- E To explain a single line, type E in the prefix area of the line to be scanned for SQL statements.
- EE To explain a range of lines, type EE in the prefix area of the first line and the last line of the range of lines to be scanned for SQL statements.
- E[n] To explain a specific number of lines, type E[n] on the first line of the area to be scanned, where n is the number of lines to be scanned for SQL statements.
When you enter the EXPLAIN command, Source Explain scans the specified range for valid SQL statements. If a range is not specified, the entire source is scanned. The valid SQL statements are then listed on the SQL Statement Selection panel.

The following figure shows how to explain an SQL statement while editing COBOL source code.

To explain the SQL statements in the source code from line 3040 to 3160:
1. In the line prefix area of lines 3040 and 3160, type EE.
2. On the command line, type explain and press Enter.

```plaintext
EDIT ---- SYS1.DSN610.SDSNSAMP(DSNBBC3) - 01.00 ----------------- COLUMNS 001 072
003010   *** CURSOR LISTS ALL EMPLOYEE NAMES WITH A PATTERN (%) OR (_) FOR LAST NAME
003020   *** FOR LAST NAME
003030
003040   EXEC SQL DECLARE TELE2 CURSOR FOR
003050         SELECT *
003060         FROM VPHONE
003070         WHERE LASTNAME LIKE :LNAME-WORK
003080         AND FIRSTNAME LIKE :FNAME-WORK
003090         END-EXEC.
003100
003110   *** CURSOR LISTS ALL EMPLOYEES WITH A SPECIFIC LAST NAME
003120   *** FOR LAST NAME
003130
003140   EXEC SQL DECLARE TELE3 CURSOR FOR
003150         SELECT *
003160         FROM VPHONE
003170         WHERE LASTNAME = :LNAME
003180         AND FIRSTNAME LIKE :FNAME-WORK
003190         END-EXEC.
003200 /
003210 /******************************************************************************
003220 */ FIELDS SENT TO MESSAGE ROUTINE */
003230 *****************************************************************************/
003240   01 MAJOR       PIC X(07) VALUE 'DSNBBC3'.
003250
003260   01 MSGCODE    PIC X(4).
003270
003280 COMMAND ===> explain SCROLL ===> CSR
01=HELP   F2=SPLIT   F3=END   F4=RETURN   F5=RFIND   F6=RCHANGE
F7=UP     F8=DOWN    F9=SWAP   F10=LEFT    F11=RIGHT   F12=RETRIEVE

Figure 142. Source Explain example

If you previously selected the **Always display this window** field in the Source Explain Options window as shown in the Source Explain Options window, the Source Explain Options window is displayed. If you did not select this field, the SQL Statement Selection panel is displayed.

**Source Explain Options window:**

You can display the Source Explain Options window by specifying a command in the ISPF/PDF editor or on the SQL Statement Selection panel.

- In the command line of the ISPF/PDF editor, type EXPLAIN OPTIONS and press Enter.

  If you have previously selected the **Always display this window** field in the Source Explain Options window, you can type EXPLAIN in the command line of the ISPF/PDF editor and press Enter.

- In the command line of the SQL Statement Selection panel, type OPTIONS and press Enter.
You can use the Source Explain Options window to specify the Source Explain processing options, for example, the language of the source code you are editing, the subsystem ID of the explaining DB2, the SQLID to be used, or the degree of parallelism.

On the Source Explain Options window, you can specify the following options:

**Local DB2 Subsystem**
The local DB2 subsystem to which you want to connect.

**Current Server Location**
The DB2 subsystem where you want the source SQL statements to be explained.

In this field, you can specify the DB2 test subsystem you want to connect to while you are executing the explain on the remote production system. If you do not specify a subsystem, the local DB2 subsystem is used.

**Current SQLID**
A different SQL authorization ID for qualifying the unqualified tables in the SQL statements being explained.

A different SQL authorization ID is also used to qualify the plan table to be accessed. If you do not specify an SQL authorization ID, your user ID is used.

**Query number**
A number that identifies the Explain statement.

If you do not specify a number, the value 999 735 912 is assigned to this field.

**Set current degree to ANY**
To specify whether the SQL statement is eligible for query parallelism.

By default, the current degree of parallelism is set to 1. To set the current degree of parallelism to ANY, type a slash (/) in this field.

**Always display this window**
To control the display of the Source Explain Options window.
By default, the Source Explain Options window is not displayed on each Source Explain request. To display the Source Explain Options window on each Source Explain request, type a slash (/) in this field.

**Define source language**

In this field, you must specify the language of the source that contains the SQL statements. This field cannot be left blank.

After you have specified the Source Explain options to be used, press Enter to proceed to the SQL Statement Selection panel.

**SQL Statement Selection panel:** Use the SQL Statement Selection panel to view a summarized list of the valid SQL statements within the specified source area. If there are many SQL statements listed, you can use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

![SQL Statement Selection Panel](image)

You can select any SQL statement that is listed on the SQL Statement Selection panel for Explain processing by typing a slash (/) next to the line to be explained as shown in the figure above. The SQL statement is then processed even if the SQL statement text exceeds the specified range. Then the Online Monitor is accessed. With the Online Monitor, you can view the Explain output on the DB2 Explain Output panel. For more information, see “Explain output (DB2 Explain Output panel)” on page 1932.

From the SQL Statement Selection panel, you can access the Source Explain Options window by using the OPTIONS command. In the Source Explain Options window, you can change the Source Explain processing options.

**Source EXPLAIN command:**

Use the EXPLAIN command to explain an SQL statement from within an ISPF/PDF editor, or to specify Source EXPLAIN options.

The command syntax looks like this:

```
EXPLAIN OPTIONS
```

*Figure 145. Syntax of the Source EXPLAIN command*
Viewing system parameters

Use the System Parameters panels to view current DSNZPARM and buffer pool values for the DB2 subsystem to which you are currently connected. The system parameters values specified at subsystem startup time and current buffer pool values are shown. The information displayed in these panels is similar to that presented by the Batch System Parameters report set.

Note: This function is not supported for DB2 11.

All system parameter fields are supported. You can also use Query Workload Tuner.

DB2 System Parameters panel:

Use the DB2 System Parameters panel to view a summary of important DSNZPARM values, maximum concurrent users, and IRLM thresholds. Use the scrolling keys F7 (Up) and F8 (Down) to view all information in the DB2 System Parameters panel.

To display the DB2 System Parameters panel, select option 3 (Display System Parameters) from the Online Monitor Main Menu.

The following figure shows the DB2 System Parameters panel.

![DB2 System Parameters panel](image_url)

Figure 146. DB2 System Parameters panel

1938 IBM Db2 Performance Expert on z/OS
**Note:** The DB2 System Parameters panel you see might have been tailored by your installation and consequently might not necessarily match the panel examples shown in this information.

From the DB2 System Parameters panel, you can reach a set of windows that provide system parameters information in greater detail. To reach a window, type any character in the space provided beside the heading.

Several windows can be accessed simultaneously by selecting multiple fields in the DB2 System Parameters panel. To leave the current window and proceed with the next window, press F3 (Exit). To cancel all windows and return to the DB2 System Parameters panel, press F12 (Cancel).

**System Parameters commands:**

The following command applies to System Parameters panels. You can type the command on any System Parameters panel command line, or invoke it using the appropriate function key. A list of active function keys is displayed at the bottom of each panel. You can abbreviate commands down to three characters in length. For example, the HISTORY command can be abbreviated to HIS.

**HISTORY command:**

Use the HISTORY command to view past data that was previously collected by the data collector. The data is gathered at installation-defined intervals. The date and time in the panels that support history indicate when the data being displayed was collected.

You can only view past data if the data collector is active for the subsystem you are monitoring and if it was started with the parameter HISTORY=YES. See “OMEGAMON Collector purpose and function” on page 372 for information about the data collector.

The command syntax is:

```
HISTORY
```

Figure 147. Syntax of the HISTORY command

**Parameters of the HISTORY command**

The HISTORY command accepts the following parameters:

- **OFF** Returns the display to the current time.
- **BACK** Displays data for the previous interval. If no more data is available, data from the earliest available interval is displayed.
- **FORWARD** Displays information for the next available interval. If no more data is available, data from the current time is displayed and processing continues as if HISTORY is OFF.
date  The date of the required information. If no date is specified, today’s date is assumed.

hh:mm:ss  The time of the required information. If no time is specified, the default is the time of the earliest available history record for the specified date. The seconds do not need to be specified.

If no data is available for the specified date and time, the next available record is displayed.

If you do not specify any parameters, the [History window] is displayed. The current system date and time are the defaults for the History window.

Viewing past data

To view past data, type HISTORY followed by any parameters on the command line and press Enter. HISTORY can be truncated to a minimum of HIS.

Problem identification examples

This section provides examples of how to discover and identify various system problems by using exception processing, viewing past data, analyzing the access paths chosen by DB2 to process an SQL statement, and viewing thread activity and statistics panels.

Example of exception processing:

This example demonstrates how you can use exception processing to discover a possible class 2 CPU (processing) time problem, and identify the cause by viewing past data and analyzing the access paths chosen by DB2 to process an SQL statement. The data collector needs to be installed at your site to view past data.

First, set the exception threshold for class 2 CPU time to a value applicable to your environment. To do this, select option 8 (Maintain parameter data sets) from the Online Monitor Main Menu. This displays the Data Set Maintenance Menu.
Ensure that you have specified an Exception Threshold data set name in the 1 field. Select option 1 (Maintain exception thresholds) to display the Exception Threshold Category Selection panel.

The Exception Threshold Category Selection panel is displayed.

Select the category that contains the exception field you want. For this example, select the Elapsed, CPU and Waiting Times per Plan Execution field.

The Exception Threshold Field Selection panel is displayed.
This panel shows all available fields within the specified category. Select the ADDBCPUT field and press Enter.

Field category: Elapsed, CPU, and Waiting Times per Plan Execution

- ADRECETT: Elapsed time in application (Class 1)
- ADCPUT: CPU time in application (Class 1)
- ADDB2ETT: Elapsed time in DB2 (Class 2)
- ADDBCPUT: CPU time in DB2 (Class 2)
- ADTWDB: Total wait time in DB2 (Class 2)
- ADTWTAP: Total wait time in application (Class 1)
- ADTSUST: Total Class 3 suspensions time
- ADTSUSC: Total Class 3 suspensions
- QWACAWTL: Lock/latch suspensions time (Class 3)
- ADLLSUSC: Lock/latch suspensions (Class 3)
- QWACAWTI: Synchronous I/O susp. time (Class 3)
- ADIOSUSC: Synchronous I/O suspensions (Class 3)
- QWACAWTR: Other read I/O susp. time (Class 3)

The Exception Threshold Field Details panel is displayed.

Field ID: ADDBCPUT
Description: CPU time in DB2 (Class 2)

Active: 1 = Yes, 2 = No
By: 1 = Total, 2 = Minute, 3 = Second, 4 = Commit, 5 = Thread

Compare operator: > = Less than, >= Greater than
Warning threshold: 0.09
Problem threshold: 0.1

Local location, Group name, Member name, Subsystem ID, Requester location, Connect, Planame, Corrname, Corrmbr, Primauth

Figure 150. Exception Threshold Field Selection panel

Figure 151. Exception Threshold Field Details panel
Use the Exception Threshold Field Details panel to specify the threshold criteria for the exception field selected from the Exception Threshold Field Selection panel. For this example, enter a 1 in the Active field, set the By field to Total (1), the Compare operator field to a greater than symbol (>), and the Problem threshold field to a value of 0.1 seconds.

**Note:** Choose a threshold value that is applicable to your environment. For information about defining exception threshold values, see "How to define exception threshold values" on page 1812.

Now that the exception threshold has been defined, select option 5 (Control Exception Processing) from the Online Monitor Main Menu to display the Exception Processor panel.

```
DGOMEPO2                   Exception Processor  PMO1DLOC DSN1 V10
For any field enter any character to activate

Activate/Deactivate Exception Processing
  - Display thread summary
  - Display thread detail
  - Display statistics detail
  / Periodic
  _ Exception event notification

Options
Periodic units .................. 1   1=Seconds
  2=Minutes
Periodic interval ............... 10   1-7200 Seconds
  1-120 Minutes
> Disable auto-display for problem exceptions
> Sound alarm for exception warnings
  - Log file data set output needed
  - DPMOUT data set output needed

Exception threshold data set
Name .................. SAMPLE.EXCEPT.DATASET

Command ===>
F1=Help    F2=Split    F3=Exit    F7=Up    F8=Down    F9=Swap
F12=Cancel F16=Look    F17=Collect

Figure 152. Exception Processor panel
```

Use the Exception Processor panel to activate periodic exception processing. Enter the Exception Threshold data set name you specified on the Data Set Maintenance Menu and type a forward slash (/) in the Periodic field to activate periodic exception processing. In this example, the exception processor has been set to check for periodic exceptions every 10 seconds.

For more information about activating exception processing, see "How to start exception processing" on page 1812.

When a periodic exception occurs, the Online Monitor notifies you by displaying the Exception Notification window. This window is overlaid on the current panel.
Figure 153. Exception Notification window (overlaid on Thread Detail panel)

The Exception Notification window indicates that a periodic exception has occurred. You can examine the exception in greater detail using the LOOK command. Type L00K 1 on any command line and press Enter to display the Periodic Exceptions List window.
From this window you can examine a list that contains the last 500 periodic exceptions that have occurred. The most recent exceptions are displayed at the bottom of the list.

In this example the thread causing the exception has ended. However, you can still select the exception to be examined from the list displayed in the Periodic Exceptions List window. If history and data collector are available, the Online Monitor retrieves past data and displays the Thread Detail panel where you can examine the thread causing the exception.

Some fields can have values that are longer than the space available to show them in this panel. When this happens, the last character in the field is replaced with an asterisk (*) to indicate that the reported value is truncated.
Because class 2 time is the time spent within DB2, the excessive class 2 time occurred even though you are examining what has happened on the thread.

This is where you can use past data to examine the data on a thread that has ended. In this way, you can examine the thread before and after the exception occurred by moving backward and forward through time. See "Viewing past data" on page 1807 for more information about viewing past data.

Because class 2 time is the time spent within DB2, the excessive class 2 time causing the exception could be caused by a possible SQL statement problem.

From the Thread Detail panel, select SQL Statement and Package to display the SQL Statement and Package window.
This window displays the SQL statement executing at the time the exception occurred. To obtain details about the access paths chosen by DB2 to process the SQL statement, press F18 (Explain) to explain the SQL statement and display the DB2 Explain Output panel.

Figure 156. SQL Statement and Package window
The access path summary in the DB2 Explain Output panel shows that a table space scan is being used to access the table. This could indicate the reason for the excessive class 2 time.

Select the table from the DB2 Explain Output panel to display the Table Information window, where you can see if any indexes have been defined for the table.
Figure 158. Table Information window

From this window you can see that an index has been defined for the table. Select Indexes to display the Index Selection window where you can select the index to be examined. In this example, the index selected is DSNB710.XEMP1. This displays the Index Information window.
Index Information

Local location . . . . . : PMOIDLOC  DSN1 V10
Current server . . . . . : PMOIDLOC  DSN1 V10

- Index name . . . . . . . : DSNB710.XEMP1
- Index space name . . . . : XEMP1
- Table name . . . . . . . : DSNB710.EMP
- Database name . . . . . : DSNBD31A
- Buffer pool . . . . . . . : BP

/ Key columns . . . . . . . : 1
- Subpage size (bytes) . . . . : 512
- Unique rule . . . . . . . : PRIMARY - UNIQUE
- Clustering index . . . . . : YES
- Currently clustered . . . . : YES
- Cluster ratio . . . . . . . : 100
- Full key card . . . . . . . : 32
- First key card . . . . . . . : 32
- Levels . . . . . . . : 1
- Leaf pages . . . . . . . : 1
- Maximum piece size (KB) . . . : 256
- Close rule . . . . . . . : LEAVE OPEN
- Last RUNSTATS . . . . . . : 04/13/08 10:53:27
- Allocated space . . . . . : 0
- Erase rule . . . . . . . : NO
- Index type . . . . . . . : 2
- Time of last ALTER INDEX . . . . : 2008-01-27-10.22.30.000000

Figure 159. Index Information window

From the Index Information window, you can select Key columns to display the Key Column Information window.

Key Column Information

Local location . . . . . : PMOIDLOC  DSN1 V10
Current server . . . . . : PMOIDLOC  DSN1 V10

- Column name . . . . . . . : EMPNO
- Table name . . . . . . . : DSNB710.EMP
- Index name . . . . . . . : DSNB710.XEMP1
- Position . . . . . . . : 6
- Sequence . . . . . . . : Ascending
- Type . . . . . . . : CHAR
- Length . . . . . . . : 6
- Scale . . . . . . . : 0
- Key cardinality . . . . . : 123
- Null value . . . . . . . : No
- Second highest value . . . : 200330
- Second lowest value . . . : 000020

Figure 160. Key Column Information window

Use this window to examine the characteristics of the key column on which the index has been defined.
One of the possible reasons for an index not being used is that the host variable defined in the program does not match the characteristics of the column as defined in the table. To determine whether this is the reason for the index not being used, you can return to the DB2 Explain Output panel where the Host Variable Definition window can be selected.

![Figure 161. Host Variable Definition window](image)

In this particular example, the Host Variable Definition window shows that the definitions do not match, thereby disqualifying use of the index.

The host variable defined in the source program should be changed to match the table definition so that DB2 can use the index and thereby reduce the class 2 time.

**Example of thread monitoring:**

This example demonstrates how to identify a possible lock suspension problem using the Online Monitor thread activity function.

Display the Thread Summary panel by selecting option 1 (Display Thread Activity) from the Online Monitor Main Menu.

![Figure 162. Thread Summary panel](image)
**Note:** To view Class 3 times in the Thread Summary panel, you need to scroll the display to the right (F20).

Type SORT on the command line and press Enter to display the DB2 Thread Sort Specification window, where you can sort threads by class 3 lock/latch times in descending sequence so that threads with the most time spent waiting because of lock and latch suspensions are sorted to the top.

![DB2 Thread Sort Specification window](image)

**Figure 163. DB2 Thread Sort Specification window**

You can also sort threads by class 3 lock/latch times in descending sequence by typing the command SORT C3E and pressing Enter on the command line.

For information about the SORT command see “SORT command” on page 1870.

Press F3 (Exit) to exit the DB2 Thread Sort Specification window and return to the Thread Summary panel.
At this point, all threads have been sorted in descending sequence by class 3 lock/latch time, although this field is not displayed. You can press the F20 (Right) key to view class 3 times. The word SORT is displayed in the header of the Thread Summary panel.

For example, to view detailed information about the class 3 lock and latch times of a particular thread, type any character next to that thread and press Enter. The Thread Detail panel is displayed.

**Note:** The Thread Detail panel that you see might have been tailored by your installation and consequently might not necessarily match the panel examples shown in this information.

---

**Figure 164. Thread Summary panel**

At this point, all threads have been sorted in descending sequence by class 3 lock/latch time, although this field is not displayed. You can press the F20 (Right) key to view class 3 times. The word SORT is displayed in the header of the Thread Summary panel.

For example, to view detailed information about the class 3 lock and latch times of a particular thread, type any character next to that thread and press Enter. The Thread Detail panel is displayed.

**Note:** The Thread Detail panel that you see might have been tailored by your installation and consequently might not necessarily match the panel examples shown in this information.
As you can see, most of the total class 3 suspension time is because of locks and latches. The Thread Detail panel shows that the thread is in LOCK status. Select the 1 field to display the Thread Times window, where you can examine the suspension time shown in the Locks and latches field.
To view the locked resources associated with this thread, press F3 (Exit) to return to the Thread Detail panel and select the Locked Resources field.

The Locked Resources window is displayed.

<table>
<thead>
<tr>
<th>Database</th>
<th>Type</th>
<th>Status</th>
<th>Duration</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACBP2DB</td>
<td>PAGESET</td>
<td>N/A</td>
<td>COMMIT</td>
<td>L-LOCK</td>
</tr>
<tr>
<td>MACBP2TB</td>
<td>PAGESET</td>
<td>YES</td>
<td>LOCK</td>
<td></td>
</tr>
<tr>
<td>MACBP2TS</td>
<td>DATABASE</td>
<td>1</td>
<td>NO</td>
<td>N/A</td>
</tr>
<tr>
<td>MACBP2DB</td>
<td>DATABASE</td>
<td>1</td>
<td>NO</td>
<td>N/A</td>
</tr>
<tr>
<td>N/A</td>
<td>SKPT</td>
<td>S</td>
<td>COMMIT</td>
<td>L-LOCK</td>
</tr>
<tr>
<td>DSNDB06</td>
<td>SKCT</td>
<td>1</td>
<td>NO</td>
<td>N/A</td>
</tr>
<tr>
<td>USERT001</td>
<td>USERT001</td>
<td>S</td>
<td>N/P</td>
<td></td>
</tr>
<tr>
<td>USERT003</td>
<td>USERT003</td>
<td>NO</td>
<td>COMMIT</td>
<td>N/P</td>
</tr>
<tr>
<td>USERT003</td>
<td>USERT003</td>
<td>N/A</td>
<td>YES</td>
<td>COMMIT</td>
</tr>
</tbody>
</table>

Figure 167. Locked Resources window

All locks held by the selected thread USERT003 are displayed.

You can see that a suspension has occurred for object MACBP2TB. To view all users contending for the same object, type any character next to that object and press Enter. The Threads Holding Resource window is displayed.

<table>
<thead>
<tr>
<th>Database</th>
<th>Resource</th>
<th>Type</th>
<th>Status</th>
<th>Subsystem</th>
<th>Planname</th>
<th>Connection</th>
<th>Suspended</th>
<th>Duration</th>
<th>Subsystem</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACBP2DB</td>
<td>PAGESET</td>
<td>N/A</td>
<td>COMMIT</td>
<td>L/LOCK</td>
<td>USERT001</td>
<td>S</td>
<td>NO</td>
<td>N/P</td>
<td>COMMIT</td>
</tr>
<tr>
<td>MACBP2TB</td>
<td>PAGESET</td>
<td>YES</td>
<td>LOCK</td>
<td></td>
<td>USERT003</td>
<td>N/A</td>
<td></td>
<td>NO</td>
<td>COMMIT</td>
</tr>
<tr>
<td>MACBP2TS</td>
<td>DATABASE</td>
<td>1</td>
<td>NO</td>
<td>N/A</td>
<td>USERT003</td>
<td>N/A</td>
<td></td>
<td>NO</td>
<td>COMMIT</td>
</tr>
<tr>
<td>MACBP2DB</td>
<td>DATABASE</td>
<td>1</td>
<td>NO</td>
<td>N/A</td>
<td>USERT003</td>
<td>N/A</td>
<td></td>
<td>NO</td>
<td>COMMIT</td>
</tr>
<tr>
<td>N/A</td>
<td>SKPT</td>
<td>S</td>
<td>COMMIT</td>
<td>L/LOCK</td>
<td>USERT003</td>
<td>N/A</td>
<td></td>
<td>NO</td>
<td>COMMIT</td>
</tr>
<tr>
<td>DSNDB06</td>
<td>SKCT</td>
<td>1</td>
<td>NO</td>
<td>N/A</td>
<td>USERT003</td>
<td>N/A</td>
<td></td>
<td>NO</td>
<td>COMMIT</td>
</tr>
</tbody>
</table>

Figure 168. Threads Holding Resource window (Planname)

All threads involved in the locking of this resource are displayed. From this window, it can be seen that USERT001 is causing USERT003 to be suspended. This problem can be resolved if USERT001 uses the SPUFI cursor stability plan (DSNESPCS), as does USERT003, instead of the SPUFI repeatable read plan (DSNESPRR). You should decide whether it is necessary for USERT001 to use DSNESPRR, or if DSNESPCS can be used instead.
Using the ISPF Online Monitor in deadlock resolution:

A deadlock is an error condition where processing cannot continue because of an unresolved contention for a particular resource. A deadlock is signaled when the deadlock detection cycle time has been reached. Ensure that the resource timeout limit is at least twice that of the deadlock detection cycle so that deadlocks are detected before a timeout occurs.

Deadlock detection

Start the data collector to collect deadlock events.

Start exception event processing from the Exception Processor panel to be notified when an exception event occurs. See “How to start exception processing” on page 1812.

Deadlock resolution

On detection of a deadlock, use LOOK to display the participants in the deadlock.

<table>
<thead>
<tr>
<th>DGOMLED0</th>
<th>Deadlock Data</th>
<th>More: - +</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFCID</td>
<td>: 172</td>
<td></td>
</tr>
<tr>
<td>Number of resources involved in deadlock</td>
<td>: 2</td>
<td></td>
</tr>
<tr>
<td>Deadlock interval counter</td>
<td>: 2</td>
<td></td>
</tr>
<tr>
<td>Time deadlock detected</td>
<td>: 21:38:34.15</td>
<td></td>
</tr>
<tr>
<td>Locked resource</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>: Datapage</td>
<td></td>
</tr>
<tr>
<td>Database</td>
<td>: 271</td>
<td></td>
</tr>
<tr>
<td>Object</td>
<td>: 6</td>
<td></td>
</tr>
<tr>
<td>Page #</td>
<td>: X'3001F1'</td>
<td></td>
</tr>
<tr>
<td>Blocker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member/DBMS identifier</td>
<td>: MEMBER01</td>
<td></td>
</tr>
<tr>
<td>Plan name</td>
<td>: DDLD3P18</td>
<td></td>
</tr>
<tr>
<td>Correlation identifier</td>
<td>: RUNPRG18</td>
<td></td>
</tr>
<tr>
<td>Connection identifier</td>
<td>: BATCH</td>
<td></td>
</tr>
<tr>
<td>LUW identifier</td>
<td>: USIBMSY.SY10ODB2.A74AB9FEF91C</td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>: EXCLUSIVE</td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>: COMMIT</td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>: WAIT</td>
<td></td>
</tr>
<tr>
<td>Waiter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member/DBMS identifier</td>
<td>: MEMBER02</td>
<td></td>
</tr>
<tr>
<td>Plan name</td>
<td>: DDLD3P15</td>
<td></td>
</tr>
<tr>
<td>Correlation identifier</td>
<td>: RUNPRG15</td>
<td></td>
</tr>
<tr>
<td>Connection identifier</td>
<td>: BATCH</td>
<td></td>
</tr>
<tr>
<td>LUW identifier</td>
<td>: USIBMSY.SY30DBB2.A74AB9EE117F</td>
<td></td>
</tr>
<tr>
<td>Requested function</td>
<td>: LOCK</td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>: UPDATE</td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>: MANUAL</td>
<td></td>
</tr>
<tr>
<td>DB2 assigned worth value</td>
<td>: 18</td>
<td></td>
</tr>
</tbody>
</table>

Command ==>

<table>
<thead>
<tr>
<th>F1=Help</th>
<th>F2=Split</th>
<th>F3=Exit</th>
<th>F7=Up</th>
<th>F8=Down</th>
</tr>
</thead>
<tbody>
<tr>
<td>F9=Swap</td>
<td>F12=Cancel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 169. Deadlock Data window

If the 1 field is Datapage, ensure that all applications (Holder and Waiter) access the resource in the same order.
If the deadlock concerns an index with high insert activity (the Locked resource Type field is Index Page), set the SUBPAGES parameter for the index to 1 or consider converting the index to type 2. If the problem is not related to SUBPAGES, it could be that the commit frequency for an update application is too low. The ratio of updates per commit can be viewed in the Thread Detail panel.

Additional Information

These topics provide additional information that can be helpful when you work with OMEGAMON XE for DB2 PE or OMEGAMON XE for DB2 PE.

Online Monitor field table

The tables in this section provide a list of the Online Monitor thread activity fields, statistics fields, and system parameters fields.

You can use these tables to cross-reference exception field names for display exception processing and for periodic exception processing, or to look up a field help panel name when customizing Online Monitor panels, as described in “Customizing panels” on page 334.

The following is a description of the table columns:

Field name
The name of the field.

Field description
The field title, as the field is shown in the panel. The field titles vary slightly from panel to panel depending on the context in which the fields are used.

Help panel name
The member name of the associated help panel.

Exception
Indicates if the field is an Online Monitor exception field.

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
<th>Exception</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABCLSPR</td>
<td>Prefetch Reads</td>
<td>DGO0231</td>
<td>●</td>
</tr>
<tr>
<td>ABCRWIO</td>
<td>Synchronous I/O</td>
<td>DGO0232</td>
<td>●</td>
</tr>
<tr>
<td>ADRGPRIO</td>
<td>Getpage/Synchronous Reads</td>
<td>DGO0233</td>
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### Table 141. Accounting - Data Capture Activity and Class 5 Times

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### Table 142. Accounting - Data Sharing Locking Activity

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<td>AGLOBRAT</td>
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<td>QTGACSLM</td>
<td>Change Requests - XES</td>
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<td>Incompatible Retained Lock</td>
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<td>Suspensions - False Contention</td>
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### Table 143. Accounting - Distributed Data Facility Activity

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### Table 143. Accounting - Distributed Data Facility Activity (continued)

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### Table 144. Accounting - Group Buffer Pools Activity

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<td>ABGAXR</td>
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<td>Read Prefetch</td>
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<td>Clean Pages Written</td>
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### Table 145. Accounting - Locking Activity

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### Table 145. Accounting - Locking Activity (continued)

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### Table 146. Accounting - Package Data

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<td>Other Write I/O</td>
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### Table 148. Accounting - RID List Processing

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### Table 149. Accounting - SQL Activity (DML, DCL, DDL)

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Table 149. Accounting - SQL Activity (DML, DCL, DDL) (continued)

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Table 150. Accounting - SQL Nested Activity

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Table 151. Accounting - Termination Conditions, Commit/Rollback, Incremental Binds

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Table 152. Accounting - Timing Data (Elapsed, TCB, Suspensions, and so on)

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### Table 152. Accounting - Timing Data (Elapsed, TCB, Suspensions, and so on) (continued)

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### Table 153. Statistics - Authorization Management

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### Table 154. Statistics - Buffer Pool Activity

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<td>Data Descriptions Returned</td>
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<td>Data Rows Returned</td>
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<td>QWSDCDSL</td>
<td>Log Records Captured</td>
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<td>Log Reads Performed</td>
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<td>QWSDCDMB</td>
<td>Describes Performed</td>
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<td>QTGSCHNP</td>
<td>P-lock Negotiation - Change</td>
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<td>QTGSCPLK</td>
<td>P-locks - Change Requests</td>
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<td>QTGSCSLM</td>
<td>Synchronous XES - Change Requests</td>
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<td>QTGSDRTA</td>
<td>Incompatible Retained Lock</td>
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<td>QTGSFLSE</td>
<td>Suspensions - False Contention</td>
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<td>QTGSIGLO</td>
<td>Suspensions - IRLM Global Contention</td>
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<td>QTGSKIDS</td>
<td>Asynchronous XES - Resources</td>
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### Table 156. Statistics - Data Sharing Locking Activity (continued)

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<td>Synchronous XES - Lock Requests</td>
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<td>QTGSNTFR</td>
<td>Notify Messages Received</td>
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<td>QTGSNTFY</td>
<td>Notify Messages Sent</td>
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<td>QTGSOTPE</td>
<td>P-lock Negotiation - Other</td>
<td>DGO1334</td>
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<td>QTGSPEMX</td>
<td>P-Lock/Notify Exists - Maximum Engines</td>
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<td>QTGSPEQW</td>
<td>P-locks/Notify Exists - Engines Unavailable</td>
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<td>QTGSPGPE</td>
<td>P-lock Negotiation - Page</td>
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<td>QTGSPPPE</td>
<td>P-lock Negotiation - Pageset/Partition</td>
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<td>QTGSSTLO</td>
<td>Suspensions - Global Contention</td>
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<td>QTGSUPLK</td>
<td>P-locks - Unlock Requests</td>
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<td>QTGSUSLM</td>
<td>Synchronous XES - Unlock Requests</td>
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<td>SBUFFRAT</td>
<td>Buffer Pool Hit Ratio (%)</td>
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<td>SGLOBRAT</td>
<td>Global Contention Rate (%)</td>
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### Table 157. Statistics - DB2 Application Programming Interface

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<td>QWSDSCCO</td>
<td>Command Requests</td>
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<td>QWSDSCRA</td>
<td>READA Requests</td>
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<td>QWSDSCRS</td>
<td>READS Requests</td>
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<td>QWSDSCU</td>
<td>Unrecognized</td>
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<td>QWSDSCWR</td>
<td>WRITE Requests</td>
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<td>SDIFITOT</td>
<td>Total number of calls made to IFI</td>
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### Table 158. Statistics - DB2 Commands

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<td>Q9STCTRA</td>
<td>Stop DB2</td>
<td>DGO0552</td>
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<tr>
<td>Q9STCTRB</td>
<td>Term Utility</td>
<td>DGO0557</td>
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<tr>
<td>Q9STCTRC</td>
<td>Display Trace</td>
<td>DGO0539</td>
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<tr>
<td>Q9STCTRD</td>
<td>RESET GENERICCLU</td>
<td>DGO1545</td>
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<tr>
<td>Q9STCTRE</td>
<td>Start RLIMIT</td>
<td>DGO0548</td>
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<tr>
<td>Q9STCTRF</td>
<td>Stop RLIMIT</td>
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<td>Q9STCTRG</td>
<td>DISPLAY RLIMIT</td>
<td>DGO0540</td>
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<tr>
<td>Q9STCTRH</td>
<td>Modify Trace</td>
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<tr>
<td>Q9STCTRI</td>
<td>Start DDF</td>
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<tr>
<td>Q9STCTRJ</td>
<td>Stop DDF</td>
<td>DGO0554</td>
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<tr>
<td>Q9STCTRK</td>
<td>Cancel DDF Thread</td>
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<tr>
<td>Q9STCTRL</td>
<td>Display Location</td>
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**Table 158. Statistics - DB2 Commands (continued)**

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<td>Archive Log</td>
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<td>Q9STCTRNM</td>
<td>Alter Bufferpool</td>
<td>DGO0544</td>
<td>●</td>
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<tr>
<td>Q9STCTRO</td>
<td>Display Bufferpool</td>
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<tr>
<td>Q9STCTRP</td>
<td>Set Archive</td>
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<td>Q9STCTROQ</td>
<td>Display Archive</td>
<td>DGO0542</td>
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<td>Q9STCTRRT</td>
<td>Reset Indoubt</td>
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<td>Q9STCTR5</td>
<td>ALTER GROUPBUFFERPOOL</td>
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<td>Q9STCTRT</td>
<td>DISPLAY GROUPBUFFERPOOL</td>
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<td>Q9STCTRU</td>
<td>DISPLAY PROCEDURE</td>
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<td>Q9STCTRV</td>
<td>START PROCEDURE</td>
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<td>Q9STCTRVW</td>
<td>STOP PROCEDURE</td>
<td>DGO1458</td>
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<td>Q9STCTRX</td>
<td>DISPLAY GROUP</td>
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<td>Display Database</td>
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<td>Q9STCTR2</td>
<td>Display Utility</td>
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<td>Q9STCTR3</td>
<td>Recover BSDS</td>
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<td>Q9STCTR4</td>
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<td>Q9STCTR5</td>
<td>Start Database</td>
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<td>Q9STCTR6</td>
<td>Start Trace</td>
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<td>Q9STCTR7</td>
<td>Start DB2</td>
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<td>Q9STCTR8</td>
<td>Stop Database</td>
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<td>Q9STCTR9</td>
<td>Stop Trace</td>
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<td>Q9STEROR</td>
<td>Unrecognized Commands</td>
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<td>SDSTTOTT</td>
<td>Total number of DB2 commands issued</td>
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**Table 159. Statistics - DB2 Destination Data**

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<td>SDIGTFRA</td>
<td>GTF Not Accepted</td>
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<td>SDIGTFWF</td>
<td>GTF Write Failure</td>
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<td>GTF Written</td>
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<td>SDOIOP1NW</td>
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<td>SDOIOP2NW</td>
<td>OP2 Not Written</td>
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<td>SDOIOP2RA</td>
<td>OP2 Not Accepted</td>
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<td>SDOIOP3NW</td>
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### Table 159. Statistics - DB2 Destination Data (continued)

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<td>SDIOP4NW</td>
<td>OP4 Not Written</td>
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<td>SDIOP4WR</td>
<td>OP4 Written</td>
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<td>SDIOP5NW</td>
<td>OP5 Not Written</td>
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<td>OP7 Not Written</td>
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<td>OP7 Written</td>
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<td>SDIOTTWR</td>
<td>RES Written</td>
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<td>SDISMF BF</td>
<td>SMF Buffer Overrun</td>
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<td>SDISMF RA</td>
<td>SMF Not Accepted</td>
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<td>SDISMF WF</td>
<td>SMF Write Failure</td>
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<td>SMF Written</td>
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<td>SDTOTNA</td>
<td>Total number of IFC records not accepted</td>
<td>DGO0626</td>
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<td>SDTOTNW</td>
<td>Total number of IFC records not written</td>
<td>DGO0625</td>
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<td>SDTOTW</td>
<td>Total number of IFC records succ. written</td>
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<td>SDTOWF</td>
<td>Total number of IFC write failures</td>
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### Table 160. Statistics - DB2 Instrumentation

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<td>System Parameters - Buffer Pools</td>
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<td>SDBSCRSW</td>
<td>System Parameters - Buffer Pools</td>
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<td>SDIACTN</td>
<td>Accounting (not written)</td>
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<td>SDIAC TW</td>
<td>Accounting (written)</td>
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<td>SDAUDN</td>
<td>Audit (not written)</td>
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<td>SDAUDW</td>
<td>Audit (written)</td>
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<td>SDIDRR NW</td>
<td>Database Related (not written)</td>
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<td>SDIDRRW</td>
<td>Database Related (written)</td>
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Table 160. Statistics - DB2 Instrumentation (continued)

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<td>Stop Trace (not written)</td>
<td>DGO0574</td>
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<td>SDISTPW</td>
<td>Stop Trace (written)</td>
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<td>SDISTRN</td>
<td>Start Trace (not written)</td>
<td>DGO0572</td>
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</tr>
<tr>
<td>SDISTRW</td>
<td>Start Trace (written)</td>
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<td>SDIZPMN</td>
<td>Dsnzparm (not written)</td>
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<td>Dsnzparm (written)</td>
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<td>SDTSCRNW</td>
<td>Total count of all DB2 records not written</td>
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<td>SDTSCRSW</td>
<td>Total count of all DB2 records written</td>
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Table 161. Statistics - Distributed Data Facility - per Location

<table>
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<td>Rollbacks Received</td>
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<td>QLSTABRS</td>
<td>Rollbacks Sent</td>
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<td>QLSTBRBF</td>
<td>Blocks Received</td>
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<td>QLSTBTBF</td>
<td>Blocks Sent</td>
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<td>QLSTBYTR</td>
<td>Bytes Received</td>
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<td>QLSTBYTS</td>
<td>Bytes Sent</td>
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<td>QLSTCNVQ</td>
<td>Conversations Queued</td>
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Table 162. Statistics - Distributed Data Facility - Global

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<td>Kept Dynamic Statement Discarded</td>
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### Table 164. Statistics - Global Group Buffer Pool Statistics

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<td>QBGBGCT</td>
<td>Class Castout Threshold (%)</td>
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<td>QBGBGDR</td>
<td>Actual Directory Entries</td>
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<td>QBGBGDT</td>
<td>Actual Data Entries</td>
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<td>QBGBGTT</td>
<td>Buffer Pool Castout Threshold (%)</td>
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<td>QBGBGR1</td>
<td>Current Directory to Data Ratio</td>
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<td>QBGBGR2</td>
<td>Pending Directory to Data Ratio</td>
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<td>Castout</td>
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<td>QW0254DE</td>
<td>Directory Entry</td>
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<td>QW0254DR</td>
<td>Directory Entry Reclaim</td>
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<td>QW0254RF</td>
<td>Read Miss Cache Full</td>
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<td>QW0254RH</td>
<td>Read Hit</td>
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<td>Read Miss Name Assignment</td>
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<td>QW0254RS</td>
<td>Read Miss Assignment Suppressed</td>
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<td>Total Changed</td>
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<td>Data Entry</td>
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<td>Write Miss Cache Full</td>
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<td>Changed Page Write Hit</td>
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### Table 165. Statistics - Group Buffer Pools Activity

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<td>QBGLAD</td>
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<td>QBGLAN</td>
<td>Asynchronous reads - No read/write interest</td>
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<td>Changed pages - Read after register page list</td>
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<td>QBGLCN</td>
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### Table 165. Statistics - Group Buffer Pools Activity (continued)

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### Table 166. Statistics - Locking Activity

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### Table 166. Statistics - Locking Activity (continued)

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<td>Suspensions (other)</td>
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### Table 167. Statistics - Log Activity

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<td>QJSTRACT</td>
<td>Reads Satisfied - Active Log</td>
<td>DGO0505</td>
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<tr>
<td>QJSTRARH</td>
<td>Reads Satisfied - Archive Log</td>
<td>DGO0507</td>
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<td>QJSTRBUF</td>
<td>Reads Satisfied - Output Buffer</td>
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<td>QJSTTVC</td>
<td>Reads Delayed - Tape Volume Contention</td>
<td>DGO0510</td>
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<tr>
<td>QJSTWRNW</td>
<td>Write-no-wait</td>
<td>DGO0514</td>
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<td>QJSTWTB</td>
<td>Unavailable Output Log Buffers</td>
<td>DGO0517</td>
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<td>QJSTWUR</td>
<td>Reads Delayed - Unavailable Resource</td>
<td>DGO0511</td>
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<td>SARLRACT</td>
<td>Reads Satisfied - Active Log(%)</td>
<td>DGO0506</td>
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<td>SARLRARC</td>
<td>Reads Satisfied - Archive Log(%)</td>
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<td>SARLRBUF</td>
<td>Reads Satisfied - Output Buffer(%)</td>
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<td>SARWBAC</td>
<td>Out Log Buf Writes / Act. Log Cntl I'val</td>
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### Table 168. Statistics - Miscellaneous

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<td>QISTCOLS</td>
<td>Columns Bypassed</td>
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<td>QWSDLR</td>
<td>Log RBA</td>
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<td>QWSDRINV</td>
<td>Reason Invoke</td>
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### Table 169. Statistics - Open/Close Activity

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<td>QTDSDRN</td>
<td>Data Sets Closed Threshold Reached</td>
<td>DGO0426</td>
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<td>QTDSOPN</td>
<td>Open Data Sets - Current</td>
<td>DGO0418</td>
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<td>QTMAXDS</td>
<td>Open Data Sets - HWM</td>
<td>DGO0417</td>
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<tr>
<td>QTMAXPB</td>
<td>Open Data Sets - Not In Use, Not Closed (HWM)</td>
<td>DGO0422</td>
<td>●</td>
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<tr>
<td>QTPCCT</td>
<td>Data Sets Converted R/W To R/O</td>
<td>DGO0755</td>
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<td>QTREOPN</td>
<td>Successful Logical Reopens</td>
<td>DGO0429</td>
<td>●</td>
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<tr>
<td>QTSLWDD</td>
<td>Open DSs - Not In Use, Not Closed (current)</td>
<td>DGO0420</td>
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<td>SDINUSEC</td>
<td>Open Data Sets In Use</td>
<td>DGO0757</td>
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### Table 170. Statistics - Plan/Package Processing

<table>
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<tr>
<td>QTABIND</td>
<td>Autobind Plan Successful</td>
<td>DGO0442</td>
<td>●</td>
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<tr>
<td>QTABINDA</td>
<td>Autobind Plan Attempts</td>
<td>DGO0441</td>
<td>●</td>
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<tr>
<td>QTALLOC</td>
<td>Plan Allocation Successful</td>
<td>DGO0431</td>
<td>●</td>
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<tr>
<td>QTALLOCA</td>
<td>Plan Allocation Attempts</td>
<td>DGO0430</td>
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<tr>
<td>QTAUTOBA</td>
<td>Auto Bind Package Attempts</td>
<td>DGO0444</td>
<td>●</td>
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<tr>
<td>QTBINDA</td>
<td>Bind Plan Add Subcommands</td>
<td>DGO0435</td>
<td></td>
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<tr>
<td>QTBINDPA</td>
<td>Bind Package Add Subcommand</td>
<td>DGO0439</td>
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<tr>
<td>QTBINDPR</td>
<td>Bind Package Replace Subcommand</td>
<td>DGO0440</td>
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<tr>
<td>QTBINDR</td>
<td>Bind Plan Replace Subcommands</td>
<td>DGO0436</td>
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<tr>
<td>QTFREE</td>
<td>Free Plan Subcommands</td>
<td>DGO0452</td>
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<td>QTFREEA</td>
<td>Free Plan Attempts</td>
<td>DGO0453</td>
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<td>QTFREEAP</td>
<td>Free Package Attempts</td>
<td>DGO0456</td>
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<td>QTFREEP</td>
<td>Free Package Subcommands</td>
<td>DGO0455</td>
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<td>QTINVRID</td>
<td>Autobind Plan Invalid Resource ID</td>
<td>DGO0443</td>
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<td>QTPKABND</td>
<td>Auto Bind Packages Successful</td>
<td>DGO0445</td>
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<td>QTPKALL</td>
<td>Package Allocation Successful</td>
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<td>QTPKALLA</td>
<td>Package Allocation Attempts</td>
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<td>QTPKGBD</td>
<td>Packages Bound</td>
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<td>QTPKGFRD</td>
<td>Free Package Successful</td>
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<td>QTPKGGRD</td>
<td>Rebind Package Successful</td>
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<td>QTPLNBD</td>
<td>Plans Bound</td>
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<td>QTPLNFRD</td>
<td>Free Plan Successful</td>
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<td>QTPLNRBD</td>
<td>Rebind Plan Successful</td>
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<td>Rebind Plan Attempts</td>
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<td>QTRBINDP</td>
<td>Rebind Package Subcommands</td>
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<td>QTRBNDPA</td>
<td>Rebind Package Attempts</td>
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Table 170. Statistics - Plan/Package Processing (continued)

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<tr>
<td>QTREBIND</td>
<td>Rebind Plan Subcommands</td>
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<td>QTTESTB</td>
<td>Test Binds No Plan-ID</td>
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Table 171. Statistics - Query Parallelism

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<tr>
<td>QXCOORNO</td>
<td>One DB2 - COORDINATOR Parm = NO</td>
<td>DGO1672</td>
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<tr>
<td>QXDEGBUF</td>
<td>Fall To Sequential Mode (no buffer)</td>
<td>DGO0327</td>
<td>●</td>
</tr>
<tr>
<td>QXDEGCUR</td>
<td>Fall To Sequential Mode Cursor</td>
<td>DGO0748</td>
<td>●</td>
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<td>QXDEGEESA</td>
<td>Fall To Sequential Mode No ESA</td>
<td>DGO0747</td>
<td>●</td>
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<tr>
<td>QXISORR</td>
<td>One DB2 - Isolation Level</td>
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<tr>
<td>QXMAXDEG</td>
<td>Maximum Degree of Parallelism</td>
<td>DGO0326</td>
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<tr>
<td>QXNORGRP</td>
<td>Planned Parallel Degree</td>
<td>DGO0329</td>
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<tr>
<td>QXREDGRP</td>
<td>Reduced Parallel Degree</td>
<td>DGO0328</td>
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<td>QXTOTGRP</td>
<td>Parallel Groups Executed</td>
<td>DGO0749</td>
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<td>SDTOTPFL</td>
<td>Parallel Fall To Sequential</td>
<td>DGO0746</td>
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<td>SXXCRAT</td>
<td>Member Skipped (%)</td>
<td>DGO1798</td>
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Table 172. Statistics - RID List Processing

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<tr>
<td>QISTRCUR</td>
<td>RID Blocks Allocated - Current</td>
<td>DGO0466</td>
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<tr>
<td>QISTRHIG</td>
<td>RID Blocks Allocated - Maximum</td>
<td>DGO0465</td>
<td>●</td>
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<tr>
<td>QISTRLLM</td>
<td>Terminated - RDS Limit Exceeded</td>
<td>DGO0468</td>
<td>●</td>
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<tr>
<td>QISTRMAX</td>
<td>Terminated - Process Limit Exceeded</td>
<td>DGO0470</td>
<td>●</td>
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<tr>
<td>QISTRPLM</td>
<td>Terminated - DM Limit Exceeded</td>
<td>DGO0469</td>
<td>●</td>
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<tr>
<td>QISTRSTG</td>
<td>Terminated - No Storage</td>
<td>DGO0467</td>
<td>●</td>
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<tr>
<td>SRTTERM</td>
<td>Number of Times RID List Processing Not Used</td>
<td>DGO0767</td>
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Table 173. Statistics - SQL Activity (DCL)

<table>
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<th>Field name</th>
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<tr>
<td>QXALOCC</td>
<td>Allocate Cursor</td>
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<td>QXALOCL</td>
<td>Associate Locators</td>
<td>DGO1739</td>
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<tr>
<td>QXCON1</td>
<td>Connect Type 1</td>
<td>DGO0296</td>
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<tr>
<td>QXCON2</td>
<td>Connect Type 2</td>
<td>DGO0297</td>
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<tr>
<td>QXGRANT</td>
<td>Grant</td>
<td>DGO0292</td>
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<td>QXLOCK</td>
<td>Lock Table</td>
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<tr>
<td>QXREL</td>
<td>Release</td>
<td>DGO0298</td>
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<tr>
<td>QXREVOKE</td>
<td>Revoke</td>
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**Table 173. Statistics - SQL Activity (DCL) (continued)**

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<th>Field name</th>
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<tr>
<td>QXSETCDG</td>
<td>Set Current Degree</td>
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<td>QXSETCON</td>
<td>Set Connection</td>
<td>DGO0299</td>
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<td>QXSETCRL</td>
<td>Set Current Rules</td>
<td>DGO1357</td>
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<td>QXSETHV</td>
<td>Set Host Variable</td>
<td>DGO0295</td>
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<td>QXSETSQL</td>
<td>Set Current SQLID</td>
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<td>SSCDCL</td>
<td>Total DCL</td>
<td>DGO0300</td>
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**Table 174. Statistics - SQL Activity (DDL)**

<table>
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<td>QXALDAB</td>
<td>Alter Database</td>
<td>DGO0312</td>
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<td>QXALTIX</td>
<td>Alter Index</td>
<td>DGO0310</td>
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<td>QXALTST</td>
<td>Alter Stogroup</td>
<td>DGO0313</td>
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<td>QXALTTA</td>
<td>Alter Table</td>
<td>DGO0309</td>
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<td>QXALTTS</td>
<td>Alter Tablespace</td>
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<td>QXCMTON</td>
<td>Comment On</td>
<td>DGO0323</td>
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<tr>
<td>QXCRAILS</td>
<td>Create Alias</td>
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<td>QXCRDAB</td>
<td>Create Database</td>
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<td>QXCRGGT</td>
<td>Temp. Table</td>
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<td>QXCRINX</td>
<td>Create Index</td>
<td>DGO0302</td>
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<td>QXCRSTG</td>
<td>Create Stogroup</td>
<td>DGO0307</td>
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<td>QXCRSYN</td>
<td>Create Synonym</td>
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<td>QXCRTAB</td>
<td>Create Table</td>
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<td>QXCTABS</td>
<td>Create Tablespace</td>
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<td>QXDEFVU</td>
<td>Create View</td>
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<tr>
<td>QXDRPAIL</td>
<td>Drop Alias</td>
<td>DGO0321</td>
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<td>QXDRPDAB</td>
<td>Drop Database</td>
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<td>QXDRPIX</td>
<td>Drop Index</td>
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<td>QXDRPPKG</td>
<td>Drop Package</td>
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<td>QXDRPST</td>
<td>Drop Stogroup</td>
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<td>QXDRPSY</td>
<td>Drop Synonym</td>
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<td>QXDRPTA</td>
<td>Drop Table</td>
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<td>QXDRPTS</td>
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<td>Rename Table</td>
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<td>Drops</td>
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### Table 175. Statistics - SQL Activity (DML)

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<td>QXCLOSE</td>
<td>Close Cursor</td>
<td>DGO0288</td>
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<tr>
<td>QXDELET</td>
<td>Delete</td>
<td>DGO0283</td>
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</tr>
<tr>
<td>QXDESC</td>
<td>Describe</td>
<td>DGO0285</td>
<td></td>
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<td>QXDSCRIB</td>
<td>Describe Table</td>
<td>DGO0286</td>
<td></td>
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<td>QXFETCH</td>
<td>Fetch</td>
<td>DGO0289</td>
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<td>QXINSRT</td>
<td>Insert</td>
<td>DGO0281</td>
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<tr>
<td>QXOPEN</td>
<td>Open Cursor</td>
<td>DGO0287</td>
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<td>QXPREP</td>
<td>Prepare</td>
<td>DGO0284</td>
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<td>QXSELECT</td>
<td>Select</td>
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<td>QXUPDTE</td>
<td>Update</td>
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<td>SSCDML</td>
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### Table 176. Statistics - SQL Nested Activity

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<td>QXCALL</td>
<td>Call Statements Executed</td>
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<tr>
<td>QXCALLLAB</td>
<td>Procedure Abends</td>
<td>DGO1363</td>
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<td>QXCALLRJ</td>
<td>Call Statement Rejected</td>
<td>DGO1365</td>
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<td>QXCALLTO</td>
<td>CALL Statement Timeouts</td>
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### Table 177. Statistics - Subsystem Services

<table>
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<th>Exception</th>
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<tr>
<td>QWSDCKPT</td>
<td>System Event Checkpoint</td>
<td>DGO0535</td>
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<tr>
<td>Q3STABRT</td>
<td>Rollback</td>
<td>DGO0525</td>
<td>●</td>
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<tr>
<td>Q3STCOMM</td>
<td>Commits Phase 2</td>
<td>DGO0527</td>
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<tr>
<td>Q3STCTHD</td>
<td>Create Thread</td>
<td>DGO0522</td>
<td>●</td>
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<tr>
<td>Q3STCTHW</td>
<td>Queued At Create Thread</td>
<td>DGO0532</td>
<td>●</td>
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<tr>
<td>Q3STIDEN</td>
<td>Identify</td>
<td>DGO0521</td>
<td></td>
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<tr>
<td>Q3STINDT</td>
<td>Units of Recovery Gone Indoubt</td>
<td>DGO0529</td>
<td>●</td>
</tr>
<tr>
<td>Q3STMEOM</td>
<td>Subsystem Allied Memory End of Memory</td>
<td>DGO0534</td>
<td>●</td>
</tr>
<tr>
<td>Q3STMEOT</td>
<td>Subsystem Allied Memory End of Task</td>
<td>DGO0533</td>
<td>●</td>
</tr>
<tr>
<td>Q3STPREP</td>
<td>Commits Phase 1</td>
<td>DGO0526</td>
<td></td>
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<tr>
<td>Q3STRDON</td>
<td>Commits Read Only</td>
<td>DGO0528</td>
<td></td>
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<tr>
<td>Q3STRIUR</td>
<td>Units of Recovery Indoubt Resolved</td>
<td>DGO0530</td>
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<tr>
<td>Q3STSIGN</td>
<td>Signon</td>
<td>DGO0523</td>
<td>●</td>
</tr>
<tr>
<td>Q3STSYNC</td>
<td>Synchs (single phase commit)</td>
<td>DGO0531</td>
<td></td>
</tr>
<tr>
<td>Q3STTERM</td>
<td>Terminate</td>
<td>DGO0524</td>
<td></td>
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### Table 178. Statistics - Times

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
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<th>Exception</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDDFSRBT</td>
<td>DDF Address Space SRB Time</td>
<td>DGO0498</td>
<td></td>
</tr>
<tr>
<td>SDDFTCBT</td>
<td>DDF Address Space TCB Time</td>
<td>DGO0497</td>
<td></td>
</tr>
<tr>
<td>SDDFTOTT</td>
<td>DDF Address Space Total Time</td>
<td>DGO0499</td>
<td>●</td>
</tr>
<tr>
<td>SDISRBT</td>
<td>IRLM SRB Time</td>
<td>DGO0495</td>
<td></td>
</tr>
<tr>
<td>SDITCBT</td>
<td>IRLM TCB Time</td>
<td>DGO0494</td>
<td></td>
</tr>
<tr>
<td>SDITOTT</td>
<td>IRLM Total Time</td>
<td>DGO0496</td>
<td>●</td>
</tr>
<tr>
<td>SDSRBT</td>
<td>Database Services SRB Time</td>
<td>DGO0492</td>
<td></td>
</tr>
<tr>
<td>SDTTCBT</td>
<td>Database Services TCB Time</td>
<td>DGO0491</td>
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</tr>
<tr>
<td>SDTLRSRBT</td>
<td>Total</td>
<td>DGO0501</td>
<td></td>
</tr>
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<td>SDTLTCBT</td>
<td>Total</td>
<td>DGO0500</td>
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<tr>
<td>SDTLTOTT</td>
<td>Total</td>
<td>DGO0502</td>
<td></td>
</tr>
<tr>
<td>SDTOTT</td>
<td>Database Services Total Time</td>
<td>DGO0493</td>
<td>●</td>
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<tr>
<td>SSSRBT</td>
<td>System Services SRB Time</td>
<td>DGO0489</td>
<td></td>
</tr>
<tr>
<td>SSTCBT</td>
<td>System Services TCB Time</td>
<td>DGO0488</td>
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</tr>
<tr>
<td>SSTOTT</td>
<td>System Services Total Time</td>
<td>DGO0490</td>
<td>●</td>
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### Table 179. System Parameters - Application Programming Defaults

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
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<tbody>
<tr>
<td>QWPBAGID</td>
<td>ASCII GBCS CCSID</td>
<td>DGO1741</td>
</tr>
<tr>
<td>QWPBAMID</td>
<td>ASCII MBCS CCSID</td>
<td>DGO1742</td>
</tr>
<tr>
<td>QWPBAR</td>
<td>Default Decimal Arithmetic</td>
<td>DGO1748</td>
</tr>
<tr>
<td>QWPBASID</td>
<td>ASCII SBCS CCSID</td>
<td>DGO1743</td>
</tr>
<tr>
<td>QWPBCHR</td>
<td>Default Character Set</td>
<td>DGO1763</td>
</tr>
<tr>
<td>QWPBDATE</td>
<td>Date Format</td>
<td>DGO1755</td>
</tr>
<tr>
<td>QWPBDE</td>
<td>Decimal Point Option</td>
<td>DGO1747</td>
</tr>
<tr>
<td>QWPBDL</td>
<td>Default Delimiter</td>
<td>DGO1749</td>
</tr>
<tr>
<td>QWPBDLEN</td>
<td>Local Date Length</td>
<td>DGO1757</td>
</tr>
<tr>
<td>QWPBDSD</td>
<td>Distributed SQL String Delimiter</td>
<td>DGO1754</td>
</tr>
<tr>
<td>QWPBENS</td>
<td>Default Encoding Scheme</td>
<td>DGO1750</td>
</tr>
<tr>
<td>QWPBGID</td>
<td>EBCDIC GBCS CCSID</td>
<td>DGO1744</td>
</tr>
<tr>
<td>QWPBGRA</td>
<td>Default Mixed Graphic</td>
<td>DGO1752</td>
</tr>
<tr>
<td>QWPBLANG</td>
<td>Default Host Language</td>
<td>DGO1751</td>
</tr>
<tr>
<td>QWPBMID</td>
<td>EBCDIC MBCS CCSID</td>
<td>DGO1745</td>
</tr>
<tr>
<td>QWPBSDL</td>
<td>Default SQL Delimiter</td>
<td>DGO1753</td>
</tr>
<tr>
<td>QWPBSID</td>
<td>EBCDIC SBCS CCSID</td>
<td>DGO1746</td>
</tr>
<tr>
<td>QWPBSQL</td>
<td>SQL Language Support Level</td>
<td>DGO1759</td>
</tr>
<tr>
<td>QWPBTIME</td>
<td>Time Format</td>
<td>DGO1756</td>
</tr>
<tr>
<td>QWPBTLEN</td>
<td>Local Time Length</td>
<td>DGO1758</td>
</tr>
<tr>
<td>QWP4CDEG</td>
<td>Current Degree (CDSSRDEF)</td>
<td>DGO1659</td>
</tr>
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</table>
Table 179. System Parameters - Application Programming Defaults (continued)

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
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<tbody>
<tr>
<td>QWP4CDYN</td>
<td>Cache Dynamic SQL Statements</td>
<td>DGO1809</td>
</tr>
<tr>
<td>QWP4RCHL</td>
<td>Release Cursor Hold Locks</td>
<td>DGO1814</td>
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</table>

Table 180. System Parameters - Archive Log Installation Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
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<tbody>
<tr>
<td>QWP2ADL</td>
<td>Number of Copies</td>
<td>DGO1416</td>
</tr>
<tr>
<td>QWP2ARCL</td>
<td>Maximum Data Sets Recorded In BSDS</td>
<td>DGO1242</td>
</tr>
<tr>
<td>QWP2MRTU</td>
<td>Maximum Read Tape Units</td>
<td>DGO1248</td>
</tr>
<tr>
<td>QWP3BKSZ</td>
<td>Archive Log Block Size</td>
<td>DGO1251</td>
</tr>
<tr>
<td>QWP3COMP</td>
<td>Compact Data</td>
<td>DGO1252</td>
</tr>
<tr>
<td>QWP3CTLG</td>
<td>Catalog Archive Data Sets</td>
<td>DGO1253</td>
</tr>
<tr>
<td>QWP3CYL</td>
<td>Space Allocation Method</td>
<td>DGO1420</td>
</tr>
<tr>
<td>QWP3DTIM</td>
<td>Timestamp Archive Log Data Sets</td>
<td>DGO1254</td>
</tr>
<tr>
<td>QWP3MQP</td>
<td>Quiesce Period (seconds)</td>
<td>DGO1255</td>
</tr>
<tr>
<td>QWP3MSV1</td>
<td>Archive Copy 1 Mass Storage Group Name</td>
<td>DGO1256</td>
</tr>
<tr>
<td>QWP3MSV2</td>
<td>Archive Copy 2 Mass Storage Group Name</td>
<td>DGO1257</td>
</tr>
<tr>
<td>QWP3RETN</td>
<td>Days To Retain Archive Log Data Sets</td>
<td>DGO1258</td>
</tr>
<tr>
<td>QWP3RE1N</td>
<td>Copy 1 Prefix</td>
<td>DGO1259</td>
</tr>
<tr>
<td>QWP3RE2N</td>
<td>Copy 2 Prefix</td>
<td>DGO1260</td>
</tr>
<tr>
<td>QWP3RISP</td>
<td>Primary Space</td>
<td>DGO1261</td>
</tr>
<tr>
<td>QWP3SECS</td>
<td>Secondary Space</td>
<td>DGO1263</td>
</tr>
<tr>
<td>QWP3UNT1</td>
<td>Copy 1 Archive Log Device Type</td>
<td>DGO1264</td>
</tr>
<tr>
<td>QWP3UNT2</td>
<td>Copy 2 Archive Log Device Type</td>
<td>DGO1419</td>
</tr>
<tr>
<td>QWP3WTOR</td>
<td>Issue WTOR Before Mount for Archive Volume</td>
<td>DGO1265</td>
</tr>
<tr>
<td>ZWP2TIME</td>
<td>Tape Unit Deallocation Period</td>
<td>DGO1424</td>
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Table 181. System Parameters - Buffer Pool Information Page

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
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<tbody>
<tr>
<td>QDBPCAST</td>
<td>Castout Attribute</td>
<td>DGO1210</td>
</tr>
<tr>
<td>QDBPDWQT</td>
<td>Deferred Write Threshold</td>
<td>DGO1211</td>
</tr>
<tr>
<td>QDBPNM</td>
<td>Buffer Pool Name</td>
<td>DGO1214</td>
</tr>
<tr>
<td>QDBPSTSQT</td>
<td>Parallel Sequential Threshold</td>
<td>DGO1215</td>
</tr>
<tr>
<td>QDBPVDQT</td>
<td>Vertical Deferred Write Threshold</td>
<td>DGO1216</td>
</tr>
<tr>
<td>QDBPVP5H</td>
<td>Virtual Sequential Threshold</td>
<td>DGO1217</td>
</tr>
<tr>
<td>QDBPVP5Z</td>
<td>Virtual Pool Size</td>
<td>DGO1218</td>
</tr>
<tr>
<td>QDBPXSQT</td>
<td>Assisting Parallel Sequential Threshold</td>
<td>DGO1660</td>
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</table>

Table 182. System Parameters - Data Definition Control Support

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
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<tbody>
<tr>
<td>QWP4ESC</td>
<td>Escape Character</td>
<td>DGO1273</td>
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### Table 182. System Parameters - Data Definition Control Support (continued)

<table>
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<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
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<tbody>
<tr>
<td>QWP4REGA</td>
<td>Application Registration Table</td>
<td>DGO1286</td>
</tr>
<tr>
<td>QWP4REGC</td>
<td>Register Table Owner</td>
<td>DGO1287</td>
</tr>
<tr>
<td>QWP4REGD</td>
<td>Control All Applications</td>
<td>DGO1288</td>
</tr>
<tr>
<td>QWP4REGI</td>
<td>Install DD Control</td>
<td>DGO1289</td>
</tr>
<tr>
<td>QWP4REGN</td>
<td>DDL Registration Database Name</td>
<td>DGO1290</td>
</tr>
<tr>
<td>QWP4REGO</td>
<td>Object Registration Table</td>
<td>DGO1291</td>
</tr>
<tr>
<td>QWP4REGQ</td>
<td>Require Full Names</td>
<td>DGO1292</td>
</tr>
<tr>
<td>QWP4REGU</td>
<td>Unregistered DDL Default</td>
<td>DGO1293</td>
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### Table 183. System Parameters - Data Installation Parameters

<table>
<thead>
<tr>
<th>Field name</th>
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<tbody>
<tr>
<td>QWP6CATN</td>
<td>Icf Catalog Qualifier</td>
<td>DGO1303</td>
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### Table 184. System Parameters - Data-Sharing Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
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<tbody>
<tr>
<td>QWPAAASST</td>
<td>Parallelism Assistant</td>
<td>DGO1780</td>
</tr>
<tr>
<td>QWPACOOR</td>
<td>Query coordinator</td>
<td>DGO1675</td>
</tr>
<tr>
<td>QWPAGRPN</td>
<td>Group name</td>
<td>DGO1455</td>
</tr>
<tr>
<td>QWPALOPT</td>
<td>Data sharing enabled</td>
<td>DGO1548</td>
</tr>
<tr>
<td>QWPAMAXM</td>
<td>Maximum number of members</td>
<td>DGO1549</td>
</tr>
<tr>
<td>QWPAMBWN</td>
<td>Member name</td>
<td>DGO1547</td>
</tr>
<tr>
<td>QWPASUCV</td>
<td>SU conversion factor</td>
<td>DGO1676</td>
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### Table 185. System Parameters - Distributed Data Facility Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
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<tbody>
<tr>
<td>QWP1SCER</td>
<td>Extended Security</td>
<td>DGO1674</td>
</tr>
<tr>
<td>QWP3HOP</td>
<td>Hop Site Authorization</td>
<td>DGO1274</td>
</tr>
<tr>
<td>QWP9CMST</td>
<td>DBAT Status</td>
<td>DGO1304</td>
</tr>
<tr>
<td>QWP9RLFN</td>
<td>Resource Limit Spec. Table Error Action (DDF)</td>
<td>DGO1305</td>
</tr>
<tr>
<td>QWP9RYC</td>
<td>Resynchronization Interval (minutes)</td>
<td>DGO1306</td>
</tr>
<tr>
<td>QWP9STRT</td>
<td>DB2 Startup Option</td>
<td>DGO1307</td>
</tr>
<tr>
<td>QWP9TTO</td>
<td>Idle Thread Timeout Interval</td>
<td>DGO1435</td>
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### Table 186. System Parameters - Group Buffer Pools Parameters Page

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QBGBGAS</td>
<td>AUTOREC (automatic recovery)</td>
<td>DGO1725</td>
</tr>
<tr>
<td>QBGBGDR</td>
<td>Actual Directory Entry</td>
<td>DGO1559</td>
</tr>
<tr>
<td>QBGBGD</td>
<td>Actual Data Entry</td>
<td>DGO1560</td>
</tr>
<tr>
<td>QBGBGR2</td>
<td>Pending Directory to Data Ratio</td>
<td>DGO1561</td>
</tr>
<tr>
<td>QBGBGSZ</td>
<td>Allocated Buffer Pool Size (4K)</td>
<td>DGO1558</td>
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### Table 187. System Parameters - IRLM Installation Parameters

<table>
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<th>Field name</th>
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<tbody>
<tr>
<td>QWP4AUT</td>
<td>Automatic Start</td>
<td>DGO1405</td>
</tr>
<tr>
<td>QWP4IPRC</td>
<td>Start Procedure Name</td>
<td>DGO1276</td>
</tr>
<tr>
<td>QWP4ISID</td>
<td>Subsystem Name</td>
<td>DGO1277</td>
</tr>
<tr>
<td>QWP4ISWT</td>
<td>Time DB2 Will Wait for Start (seconds)</td>
<td>DGO1278</td>
</tr>
<tr>
<td>QWP4TOUT</td>
<td>Resource Timeout (seconds)</td>
<td>DGO1299</td>
</tr>
<tr>
<td>QWP4UTO</td>
<td>Utility Timeout Factor</td>
<td>DGO1300</td>
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### Table 188. System Parameters - Lock Escalation Parameters

<table>
<thead>
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<th>Field name</th>
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<th>Help panel name</th>
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<tr>
<td>QWP4LKTS</td>
<td>Maximum Locks per Table Space</td>
<td>DGO1279</td>
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<tr>
<td>QWP4LKUS</td>
<td>Maximum Locks per User</td>
<td>DGO1280</td>
</tr>
<tr>
<td>QWP4WAIT</td>
<td>Wait For Retained Locks</td>
<td>DGO1738</td>
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### Table 189. System Parameters - Log Installation Parameters

<table>
<thead>
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</tr>
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<tbody>
<tr>
<td>QWP2DUAL</td>
<td>Number of Copies</td>
<td>DGO1431</td>
</tr>
<tr>
<td>QWP2IBPS</td>
<td>Input Buffer Size (KB)</td>
<td>DGO1246</td>
</tr>
<tr>
<td>QWP2OBPS</td>
<td>Output Buffer Size (KB)</td>
<td>DGO1249</td>
</tr>
<tr>
<td>QWP2WRTH</td>
<td>Write Threshold On Filled Buffers</td>
<td>DGO1250</td>
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</table>

### Table 190. System Parameters - Operator Functions Installation Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWP1RLF</td>
<td>Resource Limit Facility Automatic Start</td>
<td>DGO1228</td>
</tr>
<tr>
<td>QWP1RLFN</td>
<td>Resource Limit Spec. Table Error Action</td>
<td>DGO1230</td>
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<tr>
<td>QWP1RLFT</td>
<td>Resource Limit Specification Table Suffix</td>
<td>DGO1231</td>
</tr>
<tr>
<td>QWP1SMRC</td>
<td>WTO Route Codes</td>
<td>DGO1236</td>
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<tr>
<td>QWP4ABN</td>
<td>Allow Autobind Operations</td>
<td>DGO1266</td>
</tr>
<tr>
<td>QWP4ABX</td>
<td>Allow Explain At Autobind</td>
<td>DGO1267</td>
</tr>
<tr>
<td>QWP4ENF</td>
<td>DPROP Support</td>
<td>DGO1404</td>
</tr>
<tr>
<td>QWP4STT</td>
<td>Site Type</td>
<td>DGO1296</td>
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<tr>
<td>QWP9TCPA</td>
<td>TCP/IP Already Verified</td>
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### Table 191. System Parameters - Other System Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
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</thead>
<tbody>
<tr>
<td>MZDBSTR</td>
<td>Databases and Table Spaces</td>
<td>DGO1208</td>
</tr>
<tr>
<td>QWP1DFRQ</td>
<td>Checkpoints Level ID Updates</td>
<td>DGO1434</td>
</tr>
<tr>
<td>QWP2DBSD</td>
<td>Dual BSDS Mode</td>
<td>DGO1243</td>
</tr>
<tr>
<td>QWP4DSMX</td>
<td>Maximum Open Data Sets (DSMAX)</td>
<td>DGO1271</td>
</tr>
<tr>
<td>QWP4DSST</td>
<td>Static describe (DESCSTAT)</td>
<td>DGO1701</td>
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<tr>
<td>QWP4ISWI</td>
<td>IRLM Initial Inquiry by DB2</td>
<td>DGO1433</td>
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### Table 191. System Parameters - Other System Parameters (continued)

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
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<tbody>
<tr>
<td>QWP4MDDN</td>
<td>Asynchronous Drain Stop (%DSMAX)</td>
<td>DGO1281</td>
</tr>
<tr>
<td>QWP4TDDN</td>
<td>Asynchronous Drain Start (%DSMAX)</td>
<td>DGO1298</td>
</tr>
<tr>
<td>QWP4WBMMP</td>
<td>IMS/BMP time-out factor (BMPTOUT)</td>
<td>DGO1669</td>
</tr>
<tr>
<td>QWP4WDLI</td>
<td>IMS/DLI time-out factor (DLITOUT)</td>
<td>DGO1670</td>
</tr>
<tr>
<td>XWP4CDEG</td>
<td>Current Degree (CDSSRDEF)</td>
<td>DGO1859</td>
</tr>
</tbody>
</table>

### Table 192. System Parameters - Protection Installation Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWP1RLF</td>
<td>Resource Limit Table Creator Authid</td>
<td>DGO1229</td>
</tr>
<tr>
<td>QWP3RTCT</td>
<td>RACF Protect Archive Log</td>
<td>DGO1262</td>
</tr>
<tr>
<td>QWP4ADM2</td>
<td>System Administrator 2 Authid</td>
<td>DGO1268</td>
</tr>
<tr>
<td>QWP4AUCA</td>
<td>Plan Authorization Cache Size</td>
<td>DGO1428</td>
</tr>
<tr>
<td>QWP4AUTH</td>
<td>DB2 Authorization Enabled</td>
<td>DGO1269</td>
</tr>
<tr>
<td>QWP4BNVA</td>
<td>Bind New Version</td>
<td>DGO1430</td>
</tr>
<tr>
<td>QWP4DFID</td>
<td>Default (unknown) User Authid</td>
<td>DGO1270</td>
</tr>
<tr>
<td>QWP4OPR1</td>
<td>System Operator 1 Authid</td>
<td>DGO1283</td>
</tr>
<tr>
<td>QWP4OPR2</td>
<td>System Operator 2 Authid</td>
<td>DGO1284</td>
</tr>
<tr>
<td>QWP4PAC</td>
<td>Package Authorization Cache Size</td>
<td>DGO1779</td>
</tr>
<tr>
<td>QWP4SADM</td>
<td>System Administrator 1 Authid</td>
<td>DGO1294</td>
</tr>
</tbody>
</table>

### Table 193. System Parameters - Storage Sizes Installation Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWP1CDB</td>
<td>Maximum Remote</td>
<td>DGO1220</td>
</tr>
<tr>
<td>QWP1CT</td>
<td>Maximum Concurrent Threads</td>
<td>DGO1221</td>
</tr>
<tr>
<td>QWP1IDB</td>
<td>Maximum Batch</td>
<td>DGO1223</td>
</tr>
<tr>
<td>QWP1IDF</td>
<td>Maximum TSO</td>
<td>DGO1224</td>
</tr>
<tr>
<td>QWP1RMT</td>
<td>Maximum Remote Active</td>
<td>DGO1232</td>
</tr>
<tr>
<td>QWP4EDPL</td>
<td>Maximum Size of EDM Pool</td>
<td>DGO1272</td>
</tr>
<tr>
<td>QWP4IXTP</td>
<td>Default Index Type</td>
<td>DGO1546</td>
</tr>
<tr>
<td>QWP4MXKD</td>
<td>Maximum Kept Dynamic Statements</td>
<td>DGO1810</td>
</tr>
<tr>
<td>QWP4PST</td>
<td>Utility Cache Option</td>
<td>DGO1766</td>
</tr>
<tr>
<td>QWP4RMAX</td>
<td>Maximum Size of RID Pool</td>
<td>DGO1396</td>
</tr>
<tr>
<td>QWP4SCAC</td>
<td>3990 Cache</td>
<td>DGO1295</td>
</tr>
<tr>
<td>QWP4SPOL</td>
<td>Maximum Size of Sort Pool</td>
<td>DGO1297</td>
</tr>
</tbody>
</table>

### Table 194. System Parameters - Stored Procedures Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWP1SPAB</td>
<td>Abends Allowed</td>
<td>DGO1437</td>
</tr>
<tr>
<td>QWP1SPPN</td>
<td>MVS Procedure Name</td>
<td>DGO1436</td>
</tr>
<tr>
<td>QWP1SPTO</td>
<td>Timeout Value</td>
<td>DGO1438</td>
</tr>
</tbody>
</table>
Table 195. System Parameters - Tracing, Checkpoint and Pseudo-Close Parameters

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Help panel name</th>
</tr>
</thead>
<tbody>
<tr>
<td>QWP1AUDT</td>
<td>Start Audit Trace</td>
<td>DGO1219</td>
</tr>
<tr>
<td>QWP1FREQ</td>
<td>Pseudo-Close Frequency</td>
<td>DGO1222</td>
</tr>
<tr>
<td>QWP1LOGL</td>
<td>Checkpoint Frequency</td>
<td>DGO1225</td>
</tr>
<tr>
<td>QWP1MON</td>
<td>Start Monitor Trace</td>
<td>DGO1226</td>
</tr>
<tr>
<td>QWP1MONS</td>
<td>Monitor Buffer Size (bytes)</td>
<td>DGO1227</td>
</tr>
<tr>
<td>QWP1SMFA</td>
<td>Start SMF Accounting</td>
<td>DGO1234</td>
</tr>
<tr>
<td>QWP1SMFS</td>
<td>Start SMF Statistics Trace</td>
<td>DGO1235</td>
</tr>
<tr>
<td>QWP1STIM</td>
<td>Statistics Interval (minutes)</td>
<td>DGO1237</td>
</tr>
<tr>
<td>QWP1TMR</td>
<td>Pseudo-Close Timer</td>
<td>DGO1238</td>
</tr>
<tr>
<td>QWP1TRST</td>
<td>Start Global Trace</td>
<td>DGO1239</td>
</tr>
<tr>
<td>QWP1TRSZ</td>
<td>Trace Table Size (4 KB multiple)</td>
<td>DGO1240</td>
</tr>
<tr>
<td>QWP1URCK</td>
<td>UR Check Frequency</td>
<td>DGO1712</td>
</tr>
</tbody>
</table>

Table 196. Layout of the Exception Log File output record

<table>
<thead>
<tr>
<th>Offset (decimal)</th>
<th>Length (bytes)</th>
<th>DB2 Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SMALLINT</td>
<td>Length of record (LL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SMALLINT</td>
<td>Binary zeros</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>CHAR</td>
<td>Log record type:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• F = Field-level exception record</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• M = Exception message (Online Monitor only)</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>CHAR</td>
<td>Processing origin ID:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• B = Record written by batch exception processor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• S = Record written by online display exception processor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• A = Record written by online periodic exception processor</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>CHAR</td>
<td>Per:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• SYST = System</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• PROG = Program</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• PLAN = Plan name</td>
</tr>
<tr>
<td>6</td>
<td>16</td>
<td>CHAR</td>
<td>Local location</td>
</tr>
</tbody>
</table>

Layout of the Exception Log File output record

The table in this section outlines the format of the Exception Log File data set output record. Use these terms to interpret the table.

Offset  Length from the beginning of the record to the start of the field.

Length  Length of the field, in bytes.

DB2 Data Type

The format of the value in the field:

• SMALLINT
• INTEGER
• CHAR
• TIMESTAMP
• DOUBLE PRECISION
Table 196. Layout of the Exception Log File output record (continued)

<table>
<thead>
<tr>
<th>Offset (decimal)</th>
<th>Length (bytes)</th>
<th>DB2 Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>2</td>
<td>CHAR</td>
<td>Reserved</td>
</tr>
<tr>
<td>24</td>
<td>8</td>
<td>CHAR</td>
<td>Primary authorization ID</td>
</tr>
<tr>
<td>32</td>
<td>8</td>
<td>CHAR</td>
<td>Original authorization ID</td>
</tr>
<tr>
<td>40</td>
<td>8</td>
<td>CHAR</td>
<td>Plan name</td>
</tr>
<tr>
<td>48</td>
<td>8</td>
<td>CHAR</td>
<td>Connection ID</td>
</tr>
<tr>
<td>56</td>
<td>8</td>
<td>CHAR</td>
<td>Connection type</td>
</tr>
<tr>
<td>64</td>
<td>12</td>
<td>CHAR</td>
<td>Untranslated correlation ID</td>
</tr>
<tr>
<td>76</td>
<td>8</td>
<td>CHAR</td>
<td>Correlation name</td>
</tr>
<tr>
<td>84</td>
<td>8</td>
<td>CHAR</td>
<td>Correlation number</td>
</tr>
<tr>
<td>92</td>
<td>8</td>
<td>CHAR</td>
<td>Network ID</td>
</tr>
<tr>
<td>100</td>
<td>8</td>
<td>CHAR</td>
<td>VTAM LU name</td>
</tr>
<tr>
<td>108</td>
<td>12</td>
<td>CHAR</td>
<td>Instance number</td>
</tr>
<tr>
<td>120</td>
<td>2</td>
<td>SMALLINT</td>
<td>LUW sequence number</td>
</tr>
<tr>
<td>122</td>
<td>18</td>
<td>CHAR</td>
<td>Main package (MAINPACK)</td>
</tr>
<tr>
<td>140</td>
<td>16</td>
<td>CHAR</td>
<td>Requesting location</td>
</tr>
<tr>
<td>156</td>
<td>2</td>
<td>CHAR</td>
<td>Reserved</td>
</tr>
<tr>
<td>158</td>
<td>4</td>
<td>CHAR</td>
<td>DB2 subsystem ID</td>
</tr>
<tr>
<td>162</td>
<td>6</td>
<td>CHAR</td>
<td>OMEGAMON XE for DB2 PE VnRnMn</td>
</tr>
<tr>
<td>168</td>
<td>6</td>
<td>CHAR</td>
<td>DB2 VnRnMn</td>
</tr>
<tr>
<td>174</td>
<td>1</td>
<td>SMALLINT</td>
<td>DB2 release code</td>
</tr>
<tr>
<td>175</td>
<td>8</td>
<td>CHAR</td>
<td>Store clock timestamp</td>
</tr>
<tr>
<td>183</td>
<td>26</td>
<td>TIMESTAMP</td>
<td>DB2 timestamp</td>
</tr>
<tr>
<td>209</td>
<td>8</td>
<td>CHAR</td>
<td>Field name</td>
</tr>
</tbody>
</table>
| 217              | 1              | CHAR          | Field type:
|                  |                |   - Blank = Normal field |
|                  |                |   - B = Buffer pool field |
|                  |                |   - D = DDF field |
|                  |                |   - G = Group buffer pool field |
|                  |                |   - C = Global group buffer pool statistics field |
|                  |                |   - P = Package |
| 218              | 54             | CHAR          | Field name qualifier used in the Exception Threshold data set |
| 272              | 2              | CHAR          | Reserved |
| 274              | 54             | CHAR          | Actual field name qualifier:
|                  |                |   - Buffer pool ID for buffer pool records |
|                  |                |   - Remote location for DDF records |
|                  |                |   - Package location, connection ID, and program name for package records |
|                  |                |   - Blank for all other records |
| 328              | 2              | CHAR          | Reserved |
| 330              | 1              | CHAR          | Reserved |
| 331              | 1              | CHAR          | Field description (without qualifier) |
### Table 196. Layout of the Exception Log File output record (continued)

<table>
<thead>
<tr>
<th>Offset (decimal)</th>
<th>Length (bytes)</th>
<th>DB2 Data Type</th>
<th>Description</th>
</tr>
</thead>
</table>
| 371              | 40             | CHAR          | Compare basis:  
|                  |                |               | • V = Total value  
|                  |                |               | • M = By minute    
|                  |                |               | • S = By second    
|                  |                |               | • C = By commit    
|                  |                |               | • T = By thread    |
| 372              | 1              | CHAR          | Operator (> or <) |
| 373              | 12             | CHAR          | Exception value (character) |
| 385              | 12             | CHAR          | Threshold value (character) |
| 397              | 1              | CHAR          | Exception level:  
|                  |                |               | • P = Problem      
|                  |                |               | • W = Warning      |
| 398              | 8              | DOUBLE PRECISION | Exception value (floating point) |
| 406              | 8              | DOUBLE PRECISION | Threshold value (floating point) |
| 414              | 8              | CHAR          | Group name |
| 422              | 8              | CHAR          | Member name |

**Note:** The exception and threshold values in floating-point form (offsets 398 and 406 respectively) can contain time or counts fields. For time fields, the value is stored in terms of microseconds. For example, if you entered 0.3 seconds for the threshold value, it is stored as 300,000 microseconds in the Exception Log File data set. For counts fields, the value is stored as the actual value.

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**Tivoli Enterprise Portal (TEP)**

Tivoli Enterprise Portal is a Java-based browser user interface for viewing and monitoring your enterprise.

The Tivoli Enterprise Portal is a user interface on the workstation that offers a single point of view for online monitoring and analysis. You can view information about all the resources in your IT environment. For example, you can view information about your operating systems, hardware such as routers, applications such as WebSphere, IMS, and CICS, and custom applications. It can run as a browser applet or as a Java application. OMEGAMON XE for DB2 PE gathers data from remote agents residing on the managed systems of your DB2 network and stores this data in system elements called *attributes*.

The monitoring data is received via the Tivoli Enterprise Portal Server (TEPS) and the Tivoli Enterprise Monitoring Server from the Tivoli Enterprise Monitoring Agents (TEMA). Information is then displayed in named *workspaces*.

The Tivoli Enterprise Portal is a customizable interface. For example, you can:

- Configure the workspaces and attributes according to your requirements. The Tivoli Enterprise Portal comes with a set of predefined workspaces for each item in the navigation tree, but you can edit any of them to suit your needs.
- Filter the information presented in a workspace by moving from the top-level workspace to lower-level workspaces.

**Note:** A workspace is not refreshed automatically, however, you can choose to automate the refresh of a workspace at specified intervals.
The Tivoli Enterprise Portal allows you to view a wealth of information, including the following:

- Detailed thread activity information about your DB2 threads, including Workload Manager information
- The interaction of a DB2 system with MVS, CICS, IMS, z/OS, and other systems, databases and applications within a single interface from any location
- Database lock activities and detailed lock conflict information about your database locks
- Information about DB2 resources such as buffer pools, EDM pools, group buffer pools, and dynamic statement caches
- Enhanced information for database access threads (DBATs) at DB2 Connect gateways
- DB2 log manager active logging and archiving activities
- Distributed Database Facility statistics, including send and receive counts
- Detailed information about threads and thread exceptions connected to DB2
- Information about the performance of volumes that contain DB2 objects so that you can monitor the DASD performance by volume (Group Object Analysis (GOA) Volume workspace group)
- Information about a data sharing group and its coupling facility structures
- Active utility jobs
- DB2 Connect gateway activities

You can use the Tivoli Enterprise Portal to perform the following analysis activities:

- Detecting I/O related bottlenecks such as heavily used volumes
- Analyzing system-wide or application-specific resource usage to tune DB2 resources or to identify applications that are performing poorly
- Using historical information in the short-term history to detect and analyze problems in the past
- Using situations to automatically inform you about problems. You can use predefined situations or you can create your own situations
- Automating problem resolution by taking automatic action when certain events are detected. For example, you can run an MVS job, send a message to a system automation tool, or cancel a thread
- Managing problems detected by your team by using a built-in trouble ticket system or by forwarding the alert to an external event console

For installation and configuration instructions, see “Installing and configuring Tivoli Enterprise Portal” on page 851.

OMEGAMON XE for DB2 PE Attributes

OMEGAMON XE for DB2 PE attributes are grouped into attribute groups. These attributes correspond to the column names contained in the associated OMEGAMON XE table views. Various attributes are used in the product-provided situations shipped with DB2.

To find out general information about an attribute group, select it from the Help Table of Contents. By expanding the Table of Contents entry for a given attribute group, you will see the names of the attributes comprising the group. For information about a specific DB2 workspace or the table view it contains, see the related workspace topic.
**Accelerator Statistics Attributes**

Use these attributes to view accelerator statistics information.

**Accelerator name** The accelerator server identifier (Field name: Q8STNAME).

**Act Worker Nodes** The number of active worker nodes (Field name: Q8STWNOD).

**Avail Disk (MB)** The disk storage (MB) available at the accelerator (Field name: Q8STDSSK).

**Avg Coord CPU Util** Average CPU utilization on accelerator coordinator nodes (Field name: Q8STCCPU).

**Avg Queue Wait Time (MS)** The average wait time at the accelerator query queue (Field name: Q8STQUEW).

**Avg Worker CPU Util** The current CPU utilization on the accelerator worker nodes. This is a snapshot, which is the average CPU utilization across all worker nodes (Field name: Q8STWCPU).

**Avg queue len, last 24 h** The average query queue length during the last 24 hours at the accelerator (Field name: Q8SQA24).

**Avg queue len, last 3 h** The average query queue length during the last 3 hours at the accelerator (Field name: Q8SQA03).

**CPU cost for all DB2** The total CPU cost spent in the accelerator for data maintenance operations from all DB2 systems. Replication-related operations are not included (Field name: Q8STTCMA).

**CPU cost for this DB2** The total CPU cost spent in the accelerator for data maintenance operations from this DB2 system. Replication-related operations are not included. (Field name: Q8STTCMS).

**CPU time executing this DB2** The total CPU cost associated with executing queries in the accelerator on behalf of this DB2 system (Field name: Q8STTCQS).

**CPU time executing all DB2** The total CPU cost associated with executing queries in the accelerator on behalf of all DB2 systems (Field name: Q8STTCQA).

**Curr Active Requests** The number of currently (actively) executing queries in the accelerator on behalf of all DB2 systems (Field name: Q8STACTV).

**Curr executing queries** The number of currently executing queries in the accelerator on behalf of this DB2 system (Field name: Q8STNCQS).

**Current queue len** The current query queue length at the accelerator (Field name: Q8STCQL).

**DB2 Subsystem** The DB2 subsystem ID.

**DB2 Version** The DB2 version.

**DSG Member Name** The Data Sharing Group (DSG) member name.

**Data Sharing Group** The Data Sharing Group name.
Data Skew Data skew (Field name:Q8STSKEW)

Data slices The number of data slices at the accelerator. This equals the degree of parallel I/O channels (Field name: Q8STNMDS).

Elapsed time in accel The accumulated elapsed time spent in the accelerator when executing requests from the DB2 subsystem (Field name: Q8STAELA).

Failed reqs since start The number of queries (sent by this DB2 system since accelerator start) that failed to be successfully executed for any reason (Field name: Q8STFREQ).

Filler Filler for padding.

Filler2 Filler for padding.

Filler3 Filler for padding.

Filler4 Filler for padding.

IP address of accel IP address of accelerator (Field name: Q8STIPAD).

In-use disk all DB2 % The disk storage (MB) in-use for accelerator databases for all DB2 systems (Field name: Q8STDSA).

In-use disk this DB2 % The disk storage in-use for accelerator databases for this DB2 system. (Field name: Q8STDSKB).

Interval Start The start time of this interval.

Log rec bytes all DB2 The number of log record bytes processed by the replication capture agents for all DB2 systems (DB2 field name: Q8STNBA).

Log rec bytes this DB2 The number of log record bytes processed by the replication capture agent for this DB2 system (DB2 field name: Q8STNBS).

Log recs read all DB2 The number of log records read by the replication capture agents for all DB2 systems (Field name: Q8STNLRA).

Log recs read this DB2 The number of log records read by the replication capture agent for this DB2 system (Field name: Q8STNLRS).

Log recs tbls all DB2 The number of log records read by the replication capture agents for all DB2 systems that are applicable to tables in this accelerator (DB2 field name: Q8STNLTA).

Log recs tbls this DB2 The number of log records (read by the replication capture agent for this DB2 system) that are applicable to tables in this accelerator (Field name: Q8STNLTS).

MVS System ID The MVS identifier.

Max Query Queue Len The high watermark of the query queue length at the accelerator (Field name: Q8STMAXQ).
Max Queue Wait Time (MS) The maximum wait time at the accelerator query queue (Field name: Q8STQUEM).

Maximum Active Request for this DB2 Shows the maximum number of queries executing in the accelerator at any time since accelerator start on behalf of this DB2 system (Field name: Q8STMNQS).

Maximum Active Request for all DB2 The maximum number of queries actively executing in the accelerator concurrently at any time since accelerator start on behalf of all DB2 systems (Field name: Q8STMAXA).

Num blocks received The total number of blocks received from the accelerator (Field name: Q8STBLKR).

Num blocks sent The total number of blocks sent to the accelerator. (Field name: Q8STBLKS).

Num bytes received The total number of bytes received from the accelerator (Field name: Q8STBYTR).

Num bytes sent The total number of bytes sent to the accelerator (Field name: Q8STBYTS).

Num msgs received The total number of messages received from the accelerator (Field name: Q8STMSGR).

Num msgs sent The total number of messages sent to the accelerator (Field name: Q8STMSGS).

Num rows received The total number of rows received from the accelerator (Field name: Q8STROWR).

Num rows sent The total number of rows sent to the accelerator (Field name: Q8STROWS).

Originating System The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Product ID The accelerator product identifier (Field name: Q8STPRID).

Query Successfully executed Requests that were successfully executed.

Queries failed to execute Shows the number of queries (sent by all DB2 systems since accelerator start) that were not successfully executed for any reason (Field name: Q8STNQFA).

Replication cost all DB2 The total CPU cost associated with the replication apply process for all DB2 systems (Field name: Q8STTCCA).

Replication cost this DB2 The total CPU cost associated with the replication apply process for this DB2 system. (Field name: Q8STTCCS).

Replication Status The current replication state of the accelerator for this DB2 system (Field name: Q8STCSS).

0 Started
1  Stopped
2  Error
3  Starting
4  Stopping

**Replication latency** The current replication latency for this DB2 system. Latency the time difference between the timestamp, when the applied to the target, compared to the current time (Field name: Q8STCRL).

**Replication status change** The timestamp when the last change of the accelerator replication state occurred for this DB2 system (Field name: Q8STTTLSC).

**Rows Deleted Accel Tables for this DB2** The number of DELETE rows applicable to accelerator tables that were processed by the replication capture agent for this DB2 system (Field name: Q8STNDS).

**Rows Deleted Accel Tables for all DB2** The number of DELETE rows applicable to accelerator tables that were processed by the replication capture agents for all DB2 systems (Field name: Q8STNDA).

**Rows Inserted Accel Tables for this DB2** The number of INSERT rows applicable to accelerator tables that were processed by the replication capture agent for this DB2 system. (Field name: Q8STNIS).

**Rows Inserted Accel Tables for all DB2** The number of INSERT rows applicable to accelerator tables that were processed by the replication capture agents for all DB2 systems. (Field name: Q8STNIA).

**Rows Updated Accel Tables for this DB2** The number of UPDATE rows applicable to accelerator tables that were processed by the replication capture agent for this DB2 system (Field name: Q8STNUS).

**Rows Updated Accel Tables for all DB2** The number of UPDATE rows applicable to accelerator tables that were processed by the replication capture agents for all DB2 systems (Field name: Q8STNUA).

**Server start time** The timestamp when the accelerator server process started last time (DB2 field name: Q8STTART).

**State** Shows the current accelerator state (Field name: Q8STTATE).

**Status change time** The timestamp when the last change of the accelerator occurred (Field name: Q8STTATC).

**Success reqs since start** The number of queries (sent by all DB2 systems since accelerator start) that successfully executed in the accelerator (Field name: Q8STNQSA).

**Successful Queries** The total number of successful query requests since the accelerator started (Field name: Q8STSREQ).

**TCP/IP serv elapsed time** The accumulated accelerator services TCP/IP elapsed time measured in DB2. It starts when sending the requests to the accelerator and ends when receiving the results from the accelerator (Field name: Q8STTELA).
Timed out requests since start: The number of connections that were timed out when this DB2 system sent requests to the accelerator (Field name: Q8STTOUT).

Total failed requests: The number of connections that failed when this DB2 system sent requests to the accelerator (Field name: Q8STFAIL).

Total num accel connects: The number of connects to the accelerator from this DB2 system (Field name: Q8STCONN).

Total num accel requests: The number of Distributed Relational Database Architecture (DRDA) requests sent by this DB2 system to the accelerator (Field name: Q8STREQ).

Total num processors: The number of CPU cores available on all worker nodes (Field name: Q8STCORS).

Wait time in accelerator: The wait time spent in the accelerator when executing requests from the DB2 subsystem (Field name: Q8STAWAT).

Worker Nodes Disk util: The current disk utilization of the accelerator worker nodes, expressed as percentage of the used I/O channels/resources (Field name: Q8STDSKU).

All Threads Attributes

Use the All Threads attributes to create situations to monitor thread activity including DB2 thread activity that originates from connected IMS or CICS subsystems.

Ace Address: The DB2 thread ACE address for internal use.

Agent Address: The address of the agent in DB2 associates all processes that are involved in a DB2 unit of work.

AGNT ASID: The address space ID (ASID) of the agent.

Agent TCB Address: The z/OS Task Control Block that is associated with this DB2 thread.

Authorization ID: The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Authorization ID (Unicode): The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Begin Time: Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and IMS wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

Bytes Sent: The number of bytes of data sent to the requester location.
Cancel Command The command string needed to cancel a thread. You can use Take Action with this attribute to cancel a thread: The format is "src CANCEL THREAD(nnnnnn)", where src is the subsystem recognition character and nnnnnn is the thread token.

CICS MVS ID The CICS MVS ID.

Collection ID This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 18 characters.

Collection ID (Unicode) The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

Commits The number of successful phase 2 or single-phase commit (sync) requests. Valid value is an integer in the range 0-999 commits.

All Thread Attributes Identifies the connection of an application to a DB2 system. It is an alphanumeric text string, with a maximum length of eight characters.

All Thread Attributes The type of connection associated with the thread. Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

Conversations The number of conversations that were initiated from the requester location.

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters. For example: DLKEX212.

CP CPU Rate The central processor CPU rate.

Current Period The service class period number in goal mode.
**Database Access CPU** The database access agent CPU time. This value is calculated by accumulating the amount of CPU time spent by the database access thread at the DB2 server each time a request message is processed.

**Database Access Time** The timestamp of last send or receive in distributed database access.

**DB2 ID** The DB2 subsystem ID.

**DB2 Status** The current DB2 status of the thread. It is an alphanumeric text string, with a maximum length of 12 characters.

Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT-AVAIL</td>
<td>The thread is not available.</td>
</tr>
<tr>
<td>IN-ABORT</td>
<td>The thread is in abort processing.</td>
</tr>
<tr>
<td>IN-ACCEL</td>
<td>The thread is executing on IBM DB2 Analytics Accelerator for z/OS.</td>
</tr>
<tr>
<td>IN-AUTO-PROC</td>
<td>The thread is processing an autonomous procedure.</td>
</tr>
<tr>
<td>IN-BIND-DYNM</td>
<td>The thread is in dynamic bind processing.</td>
</tr>
<tr>
<td>IN-BIND-STAT</td>
<td>The thread is in static bind processing.</td>
</tr>
<tr>
<td>IN-COMMAND</td>
<td>Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)</td>
</tr>
<tr>
<td>IN-COMMIT</td>
<td>The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).</td>
</tr>
<tr>
<td>IN-COMT-PHS1</td>
<td>The thread is in Commit phase 1 processing.</td>
</tr>
<tr>
<td>IN-COMT-PHS2</td>
<td>The thread is in Commit phase 2 processing.</td>
</tr>
<tr>
<td>IN-CRTE-THRD</td>
<td>The thread is in Create Thread processing.</td>
</tr>
<tr>
<td>IN-DB2</td>
<td>The thread is executing in DB2. A more descriptive status could not be determined.</td>
</tr>
<tr>
<td>INDOUBT</td>
<td>The thread is in doubt.</td>
</tr>
<tr>
<td>IN-SIGNON</td>
<td>The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.</td>
</tr>
</tbody>
</table>
IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBBLOCK
The thread is currently waiting for either:
- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.
WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.
WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Distributed Allied Elapsed Time The elapsed time for this thread executing on distributed host.

Elapsed Time The total amount of elapsed time since thread creation or DB2 sign-on. Valid value is an integer in the range 0-99999999 seconds.

Elapsed Per Commit The average amount of elapsed time for each database commit performed.

Enclave CP CPU Time The central processor CPU time used by each thread that is associated with an enclave token.

Enclave CPU Time The enclave CPU time.

Enclave Token The ID assigned by the z/OS workload manager for this enclave. A z/OS enclave lets each thread have its own performance objective. Using z/OS workload management (WLM) support, you can establish z/OS performance objectives for individual DDF server threads.

Enclave Token Unused This field is unused.

End User ID The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (Field name: QWHCEUID).

Get Page The number of getpage requests. This field counts successful requests for pages for queries that are processed in parallel and both successful and unsuccessful requests for pages for queries that are not processed in parallel. Valid value is an integer in the range 0-99999999 pages.

Get Page 64 The number of getpage requests. This field counts successful requests for pages for queries that are processed in parallel and both successful and
unsuccessful requests for pages for queries that are not processed in parallel. Valid value is an integer in the range 0-999999999 pages.

**Get Page Per Read** The ratio of requested pages that resulted in actual I/O versus being found in a buffer. The read I/O count divided by Get Page count.

**Get Page Per Read 64** The ratio of requested pages that resulted in actual I/O versus being found in a buffer. The read I/O count divided by Get Page count.

**IIP CPU** The accumulated CPU time consumed while executing on an IBM zIIP in all environments.

**IIP In-DB2 CPU** The amount of time that the In DB2 CPU has been running on a zIIP processor.

**In DB2 IIP CPU** The total amount of CPU time that DB2 has accumulated for a thread in the zIIP processor. Valid value is an integer in the range 0-999999999 seconds.

**In DB2 CP CPU Time** The CP CPU time accumulated in DB2 when the SQL statement exit from DB2.

**In DB2 Per Commit** The average amount of in-DB2 CPU time used between each commit.

**In DB2 Time** The elapsed time accumulated in DB2 when the SQL statement exit from DB2.

**Interval Start** The start time of the interval.

**Job Name** The job name that is associated with a thread.

**Local Elapsed Time** The elapsed time, in tenths of a second, for local thread (in units that represent tenths of seconds).

**Location** The requesting location.

**Location (Unicode)** The requesting location.

**Logical Unit Name** The LUNAME of the connection to the remote DB2 system.

**Messages Sent** The number of messages sent to remote location.

**MVSID** The MVS system identifier.

**Original Authorization ID** The DB2 original Authorization ID of the thread. It is an alphanumeric text string, with a maximum length of 8 characters.

**Original Authorization ID (Unicode)** The DB2 original Authorization ID of the thread. It is an alphanumeric text string, with a maximum length of 8 characters.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.
**Package Name** Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

**Package Name (Unicode)** Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

**Parallel Indicator** The thread parallelism indicator.

Valid values are:

* Indicates that this thread is a parallel task initiated for another (originating) thread to process a query request in parallel.

O Indicates that this thread is the originating thread that invoked autonomous procedures.

P Indicates that this thread is the parent, or originating thread, of the parallel tasks created to process a query request in parallel. The activity performed for this (originating) thread is reflected under the parallel tasks.

X Indicates that this thread is a parallel task initiated for another (originating) thread on another DB2 for SYSPLEX parallelism.

**Parent Ace** The token used to correlate parallel task or utility subtask records with the records of the originating task or main utility task. For a record that is issues from a parallel task or utility subtask this field contains a token that is equal to the agent control element (ACE) of the originating task or main utility task. Otherwise, the value in this field is zero.

**Performance Index** This field is related to the z/OS Workload manager. A Performance Index less than one is an indication that the goal for this service class period is being exceeded. The service class period may be considered as a "donor", giving up CPU or pageable storage for other more important service class periods on the system. A Performance Index greater than one is an indication that the goal for this service class period is not being met. Depending on the importance, this Service class period may be considered for additional services to meet the defined goal.

**Plan** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Prefetch Requests** The number of prefetch requests issued per second over the last interval.

**Remote CPU** The database access agent CPU time at the remote location.

**Remote Elapsed** The elapsed database access agent time at the remote location.

**Request Type** The request type for a ALL THREAD related workspaces. Internal use only.

**Rows Sent** The number of rows of data sent to the requester location.

**Service Class** The service class name associated with this address space.
SQL Calls Sent The number of SQL statement sent to the server.

SQL Received The number of SQL statements received from the requester.

Sync Reads The number of synchronous reads per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

Synchronous Read I/O Rate The thread synchronous read I/O rate.

Thread Status The current status of a thread.

Valid values are:

Status Description

NOT-AVAIL The thread is not available.

IN-ABORT The thread is in abort processing.

IN-ACCEL The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC The thread is processing an autonomous procedure.

IN-BIND-DYNM The thread is in dynamic bind processing.

IN-BIND-STAT The thread is in static bind processing.

IN-COMMAND Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1 The thread is in Commit phase 1 processing.

IN-COMT-PHS2 The thread is in Commit phase 2 processing.

IN-CRTE-THRD The thread is in Create Thread processing.

IN-DB2 The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT The thread is in doubt.

IN-SIGNON The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.
IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call's request.

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The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

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The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

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The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

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The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

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WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

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The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
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WAIT-LOCK
The thread is waiting for a lock.

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The thread is waiting because of inter-system message sending contention.

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The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

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The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLSGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

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The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
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The thread is currently waiting for a PIPE suspend.
WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

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Status Description

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The thread is in abort processing.

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IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.
<table>
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<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN-DB2</td>
<td>The thread is executing in DB2. A more descriptive status could not be determined.</td>
</tr>
<tr>
<td>INDOUBT</td>
<td>The thread is in doubt.</td>
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<tr>
<td>IN-SIGNON</td>
<td>The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.</td>
</tr>
<tr>
<td>IN-SQL-CALL</td>
<td>The thread is processing an SQL call.</td>
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<tr>
<td>IN-SQL-SORT</td>
<td>The thread is executing an SQL call and is doing the sort processing required to satisfy the call's request.</td>
</tr>
<tr>
<td>IN-STOR-PROC</td>
<td>The thread is currently running in a stored procedure.</td>
</tr>
<tr>
<td>IN-TERM-THRD</td>
<td>The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.</td>
</tr>
<tr>
<td>IN-TRIGGER</td>
<td>The thread is currently running in a trigger.</td>
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<td>IN-USER-FUNC</td>
<td>The thread is currently running a user-defined function.</td>
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<td>NOT-IN-DB2</td>
<td>The thread is not currently executing in DB2.</td>
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<td>SP/UDF-INACT</td>
<td>The thread is trying but not able to run in a stored procedure or user-defined function.</td>
</tr>
<tr>
<td>SWAPPED-OUT</td>
<td>The thread is not currently executing in DB2. The thread originating address space is swapped out.</td>
</tr>
<tr>
<td>WAIT-ARCHIVE</td>
<td>The thread is waiting for an archive log tape mount necessary during thread abort processing.</td>
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<td>WAIT-ARCREAD</td>
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<td>WAIT-ASYNCRD</td>
<td>The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).</td>
</tr>
<tr>
<td>WAIT-ASYNCWR</td>
<td>The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).</td>
</tr>
<tr>
<td>WAIT-CONVFLIM</td>
<td>The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.</td>
</tr>
</tbody>
</table>
WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the
CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD
status.

WAIT-GLBBLOCK
The thread is currently waiting for either:
• Inter-system communication within the data sharing group to determine
  if there is lock contention.
• A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MGSSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a
response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a
response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status
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WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of
DB2 services include: open/close of a dataset, DFHSN recall of a dataset,
SYSLGRNG update or define/extend/delete of a dataset, rollback, and
Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of
allied task termination. This status corresponds to DB2 DISPLAY
THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal
termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring
drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring
drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the
IRLM.
WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Token The thread token uniquely identifies a specific thread.

Thread Type The thread type. It can be:

A = IMS
B = BATCH
C = CICS
0 = Unknown
1 = DB_Access
3 = SYSTEM
5 = UTILITY
6 = RRSAF
7 = TSO
9 = Allied
10 = WAIT_LOCKLAT
**Transaction ID** The transaction ID at the workstation.

**Uniqueness Value** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (Field name: QWHSLUUv).

**Uniqueness Value 2** The DB2 thread uniqueness value. For internal use.

**Updates** The number of DB2 page updates made by the thread since thread creation. This value is incremented each time a row in a page is updated, not just once for each page that is updated. DB2 might update pages when it creates intermediate result tables because of a qualified SELECT statement, even though SELECT statements are generally thought of as read only operations. Pages that have been updated are written asynchronously by DB2, according to DB2 internal Deferred Write algorithm, not immediately after update or commit. DB2 resets the page update count at Create Thread and Signon. If Signon is not driven, the page update count is cumulative.

**Wait Time** Total class 3 wait time for a thread.

**Workstation ID** The end user’s workstation name. This field contains blanks if this information was not supplied by the client.

**zIIP Different Speed** The setting if the zIIP processor is at a different speed. Valid values are:

- **Yes** The zIIP processor is set to a different speed.
- **No** The zIIP processor is set to the same speed.

**zIIP Processor** The setting to confirm that the enclave is using a zIIP processor.

- **Yes** The enclave is using a zIIP processor.
- **No** The enclave is not using a zIIP processor. If No then the other zIIP related fields will be N/A.

**Data Sharing Filter Attributes**
Use the Data Sharing Filter attributes to create situations that monitor a specific DB2 system or data sharing group.

**DB2 ID** The name of a DB2 subsystem.

**Group Object Analysis Status** The status of the Event Manager for Object Analysis.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIX</td>
<td>Some Event Managers are active</td>
</tr>
<tr>
<td>NO</td>
<td>Event Manager is not active</td>
</tr>
<tr>
<td>YES</td>
<td>Event Manager is active</td>
</tr>
</tbody>
</table>

**Group or Subsystem Name** The DB2ID or data sharing group name. It is an alphanumeric text string with a maximum of 8 characters; for example, TDDDB241G.
**Group or Subsystem Type** Indicates whether a group or subsystem is a DB2 or a data sharing group.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>DB2 subsystem</td>
</tr>
<tr>
<td>DSGRP</td>
<td>Data sharing group</td>
</tr>
</tbody>
</table>

**Lock Conflict Count** The total number of owners and waiters that are in lock conflict. Valid value is an integer in the range 0 - 99999999.

**MVS System** The MVS System Management Facility (SMF) ID. It is alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of GBP Connections** The total number of Group Buffer Pool (GBP) Connections.

**Number of Threads** The total number of currently monitored threads. Valid value is an integer in the range 0 - 99999999.

**Object Analysis DB Count** The total number of monitored databases in a specific data sharing group that are participating in object analysis. Valid value is an integer in the range 0 - 4999.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Status** Indicates whether a DB2 subsystem or data sharing group for a monitored entity is operational. Valid values are OFFLINE or ONLINE.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Data Sharing Status Attributes**
Use the Data Sharing Status attributes to create situations that monitor the status of a specific DB2 system or data sharing group.

**DB2 ID** The name of a DB2 subsystem.
**Group Object Analysis Status** The status of the Event Manager for Object Analysis.

Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIX</td>
<td>Some Event Managers are active</td>
</tr>
<tr>
<td>NO</td>
<td>Event Manager is not active</td>
</tr>
<tr>
<td>YES</td>
<td>Event Manager is active</td>
</tr>
</tbody>
</table>

**Group or Subsystem Name** An internal attribute used for navigation. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

**Group or Subsystem Type** Indicates whether a group or subsystem is a DB2 or a data sharing group.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>DB2 subsystem</td>
</tr>
<tr>
<td>DSGRP</td>
<td>Data sharing group</td>
</tr>
</tbody>
</table>

**Lock Conflict Count** The total number of owners and waiters that are in lock conflict. Valid value is an integer in the range 0 - 99999999.

**MVS Subsystem** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of GBP Connections** The total number of Group Buffer Pool (GBP) Connections.

**Number of Threads** The total number of currently monitored threads. Valid value is an integer in the range 0 - 99999999.

**Object Analysis DB Count** The total number of monitored databases in a specific data sharing group that are participating in object analysis. Valid value is an integer in the range 0 - 4999.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Status** Indicates whether a DB2 subsystem or data sharing group for a monitored entity is operational. Valid values are OFFLINE or ONLINE.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Data Sharing Thread Detail Attributes**

Use Data Sharing Thread Detail attributes to create situations that monitor thread activity for an entire data sharing group.

**Ace Address** The DB2 thread ACE address for internal use.

**Authorization ID** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

**Authorization ID (Unicode)** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

**Begin Time** Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and ims wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

**Cancel Command** The command string needed to cancel a thread. You can use Take Action with this attribute to cancel a thread: The format is "src CANCEL THREAD(nnnnnn)", where src is the subsystem recognition character and nnnnnnn is the thread token.

**Collection ID** The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 18 characters

**Collection ID (Unicode)** The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

**Data Sharing Thread Detail Attributes** Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**Thread Detail Attributes (Data Sharing)** The type of DB2 connection.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job.</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DB2CAF</td>
<td>DB2 call attach</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed or DBAccess</td>
<td>Distributed thread</td>
</tr>
<tr>
<td>IMS BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>IMS</td>
<td>IMS thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 utility</td>
</tr>
</tbody>
</table>

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example DLKEX212.

CP CPU Time The central processor CPU time.

DB2 ID The name of a DB2 subsystem.

Display CPU Time The total amount of CPU time that DB2 has accumulated for a thread.

Valid format is HH:MM:SS:mmm, where:
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

If the time goes over 24 hours, the format is DD-HH:MM where:
- D = Day
- H = Hour
- M = Minute

For example, 00:14:59 indicates that the display CPU time is 14 minutes and 59 seconds.

Display Elapsed Time The total amount of elapsed time since thread creation or DB2 sign-on.

Valid format is DD-HH:MM:SS, where:
- D = Day
- H = Hour
- M = Minute
- S = Second
For example, 00-20:16:18 indicates that the display elapsed time is 20 hours, 16 minutes, and 18 seconds.

**Display Wait Time** The total amount of thread wait time. The collection of thread wait time requires activation of Accounting Class 2 in the monitored DB2 subsystem.

Valid format is HH:MM:SS:mmm, where:
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

If the time goes over 24 hours, the format is DD-HH:MM where:
- D = Day
- H = Hour
- M = Minute

For example, 00:14:59 indicates that the display CPU time is 14 minutes and 59 seconds.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**In DB2 Elapsed Time** The elapsed time accumulated in DB2.

**LUWID** The logical unit name (LUNAME) of the connection to the remote DB2 system.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP1.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Package DBRM (Unicode)** The package DBRM name.

**Package Name** Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

**Parent Ace** The token used to correlate parallel task or utility subtask records with the records of the originating task or main utility task. For a record that is issues from a parallel task or utility subtask this field contains a token that is equal to the agent control element (ACE) of the originating task or main utility task. Otherwise, the value in this field is zero.

**Plan Name** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. Valid format is alphanumeric, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Thread Elapsed Time** The total amount of elapsed time since thread creation or DB2 sign-on. Valid value is an integer in the range 0 - 999999999 seconds.
**Thread Group Member Name**  The name of the member within a data sharing group for a thread.

**Thread Group Name**  The name of a data sharing group for a thread. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Thread Status**  The current status of a thread.

Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT-AVAIL</td>
<td>The thread is not available.</td>
</tr>
<tr>
<td>IN-ABORT</td>
<td>The thread is in abort processing.</td>
</tr>
<tr>
<td>IN-ACCEL</td>
<td>The thread is executing on IBM DB2 Analytics Accelerator for z/OS.</td>
</tr>
<tr>
<td>IN-AUTO-PROC</td>
<td>The thread is processing an autonomous procedure.</td>
</tr>
<tr>
<td>IN-BIND-DYNM</td>
<td>The thread is in dynamic bind processing.</td>
</tr>
<tr>
<td>IN-BIND-STAT</td>
<td>The thread is in static bind processing.</td>
</tr>
<tr>
<td>IN-COMMAND</td>
<td>Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)</td>
</tr>
<tr>
<td>IN-COMMIT</td>
<td>The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).</td>
</tr>
<tr>
<td>IN-COMT-PHS1</td>
<td>The thread is in Commit phase 1 processing.</td>
</tr>
<tr>
<td>IN-COMT-PHS2</td>
<td>The thread is in Commit phase 2 processing.</td>
</tr>
<tr>
<td>IN-CRTE-THRD</td>
<td>The thread is in Create Thread processing.</td>
</tr>
<tr>
<td>IN-DB2</td>
<td>The thread is executing in DB2. A more descriptive status could not be determined.</td>
</tr>
<tr>
<td>INDOUBT</td>
<td>The thread is in doubt.</td>
</tr>
<tr>
<td>IN-SIGNON</td>
<td>The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.</td>
</tr>
<tr>
<td>IN-SQL-CALL</td>
<td>The thread is processing an SQL call.</td>
</tr>
</tbody>
</table>
IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
• Inter-system communication within the data sharing group to determine if there is lock contention.
• A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.
WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.
WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Stored Procedure Name The name of the stored procedure that a thread invokes. It is an alphanumeric text string, with a maximum of 18 characters; for example, SPCALC_TAX.

Thread Token The thread token uniquely identifies a specific thread.

Data Sharing Thread Detail Attributes The type of thread.

It can be:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

Thread Wait Time The total amount of thread wait time. Valid format is an integer in the range 09 - 999999999 seconds. Note: collection of thread time requires activation of Accounting Class 2 in the Monitored DB2 subsystem.
**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:

- **C** = Century (0 for 20th, 1 for 21st)
- **Y** = Year
- **M** = Month
- **D** = Day
- **H** = Hour
- **M** = Minute
- **S** = Second
- **m** = Millisecond

**Data Sharing Thread Statistics Attributes**

Use Data Sharing Thread Statistics attributes to create situations that determine the usage of parallel threads.

**Asynchronous Page Reads** The number of asynchronous page reads for prefetch. Valid value is an integer in the range 0 - 2147483647.

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 ID** The name of a DB2 subsystem.

**Dynamic Prefetch** The number of dynamic prefetch requests. Valid value is an integer in the range 0 - 2147483647.

**Get Page Requests** The number of thread getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. Valid value is an integer in the range 0 - 2147483647.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**Immediate Write I/O** The number of synchronous write I/O requests that DB2 issues on behalf of a thread. Valid value is an integer in the range 0 - 2147483647.

**List Prefetch** The number of list prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of SETW** The number of set write requests to write a page out to DASD. Valid value is an integer in the range 0 - 2147483647.
Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Sequential Prefetch The number of sequential prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

Synchronous Read I/O The number of synchronous read I/O requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

DB2 Thread Exceptions Indicates the type of parallel thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Not a parallel thread</td>
</tr>
<tr>
<td>Parent</td>
<td>Parallel thread is a parent</td>
</tr>
<tr>
<td>Child</td>
<td>Parallel thread is a child</td>
</tr>
<tr>
<td>Autonomous SP</td>
<td>Originating thread who invoked autonomous stored procedures</td>
</tr>
</tbody>
</table>

Unsuccessful Get Page Operation The number of conditional getpage requests that failed. Valid value is an integer in the range 0 - 2147483647.

DB2 Buffer Pool Attributes

Use these attributes to get information about DB2 buffer pools.

Assisting Parallel Seq The assisting parallel sequential threshold. Valid values are 1 to 100 (Field name: QDBPXSQT).

Buffer Pool ID Buffer Pool Name (Field name: QDPNM).

Data Sharing Group The data sharing group name (Field name: GROUP).
**DB2 Subsystem** The DB2 subsystem ID (Field name: DB2ID).

**DB2 Version** The DB2 version (Field name: DB2VER).

**Vert Deferred Write Thresh** The vert deferred write threshold of the buffer pool (Field name: QDBPVDQT). The value is between X’00’ and X’5A’.

**Deferred Write Thresh** The deferred write threshold of the buffer pool (Field name: QDBPVDQT). The value is between X’00’ and X’5A’.

**DSG Member Name** The Data Sharing Group (DSG) member name (Field name: MEMBER).

**Frame Size** The framesize attribute: ‘4K’, ‘1M’, or ‘2G’ (Field name: QDBPFRAM).

**Interval Start** The start time of this interval (Field name: TIMESTAMP).

**MVS System ID** The MVS identifier (Field name: MVSID).

**Originating System** The managed system name of the agent (Field name: ORIGINNODE). It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**PGSTEAL Attribute** PGSTEAL attribute (Field name: QDBPPGST).
- ’I’ means the buffers are managed using the least recently used (lru) algorithm.
- ’F’ means the buffers are managed using the first in first out (FIFO) algorithm.
- ’N’ means that no page stealing occurs. Data that is brought in stays resident.

**Simulated BP size** Simulated buffer pool size (Field name: QDBPSPSZ) A sequential prefetch request does not result in read I/O if the requested pages are found in the buffer pool.

**SimPool Seq threshold** The simulated buffer pool sequential threshold (Field name: QDBPSPST).

**Virtual Buffer Pool Size** The size of the virtual buffer pool (Field name: QDBPVPSZ).

**VP Sequential Thresh** The virtual pool sequential steal threshold of the buffer pool (Field name: QDBPVPSH). This value is between X’00’ and X’64’.

**VP Parallel Sequential Thresh** The parallel sequential threshold. Valid values are 1 to 100 (Field name: QDBPPSQT). This value is between X’00’ and X’64’.

**VP Write Threshold** The pool vertical write threshold, in number of buffers. Valid values are 0 to 9999 (Field name: QDBPVDQB). This field is used to determine the threshold only if VBVDPVDQT is zero and QDBPVDQB is non-zero.

**VPSIZEMIN Attribute** VPSIZEMIN attribute (Field name: QBDPVPMI).

**VPSIZEMAX Attribute** VPSIZEMAX attribute (Field name: QBDPVPMA).

**DB2 Buffer Pool Statistics Attributes**

Use these attributes to create situations that determine the usage of DB2 buffer pools.
Async Page Dyn Prefetch The number of asynchronous page reads because of dynamic prefetch (Field name: QBSTDPP).

Async Page Read List Prefetch The number of asynchronous page reads because of list prefetch (Field name: QBSTLPP).

Async Page Read Dyn Prefetch The number of asynchronous page read I/O operations because of dynamic prefetch (Field name: QBSTDIO).

Async Read List Prefetch The number of asynchronous read I/O operations because of list prefetch (Field name: QBSTLIO).

Sync Read NonSeq Overflow The number of synchronous read I/O operations for non-sequential getpage requests that used buffers in the overflow area. (Field name: QBSTASYN).

Sync Read Seq Overflow The number of synchronous read I/O operations for sequential getpage requests that used buffers in the overflow area. (Field name: QBSTASSE).

Async Reads Seq Prefetch The number of asynchronous read I/Os caused by the normal sequential prefetch (both applications and utilities) (Field name: QBSTPIO). This number represents the number of I/O operations, not the number of pages read. See QBSTSPP for the number of pages read. This counter applies to only to work file prefetch.

Async Write I/O The number of asynchronous write I/O operations to disk (Field name: QBSTWIO).

Buffer Pool ID This field identifies which buffer pool the information in this section refers to (Field name: QBSTPID).

- '0' through '49' are identifiers for 4kb buffer pools
- '100' through '109' are identifiers for 8kb buffer pools
- '120' through '129' are identifiers for 16kb buffer pools
- '80' through '89' are identifiers for 32kb buffer pools

Buffers Allocated The number of buffers allocated for a virtual buffer pool (Field name: QBSTVPL).

Castout Operations The number of castout I/O operations (Field name: QBSTCIO).

Current Active Buffers The number of current active (nonstealable) buffers. (Field name: QBSTCBA). Instantaneous sample of the number of buffers in the buffer pool that were active (in the nonstealable status) at the time of the request to transfer the buffer manager statistical data to the SMF record being produced. This field provides a snapshot value at statistics collection time, which means it only shows a problem if it happens at this time. The buffer pool might be too small if this is greater than 50% of the buffer pool. This field is not accumulated.

Currently Alloc Workfiles Exceeded The number of times the currently allocated work files exceeded the maximum buffer pool resources allocated to sequential processing (Field name: QBSTMAX). Usually, no more work files are created after this field is implemented. This field indicates that a sort is being done, and that the sort is limited in how many work files it can use. In general, sorts are more efficient with additional work files, but there are DB2 limits on the number of...
work files a transaction can have. Sometimes a transaction finds at run time that it cannot use as many work files as it had planned. You can try increasing the size of the buffer pool or altering the transaction so it requires fewer concurrent work files.

**Datasets Opened** The number of datasets physically opened (Field name: QBSTDSO). This value is cumulative since the start of this statistics interval. See the "Performance, monitoring and tuning" section of Administration Guide for information about physical and logical open and close.

**Data Sharing Group** The data sharing group name (Field name: GROUP).

**DB2 Subsystem** The DB2 subsystem ID (Field name: DB2ID).

**DB2 Version** The DB2 version (Field name: DB2VER).

**Defer Write Thresh Reached** The number of times the deferred write threshold was reached (Field name: QBSTDWT). When the deferred write threshold is reached, the data sets with the oldest updated pages are written asynchronously. DB2 continues writing pages until the ratio is under the threshold. Before this threshold is reached, pages are written only if the number of pages queued per data set reaches a certain percent of the buffer pool size. For details, see "Buffer pool thresholds" in the "Performance, monitoring and tuning" section in Administration Guide.

**Defer Write Thresh Reached** The number of times the vertical deferred write threshold was reached (Field name: QBSTDWT). When the number of updated pages for a given data set exceeds the vertical deferred write threshold, deferred writes are initiated for that data set.

**DM Buffer Crit Thresh Reached** The number of times the data manager buffer critical threshold (DMTH) was reached (Field name: QBSTDMC). When the data manager threshold is reached, getpage requests and releases apply to rows instead of to pages. That is, when more than one row is retrieved or updated in a page, more than one getpage request and release is performed on that page. Avoid reaching this threshold, because it has a significant effect on CPU usage. This field should be zero. For details, see "Buffer pool thresholds" in the "Performance, monitoring, and tuning" section of Administration Guide.

**DSG Member Name** The Data Sharing Group (DSG) member name (Field name: MEMBER).

**Dynamic Prefetch Requests** The number of dynamic prefetch requests (Field name: QBSTDPF). This is the process that is triggered because of sequential detection. This field also counts prefetches for segmented table spaces. For information about when sequential detection is used, see the "Performance, monitoring and tuning" section of Administration Guide.

**Expand Fail SOS** The number of virtual buffer pool expansion failures caused by a shortage of virtual storage (Field name: QBSTXFV). Ideally, this value should be zero. If it is not, check the virtual storage allocation of the database address space (DS1DBM1 for areas that can be reduced). For example, you can reduce the size of other buffer pools.
Expansions Contract Alter The number of successful virtual buffer pool expansions or contractions because of the alter buffer pool command (Field name: QBSTVP).

Get Page The number of GETPAGE requests (both successful and unsuccessful) and conditional requests that are successful (Field name: QBSTGET).

Getpage Fail VPOOL Full The number of times that a usable buffer could not be located in the virtual buffer pool because the virtual buffer pool was full. ideally, this value should be zero (Field name: QBSTXFL). If it is not, use the -alter buffer pool command to increase the virtual buffer pool size (vpsize).

Getpage Per Sync Read Random The number of random Getpage requests per random synchronous read I/O request (Field name: SBRGPRIO). Background and tuning information. This ration is a good indicator of read efficiency in a transaction environment. The higher the number, the better.

Getpage Sequential Access The accumulated wait time for a synchronous execution unit switch (Field name: QBSTSGT).

Hit Ratio The buffer hit ratio (Field name: BUHITRA).

HWM Buffers on SLRU The maximum number of buffers on the sequential LRU chain. (Field name: QBSTSMAX). This value is the highest value in the statistics interval.

Immediate Writes The number of immediate writes for a data set (Field name: QBSTIMW). Immediate writes occur when:
- Any synchronous write is triggered
- An immediate write threshold is reached

List Prefetch Reads The number of list prefetch requests (Field name: QBSTLPF). List prefetch allows DB2 to access data pages efficiently even when the needed data pages are not contiguous. List prefetch can be used with single index access and is always used with multiple index access. It is always used to access data from the inner table during a hybrid join. Data pages are read in quantities equal to the sequential prefetch quantity (see QBSTSEQ), which depends on buffer pool size and is usually 32 pages. During bind, DB2 does not use list prefetch if the estimated number of RIDs to be processed would take more than 50% of the RID pool. During execution time, list prefetch processing terminates if DB2 detects that more than 25% of the rows in the table must be accessed. If list prefetch is terminated, IFCID 125 indicates this.

LPL inserts The number of times that one or more pages were added to the logical page list (LPL) (Field name: QBSTLPL).

LWM Buffers on SLRU The minimum number of buffers on the sequential LRU chain. (Field name: QBSTSMIN). This value is the lowest value in the statistics interval.

Max Workfiles Used Merge The maximum number of work files that were concurrently used during merge processing within this statistics period. (Field name: QBSTWFM). Ideally, each work file needs 16 buffers to allow DB2 to perform sequential prefetch for work files.
Migrated Datasets  The number of times migrated data sets were encountered (Field name: QBSTMIG).

MVS System ID  The MVS identifier (Field name: MVSID).

Name  The buffer pool ID (Field name: QBSTPIDC).

No Sort Merge Buffer Space  The number of times that a sort/merge was not performed efficiently because of a shortage of buffer space (Field name: QBSTWFF). This counter is incremented for each sort/merge when the maximum number of work files allowed is less than the number of work files requested. The maximum number of work files allowed is computed as:

\[
\text{buffers consumed} = 2 \times (\text{work files already allocated}) \\
\text{buffers available} = (\text{sequential steal threshold} \times \text{buffer pool size} - \text{buffers consumed}) \\
\text{max work files allowed} = \frac{\text{buffers available}}{(2 \times 8)}
\]

Originating System  The managed system name of the agent (Field name: ORIGINNODE). It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Overflow Random Getpages  The number of non-sequential getpage requests that used buffers in the overflow area (Field name: QBSTAGET).

Overflow Seq Getpages  The number of sequential getpage requests that used buffers in the overflow area (Field name: QBSTASGE).

Page-Ins Read I/O  The number of Page-Ins required for read I/O (Field name: QBSTRPI).

Page-Ins Write I/O  The number of Page-Ins required for write I/O (Field name: QBSTWPI).

Pages Destruct Read Required  The number of pages for which a destructive read was requested (Field name: QBSTWDRP).

Pages Removed DS deferred Write Destruct Read  The number of pages removed from the data set deferred write queue for destructive read requests (Field name: QBSTWBVQ).

Pages Read Seq Prefetch  The number of pages read because of normal sequential prefetch (Field name: QBSTFPP). A sequential prefetch request does not result in read I/O if the requested pages are found in the buffer pool.

Pages In-Use  Buffer pool virtual buffer pool pages in use percent (Field name: SBRBUTP).

Pages Written for Castout I/O  The number of pages written for castout I/O operations (Field name: QBSTPCO).

Pages Written System  The number of pages written for system pages (Field name: QBSTPWS). This field contains the number of pages in the buffer pool written to disk. If the ratio of this field to the number of page updates (QBSTSWUS) is close to zero, efficiency is high. For example, if there are 10 page updates, all against the same page, then the ratio is 1:10 or 0.1. If all 10 updates are against 10 distinct pages, then the ratio is 10:10 or 1.0. Some factors that affect this ratio are:

- Buffer pool size
• Concurrent buffer pool usage by multiple transactions
• Real (and expanded) storage availability
• Database page updates of the same page by transactions.

**Parallel Query Requests** The total number of requests made for processing queries in parallel in this buffer pool. (Field name: QBSTPQO). This counter is applicable only for non-work file page sets and when queries are processing in parallel in DB2.

**Parallel Getpage Unavailable** The number of times a page requested for a query processed in parallel was unavailable because the page was not found in the buffer pool. (Field name: QBSTNGT). The agent does not wait. Instead, control returns to the agent and asynchronous prefetch I/O is triggered. If the value is close to zero, most pages are already prefetched into the buffer pool and wait time for synchronous I/O is small. This counter can be high if, for example, there is a cluster index scan and the data is not truly clustered by the index key, so the data pages are not accessed in their true order. Hence, the cluster ratio is not valid. Use the runstats utility to update it. This number is also used to determine how many sequential prefetches of one page were scheduled.

**Prefetch I/O Concurr HWM** The highest number of concurrent prefetch I/O streams that were allocated for supporting queries processed in parallel in this buffer pool. (Field name: QBSTNIX). This counter reflects prefetch activities for non-work file page sets. This counter is applicable only when queries are processing in parallel in DB2.

**Prefetch I/O Reduced Shortage** The total number of requested prefetch I/O streams that were denied because of a storage shortage in the buffer pool (Field name: QBSTJIS). For example, if 100 prefetch I/O streams are requested and only 80 are granted, then 20 is added to this counter. If this value is nonzero, you might want to consider increasing the size of the buffer pool. The ratio of QBSTJIS and QBSTPDF gives the average degree of parallel query processing that was reduced because of insufficient buffer pool space. QBSTXIS gives the highest degree of parallel query processing that was reduced for one or more queries processed in parallel. This counter is applicable only for non-work file page sets and when queries are processing in parallel in DB2.

**Prefetch Quantity 1/2** The total number of occurrences when the prefetch quantity is reduced from normal to one-half of normal. (Field name: QBSTPL1). The normal size is dependent on the size of the buffer pool. This counter indicates when DB2 had to reduce sequential prefetch quantity to continue to execute concurrently with parallel query processing in the system. If this field contains a small number, it might be tolerable. This counter is applicable only when queries are processing in parallel in DB2.

**Prefetch Quantity 1/4** The total number of occurrences when the prefetch quantity is reduced from one-half to one-quarter of normal. (Field name: QBSTPL2). The normal size is dependent on the size of the buffer pool. When this field contains a nonzero value, it is a more serious situation than when QBSTPL1 is nonzero. The query response for queries processed in parallel can be significantly worse when this field is nonzero. This field is applicable only when queries are processing in parallel in DB2.
**Random Getpage Hit SLRU** The number of times that a non-sequential getpage operation touched a buffer that is on the sequential LRU chain (Field name: QBSTSRHS).

**Random Hit Ratio** The percentage of random Getpage operations that were satisfied by a page already in a buffer pool (Field name: SBUFFRDM). If this value is low, it indicates that page residency in the buffer pool is too low, therefore the buffer pool may be too small.

**Random Failed Cond Request** Getpage requests - Random access - Failed cond. request (Field name: SBSTNRG).

**Random Getpages** The number of random Getpage requests (Field name: SDGETRAN).

**Read I/O Sequential Access** The number of synchronous buffer reads performed for statement (Field name: QW0316NB).

**Reduced Parallel Queries** The total number of times during this statistics interval that DB2 could not allocate the requested number of buffer pages to allow a parallel group to run to the planned degree (Field name: QBSTPQF). This is caused by a storage shortage in the buffer pool. If this value is significant, increase the size of the buffer pool. This counter is applicable only for non-work file page sets and when queries are processing in parallel in DB2.

**Recall Timeouts** The number of recall timeouts (Field name: QBSTRTO).

**Seq Failed Cond Request** The number of conditional sequential getpage requests that failed because the page was not in the buffer pool. (Field name: QBSTNSG).

**Seq Hit Ratio** The percentage of sequential Getpage operations that were satisfied by a page already in a buffer pool (Field name: SBUFFSEQ).

**Seq Prefetch Disabled Buffers** The number of times sequential prefetch was disabled because buffers were not available (Field name: QBSTSPD). In other words, this is the number of times the sequential prefetch threshold is reached. See the "Performance, monitoring and tuning" section of Administration Guide for more information on buffer pool thresholds. Ideally, this value should be zero. If this value is high, the buffer pool size or a sequential threshold might be too small.

**Seq Prefetch Disabled Read Engine** The number of times sequential prefetch was disabled because of an unavailable read engine (Field name: QBSTTREE). The value in this field should be close to zero.

**Seq Prefetch Not Scheduled Quantity** The number of times sequential prefetch was not scheduled because the prefetch quantity was zero. (Field name: QBSTWKPD). Prefetch checks the prefetch quantity. Normally the quantity should be one to eight pages. When the quantity is zero, the value in this field is incremented. A high number in this field implies that the buffer pool is too small.

**Sequential Prefetch** The number of sequential prefetch requests (Field name: QBSTSEQ). This counter is incremented for each prefetch request. Each request might result in an I/O read. If it results in an I/O read, up to 32 pages can be read for SQL and up to 64 pages for utilities. A request does not result in an i/o if all pages to be prefetched are already in the buffer pool. Sequential detection is not included in QBSTSEQ and is separately recorded in QBSTDPP.
Sort Merges  The total number of sort/merges for DB2 sort activities (Field name: QBSTWFR). This counter reflects how many sort/merges were requested for db2 to determine the number of work files permitted to support each sort/merge.

Sync reads Random access  The number of random synchronous read I/O requests (Field name: SDSTRAN).

Sync Read I/O  Number of synchronous read I/O operations performed for both applications and utilities (Field name: QBSTRIO).

Times SLRU EQ VPSEQT  The number of times that the length of the sequential LRU chain reached the sequential steal threshold (VPSEQT) (Field name: QBSTHST). This value is the highest value in the statistics interval.

Update Intents  The number of times update intents were requested against pages in the buffer pool (Field name: QBSTSWS).

Workfiles Sort Merge  The total number of work files that were requested for all sort/merge processing (Field name: QBSTWFT). This counter and QBSTWFR can be used to determine the average number of work files (runs) requested on a single sort/merge. For DB2 to perform efficient prefetch for work files, each work file should have at least 16 dedicated buffers. Work files used during sort phase processing or other non-sort-related processing are not included in this statistics counter.

Workfile Reject Sort Merge  The total number of work files that were rejected during sort/merge because of insufficient buffer resources (Field name: QBSTWFD). This counter and QBSTWFF can be used to determine the average number of work files that cannot be honored at each sort/merge because of insufficient buffer pool space. To improve sort performance, increase the buffer pool size.

DB2 CICS Exceptions Attributes
Use the DB2 CICS Exceptions attributes to create situations to monitor thread activity originating from connected CICS subsystems.

CICS ID  The job name of the CICS region connected to this DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

CICS Release  The enumerated value for the CICS release of the CICS region connected to this DB2 system.

Originating System ID  The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Pool Thread Maximum  The maximum number of pool threads that are allowed.

Pool Thread Utilization  The utilization of pool threads based on the current pool thread in use count divided by the maximum allowed pool threads.

Pool Thread Waits  The count of pool threads that are waiting because the maximum has been reached.

Pool Threads In Use  The count of pool threads that are currently active.
**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is `CYMMDDHHMMSSmmm` (as in `1180315064501000` for 03/15/18 06:45:01) where:

- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

**Total Thread Utilization** The utilization of threads based on the current total threads in use divided by the maximum allowed threads.

**Total Threads In Use** The count of active threads for this CICS connection (including both entry and pool threads).

**Total Threads Maximum** The maximum number of threads that can be used concurrently for this CICS connection (entry plus pool threads).

**DB2 CICS Threads Attributes**

Use the DB2 CICS Threads attributes to create situations to monitor DB2 thread activity originating from connected CICS subsystems.

**CICS ID** The job name of the CICS region connected to this DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**CICS Release** The enumerated value for the CICS release of the CICS region connected to this DB2 system.

**Entry Thread Waiting** The count of threads waiting because the maximum entry thread limit has been reached.

**Entry Threads In Use** The count of active entry threads for this plan and transaction within the CICS region.

**Entry Threads Utilization** The percentage of total entry threads allowed for this plan.

**Maximum Entries** The cap on the number of entry threads allowed for this plan.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, `DB91:SYS1:DB2`.

**Plan Name** The name of the DB2 plan being executed by this CICS region. It is an alphanumeric text string, with a maximum length of eight characters.

**Pool Thread Overflow** The number of threads for this plan and transaction that is being executed on a thread from the global pool.
**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is `CYYMMDDHHMSSmmm` (as in `118031506451000` for `03/15/18 06:45:01`) where:
- **C** = Century (0 for 20th, 1 for 21st)
- **Y** = Year
- **M** = Month
- **D** = Day
- **H** = Hour
- **M** = Minute
- **S** = Second
- **m** = Millisecond

**Transaction ID** The ID for the transaction currently being executed for the plan. It is an alphanumeric text string, with a maximum length of four characters.

**DB2 Connect Server Attributes**
Use DB2 Connect Server attributes to create situations that monitor all active and inactive gateways.

**Agents Assigned from Pool** The number of agents assigned by an agent pool.

**Agents Created because of Empty Pool** The number of agents created because the agent pool was empty.

**Agents Registered** The number of agents registered in the database manager instance that is being monitored.

You can use this counter in conjunction with the **Agents - Agents waiting for token** counter to determine the percentage of agents waiting for a token so they can perform a transaction in the database manager. If the percentage is high, you can improve the concurrency in the database manager by increasing the MAXCAGENTS (maximum number of concurrent agents) database manager configuration parameter. This number is always greater than, or equal to, the number of local databases with current connects.

**Agents Waiting for Token** The number of agents waiting for a token so they can perform a transaction in the database manager.

You can use this counter in conjunction with the **Agents - Agents registered** counter to determine the percentage of "sleeping" agents. If the percentage is high, you can improve the concurrency in the database manager by increasing the MAXCAGENTS (maximum number of concurrent agents) database manager configuration parameter.

**Attempted Connections for DB2 Connect** The total number of current connections initiated from remote clients to the instance of the database manager that is being monitored. It also shows the level of activity between this instance and other instances of the database manager.

**Committed Private Memory** The amount of private memory that the instance of the database manager has committed at the time of the snapshot.
You can use this counter to set the MIN_PRIV_MEM (minimum committed private memory) database manager configuration parameter to ensure you have enough private memory available. This counter is only applicable to platforms containing an agent pool, such as OS/2.

**Connection Switches** The number of the times that an agent from the agent pool was primed with a connection and was stolen for use with a different DRDA database.

**Connection Waiting for Client to Send Request** The current number of connections to the host databases that are handled by the DB2 Connect gateway and are waiting for the client to send a request.

**Connection Waiting for Host Reply** The current number of connections to the host databases that are handled by the DB2 Connect gateway and are waiting for a reply from the host.

**Current Connections** The number of applications that are currently connected to the database.

You can use this counter to understand the level of activity within a database and the amount of system resource being used. It can help you adjust the setting of the MAXAPPLS (maximum number of applications) database configuration parameter and the MAXAGENTS (maximum number of agents) database manager configuration parameter. If its value is always the same as MAXAPPLS, you may want to increase the value of MAXAPPLS. If it is always less than MAXAPPLS, you may want to increase the value of MAXAGENTS.

**DB2 ID** The DB2 subsystem ID.

**Gateway Snapshot Time** The date and time at which the database system monitor information was collected.

**Idle Agents** The number of agents in the agent pool that are currently unassigned to an application and are, therefore, idle.

**IP Address** The current IP address.

**Maximum Agent Overflows** The number of times a request to create a new agent was received when the MAXAGENTS (maximum number of agents) database manager configuration parameter had already been reached.

**Maximum Agents Registered** The maximum number of agents that the database manager has registered at the same time since it was started.

You can use this counter to evaluate your setting of the MAXAGENTS (maximum number of agents) database manager configuration parameter. The number of agents registered at the time the snapshot was taken is recorded in the **Agents - Agents Registered** counter.

**Maximum Agents Waiting** The maximum number of agents that have been waiting for a token at the same time since the database manager was started.

You can use this counter to evaluate your setting of the MAXCAGENTS (maximum number of concurrent agents) database manager configuration parameter.
parameter. If MAXCAGENTS is set to its default value, which is -1, no agents should wait for a token and the value for this counter should be zero.

The number of agents waiting for a token at the time the snapshot was taken is recorded in the Agents Waiting for Token counter.

**Maximum Coordinating Agents** The maximum number of coordinating agents working at one time.

**MVS ID** The MVS system identifier.

**Name** The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

**Node Name** The name of the node being monitored by the database system monitor. It identifies the database server node you are monitoring.

This information can be useful if you are saving your monitor output in a file or database for later analysis and you need to differentiate the data from different database server nodes. This node name is determined based on the NNAME configuration parameter.

**Node Number** The number assigned to the node in the file with filename db2nodes and file type cfg. (db2nodes.cfg).

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Remote Connections** The current number of connections initiated from remote clients to the instance of the database manager that is being monitored.

**Remote Connections Executing in the DBM** The number of remote applications that are currently connected to a database and are currently processing a unit of work within the database manager instance being monitored.

**Server Instance Name** The name of the database manager instance for which the snapshot was taken. If a system contains more than one instance of the database manager, this name is used to uniquely identify the instance for which the snapshot call was issued. Along with configuration NNAME at monitoring (server) node, this information can be useful if you are saving your monitor output in a file or database for later analysis, and you need to differentiate the data from different instances of the database manager.

**Server Product Version ID** The product and version that is running on the server in the form pppvvrrrm.

It provides the following information:

- **ppp** stands for SQL
- **vv** identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- **rr** identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- **m** identifies a 1-digit modification level
**Server Status** Shows whether the server is active or inactive.

**Server Version** The version of the server returning the information.

**Sort Heap Allocated** The total number of allocated pages of sort heap space for all sorts at the level chosen and at the time the snapshot was taken.

The amount of memory allocated for each sort can be part of or the entire sort heap size available. Sort heap size is the amount of memory available for each sort as defined in the SORTHEAP database configuration parameter. It is possible for a single application to have concurrent sorts active. For example, in some cases a SELECT statement with a subquery can cause concurrent sorts. Information can be collected at two levels:

- At the database manager level, it represents the sum of sort heap space allocated for all sorts in all active databases in the database manager.
- At the database level, it represents the sum of the sort heap space allocated for all sorts in a database.

**Stolen Agents** The number of times that agents are stolen from an application. Agents are stolen when an idle agent associated with an application is reassigned to work on a different application.

**Time in DB2 Connect** For a DCS statement, this counter shows the elapsed time for processing an SQL request at a host database server. This value is reported by this server. In contrast to the Times for sample SQL statement - Total statement time counter, this counter does not include the network elapsed time between DB2 Connect and the host database server.

**Time in Network Connection** The total time, in seconds and microseconds, at the DB2 Connect gateway to process an application request (since the connection was established), or to process a single statement.

**Time on DB2 Host** The total time, in seconds and microseconds, that was spent executing a particular statement in the SQL cache.

**Time Stamp** The start time of this interval.

**Time Zone Displacement** The number of hours that the local time zone is displaced from Greenwich Mean Time (GMT).

**Total Inactive DRDA agents** The number of connections made by a subagent to the database at the node.

**Total Statement Time** For a DCS statement, this counter shows the elapsed time between the time the statement was sent from the DB2 Connect gateway to the host for processing and the time at which the result was received from the host.

For a DCS database or application, this counter shows the sum of the elapsed times for all the statements that were executed for a particular application or database.

This counter shows the sum of the values for the Times for sample SQL statement - Time in DB2 Connect and Times for sample SQL statement - Time in network connection counters.
DB2 Connect Server Package Attributes

Use DB2 Connect Server Package attributes to create situations that will alert you when the package network time is too high.

**Average Network Time** The result of the value for the Network time counter divided by the number of SQL chains being transferred.

**Average Request Size Outbound** The number of bytes sent by the DB2 Connect gateway to the host database, excluding communication protocol overhead, divided by the number of SQL chains being transferred.

**Average Response Size Outbound** The number of bytes received by the DB2 Connect gateway from the host database, excluding communication protocol overhead, divided by the number of SQL chains being transferred.

**DB2 Subsystem Identifier** The DB2 subsystem ID.

**Gateway Snapshot Time** The date and time at which the database system monitor information was collected.

**IP Address** The current IP address.

**MVSID** The MVS system identifier.

**Name** The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

**Node Name** The name of the node being monitored by the database system monitor. It identifies the database server node you are monitoring.

This information can be useful if you are saving your monitor output in a file or database for later analysis and you need to differentiate the data from different database server nodes. This node name is determined based on the NNAME configuration parameter.

**Node Number** The number assigned to the node in the file with filename db2nodes and file type cfg. (db2nodes.cfg).

**Network Time** The difference between the value for the Times for sample SQL statement - Total statement time counter and the value of the Times for sample SQL statement - Time on DB2 host counter. Both counters are on the Performance page.

**Originating System ID** The managed system name of the agent. It is alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Parent Database Name** The name of the remote database to which the remote application is connected.

**Server Instance Name** The name of the database manager instance for which the snapshot was taken.

If a system contains more than one instance of the database manager, this name is used to uniquely identify the instance for which the snapshot call was issued. Along with configuration NNAME at monitoring (server) node, this information...
can be useful if you are saving your monitor output in a file or database for later analysis, and you need to differentiate the data from different instances of the database manager.

**Server Product Version ID** The product and version that is running on the server in the form pppvvrrrm.

In this case, pppvvrrrm represents:
- **ppp** stands for SQL
- **vv** identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- **rr** identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- **m** identifies a 1-digit modification level

**Server Status** Shows whether the server is active or inactive.

**Server Version** The version of the server returning the information.

**Statement Group** The number of statements with outbound bytes.

**Time Stamp** The start time of this interval.

**Time Zone Displacement** The number of hours that the local time zone is displaced from Greenwich Mean Time (GMT).

**DB2 Connect Server Tasklist Attributes**
Use DB2 Connect Server Tasklist attributes to create situations that identify any process using too much CPU time or memory.

**CPU Usage Per Process** The percentage of time that a process used the CPU since the last update.

**DB2 ID** The DB2 subsystem ID.

**Gateway Process ID** The numerical ID that uniquely distinguishes a process while it runs.

**Gateway Snapshot Time** The date and time at which the database system monitor information was collected.

**IP Address** The current IP address.

**Memory Usage by Process** The current working set of a process, in kilobytes. The current working set is the number of pages currently resident in memory.

**MVSID** The MVS system identifier.

**Name** The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

**Node Name** The name of the node being monitored by the database system monitor. It identifies the database server node you are monitoring.
This information can be useful if you are saving your monitor output in a file or
database for later analysis and you need to differentiate the data from different
database server nodes. This node name is determined based on the NNAME
configuration parameter.

**Node Number** The number assigned to the node in the file with filename
db2nodes and file type cfg. (db2nodes.cfg).

**Originating System ID** The managed system name of the agent. It is an
alphanumeric text string, with a maximum of 32 characters; for example,
DB91:SYS1:DB2.

**Overall Process Time** The sum of the times contained in the System Process Time
and User Process Time columns.

**Process Name** The name of the process.

**Process Owner Name** The session ID that owns the process.

**Server Instance Name** The name of the database manager instance for which the
snapshot was taken.

If a system contains more than one instance of the database manager, this name is
used to uniquely identify the instance for which the snapshot call was issued.
Along with configuration NNAME at monitoring (server) node, this information
can be useful if you are saving your monitor output in a file or database for later
analysis, and you need to differentiate the data from different instances of the
database manager.

**Server Product Version ID** The product and version that is running on the server
in the form pppvvrrrm.

In this case pppvvrrrm represents:
- *ppp* stands for SQL
- *vv* identifies a 2-digit version number (with high-order 0 in the case of a 1-digit
  version)
- *rr* identifies a 2-digit release number (with high-order 0 in the case of a 1-digit
  release)
- *m* identifies a 1-digit modification level

**Server Status** Shows whether the server is active or inactive.

**Server Version** The version of the server returning the information.

**System Process Time** The total system CPU time, in seconds and microseconds,
used by the database manager agent process, the unit of work, or the statement.

**Time Stamp** The start time of this interval.

**Time Zone Displacement** The number of hours that the local time zone is displaced
from Greenwich Mean Time (GMT).

**User Process Time** The total user CPU time, in seconds and microseconds, used by
the database manager agent process, the unit of work, or the statement.
**DB2 Connect Server at Thread Level Attributes**

Use the DB2 Connect Server at Thread Level attributes to create situations to monitor all connected gateways of a DB2 subsystem.

**Ace Address** The DB2 thread ACE address for internal use.

**Application ID** The ID that is generated when the application connects to the database at the database manager or when Distributed Database Connection Services (DDCS) receives a request to connect to a DRDA database.

**Application Name** The name of the application running at the client as known to the database manager or DB2 Connect. Together with the Application ID counter, it can be used to relate data items with your application.

**Authorization ID** The authorization ID.

**Authid (Unicode)** The authorization ID.

**Corrid** The correlation ID.

**DB2 Connect Server at Thread Level Attributes** Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**DB2 ID** The DB2 subsystem ID.

**Gateway Snapshot Time** The date and time at which the database system monitor information was collected.

**Inbound Number of Bytes Received** The number of bytes received by the DB2 Connect gateway from the client, excluding communication protocol overhead, for example, TCP/IP or SNA headers.

**Inbound Number of Bytes Sent** The number of bytes sent by the DB2 Connect gateway to the client, excluding communication protocol overhead, for example, TCP/IP or SNA headers.

**IP Address** The current IP address.

**Most Recent Unit of Work Elapsed Time** The elapsed execution time of the most recently completed unit of work. It indicates time that it takes for units of work to complete.

**MVSID** The MVS system identifier.

**Name** The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

**Node Name** The name of the node being monitored by the database system monitor. It identifies the database server node you are monitoring.

**Node Number** The number assigned to the node in the file with filename db2nodes and file type cfg (db2nodes.cfg).
**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Outbound Application ID** Is generated when the application connects to the DRDA host database. It is used to connect the DB2 Connect gateway to the host, while the application ID is used to connect a client to the DB2 Connect gateway.

**Outbound Application ID (Internal)** Is generated when the application connects to the DRDA host database. It is used to connect the DB2 Connect gateway to the host, while the application ID is used to connect a client to the DB2 Connect gateway.

**Outbound Number of Bytes Received** The number of bytes received by the DB2 Connect gateway from the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers.

**Outbound Number of Bytes Sent** The number of bytes sent by the DB2 Connect gateway to the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers.

**Plan** The plan name.

**Server Instance Name** The name of the database manager instance for which the snapshot was taken. If a system contains more than one instance of the database manager, this name is used to uniquely identify the instance for which the snapshot call was issued. Along with configuration NNAME at monitoring (server) node, this information can be useful if you are saving your monitor output in a file or database for later analysis, and you need to differentiate the data from different instances of the database manager.

**Server Product Version ID** The product and version that is running on the server in the form pppvrrm.

In this case, pppvrrm represents
- **ppp** stands for SQL
- **vv** identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- **rr** identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- **m** identifies a 1-digit modification level

**Server Version** The version of the server that is returning the information.

**Time Stamp** The start time of this interval.

**Time Zone Displacement** The number of hours that the local time zone is displaced from Greenwich Mean Time (GMT).

**Uniqueness Value** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUU).

**Uniqueness Value 2** The DB2 thread uniqueness value. For internal use.
DB2 Connect Server at Thread Level Overview Attributes

Use the DB2 Connect Server at Thread Level attributes to create situations to monitor connected gateways of a DB2 subsystem.

Ace Address The DB2 thread ACE address for internal use.

Application Agent ID The system-wide unique ID for the application. On a single-partitioned database, this ID consists of a 16-bit counter. On a multi-partitioned database, it consists of the coordinating partition number concatenated with a 16-bit counter. In addition, it is the same on every partition where the application might make a secondary connection.

Application ID The ID that is generated when the application connects to the database at the database manager or when Distributed Database Connection Services (DDCS) receives a request to connect to a DRDA database.

It is known at both the client and the server, so you can use it to correlate the client and server parts of the application. For DDCS applications, you will also need to use the Outbound Application ID to correlate the client and server parts of the application. This ID is unique across the network. There are different formats for the application ID, which are dependent on the communication protocol between the client and the server machine on which the database manager, the DDCS, or both, are running. Each of the formats consists of three parts separated by periods.

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Format</th>
<th>Example</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPC</td>
<td>Network.Logical Unit Name.Application instance</td>
<td>CAIBMTOR.OSFDBX0930131194520</td>
<td>This application ID is the displayable format of an actual SNA LUWID (logical unit-of-work ID) that flows on the network when an APPC conversation is allocated. APPC-generated application IDs are made up by concatenating the network name, the Logical Unit name, and the LUWID instance number, which create a unique label for the client/server application. The network name and Logical Unit name can each be a maximum of 8 characters. The application instance corresponds to the 12-decimal-character LUWID instance number.</td>
</tr>
<tr>
<td>Protocol</td>
<td>Format</td>
<td>Example</td>
<td>Details</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>IPAddr.Port.Application instance</td>
<td>A12CF9E8.3F0A.930131214645</td>
<td>A TCP/IP-generated application ID is made up by concatenating the IP address in hexadecimal characters, the port number (4 hexadecimal characters), and a unique ID for the instance of this application. The IP address is a 32-bit number displayed as a maximum of 8 hexadecimal characters.</td>
</tr>
</tbody>
</table>
| IPX/SPX  | Netid.nodeid.Application instance | 011A8E5C.40001152820131214645 | An IPX/SPX-generated application ID is made up by concatenating a character network ID (8 hexadecimal characters), a node ID (12 hexadecimal characters), and a unique ID for the instance of the application. The application instance corresponds to a 10-decimal-character timestamp of the form mmddhhmmss, where:  
  - M = Month  
  - D = Day  
  - H = Hour  
  - M = Minute  
  - S = Second |
<table>
<thead>
<tr>
<th>Protocol</th>
<th>Format</th>
<th>Example</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>NetBIOS</td>
<td>*NETBIOS.nname. Application instance</td>
<td>*NETBIOS.SBOIVIN. 930131214645</td>
<td>For nonpartitioned database systems, a NetBIOS application ID is made up by concatenating the string *NETBIOS, the NNAME defined in the database configuration file for the client, and a unique ID for the instance of this application. For partitioned database systems, a NetBIOS application ID is made up by concatenating the string N xxx.etc where xxx is the partition the application is attached to.</td>
</tr>
<tr>
<td>Local applications</td>
<td>*LOCAL.DB2 instance.Application instance</td>
<td>*LOCAL.DB2INST1. 930131235945</td>
<td>The application ID generated for a local application is made up by concatenating the string *LOCAL, the name of the DB2 instance, and a unique ID for the instance of this application.</td>
</tr>
</tbody>
</table>

**Application Idle Time** The number of seconds since an application issued any requests to the server. This includes applications that have not terminated a transaction, for example, not issued a commit or rollback. You can use this information to implement applications that force users that have been idle for a specified number of seconds.

**Application Name** The name of the application running at the client as known to the database manager or DB2 Connect. Together with the **Application ID** counter, it can be used to relate data items with your application.

**Application Status Change Time** The date and time the application entered its current status. This counter allows you to determine how long an application has been in its current status. If it has been in the same status for a long period of time, this can indicate a problem.

**Authorization ID** Shows the authorization ID of the user who invoked the application that is being monitored. On a DB2 Connect gateway node, this is the authorization ID of the user on the host.

**Authorization ID** The authorization ID.

**Authid (Unicode)** The authorization ID.
Client Communication Protocol  The communication protocol that the client application is using to communicate with the server. You can use this counter for problem determination on remote applications.

Valid values for this counter are:
• API Constant Communication Protocol
• SQLM PROT_UNKNOWN (Note 1)
• SQLM PROT_LOCAL none (Note 2)
• SQLM PROT APPC APPC
• SQLM PROT TCPIP TCP/IP
• SQLM PROT IPXSPX IPX/SPX
• SQLM PROT NETBIOS NETBIOS

Note: The client is communicating using an unknown protocol. This value is only returned if future clients connect with a down-level server. The client is running on the same node as the server and no communications protocol is in use.

Client Operating Platform  The operating system on which the client application is running. You can use this counter for problem determination on remote applications.

Client Process ID  The process ID of the client application that made the connection to the database. You can use this counter to correlate monitor information such as CPU and I/O time to your client application. In the case of a DRDA-AS connection, this counter is set to 0.

Client Product Version ID  The product and version that is running on the client. You can use this counter to identify the product and code version of the database client. It is in the form  pppvvvrrm, where:
•  ppp stands for SQL
•  vv identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
•  rr identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
•  m identifies a 1-digit modification level

Code Page Used by Application  The code page ID. For snapshot monitor data, this is the code page at the partition where the monitored application started. This ID can be used for problem determination for remote applications. You can use this information to ensure that data conversion is supported between the application code page and the database code page or, for DRDA host databases, the host coded character set ID (CCSID). For event monitor data, this is the code page of the database for which event data is collected. You can use this counter to determine whether your event monitor application is running under a different code page from that used by the database. Data written by the event monitor uses the database code page. If your event monitor application uses a different code page, you might need to perform some character conversion to make the data readable.

Commit Statements Attempted  The total number of SQL COMMIT statements that have been attempted.
A small change rate in this counter during the monitor period can indicate that applications do not commit frequently, which can lead to problems with logging and data concurrency. You can also use this counter to calculate the total number of units of work by calculating the sum of the following:

\[
(\text{Commit statements attempted}) + (\text{Internal commits}) + (\text{Rollback statements attempted}) + (\text{Internal rollbacks})
\]

**Configuration Name of Client** The NNAME in the database manager configuration file at the client node. You can use this counter to identify the client node that is running the application.

**DB2 Connect Server at Thread Level Overview Attributes** Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**Corrid** The correlation ID.

**Database Alias at the Gateway** The alias used at the DB2 Connect gateway to connect to the host database. Use this counter for problem determination on DCS applications.

**DB2 Connect First Connect** The date and time at which the first connection to the host database was initiated from the DB2 Connect gateway. Use this counter for problem determination on DCS applications.

**DB2 ID** The DB2 subsystem ID.

**DCS Application Status** The current status of the application. It can help you diagnose potential application problems.

**DCS Database Name** The name of the remote database as cataloged in the DCS directory. Use this counter for problem determination on DCS applications.

**Elapsed Time DB2CONN Execution** Shows the time, in seconds and microseconds, at the DB2 Connect gateway to process an application request (since the connection was established), or to process a single statement. Use this counter to determine what portion of the overall processing time is due to DB2 Connect gateway processing.

**Failed Statement Percentage** The number of statements that were attempted, but failed.

**Failed Statements Operations** The number of SQL statements that were attempted, but failed.

You can use this counter to calculate the total number of successful SQL statements at the database or application level:

\[
(\text{Dynamic SQL statements attempted}) + (\text{Static SQL statements attempted}) - (\text{Failed statement operations})
\]

This count includes all SQL statements that received a negative SQLCODE. This counter might also help you determine the reasons for poor performance because failed statements mean time wasted by the database manager and, as a result, lower throughput for the database.

**Gateway Snapshot Time** The date and time at which the database system monitor information was collected.
Host Coded Character Set ID The coded character set ID (CCSID) of the host database. Use this counter for problem determination on DCS applications.

Host Database Name The real name of the host database for which information is being collected or to which the application is connected. This is the name that was given to the database when it was created. Use this counter for problem determination on DCS applications.

Host Product Version ID The product and version that is running on the server.

This counter is used to identify the product and code version of the DRDA host database product. It is in the form pppvvvrrm, where:

- **ppp** identifies the host DRDA product:
  - ARI for DB2 for VSE & VM
  - DSN for DB2 for OS/390 and z/OS
  - QSQ for DB2 UDB for AS/400
  - SQL for other DB2 products
- **vv** identifies a 2-digit version number (with high-order 0 in the case of a 1-digit version)
- **rr** identifies a 2-digit release number (with high-order 0 in the case of a 1-digit release)
- **m** identifies a 1-digit modification level

Inbound Bytes Received The number of bytes received (measured in 1000-byte increments) by the DB2 Connect gateway from the client, excluding communication protocol overhead (for example, TCP/IP or SNA headers). Use this counter to measure the throughput from the client to the DB2 Connect gateway.

Inbound Communication Address The communication address of the client. For example, it could be an SNA net ID and Logical Unit partner name, or an IP address and port number for TCP/IP. Use this counter for problem determination on DCS applications.

IP Address The current IP address.

Last Reset Timestamp The date and time that the monitor counters were reset for the application issuing the GET SNAPSHOT. You can use this counter to determine the scope of information returned by the database system monitor. If the database manager counters have never been reset, the value for this counter is zero. The database manager counters is only reset if you reset all active databases.

Most Recent Unit of Work Elapsed Time The elapsed execution time of the most recently completed unit of work. It indicates time that it takes for units of work to complete.

MVSID The MVS system identifier.

Name The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

Number of Open Cursors The number of cursors currently open for an application. Use this counter to assess how much memory is being allocated. The amount of memory allocated by the DB2 client, DB2 Connect, or the database agent on the target database is related to the number of cursors that are currently open.
open. Knowing this information can help with capacity planning. For example, each open cursor that is blocking has a buffer size as specified by the RQRIOBLK database manager configuration parameter. If DEFERRED_PREPARE is enabled, two buffers are allocated.

**Number of SQL Statements Attempted** The number of SQL statements that have been attempted since the latter of: application startup, database activation, or last reset. For a data transmission, this is the number of SQL statements that have been attempted against this DCS database or in this DCS application since the database was activated, the connection to it was established by the application, or RESET MONITOR was issued against the database, and that used this number of data transmissions between the DB2 Connect gateway and the host during statement processing. Use this counter to measure the database activity for a database or application. To calculate the SQL statement throughput for a given period, you can divide this counter by the elapsed time between two snapshots. For a data transmission, use this counter to get statistics on how many statements used two, three, four, etc. data transmissions during their processing. At least two data transmissions are necessary to process a statement: a send and a receive. These statistics can give you a better idea of the database or application activity and network traffic for a database or an application.

**Number of Transmissions** The number of data transmissions between the DB2 Connect gateway and the host that was used to process this DCS statement. (One data transmission consists of one send or one receive.) Use this counter to get a better understanding of the reasons why a particular statement took longer to execute. For example, a query returning a large result set might need many data transmissions to complete.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Outbound Application ID** This ID is generated when the application connects to the DRDA host database. It is used to connect the DB2 Connect gateway to the host, while the application ID is used to connect a client to the DB2 Connect gateway.

You can use this counter in conjunction with the **Application ID** counter to correlate the client and server parts of the application information. This ID is unique across the network.
### Network Logical Unit Name Application instance

**Example:** CAIBMTOR.OSFDBM0.930131

**Details:** This application ID is the displayable format of an actual SNA LUWID (logical unit-of-work ID) that flows on the network when an APPC conversation is allocated. APPC-generated application IDs are made up by concatenating the network name, the Logical Unit name, and the LUWID instance number, which creates a unique label for the client/server application. The network name and Logical Unit name can each be a maximum of 8 characters. The application instance corresponds to the 12-decimal-character LUWID instance number.

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**Outbound Application ID Internal** The interval for the Outbound Application ID.

**Outbound Communication Address** The communication address of the target database. For example, it could be an SNA net ID and Logical Unit partner name, or an IP address and port number for TCP/IP. Use this counter for problem determination on DCS applications.

**Outbound Communication Protocol** The communication protocol used between the DB2 Connect gateway and the host. Use this counter for problem determination on DCS applications.

Valid values are:

- SQLM_PROT_APPC
- SQLM_PROT_TCPIP

**Outbound Sequence Number** Reserved for future use. In this release, its value will is always 0001. It can contain different values in future releases of the product.

**Previous Unit of Work Completion Timestamp** The time when the previous unit of work was completed.

You can use this counter with the **Overall transaction data - Unit of work stop timestamp** counter to calculate the total elapsed time between COMMIT or ROLLBACK points, and with the **Overall transaction data - Unit of work start timestamp** counter to calculate the time spent in the application between units of work:

- For applications currently within a unit of work, this is the time at which the latest unit of work completed.
- For applications not currently within a unit of work (the application has completed a unit of work, but not yet started a new one), this is the stop time of...
the last unit of work that completed prior to the one that just completed. The stop time of the one just completed is indicated by the Overall transaction data - Unit of work stop timestamp counter.

- For applications within their first unit of work, this is the database connection request completion time.

**Plan** The plan name.

**Rollback Statements Attempted** The total number of SQL ROLLBACK statements that have been attempted.

A ROLLBACK can result from an application request, a DEADLOCK, or an error situation. This counter only includes the number of ROLLBACK statements issued from applications. For an application, this counter can help you determine the level of database activity for the application and the amount of conflict with other applications. For a database, it can help you determine the amount of activity in the database and the amount of conflict between applications running on the database.

**Note:** Try to minimize the number of rollbacks because higher rollback activity results in lower throughput for the database.

You can also use this counter to calculate the total number of units of work, by calculating the sum of the following:

\[\text{(Commit statements attempted) + (Internal commits) + (Rollback statements attempted) + (Internal rollbacks)}\]

**Row Selected** The number of rows that have been selected and returned to the application.

You can use this counter to gain insight into the current level of activity within the database. This counter does not include a count of rows read for actions, such as COUNT(*) or joins. For a federated system you can calculate the average time to return a row to the federated server from the data source:

\[\text{average time} = \frac{\text{rows returned}}{\text{aggregate query response time}}\]

You can use these results to modify CPU speed or communication speed parameters in $\text{SYS}CAT\text{.SER}VERS$. Modifying these parameters can impact whether the optimizer does or does not send requests to the data source.

**Sequence Number** Is incremented whenever a unit of work ends, that is, when a COMMIT or ROLLBACK terminates a unit of work.

Together with the Application ID counter, this counter uniquely identifies a transaction.

**Server Instance Name** The name of the database manager instance for which the snapshot was taken. If a system contains more than one instance of the database manager, this name is used to uniquely identify the instance for which the snapshot call was issued. Along with configuration NNAME at monitoring (server) node, this information can be useful if you are saving your monitor output in a file or database for later analysis, and you need to differentiate the data from different instances of the database manager.

**Time Stamp** The start time of this interval.
**Transaction ID** The unique transaction ID across all databases generated by a transaction manager in a two-phase commit transaction.

You can use this ID to correlate the transaction generated by the transaction manager with the transactions executed against multiple databases. In addition, it can help you diagnose transaction manager problems by tying database transactions that involve a two-phase commit protocol with the transactions that are originated by the transaction manager.

**Total Inbound Bytes Sent** The number of bytes (measured in 1000-byte increments) sent by the DB2 Connect gateway to the client, excluding communication protocol overhead, for example, TCP/IP or SNA headers. Use this counter to measure the throughput from the DB2 Connect gateway to the client.

**Total Host Response Time** For a DCS statement, this is the elapsed time between the time that the statement was sent from the DB2 Connect gateway to the host for processing and the time when the result was received from the host.

For a DCS database or DCS application, it is the sum of the elapsed times for all the statements that were executed for a particular database or application. For a data transmission, this is the sum of host response times for all the statements that used this many data transmissions. Use this counter with the **Overall transaction data - Total outbound bytes sent** and **Overall transaction data - Total out bytes received** counters to calculate the outbound response time (transfer rate):

\[
\frac{(\text{Total outbound bytes sent}) + (\text{Total out bytes received})}{\text{Total host response time}}
\]

**Total Outbound Bytes Received** The number of bytes (measured in 1000-byte increments) received by the DB2 Connect gateway from the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers. For a data transmission, this is the number of bytes received by the DB2 Connect gateway from the host during the processing of all the statements that used this number of data transmissions. Use this counter to measure the throughput from the host databases to the DB2 Connect gateway.

**Total Outbound Bytes Sent** The number of bytes sent (measured in 1000-byte increments) by the DB2 Connect gateway to the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers. For a data transmission, this is the number of bytes sent by the DB2 Connect gateway to the host during the processing of all the statements that used this number of data transmissions. Use this counter to measure the throughput from the DB2 Connect gateway to the host database.

**Total Statement Execution Elapsed Time** For a DCS statement, this is the elapsed time spent processing an SQL request on a host database server. This value is reported by this server. In contrast to the **Overall transaction data - Total host response time** counter, this counter does not include the network elapsed time between DB2 Connect and the host database server. At other levels, this value represents the sum of the host execution times for all the statements that were executed for a particular database or application, or for those statements that used a given number of data transmissions. Use this counter, along with other elapsed time monitor elements, to evaluate the processing of SQL requests by the database server and to help isolate performance issues. Subtract the value for this counter from the value for the **Overall transaction data - Total host response time** counter to calculate the network elapsed time between DB2 Connect and the host database server.
Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

Unit of Work Completion Status The status of the unit of work and how it stopped.

You can use this counter to determine if the unit of work ended due to a DEADLOCK or abnormal termination. It can be:

- Committed due to a commit statement
- Rolled back due to a rollback statement
- Rolled back due to a deadlock
- Rolled back due to an abnormal termination
- Committed at normal application termination
- Unknown as a result of a FLUSH EVENT MONITOR command for which units of work were in progress

Note: API users should refer to the sqlmon.h header file containing definitions of database system monitor constants.

Unit of Work Start Timestamp The date and time at which the unit of work first required database resources.

This resource requirement occurs at the first SQL statement execution of that unit of work:

- For the first unit of work, it is the time of the first database request (SQL statement execution) after the date and time that a connection request was granted.
- For subsequent units of work, it is the time of the first database request (SQL statement execution) after the previous COMMIT or ROLLBACK.

The database system monitor excludes the time spent between the COMMIT/ROLLBACK and the next SQL statement from its definition of a unit of work. This measurement method reflects the time spent by the database manager in processing database requests, separate from the time spent in the application before the first SQL statement of that unit of work. The unit-of-work elapsed time does include the time spent running the application between SQL statements within the unit of work. You can use this counter with the Overall transaction data - Unit of work stop timestamp counter to calculate the total elapsed time of the unit of work and with the Overall transaction data - Previous Unit of Work completion timestamp counter to calculate the time spent in the application between units of work. You can use the Overall transaction data - Unit of work stop timestamp and Overall transaction data - Previous Unit of Work completion timestamp counters to calculate the elapsed time for a unit of work.

Unit of Work Stop Timestamp The date and time at which the most recent unit of work completed, which occurs when database changes are committed or rolled back.

You can use this counter with the Overall transaction data - Previous Unit of Work completion timestamp counter to calculate the total elapsed time between COMMIT or ROLLBACK points, and with the Overall transaction data - Unit of
**work start timestamp** counter to calculate the elapsed time of the latest unit of work. The timestamp contents are set as follows:

- When the application has completed a unit of work and has not yet started a new one (as defined by the **Overall transaction data - Unit of work start timestamp** counter). This counter is a valid, nonzero timestamp.
- When the application is currently executing a unit of work, this counter contains zeros.
- When the application first connects to the database, this counter is set to the connection completion time.

As a new unit of work is started, the contents of this counter are moved to the **Overall transaction data - Previous Unit of Work completion timestamp** counter.

**User Login ID** Shows the ID that the user specified when logging in to the operating system. This ID differs from authorization ID, which the user specifies when connecting to the database. You can use this counter to determine the operating system user ID of the individual running the application that you are monitoring.

**DB2 Connect Server at Thread Level Package Attributes**

Use **DB2 Connect Server at Thread Level Package attributes** to create situations that identify any statement with long elapsed time.

**Ace Address** The DB2 thread ACE address for internal use.

**Application ID** The ID that is generated when the application connects to the database at the database manager or when Distributed Database Connection Services (DDCS) receives a request to connect to a DRDA database. It is known at both the client and the server, so you can use it to correlate the client and server parts of the application. For DDCS applications, you will also need to use the **Outbound Application ID** to correlate the client and server parts of the application.

**Application Name** The name of the application running at the client as known to the database manager or DB2 Connect. Together with the **Application ID** counter, it can be used to relate data items with your application.

**Authorization ID** The authorization ID.

**Authid (Unicode)** The authorization ID.

**Corrid** The correlation ID.

**DB2 Connect Server at Thread Level Package Attributes** Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**DB2 ID** The DB2 subsystem ID.

**Gateway Snapshot Time** The date and time at which the database system monitor information was collected.

**IP Address** The current IP address.

**Max Data Rcvd** The number of statements with outbound bytes received.
The following are valid ranges:

128 1 through 128 statements with outbound bytes received.

256 129 through 256 statements with outbound bytes received.

512 257 through 512 statements with outbound bytes received.

1024 513 through 1024 statements with outbound bytes received.

2048 1025 through 2048 statements with outbound bytes received.

4096 2049 through 4096 statements with outbound bytes received.

8192 4097 through 8193 statements with outbound bytes received.

16384 8194 through 16384 statements with outbound bytes received.

31999 16385 through 31999 statements with outbound bytes received.

64000 32000 through 64000 statements with outbound bytes received.

GT64K Greater than 64000 statements with outbound bytes received.

Use this counter to get a better idea of the database activity and network traffic at a database or application.

Max Data Sent The number of statements with outbound bytes sent.

The following are valid ranges:

128 1 through 128 statements with outbound bytes sent.

256 129 through 256 statements with outbound bytes sent.

512 257 through 512 statements with outbound bytes sent.

1024 513 through 1024 statements with outbound bytes sent.

2048 1025 through 2048 statements with outbound bytes sent.

4096 2049 through 4096 statements with outbound bytes sent.

8192 4097 through 8193 statements with outbound bytes sent.

16384 8194 through 16384 statements with outbound bytes sent.

31999 16385 through 31999 statements with outbound bytes sent.

64000 32000 through 64000 statements with outbound bytes sent.

GT64K Greater than 64000 statements with outbound bytes sent.

Use this counter to get a better idea of the database activity and network traffic at a database or application.
Max Time The number of statements whose network time was within the indicated time range. Network time is the difference between the host response time and the elapsed execution time for a statement.

The following are valid network time ranges:

**2 ms** Less than, or equal to, 2 milliseconds.

**4 ms** Greater than 2 milliseconds but less than, or equal to, 4 milliseconds.

**8 ms** Greater than 4 milliseconds but less than, or equal to, 8 milliseconds.

**16 ms** Greater than 8 milliseconds but less than, or equal to, 16 milliseconds.

**32 ms** Greater than 16 milliseconds but less than, or equal to, 32 milliseconds.

**GT32 ms** Greater than 32 milliseconds.

Use this counter to get a better idea of the database activity and network traffic at a database or application.

MVSID The MVS system identifier.

Name The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Outbound Application ID This ID is generated when the application connects to the DRDA host database. It is used to connect the DB2 Connect gateway to the host, while the application ID is used to connect a client to the DB2 Connect gateway.

Outbound Application ID Internal The interval for the Outbound Application ID.

Outbound Data Received The number of bytes received by the DB2 Connect gateway from the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers. For a data transmission, this is the number of bytes received by the DB2 Connect gateway from the host during the processing of all the statements that used this number of data transmissions.

Use this counter to measure the throughput from the host databases to the DB2 Connect gateway.

Outbound Data Received Bottom The lowest number of bytes received per statement by the DB2 Connect gateway from the host during the processing of all the statements against this DCS database, or in this DCS application, that used this number of data transmissions.

Use this counter in conjunction with Outbound Data Received counter as another parameter that illustrates the throughput from the host database to the DB2 Connect gateway.
**Outbound Data Received Top** The maximum number of bytes received per statement by the DB2 Connect gateway from the host during the processing of all the statements against this DCS database, or in this DCS application, that used this number of data transmissions.

Use this counter in conjunction with **Outbound Data Received** counter as another parameter that illustrates the throughput from the host database to the DB2 Connect gateway.

**Outbound Data Sent** The number of bytes sent by the DB2 Connect gateway to the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers. For a data transmission, this is the number of bytes sent by the DB2 Connect gateway to the host during the processing of all the statements that used this number of data transmissions.

Use this counter to measure the throughput from the DB2 Connect gateway to the host database.

**Outbound Data Sent Bottom** The lowest number of bytes sent per statement by the DB2 Connect gateway to the host during the processing of all the statements against this DCS database, or in this DCS application, that used this number of data transmissions.

Use this counter in conjunction with **Outbound Data Sent** counter as another parameter that illustrates the throughput from the DB2 Connect Gateway to the host database.

**Outbound Data Sent Top** The maximum number of bytes sent per statement by the DB2 Connect gateway to the host during the processing of all the statements against this DCS database, or in this DCS application, that used this number of data transmissions.

Use this counter in conjunction with **Outbound Data Sent** counter as another parameter that illustrates the throughput from the DB2 Connect Gateway to the host database.

**Plan** The plan name.

**Server Instance Name** The name of the database manager instance for which the snapshot was taken.

**Time Stamp** The start time of this interval.

**Uniqueness Value** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

**Uniqueness Value 2** The DB2 thread uniqueness value. For internal use.

**DB2 DDF CONV Attributes**

Use the DB2 DDF CONV attributes to create situations to monitor conversation (connection between two transaction programs) information.

**Conversation LOGMODE** The conversation ID (LOGMODE Name). It is an alphanumeric text string, with a maximum length of eight characters.
**Conversation LUNAME** The conversation ID (LUNAME Name). It is an alphanumeric text string, with a maximum length of eight characters.

**Conversation Utilization** The percentage of maximum conversations that is currently in use. Valid entry ranges from 0.0 to 100.0.

**Conversation Waits** The count of processes waiting because the conversation limit has been reached.

**Conversations In Use** The current count of conversations.

**Conversations Max** The maximum number of concurrent conversations allowed as derived from CNOS.

**Conversations Other Limit** The maximum number of concurrent conversations defined in CDB.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:

- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

**DB2 DDF STAT Attributes**
Use the DB2 DDF STAT attributes to create situations to monitor Distributed Database Facility statistics.

**Aborts Received** The number of aborts received from remote location.

**Aborts Sent** The number of aborts sent to remote location.

**Agent Elapsed Time** The elapsed time at the local site spent processing for the remote site (in units that represent tenths of seconds).

**Block Mode Switches** The count of block mode switches performed.

**Blocks Received** The blocks received from remote location.

**Blocks Sent** The blocks sent to remote location.

**Commits Received** The number of commits received from remote location.
Commits Sent The number of commits sent to remote location.

Conversations Initiated Local The number of conversations initiated by local side of connection.

Conversations Initiated Remote The number of conversations initiated by remote side of connection.

Conversations Allocated The conversations allocated.

Conversations Deallocated The conversations deallocated.

Conversations Queued The number of conversations queued.

Coordinator Backouts Received The number of backout requests received from coordinator (2-phase commit only).

Coordinator Backouts Sent The number of backout requests sent to the coordinator (2-phase commit only).

Coordinator Commits Received The number of commit requests received from coordinator (2-phase commit only).

Coordinator Commits Sent The number of commit requests sent to the coordinator (2-phase commit only).

Coordinator Forgets Sent The number of forget response requests sent to the coordinator (2-phase commit only).

Data Bytes Received The number of data bytes received from the remote location.

Data Bytes Sent The number of data bytes sent to the remote location.

Data Rows Received The number of data rows received from the remote location.

Data Rows Sent The number of data rows sent to the remote location.

DB Access CPU Time The database access agent CPU time at the remote site (in units that represent milliseconds).

Directed Access The type of directed access.

Elapsed DB Access The elapsed database access agent time at the remote site (in units that represent tenths of seconds).

Interval Time The number of seconds since last sample (in units that represent seconds).

Last Agent Request Received The number of last agent requests received from initiator (2-phase commit only).

Last Agent Request Sent The number of last agent requests sent to coordinator (2-phase commit only).

Local Elapsed Time The elapsed time, in tenths of a second, for local thread (in units that represent tenths of seconds).
Maximum Conversations  The maximum conversations allowed.

Message Buffer Rows  The message buffer rows.

Messages Received  The number of messages received from remote location.

Messages Sent  The number of messages sent to remote location.

Originating System ID  The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Participant Backouts Received  The number of backout requests received from participant (2-phase commit only).

Participant Backouts Sent  The number of backout requests sent to the participant (2-phase commit only).

Participant Commits Received  The number of commit requests received from participant (2-phase commit only).

Participant Commits Sent  The number of commit requests sent to the participant (2-phase commit only).

Participant Forgets Received  The number of forget requests received from participant (2-phase commit only).

Prepare Requests Received  The number of prepare requests received from participant (2-phase commit only).

Prepare Requests Sent  The number of prepare requests sent to participant (2-phase commit only).

Protocol Used  The protocol used for this conversation. It is an alphanumeric text string, with a maximum length of 12 characters.

Remote Binds  The binds from remote access.

Remote Commit Operations  The number of commit operations performed with the remote location as COORD.

Remote CPU Time  The CPU time for remote system in milliseconds (in units that represent milliseconds).

Remote Elapsed Time  The elapsed time for remote thread in tenths of a second (in units that represent tenths of seconds).

Remote In Doubt Threads  The number of threads that went in doubt with the remote location as COORD.

Remote Location Name  The name of the remote system to which this thread is connected. It is an alphanumeric text string, with a maximum length of 12 characters.
**Remote Logical Unit Name** The LUNAME of the connection to the remote DB2 system. It is an alphanumeric text string, with a maximum length of eight characters.

**Remote Product ID** The remote product ID. It is an alphanumeric text string, with a maximum length of eight characters.

**Remote Rollback Operations** The number of rollback operations performed with the remote location as COORD.

**SQL Calls Received** The number of SQL calls received from the remote location.

**SQL Calls Sent** The number of SQL calls made to the remote location.

**Thread Token** The attribute that ties this entry to the owning thread by using the thread token as a foreign key.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is `CYYMMDDHHMMSSmmm` (as in 1180315064501000 for 03/15/18 06:45:01) where:

- **C** = Century (0 for 20th, 1 for 21st)
- **Y** = Year
- **M** = Month
- **D** = Day
- **H** = Hour
- **M** = Minute
- **S** = Second
- **m** = Millisecond

**Transactions Received** The number of Transactions received from remote location.

**Transactions Sent** The number of transactions sent to remote location.

**DB2 GBP CF Statistics Attributes**

**Changed Page Write Hit Counter Secondary GBP** The number of successful coupling facility write requests for changed pages (Field name: QW02542W).

**Changed Page Write Hit Counter** This is the number of times a coupling facility write request for a changed page successfully completed (Field name: QW0254WH).

**Clean Page Write-Hit Counter** This is the number of times a coupling facility write request for a clean page completed successfully (Field name: QW0254WC).

**DB2 Subsystem** The DB2 subsystem ID.

**DB2 Version** The DB2 version.

**DSG Member Name** The Data Sharing Group (DSG) member name.
Data Entry Counter of Secondary GBP  The data-entry counter for the secondary group buffer pool (GBP). This is the snapshot value of the number of allocated data entries (Field name: QW02542T).

Data Entry Reclaim Counter  This is the number of times a name assignment required that a data page must be reclaimed by the coupling facility (Field name: QW0254TR).

Data Sharing Group  The data sharing group name.

Dir Counter for Secondary Group Buffer Pool  The directory-entry counter for the secondary group buffer pool. This is the snapshot value of the number of allocated directory entries (Field name: QW02542D).

Directory Entry Reclaim Counter  This is the number of times a name assignment required that a directory entry must be reclaimed by the coupling facility (Field name: QW0254DR).

Explicit XI Requests  This is the number of times that a request was made to the coupling facility to explicitly cross-invalidate a page. XI signals were sent because the named page was cached in one or more DB2 buffer pools (Field name: QW0254CI).

Global Group Buffer Pool Name  The name of the global group buffer pool for which statistics are reported (Field name: QW0254GC).

Global Group Buffer Pool ID  The number of the global group buffer pool for which statistics are reported (Field name: QW0254GN).

Interval Start  The start time of this interval.

MVS System ID  The MVS identifier.

Number of Allocated Data Entries (snapshot)  This is the number of data entries allocated for the coupling facility cache structure (DB2 group buffer pool). Data entries are the actual places where the data page resides. This is a snapshot value and is not affected by whether this is an incremental or cumulative display (Field name: QW0254TE).

Number of Allocated Directory Entries (Snapshot)  This is the number of directory entries allocated for the coupling facility cache structure (DB2 group buffer pool). A directory entry contains control information for one database page. A directory entry is used by the coupling facility to determine where to send cross-invalidation signals when a page of data is changed or when the directory entry must be reused. This is a snapshot value and is not affected by whether this is an incremental or cumulative display (Field name: QW0254DE).

Number of Castout Operations Performed  This is the number of castout operations performed. Castout is the process of writing pages from the group buffer pool to DASD (Field name: QW0254CC).

Number of Data Entries in Changed State  The total changed counter. This is the snapshot value of the current number of changed pages. The displayed value of this counter is not affected by whether this is an incremental or cumulative display (Field name: QW0254WH).
Originating System The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Read Count The total read count (Field name: SW254RDC).

Read Hit Counter This is the number of times that a page was returned on a coupling facility read request (Field name: QW0254RH).

Read Hit Percent The percentage of read hits (Field name: SW254RHR).

Read Miss Directory Hit Counter This is the number of times that a coupling facility read request specified a page for which a directory entry exists, but no data was cached for that page (Field name: QW0254RD).

Read Miss Assignment Suppressed Counter This is the number of times that a coupling facility read request specified a page for which no directory entry exists and no directory entry is created. DB2 does not create a directory entry when it does not need to register the page to the coupling facility for cross-invalidation (XI) because no other DB2 in the group has R/W interest in the page set or partition. This counter also represents the number of times that pages are deregistered due to buffer stealing (Field name: QW0254RS).

Read Miss Cache Full Counter This is the number of times that a coupling facility read request specified a page for which no directory entry exists and no directory entry is created because of a lack of storage in the group buffer pool. A nonzero value in this field indicates that the backing coupling facility cache structure size might be too small to support the current workload (Field name: QW0254RF).

Read Miss Name Assigned This is the number of times that a coupling facility read request specified a page for which a directory entry was created (Field name: QW0254RN).

Total Changed Counter for Secondary GBP This is the snapshot value of the number of allocated data entries that are currently in changed state (Field name: QW02542C).

Write Miss Secondary Cache Full Counter This is the number of coupling facility write requests that could not complete because of insufficient coupling facility storage resources (Field name: QW02542F).

Write Miss Cache Full Counter This is the number of times a coupling facility write request was not completed because of a lack of storage in the group buffer pool. A value in this field indicates that the data page resources of the coupling facility are being consumed faster than the DB2 castout process can free them. For more information about alleviating this condition refer to DB2 data sharing, planning and administration (Field name: QW0254WF).

XI Directory Entry Reclaim Counter This is the number of times a directory entry was reclaimed (stolen) and cross-invalidation (XI) signals had to be sent (that is, the stolen directory entry had registered DB2 interest). A high number might indicate a problem. Check the group buffer pool hit ratio to determine if the lack of directory entries might be causing excessive reads from the group buffer pool (Field name: QW0254XR).

DB2 Group Buffer Pool (GBP) Attributes

Use these attributes to view the DB2 group buffer pool (GBP).
**Asynch GBP Requests** The number of asynchronous requests for the primary group buffer pool (Field name: QBGLHS).

**Castout Class Threshold** The number of times group buffer pool castout was initiated because the class castout threshold was detected (Field name: QBGLCT).

**Clean Pages Written Async** The number of clean pages asynchronously written to the group buffer pool (Field name: QBGLAC).

**DB2 Subsystem** The DB2 subsystem ID.

**DB2 Version** The DB2 version.

**DSG Member Name** The Data Sharing Group (DSG) member name.

**Data Sharing Group** The Data Sharing Group name.

**Delete Name** The number of group buffer pool requests to delete all directory and data entries for a page set or partition. DB2 issues this request when it converts a page set or partition from GBP-dependent to non GBP-dependent. For objects defined with GBPCACHE ALL, DB2 issues this request when the first DB2 member opens the object (Field name: QBGLDN).

**Explicit Cross-Invalidation** The number of explicit cross-validations (Field name: QBGLEX).

**GBP Checkpoints Triggered** The number of group buffer pool checkpoints triggered by this member (Field name: QBGLCK).

**Group Buffer Castout Threshold** The number of times group buffer pool castout was initiated because the group buffer pool castout threshold was detected (Field name: QBGLGT).

**Group Buffer Pool ID** The group buffer pool ID (Field name: QBGLGN).

**Group Buffer Pool Name** The group buffer pool name (Field name: QBGLGNC).

**Hit Ratio** The hit ratio (Field name: SGBPHITP).

**Interval Start** The start time of this interval.

**MVS System ID** The MVS identifier.

**Number of Write and Register requests** The number of write and register (WAR) requests. one page is written for each request (Field name: QBGLWS).

**Originating System** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; example, DB91:SYS1:DB2.

**Page Locks For Data Pages** The number of page P-lock requests for data pages (Field name: QBGLP2).

**Page Locks For Index Pages** The number of page P-lock requests for index leaf pages (Field name: QBGLP3).
**Page Locks For Space Maps** The number of page P-lock requests for space map pages (Field name: QBGLP1).

**Page P-Lock Suspensions for Space Maps** The number of page P-lock suspensions for space map pages (Field name: QBGLS1).

**Page P-Lock Suspensions for Data Pages** The number of page P-lock suspensions for data pages (Field name: QBGLS2).

**Page P-Lock Suspensions for Index Leaf Pages** The number of page P-lock suspensions for index leaf pages (Field name: QBGLS3).

**Page Unlocks** The number of page P-lock unlock requests (DB2 field name: QBGLU1).

**Page in Write Around** The number of changed pages that were written to disk through group buffer pool write-around due to conditional write failures to the group buffer pool (Field name: QBGLWA).

**Pages Castout** The number of pages cast out from the group buffer pool to DASD (DB2 field name: QBGLRC).

**Pages Written Via WARM** The number of pages that were written using write and register multiple (Field name: QBGLWP).

**Participate in GBP rebuild** The number of coupling facility requests to write changed pages to the secondary group buffer pool for duplexing (Field name: QBGL2W).

**Read Castout Class** The number of coupling facility requests to read the castout class (Field name: QBGLCC).

**Read Castout Statistics** The number of coupling facility requests to read the castout statistics (Field name: QBGLCS).

**Read Directory Info** The number of coupling facility requests to read directory information (Field name: QBGLRD).

**Read Storage Statistics** The number of coupling facility requests to read storage statistics. The group buffer pool structure owner issues this request once for each checkpoint (Field name: QBGLOS).

**Read for Castout Multiple Requests** The number of read-for-castout-multiple requests. Each request is for multiple pages (Field name: QBGLCM).

**Read for Castout Requests** The number of read-for-castout requests. Each request is for a single page (Field name: QBGLCR).

**Reads Prefetch Changed Pages Read After Register** The number of coupling facility reads to retrieve a changed page from the group buffer pool as a result of feedback from the request to register a page list. See Reads Prefetch Register Page List Request (QBGLAX). This field refers to DB2 field name: QBGLAY.
**Reads Prefetch Register Page List Request** The number of requests to register a page list in the coupling facility. DB2 prefetch can do this only if the group buffer pool is allocated in a coupling facility with CFLEVEL=2 or above (Field name: QBGLAX).

**Register Page** The number of coupling facility requests to register a page (Field name: QBGLRG).

**Secondary Async GBP Requests** The number of asynchronous requests for the secondary group buffer pool (Field name: QBGL2H).

**Secondary Delete Name List** The number of group buffer pool requests to the secondary group buffer pool to delete a list of pages after they were cast out from the primary group buffer pool (Field name: QBGL2D).

**Secondary Delete Name** The number of group buffer pool requests to delete a page from the secondary group buffer pool (Field name: QBGL2N).

**Secondary Read Castout Statistics** The number of coupling facility requests to read the castout statistics for the secondary group buffer pool (Field name: QBGL2R).

**Sync read XI Data returned** The number of synchronous coupling facility read requests caused by the buffer that is marked invalid. Data is returned from the group buffer pool (Field name: QBGLXD).

**Sync read XI No data returned** The number of synchronous coupling facility read requests caused by the buffer that is marked invalid. Data is not returned from the group buffer pool and a directory entry is created if it does not already exist. This means another DB2 in the group has R/W interest in the page set or partition (Field name: QBGLXR).

**Synch read (not found) No data returned** The number of synchronous coupling facility reads necessary because the requested page was not found in the buffer pool to which data was not returned (Field name: QBGLMR).

**Synchronous read (not found) Data returned** The number of synchronous coupling facility reads necessary because the requested page was not found in the buffer pool to which data was returned from the group buffer pool (Field name: QBGLMD).

**Total P-Lock Negotiations** The sum of all page P-lock lock negotiations (Field name: SBGLPLN).

**Total P-Lock Negotiations Data Pages** The number of page P-lock negotiations for data pages (Field name: QBGLN2).

**Total P-Lock Negotiations Index leaf Pages** The number of page P-lock negotiations for index leaf pages (Field name: QBGLN3).

**Total P-Lock Negotiations Space Map Pages** The number of page P-lock negotiations for space map pages (Field name: QBGLN1).

**Total Lock Suspensions** The sum of all page P-lock lock suspensions (Field name: SBGLPLS).
Total P-Page Lock Requests The sum of all page P-lock lock requests (DB2 field name: SBGLPLR).

Unlock Castout The number of coupling facility requests to unlock the castout lock on the pages (Field name: QBGLUN).

Unregister Page The number of coupling facility requests to unregister a page (Field name: QBGLDG).

Write Failed No Storage The number of coupling facility write requests that could not complete because of a lack of coupling facility storage resources (Field name: QBGLWF).

Write and Register Multiple requests The number of write and register multiple (warm) requests. Multiple pages are written for each request (Field name: QBGLWM).

Writes Changed pages Written async The number of changed pages asynchronously written to the group buffer pool under a system execution unit (DB2 field name: QBGLAW).

Writes Changed pages Written sync The number of changed pages synchronously written to the group buffer pool under a user’s execution unit (Field name: QBGLSW).

Writes Clean pages Written sync The number of clean pages synchronously written to the group buffer pool under a user’s execution unit (Field name: QBGLWC).

DB2 Group Coupling Facility Attributes
Use the DB2 Group Coupling Facility attributes to create situations that determine the excess usage and reduced availability of group coupling facility structures.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 Change Requests The number of change requests for P-locks. Valid value is an integer in the range 0 - 99999999.

DB2 False Contention Provides a global view of false contentions for all DB2 systems in a data sharing group. The formula is the number of false contentions divided by the total number of global contentions, multiplied by 100. Valid value is an integer in the range 0 - 99999999.

DB2 False Suspends The number of suspends because of MVS XES (Cross-system Extended Services) false contention. Valid value is an integer in the range 0 - 99999999.

DB2 Global Contention Provides a global view of global contentions for all DB2 systems in a data sharing group. The formula is the total number of suspends because global contention divided by the total number of XES requests, multiplied by 100. Valid value is an integer in the range 0 - 99999999.

DB2 IRLM Suspends The number of suspends because of IRLM global resource contentions. This occurs when IRLM states are in conflict and require inter-system communication for resolution. Valid value is an integer in the range 0 - 99999999.
**DB2 Lock Requests** The number of lock requests for P-locks. Valid value is an integer in the range 0 - 99999999.

**DB2 Unlock Requests** The number of unlock requests for P-locks. Valid value is an integer in the range 0 - 99999999.

**DB2 XESSuspends** The number of suspends because MVS XES global resource contentions that are not IRLM-level contention. This occurs when XES lock states are in conflict but the IRLM lock states are not in conflict. Valid value is an integer in the range 0 - 99999999.

**False Contention** The number of contentions that the IRLM thought were competing for the same database resource. Valid value is an integer in the range 0 - 99999999.

Usage: An IRLM subsystem identifies a contention but grants a lock to a contending IRLM subsystem because the contending IRLM is requesting access to a different segment in the database.

**False Contention Rate** The number of false contentions divided by the number of seconds during the collection interval. Valid value is an integer in the range 0 - 99999999.

**Global Contention** The total number of contentions competing for the same database resource. Valid value is an integer in the range 0 - 99999999.

**Global Contention Rate** The number of contentions divided by the number of seconds during the collection interval. Valid value is an integer in the range 0 - 99999999.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**List Entries Allocated** The total number of list entries that a DB2 system has allocated for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**List Entries Percent** The number of list entries that IRLM is currently using divided by the number of list entries that DB2 has allocated. Valid value is an integer in the range 0 - 100.

**List Entries Used** The total number of list entries IRLM is currently using for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**Lock Entries Allocated** The total number of lock entries that a DB2 system has allocated for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**Lock Entries Percent** The number of lock entries that IRLM is currently using divided by the number of lock entries DB2 has allocated. Valid value is an integer in the range 0 - 100.

**Lock Entries Used** The total number of lock entries IRLM is currently using for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.
**Number of Indexes** Identifies the number of indexes.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Structure Connect Count** The number of active connections to a structure. Valid value is an integer in the range 0 - 16.

**Structure Name** The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

**Structure Size** The size, in kilobytes, of a DB2 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**Structure Status** The current status of the coupling facility structure. Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVE</td>
<td>The structure is active</td>
</tr>
<tr>
<td>INACTIVE</td>
<td>The structure is inactive</td>
</tr>
</tbody>
</table>

For duplexed group buffer pool structures, additional valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REB_NEW</td>
<td>Rebuild on new (secondary GBP)</td>
</tr>
<tr>
<td>REB_OLD</td>
<td>Rebuild on old (primary) GBP</td>
</tr>
<tr>
<td>REB_TRAN</td>
<td>Structure is in transition</td>
</tr>
<tr>
<td>REB_HOLD</td>
<td>Structure is in holding state</td>
</tr>
<tr>
<td>REB_ERR</td>
<td>Error during the structure rebuild</td>
</tr>
</tbody>
</table>

**Structure Type** The type of DB2 coupling facility structure. Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CACHE</td>
<td>Cache data of interest to several DB2 systems in data sharing group</td>
</tr>
<tr>
<td>LIST</td>
<td>Shared Communications Area (SCA) for data sharing group members</td>
</tr>
<tr>
<td>LOCK</td>
<td>Controls locking</td>
</tr>
</tbody>
</table>

**Structure Used** The number of kilobytes that DB2 uses within a structure type. Valid value is an integer in the range 0 - 99999999.

**Structure Used Percent** The percent of the total available kilobytes that DB2 is currently using within a structure type. Valid value is an integer in the range 0 - 100.
**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**DB2 IMS Connections Attributes**
Use the DB2 IMS Connections attributes to create situations to monitor DB2 thread activity originating from connected IMS subsystems.

**Active Threads** The count of threads currently active for this IMS region.

**Connected Dependent Regions** The count of dependent regions currently connected to this DB2 system.

**Defined Dependent Regions** The count of defined dependent regions for this IMS connection.

**IMS Name** The ID for this IMS connection. It is an alphanumeric text string, with a maximum length of four characters.

**IMS Version** The version of the IMS system. It is an alphanumeric text string, with a maximum length of four characters.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 118031506450100 for 03/15/18 06:45:01) where:
- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

**Unconnected Regions** The number of regions not connected.
DB2 IMS Regions Attributes
Use the DB2 IMS Regions attributes to create situations to monitor IMS dependent regions.

Application Name The PSB name active in the IMS dependent region. This field applies only to dependent regions (not to the control region). It is an alphanumeric text string, with a maximum length of eight characters.

Command Recognition Character The command recognition character used to pass commands to the external subsystem. It is an alphanumeric text string, with a maximum length of four characters.

Connection Status The region connection status.

Error Option Specification The type of error option specification in use.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>The appropriate return code is sent to the application, and the SQL code is returned.</td>
</tr>
<tr>
<td>Q</td>
<td>The application is abended. This is a PSTOP transaction type. The input transaction is re-queued for processing and new transactions are queued.</td>
</tr>
<tr>
<td>A</td>
<td>The application is abended. This is a STOP transaction type. The input transaction is discarded and new transactions are not queued.</td>
</tr>
</tbody>
</table>

It is an alphanumeric text string, with a maximum length of four characters.

IMS Name The ID for this IMS connection. Valid entry is an alphanumeric text string, with a maximum length of four characters.

IMS Version The version of the IMS system. Valid entry is an alphanumeric text string, with a maximum length of four characters.

Interface Control Module The name of the interface control module. It is an alphanumeric text string, with a maximum length of eight characters.

Language Token Interface The name of the language interface token. It is an alphanumeric text string, with a maximum length of four characters.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Region Name The region started task name. It is an alphanumeric text string, with a maximum length of eight characters.

Region Type The type of IMS region.

Resource Translation Table The name of the resource translation table. This table maps the IMS application names into DB2 plan names. If this entry is omitted, the DB2 plan name is the IMS application program name. It is an alphanumeric text string, with a maximum length of eight characters.
**Status** The current DB2 status of the thread. Valid entry is an alphanumeric text string, with a maximum length of 12 characters.

Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT-AVAIL</td>
<td>The thread is not available.</td>
</tr>
<tr>
<td>IN-ABORT</td>
<td>The thread is in abort processing.</td>
</tr>
<tr>
<td>IN-ACCEL</td>
<td>The thread is executing on IBM DB2 Analytics Accelerator for z/OS.</td>
</tr>
<tr>
<td>IN-AUTO-PROC</td>
<td>The thread is processing an autonomous procedure.</td>
</tr>
<tr>
<td>IN-BIND-DYNM</td>
<td>The thread is in dynamic bind processing.</td>
</tr>
<tr>
<td>IN-BIND-STAT</td>
<td>The thread is in static bind processing.</td>
</tr>
<tr>
<td>IN-COMMAND</td>
<td>Command threads display this status when they are active in DB2 and</td>
</tr>
<tr>
<td></td>
<td>executing within the DB2 command processor. (This type of thread always</td>
</tr>
<tr>
<td></td>
<td>has a blank plan name.)</td>
</tr>
<tr>
<td>IN-COMMIT</td>
<td>The thread is in Commit processing (applies only to threads that originate</td>
</tr>
<tr>
<td></td>
<td>from an attachment that does not use two-phase-commit protocol).</td>
</tr>
<tr>
<td>IN-COMT-PHS1</td>
<td>The thread is in Commit phase 1 processing.</td>
</tr>
<tr>
<td>IN-COMT-PHS2</td>
<td>The thread is in Commit phase 2 processing.</td>
</tr>
<tr>
<td>IN-CRTE-THRDM</td>
<td>The thread is in Create Thread processing.</td>
</tr>
<tr>
<td>IN-DB2</td>
<td>The thread is executing in DB2. A more descriptive status could not be</td>
</tr>
<tr>
<td></td>
<td>determined.</td>
</tr>
<tr>
<td>INDOUBT</td>
<td>The thread is in doubt.</td>
</tr>
<tr>
<td>IN-SIGNON</td>
<td>The thread is in signon processing. This status applies only to threads</td>
</tr>
<tr>
<td></td>
<td>originating from CICS or IMS attachments.</td>
</tr>
<tr>
<td>IN-SQL-CALL</td>
<td>The thread is processing an SQL call.</td>
</tr>
<tr>
<td>IN-SQL-SORT</td>
<td>The thread is executing an SQL call and is doing the sort processing</td>
</tr>
<tr>
<td></td>
<td>required to satisfy the call’s request.</td>
</tr>
<tr>
<td>IN-STOR-PROC</td>
<td>The thread is currently running in a stored procedure.</td>
</tr>
</tbody>
</table>
IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).
WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSC
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.
WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Time
The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:
- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

DB2 Lock Conflict Attributes
Use DB2 Lock Conflict Group attributes to create situations that monitor DB2 database lock conflicts.

Authorization ID
The primary authorization ID from connection or sign-on, that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

Authorization ID (Unicode)
The primary authorization ID from connection or sign-on, that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

Begin Time
Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and imn wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

DB2 Lock Conflict Attributes
Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.
**DB2 Lock Conflict Attributes** The type of connection associated with the thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example, DLKEX212.

**DB2 ID** The name of a DB2 subsystem.

**Display Elapsed Time** The total amount of elapsed time since thread creation or DB2 sign-on.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

**Lock Elapsed Time** The amount of time (in seconds) a waiter has been waiting for the resource.

**Lock Level** Identifies the lock resource usage.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS</td>
<td>Intent share</td>
</tr>
<tr>
<td>IX</td>
<td>Intent exclusive</td>
</tr>
<tr>
<td>NSU</td>
<td>Non-shared Update</td>
</tr>
<tr>
<td>S</td>
<td>Share</td>
</tr>
<tr>
<td>SIX</td>
<td>Share intent exclusive</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>U</td>
<td>Update</td>
</tr>
<tr>
<td>UNS</td>
<td>Unprotected shared</td>
</tr>
<tr>
<td>X</td>
<td>Exclusive</td>
</tr>
</tbody>
</table>

**Lock Resource** The resource a lock owner currently has locked or the resource that caused DB2 to suspend a lock request. It is an alphanumeric text string, with a maximum of 50 characters; for example, DB=TBLBLK2 PS=PAGELK2.

**Lock Status** The status of a job holding or waiting on a lock: If the status is OWN with a DB2 subsystem name, the lock is owned by another DB2 subsystem in the Data Sharing Group (DSG); for example, if lock status is OWN-DB2A, the lock is owned by DB2 subsystem DB2A.

**Lock Token** Lock Token.

**Lock Type** The lock type of the lock request.

Valid values are:

### Table 197. Lock types

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACSC</td>
<td>The Accelerator Services commands (ACSC) lock.</td>
</tr>
<tr>
<td>ALBP</td>
<td>The Alter buffer pool (ALBP) lock indicates a lock on a buffer pool during execution of an ALTER BUFFERPOOL command.</td>
</tr>
<tr>
<td>BIND</td>
<td>The BIND lock indicates an autobind or remote bind lock.</td>
</tr>
<tr>
<td>BMBA</td>
<td>The Buffer manager SCA MBA (BMBA) L-lock. The Buffer Manager (BM) gets this lock when it needs to read, insert, or update a multiple buffer pool (MBA) record in a Shared Communications Area (SCA). (BMC_MBAO or BMC_MBAR)</td>
</tr>
<tr>
<td>BPPS</td>
<td>The Buffer Manager Pageset (BPPS) RR (repeatable read) P-lock: • BP = buffer pool ID • DB = database name • PS = pageset name</td>
</tr>
<tr>
<td>CCAT</td>
<td>The CATMAINT convert catalog (CCAT) lock is acquired when catalog conversion is performed.</td>
</tr>
<tr>
<td>CDBL</td>
<td>The Compress dictionary build (CDBL) lock.</td>
</tr>
<tr>
<td>CDIR</td>
<td>The CATMAINT convert directory (CDIR) lock is acquired when directory conversion is performed.</td>
</tr>
<tr>
<td>CDRN</td>
<td>The Cursor Stability drain (CDRN) lock is acquired to drain all CS read access to an object: • DB = database name • PS = pageset name • PT = partition</td>
</tr>
<tr>
<td>CMDS</td>
<td>The DB2 Command Serialization (CMDS) lock.</td>
</tr>
<tr>
<td>CMIG</td>
<td>The CATMAINT migration (CMIG) lock is acquired when catalog migration is performed.</td>
</tr>
</tbody>
</table>
Table 197. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLL</td>
<td>The Collection (COLL) lock</td>
</tr>
<tr>
<td>DBDL</td>
<td>The DBD load (DBDL) lock is the database descriptor load lock.</td>
</tr>
<tr>
<td>DBEX</td>
<td>The Database exception (DBEX) lock indicates a lock on a &quot;Logical page list&quot; (LPL) or &quot;Group buffer pool recovery pending&quot; (GRECP) database exception status. This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>DBXU</td>
<td>The DB exception update lock is used for updating the database exception status.</td>
</tr>
<tr>
<td>DGTT</td>
<td>The DGTT URID lock is acquired to protect segments that belong to a Declared Global Temporary Table (DGTT). These segments are deallocated during Commit 1 by logging them and serializing them using the Unit of Recovery ID (URID) lock.</td>
</tr>
</tbody>
</table>
| DPAG      | The DB2 page (DPAG) lock in a tablespace. When programs read data or update data, they acquire a page lock containing the data.  
• DB = database name  
• PS = pageset name  
• PG = page |
| DSET      | The partitioned lock.  
A partitioned tablespace contains one or more partitions (up to 64). It is created when you create a table space using the SQL CREATE TABLESPACE statement with the NUMPARTS parameter.  
Only one table can be stored on a partitioned tablespace. Each partition contains one part of a table. The partitioned lock only locks the partition with the data that is referenced.  
• DB = database name  
• PS = pageset name  
• PT = partition number |
| DTBS      | The Database lock indicates a lock on the database.  
• DB = database name  
• PS = pageset name  
• PT = partition number |
| GRBP      | The Group buffer pool (GRBP) start/stop lock.  
BP=buffer pool ID |
| HASH      | The Hash anchor (HASH) lock.  
• DB = database name  
• PS = pageset name  
• PG = page |
| HPSP      | The Header Page (HP) Bucket or Stored Procedure (SP) Command lock. |
| IEOF      | The Index end of file (IEOF) lock is acquired at the index end of file.  
• DB = database name  
• PS = pageset name  
• PT = partition |
<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
</table>
| **IPAG**  | The Index page (IPAG) lock in an index space. When application programs read or update data, they acquire a lock on the page containing the index when indexing is used.  
  - DB = database name  
  - PS = pageset name  
  - PG = page |
| **IXKY**  | The Index key (IXKY) lock. |
| **LBLK**  | The Large object (LOB) lock. |
| **LPLR**  | The Logical page list recovery (LPLR) lock. |
| **MDEL**  | The Mass delete (MDEL) lock is acquired when doing a mass delete from a table (for example, when you DELETE FROM a table) within a segmented tablespace.  
  It is used to prevent another user from reusing freed segments before a delete operation is committed.  
  - DB = database name  
  - PS = pageset name |
| **PALK**  | The Partition lock.  
  - DB = database name  
  - PS = pageset name  
  - PT = partition |
| **PBPC**  | The Group BP level castout (PBPC) P-lock.  
  A physical lock acquired when a castout of a group buffer pool occurs. Castout is the process of writing pages in the group buffer pool out to DASD.  
  This lock is only used in a data sharing environment. |
| **PCDB**  | The DDF CDB P-lock.  
  A Distributed Data Facility communication database physical lock.  
  This lock is only used in a data sharing environment. |
| **PDBD**  | The DBD P-lock is a database descriptor physical lock.  
  This lock is only used in a data sharing environment. |
| **PDSO**  | The Pageset or partitioned pageset open lock.  
  If the data set supporting the tablespace that is referenced by the application is not opened, the program will acquire a lock to open the data set. The data set will stay open if CLOSE=NO is defined in the SQL statement creating the tablespace.  
  - DB = database name  
  - PS = pageset name |
| **PITR**  | The Index manager tree (PITR) is a physical lock (P-lock).  
  This lock is only used in a data sharing environment.  
  - DB = database name  
  - PS = pageset name  
  - PT = partition |
### Table 197. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPAG</td>
<td>The Page P-lock is a physical lock on a page. This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>PPSC</td>
<td>The Pageset/partition level castout physical lock (P-lock). This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>PPSP</td>
<td>The Pageset/partition physical lock (P-lock). This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>PRLF</td>
<td>The Resource Limit Facility (RLF) physical lock (P-lock). This lock is only used in a data sharing environment.</td>
</tr>
<tr>
<td>PSET</td>
<td>The Pageset (PSET) lock can be a tablespace or indexspace. A pageset containing DB2 tables is a tablespace. A pageset containing DB2 index structure is an indexspace. A pageset can be simple or partitioned. This lock type is for the simple pageset only.</td>
</tr>
<tr>
<td></td>
<td>- DB = database name</td>
</tr>
<tr>
<td></td>
<td>- PS = pageset name</td>
</tr>
<tr>
<td>PSPI</td>
<td>The Pageset piece (PSPI) lock. A pageset is a collection of pageset pieces. Each pageset piece is a separate VSAM data set. A simple pageset contains from 1 to 32 pieces. Each piece of a simple pageset is limited to 2 GB. Whenever a simple pageset piece reaches this size, another piece is allocated and the pageset grows. This is a lock on the expanded pageset piece.</td>
</tr>
<tr>
<td>RDBD</td>
<td>The Repair DBD (RDBD) lock is acquired when REPAIR DBD REBUILD is running (test/diagnose).</td>
</tr>
<tr>
<td>RDRN</td>
<td>The Repeatable Read drain (RDRN) lock is acquired to drain all RR access to an object.</td>
</tr>
<tr>
<td></td>
<td>- DB = database name</td>
</tr>
<tr>
<td></td>
<td>- PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>- PT = partition</td>
</tr>
<tr>
<td>RGDA</td>
<td>The Retry Getpage During Abort (RGDA) lock.</td>
</tr>
<tr>
<td>ROW</td>
<td>The Row lock indicates a lock on a row.</td>
</tr>
<tr>
<td>RSTR</td>
<td>The Shared Communications Area (SCA) restart (RSTR) lock indicates a lock on SCA access for restart/redo information. (BMC-RSTP)</td>
</tr>
<tr>
<td>SDBA</td>
<td>The Start/stop lock on DBA (SDBA) table indicates a lock on the table, tablespace, or database when a CREATE/DROP is processed against these objects.</td>
</tr>
<tr>
<td></td>
<td>- DB = database name</td>
</tr>
<tr>
<td></td>
<td>- PS = pageset name</td>
</tr>
<tr>
<td>SENV</td>
<td>The System environment (SYSENV) serialization lock.</td>
</tr>
<tr>
<td>Lock type</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>SKCT</td>
<td>The Skeleton cursor table (SKCT) lock indicates a lock on the application plan. PLAN=plan name</td>
</tr>
<tr>
<td>SKPT</td>
<td>The Skeleton package table (SKPT) lock indicates a lock on the application package. TOKEN= the consistency token (CONTOKEN) column from SYSIBM.SYSPACKAGE.</td>
</tr>
<tr>
<td>SPRC</td>
<td>The System level point in time (PIT) recovery lock. SYS_PITR</td>
</tr>
</tbody>
</table>
| SREC      | The Log range lock. DB writes a record in the log range tablespace (SYSLGRNG) every time a tablespace is opened and updated, and updates SYSLGRNG whenever that tablespace is closed. The record contains the opening and/or closing log RBA (relative byte address) for the tablespace. When DB writes to SYSLGRNG, the program acquires a lock on the tablespace with updates. | DB = database name  
|           | TS = tablespace name |
| TABL      | The Table (TABL) lock on the table which resides in a segmented tablespace. | DBID = DBid  
|           | TABL = Tableid |
| UIDA      | The Util I/O Damage Assessment lock. |
| UNDT      | The Undetermined (UNDT) lock indicates that this lock cannot be determined because it is not part of the other listed lock types. Resource ID (in hexadecimal). |
| UNKN      | The Unknown (UNKN) lock indicates the resource does not exist. |
| UTEX      | The Utility exclusive execution (UTEX) lock. UTEXEC |
| UTID      | The Utility identifier (UTID) lock. UID=utility id |
| UTOB      | The Utility object (UTOB) lock. | DB = database name  
|           | PS = pageset name  
|           | PT = partition |
| UTSE      | The Utility serialization (UTSE) lock is required when running utility jobs. UTSERIAL |
Table 197. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
</table>
| WDRN      | The Write drain (WDRN) lock is acquired to drain all write access to an object.  
  - DB = database name  
  - PS = pageset name  
  - PT = partition |
| XMLK      | The XML lock. |

LUWID The logical unit of work ID (LUWID) for a thread.

MVS System An ID for the MVS System Management Facility (SMF). It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string with a maximum of 8 characters. For example PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Resource Name 1 (Unicode) The resource name of type defined by type code.

Resource Name 2 (Unicode) The resource name of type defined by type code.

Resource Name 3 The resource name of type defined by type code.

Resource Name 4 The resource name of type defined by type code.

Resource Type 1 This value indicates what is contained in Resource Name 1.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>Buffer Pool</td>
</tr>
<tr>
<td>CO</td>
<td>Collection name</td>
</tr>
<tr>
<td>DB Hash</td>
<td>Database</td>
</tr>
<tr>
<td>HC</td>
<td>Class</td>
</tr>
<tr>
<td>PL</td>
<td>Plan name</td>
</tr>
<tr>
<td>UT</td>
<td>Utility ID</td>
</tr>
</tbody>
</table>

Resource Type 2 This value indicates what is contained in Resource Name 2.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PK</td>
<td>Package</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------</td>
</tr>
<tr>
<td>PS</td>
<td>Page Set (Table space)</td>
</tr>
</tbody>
</table>

**Resource Type 3** This value indicates what is contained in Resource Name 3.

**Resource Type 4** This value indicates what is contained in Resource Name 4.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT</td>
<td>Partition</td>
</tr>
</tbody>
</table>

**SUBSYS** The IRLM subsystem name.

**Thread Status** The current status of a thread.

Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT-AVAIL</td>
<td>The thread is not available.</td>
</tr>
<tr>
<td>IN-ABORT</td>
<td>The thread is in abort processing.</td>
</tr>
<tr>
<td>IN-ACCEL</td>
<td>The thread is executing on IBM DB2 Analytics Accelerator for z/OS.</td>
</tr>
<tr>
<td>IN-AUTO-PROC</td>
<td>The thread is processing an autonomous procedure.</td>
</tr>
<tr>
<td>IN-BIND-DYNM</td>
<td>The thread is in dynamic bind processing.</td>
</tr>
<tr>
<td>IN-BIND-STAT</td>
<td>The thread is in static bind processing.</td>
</tr>
<tr>
<td>IN-COMMAND</td>
<td>Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)</td>
</tr>
<tr>
<td>IN-COMMIT</td>
<td>The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).</td>
</tr>
<tr>
<td>IN-COMT-PHS1</td>
<td>The thread is in Commit phase 1 processing.</td>
</tr>
<tr>
<td>IN-COMT-PHS2</td>
<td>The thread is in Commit phase 2 processing.</td>
</tr>
<tr>
<td>IN-CRTE-THRD</td>
<td>The thread is in Create Thread processing.</td>
</tr>
<tr>
<td>IN-DB2</td>
<td>The thread is executing in DB2. A more descriptive status could not be determined.</td>
</tr>
</tbody>
</table>
INDOUTB
   The thread is in doubt.

IN-SIGNON
   The thread is in signon processing. This status applies only to threads
   originating from CICS or IMS attachments.

IN-SQL-CALL
   The thread is processing an SQL call.

IN-SQL-SORT
   The thread is executing an SQL call and is doing the sort processing
   required to satisfy the call’s request.

IN-STOR-PROC
   The thread is currently running in a stored procedure.

IN-TERM-THRD
   The thread is in termination as a result of allied task termination. This
   status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
   The thread is currently running in a trigger.

IN-USER-FUNC
   The thread is currently running a user-defined function.

NOT-IN-DB2
   The thread is not currently executing in DB2.

SP/UDF-INACT
   The thread is trying but not able to run in a stored procedure or
   user-defined function.

SWAPPED-OUT
   The thread is not currently executing in DB2. The thread originating
   address space is swapped out.

WAIT-ARCHIVE
   The thread is waiting for an archive log tape mount necessary during
   thread abort processing.

WAIT-ARCREAD
   The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
   The thread is currently waiting for completion of a read I/O that is being
   done under a thread other than this one (for example, sequential or List
   Prefetch).

WAIT-ASYNCWR
   The thread is currently waiting for completion of Write I/O that is being
   done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
   The distributed thread is in a synchronous wait because the conversation
   limit has been reached for its designated logmode.

WAIT-CTHREAD
   The thread is queued in Create Thread processing because DB2 reached the
   CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD
   status.
WAIT-GLBLOCK
The thread is currently waiting for either:
- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMRQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.
**WAIT LOB**
The thread is currently waiting for TCP/IP to materialize a LOB.

**WAIT-LOCKLAT**
The thread is waiting for a LOCK-I/O-LATCH.

**WAIT-LOCKPIP**
The thread is currently waiting for a PIPE suspend.

**WAIT-LOCKPQS**
The thread is currently suspended for parallel task synchronization.

**WAIT-LOGQSCE**
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

**WAIT-PGLATCH**
The thread is currently waiting for page latch.

**WAIT-SP-SCHD**
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

**WAIT-SWITCH**
The thread is currently waiting for the completion of a synchronous execution switch.

**WAIT-SYNC-IO**
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

*Note:* This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

**Thread Token** The thread token uniquely identifies a specific thread.

**DB2 Lock Conflict Attributes** The type of thread.

It can be:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Value Description**

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Uniqueness Value** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

**Uniqueness Value2** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: the last 2 bytes of QWHSLUUV).

**DB2 Memory Attributes**

Use the attributes to view the DB2 memory for the database address space (DBM1 or DIST).

**4-Bit Aux Frames Shared Stack** Identifies the number of auxiliary slots (4K) in use for 64-bit shared stack storage. This is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out (DB2 field name: QW0225ShrStkStg_Aux). This field is available in z/OS 1.10 (and maintenance) or later.

**Shared stack storage (MB)** Identifies the number of real-storage frames (4K) in use for 64-bit shared stack storage. This is recorded at the subsystem level (DB2 field name: QW0225ShrStkStg_Real). This field is available in z/OS 1.10 (and maintenance) or later.

**64-Bit Shared Storage (MB)** Identifies the number of 64-bit shared memory pages allocated for this MVS LPAR (this count includes hidden pages) (DB2 field name: QW0225SRHPAGES).

**Active and Disconnect DBATs** Identifies the number of active and disconnected DBAT threads (DB2 field name: QW0225DB).

**Active Threads** Identifies the number of active allied threads (DB2 field name: QW0225AT).

**Average Thread Footprint 64-bit common real** Shows the current average real storage in use for common storage of active user threads (allied threads + active and pooled DBATs).
**Average Thread Footprint (MB)** Shows the current average real storage in use for subsystem shared storage of active user threads (allied threads + active and pooled DBATs).

**Agent Local Storage (MB)** The amount of storage, in MB, allocated for agent-related local storage (DB2 field name: QW0225AL). This storage is used for operations such as sort. Valid value is an integer in the range 0 - 9999999. This field includes the total agent local storage (31-bit DBM1 private variable pools) and total agent local storage (64-bit shared variable pools).

**Agent System Storage (MB)** Identifies the storage used by system agents (DB2 field name: QW0225AS). This field includes the total system agent storage (31-bit DBM1 private variable pools) and the total system agent storage (64-bit shared variable pools).

**Aux Storage Used 64-Bit shared (MB)** Shows the amount of auxiliary storage used for 64-bit shared storage for this MVS LPAR (including reserved auxiliary slots for pages that are paged in).

**Aux Stg In Use 64-Bit Common (MB)** Shows the number of auxiliary slots (4K) in use for 64-bit common storage. This is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out (DB2 field name: QW0225ComStg_Aux). This field is available in z/OS 1.10 (and maintenance) or later.

**Auxiliary Slots Used Shared Storage 64 Bit** Shows the number of auxiliary slots used for 64-bit shared storage for this MVS LPAR (DB2 field name: QW0225SHRAUXSLOTS).

**Auxiliary Storage in use (MB)** Shows the number of 4 KB auxiliary slots that are used for 64-bit shared stack storage. This value is recorded at the subsystem level. It includes only auxiliary slots that are occupied by pages that are page out. This field is available in z/OS 1.10 (and maintenance) or later.

**Buffer Manager Storage Control Blocks (MB)** Identifies the total storage used for page set control blocks (DB2 field name: QW0225BB).

**Castout Engines** Identifies the number of engines available for data-sharing castout processing (DB2 field name: QW0225CE).

**Common Fixed Pool Above (MB)** Identifies the amount of storage allocated for 64-bit common fixed pool storage (DB2 field name: QW0225FCG).

**Common Fixed Pool Below (MB)** Identifies the amount of storage allocated for 31-bit common fixed pool storage (DB2 field name: QW0225FC).

**Common Getmained Above (MB)** Identifies the amount of storage allocated for 64-bit common getmained storage (DB2 field name: QW0225GCG).

**Common Getmained Below (MB)** Identifies the amount of storage allocated for 31-bit common getmained storage (DB2 field name: QW0225GC).

**Common Storage Manager Control Block Above (MB)** Identifies the amount of storage allocated for 64-bit common storage for storage manager control structures (DB2 field name: QW0225SMC).
Common Variable Pool Above (MB) Shows the amount of storage allocated for 64-bit common variable pool storage (DB2 field name: QW0225VCG).

Common Variable Pool Below (MB) Identifies the amount of storage allocated for 31-bit common variable pool storage (DB2 field name: QW0225VC).

Compression Dictionary Identifies the storage space allocated for the compression dictionary (DB2 field name: QW0225CD).

Data Sharing Group The name of the DB2 data sharing group. It is an alphanumeric text string with a maximum of 8 characters.

Data Sharing Member The name of the DB2 data sharing member or the member name of the DB2 subsystem. It is an alphanumeric text string with a maximum of 8 characters.

DB2 Subsystem The name of the DB2 subsystem.

DB2 Version The version of the DB2 system.

Deferred Write Engines Identifies the number of engines used for deferred write operations (DB2 field name: QW0225DW).

Dynamic Statement Cache Control Block (MB) Identifies the amount of storage used for dynamic statement cache control blocks above the 2 GB bar (DB2 field name: QW0225S2).

Extended CSA Size (MB) Identifies the size of the common storage area (CSA) above the 16 MB line (DB2 field name: QW0225EC).

GBP Write Engines Identifies the number of engines for group buffer pool writes (DB2 field name: QW0225GW).

HWM 64-Bit Shared Storage (MB) Identifies the high water mark number of 64-bit shared bytes for this MVS LPAR (DB2 field name: QW0225SHRGBYTES).

HWM Requested Non Shr Dyn SQL (MB) Shows statistics interval high-water mark (HWM) of requested non-shareable storage for dynamic SQL statements used by active threads. For DB2 10 or later, this value is related to shared agent local variable pools above the bar.

HWM Shr Dyn SQL (MB) Identifies the statistics interval high-water mark (HWM) of requested shareable storage for dynamic SQL statements used by active threads.

Interval Start The start time of this interval.

IRLM Current used 31-bit private Shows the total amount of 31-bit private storage that is currently in use by Internal Resource Lock Manager (IRLM) pools (DB2 field name: QW02251_BBPVT). This value is the total of all 31-bit IRLM private pools.

It can show the following values:

N/A Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:

- A counter is not available in one DB2 version.
• Counters are mutually exclusive.

N/C Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
• A divide by zero (percentages, ratios).
• Suppression of negative elapsed time values.
• Required counter values for calculation marked as N/A or N/P.
• Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
• When counter values are not generated because of operational conditions (a trace class is not active).
• An application does not provide a value because it is optional.

IRLM Current used 64-bit common Shows the total amount of 64-bit common storage that is currently in use by Internal Resource Lock Manager (IRLM) pools (DB2 field name: QW0225I_ABCSA). This value is the total of all 64-bit common IRLM pools.

It can show the following values:

N/A Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
• A counter is not available in one DB2 version.
• Counters are mutually exclusive.

N/C Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
• A divide by zero (percentages, ratios).
• Suppression of negative elapsed time values.
• Required counter values for calculation marked as N/A or N/P.
• Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
• When counter values are not generated because of operational conditions (a trace class is not active).
• An application does not provide a value because it is optional.

IRLM Current used 64-bit private Shows the total amount of 64-bit private storage in use by Internal Resource Lock Manager (IRLM) pools (DB2 field name: QW0225I_ABPVT).

It can show the following values:

N/A Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
• A counter is not available in one DB2 version.
• Counters are mutually exclusive.

N/C Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
• A divide by zero (percentages, ratios).
• Suppression of negative elapsed time values.
• Required counter values for calculation marked as N/A or N/P.
• Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
  • When counter values are not generated because of operational conditions (a trace class is not active).
  • An application does not provide a value because it is optional.

**IRLM Current used ECSA** Shows the total amount of Extended Common Service Area (ECSA) storage in use by Internal Resource Lock Manager (IRLM) pools.

It can show the following values:

N/A Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
  • A counter is not available in one DB2 version.
  • Counters are mutually exclusive.

N/C Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
  • A divide by zero (percentages, ratios).
  • Suppression of negative elapsed time values.
  • Required counter values for calculation marked as N/A or N/P.
  • Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
  • When counter values are not generated because of operational conditions (a trace class is not active).
  • An application does not provide a value because it is optional.

**IRLM ECSA high water mark** Shows the high water mark of Extended Common Service Area (ECSA) storage allocated by Internal Resource Lock Manager (IRLM) pools.

It can show the following values:

N/A Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
  • A counter is not available in one DB2 version.
  • Counters are mutually exclusive.

N/C Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
  • A divide by zero (percentages, ratios).
  • Suppression of negative elapsed time values.
  • Required counter values for calculation marked as N/A or N/P.
  • Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).
N/P Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

IRLM HWM for 31-bit private (MB) Shows the high water mark of 31-bit private storage that has been in use (DB2 field name: QW0225I_BBPVH). This value is the total amount of all 31-bit private IRLM pools.

It can show the following values:

N/A Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

N/C Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

IRLM HWM for 64-bit common (MB) Shows the high water mark of 64-bit common storage that has been in use. This value is the total of all 64-bit common IRLM pools (DB2 field name: QW0225I_ABCSH).

It can show the following values:

N/A Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

N/C Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
- When counter values are not generated because of operational conditions (a trace class is not active).
• An application does not provide a value because it is optional.

**IRLM HWM for 64-bit private** Shows the high water mark of 64-bit private storage allocated by IRLM pools (DB2 field name: QW0225I_ABPVH).

It can show the following values:

---

**N/A** Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

**N/C** Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

**N/P** Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

**IRLM Threshold virtual 31-Bit** Shows the threshold of 31-bit virtual storage available for normal IRLM execution. Only requests for storage by "must complete" tasks will be granted if this threshold is exceeded (DB2 field name: QW0225I_BPMAX).

It can show the following values:

---

**N/A** Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

**N/C** Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

**N/P** Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

**IRLM Threshold virtual 64-Bit** Shows the threshold of 64-bit virtual storage available for normal IRLM execution. Only requests for storage by "must complete" tasks will be granted if this threshold is exceeded.
It can show the following values:

**N/A** Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

**N/C** Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

**N/P** Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

**Log Manager Control frames Aux (MB)** The number of frames in auxiliary storage that are being used for log manager control structures.

**Log Manager Control frames REAL (MB)** The number of frames in real storage that are being used for log manager control structures.

**Log Manager Wrt buff frames REAL (MB)** The number of frames in real storage that are being used for log manager write buffers.

**MVS System ID** The MVS system identifier.

**Number of active parallel child threads** Shows the number of active parallel child threads.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**P-Lock Notify Exit Engines** Identifies the number of data sharing P-Lock engines and Notify Exit engines (DB2 field name: QW0225PL).

**Prefetch Engines** Identifies the number of engines used for sequential, list, and dynamic prefetch (DB2 field name: QW0225PF).

**RID Pool Storage (MB)** Identifies the storage for RID list processing such as list prefetch, index ANDing and ORing (DB2 field name: QW0225RP).

**Real Frames Common 64-Bit** Identifies the number of real-storage frames (4K) in use for 64-bit common storage. This is recorded at the subsystem level (DB2 field name: QW0225ComStg_Real). This field is available in z/OS 1.10 (and maintenance) or later.
Real Storage in use (MB) Shows the total amount of real storage in use for 64-bit shared storage. This is recorded at the subsystem level. This field is available in z/OS 1.10 (and maintenance) or later.

Shared Agent Local Storage (MB) Shows the amount of storage allocated for agent-related 64-bit local storage (DB2 field name: QW0225ALG).

Shared Agent Non-System Storage (MB) Shows the amount of 64-bit storage used by non-system agents. It is the difference between the Total Agent Local Storage (DB2 field name: QW0225ALG) and the Total Agent System Storage (DB2 field name: QW0225ASG).

Shared Agent System Storage (MB) Shows the amount of 64-bit storage used by system agents (DB2 field name: QW0225ASG).

Shared Fixed Storage 64-bit (MB) Identifies the amount of total fixed virtual shared storage above the 2 GB bar (DB2 field name: QW0225SF).

Shared Getmained Storage (MB) Identifies the amount of virtual shared storage acquired by GETMAIN above the 2 GB bar (DB2 field name: QW0225SG).

Shared Memory Objects Identifies the number of shared memory objects allocated for this MVS LPAR (DB2 field name: QW0225SHRNOMOMB).

Shared Non-System Agent Stack Storage (MB) Shows the amount of 64-bit shared storage allocated for non-system agent stack use.

Shared Non-System Agent Stack Storage in Use (MB) Shows the amount of 64-bit shared non-system agent stack that is in use.

Shared Pages Backed in Real Storage 64 Bit Shows the number of 64-bit shared pages backed in real storage (4K pages) for this MVS LPAR (DB2 field name: QW0225SHRINREAL).

Shared Pages Paged In from Aux Storage 64 Bit Identifies the number of 64-bit shared pages paged in from auxiliary storage for this MVS LPAR (DB2 field name: QW0225SHRPAGEINS).

Shared Pages Paged Out from Auxiliary Storage 64 Bit Shows the number of 64-bit shared pages paged out to auxiliary storage for this MVS LPAR (DB2 field name: QW0225SHRPAGEOUTS).

Shared System Agent Stack Storage (MB) Shows the amount of 64-bit shared storage allocated for system agent stack use.

Shared Storage Manager Control Block (MB) Shows the amount of 64-bit shared storage allocated for storage manager control structures.

Shared Variable Storage (MB) Identifies the amount of virtual shared variable storage above the 2 GB bar (DB2 field name: QW0225SV).

Stack Storage In Use (MB) Shows the amount of 64-bit shared system agent stack that is in use.

Shared thread and system (MB) Shows the number of real-storage frames (4K) in use for 64-bit shared storage. This does not include shared stack storage (DB2 field
name: QW0225ShrStg_Real). This is recorded at the subsystem level. This field is available in z/OS 1.10 (and maintenance) or later.

**Subsystem 64-bit Shared Thd and Sys** Shows the number of auxiliary slots (4K) in use for 64-bit shared storage. This does not include shared stack storage (DB2 field name: QW0225ShrStg_Aux). This is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out. This field is available in z/OS 1.10 (and maintenance) or later.

**Thread Copies of Cached SQL Date at HWM** Identifies the timestamp at high-water storage (DB2 field name: QW0225HT).

**Thread Copies of Cached SQL Statement Count** Identifies the number of statements in the local cache storage pool (DB2 field name: QW0225LC).

**Thread Copies of Cached SQL Statement Count at HWM** Identifies the number of statements in the local cache storage pool at high storage time (DB2 field name: QW0225HC).

**Total Agent Non-System Storage (MB)** Shows the total Agent Non-System Storage. It is the difference between the Total Agent Local Storage (QW0225AL) and the Total Agent System Storage (QW0225AS).

**Total Alloc Shr Static SQL (MB)** Identifies the total shareable storage allocated for static SQL statements.

**Total Allocated Shareable Storage for dynamic (MB)** Identifies the total shareable storage allocated for dynamic SQL statements used by active threads.

**Total Requested Non Shr Dyn SQL (MB)** Identifies the total non-shareable storage requested for dynamic SQL statements used by active threads. For DB2 10 or later, this value is related to shared agent local variable pools above the bar.

**Total Requested Shr Dyn SQL (MB)** Identifies the total shareable storage requested for dynamic SQL statements used by active threads.

**DB2 Memory DBM1 or DIST Attributes**
Use the attributes to view the DB2 memory for the database address space (DBM1 or DIST).

**24 Bit High Private (MB)** Identifies the amount of private MVS storage below the 16 MB line (DB2 field name: QW0225HI). This storage is obtained from top downward, usually for authorized programs.

**24 Bit Low Private (MB)** Identifies the amount of private MVS storage below the 16 MB line (DB2 field name: QW0225LO). This storage is obtained from bottom upward, usually for unauthorized programs.

**31 Bit Extended High Private (MB)** Identifies the amount of private MVS storage above the 16 MB line (DB2 field name: QW0225EH). This storage is obtained from top downward, usually for authorized programs.

**31 Bit Extended Low Private (MB)** Identifies the amount of private MVS storage above the 16 MB line (DB2 field name: QW0225EL). This storage is obtained from bottom upward, usually for unauthorized programs.
31 Bit Storage Reserved for MVS Identifies the amount of storage available for operating system activity (DB2 field name: QW0225MV).

64 Bit Thread and System Only Aux (MB) Shows the amount of auxiliary storage in use for 64-bit private pools. This does not include buffer pool storage (DB2 field name: QW0225PriStg_Aux). This field only includes auxiliary slots occupied by pages that are paged out. This field is available in z/OS 1.10 (and maintenance) or later.

64 Bit Thread and System Only Real (MB) Shows the number of real-storage frames (4K) in use for 64-bit private pools. This is a subset of QW0225HVPagesInReal and does not include buffer pool storage (DB2 field name: QW0225PriStg_Real). This field is available in z/OS 1.10 (and maintenance) or later.

Address Space Name Shows the address space name (DBM1 or DIST) (DB2 field name: QW0225AN).

Aux 31 Bit in Use Shows the amount of auxiliary storage in use for 31-bit private pools. This value is available from z/OS V1.11.

Auxiliary Slots Used Shared Storage 64 Bit Shows the number of auxiliary slots used for 64-bit shared storage for this MVS LPAR (DB2 field name: QW0225SHRAUXSLOTS).

Auxiliary Storage in Use Shows the number of auxiliary slots that are in use. Each slot is 4 KB. This value is available from z/OS V1.11.

Auxiliary 4K Slot in Use 64 Bit Identifies the number of 4 KB auxiliary slots currently in use for 64-bit private storage. This value includes reserved auxiliary slots for pages that are paged in (DB2 field name: QW0225HVAUXSLOTS). This value is available from z/OS V1.11.

Available 31-Bit Storage Shows the total amount of storage available for storage manager pools (DB2 field name: QW0225AV).

Avg Thread Footprint (MB) Shows the current average memory usage of active user threads (allied threads and DBATs).

Average Thread Footprint private real Shows the current average real storage in use for private DBM1 storage of active user threads (allied threads + active and pooled DBATs).

Average Thread Mem Usage Type 2 Shows the current average memory usage of active allied threads and the maximum number of active DBATs that existed. The formula used for this value is suited for Enterprise Resource Planning (ERP) systems.

Castout Buffers (MB) Shows the total storage for buffers needed for all castout engines. It is calculated as follows: (castout engines) * 128 * 1024.

Current Private High Addr 24 Bit Identifies the current high address of the 24-bit private region (DB2 field name: QW0225TP). It indicates the highest value (upper limit) of the private area of the DB2 database address space and the private area of the distributed data address space.
**Current Private High Addr 31 Bit** Identifies the current high address of the 31-bit private region (DB2 field name: QW0225EP).

**Data Sharing Group** The name of the DB2 data sharing group. It is an alphanumeric text string with a maximum of 8 characters.

**Data Sharing Member** The name of the DB2 data sharing member or the member name of the DB2 subsystem. It is an alphanumeric text string with a maximum of 8 characters.

**DB2 Subsystem** The name of the DB2 subsystem.

**DB2 Version** The version of the DB2 system.

**Fixed Storage (MB)** Identifies the total amount of fixed storage (DB2 field name: QW0225FX).

**Fixed Storage above (MB)** Identifies the total amount of fixed storage above the 2 GB bar (DB2 field name: QW0225FA).

**Getmained Storage (MB)** Identifies the total storage acquired by GETMAIN (DB2 field name: QW0225GM). This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, hiperpool control blocks, and data space buffer pool control blocks. This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

**Getmained Storage above (MB)** Identifies the total storage acquired by GETMAIN (DB2 field name: QW0225GA). This includes space for the compression dictionary, and statement and DBD cache that can be used by the Environmental Descriptor Manager (EDM). This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

**Getmained Stack Storage (MB)** Identifies the total GETMAINED storage allocated for program stack use (DB2 field name: QW0225GS). This includes total getmained stack storage, total 64-bit shared system agent stack, and total 64-bit shared non-system agent stack.

**HWM Auxiliary 4K Slot in Use 64 Bit** Shows the high water mark of auxiliary storage in use for 64-bit private pools. This value is available from z/OS V1.11.

**HWM 64 bit real storage in use MB** Shows the high water mark of real storage in use for 64-bit private pools. This value is available from z/OS V1.11.

**Interval Start** The start time of this interval.

**Max Extended Region Size (MB)** Identifies the maximum amount of MVS private storage available above the 16 MB line (DB2 field name: QW0225RG).

**Max Number of Threads** The maximum number of possible threads. It depends on the storage size and average memory usage of active user threads.
Max Number Possible Type 2 Threads The maximum number of possible threads. It depends on the storage size and average memory usage of active allied threads and the maximum number of active DBATs that existed.

MVS System ID The MVS system identifier.

Number of Real Frames in Use Identifies the amount of real-storage frames in use for 31-bit and 64-bit private pools (DB2 field name: QW0225RL).

 Originating System ID The managed system name of the agent. It is an alphanumeric text string with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Real 31 bit in use (MB) Shows the amount of real storage in use for 31-bit private pools. This value is available from z/OS V1.11.

Real 64 bit in use (MB) Shows the amount of real storage in use for 64-bit private pools. This value is available from z/OS V1.11.

Real 4K Frame in Use Shows the amount of real storage in use for 31-bit and 64-bit private pools; prior to DB2 10, it shows the real storage used by DBM1, in megabytes.

Stack Storage In Use (MB) The amount of stack storage which is in use; this includes total stack storage in use, total 64-bit shared system agent stack in use, and total 64-bit shared non-system agent stack in use (DB2 field name: QW0225SS).

Storage Manager Control Block (MB) Identifies the total 64-bit storage allocated for storage manager control structures (DB2 field name: QW0225SM). This includes total 64-bit private storage for storage manager control structures, total 64-bit common storage for storage manager control structures, and total 64-bit shared storage for storage manager control structures.

Stor Res Must Complete Identifies the storage reserved for operation that must complete before DB2 is allowed to stop (DB2 field name: QW0225CR).

Storage Cushion Warning to Contract Storage cushion warning to contract (DB2 field name: QW0225SO).

Storage Cushion (MB) Identifies the storage reserved to allow DB2 to complete critical functions while short on storage. This includes the contract warning cushion, storage reserved for must-complete operations, and storage for MVS use.

Total 31-bit stack in use for system agents Shows the amount of 31-bit stack storage that is in use for system agents (DB2 field name: QW0225SS). This is a subset of QW0225SSU.

Total Storage Below (MB) Shows the total DBM1 storage below 2 GB.

Total Storage Below (MB) Shows the total DIST storage below the bar.

Variable Storage (MB) The total variable storage available below the 31-bit bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225VR).
Variable Storage Above (MB) Identifies the total variable storage available above the 31-bit bar (DB2 field name: QW0225VA).

DB2 Message Attributes
Use the DB2 Message attributes to identify problems with your DB2 system.

DB2ID The name of a DB2 subsystem.

DB2 Version The version of the DB2 system.

Interval Start The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Long Message Action Code The long message action code.

Message ID The system identification number for the message. It is an alphanumeric text string with a maximum of eight characters.

Message Text A description of the message. It is an alphanumeric text string with a maximum of 2500 characters.

MVS System ID The MVS system identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Note: By default DB2 messages are not collected. If you want to collect DB2 messages, use the Configuration Tool and select: Monitoring Profile configuration -> Additional configuration settings. If you configure it to YES, the DB2 message subtask is started during DB2 instance initialization.

To start or stop DB2 message collection manually specify the following:
F <cccccccc>,F PESEVER,F<db2>,DB2MSGMON=<p>

where:
cccccccc Identifies the OMEGAMON Collector started task name.

<db2> Identifies the DB2 name.

<p> Select Y to start or N to stop the message subtask.

If you do not see any DB2 messages, check if DB2 message subtask is started from the OMEGAMON Collector started task.

DB2 Parameters Attributes
Use the DB2 Parameters attributes to view ZPARM fields to see how your DB2 subsystem is configured. This information also applies if DB2 is a member of a data sharing group.

Data Sharing Group The name of the DB2 data sharing group. It is an alphanumeric text string with a maximum of 8 characters.
**Data Sharing Member** The name of the DB2 data sharing member or the member name of the DB2 subsystem. It is an alphanumeric text string with a maximum of 8 characters.

**DB2 Subsystem** The name of the DB2 subsystem.

**Field Name** The name of the DB2 field. It is an alphanumeric text string with a maximum of 8 characters.

**Field Description** The description of the DB2 field. It is an alphanumeric text string with a maximum of 44 characters.

The field descriptions of the DB2 parameters are listed in alphabetical order:

<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3990-3 SEQ CACHE (SEQCACH)</td>
<td>Indicates whether DB2 prefetch uses sequential mode to read cached data from a 3990 controller. When BYPASS (default), DB2 prefetch bypasses the cache.  When SEQ, DB2 prefetch uses sequential access for read activity. There is a performance benefit using SEQ with DFSMS or DFP controls with newer 3990 caches. Install parameter SEQUENTIAL CACHE on panel DSNTIPE, or ZPARM SEQCACH in DSN6SPRM.</td>
</tr>
<tr>
<td>ACCEL STARTUP (ACCEL)</td>
<td>Specifies the accelerator servers to be used.</td>
</tr>
<tr>
<td>ACCESS CONTROL (ACCESS CNTL MODULE)</td>
<td>Shows the name of the default access control exit module. This field corresponds to field ACCESS CONTROL on installation panel DSNTIPO3. The ZPARM name is ACCESS CNTL MODULE in DSN6SYSP.</td>
</tr>
<tr>
<td>ACTIVATE I/O SCHEDULING (SPRMIOP)</td>
<td>The enablement of the index I/O parallelism ZPARM.</td>
</tr>
<tr>
<td>ACTIVE LOGS - NUMBER OF COPIES (TWOACTV)</td>
<td>The TWOACTV subsystem parameter specifies the number of copies of the active log that DB2 is to maintain: 1 (single logging) or 2 (dual logging). ZPARM TWOACTV in DSN6LOGP</td>
</tr>
<tr>
<td>ACTIVE LOGS ARE OFFLOADED ONLINE</td>
<td>Shows whether the offload process is initiated online.</td>
</tr>
<tr>
<td>ADMIN SCHEDULER (ADMTPROC)</td>
<td>The name of the JCL procedure for starting the DB2 administrative scheduler task address space. DB2 parameter ADMTPROC in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>AGGREGATION FIELDS (ACCUMUID)</td>
<td>Shows the aggregation fields used for DDF and RRSAF accounting rollup. Values are defined as follows:</td>
</tr>
<tr>
<td></td>
<td>0  End user ID, transaction name, and workstation name</td>
</tr>
<tr>
<td></td>
<td>1  End user ID</td>
</tr>
<tr>
<td></td>
<td>2  End user transaction name</td>
</tr>
<tr>
<td></td>
<td>3  End user workstation name</td>
</tr>
<tr>
<td></td>
<td>4  End user ID and transaction name</td>
</tr>
<tr>
<td></td>
<td>5  End user ID and workstation name</td>
</tr>
<tr>
<td></td>
<td>6  End user transaction name and workstation name</td>
</tr>
<tr>
<td></td>
<td>This value is ignored if DDF or RRSAF accounting are not used. DB2 writes individual accounting threads for threads that do not have all aggregation fields populated that are specified by this parameter.</td>
</tr>
<tr>
<td></td>
<td>Install parameter AGGREGATION FIELDS on installation panel DSNTIPN, or ZPARM ACCUMUID in DSN6SYSP.</td>
</tr>
<tr>
<td>ALLOCATION UNITS (ALCUNIT)</td>
<td>The unit used in allocating archive data sets. Possible values are CYLINDER, TRACK, and BLOCK.</td>
</tr>
<tr>
<td></td>
<td>Install parameter ALLOCATION UNITS on panel DSNTIPA, or ZPARM ALCUNIT in DSN6ARVP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| ALLOW AUTOBIND OPERATION (ABIND)                  | Indicates whether autobind is enabled. Values are:                                                                                             | YES | Allows automatic rebind operations to be performed when a plan/package:  
• Was marked “invalid”.  
• Was bound on DB2 Vn, but is now running on DB2 Vn-1  
• After use on DB2 Vn-1 (as previously described), is later used again on DB2 Vn |
|                                                  | NO | Prevent DB2 from performing any automatic rebind operations under any circumstances.                                                                                     | ZPARM ABIND in DSN6SPRM. |
| ALLOW EXPLAIN AT AUTOBIND (ABEXP)                | Indicates whether EXPLAIN processing occurs during automatic rebind.              | YES | EXPLAIN processing happens during automatic rebind of a plan or package that has EXPLAIN=YES as a bind option. If the PLAN TABLE does not exist, automatic rebind continues, but there is no EXPLAIN output. Explain processing does not happen for a plan or package with EXPLAIN=NO. | ZPARM ABEXP in DSN6SPRM. |
| ALLOW TRACKMOD FOR IMPLICIT TSS (IMPTKMOD)       | Shows whether you have specified the TRACKMOD option on ALTER TABLESPACE for an implicitly created table space.  
This field corresponds to field TRACK MODIFIED PAGES on installation panel DSNTIP7. The ZPARM name is IMPTKMOD in DSN6SPRM. | | |
<p>| AMOUNT OF SPACE ABOVE MVS                       | The amount of space above MVS                                                                                                                                                                                                                                               | | |
| APPL COMPAT LEVEL (APPL COMPAT)                  | The application compatibility level.                                                                                                                                                                                                                                          | | |
| APPL REGISTRATION TABLE (RGFNMPRT)               | The name of the application registration table. Install parameter APPL REGISTRATION TABLE on panel DSNTIPZ or ZPARM RGFNMPRT in DSN6SPRM.                                                                                       | | |</p>
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPLICATION ENCODING DEFAULT (APPENSCH)</td>
<td>The Application encoding scheme. Install parameter APPLICATION ENCODING on installation panel DSNTIPF, or ZPARM APPENSCH in DSNHDECP.</td>
</tr>
<tr>
<td>ARCHIVE COPY 1 MASS STORAGE GROUP (MSGVP)</td>
<td>The mass storage system volume group name of the first storage group.</td>
</tr>
<tr>
<td>ARCHIVE COPY 2 MASS STORAGE GROUP (MSGVP2)</td>
<td>The mass storage system volume group name of the second storage group.</td>
</tr>
<tr>
<td>ARCHIVE LOG BLOCK SIZE BYTES (BLKSIZE)</td>
<td>The block size of the archive log data set. The block size must be compatible with the device type used for archive logs. The value is rounded up to the next multiple of 4096 bytes. If the archive log is written to tape, use the largest possible block size to improve the reading speed. Recommended block size values are 28672 for tape, 20480 for 3380, and 24576 for 3390 or RAMAC. Install parameter BLOCK SIZE on panel DSNTIPA, or ZPARM BLKSIZE in DSN6ARVP.</td>
</tr>
<tr>
<td>ARCHIVE LOG RACF PROTECTION (PROTECT)</td>
<td>Indicates whether archive log data sets are protected with individual RACF profiles when they are created. When YES, RACF protection must be active for DB2. YES also means that you cannot use RACF generic profiles for archive log data sets. If your archive log is on tape, RACF class TAPEVOL must be active, otherwise, the off-load will fail. Install parameter ARCHIVE LOG RACF on panel DSNTIPP, or ZPARM PROTECT in DSN6ARVP.</td>
</tr>
<tr>
<td>ARCHIVE LOGS - COPY 1 PREFIX (ARCPFX1)</td>
<td>The prefix for copy 1 of the archive data set. This prefix is appended to the high-level qualifier. ZPARM ARCPFX1 in DSN6ARVP.</td>
</tr>
<tr>
<td>ARCHIVE LOGS - COPY 2 PREFIX (ARCPFX2)</td>
<td>The prefix for copy 2 of the archive data set. This prefix is appended to the high-level qualifier. ZPARM: ARCPFX2 in DSN6ARVP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>ART/ORT ESCAPE CHAR (RGFESCP)</td>
<td>The escape character used in the application registration table (ART) or object registration table (ORT). Sets of names in the ART and ORT can be represented by patterns that use the underscore (_) and percent sign (%) characters in the same way as in an SQL LIKE predicate. Install parameter ART/ORT ESCAPE CHARACTER on panel DSNTIPZ, or ZPARM RGFESCP in DSN6SPRM.</td>
</tr>
<tr>
<td>ASCII GRAPHIC CCSID (AGCCSID)</td>
<td>Indicates the ASCII graphic coded character set ID. The default (0) means the installation has no ASCII databases, table spaces, or tables. Install parameter ASCII CCSID on panel DSNTIPF, or ZPARM AGCCSID in DSNHDECP.</td>
</tr>
<tr>
<td>ASCII MIXED CCSID (AMCCSID)</td>
<td>Indicates the ASCII mixed coded character set ID. The default (0) means the installation has no ASCII databases, table spaces, or tables. Install parameter ASCII CCSID on panel DSNTIPF, or ZPARM AMCCSID in DSNHDECP.</td>
</tr>
<tr>
<td>ASCII SINGLE-BYTE CCSID (ASCCSID)</td>
<td>The ASCII single-byte coded character set ID. The default (0) means the installation has no ASCII databases, table spaces, or tables. Install parameter ASCII CCSID on panel DSNTIPF, or ZPARM ASCCSID in DSNHDECP.</td>
</tr>
<tr>
<td>ASSEMBLY DATE</td>
<td>The date on which this module was assembled.</td>
</tr>
<tr>
<td>AUTH EXIT CHECK (AUTHEXIT CHECK)</td>
<td>The AUTH subsystem parameter controls whether DB2 is to check authorizations.</td>
</tr>
<tr>
<td>AUTH EXIT LIMIT (AEXITLIM)</td>
<td>The AEXITLIM subsystem parameter controls the number of abends of the DB2 access control authorization exit routine that are to be tolerated before it is shut down.</td>
</tr>
<tr>
<td>AUTHEXIT CACHEREFRESH</td>
<td>The authorization exit cache refresh.</td>
</tr>
<tr>
<td>AUTO START (IRLMAUT)</td>
<td>Indicates whether IRLM is started automatically by DB2. Install parameter AUTO START on panel DSNTIPI, or ZPARM IRLMAUT in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>AUTO STARTED DATABASE/TBLSPACE</td>
<td>Database or table space is automatically started.</td>
</tr>
<tr>
<td>AUTOMATICALLY REOPTIMIZE DYN SQL (REOPTEXT)</td>
<td>Indicates that the access path of the dynamic SQL statement was automatically reoptimized.</td>
</tr>
</tbody>
</table>
| BACKOUT DURATION (BACKODUR) | Indicates how much of the log to process for backout when LIMIT BACKOUT = YES or AUTO. During restart, backward log processing continues until both of the following events occur:  
  • All inflight and inabort URs with update activity against the catalog or directory are backed out.  
  • The number of log records processed is equal to the number specified in BACKOUT DURATION times the value of CHECKPOINT FREQ. If the checkpoint frequency is specified in minutes, the number of records processed is the default of 50000 records multiplied by the value of CHECKPOINT FREQ.  
  In-flight and in-abort URs that are not completely backed out during restart are converted to postponed-abort status. Page sets or partitions with postponed-backout work are put into restart pending (RESTP). This state blocks all access to the object other than access by the command RECOVER POSTPONED or by automatic backout processing performed by DB2 when LIMITED BACKOUT = AUTO.  
  A table space might be in restart pending mode, without the associated index spaces also in restart pending mode. This happens if a postponed abort UR makes updates only to non-indexed fields of a table in a table space. In this case, the indexes are accessible to SQL (for index-only queries), even though the table space is inaccessible.  
  Install parameter BACKOUT DURATION on panel DSNTIPL, or ZPARM BACKODUR in DSN6SYSP. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIF COMPATIBILITY</td>
<td>The BIF_COMPATIBILITY subsystem parameter specifies whether the built-in functions and specifications are to return results in the DB2 10 format or revert to the pre-Version 10 format. Acceptable values are: CURRENT V9 V9_TRIM V9_DECIMAL_VARCHAR N/P ZPARM BIF_COMPATIBILITY in DSN6SPRM.</td>
</tr>
<tr>
<td>BIND NEW PACKAGE (BINDNV)</td>
<td>The BINDNV subsystem parameter controls whether BIND or BINDADD authority is to be required for a user to bind a new version of an existing package. Acceptable values are BINDADD (default) or BIND. ZPARM BINDNV in DSN6SPRM.</td>
</tr>
<tr>
<td>CACHE DYNAMIC SQL STATEMENTS (CACHEDYN)</td>
<td>Indicates whether prepared dynamic SQL statements are saved for later use by eligible application processes in the EDM pool. Install parameter CACHE DYNAMIC SQL on panel DSNTIP8, or ZPARM CACHEDYN in DSN6SPRM.</td>
</tr>
<tr>
<td>CATALOG DATA (CATALOG)</td>
<td>The value of the CATALOG DATA field specifies whether archive log data sets on tape are to be cataloged. Acceptable values are YES or NO (default). ZPARM CATALOG in DSN6ARVP.</td>
</tr>
<tr>
<td>CHARACTER SET (DECPCHAR)</td>
<td>The character set.</td>
</tr>
<tr>
<td>CHECK FASTREPLICATION</td>
<td>The CHECK FASTREPLICATION parameter specifies the type of replication that DSS COPY uses to copy objects to shadow data sets when it is invoked by the DB2 CHECK utilities. The CHECK utilities can stipulate fast replication as PREFERRED or REQUIRED (default). ZPARM CHECK FASTREPLICATION in DSN6SPRM.</td>
</tr>
<tr>
<td>CHK FREQ RECORDS (LOGLOAD)</td>
<td>The LOGLOAD value specifies the number of log records that DB2 writes between checkpoints.</td>
</tr>
<tr>
<td>COMPACT DATA (COMPACT)</td>
<td>The COMPACT subsystem parameter controls whether data that is written to archive logs is to be compacted. Acceptable values are YES or NO (default). ZPARM COMPACT in DSN6ARVP.</td>
</tr>
<tr>
<td>COMPATIBILITY OPTION (COMPAT)</td>
<td>Indicates that DB2 is running in compatibility mode.</td>
</tr>
<tr>
<td></td>
<td>DB2 parameter COMPAT in DSNHDECP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>COMPRESS SMF RECORDS (SMFCOMP)</td>
<td>Shows the COMPRESS DEST(SMF) TRACE records. This field corresponds to field COMPRESS SMF RECS on installation panel DSNTIPN. ZPARM name: SMFCOMP in DSN6YSFP.</td>
</tr>
<tr>
<td>COMPRESS SPT01</td>
<td>COMPRESS SPT01 in macro DSN6SPRM specifies whether the SPT01 table space is to be compressed. Valid values are YES and NO. In a data sharing environment, all members should use the same setting for the COMPRESS SPT01 parameter. The default value is NO, which means that the SPT01 table space is not compressed.</td>
</tr>
<tr>
<td>CONN QUEUE MAX DEPTH (MAXCONQN)</td>
<td>Specifies the maximum number of inactive or new connections that can be queued waiting for a DBAT to process the request. The default value is OFF.</td>
</tr>
<tr>
<td></td>
<td>OFF means that the depth of the connection queue is limited by the value of the CONDBAT subsystem parameter. ON means that the depth of the connection queue is limited by the value of the MAXDBAT subsystem parameter. A numeric value specifies the maximum number of connections that can be queued waiting for a DBAT to process a request.</td>
</tr>
<tr>
<td></td>
<td>ZPARM MAXCONQN in DSN6FAC.</td>
</tr>
<tr>
<td>CONN QUEUE MAX WAIT (MAXCONQW)</td>
<td>Specifies the maximum length of time that a client connection waits for a DBAT to process the next unit-of-work or new connection request. The default value is OFF.</td>
</tr>
<tr>
<td></td>
<td>ON means that connections wait as long as the value specified by the IDHTOIN subsystem parameter. OFF means that connections wait indefinitely for a DBAT to process requests. A numeric value specifies a time duration in seconds that a connection waits for a DBAT to process the request.</td>
</tr>
<tr>
<td></td>
<td>ZPARM MAXCONQW in DSN6FAC.</td>
</tr>
<tr>
<td>CONTRACT THREAD STORAGE (CONTSTOR)</td>
<td>Indicates whether DB2 returns unused thread storage at commit. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>YES  DB2 checks threads at commit points and periodically returns unused storage to the system.</td>
</tr>
<tr>
<td></td>
<td>NO   DB2 does not check threads at commit points and returns acquired storage on deallocation.</td>
</tr>
<tr>
<td></td>
<td>Install parameter CONTRACT THREAD STG on panel DSNTIPE, or ZPARM CONTSTOR in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CONTROL ALL APPLICATIONS (RGFDEDPL)</td>
<td>The RGFDEDPL subsystem parameter specifies whether the DB2® subsystem is to be completely controlled by a set of closed applications that are identified in the application registration table. Acceptable values are YES or NO (default). ZPARM RGFDEDPL in DSN6SPRM.</td>
</tr>
<tr>
<td>CONTROL PACKAGE HASH TABLES</td>
<td>The size of the control package hash table.</td>
</tr>
<tr>
<td>COPY (FLASHCOPY COPY)</td>
<td>The value of the FLASHCOPY COPY parameter specifies whether the FLASHCOPY option of the COPY utility is to be used by default. Acceptable values are NO (default) or YES. ZPARM FLASHCOPY COPY in DSN6SPRM.</td>
</tr>
<tr>
<td>CORRELATION ID MONITOR (SPRMOZC1)</td>
<td>The correlation ID of the online application that made the last change to DB2 system settings.</td>
</tr>
<tr>
<td>CURRENT DEGREE (CDSSRDEF)</td>
<td>Shows the default for the CURRENT DEGREE special register when no degree is explicitly set with SET CURRENT DEGREE. The default disables query parallelism. Install parameter CURRENT DEGREE on panel DSNTIP8, or ZPARM CDSSRDEF in DSN6SPRM.</td>
</tr>
<tr>
<td>CURRENT MAINTAINED TABLE TYPE (MAINTYPE)</td>
<td>Shows the default special register for the CURRENT MAINTAINED TABLE TYPES FOR OPTIMIZATION statement when no value is explicitly set. Possible values are: • ALL  • NONE  • SYSTEM (default)  • USER  The default allows query rewrite using system-maintained materialized query tables (SYSTEM) when CURRENT REFRESH AGE is set to ANY. When USER, query rewrite is done using user-maintained materialized query tables when CURRENT REFRESH AGE is set to ANY. ALL means that query rewrite uses both system-maintained and user- maintained materialized query tables. Install parameter CURRENT MAINT TYPES on panel DSNTIP8, or ZPARM MAINTYPE in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>CURRENT QUERY ACCEL. (QUERY ACCELERATION)</td>
<td>Determines the default value that is to be used for the CURRENT QUERY ACCELERATION special register. Possible values are:</td>
</tr>
<tr>
<td>NONE</td>
<td>Indicates that no query acceleration is done. This is the default value.</td>
</tr>
<tr>
<td>ENABLE</td>
<td>Indicates that queries are accelerated only if DB2 determines that it is advantageous to do so. If there is an accelerator failure while a query is running, or the accelerator returns an error, DB2 returns a negative SQLCODE to the application.</td>
</tr>
<tr>
<td>ENABLE WITH FAILBACK</td>
<td>Indicates that queries are accelerated only if DB2 determines that it is advantageous to do so. If the accelerator returns an error during the PREPARE or first OPEN for the query, DB2 executes the query without the accelerator. If the accelerator returns an error during a FETCH or a subsequent OPEN, DB2 returns the error to the user, and does not execute the query.</td>
</tr>
<tr>
<td>ELIGIBLE</td>
<td>Indicates that queries are accelerated if they are eligible for acceleration. DB2 does not use cost information to determine whether to accelerate the queries. Queries that are not eligible for acceleration are executed by DB2. If there is an accelerator failure while a query is running, or the accelerator returns an error, DB2 returns a negative SQLCODE to the application.</td>
</tr>
<tr>
<td>ALL</td>
<td>Indicates that queries are accelerated if they are eligible for acceleration. DB2 does not use cost information to determine whether to accelerate the queries. Queries that are not eligible for acceleration are not executed by DB2, and an SQL error is returned. If there is an accelerator failure while a query is running, or the accelerator returns an error, DB2 returns a negative SQLCODE to the application.</td>
</tr>
</tbody>
</table>

ZP ARM name QUERY ACCELERATION in DSN6SPRM.
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURRENT REFRESH AGE (REFSHAGE)</td>
<td>Shows the default for the CURRENT REFRESH AGE special register deferred materialized query tables.</td>
</tr>
<tr>
<td></td>
<td>Install parameter CURRENT REFRESH AGE on panel DSNTIP8, or ZPARM REFSHAGE in DSN6SPRM.</td>
</tr>
<tr>
<td>DATA COMPRESS FOR IMPLICIT TS (IMPTSCMP)</td>
<td>Shows whether data compression in table spaces in implicitly defined databases is used. Install parameter USE DATA COMPRESSION on panel DSNTIP7 or ZPARM IMPTSCMP in DSN6SYSP.</td>
</tr>
<tr>
<td>DATA DEF TIMEOUT (DDLTOX)</td>
<td>Shows the time out factor of the SQL data definition. The time out value is the product of this value and the IRLMRWT value. ZPARM name DDLTOX in DSN6SPRM.</td>
</tr>
<tr>
<td>DATA SHARING ENABLED (DSHARE)</td>
<td>Indicates whether data sharing is enabled.</td>
</tr>
<tr>
<td></td>
<td>Install parameter DATA SHARING on panel DSNTIPA1, or ZPARM DSHARE in DSN6GRP.</td>
</tr>
<tr>
<td><strong>DB2 parameter</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| DATABASE PROTOCOL (DBPROTCL)             | The default protocol (DRDA or PRIVATE) used when option DBPROTocol BIND is not explicitly specified for the bind of a plan or a package.  
When field INSTALL TYPE on panel DSNTIPA1 is INSTALL, the default value for DATABASE PROTOCOL is DRDA. When the value of INSTALL TYPE is MIGRATE, the default value for DATABASE PROTOCOL is PRIVATE.  
An application program might contain statements with three-part names, or aliases that reference remote objects. At bind or rebind of a plan, a user can specify whether these statements flow to the remote site using DB2 private or DRDA protocol.  
DB2 private protocol is appropriate if you do not plan to move applications that use three-part names to DRDA access immediately. To use DRDA access for applications with three-part names, you must bind packages for those applications at each location that the applications access, then bind all packages into a plan. If you cannot perform this activity immediately, and you want your applications to continue to work, you should specify PRIVATE for DATABASE PROTOCOL.  
The BIND commands for DB2-supplied applications are in job DSNTIJSG.  
Install parameter DATABASE PROTOCOL on panel DSNTIP5, or ZPARM DBPROTCL in DSN6SYSP. |
| DATASET STATS TIME (DSSTIME)             | The time interval, in minutes, before DB2 resets data set statistics collected for the online performance monitors. Online performance monitors can request DB2 data set statistics for the current interval with an IFI READS request for IFCID 199.  
Install parameter DATASET STATS TIME on panel DSNTIPN, or ZPARM DSSTIME in DSN6SYSP. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE FORMAT (DATE)</td>
<td>Default output format for dates. Valid formats are ISO (yyyy-mm-dd), USA (mm/dd/yyyy), EUR (dd.mm.yyyy), JIS (yyyy- mm-dd), or LOCAL (your choice, defined by a date exit routine). DB2 interprets the input date from the punctuation and converts the output date to the required format. Install parameter DATE FORMAT on panel DSNTIP4, or ZPARM DATE in DSNHDECP.</td>
</tr>
<tr>
<td>DB2-SUPPLIED DECP</td>
<td>Indicates that DECP is supplied by DB2. Using a DB2 supplied DECP could cause data corruption due to applications using wrong CCSIDs.</td>
</tr>
<tr>
<td>DBADM CREATE AUTH (DBACR VW)</td>
<td>Shows whether a DB2 administrator can create a view or alias for another user. Possible values are YES or NO. The default is NO. Install parameter DBADM CREATE AUTH on panel DSNTIPP. ZPARM DBACR VW in macro DSN6SPRM.</td>
</tr>
<tr>
<td>DDF COMPATIBILITY</td>
<td>The DDF compatibility.</td>
</tr>
<tr>
<td>DDF START OPTION (DDF)</td>
<td>Specifies how the data types of stored procedure output parameters are determined when a non-Java client calls a DB2 for z/OS stored procedure. Valid values are null and SP_P ARMS_NV. The default value of null means that the data types of the returned output data match the data types of the parameters in the stored procedure definition. This is the default behavior starting in DB2 for z/OS Version 10.</td>
</tr>
<tr>
<td>DDF THREADS (CMTSTAT)</td>
<td>The CMTSTAT subsystem parameter controls whether threads are to be made active or inactive after they successfully commit or roll back and hold no cursors. A thread can become inactive only if it holds no cursors, has no temporary tables defined, and executes no statements from the dynamic statement cache. Acceptable values are ACTIVE or INACTIVE. ZPARM CMTSTAT in macro DSN6FAC.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DDF/RRSAF ACCUMULATION (ACCUMACC)</td>
<td>Shows whether DB2 accounting data for DDF and RRSAF threads is accumulated by end user. When NO, DB2 writes an accounting record when a DDF thread is made inactive, or when signon occurs for an RRSAF thread. A value in the range 2 through 65535 shows the number of times an end-user identifier should occur before DB2 writes an accounting record. An end-user identifier is the concatenation of the end-user user ID, end-user transaction name, and the end-user workstation name. Tracing, Checkpoint &amp; Pseudo-Close Parameters (DSNTIPN). These values can be set by DDF threads using SERVER CONNECT and SET CLIENT calls, and by RRSAF threads using the RRSAF SIGN, AUTH SIGNON, and CONTEXT SIGNON functions. An accounting record might be written prior to the number of end user occurrences in the following instances:</td>
</tr>
<tr>
<td></td>
<td>• When an internal storage threshold is reached for the accounting RRSAF signon call.</td>
</tr>
<tr>
<td></td>
<td>• When the thread deallocates, the accumulated accounting data for all end users on this thread is written (one record per end user).</td>
</tr>
<tr>
<td></td>
<td>• When this parameter is dynamically changed to deactivate accounting accumulation. In this instance, the next end-UR (for DDF thread) or signon (for a RRSAF thread) causes DB2 to write the accumulated accounting data for all end users on this thread (one record per end user).</td>
</tr>
<tr>
<td></td>
<td>Install parameter DDF/RRSAF ACCUM on installation panel DSNTIPN, or ZPARM ACCUMACC in DSN6SYSP.</td>
</tr>
<tr>
<td>DEADLOCK CYCLES (DEADLOK)</td>
<td>The value of the DEADLOCK CYCLE field specifies the number of local deadlock cycles that must expire before the IRLM does global deadlock detection processing. The DEADLOCK CYCLE field is used only for DB2® data sharing. The associated IRLM PROC parameter is DEADLOK.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DEADLOCK TIME (DEADLOK)</td>
<td>The DEADLOCK TIME field controls the amount of time for which local deadlock detection cycles are to run. A deadlock is a situation in which two or more requesters are waiting for resources that are held by another requester. Deadlock detection is the procedure that identifies deadlocks and its participants. The associated IRLM PROC parameter is DEADLOK.</td>
</tr>
<tr>
<td>DECIMAL ARITHMETIC (DECARTH)</td>
<td>Indicates the rules of precision for a decimal field.</td>
</tr>
<tr>
<td></td>
<td>Install parameter DECIMAL ARITHMETIC on panel DSNTIP4, or ZPARM DECARTH in DSNHDECP.</td>
</tr>
<tr>
<td>DECIMAL POINT IS (DECIMAL)</td>
<td>Indicates whether the decimal contains a comma (,) or a period (.). This parameter is used for dynamic SQL and COBOL programs. It is not used or supported by other languages.</td>
</tr>
<tr>
<td></td>
<td>Install parameter DECIMAL POINT IS on panel DSNTIPF, or ZPARM DECIMAL in DSNHDECP.</td>
</tr>
<tr>
<td>DEF DECFLOAT ROUND MODE</td>
<td>The default rounding mode for the decimal floating point type. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>X'80'       ROUND CEILING</td>
</tr>
<tr>
<td></td>
<td>X'40'       ROUND DOWN</td>
</tr>
<tr>
<td></td>
<td>X'20'       ROUND FLOOR</td>
</tr>
<tr>
<td></td>
<td>X'10'       ROUND HALF DOWN</td>
</tr>
<tr>
<td></td>
<td>X'08'       ROUND HALF EVEN</td>
</tr>
<tr>
<td></td>
<td>X'04'       ROUND HALF UP</td>
</tr>
<tr>
<td></td>
<td>X'02'       ROUND UP</td>
</tr>
<tr>
<td></td>
<td>Otherwise this field shows 'BLANK'.</td>
</tr>
<tr>
<td></td>
<td>ZPARM DEF DECFLOAT ROUND MODE in DSNHDECP.</td>
</tr>
<tr>
<td>DEFAULT 16KB BP FOR USER DATA (TBSBP16K)</td>
<td>The default 16 KB buffer pool for:</td>
</tr>
<tr>
<td></td>
<td>• Table spaces with a 16 KB page size in implicitly created databases</td>
</tr>
<tr>
<td></td>
<td>• Explicitly created table spaces with a 16 KB page size, but without a buffer pool clause that is specified in the create table space statement.</td>
</tr>
<tr>
<td></td>
<td>Install parameter DEFAULT 16-KB BUFFER POOL FOR USER DATA on panel DSNTIP1 or ZPARM TBSBP16K in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DEFAULT 32KB BP FOR USER DATA (TBSBP32K)</td>
<td>The default 32 KB buffer pool for:</td>
</tr>
<tr>
<td></td>
<td>• Table spaces with a 32 KB page size in implicitly created databases</td>
</tr>
<tr>
<td></td>
<td>• Explicitly created table spaces with a 32 KB page size, but without a buffer pool clause that is specified in the create table space statement</td>
</tr>
<tr>
<td></td>
<td>Install parameter DEFAULT 32-KB BUFFER POOL FOR USER DATA on panel DSNTIP1 or ZPARM TBSBP32K in DSN6SYSP.</td>
</tr>
<tr>
<td>DEFAULT 4KB BP FOR USER DATA (TBSBPOOL)</td>
<td>The name of the 4 KB buffer pool for user table spaces. Install parameter DEFAULT BUFFER POOL FOR USER DATA on installation panel DSNTIP1, or ZPARM TBSBPOOL in DSN6SYSP.</td>
</tr>
<tr>
<td>DEFAULT 8KB BP FOR USER DATA (TBSBP8K)</td>
<td>The default 8 KB buffer pool for:</td>
</tr>
<tr>
<td></td>
<td>• Table spaces with an 8 KB page size in implicitly created databases</td>
</tr>
<tr>
<td></td>
<td>• Explicitly created table spaces with an 8 KB page size, but without a buffer pool clause that is specified in the create table space statement</td>
</tr>
<tr>
<td></td>
<td>Install parameter DEFAULT 8-KB BUFFER POOL FOR USER DATA on panel DSNTIP1 or ZPARM TBSBP8K in DSN6SYSP.</td>
</tr>
<tr>
<td>DEFAULT BP FOR INDEXES (IDXBPOOL)</td>
<td>The name of the 4 KB buffer pool used for indexes on user data. Install parameter DEFAULT BUFFER POOL FOR USER INDEXES on installation panel DSNTIP1, or ZPARM IDXBPOOL in DSN6SYSP.</td>
</tr>
<tr>
<td>DEFAULT BUFFER POOL FOR USER LOB (TBSBPLOB)</td>
<td>The TBSBPLOB subsystem parameter specifies the default buffer pool that is to be used for LOB table spaces that are created implicitly. This parameter also applies to LOB tables spaces that are created explicitly without the BUFFERPOOL clause.</td>
</tr>
<tr>
<td></td>
<td>Acceptable values are any 4 KB, 8 KB, 16 KB, or 32 KB buffer pool names. Default is BP0.</td>
</tr>
<tr>
<td></td>
<td>ZPARM TBSBPLOB in DSN6SYSP.</td>
</tr>
<tr>
<td>DEFAULT BUFFER POOL FOR USER XML (TBSBPXML)</td>
<td>The TBSBPXML subsystem parameter specifies the default buffer pool that is to be used for XML table spaces that are created implicitly. Acceptable values are any 16 KB buffer pool name. Default is BP16K0.</td>
</tr>
<tr>
<td></td>
<td>ZPARM TBSBPXML in DSN6SYSP.</td>
</tr>
<tr>
<td>DEFAULT ENCODING SCHEME (ENSCHEME)</td>
<td>The default encoding scheme, which can be ASCII or EBCDIC, or UNICODE.</td>
</tr>
<tr>
<td></td>
<td>Install parameter DEF ENCODING SCHEME on panel DSNTIPF, or ZPARM ENSCHEM in DSNHDEC.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DEFAULT PARTITION SEGSIZE (DPSEGSZ)</td>
<td>The default segment size to be used for a partitioned table space when the CREATE TABLESPACE statement does not include the SEGSIZE parameter. This field corresponds to field DEFAULT PARTITION SEGSIZE on installation panel DSNTIP7. The ZPARM name is DPSEGSZ IN DSN6SYSP.</td>
</tr>
<tr>
<td>DEFAULT TEMPLATE (FCCOPYDDN)</td>
<td>The FCCOPYDDN subsystem parameter defines the default value that is to be used for the FCCOPYDDN parameter of the FLASHCOPY option of DB2® utilities control statements. This parameter applies to the COPY, LOAD, REBUILD INDEX, REORG INDEX, and REORG TABLESPACE utilities. ZPARM FCCOPYDDN in DSN6SPRM.</td>
</tr>
<tr>
<td>DEFINE DATA SET FOR IMPLICIT TS (IMPDSDEF)</td>
<td>Defines the underlying data sets when a table space (TS) that is contained in an implicitly created database is created. Install parameter DEFINE DATA SETS on panel DSNTIP7 or ZPARM IMPDSDEF in DSN6SYSP.</td>
</tr>
<tr>
<td>DEL CFSTRUCTS ON RESTART</td>
<td>The DEL_CFSTRUCTS_ON_RESTART parameter specifies whether, during restart, DB2 is to attempt to delete the SCA, IRLM lock structure, and any allocated group buffer pools from the coupling facility. ZPARM DEL_CFSTRUCTS_ON_RESTART in DSN6SYSP.</td>
</tr>
<tr>
<td><strong>DB2 parameter</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------</td>
</tr>
</tbody>
</table>
| DESCRIBE FOR STATIC SQL (DESCSTAT) | Shows whether DB2 builds a DESCRIBE SQLDA when binding static SQL statements. A DESCRIBE cannot be issued against a static SQL statement except:  
• In a distributed environment, where DB2 for z/OS is the server and the requester supports extended dynamic SQL. In this instance, a DESCRIBE on an SQL statement in the extended dynamic package appears to DB2 as a DESCRIBE on a static SQL statement in the DB2 package.  
• When an application uses a stored procedure result set, the application must allocate a cursor for that result set. The application can do this using a DESCRIBE CURSOR statement. The SQL statement actually described is the one with the cursor declared in the stored procedure. If that statement is static, a static SQL statement must be described.  
When NO (default), DB2 does not generate a DESCRIBE SQLDA at BIND time for static SQL statements. If a DESCRIBE request is received at execution time, DB2 generates an error. However, if the describe request comes from a DESCRIBE CURSOR statement, DB2 satisfies the request but is only able to provide data type and length information. Column names are not provided.  
When YES, DB2 generates a DESCRIBE SQLDA at BIND time so that DESCRIBE requests for static SQL can be satisfied during execution.  
**Note:** You must rebind packages after this value has been set to YES.  
This option increases the size of some packages because the DESCRIBE SQLDA is now stored with each statically-bound SQL SELECT statement.  
Install parameter DESCRIBE FOR STATIC on panel DSNTIP4, or ZPARAM DESCSTAT in DSN6SPRM. |
<p>| DEVICE TYPE 1 (UNIT) | The UNIT subsystem parameter specifies the device type or unit name that is to be used for storing archive log data sets. Acceptable values are the device type or unit name. The default value is TAPE. |</p>
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEVICE TYPE 2 (UNIT2)</td>
<td>The UNIT2 subsystem parameter specifies the device type or unit name that is to be used for storing the second copy of archive log data sets. These data sets are the COPY2 data sets. Acceptable values are the device type or unit name. The default value is none.</td>
</tr>
<tr>
<td></td>
<td>ZPARM UNIT in DSN6ARVP.</td>
</tr>
<tr>
<td>Disable EDMRTS (DISABLE EDMRTS)</td>
<td>Specifies whether to disable the collection of real-time statistics by the Environmental Descriptor Manager (EDM). By default, EDM collects real-time statistics to track when packages were last used. Valid values are NO and YES. The default value is NO, which means that EDM continues to collect real-time statistics about the last use of packages. This is the recommended value.</td>
</tr>
<tr>
<td></td>
<td>ZPARM DISABLE EDMRTS in DSN6SPRM.</td>
</tr>
<tr>
<td>DISALLOW DEFAULT COLLID</td>
<td>Specifies whether the default collection ID, DSN_DEFAULT_COLLID_plan-name, is used for implicitly generated packages during the automatic DBRM to package conversion process. Valid values are YES and NO.</td>
</tr>
<tr>
<td></td>
<td>ZPARM DISALLOW_DEFAULT_COLLID in macro DSN6SPRM.</td>
</tr>
<tr>
<td>DISTRIBUTED SQL STRING DELM (DSQLDELI)</td>
<td>The DSQLDELI DECP value specifies whether an apostrophe or quotation mark is to be used as the SQL string delimiter for bind operations at this DB2 site. This delimiter is to be used when the requester does not give DB2 that information.</td>
</tr>
<tr>
<td></td>
<td>In most cases, requesters tell DB2 whether the apostrophe or the quotation mark is to be used as the SQL string delimiter.</td>
</tr>
<tr>
<td></td>
<td>Acceptable values are ’ (apostrophe) or &quot; (quotation mark).</td>
</tr>
<tr>
<td>DO NOT SET SQLWARN1 4 AND 5 (DISABSCM)</td>
<td>Do not set SQLWARN1, 4 and 5.</td>
</tr>
<tr>
<td>DRDA ALIAS RES (DRDA RESOLVE ALIAS)</td>
<td>Specifies whether aliases are resolved with DRDA protocol. This parameter is online updatable.</td>
</tr>
<tr>
<td></td>
<td>ZPARM DRDA_RESOLVE_ALIAS in macro DSN6SPRM.</td>
</tr>
<tr>
<td>DSNHDECP MODULE DSNNAME</td>
<td>The DSN name of the DSNHDECP module that is supplied by DB2. It is used to run the DB2 precompiler.</td>
</tr>
<tr>
<td>DSNZPARM MODULE</td>
<td>The name of the DSNZPARM module specified for DB2 startup and the date on which this module was assembled.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
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</tr>
<tr>
<td>DUAL ARCHIVE COPIES (TWOARCH)</td>
<td>The TWOARCH subsystem parameter specifies the number of copies of the archive log that DB2 is to produce during offloading. If you run the installation or migration CLIST, the setting of the NUMBER OF COPIES field determines the setting of the TWOARCH subsystem parameter. Valid values of the TWOARCH subsystem parameter are NO and YES. ZPARM TWOARCH in DSN6LOGP.</td>
</tr>
<tr>
<td>DUAL BSDS MODE (TWOBSDS)</td>
<td>Shows whether two BSDS data sets are used. A second BSDS (strongly recommended) makes recovery much easier in most situations. In cases that normally require recovery and restart, a second BSDS allows you to continue working. The storage overhead required is small and the data set is relatively inactive. DB2 parameter TWOBSDS in DSN6LOGP.</td>
</tr>
<tr>
<td>DUMP CLASS NAME (UTILS DUMP CLASS NAME)</td>
<td>The name of the DFSMSHSM dump class used by the restore system utility to restore from a system-level backup that has been dumped to tape. Install parameter DUMP CLASS NAME on installation panel DSNTIP6, or ZPARM UTILS DUMP CLASS NAME in DSN6SPRM.</td>
</tr>
<tr>
<td>EBCDIC GRAPIC CCSID (GCCSID)</td>
<td>The EBCDIC graphic coded character set ID. A coded character set identifier (CCSID) must be specified when DDF STARTUP OPTION field on panel DSNTIPR is set to AUTO or COMMAND, or when the MIXED DATA field on panel DSNTIPF is set to YES. When mixed data is used, valid Mixed Data CCSID must also be specified. A nonexistent CCSID causes an error. An incorrect CCSID can corrupt data. Install parameter EBCDIC CCSID on panel DSNTIPF, or ZPARM GCCSID in DSNHDECP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
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<td>---------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>EBCDIC MIXED CCSID (MCCSID)</td>
<td>The EBCDIC mixed coded character set ID. A coded character set identifier (CCSID) must be specified when DDF STARTUP OPTION field on panel DSNTIPR is set to AUTO or COMMAND, or when the MIXED DATA field on panel DSNTIPF is set to YES. When mixed data is used, valid Mixed Data CCSID must also be specified. A nonexistent CCSID causes an error. An incorrect CCSID can corrupt data. Install parameter EBCDIC CCSID on panel DSNTIPF, or ZPARM MCCSID in DSNHDECP.</td>
</tr>
<tr>
<td>EBCDIC SINGLE-BYTE CCSID (SCCSID)</td>
<td>The EBCDIC single-byte coded character set ID. A coded character set identifier (CCSID) must be specified when DDF STARTUP OPTION field on panel DSNTIPR is set to AUTO or COMMAND, or when the MIXED DATA field on panel DSNTIPF is set to YES. When mixed data is used, valid Mixed Data CCSID must also be specified. A nonexistent CCSID causes an error. An incorrect CCSID can corrupt data. Install parameter EBCDIC CCSID on panel DSNTIPF, or ZPARM SCCSID in DSNHDECP.</td>
</tr>
<tr>
<td>EDM ABOVE 2GB (EDM ABOVE 2GB)</td>
<td>EDM above 2 GB.</td>
</tr>
<tr>
<td>EDM BEST FIT (EDMBFIT)</td>
<td>The EDMBFIT subsystem parameter controls how free space is to be utilized for large EDM pools (greater than 40 MB). Acceptable values are YES or NO (default). ZPARM EDMBFIT in DSN6SPRM.</td>
</tr>
<tr>
<td>EDM LIMIT BELOW THE BAR (EDMPOOL)</td>
<td>The size (in kilobytes) of the environmental descriptor manager (EDM) pool. This can be the value calculated by the CLIST, based on input from previous panels, or the value entered in the Override column at installation time. ZPARM EDMPOOL in DSN6SPRM.</td>
</tr>
<tr>
<td><strong>DB2 parameter</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>EDM POOL DBD CACHE SIZE (EDMDBDC)</td>
<td>The minimum size of the DBD cache that can be used by the Environmental Descriptor Manager (EDM). This value is used at DB2 startup time as the minimum value. You can increase and subsequently decrease the value with the SET SYSPARM command. This value cannot be decreased below the value that is specified at DB2 startup. This storage pool is located above the 2 GB bar. The CLIST calculates the DBD cache size. The value used at DB2 startup time is either calculated by the CLIST based on input from other installation information or an override value. ZPARM EDMDBDC in DSN6SPRM.</td>
</tr>
<tr>
<td>EDM POOL STATEMENT CACHE SIZE (EDMSTMTC)</td>
<td>The EDMSTMTC subsystem parameter determines the size (in KB) of the statement cache that is to be used by the EDM. Acceptable values are 5000 to 1048576. ZPARM EDMSTMTC in DSN6SPRM.</td>
</tr>
<tr>
<td>EDM SKELETON POOL SIZE (EDM SKELETON POOL)</td>
<td>The EDM_SKELETON_POOL subsystem parameter determines the minimum size of the EDM skeleton pool in KB. Acceptable values are 5120 to 2097152. ZPARM EDM_SKELETON_POOL in DSN6SPRM.</td>
</tr>
<tr>
<td>ENABLE CHANGE DATA CAPTURE (CHGDC)</td>
<td>The value of the DPROP SUPPORT field determines whether IMS DataPropagator is to be used to propagate SQL changes to tables defined with DATA CAPTURE CHANGES. Acceptable values are 1 (default), 2, or 3. ZPARM CHGDC in DSN6SPRM.</td>
</tr>
<tr>
<td>ENABLE DB CHECKING (SPRMDBC)</td>
<td>Enable database checking.</td>
</tr>
<tr>
<td>ENABLE OPT I/O WEIGHTING (OPTIOWGT)</td>
<td>You can create profiles to specify that DB2 uses particular subsystem parameters when executing SQL statements that meet the criteria defined in the profile. ATTRIBUTE1 specifies how DB2 weights I/O and CPU cost during access path selection. ENABLE is the default value. The OPTIOWGT subsystem parameter is deprecated.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Enable Pair-wiseJoin (EN PJSJ)</td>
<td>Specifies whether to enable dynamic index ANDing, which is also called pair-wise join processing, when star join processing is enabled on DB2. Valid values are ON and OFF. The default value is OFF, which means that dynamic index ANDing is disabled. ZPARM EN_PJSJ in DSN6SPRM.</td>
</tr>
<tr>
<td>ENABLE SQL INTERRUPT (SQLINTRP)</td>
<td>Enable SQL interrupt.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>ENFORCE DPROP SUPPORT (EDPROP)</td>
<td>Shows whether DataPropagator NonRelational (DPROP) is used to propagate SQL changes made to tables defined with DATA CAPTURE CHANGES.</td>
</tr>
<tr>
<td></td>
<td>1  No changes are propagated.</td>
</tr>
<tr>
<td></td>
<td>2  DPROP propagates SQL changes, and those changes made to tables defined with DATA CAPTURE CHANGES are only allowed when monitor trace class 6 is active, DPROP is installed, and the DB2 application is running in an IMS environment. If any of these conditions are not met, no changes to the DB2 table are permitted.</td>
</tr>
<tr>
<td></td>
<td>3  Data propagation occurs when monitor trace class 6 is active, DPROP is installed, and the DB2 application is running in an IMS environment. In this instance, an application that is not running in an IMS environment can update DB2 tables defined with DATA CAPTURE CHANGES. However, these changes are not propagated to IMS.</td>
</tr>
<tr>
<td>ANY</td>
<td>Allows subsystems to propagate some data with DPROP and other data with a different propagation program.</td>
</tr>
</tbody>
</table>

Tables that should only be updated by DB2 applications running in an IMS environment can be protected using the following methods:

- Use the ENABLE parameter on BIND to specify a specific attachment facility through which updates to data propagation tables can be made.
- Define a validation procedure for data propagation tables to define which plans can update those tables.
- Allow update authority for data propagation tables to a group of authorization IDs that can only run in IMS.

Install parameter DPROP SUPPORT on panel DSNTIPO, or ZPARM EDPROP and CHGDC in DSN6SPRM.
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVALUATE UNCOMMITTED (EVALUNC)</td>
<td>Shows whether stage 1 predicate evaluation during table access can proceed upon uncommitted data or not. This applies to isolation levels of Read Stability and Cursor Stability only. When NO (default), predicate evaluation occurs only on committed data (or on the application's own uncommitted changes). NO ensures that all qualifying data is always included in the answer set. When YES, predicate evaluation can occur upon uncommitted data. Only committed data is returned to the query. However, a decision can be made to omit a row from the answer set based on uncommitted data. Later, undo processing (statement rollback or statement failure) could cause the data to revert to a state that satisfies the predicate. When YES, DB2 can request fewer locks than in previous versions when processing isolation level Read Stability and Cursor Stability queries. The number of locks avoided is related to the access path of the query, the number of rows evaluated when processing the stage 1 predicate of the query, and the number of those rows that are overflow rows. Specifically, for isolation level Read Stability and Cursor Stability queries, locks are avoided for rows that do not satisfy the stage 1 predicate, provided they are not overflow rows. Table access includes table space scans and index-to-data access, including ridlist-to-data access. For isolation Cursor Stability ridlist production, all row/page locking is avoided. Install parameter EVALUATE UNCOMMITTED on panel DSNTIP8, or ZPARM EVALUNC in DSN6SPRM.</td>
</tr>
<tr>
<td>EXTENDED DATESTAMP INDICATOR</td>
<td>The indicator of the extended date stamp.</td>
</tr>
<tr>
<td>EXTENDED OPTION FOR TCPALVER</td>
<td>Indicates whether DB2 accepts TCP/IP connection requests containing only a user ID. When YES, a connection request is accepted with a user ID only. This value must be the same for all members of a data sharing group. When NO (default), TCP/IP clients must provide authentication information (password, RACF PassTicket, or Kerberos ticket) to gain access to DB2. ZPARM TCPALVER in DSN6FAC.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>EXTENDED SECURITY (EXTSEC)</td>
<td>Extended security options. When YES (strongly recommended), detailed reason codes are returned to a DRDA level 3 client when a DDF connection request fails because of security errors. When using SNA protocols, the requester must have included a product that supports the extended security sense codes, such as DB2 Connect version 5 and subsequent releases. RACF users can change their passwords using the DRDA change password function. This support is only for DRDA level 3 requesters that have implemented support for changing passwords. YES allows properly enabled DRDA clients to determine the cause of security failures without requiring DB2 operator support. When NO, generic error codes are returned to the clients and RACF users are prevented from changing their passwords. ZPARM EXTSEC in DSN6SYS.</td>
</tr>
<tr>
<td>EXTRA BLOCKS REQ (EXTRAREQ)</td>
<td>The maximum number of extra DRDA query blocks DB2 requests from a remote DRDA server. The default is 100. This controls the total amount of data that can be transmitted on any given network exchange. It does not limit the size of the SQL query answer set. ZPARM EXTRAREQ in DSN6SYS.</td>
</tr>
<tr>
<td>EXTRA BLOCKS SERVED (EXTRASRV)</td>
<td>The maximum number of extra DRDA query blocks DB2 returns to a DRDA client. The default is 100. This controls the total amount of data that can be transmitted on any given network exchange. It does not limit the size of the SQL query answer set. ZPARM EXTRASRV in DSN6SYS.</td>
</tr>
<tr>
<td>FACILITY ENTRIES</td>
<td>Facility entries.</td>
</tr>
<tr>
<td>FACILITY NAME</td>
<td>The name of the DDF facility.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>FAST RESTORE (REC FASTREPLICATION)</td>
<td>The REC FASTREPLICATION parameter specifies whether the RECOVER utility should use FlashCopy® to recover from a FlashCopy image copy. Acceptable values are NONE, PREFERRED (default), or REQUIRED. This parameter applies only to Version 10 new-function mode. ZPARM REC FASTREPLICATION in DSN6SPRM.</td>
</tr>
<tr>
<td>FIELD PROCS DESCRIBE TABLE BLOCK (SPRMFDP)</td>
<td>The number of field procedures for the DESCRIBE TABLE block.</td>
</tr>
<tr>
<td>FLASHCOPY (FLASHCOPY)</td>
<td>FLASHCOPY</td>
</tr>
<tr>
<td>FLASHCOPY PPRC</td>
<td>The FLASHCOPY PPRC subsystem parameter specifies the behavior for DFSMSdss FlashCopy requests when the target disk storage volume is the primary device in a peer-to-peer remote copy (Metro Mirror) relationship. Acceptable values are NONE, PREFERRED, REQUIRED (default), or blank. ZPARM FLASHCOPY PPRC in DSN6SPRM.</td>
</tr>
<tr>
<td>FREE LOCAL CACHE STM (CACHEDYN FREELOCAL)</td>
<td>Indicates whether DB2 can free cached dynamic statements to relieve DBM1 below-the-bar storage. CACHEDYN_FREELOCAL applies only when the KEEPDYNAMIC(YES) bind option is active. If you specify 0, DB2 does not free cached dynamic statements to relieve high use of storage by dynamic SQL caching. The default value is 1, which means that DB2 frees some cached dynamic statements to relieve high use of storage when the cached SQL statement pools have grown to a certain size. ZPARM CACHEDYN_FREELOCAL in macro DSN6SPRM.</td>
</tr>
<tr>
<td>GET ACCEL ARCHIVE</td>
<td>Determines the default value that is to be used for the CURRENT GET ACCEL ARCHIVE special register:</td>
</tr>
<tr>
<td>NO</td>
<td>Indicates that if a table is archived in an accelerator server, and a query references that table, the query does not use the data that is archived.</td>
</tr>
<tr>
<td>YES</td>
<td>Indicates that if a table is archived in an accelerator server, and a query references that table, the query uses the data that is archived.</td>
</tr>
<tr>
<td>ZPARM name GET ACCEL ARCHIVE in macro DSN6SPRM.</td>
<td></td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------</td>
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</tr>
<tr>
<td>GROUP NAME (GRPNAME)</td>
<td>The name of the DB2 data sharing group. The group name encompasses the entire data sharing group and is the basis for the coupling facility structure names. N/A means this DB2 is not part of a data sharing group. ZP ARM GRPNAME in DSN6GRP.</td>
</tr>
<tr>
<td>HONOR KEEPDICTIONARY</td>
<td>Specifies whether DB2 honors the LOAD and REORG parameter KEEPDICTIONARY when tables are converted from basic row format to reordered row format. If HONOR_KEEPDICTIONARY is set to a value of YES, DB2 honors the LOAD and REORG parameter KEEPDICTIONARY. If HONOR_KEEPDICTIONARY is set to the default value of NO, DB2 ignores the LOAD and REORG parameter KEEPDICTIONARY when tables are converted from basic row format to reordered row format. ZP ARM HONOR_KEEPDICTIONARY in macro DSN6SPRM</td>
</tr>
<tr>
<td>HOP SITE AUTHORIZATION (SPRMHOP)</td>
<td>Indicates whose authorization is checked at a second server (sometimes called a hop site) when the requester is not DB2 for z/OS. This option applies only when DB2 private protocol is used for the hop from the second to the third site. When BOTH (default), the package owner’s authorization is checked for static SQL, and the runner’s authorization ID is checked for dynamic SQL. When RUNNER, both static and dynamic SQL use the runner’s authorization. Install parameter AUTH AT HOP SITE on panel DSNTIP5, ZPARM HOPAUTH in DSN6SPRM.</td>
</tr>
<tr>
<td>ICF CATALOG ALIAS (CATALOG)</td>
<td>The alias of the VSAM integrated catalog facility user catalog or the name of the master catalog where the DB2 VSAM data sets created during installation are cataloged. The MVS catalog alias is also used as the high-level qualifier for DB2 VSAM data sets. Install parameter CATALOG ALIAS on panel DSNTIPA, or ZPARM CATALOG in DSN6ARVP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>IDENTIFY/AUTH (IDAUTH MODULE)</td>
<td>Shows the name of the default identify or authorization exit module. This field corresponds to field IDENTIFY/AUTH on installation panel DSNTIPO3. The ZPARM name is IDAUTH MODULE in DSN6SYS.</td>
</tr>
<tr>
<td>IDLE THREAD TIMEOUT (IDTHTOIN)</td>
<td>The approximate time, in seconds, that an active server thread can remain idle before it is canceled. Inactive and indoubt threads are not subject to timeout. Threads are checked for timeouts every 3 minutes. This means that timeouts might not be honored for up to 3 minutes when the timeout value is less than this. 0 (default) means timeout processing is disabled, idle server threads remain in the system and continue to hold their resources, if any. ZPARM IDTHTOIN in DSN6FAC.</td>
</tr>
<tr>
<td>IGNORE SORTNUM STATEMENT (IGNSORTN)</td>
<td>The IGNSORTN subsystem parameter determines whether occurrences of the SORTNUM clause in utility control statements are to be ignored. Acceptable values are YES or NO (default). ZPARM IGNSORTN in DSN6SPRM.</td>
</tr>
<tr>
<td>IMMEDIATE WRITE (IMMEDWRI)</td>
<td>Indicates how DB2 updates group buffer pool dependent pages. This is only valid in a data-sharing environment. Group buffer pool dependent pages can be written to DASD or SYSTEM pagesets. Install parameter IMMEDIATE WRITE on panel DSNTIP8, or ZPARM IMMEDWRI in DSN6GRP.</td>
</tr>
<tr>
<td>IMPLICIT TIMEZONE (IMPLICIT TIMEZONE)</td>
<td>The implicit time zone that is associated with DB2 table columns and routine parameters that are declared as time stamp with time zone. For IFCID 106 - Application Programming Defaults, this field is displayed twice, with its hex value and in a readable string. This field corresponds to DSNHDECP field IMPLICIT TIMEZONE.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>IMS BMP TIMEOUT (BMPTOUT)</td>
<td>The number of RESOURCE TIMEOUT units that an IMS BMP connection waits for a lock to be released. The default value is 4, meaning that an IMS BMP connection can wait 4 times the resource timeout value for a resource. Install parameter IMS BMP TIMEOUT on panel DSNTIP1, or ZPARM BMPTOUT in DSN6SPRM.</td>
</tr>
<tr>
<td>IMS DLI TIMEOUT (DLITOUT)</td>
<td>The number of RESOURCE TIMEOUT units that a DL/I batch connection waits for a lock to be released. For example, if you use the default value of 6, a DL/I batch application can wait 6 times the resource timeout value for a resource. Install parameter DL/I BATCH TIMEOUT on panel DSNTIP1, or ZPARM DLITOUT in DSN6SPRM.</td>
</tr>
<tr>
<td>INCLUDE DEPENDENT PRIVILEGE ON REVOKE</td>
<td>Allows revoking of dependent privileges to be controlled at the SQL level.</td>
</tr>
<tr>
<td>INDEX CLEANUP THREADS</td>
<td>The index cleanup threads.</td>
</tr>
<tr>
<td>INDEX I/O PARALLELISM (INDEX IO PARALLELISM)</td>
<td>The enablement of the index I/O parallelism ZPARM.</td>
</tr>
<tr>
<td>INDEX SPACE ALLOCATION IN KB (IXQTY)</td>
<td>Shows the amount of space in KB for primary and secondary space allocation for DB2-defined data sets for index spaces created without the USING clause. 0 indicates that DB2 uses standard defaults. Install parameter INDEX SPACE ALLOCATION on panel DSNTIP7, or ZPARM IXQTY in DSN6SYSP.</td>
</tr>
<tr>
<td>INITIAL MODULE</td>
<td>The name of the initial DSNZPARM load module.</td>
</tr>
<tr>
<td>INSTALL DD CONTROL SUPT (RGFINSTL)</td>
<td>Indicates whether data definition support has been installed. Install parameter INSTALL DD CONTROL SUPT on panel DSNTIPZ, or ZPARM RGFINSTL in DSN6SPRM.</td>
</tr>
<tr>
<td>IRLM INITIALIZATION INQUIRY TIME</td>
<td>The number of seconds DB2 waits before querying whether IRLM has completed initialization. DB2 parameter SPRMISWI in DSNMSPRM.</td>
</tr>
<tr>
<td>IRLM MAXIMUM CSA ALLOWED</td>
<td>The maximum common service area (CSA) allowed for internal resource lock manager (IRLM).</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>IRLM SUBSYSTEM (IRLMSID)</td>
<td>The IRLM subsystem name defined to MVS. This is used for communication between DB2 and the IRLM. It is included in the MVS subsystem table IEFSSN xx, where xx is the value of SUBSYSTEM MEMBER on installation panel DSNTIPM. If the IRLM for IMS is installed, the DB2 IRLM name is different because two IRLMs on the same MVS system must have unique names. Install parameter SUBSYSTEM NAME on panel DSNTIP, or ZPARM IRLMSID in DSN6SPRM.</td>
</tr>
<tr>
<td>IX TB PART CONV EXCLUDE</td>
<td>Shows whether to include all columns in the partitioning key during conversion from index-controlled partitioning to table-controlled partitioning:</td>
</tr>
<tr>
<td></td>
<td>NO  Includes all columns</td>
</tr>
<tr>
<td></td>
<td>YES Includes trailing columns only if they affect partitioning</td>
</tr>
<tr>
<td></td>
<td>This field corresponds to field EXCLUDE PART KEY ELEMENTS on installation panel DSNTIP71. The ZPARM name is IX TB PART CONV EXCLUDE in DSN6SPRM.</td>
</tr>
<tr>
<td>LANGUAGE DEFAULT (DEFLANG)</td>
<td>The default programming language for your site. This can be:</td>
</tr>
<tr>
<td></td>
<td>• ASM</td>
</tr>
<tr>
<td></td>
<td>• C</td>
</tr>
<tr>
<td></td>
<td>• CPP</td>
</tr>
<tr>
<td></td>
<td>• COBOL</td>
</tr>
<tr>
<td></td>
<td>• COB2</td>
</tr>
<tr>
<td></td>
<td>• IBMCOB</td>
</tr>
<tr>
<td></td>
<td>• FORTRAN</td>
</tr>
<tr>
<td></td>
<td>• PLI</td>
</tr>
<tr>
<td></td>
<td>When this is C or C++, you can fold SQL identifiers to uppercase.</td>
</tr>
<tr>
<td></td>
<td>Install parameter LANGUAGE DEFAULT on panel DSNTIPF, or ZPARM DEFLANG in DSNHDECP.</td>
</tr>
<tr>
<td>LEVELID UPDATE FREQ (DLDFREQ)</td>
<td>The DLDFREQ subsystem parameter specifies whether the level ID of a page set or partition is to be updated at DB2-determined checkpoint intervals. Acceptable values are ON (default) or OFF. ZPARM DLDFREQ in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>LIKE BLANK INSIGNIFICANT</td>
<td>The LIKE BLANK INSIGNIFICANT field specifies whether blanks are significant when applying the LIKE predicate to a string. When the LIKE predicate is applied against fixed length character column data, DB2 strips trailing blanks from the data before performing the comparison. If the data is all blank, DB2 reduces it to a single blank before performing the comparison. If not set, LIKE treats trailing blanks within fixed length character strings as significant.</td>
</tr>
<tr>
<td>LIMIT BACKOUT (LBACKOUT)</td>
<td>The LBACKOUT subsystem parameter specifies whether DB2 is to postpone backward-log processing for some units of work. Acceptable values are AUTO (default), YES, LIGHT, LIGHTAUTO, or NO. ZPARM LBACKOUT in DSN6SYSP.</td>
</tr>
<tr>
<td>LOAD (FLASHCOPY LOAD)</td>
<td>The value of the FLASHCOPY LOAD subsystem parameter specifies whether the FLASHCOPY option of the LOAD utility is to be used by default. Acceptable values are NO (default) or YES. ZPARM FLASHCOPY LOAD in DSN6SPRM.</td>
</tr>
<tr>
<td>LOB INLINE LEN (LOB INLINE LENGTH)</td>
<td>The default inline length for any new storing large object (LOB) column in a Universal Table Space on the DB2 subsystem. The valid values are from 0 to 32680 inclusive (in bytes). The default value for this ZPARM is 0, which indicates that no inline attribute is required for any LOB column (BLOB, CLOB or DBCLOB) created on this subsystem.</td>
</tr>
<tr>
<td>LOCAL DATE LENGTH (DATELEN)</td>
<td>Shows the length of the longest field required to hold a locally defined date. The default (0) indicates an IBM-supplied format (ISO, JIS, USA, or EUR). Install parameter LOCAL DATE LENGTH on panel DSNTIP4, or ZPARM DATELEN in DSNHDECP.</td>
</tr>
<tr>
<td>LOCAL TIME LENGTH (TIMELEN)</td>
<td>Shows the length of the longest field required to hold a time when a locally defined time format is used. The default (0) indicates an IBM-supplied format (ISO, JIS, USA, or EUR). Install parameter LOCAL TIME LENGTH on panel DSNTIP4, or ZPARM TIMELEN in DSNHDECP.</td>
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<tr>
<td>DB2 parameter</td>
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</tr>
<tr>
<td>LOCALE LC CTYPE (LC CTYPE)</td>
<td>The LC TYPE DECP value specifies the system LOCALE LC CTYPE. A locale is the part of your system environment that depends on language and cultural conventions. An LC CTYPE is a subset of a locale that applies to character functions. A valid locale can consist of 0 to 50 characters.</td>
</tr>
<tr>
<td>LOCKS PER TABLE (SPACE) (NUMLKTS)</td>
<td>The default (SYSTEM) for the LOCKMAX clause of the SQL statements CREATE TABLESPACE and ALTER TABLESPACE. Install parameter LOCKS PER TABLE(SPACE) on panel DSNTIPJ, or ZPARM NUMLKTS in DSN6SPRM.</td>
</tr>
<tr>
<td>LOCKS PER USER (NUMLKUS)</td>
<td>The maximum number of page or row locks that a single application can hold concurrently on all table spaces. This includes locks on data pages, index pages, subpages, and rows that the program acquires when it accesses table spaces. The limit applies to all table spaces defined with the LOCKSIZE PAGE, LOCKSIZE ROW, or LOCKSIZE ANY options. 0 means that there is no limit to the number of page and row locks a program can acquire. DB2 assumes that 250 bytes of storage are required for each lock. If NO is specified for CROSS MEMORY, the value of this field has to take into account the available lock space. If referential constraints between tables is defined, the value of this field might need to be increased. Install parameter LOCKS PER USER on panel DSNTIPJ, or ZPARM NUMLKUS in DSN6SPRM.</td>
</tr>
<tr>
<td>LOG CHECKPOINT TYPE (CHKTYPE)</td>
<td>The CHKTYPE subsystem parameter indicates whether the interval between log checkpoints is to be based on the number of written log records, the time between checkpoints, or both. Acceptable values are LOGRECS, MINUTES (default), or BOTH. ZPARM CHKTYPE in DSN6SYSP.</td>
</tr>
<tr>
<td>MANAGE REAL STORAGE (REALSTORAGE MANAGEMENT)</td>
<td>Specifies whether DB2 should manage real storage consumption. Valid values are ON, OFF, and AUTO (default). The default setting is AUTO. ZPARM REALSTORAGE MANAGEMENT in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>MANAGE THREAD STORAGE (MINSTOR)</td>
<td>Shows whether DB2 uses storage management to optimize the amount of working storage consumed by individual threads.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MANAGE THREAD STORAGE on panel DSNTIPE, or ZPARM MINSTOR in DSN6SPRM.</td>
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<tr>
<td></td>
<td>For best performance, this parameter should be NO, meaning DB2 does not manage thread storage.</td>
</tr>
<tr>
<td></td>
<td>When YES, DB2 uses best fit algorithm to manage and assign thread storage. This can help on systems that have many long-running threads and that are constrained on DBM1 address space.</td>
</tr>
<tr>
<td>Max 31-bit IRLM Private Storage</td>
<td>The maximum 31-bit IRLM private storage.</td>
</tr>
<tr>
<td>Max 64-bit IRLM Private Storage</td>
<td>The maximum 64-bit IRLM private storage.</td>
</tr>
<tr>
<td>MAX ABEND COUNT (STORMXAB)</td>
<td>The number of times a stored procedure is allowed to terminate abnormally, after which SQL CALL statements for the stored procedure are rejected.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MAX ABEND COUNT on panel DSNTIPX, or ZPARM STORMXAB in DSN6SYSP.</td>
</tr>
<tr>
<td>MAX BATCH CONNECTIONS (IDBACK)</td>
<td>The maximum allowed number of concurrent connections for batch jobs and utilities. This includes:</td>
</tr>
<tr>
<td></td>
<td>• All batch jobs using QMF.</td>
</tr>
<tr>
<td></td>
<td>• All batch jobs using the DSN command processor.</td>
</tr>
<tr>
<td></td>
<td>• All tasks connected to DB2 through call attach facility (CAF) running in batch. This can include:</td>
</tr>
<tr>
<td></td>
<td>– Batch jobs using QMF</td>
</tr>
<tr>
<td></td>
<td>– APPC applications</td>
</tr>
<tr>
<td></td>
<td>– TCP/IP FTP connections</td>
</tr>
<tr>
<td></td>
<td>When the number of batch jobs reaches this limit, further requests are rejected.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MAX BATCH CONNECT on panel DSNTIPE, or ZPARM IDBACK in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>MAX CONCURRENT PKG OPS</td>
<td>Specifies the maximum number of automatic bind requests, remote bind requests, remote rebind requests, CREATE TRIGGER statements, and CREATE PROCEDURE statements for packages that can be processed simultaneously. If the value of the AUTO BIND field of panel DSNTIPO is set to NO, the value of MAX_CONCURRENT_PKG_OPS has no effect. The default value of MAX_CONCURRENT_PKG_OPS is 10. ZPARM MAX_CONCURRENT_PKG_OPS in macro DSN6SPRM.</td>
</tr>
<tr>
<td>MAX CONCURRENT(CTHREAD)</td>
<td>The maximum number of allied threads (threads started at the local subsystem) that can be allocated concurrently. Separate threads are created for each occurrence of the following: • TSO user (whether running a DSN command or a DB2 request from QMF) • Batch job (whether running a DSN command or a DB2 utility) • IMS region that can access DB2 • Active CICS transaction that can access DB2 • Task connected to DB2 through the call attachment facility. Install parameter MAX USERS on panel DSNTIPE, or ZPARM CTHREAD in DSN6SYSP.</td>
</tr>
<tr>
<td>MAX DATA CACHING MB (MXDTCACH)</td>
<td>The MXDTCACH subsystem parameter specifies the maximum amount of memory, in MB, that is to be allocated for data caching per thread. Acceptable values are 0 to 512. ZPARM MXDTCACH in DSN6SPRM</td>
</tr>
<tr>
<td>MAX DBM1 STG FOR LOG</td>
<td>The maximum DBM1 storage that can be used by the fast log apply process. The default value is 0 MB, which means that fast log apply is disabled except during DB2 restart, when fast log apply is always enabled. Install parameter LOG APPLY STORAGE on panel DSNTIPL, or ZPARM LOGAPSTG in DSN6SYSP.</td>
</tr>
<tr>
<td>MAX DSSIZE FOR IMPLICIT TSS (IMPDSSIZE)</td>
<td>Shows the maximum DSSIZE in gigabytes that DB2 uses for creating each partition of an implicitly created base table space. This field corresponds to field DEFAULT DSSIZE on installation panel DSNTIP7. The ZPARM name is IMPDSSIZE in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MAX INACTIVE DBATS (MAXTYPE1)</td>
<td>Indicates the number of type 1 inactive threads that DB2 allows. A large number of type 1 inactive threads can adversely affect system performance. Type 1 inactive threads are used for DB2 private protocol. DRDA uses type 2 inactive threads. Zero indicates that type 1 inactive connections are not allowed. Threads remain active when they become eligible to be made a type 1 inactive thread. A value greater than zero indicates that type 1 inactive connections are allowed, but are limited to this number. When a thread becomes eligible to be made a type 1 inactive thread, and this threshold is reached, the remote connection is terminated. When this is equal to MAX REMOTE CONNECTED on panel DSNTIPE, DB2 allows all remote threads to become type 1 inactive threads. Install parameter MAX INACTIVE DBATS on panel DSNTIPR, or ZPARM MAXTYPE1 in DSN6FAC.</td>
</tr>
<tr>
<td>Max Numb in IN-List (INLISTP)</td>
<td>Allows you to specify the maximum number of elements in an IN-list for certain IN predicate optimizations to occur. The default value for INLISTP is 50. ZPARM INLISTP in macro DSN6SPRM.</td>
</tr>
<tr>
<td>MAX NUMBER DS CONCURRENTLY IN USE (DSMAX)</td>
<td>The maximum number of data sets that can be open at one time. The practical limit can be less than the MVS limit of 32727, depending on available storage below the line. Install parameter DMAX on panel DSNTIPC, or ZPARM DMAX in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>--------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MAX OPEN CURSORS (MAX_NUM_CUR)</td>
<td>Shows the maximum number of cursors, including allocated cursors, that are open at a given DB2 site per thread. RDS keeps a total of currently open cursors. If an application attempts to open a thread after the maximum is reached, the statement will fail. In a data sharing group, this parameter is shown at member scope. Install parameter MAX OPEN CURSORS on panel DSNTIPX, or ZPARM MAX_NUM_CUR in DSN6SPRM.</td>
</tr>
<tr>
<td>MAX OPEN FILE REFS (MAXOFILR)</td>
<td>The maximum number of concurrently open data sets for processing LOB file references. Install parameter MAX OPEN FILE REFS on panel DSNTIPE or ZPARM MAXOFILR in DSN6SYSP.</td>
</tr>
<tr>
<td>MAX REMOTE ACTIVE (MAXDBAT)</td>
<td>The maximum number of database access threads (DBATs) that can be active concurrently. When this limit has been reached, DB2 uses the value of DDF THREADS on panel DSNTIPR to decide how to handle a new allocation request. When DDF THREADS is ACTIVE and MAX REMOTE CONNECTED has not been reached, the allocation request is allowed but any further processing for the connection is queued waiting for an active database access thread to terminate. When DDF THREADS is INACTIVE and MAX REMOTE CONNECTED has not been reached, the allocation request is allowed and is processed when DB2 can assign an unused database access thread slot to the connection. The total number of threads accessing data concurrently is the sum of MAX USERS and MAX REMOTE ACTIVE. The maximum allowable value for this sum is 2000. Install parameter MAX REMOTE ACTIVE on panel DSNTIPE, or ZPARM MAXDBAT in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MAX RID BLOCKS OF TEMP STRG (MAXTEMPS RID)</td>
<td>The maximum number of RID blocks of temporary storage in the work file database that a single RID list can use at any point in time. This field corresponds to field MAX TEMP RID on installation panel DSNTIP9. The ZPARM name is MAXTEMPS RID. It can have the following values:</td>
</tr>
<tr>
<td></td>
<td>-1 If MAXTEMPS RID=NONE</td>
</tr>
<tr>
<td></td>
<td>0 If MAXTEMPS RID=NOLIMIT</td>
</tr>
<tr>
<td></td>
<td>1 to 329166 Otherwise</td>
</tr>
<tr>
<td>MAX RID POOL SIZE (MAXRBLK)</td>
<td>The amount of storage needed for the RID pool.</td>
</tr>
<tr>
<td></td>
<td>This can be the value calculated by the CLIST, based on input from previous panels, or the value entered in the Override column at installation time.</td>
</tr>
<tr>
<td></td>
<td>When 0, DB2 does not use access paths or join methods that depend on RID pool storage.</td>
</tr>
<tr>
<td></td>
<td>Install parameter RID POOL SIZE on panel DSNTIPC, or ZPARM MAXRBLK in DSN6SPRM.</td>
</tr>
<tr>
<td>MAX STORED PROCS (MAX_ST_PROC)</td>
<td>Shows the maximum number of stored procedures per thread. If an application attempts to call a stored procedure after this is reached, the statement will fail. In a data sharing group, this parameter is shown as member scope.</td>
</tr>
<tr>
<td></td>
<td>Install parameter MAX STORED PROCS on panel DSNTIPX, or ZPARM MAX_ST_PROC in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
</tbody>
</table>
| MAX TSO USERS (IDFORE) | The maximum number of concurrent TSO foreground connections (QMF, DSN, DB2I, and SPUFI). Each of the following is a separate user:  
  • Each TSO foreground user executing a DSN command.  
  • Each TSO foreground user connected to DB2 through the call attachment facility (CAF). This can include QMF users running in TSO foreground or user-written CAF applications running in TSO foreground.  
  When the number of TSO users attempting to access DB2 exceeds this limit, connection requests are rejected. There is no subsystem parameter to control the maximum concurrent connections for IMS and CICS. These are controlled by using IMS and CICS facilities. For CICS attachment, the maximum number of connections to DB2 can be controlled using the resource control table (RCT) TYPE=INIT THRDMAX value.  
  Install parameter MAX TSO CONNECT on panel DSNTIPF, or ZPARM IDFORE in DSN6SYSP. |
| MAX ZIVLEMP EL DICT ENTRY (SPRMMDE) | Hardware data compression uses the Ziv-Lempel compression technique, which uses a fixed number of bits to replace a variable number of bytes. This technique requires use of a dictionary. |
| MAXIMUM DEGREE PARALLELISM (PARAMDEG) | Indicates the upper limit on the degree of parallelism for a parallel group.  
  This field has a value of 0. This means PARAMDEG is not set and DB2 can set a default maximum degree of parallelism based on the system configuration.  
  Install parameter MAX DEGREE on panel DSNTIP8, or ZPARM PARAMDEG in DSN6SPRM. |
| MAX DS OPEN STOP ASYNC DRAIN (SPRMMDD) | The percentage of maximum open data sets until the asynchronous drain operations are stopped.  
  DB2 parameter SPRMMDD in DSN6SPRM. |
<p>| MAXIMUM EXTEND SERVICE TASKS (SPRMEST) | Maximum number of extended service tasks. |
| MAXIMUM KEPT DYNAMIC STATEMENTS (MAXKEEPD) | Shows the total number of prepared dynamic SQL statements that are saved past a commit point. 0 means that prepared dynamic SQL statements are not saved past commit points. Install parameter MAX KEPT DYN STMTS on panel DSNTIPF, or ZPARM MAXKEEPD in DSN6SPRM. |</p>
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>MAXIMUM LE TOKENS (LEMAX)</strong></td>
<td>The maximum number of LE tokens active at any time. When zero, no tokens are available.</td>
</tr>
<tr>
<td></td>
<td>A token is used each time one of the following is used: trigonometry functions, degrees, radians, rand, exp, power, log functions, upper, lower, translate.</td>
</tr>
<tr>
<td></td>
<td>Install parameter <code>MAXIMUM LE TOKENS</code> on panel DSNTIP7, or <code>ZPARM LEMAX</code> in DSN6SPRM.</td>
</tr>
<tr>
<td><strong>MAXIMUM NOT FOUND HASH RECORDS (SPRMKFC)</strong></td>
<td>The maximum number of NOT FOUND hash records.</td>
</tr>
<tr>
<td><strong>MAXIMUM NUMBER OF DS IN BSDS (MAXARCH)</strong></td>
<td>The maximum number of archive log volumes that can be recorded in the BSDS.</td>
</tr>
<tr>
<td></td>
<td>When this number is exceeded, recording resumes at the beginning of the BSDS.</td>
</tr>
<tr>
<td></td>
<td>For dual archive, this value applies to each log data set. As an example, a value of 500 allows 500 COPY-1 and 500 COPY-2 data sets in the BSDS.</td>
</tr>
<tr>
<td></td>
<td>You must create image copies of all DB2 objects, probably several times, before the archive log data sets are discarded. If you fail to retain an adequate number of archive log data sets for all the image copies, you might need to cold start or reinstall DB2. In either case, data is lost.</td>
</tr>
<tr>
<td></td>
<td>Install parameter <code>RECORDING MAX</code> on panel DSNTIPA, or <code>ZPARM MAXARCH</code> in DSN6LOGP.</td>
</tr>
<tr>
<td><strong>MAXIMUM READ TAPE UNITS (MAXRTU)</strong></td>
<td>The maximum number of tape units that can be allocated for archive read purposes.</td>
</tr>
<tr>
<td></td>
<td>Install parameter <code>READ TAPE UNITS</code> on panel DSNTIPA, or <code>ZPARM MAXRTU</code> in DSN6LOGP.</td>
</tr>
<tr>
<td><strong>MAXIMUM REMOTE CONNECT (CONDBAT)</strong></td>
<td>The maximum allowed number of concurrent remote connections. When this limit is reached, any new connection request is rejected. Install parameter <code>MAX REMOTE CONNECTED</code> on panel DSNTIPE, or <code>ZPARM CONDBAT</code> in DSN6SYSP.</td>
</tr>
<tr>
<td><strong>MAXIMUM TAPE UNITS (RESTORE TAPEUNITS)</strong></td>
<td>The maximum number of tape units or tape drives that the restore system utility can use to restore from a system-level backup that has been dumped to tape.</td>
</tr>
<tr>
<td></td>
<td>Install parameter <code>MAXIMUM TAPE UNITS</code> on installation panel DSNTIP6, or <code>ZPARM RESTORE TAPEUNITS</code> in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>MAXIMUM TEMP STG/AGNT IN MB (MAXTEMPS)</td>
<td>The maximum amount of storage in the Workfile Database that can be used by each agent (derived from ZPARM MAXTEMPS).</td>
</tr>
<tr>
<td>MAXSORT IN MEMORY</td>
<td>The maximum number of in-memory work files created by the SORT component that were active at any point in time since DB2 start. This is a high-water mark count.</td>
</tr>
<tr>
<td>MEASURED USAGE PRICING</td>
<td>Detailed measured usage price tracking.</td>
</tr>
<tr>
<td>MEMBER NAME (MEMBNAME)</td>
<td>The member name of this DB2. N/A means this DB2 is not part of a data sharing group. Install parameter MEMBER NAME on panel DSNTIPK, or ZPARM MEMBNAME in DSN6GRF.</td>
</tr>
<tr>
<td>MIN SCALE DECIMAL DIVIDE (MINDVSCL)</td>
<td>The minimum scale for the result of a decimal division. The values for this parameter are none (the default), 3, or 6. If 3 or 6 is specified, this parameter overrides the DECDIV3 parameter.</td>
</tr>
<tr>
<td>MINIMUM DIVIDE SCALE (DECDIV3)</td>
<td>The DECDIV3 subsystem parameter determines whether to retain at least three digits to the right of the decimal point after any decimal division. Acceptable values are YES or NO. The default is NO. ZPARM DECDIV3 in DSN6SPRM.</td>
</tr>
<tr>
<td>MINS BETWEEN CHECKPOINT (CHKMINS)</td>
<td>Shows the number of minutes between log checkpoints if the LOG checkpoint type is BOTH (records and minutes). This field corresponds to field MINUTES/CHECKPOINT on installation panel DSNTIPL1, or ZPARM name CHKMINS in DSN6SYSP.</td>
</tr>
<tr>
<td>MINUTES/CHECKPOINT (CHKFREQ)</td>
<td>Checkpoint frequency. This shows either the number of minutes (1 through 60) or the number of DB2 log records between the start of successive checkpoints. DB2 starts a new checkpoint when this value is reached. You can use the SET LOG command to change the number of log records between checkpoints dynamically. Valid values are 1-60 when specifying a time value and 200-16000000 when specifying a number of records. Install parameter CHECKPOINT FREQ on panel DSNTIPL, ZPARM CHKFREQ in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MIXED DATA (MIXED)</td>
<td>The value of the MIXED DECP field indicates how the EBCDIC CCSID and ASCII CCSID fields are to be interpreted by DB2. The MIXED DATA option has no effect on the UNICODE CCSID field. Regardless of the setting for MIXED DATA, UNICODE UTF-8 data is considered mixed data and is processed according to the rules for mixed data.</td>
</tr>
<tr>
<td>MONITOR SIZE (MONSIZE)</td>
<td>The default number of bytes allocated for the monitor trace buffer. Install parameter MONITOR SIZE on panel DSNTIPN, or ZPARM MONSIZE in DSN6SYSP.</td>
</tr>
<tr>
<td>MONITOR TRACE (MON)</td>
<td>Shows whether the monitor trace is started automatically when DB2 is started. When YES, the default (trace class 1) is started. Numeric values show which classes are started. When ALL, monitor trace classes 1 through 8 are started. Install parameter MONITOR TRACE on panel DSNTIPN, or ZPARM MON in DSN6SYSP.</td>
</tr>
<tr>
<td>MVS ENVIRONMENT</td>
<td>The type of MVS environment in which DB2 is running.</td>
</tr>
<tr>
<td>NEW FUNCTION MODE (NEWFUN)</td>
<td>If YES, the DB2 subsystem/group is running in New Function Mode. At this mode/catalog level, the New Function Mode is enabled and available. The DB2 catalog is completely Unicode (UTF-8) and long names can be used. Install parameter INSTALL TYPE on panel DSNTIPA1, or ZPARM NEWFUN in DSNHDECP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>NPAGES THRESHOLD OPTIMIZER (SPRMNPAG)</td>
<td>This parameter allows you to specify the optimizer threshold for qualifying a table as small.</td>
</tr>
<tr>
<td>-1</td>
<td>Every table qualifies as small.</td>
</tr>
<tr>
<td>0</td>
<td>No table qualifies as small (this is the default).</td>
</tr>
<tr>
<td>1</td>
<td>Only tables with zero pages qualify as small.</td>
</tr>
<tr>
<td>2</td>
<td>Tables with less than two pages qualify as small.</td>
</tr>
<tr>
<td>10</td>
<td>Tables with less than ten pages qualify as small.</td>
</tr>
<tr>
<td>502</td>
<td>Tables with less than 502 pages, and tables that have not had statistics collected qualify as small. For example, when NPAGES = -1.</td>
</tr>
</tbody>
</table>

DB2 parameter NPGTHRSH in DSN6SPRM.

<table>
<thead>
<tr>
<th>OBJECT CREATE FORMAT</th>
<th>The format of OBJECT CREATE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJECT REGISTRATION TABLE NAME (RGFMORT)</td>
<td>The name of the object registration table.</td>
</tr>
<tr>
<td></td>
<td>Install parameter OBJT REGISTRATION TABLE on panel DSNTIPZ, or ZPARM RGFNMORT in DSN6SPRM.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ONLINE ZPARM TYPE</th>
<th>The type of DB2 system parameter changed by the last SET SYSPARM statement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPT1 ROWB LOCK SORT</td>
<td>Specifies whether DB2 explicitly blocks sort operations when the OPTIMIZE FOR 1 ROW clause is specified on a query. Valid values are ENABLE or DISABLE.</td>
</tr>
<tr>
<td></td>
<td>ZPARM OPT1ROWBLOCSORT in macro DSN6SPRM.</td>
</tr>
</tbody>
</table>

| OPTIMIZATION HINTS ALLOWED (OPTHINTS)                                       | Shows whether DB2 can use optimization hints from the PLAN TABLE to influence the access paths used for certain queries.                          |
|                                                                                | Install parameter OPTIMIZATION HINTS on panel DSNTIP8, or ZPARM OPTHINTS in DSN6SPRM.                                                                 |

| OPTIMIZE EXTENT SIZING (MGEXTSZ)                                             | Indicates whether DB2 uses sliding secondary quantity for DB2 managed data sets to optimize extent sizing. Install parameter OPTIMIZE EXTENT SIZING on panel DSNTIP7, or ZPARM MGEXTSZ in DSN6SYSP. |

<p>| OUTER JOIN PERFORM ENHANCEMENT (OJPERFEH)                                   | Indicates whether outer join performance enhancements are enabled.                                                                            |
|                                                                                | DB2 parameter OJPERFEH in DSN6SPRM.                                                                                                           |</p>
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT BUFFER (OUTBUFF)</td>
<td>The output log buffer size in kilobytes.</td>
</tr>
<tr>
<td></td>
<td>There is only one output log buffer per DB2 subsystem.</td>
</tr>
<tr>
<td></td>
<td>Increasing this parameter reduces BSDS I/O updates when there is a buffer wraparound. Frequent wraparounds are likely in LOAD or REORG with logging, and mass insert operations.</td>
</tr>
<tr>
<td></td>
<td>Increasing this parameter also helps avoid log write waits for an available buffer during heavy update workload.</td>
</tr>
<tr>
<td></td>
<td>When the specified size is not a 4 KB multiple, it is rounded up to the next 4 KB multiple.</td>
</tr>
<tr>
<td></td>
<td>Install parameter OUTPUT BUFFER on DSNTIPL, or ZPARM OUTBUFF in DSN6LOGP.</td>
</tr>
<tr>
<td>PACKAGE AUTH CACHE SIZE (CACHEPAC)</td>
<td>The amount of storage allocated for caching authorization information for all packages on this DB2 member.</td>
</tr>
<tr>
<td></td>
<td>32 KB hold about 375 collection-ID.package-IDs. The cache is stored in the DSN1DBM1 address space.</td>
</tr>
<tr>
<td></td>
<td>Install parameter PACKAGE AUTH CACHE on panel DSNTIPP, or ZPARM CACHEPAC in DSN6SPRM.</td>
</tr>
<tr>
<td>PAD INDEXES BY DEFAULT (PADIX)</td>
<td>Shows whether new indexes are be padded by default.</td>
</tr>
<tr>
<td></td>
<td>• YES indicates that a new index is padded unless the NOT PADDDED option is specified on the CREATE INDEX statement.</td>
</tr>
<tr>
<td></td>
<td>• The default value, NO, indicates that a new index is not padded unless the PADDDED option is specified on the CREATE INDEX statement.</td>
</tr>
<tr>
<td></td>
<td>Install parameter PAD INDEXES BY DEFAULT on installation panel DSNTIPE, or ZPARM PADIX in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
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<td>--------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PAD NULL TERMINATED STRING (PADNTSTR)</td>
<td>Shows whether output host variables that are NULL-terminated strings are padded with blanks and a NULL terminator. When NO, NULL-terminated output host variables have the NULL terminator placed at the end of actual data returned in the host variable. When YES, NULL-terminated output host variables have the NULL terminator placed at the end of the string, after the string has been padded with blanks from the end of the actual data to the declared length of the output host variable. Install parameter PAD NUL-TERMINATED on installation panel DSNTIP4, or ZPARM PADNTSTR in DSNHDECP.</td>
</tr>
<tr>
<td>PARALLEL ACCOUNTING ROLLUP (PTASKROL)</td>
<td>Indicates whether DB2 generates a trace record at the originating task level that summarizes accounting information for all parallel tasks. DB2 parameter PTASKROL in DSN6SYSP.</td>
</tr>
<tr>
<td>PARALLEL ASSIST (ASSIST)</td>
<td>Shows whether this DB2 member can assist a parallelism coordinator with parallel processing. When YES, this member is considered an assistant at both bind and run time. To be a viable assistant at run time, both the VPPSEQT and VPXPSEQT buffer pool thresholds of this member must be greater than 0. N/A means this DB2 is not part of a data sharing group. Install parameter ASSISTANT on panel DSNTIPK or ZPARM ASSIST in DSN6GRP.</td>
</tr>
<tr>
<td>PARALLEL COORDINATOR (COORDNTR)</td>
<td>Shows whether this DB2 member can coordinate parallel processing on other members of the group. When NO, a query can be processed by this DB2 member only. When YES, a read-only query running on this DB2 member can be processed in part on other members of the group. N/A means this DB2 is not part of a data sharing group. Install parameter COORDINATOR on panel DSNTIPK or ZPARM COORDNTR in DSN6GRP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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<tr>
<td>--------------------------------------------------</td>
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</tr>
<tr>
<td>PARALLISM EFFICIENCY FACTOR (PARA EFF)</td>
<td>The PARA EFF subsystem parameter controls the efficiency that DB2 assumes for parallelism when DB2 chooses an access path. The integer value that is used for this parameter represents a percentage efficiency. Acceptable values are 0 - 100. The default is 50. ZPARM PARA EFF in DSN6SPRM.</td>
</tr>
<tr>
<td>PARAMDEG DPSI</td>
<td>The maximum degree of parallelism that is to be allowed for a data-partitioned secondary index (DPSI).</td>
</tr>
<tr>
<td>PARAMDEG UTIL</td>
<td>The maximum degree of parallelism that is to be allowed for a utility.</td>
</tr>
<tr>
<td>PC SPECIFIED</td>
<td>This IRLM process flag indicates whether PC Yes was specified.</td>
</tr>
<tr>
<td>PCTFREE UPD</td>
<td>The update of the PCTFREE parameter.</td>
</tr>
<tr>
<td>PENDING HASH ENTRIES</td>
<td>The number of z/OS lock table hash entries pending.</td>
</tr>
<tr>
<td>PKGREL COMMIT (PKGREL COMMIT)</td>
<td>If the MODIFY DDF PKGREL(COMMIT) command has been issued at the server, the value of the bind option has no effect on packages that are executed on a DB2 server through a DRDA connection with the client system.</td>
</tr>
<tr>
<td>PLAN AUTH CACHE (AUTHCACH)</td>
<td>The size of the authorization cache to be used if no CACHESIZE is specified on the BIND PLAN subcommand.</td>
</tr>
<tr>
<td></td>
<td>The size of the cache is 32 bytes of overhead + (8 bytes of storage X number of concurrent users). 0 means authorization caching is not used. Install parameter PLAN AUTH CACHE on panel DSNTIPP, or ZPARM AUTHCACH in DSN6SPRM.</td>
</tr>
<tr>
<td>PLAN MGMT SCOPE (PLANMGMTSCOPE)</td>
<td>The PLANMGMTSCOPE subsystem parameter specifies the default plan management scope to use when the PLANMGMTSCOPE option is not explicitly specified for the bind or rebind of a package. The value in this field is meaningful only when the value of the PLAN MANAGEMENT field is BASIC or EXTENDED. It can have a value of STATIC (default). ZPARM PLANMGMTSCOPE in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
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</tr>
<tr>
<td>POOL THREAD TIMEOUT (POOLINAC)</td>
<td>The approximate time, in seconds, that a DBAT can remain idle in the pool before it is terminated. A DBAT thread in the pool counts as an active thread against MAX REMOTE ACTIVE and can hold locks, but does not have any cursors. Threads are checked for timeouts every 3 minutes. This means that timeouts might not be honored for up to 3 minutes when the timeout value is less than this. The default is 120. Install parameter POOL THREAD TIMEOUT on panel DSNTIP5, ZPARM POOLINAC in DSN6FAC.</td>
</tr>
<tr>
<td>PREVIOUS MODULE</td>
<td>The name of the previous DSNZPARM load module.</td>
</tr>
<tr>
<td>PRIMARY QUANTITY (PRIQTY)</td>
<td>The primary space allocation for archive data sets. Install parameter PRIMARY QUANTITY on installation panel DSNTIPI, or ZPARM PRIQTY in DSN6ARVP.</td>
</tr>
<tr>
<td>PRIVATE PROTOCOL</td>
<td>The Private protocol is no longer supported for DB2 10; however, this subsystem parameter controls package EXECUTE authorization behavior related to remote DB2 requester applications. When a remote DB2 requester application accesses the server DB2 subsystem through DRDA protocol, a plan owner is associated with the remote DB2 requester application plan. For packages that are executed as part of this plan by a remote DB2 requester application using DRDA protocol, the PRIVATE_PROTOCOL parameter has the following effects. This parameter is online updatable, and valid values are NO and AUTH.ZPARM PRIVATE_PROTOCOL in macro DSN6FAC.</td>
</tr>
<tr>
<td>PROC NAME (IRLMPRC)</td>
<td>The name of the IRLM procedure invoked by MVS if AUTO START is YES. The name cannot be the same as the subsystem name given for SUBSYSTEM NAME. Install parameter PROC NAME on panel DSNTIPI, or ZPARM IRLMPRC in DSN6SPRM.</td>
</tr>
<tr>
<td>PROJECT Z INSERT THRESHOLD (SPRMZTN)</td>
<td>The Project Z insertion threshold.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>QUERY ACCEL OPTIONS</td>
<td>Specifies additional types of SQL queries that are eligible for acceleration.</td>
</tr>
<tr>
<td>NONE</td>
<td>Indicates that no additional types of SQL queries are eligible. Therefore, the types of queries that are described in the other available values for this parameter are not eligible for acceleration. This is the default value.</td>
</tr>
<tr>
<td>1</td>
<td>Indicates that queries that include data that is encoded with the EBCDIC mixed or graphic encoding schemes are eligible for acceleration.</td>
</tr>
<tr>
<td>2</td>
<td>Indicates that an INSERT with SELECT statement is eligible for acceleration. However, only the SELECT operation of the query is processed by the accelerator server.</td>
</tr>
<tr>
<td>3</td>
<td>Indicates that queries that contain built-in functions for which DB2 processes each byte of the input string, rather than each character of the input string, can run on an accelerator server.</td>
</tr>
<tr>
<td>ZPARM name QUERY ACCEL OPTIONS in macro DSN6SPRM</td>
<td></td>
</tr>
<tr>
<td>QUIESCE PERIOD SECONDS (QUIESCE)</td>
<td>The maximum amount of time (in seconds) permitted for DB2 to attempt a full system quiesce.</td>
</tr>
<tr>
<td>Install parameter QUIESCE PERIOD on panel DSNTIPA, or ZP ARM QUIESCE in DSN6ARVP.</td>
<td></td>
</tr>
<tr>
<td>RANDOMIZE GROUP ATTACHMENT (RANDOMATT)</td>
<td>The RANDOMATT subsystem parameter specifies whether this DB2 member can be used for randomized group attachment or subgroup attachment processing. This setting is ignored when the GROUP ATTACH field is blank. Acceptable values are YES (default) or NO.</td>
</tr>
<tr>
<td>ZPARM RANDOMATT in DSN6GRP.</td>
<td></td>
</tr>
<tr>
<td>READ COPY2 ARCHIVES FIRST (ARC2FRST)</td>
<td>This field indicates whether the COPY2 archives should be read first when the DB2 subsystem is started.</td>
</tr>
<tr>
<td>Install parameter READ COPY2 ARCHIVE on DSNTIPO, or ZP ARM ARC2FRST in DSN6LOGP.</td>
<td></td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>REAL TIME STATS (STATSINT)</td>
<td>The time interval that DB2 waits before it attempts to write out page set statistics to the real-time statistics tables. This value is between 1 and 65535 minutes. Install parameter REAL TIME STATS on panel DSNTIPO, or ZPARM STATSINT in DSN6SPRM.</td>
</tr>
<tr>
<td>REALSTORAGE MAX</td>
<td>The maximum amount of real storage.</td>
</tr>
<tr>
<td>REBIND PLAN MGMT DEFAULT</td>
<td>Controls which queries are populated in the access path repository (ZPARM parameter PLANMGMTSCOPE). Possible values are:</td>
</tr>
<tr>
<td></td>
<td>A ALL: Includes static and dynamic SQL queries.</td>
</tr>
<tr>
<td></td>
<td>S STATIC: Includes static SQL queries only. This is the default.</td>
</tr>
<tr>
<td></td>
<td>D DYNAMIC: Includes dynamic SQL queries only.</td>
</tr>
<tr>
<td>REBUILD INDEX (FLASHCOPY REBUILD INDEX)</td>
<td>The value of the FLASHCOPY REBUILD INDEX subsystem parameter specifies whether the FLASHCOPY option of the REBUILD INDEX utility is to be used by default. Acceptable values are NO (default) or YES. ZPARM FLASHCOPY REBUILD INDEX in DSN6SPRM.</td>
</tr>
<tr>
<td>RECALL DATABASE (RECALL)</td>
<td>The RECALL subsystem parameter controls whether DFSMSHsm automatic recall is to be performed for DB2 databases:</td>
</tr>
<tr>
<td></td>
<td>• YES indicates that DFSMSHsm is invoked to automatically recall migrated table spaces. This is the default.</td>
</tr>
<tr>
<td></td>
<td>• NO indicates that a DB2 table space that has been migrated is considered to be an unavailable resource. It must be recalled explicitly before DB2 can use it.</td>
</tr>
<tr>
<td></td>
<td>ZPARM RECALL in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>RECALL DELAY (RECALLD)</td>
<td>The RECALLD subsystem parameter specifies the maximum length of time, in seconds, that a program can be delayed for a DFSMShsm recall. If the recall is not completed within the specified number of seconds, the program receives an error message indicating that the set is unavailable, but that a recall was initiated. If you use 0 and the RECALL DATABASE field is YES, the recall is performed asynchronously. This field is ignored if the RECALL DATABASE field is NO. The RECALL DELAY option is not used when running a DB2 utility against a DB2-migrated data set. ZPARM RECALLD in DSN6SPRM.</td>
</tr>
<tr>
<td>RECORDS BETWEEN CHECKPOINT (CHKLOGR)</td>
<td>Shows the number of records between log checkpoints if the LOG checkpoint type is BOTH (records and minutes). This field corresponds to field RECORDS/CHECKPOINT on installation panel DSNTIPL1, or ZPARM name CHKLOGR in DSN6SYSP.</td>
</tr>
<tr>
<td>RECORDS/CHECKPOINT (CHKFREQ)</td>
<td>Checkpoint frequency. This shows either the number of minutes (1 through 60) or the number of DB2 log records between the start of successive checkpoints. DB2 starts a new checkpoint when this value is reached. You can use the SET LOG command to change the number of log records between checkpoints dynamically. Valid values are 1-60 when specifying a time value and 200-16000000 when specifying a number of records. Install parameter CHECKPOINT FREQ on panel DSNTIPL, ZPARM CHKFREQ in DSN6SYSP.</td>
</tr>
<tr>
<td>REGISTRATION DATABASE (RGFDBNAM)</td>
<td>The name of the database that contains the registration tables. Install parameter REGISTRATION DATABASE on panel DSNTIPZ, or ZPARM RGFDBNAM in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
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</tr>
</tbody>
</table>
| REGISTRATION TABLE OWNER (RGFCOLID)      | The owner of the application registration table and the object registration table.  
This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.  
Install parameter REGISTRATION OWNER on panel DSNTIPZ, or ZPARM RGFCOLID in DSN6SPRM. |
| RELEASE CURSOR HOLD LOCKS (RELCURHL)     | Indicates whether, at commit time, DB2 should release a data page or row lock on which a cursor defined WITH HOLD is positioned.  
This lock is not necessary for maintaining cursor position.  
YES indicates that DB2 releases this data page or row lock after a COMMIT is issued for cursors defined WITH HOLD. This can improve concurrency.  
NO indicates that DB2 holds the data page or row lock for WITH HOLD cursors after the COMMIT. This option is provided to allow existing applications, which rely on this lock to continue to work correctly. Otherwise this field is left blank.  
Install parameter RELEASE CURSOR HOLD LOCKS on panel DSNTIP8, or ZPARM RELCURHL in DSN6SPRM. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REORDERED ROW FORMAT (RRF)</td>
<td>The reordered row format (RRF). The value of this parameter specifies whether most newly created table spaces are to store data in reordered row format (RRF) or basic row format (BRF) by default.</td>
</tr>
<tr>
<td></td>
<td><strong>ENABLE</strong></td>
</tr>
<tr>
<td></td>
<td><strong>DISABLE</strong></td>
</tr>
<tr>
<td></td>
<td>ZPARM RRF in DSN6SPRM.</td>
</tr>
<tr>
<td>REORG DROP PBG PARTS</td>
<td>REORG DROP partition-by-growth (PBG) parts.</td>
</tr>
<tr>
<td>REORG IGNORE FREE SPACE</td>
<td>Controls whether DB2 uses the PCTFREE and FREEPAGE values that are defined for a partition-by-growth table space in the following situations:</td>
</tr>
<tr>
<td></td>
<td>• When REORG TABLESPACE is run against a subset of the partitions in a partition-by-growth (PBG) table space</td>
</tr>
<tr>
<td></td>
<td>• When REORG TABLESPACE is run against a partition-by-growth table space in which a table contains LOB columns</td>
</tr>
<tr>
<td>REORG INDEX (FLASHCOPY REORG INDEX)</td>
<td>The value of the FLASHCOPY REORG INDEX subsystem parameter specifies whether the FLASHCOPY option of the REORG INDEX utility is to be used by default. Acceptable values are NO (default) or YES.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>REORG LIST PROCESSING</td>
<td>Specifies the default setting for the PARALLEL option of the DB2 REORG TABLESPACE utility. Valid values for the REORG_LIST_PROCESSING subsystem parameter are PARALLEL and SERIAL. ZPARM REORG_LIST_PROCESSING in macro DSN6SPRM.</td>
</tr>
<tr>
<td>REORG MAPPING DATABASE</td>
<td>REORG mapping database.</td>
</tr>
<tr>
<td>REORG PART SORT NPSI</td>
<td>Specifies whether the REORG TABLESPACE PART utility decides to sort all of the keys of a non-partitioned secondary index. The setting is ignored for a REORG that is not part-level or without non-partitioned secondary indexes. The default value of REORG PART SORT NPSI is NO, which means that only keys of the non-partitioned secondary indexes that are in the scope of the REORG are sorted. ZPARM REORG PART SORT NPSI in DSN6SPRM.</td>
</tr>
<tr>
<td>REORG TABLESPACE (FLASHCOPY REORG TS)</td>
<td>The value of the FLASHCOPY REORG TS subsystem parameter specifies whether the FLASHCOPY option of the REORG TABLESPACE utility is to be used by default. Acceptable values are NO (default) or YES. ZPARM FLASHCOPY REORG TS in DSN6SPRM.</td>
</tr>
<tr>
<td>REQUIRE FULL NAMES (RGFFULLQ)</td>
<td>Indicates whether registered objects require fully qualified names. Install parameter REQUIRE FULL NAMES on panel DSNTIPZ, or ZPARM RGFFULLQ in DSN6SPRM.</td>
</tr>
<tr>
<td>RESIDENT TRACE TBL SIZE (TRACTBL)</td>
<td>Shows the size of the RES trace table in 4 KB blocks. A value of 16 means 64 KB have been allocated for this table. This is the default destination for the global trace records in DB2. Most trace records require 32-byte entries; events with more than three data items require 64-byte entries. Install parameter TRACE SIZE on panel DSNTIPN, or ZPARM TRACTBL in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>RESOURCE AUTHID (RLFAUTH)</td>
<td>The authorization ID used for the resource limit facility (governor). This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report. Install parameter RESOURCE AUTHID on panel DSNTIPP, or ZPARM RLFAUTH in DSN6SYSP.</td>
</tr>
<tr>
<td>RESOURCE LIMIT AUTO START (RLF)</td>
<td>Shows whether the resource limit facility (governor) is automatically started when DB2 is started. Install parameter RLF AUTO START on panel DSNTIPO, or ZPARM RLF in DSN6SYSP.</td>
</tr>
<tr>
<td>RESOURCE TIMEOUT (IRLMRWT)</td>
<td>The number of seconds before a timeout is detected. This is an integer multiple of DEADLOCK TIME on panel DSNTIPJ. Timeout means that a lock request has waited for a resource (or for claims on a resource for a particular claim class to be released) longer than this time. For data sharing, the actual timeout period is longer than the timeout value. Install parameter RESOURCE TIMEOUT on panel DSNTIPI, or ZPARM IRLMRWT in DSN6SPRM.</td>
</tr>
<tr>
<td>RESTART OR DEFER (RESTART)</td>
<td>The RESTART subsystem parameter determines whether DB2 is to restart or defer processing for the specified databases, table spaces, and index spaces when DB2 is started. Acceptable values are RESTART (default) or DEFER. ZPARM RESTART in DSN6SPRM.</td>
</tr>
<tr>
<td>RESTORE RECOVER FROMDUMP</td>
<td>If YES, the system-level backup that is the recovery base, is from a dump on tape. Otherwise NO is shown. Install parameter RESTORE/RECOVER on installation panel DSNTIP6, or ZPARM RESTORE RECOVER FROMDUMP in DSN6SPRM.</td>
</tr>
<tr>
<td>RESTRICT ALT COL FOR DCC</td>
<td>Specifies whether restrictions apply to ALTER TABLE ALTER COLUMN statements for target tables that are defined with the DATA CAPTURE CHANGES attribute. Valid values are NO (default) and YES.RESTRICT_ALT_COL_FOR_DCC in macro DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>RESYNC INTERVAL (RESYNC)</td>
<td>The number of minutes between resynchronization periods.</td>
</tr>
<tr>
<td></td>
<td>A resynchronization period is the time during which indoubt logical units of work involving this DB2 subsystem and partner logical units are processed.</td>
</tr>
<tr>
<td></td>
<td>Install parameter RESYNC INTERVAL on panel DSNTIPR, or ZPARM RESYNC in DSN6FAC.</td>
</tr>
<tr>
<td>RETAINED LOCK TIMEOUT (RETLWAIT)</td>
<td>Indicates whether a request is suspended until an incompatible retained lock becomes available.</td>
</tr>
<tr>
<td></td>
<td>This value is only significant in a data sharing environment. It indicates how long a transaction should wait for a lock on a resource if another DB2 in the data sharing group has failed and is holding an incompatible lock on that resource. Locks held by failed DB2 members are called retained locks.</td>
</tr>
<tr>
<td></td>
<td>This value is a multiplier that is applied to the connection’s normal timeout value. For example, if the retained lock multiplier is 2, then the timeout period for a call attachment connection that is waiting for a retained lock is twice the normal CAF timeout period. The default is 0, meaning applications do not wait for incompatible retained locks, the lock request is immediately rejected and the application receives a &quot;resource unavailable&quot; SQLCODE.</td>
</tr>
<tr>
<td></td>
<td>Install parameter RETAINED LOCK TIMEOUT on panel DSNTIP, or ZPARM RETLwait in DSN6SPRM.</td>
</tr>
<tr>
<td>RETENTION PERIOD (ARCRETN)</td>
<td>The number of days DB2 keeps archive log data sets.</td>
</tr>
<tr>
<td></td>
<td>This value is added to the current date to calculate the expiration date.</td>
</tr>
<tr>
<td></td>
<td>The retention period is often used in tape management systems to control the reuse and scratching of data sets and tapes. DB2 uses this as the value for the dynamic allocation parameter DALRETPD when archive log data sets are created.</td>
</tr>
<tr>
<td></td>
<td>Install parameter RETENTION PERIOD on panel DSNTIPA, or ZPARM ARCRETN in DSN6ARVP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| REVOKE DEP PRIV (REVOKE_DEP_PRIVILEGES) | Include dependent privileges on REVOKE. Possible values are:  
Y  If INCLUDING DEPENDENT PRIVILEGES is enforced.  
N  If NOT INCLUDING DEPENDENT PRIVILEGES is enforced.  
S  If specified in a REVOKE statement. |

| RLF ERROR PARAMETER | Shows what DB2 does when the governor cannot access the resource limit specification table or when no row in the table matches the currently executing statement.  
NOLIMIT (default) allows all dynamic SQL statements to run without limit.  
NORUN terminates all dynamic SQL statements immediately with an SQL error code.  
The number of CPU service units allowed for a query can be anywhere from 1 to 5000000.  
Install parameter RLST ACCESS ERROR on panel DSNTIPR, or ZPARM RLFERRD in DSN6FAC. |

| RLST ACCESS ERROR (RLFERR) | The action taken by DB2 when the governor cannot use the resource limit:  
**NOLIMIT**  
The dynamic SQL statements run without limit.  
**NORUN**  
The dynamic SQL statements terminated with an SQL error code.  
A number from 1 to 5000000 represents the number of CPU service units allowed for a query. Install parameter RLST ACCESS ERROR on panel DSNTIPO, or ZPARM RLFERR in DSN6SYSP. |

| RLST ACCESS ERROR (RLFERRD) | The action taken by DB2 when the governor cannot use the resource limit:  
**NOLIMIT**  
The dynamic SQL statements run without limit.  
**NORUN**  
The dynamic SQL statements terminated with an SQL error code.  
A number from 1 to 5000000 represents the number of CPU service units allowed for a query. Install parameter RLST ACCESS ERROR on panel DSNTIPO, or ZPARM RLFERR in DSN6SYSP. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RLST NAME SUFFIX (RLFTBL)</td>
<td>The default resource limit specification table (RLST) suffix. This suffix is used when the resource limit facility (governor) is automatically started or when the governor is started without specifying a suffix. Install parameter RLST NAME SUFFIX on panel DSNTIPO, or ZPARM RLFTBL in DSN6SYSP.</td>
</tr>
</tbody>
</table>
| RO SWITCH CHKPTS (PCLOSEN)            | The number of consecutive DB2 checkpoints that a page set or partition can remain in read/write mode since it was last updated. When this limit or the RO SWITCH TIME is reached, DB2 changes the page set or partition to read-only.  
This can improve performance for recovery, logging, and data-sharing processing.  
Install parameter RO SWITCH CHKPTS on panel DSNTIPL, or ZPARM PCLOSEN in DSN6SYSP. |
| RO SWITCH TIME (PCLOSET)              | The number of minutes that a page set or partition can remain in read-write mode since it was last updated. When this limit or the RO SWITCH CHKPTS is reached, DB2 changes the page set or partition to read-only.  
This can improve performance for recovery, logging, and data-sharing processing.  
Install parameter RO SWITCH TIME on panel DSNTIPL, or ZPARM PCLOSET in DSN6SYSP. |
| ROUTINE AUTH CACHE (CACHERAC)         | The amount of storage allocated for caching authorization information for all routines on this DB2 member. Routines include stored procedures and user-defined functions.  
32 KB hold about 380 schema.routine.type entries.  
Install parameter ROUTINE AUTH CACHE on panel DSNTIPP, or ZPARM CACHERAC in DSN6SPRM. |
| SEC ADMIN 1 TYPE (SECADM1 TYPE)       | Security administrator 1 type. Possible values are:  
' ' Blank indicates that the authorization ID (AUTH ID) is used.  
'L' Indicates that ROLE is used.  
This field corresponds to field SEC ADMIN 1 TYPE on installation panel DSNTIPP1, or ZPARM SECADM1_TYPE in DSN6SPRM. |
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEC ADMIN 2 TYPE (SECADM2 TYPE)</td>
<td>Security administrator 2 type. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>'blank' Indicates that the authorization ID (AUTH ID) is used.</td>
</tr>
<tr>
<td></td>
<td>'L' Indicates that ROLE is used.</td>
</tr>
<tr>
<td></td>
<td>This field corresponds to field SEC ADMIN 2 TYPE on installation panel DSNTIPP1, or ZPARM SECADM2_TYPE in DSN6SPRM.</td>
</tr>
<tr>
<td>SECONDARY QUANTITY (SECQTY)</td>
<td>The device type or unit name for storing archive log data sets.</td>
</tr>
<tr>
<td></td>
<td>The value can be any alphanumeric string. If you choose to archive to DASD, you can specify a generic device type with a limited volume range.</td>
</tr>
<tr>
<td></td>
<td>DB2 requires that all archive log data sets allocated on DASD are cataloged.</td>
</tr>
<tr>
<td></td>
<td>If the device type is DASD, CATALOG DATA must be set to YES. If the unit name specifies DASD, the archive log data sets can extend to a maximum</td>
</tr>
<tr>
<td></td>
<td>of 15 volumes. PRIQTY and SECQTY must be large enough to contain all active log data set data without extending beyond 15 volumes. If the</td>
</tr>
<tr>
<td></td>
<td>unit name specifies a tape device, DB2 can extend to a maximum of 20 volumes. Default is TAPE.</td>
</tr>
<tr>
<td></td>
<td>Install parameter DEVICE TYPE 1 on panel DSNTIPA, or ZPARM UNIT in DSN6ARVP.</td>
</tr>
<tr>
<td>SECURITY ADMIN 1 (SECADM1)</td>
<td>Security administrator 1 authorization ID (blank if ROLE).</td>
</tr>
<tr>
<td></td>
<td>This field corresponds to field SECURITY ADMIN 1 on installation panel DSNTIPP1, or ZPARM SECADM1 in DSN6SPRM.</td>
</tr>
<tr>
<td>SECURITY ADMIN 2 (SECADM2)</td>
<td>Security administrator 2 authorization ID (blank if ROLE).</td>
</tr>
<tr>
<td></td>
<td>This field corresponds to field SECURITY ADMIN 2 on installation panel DSNTIPP1, or ZPARM SECADM2 in DSN6SPRM.</td>
</tr>
<tr>
<td>SECURITY ADMIN1 TYPE</td>
<td>Security administrator 1 type. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>' ' Blank indicates that the authorization ID (AUTH ID) is used.</td>
</tr>
<tr>
<td></td>
<td>'L' Indicates that ROLE is used.</td>
</tr>
<tr>
<td></td>
<td>This field corresponds to field SEC ADMIN 1 TYPE on installation panel DSNTIPP1, or ZPARM SECADM1_TYPE in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SECURITY ADMIN2 TYPE</td>
<td>Security administrator 2 type. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>'blank' Indicates that the authorization ID (AUTH ID) is used.</td>
</tr>
<tr>
<td></td>
<td>'L' Indicates that ROLE is used.</td>
</tr>
<tr>
<td></td>
<td>This field corresponds to field SEC ADMIN 2 TYPE on installation panel DSNTIPPI, or ZPARM SECADM2_TYPE in DSN6SPRM.</td>
</tr>
<tr>
<td>SEPARATE SECURITY DUTIES (SEPARATE_SECURITY)</td>
<td>Separate security tasks. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>Y SYSADM/SYSCTRL cannot GRANT/REVOKE</td>
</tr>
<tr>
<td></td>
<td>N SYSADM/SYSCTRL can GRANT/REVOKE</td>
</tr>
</tbody>
</table>
| SET CHECK PENDING (CHECK SETCHKP)    | The CHECK SETCHKP subsystem parameter specifies whether the CHECK DATA and CHECK LOB utilities are to place inconsistent objects in CHECK PENDING status. Acceptable values are YES or NO (default).
<p>|                                      | ZPARM CHECK SETCHKP in DSN6SPRM.                                                                    |
| SIGNON (SIGNON MODULE)               | Shows the name of the default signon exit module.                                                     |
|                                      | This field corresponds to field SIGNON on installation panel DSNTIPO3. The ZPARM name is SIGNON MODULE in DSN6SYSP. |
| SINGLE VOLUME (SVOLARC)              | Indicates whether single-volume DASD archives are used.                                              |
|                                      | Install parameter SINGLE VOLUME on panel DSNTIPA, or ZPARM SVOLARC in DSN6ARVP.                     |</p>
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITE TYPE (SITETYP)</td>
<td>Shows whether this system is at a local site or a recovery site.</td>
</tr>
<tr>
<td></td>
<td><strong>LOCALSITE</strong></td>
</tr>
<tr>
<td></td>
<td>This is the site of the current system. Multiple image copies are made and are operational here. This is the default.</td>
</tr>
<tr>
<td></td>
<td><strong>RECOVERSITE</strong></td>
</tr>
<tr>
<td></td>
<td>This an alternative site for recovery purposes.</td>
</tr>
<tr>
<td></td>
<td>The RECOVER utility uses this parameter to determine what site the current system is on and recovers everything from the copies of data registered at that site.</td>
</tr>
<tr>
<td></td>
<td>The RECOVER and MERGECOPY utilities use this to determine whether COPYDDN or RECOVERDDN is allowed with NEWCOPY NO.</td>
</tr>
<tr>
<td></td>
<td>Install parameter SITE TYPE on panel DSNTIPO, or ZPARM SITETYP in DSN6SPRM.</td>
</tr>
<tr>
<td>SIZE OF LOCAL TRACE TABLES (TRACLOC)</td>
<td>The size of the local trace tables in multiples of 4 KB.</td>
</tr>
<tr>
<td>SKIP UNCOMMITTED INSERTS (SKIPUNCI)</td>
<td>The SKIPUNCI subsystem parameter specifies whether statements are to ignore a row that was inserted by another transaction if the row has not been committed or aborted. Acceptable values are NO (default) or YES.</td>
</tr>
<tr>
<td></td>
<td>ZPARM SKIPUNCI in DSN6SPRM.</td>
</tr>
<tr>
<td>SMS Data Class (CATDDACL)</td>
<td>The DIRECTORY AND CATALOG DATA field specifies the explicit Storage Management Subsystem (SMS) classes that are to be used for defining VSAM data sets for the DB2 catalog and directory. Acceptable values are blank (default) or a valid SMS data class name.</td>
</tr>
<tr>
<td></td>
<td>ZPARM CATDDACL in DSN6SPRM.</td>
</tr>
<tr>
<td>SMS DATACLASS NAME FOR DATA TS (SMSDCFL)</td>
<td></td>
</tr>
<tr>
<td>SMS DATACLASS NAME FOR INDEX TS (SMSDCIX)</td>
<td></td>
</tr>
<tr>
<td>SMS IX Data Class (CATXDAACL)</td>
<td></td>
</tr>
<tr>
<td>SMS IX Management Class (CATXMGACL)</td>
<td></td>
</tr>
<tr>
<td>SMS IX STO Class (CATXSTCL)</td>
<td></td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| SMS Mgmt Class (CATDMGCL)           | The DIRECTORY AND CATALOG DATA field specifies the explicit Storage Management Subsystem (SMS) classes that are to be used for defining VSAM data sets for the DB2 catalog and directory.  
                                        | Acceptable values are blank (default) or a valid SMS management class name.                                                                                                                                  |
|                                     | ZPARM CATDMGCL in DSN6SPRM.                                                                                                                                                                                 |
| SMS Storage Class (CATDSTCL)        | The DIRECTORY AND CATALOG DATA field specifies the explicit Storage Management Subsystem (SMS) classes that are to be used for defining VSAM data sets for the DB2 catalog and directory.  
<pre><code>                                    | Acceptable values are blank (default) or a valid SMS storage class name.                                                                                                                                       |
</code></pre>
<p>|                                     | ZPARM CATDSTCL in DSN6SPRM.                                                                                                                                                                                  |
| SORT POOL SIZE (SRTPROOL)           | Indicates the amount of storage needed for the sort pool.                                                                                                                                                    |
|                                     | This can be the value calculated by the CLIST, based on input from previous panels, or the value entered in the Override column at installation time.                                                              |
|                                     | Install parameter SORT POOL SIZE on panel DSNTIPC, or ZPARM SRTPROOL in DSN6SPRM.                                                                                                                             |
| SPT01 INLINE LENGTH                 | Default inline length for any new storing large object (LOB) column in a Universal Table Space on the DB2 subsystem. The valid values are from 0 to 32680 inclusive (in bytes). The default value for this ZPARM is 0, which indicates that no inline attribute is required for any LOB column (BLOB, CLOB or DBCLOB) created on this subsystem. If NOINLINE is specified, the value is set to -1. |
| SQL STRING DELIMITER (SQLDELI)       | The SQLDELI DECP value specifies the character that is to be used as the SQL string delimiter to delimit character strings in dynamic SQL.                                                                     |
|                                     | Acceptable values are DEFAULT (the default value), ” (quotation mark), or ’ (apostrophe).                                                                                                                    |</p>
<table>
<thead>
<tr>
<th>DB2 parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD SQL LANGUAGE (STDSQL)</td>
<td>Shows whether SQL, the language standard used by applications, conforms to 1986 ANSI SQL standard.</td>
</tr>
<tr>
<td></td>
<td>YES Conforms to the 1986 ANSI SQL standard</td>
</tr>
<tr>
<td></td>
<td>NO Conforms to the SQL language defined by DB2</td>
</tr>
<tr>
<td></td>
<td>86 Conforms to the 1986 ANSI SQL standard</td>
</tr>
<tr>
<td></td>
<td>Install parameter STD SQL LANGUAGE on panel DSNTIP4, or ZPARM STDSQL in DSNHDECP.</td>
</tr>
<tr>
<td>STAR JOIN MAX POOL</td>
<td>Shows the maximum size, in MB, of the virtual memory pool for star join queries. When zero, DB2 does not allocate a memory pool for star join queries, even if star join queries are enabled. A value between 1 and 1024, shows that DB2 uses a dedicated memory pool up to the size shown for star join queries.</td>
</tr>
<tr>
<td></td>
<td>Install parameter STAR JOIN MAX POOL on panel DSNTIP8, or ZPARM SJMXPOOL in DSN6SPRM.</td>
</tr>
<tr>
<td>STAR JOIN QUERIES (STARJOIN)</td>
<td>The STARJOIN subsystem parameter specifies whether star join processing is to be enabled. Acceptable values are DISABLE (default), ENABLE, or 1 to 32768.</td>
</tr>
<tr>
<td></td>
<td>ZPARM STARJOIN in DSN6SPRM.</td>
</tr>
<tr>
<td>STAR JOIN THRESHOLD (SJTABLES)</td>
<td>The minimum number of tables in the star schema query block, including the fact table, dimensions tables, and snowflake tables. This value is considered only if the subsystem parameter STARJOIN qualifies the query for star join.</td>
</tr>
<tr>
<td></td>
<td>Possible values are:</td>
</tr>
<tr>
<td></td>
<td>0 Star join is disabled. This is the default.</td>
</tr>
<tr>
<td></td>
<td>1, 2, or 3 Star join is always considered.</td>
</tr>
<tr>
<td></td>
<td>4 through 255 Star join is considered if the query block has at least the specified number of tables.</td>
</tr>
<tr>
<td></td>
<td>256 and greater Star join is never considered.</td>
</tr>
<tr>
<td></td>
<td>DB2 parameter SJTABLES in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>START AUDIT TRACE (AUDITST)</td>
<td>Shows whether the audit trace is started automatically when DB2 is started. When YES, the audit trace is started for the default class (class 1) whenever DB2 is started. When ALL, an audit trace is automatically started for all classes. Install parameter AUDIT TRACE on panel DSNTIPN, or ZPARM AUDITST in DSN6SYSP.</td>
</tr>
<tr>
<td>START GLOBAL TRACE (TRACSTR)</td>
<td>Shows whether the global trace is started automatically when DB2 is started.</td>
</tr>
<tr>
<td></td>
<td>When YES, the global trace starts for the default classes (classes 1, 2, and 3) whenever DB2 is started, and additional data consistency checks are made whenever a data page or index page is modified. When ALL, the global trace is automatically started for all classes.</td>
</tr>
<tr>
<td></td>
<td>The global trace is used to diagnose problems in DB2 but it also impacts DB2 performance. If you have production systems requiring high performance, you might consider turning off global trace. If you do this, be aware that this presents a serviceability exposure. In the event of a system failure, IBM service personnel will ask you to turn on global trace and attempt to recreate the problem.</td>
</tr>
<tr>
<td></td>
<td>Install parameter TRACE AUTO START on panel DSNTIPN, or ZPARM TRACSTR in DSN6SYSP.</td>
</tr>
<tr>
<td>START SMF ACCOUNTING (SMFACCT)</td>
<td>Shows whether DB2 sends accounting data to SMF automatically when DB2 is started. Numeric values show what classes are sent. When YES, the default class (class 1) is sent. When ALL, accounting classes one through five are started.</td>
</tr>
<tr>
<td></td>
<td>The SMFP RM xx member of SYS1.PARMLIB must also be set to allow SMF to write the records.</td>
</tr>
<tr>
<td></td>
<td>Install parameter SMF ACCOUNTING on panel DSNTIPN, or ZPARM SMFACCT in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>START SMF STATISTICS (SMFSTAT)</td>
<td>Shows whether a Statistics trace was started automatically at DB2 startup time.</td>
</tr>
<tr>
<td></td>
<td>The classes started are shown separated by commas.</td>
</tr>
<tr>
<td></td>
<td>DB2 sends collected trace data to SMF. The SMFPRM xx member of SYS1.PARMLIB must be set to allow SMF to write the records.</td>
</tr>
<tr>
<td></td>
<td>Install parameter SMF STATISTICS on panel DSNTIPN, or ZPARM SMFSTAT in DSN6SYP.</td>
</tr>
<tr>
<td>STATFDBK SCOPE</td>
<td>STATFDBK scope.</td>
</tr>
<tr>
<td>STATISTICS CLUSTERING (STATCLUS)</td>
<td>Shows if the RUNSTATS utility uses enhanced or standard clustering statistics: ENHANCED is used if it is on, otherwise STANDARD is shown.</td>
</tr>
<tr>
<td></td>
<td>Install parameter STATISTICS CLUSTERING on panel DSNTIP6, or ZPARM STATCLUS in DSN6SPRM.</td>
</tr>
<tr>
<td>STATISTICS HISTORY (STATHIST)</td>
<td>Shows which inserts and updates are recorded in catalog history tables.</td>
</tr>
<tr>
<td></td>
<td>The report can show the following values:</td>
</tr>
<tr>
<td>N / NONE</td>
<td>Changes in the catalog are not recorded. This is the default.</td>
</tr>
<tr>
<td>A / ALL</td>
<td>All inserts and updates in the catalog are recorded.</td>
</tr>
<tr>
<td>P / ACCESSPATH</td>
<td>All inserts and updates to access path related catalog statistics are recorded.</td>
</tr>
<tr>
<td>S / SPACE</td>
<td>All inserts and updates to space related catalog statistics are recorded.</td>
</tr>
<tr>
<td></td>
<td>Install parameter STATISTICS HISTORY on panel DSNTIPO, or ZPARM STATHIST in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------</td>
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</tr>
<tr>
<td>STATISTICS ROLLUP DEFAULT (STATROLL)</td>
<td>Shows whether RUNSTATS utility aggregates the partition level statistics, even though some parts may not contain data.</td>
</tr>
<tr>
<td></td>
<td>This should be YES for DB2 systems that have large partitioned table spaces, index spaces, or both. This enables the aggregation of part level statistics and helps the optimizer to choose a better access path.</td>
</tr>
<tr>
<td></td>
<td>Install parameter STATISTICS ROLLUP on panel DSNTIPO, or ZPARM STATROLL in DSN6SPRM.</td>
</tr>
<tr>
<td>STATISTICS SYNC (SYNCVAL)</td>
<td>Shows whether DB2 statistics recording is synchronized with some part of the hour. The installation can specify that the DB2 statistics recording interval be synchronized with the beginning of the hour (00 minutes past the hour) or any number of minutes past the hour up to 59. Possible values are: 0-59, which indicate the synchronization point. When NO or N/A is shown, synchronization is disabled, this is the default.</td>
</tr>
<tr>
<td></td>
<td>If STATISTICS TIME INTERVAL IN MINUTES (STATIME) is greater than 60, NO or N/A is shown.</td>
</tr>
<tr>
<td></td>
<td>Install parameter STATISTICS SYNC on panel DSNTIPN, or ZPARM SYNCVAL in DSN6SYSP.</td>
</tr>
<tr>
<td>STATISTICS TIME INTERVAL (STATIME)</td>
<td>The time interval, in minutes, between statistics collections. Statistics records are written approximately at the end of this interval. Install parameter STATISTICS TIME on panel DSNTIPN, or ZPARM STATTIME in DSN6SYSP.</td>
</tr>
<tr>
<td>STRING DELIMITER (DELIM)</td>
<td>Shows the string delimiter for COBOL. Default string delimiter is the quotation mark. This option is applicable to all types of COBOL.</td>
</tr>
<tr>
<td></td>
<td>Install parameter STRING DELIMITER on panel DSNTIPF, or ZPARM DELIM in DSNHDECP.</td>
</tr>
<tr>
<td>SU CONVERSION FACTOR</td>
<td>The CPU service unit conversion factor for this CPU.</td>
</tr>
<tr>
<td></td>
<td>This factor allows conversion CPU time in seconds to a common unit, called service unit (SU). The conversion factor used depends on the machine. Service units allow you to calculate CPU execution times across a data sharing group.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>SUBQ MIDX</td>
<td>Specifies whether to enable or disable multiple index access on some non-Boolean uncorrelated subquery predicates. ZPARM SUBQ_MIDX in macro DSN6SPRM.</td>
</tr>
<tr>
<td>SUBSYSTEM DEFAULT (SSID)</td>
<td>The MVS subsystem name for DB2. The name is used in member IEFSSN xx of SYS1.PARMLIB. Any valid name has 1-4 characters, the first must be A-Z, #, $, or @. Others must be A-Z, 1-9, #, $, or @. Default is DSN1. Install parameter SUBSYSTEM NAME on panel DSNTIPM or ZPARM SSID in DSNHDECP.</td>
</tr>
<tr>
<td>SUPPRESS LOGREC SOFT RECORD (SUPERRS)</td>
<td>Shows whether the recording of errors, such as invalid decimal data and arithmetic exceptions, in the operating system data set SYS1.LOGREC is suppressed. When YES, these exceptions are not recorded in the LOGREC data set. Install parameter SUPPRESS SOFT ERRORS on panel DSNTIPM or ZPARM SUPERRS in DSN6SPRM.</td>
</tr>
<tr>
<td>SYSTEM ADMIN 1 (SYADM)</td>
<td>One of two authorization IDs with SYADM authority. SYADM users can access to DB2 in all cases. This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report. Install parameter SYSTEM ADMIN 1 on panel DSNTIPP, or ZPARM SYADM in DSN6SPRM.</td>
</tr>
<tr>
<td>SYSTEM ADMIN 2 (SYADM2)</td>
<td>One of two authorization IDs with SYADM authority. SYADM users can access to DB2 in all cases. This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report. Install parameter SYSTEM ADMIN 2 on panel DSNTIPP, or ZPARM SYADM2 in DSN6SPRM.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>SYSTEM LEVEL BACKUP (SYSTEM LEVEL BACKUPS)</td>
<td>Shows if RECOVER uses system level backups as the recovery base. Install parameter SYSTEM-LEVEL BACKUPS on installation panel DSNTIP6, or ZPARM SYSTEM LEVEL BACKUPS in DSN6SPRM.</td>
</tr>
<tr>
<td>SYSTEM LOB VALUE STORAGE (LOBVALS)</td>
<td>Specifies an integer that establishes an upper limit for the amount of storage per system that can have for storing lob values (in MB).</td>
</tr>
<tr>
<td>SYSTEM OPERATOR 1 (SYSOPR1)</td>
<td>One of two authorization IDs with SYSOPR authority. SYSOPR users can access DB2 even if the DB2 catalog is unavailable. This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report. Install parameter SYSTEM OPERATOR 1 on panel DSNTIP1, or ZPARM SYSOPR1 in DSN6SPRM.</td>
</tr>
<tr>
<td>SYSTEM OPERATOR 2 (SYSOPR2)</td>
<td>One of two authorization IDs with SYSOPR authority. SYSOPR users can access DB2 even if the DB2 catalog is unavailable. This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report. Install parameter SYSTEM OPERATOR 2 on panel DSNTIP1, or ZPARM SYSOPR2 in DSN6SPRM.</td>
</tr>
<tr>
<td>SYSTEM XML VALUE STORAGE (XMLVALS)</td>
<td>The maximum amount of memory for each system for storing XML values. This is ZPARM XMLVALS in DSN6SYSP.</td>
</tr>
<tr>
<td>TABLE SPACE ALLOCATION IN KB (TSQTY)</td>
<td>Specifies the amount of space in KB for primary and secondary space allocation for DB2-defined data sets for table spaces created without the USING clause. 0 indicates that DB2 uses standard defaults. Install parameter TABLE SPACE ALLOCATION on panel DSNTIP7, or ZPARM TSQTY in DSN6SYSP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
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</tr>
<tr>
<td>TAPE UNIT DEALLOCATION PERIOD (DEALLCT)</td>
<td>The number of minutes an archive read tape unit can remain unused before it is deallocated.</td>
</tr>
<tr>
<td></td>
<td>When archive log data is read from tape, this value should be high enough to allow DB2 to optimize tape handling for multiple read applications.</td>
</tr>
<tr>
<td></td>
<td>Install parameter DEALLOC PERIOD on panel DSNTIPA, or ZPARM DEALLCT in DSN6LOGP.</td>
</tr>
<tr>
<td>TCP/IP ALREADY VERIFIED (TCPALVER)</td>
<td>Indicates whether DB2 accepts TCP/IP connection requests containing only a user ID.</td>
</tr>
<tr>
<td></td>
<td>When YES, a connection request is accepted with a user ID only. This value must be the same for all members of a data sharing group.</td>
</tr>
<tr>
<td></td>
<td>When NO (default), TCP/IP clients must provide authentication information (password, RACF PassTicket, or Kerberos ticket) to gain access to DB2.</td>
</tr>
<tr>
<td></td>
<td>Install parameter TCP/IP ALREADY VERIFIED on panel DSNTIP5, or ZPARM TCPALVER in DSN6FAC.</td>
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<tr>
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</tr>
<tr>
<td><strong>TCP/IP KEEPALIVE (TCPKPALV)</strong></td>
<td>Indicates whether the TCP/IP configuration KeepAlive value has been overwritten. When ENABLE (default), KeepAlive is enabled, the TCP/IP configuration stack value is used. When DISABLE, TCP/IP KeepAlive has been disabled. A value in the range 1 through 65534 means KeepAlive is active, and the TCP/IP stack value has been overridden. The number reported shows the time, in seconds, between TCP/IP probes. When considering overwriting the keep-alive time, it is recommended to set a value close to the IDLE THREAD TIMEOUT value on installation panel DSNTIPR or the IRLM RESOURCE TIMEOUT value on installation panel DSNTIPI. It is good practice to set all these to about five minutes, or less. Because KeepAlive detection is accomplished by probing the network at this interval, avoid small values, which can cause excessive network traffic and system resource consumption. The trick is to find a proper balance that allows network failures to be detected on a timely basis without impacting system and network performance. Install parameter TCP/IP KEEPALIVE on panel DSNTIP5, ZPARM TCPKPALV in DSN6FAC.</td>
</tr>
<tr>
<td><strong>TEMP DS UNIT NAME (VOLTDEVT)</strong></td>
<td>Shows the device type or unit name for allocating temporary data sets. It is the direct access or disk unit name used for the precompiler, compiler, assembler, sort, linkage editor, and utility work-files in the tailored jobs and CLISTS. It can be any device type acceptable to the DYNALLOC parameter of the SORT or OPTION options for DFSORT. The default is SYSDA. Install parameter TEMPORARY UNIT NAME on DSNTIPA2, or ZPARM VOLTDEVT in DSN6SPRM.</td>
</tr>
<tr>
<td><strong>TEMPLATE TIME</strong></td>
<td>The template time.</td>
</tr>
<tr>
<td><strong>DB2 parameter</strong></td>
<td><strong>Description</strong></td>
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</tr>
<tr>
<td>TEMPORARY UNIT NAME</td>
<td>The value of the TEMPORARY UNIT NAME field specifies the device type or unit name that is to be used for allocating temporary data sets. The value of TEMPORARY UNIT NAME is the direct access or disk unit name that is used for the precompiler, compiler, assembler, sort, linkage editor, and utility work files in the tailored jobs and CLISTs.</td>
</tr>
<tr>
<td>THE LIMIT IN SUS</td>
<td>The limit in service units (SUS).</td>
</tr>
<tr>
<td>TIME FORMAT (TIME)</td>
<td>Indicates the default output format for times. Valid values are ISO (hh:mm:ss), USA (hh:mm AM), EUR (hh:mm:ss), JIS (hh:mm:ss), or LOCAL (your choice, defined by a time exit routine). DB2 interprets the input time from the punctuation and converts the output time to the required format. Install parameter TIME FORMAT on panel DSNTIP4, or ZPARM TIME in DSNHDECP.</td>
</tr>
<tr>
<td>TIME OF LAST CHANGE</td>
<td>Time of the last online change made to DB2 system settings.</td>
</tr>
<tr>
<td>TIME TO AUTOSTART (IRLMSWT)</td>
<td>The IRLM wait time in seconds. DB2 autostart abends if IRLM does not start within this time.                                                                                                                      Install parameter TIME TO AUTOSTART on panel DSNTIPI, or ZPARM IRLMSWT in DSN6SPRM.</td>
</tr>
<tr>
<td>TIMEOUT INTERVAL</td>
<td>The approximate time, in seconds, that an active server thread can remain idle before it is canceled. Inactive and indoubt threads are not subject to timeout. Threads are checked for timeouts every 3 minutes. This means that timeouts might not be honored for up to 3 minutes when the timeout value is less than this. 0 (default) means timeout processing is disabled, idle server threads remain in the system and continue to hold their resources, if any. Install parameter IDLE THREAD TIMEOUT on panel DSNTIPR, or ZPARM IDTHTOIN in DSN6FAC.</td>
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<td>DB2 parameter</td>
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</tr>
<tr>
<td>TIMEOUT VALUE (STORTIME)</td>
<td>The number of seconds before DB2 stops waiting for an SQL CALL statement to be assigned to one of the TCBs in the DB2 stored procedures address space. Install parameter TIMEOUT VALUE on panel DSNTIPX, or ZPARM STORTIME in DSN6SYSP.</td>
</tr>
<tr>
<td>TIMESTAMP IN NAME (TSTAMP)</td>
<td>Determines whether the time stamp is to be placed in the name of an archive log data set. You can specify YES or NO. This field is a constant for QWP3FLG1.</td>
</tr>
<tr>
<td>TRACKER SITE (TRKRSITE)</td>
<td>Indicates whether this subsystem is a remote tracker site for another DB2 subsystem. When YES, this is a tracker site. A DB2 tracker site is a separate DB2 subsystem or data sharing group that exists solely for the purpose of keeping shadow copies of your primary site’s data. No independent work can be run on the tracker site. Install parameter TRACKER TYPE on panel DSNTIPO, or ZPARM TRKRSITE in DSN6SPRM.</td>
</tr>
<tr>
<td>U LOCK FOR RR OR RS (RRULOCK)</td>
<td>Indicates whether the U (UPDATE) lock is used when using repeatable read (RR) or read stability (RS) isolation to access a table. When YES, the U lock is used for an updated cursor with repeatable read or read stability. When NO, the S lock is used for an updated cursor with repeatable read or read stability. If the cursor in the running applications includes the clause FOR UPDATE OF, but updates are infrequent, S locks generally provide better performance. Install parameter U LOCK FOR RR/RS on panel DSNTIPI, or ZPARM RRULOCK in DSN6SPRM.</td>
</tr>
<tr>
<td>UNICODE GRAPHIC CCSID (UGCCSID)</td>
<td>Unicode graphics character set identification. Parameter UNICODE CCSID in installation panel DSNTIPF, or ZPARM UGCCSID in macro DSNHDECP.</td>
</tr>
<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>UNICODE IFCIDS (UIFCIDS)</td>
<td>Shows whether output from IFC records should include Unicode information. Only a subset of the character fields (identified in the IFCID record definition by a %U in the comment area to the right of the field declaration in the DSNDQWxx copy files) are encoded in Unicode. The remaining fields maintain the same encoding of previous releases.</td>
</tr>
<tr>
<td>UNICODE MIXED CCSID (UMCCSID)</td>
<td>Unicode Mixed Character Set identification. Parameter UNICODE CCSID in installation panel DSNTIPF, or ZPARM UMCCSID in macro DSNHDECP.</td>
</tr>
<tr>
<td>UNICODE SINGLE-BYTE CCSID (USCCSID)</td>
<td>Unicode Single Byte Character Set identification. Parameter UNICODE CCSID in installation panel DSNTIPF, or ZPARM USCCSID in macro DSNHDECP.</td>
</tr>
<tr>
<td>UNION COLNAME 7</td>
<td>The UNION COLNAME 7.</td>
</tr>
<tr>
<td>UNKNOWN AUTHID (DEFLTID)</td>
<td>The authorization ID used if RACF is not available for batch access and USER= is not specified in the job statement. This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.</td>
</tr>
<tr>
<td>UNREGISTERED DDL DEFAULT (RGFDEFLT)</td>
<td>The action taken for DDL that names an unregistered object. Options are REJECT, ACCEPT, or APPL, which rejects the DDL when the current application is not registered.</td>
</tr>
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<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td><strong>UPDATE PART KEY COLUMNS (PARTKEYU)</strong></td>
<td>Indicates whether values in columns that participate in partitioning keys can be updated. Possible values are YES, NO, or SAME. When SAME, updates are allowed only when the updated row remains in the same partition. The default value is YES. Install parameter UPDATE PART KEY COLS on panel DSNTIP8, or ZPARM PARTKEYU in DSN6SPRM.</td>
</tr>
<tr>
<td><strong>UR CHECKPOINT FREQ (URCHKTH)</strong></td>
<td>Shows the number of checkpoint cycles to complete before DB2 issues a warning message to the console and writes an IFCID 313 record for an uncommitted, indoubt, or inflight unit of recovery (UR). The default is 0, which disables this option. Install parameter UR CHECK FREQ on panel DSNTIPL, or ZPARM URCHKTH in DSN6SYSP.</td>
</tr>
<tr>
<td><strong>UR LOG WRITE CHECK (URLGWTH)</strong></td>
<td>Shows the number of log records that are to be written by an uncommitted unit of recovery (UR) before DB2 issues a warning message to the console. This provides notification of a long-running UR. Long-running URs might result in a lengthy DB2 restart or a lengthy recovery situation for critical tables. Log records are specified in 1-K (1000 log records) increments. A value of 0 indicates that no write check is to be performed. Install parameter UR LOG WRITE CHECK on panel DSNTIPL, ZPARM URLGWTH in DSN6SYSP.</td>
</tr>
<tr>
<td><strong>UR WARNING THRESHOLD MINUTES (LRDRTHLD)</strong></td>
<td>Shows the number of minutes that a read claim can be held by an agent before DB2 reports it as a long-running reader. Valid values are 0 (default) through 1439. Install parameter LONG-RUNNING READER on installation panel DSNTIPE, or ZPARM LRDRTHLD in DSN6SYSP.</td>
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<tr>
<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>USE FOR DYNAMIC RULES (DYNRULS)</td>
<td>Shows whether DB2 uses the application programming defaults specified on this panel or those of the DB2 precompiler options for dynamic SQL statements bound using DYNAMICRULES bind, define, or invoke behavior.</td>
</tr>
</tbody>
</table>
|                                                   | When YES, the application programming (DSNHDECP) defaults are used for dynamic SQL statements in plans or packages bound using DYNAMICRULES bind, define, or invoke behavior. The following defaults are affected:  
|                                                   | • DECIMAL POINT IS  
|                                                   | • STRING DELIMITER  
|                                                   | • SQL STRING DELIMITER  
|                                                   | • MIXED DATA  
|                                                   | • DECIMAL ARITHMETIC  
|                                                   | When NO, values of the precompiler options are used for dynamic SQL statements in plans or packages bound with DYNAMICRULES(BIND).                                                                                                                                                                                                                                                                                                                                 |
|                                                   | Install parameter USE FOR DYNAMICRULES on panel DSNTIP4, or ZPARM DYNRULS in DSNHDECP.                                                                                                                                                                                                                                                                                                                                                                                                 |
| USE PROTECTION (AUTH)                             | Shows whether DB2 performs authorization checking.  
<p>|                                                   | When all authorization checking by DB2 is disabled, the GRANT statement is also disabled (granting every privilege to PUBLIC); this is not recommended.                                                                                                                                                                                                                                                                                                                         |
|                                                   | Install parameter USE PROTECTION on panel DSNTIPP, or ZPARM AUTH in DSN6SPRM.                                                                                                                                                                                                                                                                                                                                                                                                 |
| USER ID MONITOR (SPRMOZUS)                       | The user ID that made the last online change to DB2 system settings.                                                                                                                                                                                                                                                                                                                                                                                                              |
| USER LOB VALUE STORAGE (LOBVALA)                  | Specifies an integer that establishes an upper limit for the amount of storage each user can be used for storing lob values (in KB).                                                                                                                                                                                                                                                                                                                                                   |
| USER XML VALUE STORAGE (XMLVALA)                  | The maximum amount of memory for each user for storing XML values. This is ZPARM XMLVALA in DSN6SYSP.                                                                                                                                                                                                                                                                                                                                                                              |
| UT DB2 SORT USE (DB2SORT)                        | The DB2SORT subsystem parameter specifies whether DB2 utilities are to use DB2 Sort instead of DFSORT for utility sort processing when DB2 Sort is installed. Acceptable values are ENABLE (default) or DISABLE.                                                                                                                                                                                                                                                                                                    |
|                                                   | ZPARM DB2SORT in DSN6SPRM.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |</p>
<table>
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<tr>
<th>DB2 parameter</th>
<th>Description</th>
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<tbody>
<tr>
<td>UT SORT DATA SET ALLOCATION (UTSORTAL)</td>
<td>The UTSORTAL subsystem parameter specifies how sort work data sets are allocated when utilities are run. This parameter applies to the CHECK, LOAD, REBUILD, REORG, and RUNSTATS utilities. Acceptable values are YES (default) or NO. ZPARM UTSORTAL in DSN6PRM.</td>
</tr>
<tr>
<td>UTILITY CACHE OPTION (SEQPRES)</td>
<td>Shows whether utilities that scan a nonpartitioned index followed by an update of a subset of the pages in the index allow data to remain in 3990 cache longer when reading data. Install parameter UTILITY CACHE OPTION on panel DSNTIPE, or ZPARM SEQPRES in DSN6PRM.</td>
</tr>
<tr>
<td>UTILITY OBJECT CONVERSION</td>
<td>The conversion of UTILITY OBJECT.</td>
</tr>
<tr>
<td>UTILITY TIMEOUT FACTOR (UTIMOUT)</td>
<td>Shows how much longer utilities can wait for a resource than SQL applications can. This is the number of RESOURCE TIMEOUT units that a utility or utility command can wait for a lock or for all claims on a resource of a particular claim class to be released. The default value is 6, meaning a utility can wait 6 times longer than an SQL application for a resource. Install parameter UTILITY TIMEOUT FACTOR on panel DSNTIPI, or ZPARM UTIMOUT in DSN6PRM.</td>
</tr>
</tbody>
</table>
| VALUE FOR TRIGGER DRAIN (SPRMTDD)                 | The percentage below 100% DMAX that open data sets can reach before an asynchronous drain is started. The default is 1, meaning that asynchronous drain starts when the number of open data sets reaches 99% of DMAX. DB2 defers closing and deallocating the table spaces or indexes until the number of open data sets reaches one of the following limits:  
  • The MVS limit for the number of concurrently open data sets.  
  • 99% (default) of the value that you specified for DMAX.  
  When one of these limits is reached, DB2 closes a number of data sets not in use equal to 3% (default) of the value DMAX. Thus, DMAX controls not only the limit of open data sets, but also the number of data sets that are closed when that limit is reached. DB2 parameter SPRMTDD in DSN6PRM. |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>VARCHAR INDEX (RETVLCFK)</td>
<td>Indicates whether the VARCHAR column is retrieved from the index. The data sharing scope of this parameter is GROUP. When NO, index-only access of variable length column data is disabled. DB2 must retrieve data from the data page. Data is retrieved with no padding. When YES, index-only access of variable length column data is enabled. This can improve performance. Data retrieved from the index is padded with blanks to the maximum length of the column. Install parameter VARCHAR FROM INDEX on panel DSNTIP8, or ZPARM RETVLCFK in DSN6SPRM.</td>
</tr>
<tr>
<td>VARY DS CONTROL INTERVAL (DSVCI)</td>
<td>Specifies whether DB2 optimizes VSAM CONTROL INTERVAL to page size for data set allocation. It shows if DB2-managed data sets created by CREATE TABLESPACE have variable VSAM control intervals (VARY DS CONTROL INTERVAL). Install parameter VARY DS CONTROL INTERVAL on panel DSNTIP7, or ZPARM DSVCI in DSN6SYSP.</td>
</tr>
<tr>
<td>WFSTGUSE AGENT THRESHOLD</td>
<td>The alert threshold of high space-usage for DGTs or non-DGT work files in the Workfile Database by an agent (derived from ZPARM WFSTGUSE_AGENT_THRESHOLD).</td>
</tr>
<tr>
<td>WFSTGUSE SYSTEM THRESHOLD</td>
<td>The alert threshold of high space-usage for DGTs or non-DGT work files in the Workfile Database (derived from zparm WFSTGUSE_SYSTEM_THRESHOLD).</td>
</tr>
<tr>
<td>WLM ENVIRONMENT (WLMENV)</td>
<td>Workload manager environment. Install parameter WLM ENVIRONMENT on panel DSNTIPX, or ZPARM WLMENV in DSN6SYSP.</td>
</tr>
<tr>
<td>WTO ROUTING CODES (ROUTECD)</td>
<td>The MVS console routing codes. These codes are assigned to messages that are not solicited from a specific console. Up to 16 comma-separated codes can be shown. Install parameter WTO ROUTE CODES on panel DSNTIPO, or ZPARM ROUTCDE in DSN6SYSP.</td>
</tr>
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<td>DB2 parameter</td>
<td>Description</td>
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</tr>
<tr>
<td>WT OR BEFORE MOUNT FOR ARCHIVE (ARCWTOR)</td>
<td>Indicates whether DB2 must send a message to the operator and wait for an answer before attempting to mount an archive log data set. Other DB2 users can be forced to wait while the mount is pending. They are not affected while DB2 is waiting for a response to the message. When YES, a device such as tape is used that requires long delays for mounts. DEVICE TYPE 1 shows the device type or unit name. Install parameter WRITE TO OPER on panel DSNTIPA, or ZPARM ARCWTOR in DSN6ARVP.</td>
</tr>
<tr>
<td>X LOCK FOR SEARCHED U/D (XLKUPDLT)</td>
<td>The locking method used when performing a searched UPDATE or DELETE. When NO, DB2 uses an S or U lock when scanning for qualifying rows. For any qualifying rows or pages the lock is upgraded to an X lock before performing the update or delete. For nonqualifying rows or pages the lock is released if using ISOLATION(CS). For ISOLATION(RS), or ISOLATION(RR), an S lock is retained on the rows or pages until the next commit point. This option is used to achieve higher rates of concurrency. When YES, DB2 gets an X lock on qualifying rows or pages. For ISOLATION(CS), the lock is released if the rows or pages are not updated or deleted. For ISOLATION(RS) or ISOLATION(RR), an X lock is retained until the next commit point. This is beneficial in a data sharing environment when most or all searched updates and deletes use an index. The downside is that if searched updates or deletes result in a tablespace scan, the likelihood of timeouts and deadlocks greatly increases. Install parameter X LOCK FOR SEARCHED U/D on panel DSNTIPI, or ZPARM XLKUPDLT in DSN6SPRM.</td>
</tr>
<tr>
<td><strong>DB2 parameter</strong></td>
<td><strong>Description</strong></td>
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<tr>
<td>XML RANDOMIZE DOCID</td>
<td>Specifies whether DB2 is to sequentially or randomly generate the DOCID values for XML columns. This parameter does not affect existing tables that have XML columns. Those tables continue to generate DOCIDs in the order that was specified by XML RANDOMIZE DOCID when the table was created or in sequential order if the parameter was not specified. Acceptable values are NO (default) or YES. ZPARM XML RANDOMIZE in DSN6SYSP.</td>
</tr>
<tr>
<td>Z/OS CRITICAL RESERVED SPACE MUST COMPLETE</td>
<td>The amount of space reserved for z/OS critical work that must be completed.</td>
</tr>
<tr>
<td>Z/OS LOCK TABLE HASH ENTRIES</td>
<td>The number of z/OS lock table hash entries.</td>
</tr>
<tr>
<td>Z/OS LOCK TABLE LIST ENTRIES</td>
<td>The number of z/OS lock table list entries.</td>
</tr>
<tr>
<td>Z/OS METRICS (ZOSMETRICS)</td>
<td>YES indicates that gathering of z/OS metrics using the RMF interface is enabled. ZPARM ZOSMETRICS in DSN6SPRM.</td>
</tr>
<tr>
<td>Z/OS RESERVED SPACE</td>
<td>The z/OS reserved space.</td>
</tr>
</tbody>
</table>

**Field Value** The value of the DB2 field. It is an alphanumeric text string with a maximum of 44 characters.

**Interval Start** The start time of this interval.

**MVS System ID** The MVS system identifier.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**DB2 SRM BPD Attributes**

Use the DB2 SRM BPD attributes to create situations to monitor activity details associated with specific buffer pools.

**Buffer Pool Hit Percent Random** The random buffer pool hit percentage calculated as follows: \((\text{# of Random Getpages} - \text{# Random Sync Read I/O}) / \text{# of Random Getpages}\) * 100. Valid entry ranges from 0.0 to 100.0.

**Buffer Pool Hit Percent Sequential** The sequential buffer pool hit percentage calculated as follows: \((\text{# of Sequential Getpages} - \text{#Getpage Fails} - \text{# pages read from DASD}) / \text{# of Sequential Getpages} - \text{#Getpage Fails}\) * 100. The # pages read from DASD is the sum of Sequential Sync Read I/O, Sequential Prefetch Pages, List Prefetch Pages, and Dynamic Prefetch Pages. Valid entry ranges from 0.0 to 100.0.

<table>
<thead>
<tr>
<th><strong>Value</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>MVS is allowed to discard data cached in the hiperpool when a shortage of expanded storage arises.</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>No</td>
<td>MVS is prevented from discarding data cached in the hiperpool unless expanded storage pages are reconfigured out of the system.</td>
</tr>
</tbody>
</table>

It is an alphanumeric text string, with a maximum length of four characters.

**Deferred Write Thresh** The deferred write threshold for the virtual buffer pool - DWQT. Write operations are scheduled when the percentage of unavailable pages in the virtual buffer pool exceeds this threshold in order to decrease the unavailable pages to 10% below the threshold.

**Dyn Prefetch Per IO** The ratio of dynamic prefetch requests to dynamic prefetch I/Os.

**Dyn Prefetch Per IO Extended Precision** The ratio of dynamic prefetch requests to dynamic prefetch I/Os.

**Getpages Per Syn IO** The ratio of getpage requests to read I/Os.

**GetPages Per Synchronous IO Extended Precision** The ratio of getpage requests to read I/Os.

**Interval Time** The number of seconds since last sample.

**List Prefetch Per IO** The ratio of list prefetch requests to list prefetch I/Os.

**List Prefetch Per IO Extended Precision** The ratio of list prefetch requests to list prefetch I/Os.

**Max Concur Prefetch** The highest number of concurrent prefetch I/O streams allocated to support I/O parallelism.

**Maximum Concurrent Prefetch Extended Precision** The highest number of concurrent prefetch I/O streams allocated to support I/O parallelism.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Page Reads Per Dyn Prefetch** The ratio of pages read by dynamic prefetch to dynamic prefetch requests.

**Page Reads Per Dyn Prefetch Extended Precision** The ratio of pages read by dynamic prefetch to dynamic prefetch requests.

**Page Reads Per List Prefetch** The ratio of pages read by list prefetch to list prefetch requests.

**Page Reads Per List Prefetch Extended Precision** The ratio of pages read by list prefetch to list prefetch requests.

**Page Reads Per Prefetch** The ratio of pages read by prefetch processing to total prefetch requests.
**Page Reads Per Prefetch Extended Precision** The ratio of pages read by prefetch processing to total prefetch requests.

**Page Reads Perseq Prefetch** The ratio of pages read by sequential prefetch to sequential prefetch requests.

**Page Reads Per Sequential Prefetch Extended Precision** The ratio of pages read by sequential prefetch to sequential prefetch requests.

**Page Writes Per Write IO** The ratio of page writes to physical I/Os.

**Page Writes Per Write IO Extended Precision** The ratio of page writes to physical I/Os.

**Pages In Use** The number of virtual buffer pool pages in use at the end of the interval (a snapshot value of the current number of non-stealable buffers). A non-stealable buffer is either one which has an outstanding getpage (someone is currently looking at this page) or one which has been updated and not yet written out to DASD.

**Pool ID** Buffer Pool ID.

**Prefetch Per IO** The ratio of prefetch requests to physical I/Os.

**Prefetch Per IO Extended Precision** The ratio of prefetch requests to physical I/Os.

**Sequential Prefetch Per IO** The ratio of pages read by sequential prefetch to sequential prefetch I/O.

**Sequential Prefetch Per IO Extended Precision** The ratio of pages read by sequential prefetch to sequential prefetch I/O.

**Sysplex Parallel Thresh** Parallel I/O sequential threshold - VPPSEQT. This threshold determines how much of the virtual buffer pool might be used for parallel I/O operations. It is a percentage of the VPSEQT. If set to zero, I/O parallelism is disabled.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

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- H = Hour
- M = Minute
- S = Second
- m = Millisecond

**Use Count** The number of open table spaces and index spaces in this buffer pool.
Vert Deferred Write Thresh The vertical deferred write threshold for the virtual buffer pool - VDWQT. This is the percentage of the buffer pool that might be occupied by updated pages from a single data set.

Virtual Page Steal Method Identifies the page stealing algorithm (PGSTEAL) that is used for the virtual buffer pool (DB2 field name: QDBPPGST). It controls when and whether performance-critical objects in buffer pools are removed from buffer pools when the space is needed by other objects. Possible values are:

- **LRU**  Least recently used (LRU) objects are removed first. This means it takes away pages that are not used so that more recently used pages can remain in the virtual buffer pool. This is used by default.

- **FIFO**  This results in a small decrease in the cost of a Getpage operation. It can reduce internal DB2 latch contention in environments that require very high concurrency.

- **NONE**  Objects are not removed from buffer pool (no page stealing). This setting provides the highest availability for business-critical objects.

**VP Buffers Allocated** The number of pages allocated to the virtual buffer pool.

**VP Buffers Delete** The number of pages to be deleted from an active virtual buffer pool as a result of pool contraction.

**VP Parallel Sequential Thresh** The parallel I/O sequential threshold - VPPSEQT. This threshold determines how much of the virtual buffer pool might be used for parallel I/O operations. It is a percentage of the VPSEQT. If set to zero, I/O parallelism is disabled.

**VP Sequential Thresh** The sequential steal threshold for the virtual buffer pool - VPSEQT. This is the percentage of the virtual buffer pool that might be occupied by sequentially accessed pages. If set to zero, prefetch is disabled.

**VP Size** The size of the virtual buffer pool.

Workfile Maximum The maximum number of work files that were allocated during sort/merge processing during the current statistics period.

Workfile Maximum Extended Precision The maximum number of work files that were allocated during sort/merge processing during the current statistics period.

**DB2 SRM BPM Attributes**

Use the DB2 SRM BPM attributes to create situations to monitor buffer pool activity.

- **Allocated Pages** The total number of pages allocated to the buffer pool: It includes pages that are currently read or updated, updated pages, and available pages.

- **Get Page Rate** The number of get page operations per second over the last interval.

- **Get Page Rate Extended Precision** The number of get page operations per second over the last interval.

- **Interval Time** The number of seconds since last sample.
**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Pages In Use** The number of virtual buffer pool pages in use at the end of the interval (a snapshot value of the current number of non-stealable buffers): A non-stealable buffer is either one which has an outstanding Getpage (someone is currently looking at this page) or one which has been updated and not yet written out to DASD.

**Pool ID** The buffer pool ID.

**Prefetch Request Rate** The number of prefetch requests issued per second over the last interval.

**Prefetch Request Rate Extended Precision** The number of prefetch requests issued per second over the last interval.

**Read IO Rate** The number of read I/O operations per second over the last interval.

**Read IO Rate Extended Precision** The number of read I/O operations per second over the last interval.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

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- **H** = Hour
- **M** = Minute
- **S** = Second
- **m** = Millisecond

**Utilization** The percentage of the buffer pool currently in use: It is calculated as: $(\text{QBSTCBA} / \text{QBSTVPL}) \times 100$ for DB2 9 and $(\text{QBSTCBA} / \text{QDBPVPSZ}) \times 100$ for DB2 10 or later.

Field descriptions:

**QBSTCBA** The total number of currently active (nonstealable) buffers.

**QBSTVPL** The number of buffers allocated for a virtual buffer pool.

**QDBPVPSZ** The size of the virtual buffer pool.

Valid entry ranges from 0 to 10000.
VP Size The size of the virtual buffer pool.

Write IO Rate The number of write I/Os performed per second over the last interval.

Write IO Rate Extended Precision The number of write I/Os performed per second over the last interval.

DB2 SRM EDM Attributes
Use the DB2 SRM EDM attributes to create situations to monitor the Environmental Descriptor Manager (EDM) pool activity connected with DB2.

Available Pages The total number of EDM pages currently available. It is zero for DB2 9 or later.

Available Percentage The percentage of EDM that is currently available. Valid entry ranges from 0.0 to 100.0. It is zero for DB2 9 or later.

Cursor Table Load Rate The number of Cursor Table loads from DASD per second.

Cursor Table Request Rate The number of Cursor Table requests per second.

Cursor Table Pages The total number of EDM pages currently in use for Cursor Tables. It is zero for DB2 10 or later.

Cursor Table Percentage The percentage of EDM that is currently in use for Cursor Tables. Valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.

Database Descriptor Pages The total number of EDM pages currently in use for database descriptors.

Database Descriptor Percentage The percentage of EDM that is currently in use for database descriptors. Valid entry ranges from 0.0 to 100.0.

DB2 Version The version of the DB2 system.

DBD Load Rate The number of database descriptor loads from DASD per second.

DBD Request Rate The number of database descriptor requests per second.

Delta Cursor Table Loads The Cursor Table loads from DASD during the last interval.

Delta Cursor Table Requests The Cursor Table requests during the last interval.

Delta DBD Loads The DBD loads from DASD during the last interval.

Delta DBD Requests The database descriptor requests during the last interval.

Delta Dynamic SQL Loads The dynamic SQL loads from DASD during the last interval.

Delta Dynamic SQL Requests The dynamic SQL requests during the last interval.
**Delta Failures EDM Full** The total number of failures because the EDM pool was full during the last interval.

**Delta Percent Cursor Table Loads** The percentage of Cursor Table loads from DASD over last interval. Valid entry ranges from 0.0 to 100.0.

**Delta Percent DBD Loads** The percentage of DBD loads from DASD over last interval. Valid entry ranges from 0.0 to 100.0.

**Delta Percent Dynamic SQL Loads** The percentage of Dynamic SQL loads from DASD over last interval. Valid entry ranges from 0.0 to 100.0.

**Delta Percent Package Table Loads** The percentage of Package Table loads from DASD over last interval. Valid entry ranges from 0.0 to 100.0.

**Delta Package Table Loads** The Package Table loads from DASD during the last interval.

**Delta Package Table Requests** The Package Table requests during the last interval.

**Dynamic SQL Cache** The total number of EDM pages currently used for dynamic SQL cache.

**Dynamic SQL Cache Percentage** The percentage of EDM that is currently used for Dynamic SQL caching. Valid entry ranges from 0.0 to 100.0.

**Dynamic SQL Load Rate** The number of Dynamic SQL loads from DASD per second.

**Dynamic SQL Request Rate** The number of Dynamic SQL requests per second.

**Failure Rate** The number of failures per second because the EDM pool is full.

**Free Pages** The total number of EDM pages (DB2 9 or below) or DBD pages (DB2 10 or later) that are currently on the free queue.

**Free Percentage** The percentage of EDM (DB2 9 or below) or DBD (DB2 10 or later) that is currently on the free queue. Valid entry ranges from 0.0 to 100.0.

**Interval Time** The number of seconds since last sample.

**In Use Pages** The total number of EDM pages (DB2 9 or below) or DBD pages (DB2 10 or later) that are currently in use.

**In Use Percentage** The percentage of EDM (DB2 9 or below) or DBD (DB2 10 or later) that is currently in use. Valid entry ranges from 0.0 to 100.0.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Package Table Load Rate** The number of Package Table loads from DASD per second.

**Package Table Pages** The total number of EDM pages currently in use for Package Table. It is zero for DB2 10 or later.
**Package Table Percentage** The percentage of EDM that is currently in use for Package Table. Valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.

**Package Table Request Rate** The number of Package Table requests per second.

**Skeleton Cursor Table Pages** The total number of EDM pages currently used for skeleton cursor tables.

**Skeleton Cursor Table Percentage** The percentage of EDM that is currently used for skeleton cursor tables. Valid entry ranges from 0.0 to 100.0.

**Skeleton Package Table Pages** The total number of EDM pages currently used for skeleton package tables.

**Skeleton Package Table Percentage** The percentage of EDM that is currently used for skeleton package tables. Valid entry ranges from 0.0 to 100.0.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

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- **D** = Day
- **H** = Hour
- **M** = Minute
- **S** = Second
- **m** = Millisecond

**Total Cursor Table Loads** The total number of Cursor Table loads from DASD.

**Total Cursor Table Requests** The total number of Cursor Table requests.

**Total DBD Loads** The total number of database descriptor loads from DASD.

**Total DBD Requests** The total number of database descriptor requests.

**Total Dynamic SQL Loads** The total number of Dynamic SQL loads from DASD.

**Total Dynamic SQL Requests** The total number of Dynamic SQL requests.

**Total Failures EDM Full** The total number of failures because the EDM pool is full.

**Total Pages** The total number of pages assigned to EDM pool (DB2 9 or below) or DBD pool (DB2 10 or later).

**Total Percent Cursor Table Loads** The percentage of all Cursor Table loads from DASD. Valid entry ranges from 0.0 to 100.0.

**Total Percent DBD Loads** The percentage of all DBD loads from DASD. Valid entry ranges from 0.0 to 100.0.
Total Percent Dynamic SQL Loads The percentage of all Dynamic SQL loads from DASD. Valid entry ranges from 0.0 to 100.0.

Total Percent Package Table Loads The percentage of all Package Table loads from DASD. Valid entry ranges from 0.0 to 100.0.

Total Package Table Loads The total number of Package Table loads from DASD.

Total Package Table Requests The total number of Package Table requests.

DB2 SRM EDM Statistics Attributes
Use the DB2 SRM EDM Statistics attributes to create situations to monitor the Environmental Descriptor Manager (EDM) pool activity details.

DB2 Version The version of the DB2 system.

Delta The change since last sample.

Description The monitored pool activity description.

Interval Time The number of seconds since last sample.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Rate The number of requests per second over last sampling interval.

Total The total since DB2 started.

DB2 SRM Log Manager Attributes
Use the DB2 SRM Log Manager attributes to create situations to monitor the DB2 log manager activity.

Active Log CIs Rate The number of active log control intervals (CIs) created per second over the last sampling period.

Archive CIs Offloaded Rate The number of archive log write CIs offloads per second over the last sampling period.

Archive Read Allocation Rate The number of archive log read allocations per second over the last sampling period.

Archive Recording Mode The recording mode for the archive can be either dual or single. It is an alphanumeric text string, with a maximum length of one character.

Archive Write Allocation Rate The number of archive log write allocations per second over the last sampling period.

Begin RBA The lowest Relative Byte Address (RBA) in the log of the primary data set (DB2 11).

BSDS Access Rate The number of BSDS access requests per second over the last sampling period.
**Checkpoint Frequency** The number of bytes in the output buffer before a checkpoint is performed.

**Current RBA** The current Relative Byte Address (RBA) in the log of the primary data set (DB2 11).

It is an alphanumeric text string, with a maximum length of 20 characters. For DB2 11, the RBA can consist of up to 10 bytes. For versions prior to DB2 11, the RBA can consist of up to 6 bytes.

**Current Relative Byte Address** The current Relative Byte Address (RBA) in the log of the primary data set. It is an alphanumeric text string, with a maximum length of 12 characters.

**Data Set Size** The size of the current logging data set.

**Data set Utilization** The percentage of the current data that is in use. Valid entry ranges from 0.0 to 100.0.

**Delta Active Log CIs** The number of active log CIs created during the last sampling period.

**Delta Archive CIs Offloaded** The number of archive log CIs offloads during the last sampling period.

**Delta Archive Read Allocation** The number of archive log read allocations during the last sampling period.

**Delta Archive Write Allocation** The number of archive log write allocations during the last sampling period.

**Delta BSDS Access** The number of BSDS access requests during the last sampling period.

**Delta LookAhead Tape Failed** The number of look ahead tape mounts not satisfied during the last sampling period.

**Delta LookAhead Tape Performed** The number of look ahead tape mounts performed during the last sampling period.

**Delta LookAhead Tape Requests** The number of look ahead tape mounts attempted during the last sampling period.

**Delta Reads Active Archive Log** The number of reads from the active archive log during the last sampling period.

**Delta Reads Active Log** The number of reads from the active log during the last sampling period.

**Delta Reads Delayed No Control Unit** The number of reads delayed because no tape control unit during the last sampling period.

**Delta Reads Delayed Contention** The number of reads delayed as a result of the tape contention during the last sampling period.
**Delta Reads Output Log Buffer** The number of reads from the output log buffer during the last sampling period.

**Delta Write Active Buffer** The number of write active log buffer during the last sampling period.

**Delta Write Delay No Buffer** The number of write delays as a result of no buffers during the last sampling period.

**Delta Write Force** The number of write force requests during the last sampling period.

**Delta Write Nowait** The number of write NOWAIT requests during the last sampling period.

**Delta Write Wait** The number of write wait requests during the last sampling period.

**End RBA** The highest Relative Byte Address (RBA) in the log of the primary data set (DB2 11).

It is an alphanumeric text string, with a maximum length of 20 characters. For DB2 11, the RBA can consist of up to 10 bytes. For versions prior to DB2 11, the RBA can consist of up to 6 bytes.

**Filler** A placeholder to keep fullword alignment.

**High Relative Byte Address** The highest Relative Byte Address (RBA) in the log of the primary data set. It is an alphanumeric text string, with a maximum length of 12 characters.

**Input Buffer Size** The size of the log input buffer.

**Interval Time** The number of seconds since last sample.

**Log Recording Mode** The recording mode for the log, which can be either dual or single. It is an alphanumeric text string, with a maximum length of one character.

**Logs Available** The number of log data sets that are currently available.

**Logs Defined** The number of log data sets that have been defined.

**Look Ahead Tape Failed Rate** The number of look ahead tape mounts not satisfied per second over the last sampling period.

**Look Ahead Tape Performed Rate** The number of look ahead tape mounts performed per second over the last sampling period.

**Look Ahead Tape Requests Rate** The number of look ahead tape mount attempts per second over the last sampling period.

**Low Relative Byte Address** The lowest Relative Byte Address (RBA) in the log of the primary data set. It is an alphanumeric text string, with a maximum length of 12 characters.

**Next Checkpoint** The number of bytes before next checkpoint is to be performed.
**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Output Buffersize** The size of the log output buffer.

**Percent Logs Available** The percentage of active log data sets that are currently available.

**Primary Data Set Name** The current name of the log of the primary data set. It is an alphanumeric text string, with a maximum length of four characters.

**Read Active Archive Log Rate** The number of reads per second from the active archive log over the last sampling period.

**Read Active Archive Log Rate** The number of reads from the active log per second over the last sampling period.

**Read Output Log Buffer Rate** The number of reads from the output log buffer per second over the last sampling period.

**Reads Delayed Contention Rate** The number of reads delayed because the tape contention per second over the last sampling period.

**Reads Delayed NoCU Rate** The number of reads delayed as a result of no tape control unit per second over the last sampling period.

**Secondary Data Set Name** The current name of the log of the secondary data set. It is an alphanumeric text string, with a maximum length of four characters.

**Time Stamp** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

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- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

**Total Active Log CIs** The total number of active log CIs created.

**Total Archive CIs Offloaded** The total number archive log CIs offloads.

**Total Archive Read Allocation** The total number of archive log read allocations.

**Total Archive Write Allocation** The total number of archive log write allocations.

**Total BSDS Access** The total number of BSDS access requests.
**Total Look Ahead Tape Failed** The total number of look ahead tape mounts not satisfied.

**Total Look Ahead Tape Performed** The total number of look ahead tape mounts performed.

**Total Look Ahead Tape Requests** The total number of look ahead tape mounts attempted.

**Total Reads Active Archive Log** The total number of reads from the active archive log.

**Total Reads Active Log** The total number of reads from the active log.

**Total Reads Delayed Contention** The total number of reads delayed as a result of tape contention.

**Total Reads Delayed No Control Unit** The total number of reads delayed as a result of no tape control unit.

**Total Reads Output Log Buffer** The total number of reads from the output log buffer.

**Total Write Active Buffer** The total number of write active log buffers.

**Total Write Delay No Buffer** The total number of writes delayed as a result of no buffer.

**Total Write Force** The total number of write force requests.

**Total Write Nowait** The total number of write nowait requests.

**Total Write Wait** The total number of write wait requests.

**Write Active Buffer Rate** The number of write active log buffers per second over the last sampling period.

**Write Delay No Buffer Rate** The number of write delays per second as a result of no buffer over the last sampling period.

**Write Force Rate** The number of write force requests per second over the last sampling period.

**Write Nowait Rate** The number of write nowait requests per second over the last sampling period.

**Write Threshold** Write threshold.

**Write Wait Rate** The number of write wait requests per second over the last sampling period.

**DB2 SRM Log Statistics Attributes**

Use the DB2 SRM Log Statistics attributes to create situations to monitor logging and archiving activity of the DB2 log manager.

**Delta** The change since last sample.
**Description** The monitored log activity description.

**Interval Time** The number of seconds since last sample.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Rate** The number of requests per second over last sampling interval.

**Total** The total since DB2 started.

**Total 64** The total since DB2 started. It has a length of 64 bit to resolve overflow problems.

**DB2 SRM Subsystem Attributes**
Use the DB2 SRM Subsystem attributes to create situations to monitor workload related information associated with a DB2 subsystem.

**Abends EOM Rate** The number of abends per second because an End of Memory (EOM) condition was detected over the last sampling period.

**Abends EOT Rate** The number of abends per second because an End of Task (EOT) condition was detected over the last sampling period.

**Abort Rate** The number of abort requests per second over the last sampling period.

**Background Limit** The system limit on background connections.

**Background Utilization** The percentage of available threads being used for background connections. Valid entry ranges from 0.0 to 100.0.

**CONDBAT** The maximum number of concurrent remote connections of Database Access Threads (DBATs) defined in DSNZPARM (Field name: QWP1CDB). When this limit is reached, any new connection request is rejected. Valid entry is an integer.

**Commit Rate** The number of commits per second over the last sampling period.

**Create Thread Wait Rate** The number of Create Thread requests per second that had to wait over the last sampling period.

**Create Threads Rate** The number of threads created per second over the last sampling period.

**CTHREAD HWM** The highest number of batch CICS, IMS, and TSO tasks.

**Current Background** The current number of background connections.

**Current DBAT** The current number of active DBATs.

**Current Foreground** The current number of foreground connections.

**Current Threads** The current number of active threads; Database Access threads are not included.
DBAT Conn HWM The number of high water mark remote connections (Field name: QDSTHWDT).

DBAT Conn Utilization The percentage of remote connections (CONDBAT) (derived field: SDBATCUT). The value is calculated as follows: DBAT connection * 100 / QWP1CDB

DBAT Connection The current number of remote connections for both, active and inactive connections (derived field: SDBATCON).

The value of active connections is calculated as follows: QDSTCNAT - QDSTNADS (active DBATs - disconnected DBATs)

The value of inactive connections is calculated as follows: QDSTQCIT + QDSTCIN2 (type1 inactive DBATs + type2 inactive DBATs)

DBAT Utilization The number of Database Access Threads (DBATs) in use is approaching the maximum number of DBATs defined by the MAXDBAT parameter in DSNZPARM.

Delta Abends EOM The number of abends detected because an End of Memory during the last sampling period.

Delta Abends EOT The number of abends detected because End of Task during the last sampling period.

Delta Aborts The number of abort requests during the last sampling period.

Delta Commits The number of commits during the last sampling period.

Delta Create Thread Wait The number of times a Create Thread operation had to wait during the last sampling period.

Delta Create Threads The number of threads created during the last sampling period.

Delta Identify The number of Identify requests during the last sampling period.

Delta In Doubt The number of Unit of Recovery threads that went in doubt during the last sampling period.

Delta In Doubt Resolve The number of Unit of Recovery threads that were in doubt and resolved during the last sampling period.

Delta Phase1 Commits The number of phase 1 commits during the last sampling period.

Delta Phase2 Commits The number of phase 2 commits during the last sampling period.

Delta Read Only Commits The number of Read Only commits during the last sampling period.

Delta Sign-on The number of sign-on requests during the last sampling period.
**Delta Single Phase Commits** The number of single phase commits during the last sampling period.

**Delta Terminate Thread** The number of threads terminated during the last sampling period.

**Foreground Limit** The system limit on foreground connections.

**Foreground Utilization** The percentage of available threads being used for foreground connections. Valid entry ranges from 0.0 to 100.0.

**IDBACK HWM** The maximum number of connections from batch or TSO background tasks.

**Identify Rate** The number of identify requests per second over the last sampling period.

**IDFORE HWM** The maximum number of connections from TSO foreground tasks.

**In Doubt Rate** The number of Unit of Recovery threads per second that went in doubt over the last sampling period.

**In Doubt Resolve Rate** The number of Unit of Recovery threads that were in doubt and resolved per second over the last sampling period.

**Interval Time** The number of seconds since last sample.

**Location** The DB2 location name.

**MAXDBAT** The number of maximum DBATs defined in DSNZPARM.

**MAXDBAT HWM** The maximum number of active and disconnected (pooled) DBATs that existed (field name: QDSTHWAT). This value is a high-water mark for QDSTCNAT.

**Max Threads Allowed** The total number of concurrent threads allowed.

**OPM IP ADDR** The host name or IP address of the IBM Optim Performance manager Web console.

**OPM Port** The port number of the IBM Optim Performance Web console.

**OPM HTTP** The HTTP or HTTPS for internal use only.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Phase1 Commit Rate** The number of phase 1 commits per second over the last sampling period.

**Phase2 Commit Rate** The number of phase 2 commits per second over the last sampling period.

**Read Only Commit Rate** The number of read only commits per second over the last sampling period.
Sign-on Rate  The number of sign-on requests per second over the last sampling period.

Single Phase Commit Rate  The number of single phase commits per second over the last sampling period.

Terminate Thread Rate  The number of Terminate Thread requests per second over the last sampling period.

Thread Utilization  The percentage of available threads being used; this percentage is calculated as Current Threads/CTHREAD parameter in DSNZPARM *100; Database Access threads are not included. Valid entry ranges from 0.0 to 100.0.

Time  The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:
- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

Total Abends EOM  The total number of abends detected because End of Memory.

Total Abends EOT  The total number of abends detected because End of Task.

Total Aborts  The total number of abort requests.

Total Commits  The total number of commit requests.

Total Create Thread Wait  The total number of times a Create Thread operation has to wait.

Total Create Threads  The total number of threads created.

Total Identify  The total number of Identify requests.

Total In Doubt  The total number of Unit of Recovery threads that went in doubt.

Total In Doubt Resolve  The total number of Unit of Recovery threads that were in doubt that were resolved.

Total Phase1 Commits  The total number of phase 1 commits.

Total Phase2 Commits  The total number of phase 2 commits.

Total Read Only Commits  The total number of read only commits.

Total Sign-on  The total number of sign-on requests.
**Total Single Phase Commits** The total number of single phase commits.

**Total Terminate Thread** The total number of thread terminations.

**DB2 SRM Subsystem Statistics Attributes**
Use the DB2 SRM Subsystem Statistics attributes to create situations to monitor the request rate of a DB2 subsystem.

**Delta** The change since last sample.

**Description** The description of the monitored activity.

**Interval Time** The number of seconds since last sample.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Rate** The number of requests per second over last sampling interval.

**Total** The total since DB2 started.

**DB2 SRM UTL Attributes**
Use the DB2 SRM UTL attributes to create situations to monitor all active utilities. Monitoring also includes utilities that due to abnormal termination, have not yet completed their run.

**ID** The utility qualifier. It is an alphanumeric text string, with a maximum length of eight characters.

**Job Name** The utility job name. It is an alphanumeric text string, with a maximum length of eight characters.

**Name** The utility name. It is an alphanumeric text string, with a maximum length of eight characters.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Phase** The utility phase. It is an alphanumeric text string, with a maximum length of eight characters.

**Record Count** The number of records/pages processed.

**Run Date** The date the job was run (if available).

The timestamp format for SCAN and STR functions is CYYMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:

- **C** = Century (0 for 20th, 1 for 21st)
- **Y** = Year
- **M** = Month
- **D** = Day
- **H** = Hour
- **M** = Minute
**Stat** A for Active, S for stopped.

**Status** The utility status. It is an alphanumeric text string, with a maximum length of 12 characters.

**Statement** The statement number.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is **CYYMMDDHHMMSSmmm** (as in 1180315064501000 for 03/15/18 06:45:01) where:

- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

**User** The user ID. It is an alphanumeric text string, with a maximum length of eight characters.

**Utilid** The utility qualifier. It is an alphanumeric text string, with a maximum length of 16 characters.

**DB2 System States Attributes**

Use the DB2 System States attributes to create situations to monitor system-level performance and exception alerts.

**Active Stored Procedures** The number of stored procedures currently executing.

**Active Triggers** The number of triggers currently executing.

**Active User Functions** The number of user defined functions currently executing.

**Allowed locks per TS** The default (SYSTEM) for the LOCKMAX clause of the SQL statements CREATE TABLESPACE and ALTER TABLESPACE. Install parameter LOCKS PER TABLESPACE on panel DSNTIPJ, or ZPARAM NUMLKTS in DSN6SPRM.

**Archive Device** The CCUU address of the device that is to be used for mounting the tape. It is an alphanumeric text string, with a maximum length of four characters.

**Archive DSN** The data set name of the archive file being waited on. It is an alphanumeric text string, with a maximum length of 44 characters.

**Archive Volser** The volser for tape volume being waited on. It is an alphanumeric text string, with a maximum length of six characters.
**ASIDs Stored Procedures** The number of unique active threads executing stored procedures.

**ASIDs User Functions** The number of ASIDs executing user functions.

**Bytes written to log** The log rate for the active log data sets in MB per second. This figure is valid for dual logging. If single logging is used, multiply the value shown by 2. This rate is MB/sec at which data is written to the active log data set. It was calculated by multiplying QJSTCIWR (label LOG CI WRITTEN (LOG1&2)) by 4096, then dividing the result by (1024 * 1024 * statistics-interval-seconds * 2). When the value exceeds 10MB/sec per log copy, you should examine I/O tuning of log data sets; for example, using faster log devices and/or I/O striping, using variable-length or compressed log record layouts to reduce log data size.

**CF global contention** The total number of suspends because of contention divided by the total number of synchronous requests that went to XES, and the lock requests that were converted from synchronous to asynchronous locks, and the locks because of child lock propagation. If multiple members from the same data sharing group run on the same LPAR, the global contention rate should be ignored for a member where the QTGSFCON flag is zero. The QTGSFCON flag indicates whether the false contention is reported at the subsystem (=1) or LPAR level (=0).

**Checkpoint freq** Checkpoint frequency. This shows either the number of minutes (1 through 60) or the number of DB2 log records between the start of successive checkpoints. DB2 starts a new checkpoint when this value is reached. You can use the SET LOG command to change the number of log records between checkpoints dynamically. Valid values are 1-60 when specifying a time value and 200-16000000 when specifying a number of records. Install parameter CHECKPOINT FREQ on panel DSNTIPL, ZPARM CHKFREQ in DSN6SYSP.

**Class castout thresh reached** The number of times group buffer pool castout was initiated because the group buffer pool class castout threshold was detected. The class castout threshold is one of two group buffer pool thresholds. In most cases the default value for the class threshold (10 percent) is a good choice. Depending on your workload, altering this value can reduce DASD contention during castout.

**Current Open Data Set** The current number of open data sets.

**Current Thread Count** The current number of active threads.

**DB2 ID** The name of a DB2 subsystem.

**DB2 version** The DB2 version.

**DB Wait Percent** The percentage of threads that are waiting for database services. Valid entry ranges from 0.0 to 100.0.

**DeadLocks** The number of times deadlocks were detected. This number should be low, ideally 0. Deadlocks occur when two or more application processes each hold locks on resources that the others need, without which they cannot proceed. Ensure that all applications accessing the same tables access them in the same order. Deadlocks can also occur through index page splits if there is high insert activity. In this case, the recommendation is to set SUBPAGES to 1 for the index. This field is incremented once for each deadlock encountered. There is no correlation between this field and the deadlock events reported in the Locking report set or the number of IFCID 172 records written. This field reports all
deadlocks, regardless of how they were resolved. The locking report and record trace IFCID 172 show only those deadlocks that were resolved by DB2.

**Dist DB Inactive** The state will be true if this DB2 system is not enabled for the Distributed Data Facility (DDF). It is an alphanumeric text string, with a maximum length of one character.

**Dist Receive Rate** The DDF Receive bytes per second in units of 1,000.

**Dist Send Rate** The DDF Send bytes per second in units of 1,000.

**DM critical thresh reached** The number of times the deferred write threshold (DWTH) was reached. This threshold is a percentage of the virtual buffer pool that might be occupied by unavailable pages, including both updated pages and pages in use. DB2 checks this threshold when an update to a page is completed. If the percentage of unavailable pages in the virtual buffer pool exceeds the threshold, write operations are scheduled for enough data sets (up to 128 pages per data set) to reduce the number of unavailable buffers to 10% below the threshold.

**DSC active** Indicates whether prepared dynamic SQL statements are saved for later use by eligible application processes in the EDM pool. Install parameter CACHE DYNAMIC SQL on panel DSNTIP8, or ZPARM CACHEDYN in DSN6SPRM.

**DSC size** The size of the statement cache that can be used by the Environmental Descriptor Manager (EDM). This value is used at DB2 startup time as the minimum value. You can increase and subsequently decrease this value with the SET SYSPARM command. This value cannot be decreased below the value that is specified at DB2 startup. The CLIST calculates a statement cache size. This storage pool is located above the 2 GB bar. The value used at DB2 startup time is either calculated by the CLIST based on input from other installation information or an override value. For record trace, this value is shown in bytes. Install parameter EDM STATEMENT CACHE on panel DSNTIPC, or ZPARM EDMSTMTMC in DSN6SPRM.

**DSMAX** The maximum number of open data sets allowed to be specified in DSNZPARM.

**DSMAX Utilization** The number of data sets opened is approaching the maximum number of open data sets defined by the DMAX parameter in DSNZPARM.

**DWQT reached** The number of times the deferred write threshold (DWTH) was reached. This threshold is a percentage of the virtual buffer pool that might be occupied by unavailable pages, including both updated pages and pages in use. DB2 checks this threshold when an update to a page is completed. If the percentage of unavailable pages in the virtual buffer pool exceeds the threshold, write operations are scheduled for enough data sets (up to 128 pages per data set) to reduce the number of unavailable buffers to 10% below the threshold.

**EDM Current Pages** The current number of EDM pages (DB2 9 or below) or the current number of DBD pages (DB2 10 or later) that are used.

**EDM Pool full** The total number of failures because the EDM pool or EDM pool was full.
**EDM Total Pages** The total number of pages allocated for the EDM pool (DB2 9 or below) or the total number of pages allocated for the DBD pool (DB2 10 or later).

**EDM Utilization** The current EDM pages divided by total EDM pages (DB2 9 or below) or the current DBD pages divided by total DBD pages (DB2 10 or later).

**GBP castout thresh reached** The number of times a group buffer pool castout was initiated because the group buffer pool castout threshold was detected. The GBP castout threshold, GBP class castout threshold, and the length of the GBP checkpoint interval determine the castout characteristics of the group buffer pool. You can consider this threshold a safety margin to protect the group buffer pool from being accidentally flooded by overactive applications. In most situations, the default value for the group buffer pool castout threshold of 50 percent is a good choice. Use the ALTER GROUPBUFFERPOOL command to tune the group buffer pool thresholds. A value near to 100 indicates that in most cases DB2 found skeleton copies of prepared statements in global dynamic cache and could perform short prepares. A value near to 0 indicates that in most cases skeleton copies of prepared statements were not found in global dynamic cache and full prepares were performed.

**Global cache hit ratio** The ratio of successful search requests for prepared statements from the global dynamic SQL cache. This indicates the effectiveness of the global dynamic SQL cache in the EDM pool.

**Global Trace Active** The state will be true if this DB2 system currently has the global tracing active. It is an alphanumeric text string, with a maximum length of one character.

**Group or Subsystem Name** The DB2ID or data sharing group name. It is an alphanumeric text string with a maximum of 8 characters; for example, TDDB241G.

**Group Object Analysis Status** The status of the Event Manager for Object Analysis.

Valid values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIX</td>
<td>Some Event Managers are active</td>
</tr>
<tr>
<td>NO</td>
<td>Event Manager is not active</td>
</tr>
<tr>
<td>YES</td>
<td>Event Manager is active</td>
</tr>
</tbody>
</table>

**Group or Subsystem Type** Indicates whether a group or subsystem is a DB2 or a data sharing group.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>DB2 subsystem</td>
</tr>
<tr>
<td>DSGRP</td>
<td>Data sharing group</td>
</tr>
</tbody>
</table>

**Incomp retained locks** The number of global lock or change requests denied or suspended due to an incompatible retained lock.
In Doubt Threads The number of threads that are in an INDOUBT status.

Indoubt-URs The number of indoubt units of recovery. A unit of recovery is indoubt when a failure occurs after a successful prepare but before a successful commit. The failure can occur in the address space of the application, the transaction manager, DB2, or all of these. IMS and CICS applications use the prepare and commit sequence to commit work. Ideally, this value should be 0.

Interval Time The number of seconds since last sample.

Lock Conflict Count The total number of owners and waiters that are in lock conflict. Valid value is an integer in the range 0 - 99999999.

Lock Escalations Number of all types of lock escalations.

Lock Escalation Exclusive The number of times that the allowable number of locks per table space was exceeded resulting in page (IX) lock to escalate to table or table space lock in exclusive mode.

Lock Escalation Rate The number of lock escalations (exclusive and shared) per second in this interval.

Lock Escalation Shared The number of times that the allowable number of locks per table space was exceeded, resulting in page (IS) lock to escalate to table or table space lock in shared mode.

Max active DBATs The maximum number of database access threads (DBATs) that can be active concurrently. The maximum number of database access threads (DBATs) that can be active concurrently. When this limit has been reached, DB2 uses the value of DDF THREADS on panel DSNTIPR to decide how to handle a new allocation request. When DDF THREADS is ACTIVE and MAX REMOTE CONNECTED has not been reached, the allocation request is allowed but any further processing for the connection is queued waiting for an active database access thread to terminate. When DDF THREADS is INACTIVE and MAX REMOTE CONNECTED has not been reached, the allocation request is allowed and is processed when DB2 can assign an unused database access thread slot to the connection. The total number of threads accessing data concurrently is the sum of MAX USERS and MAX REMOTE ACTIVE. The maximum allowable value for this sum is 2000. Install parameter MAX REMOTE ACTIVE on panel DSNTIPE, or ZPARM MAXDBAT in DSN6SYSP.

Max Batch users The maximum allowed number of concurrent connections for batch jobs and utilities. This includes:

- All batch jobs using QMF.
- All batch jobs using the DSN command processor.
- All tasks connected to DB2 through call attach facility (CAF) running in batch.
  This can include:
  1. Batch jobs using QMF
  2. APPC applications
  3. TCP/IP FTP connections

Install parameter MAX USERS on panel DSNTIPE, or ZPARM CTHREAD in DSN6SYSP.
Max DB2 allied users  The maximum number of allied threads (threads started at the local subsystem) that can be allocated concurrently. Separate threads are created for each occurrence of the following:
• TSO user (whether running a DSN command or a DB2 request from QMF)
• Batch job (whether running a DSN command or a DB2 utility)
• IMS region that can access DB2
• Active CICS transaction that can access DB2
• Task connected to DB2 through the call attachment facility

Install parameter MAX USERS on panel DSNTIPE, or ZPARM CTHREAD in DSN6SYSP.

Max degree  Indicates the upper limit on the degree of parallelism for a parallel group. This field has a value of 0. This means PARAMDEG is not set and DB2 can set a default maximum degree of parallelism based on the system configuration.

Install parameter MAX DEGREE on panel DSNTIP8, or ZPARM PARAMDEG in DSN6SPRM.

Max opened DS  The maximum number of data sets that can be open at one time. The practical limit can be less than the MVS limit of 32727, depending on available storage below the line. Install parameter DSMAX on panel DSNTIPC, or ZPARM DSMAX in DSN6SPRM.

Max kept dyn stmt  Shows the total number of prepared dynamic SQL statements that are saved past a commit point. 0 means that prepared dynamic SQL statements are not saved past commit points. Install parameter MAX KEPT DYN STMTS on panel DSNTIPE, or ZPARM MAXKEEPD in DSN6SPRM.

Max size of EDM Pool  The size (in kilobytes) of the environmental descriptor manager (EDM) pool. This can be the value calculated by the CLIST, based on input from previous panels, or the value entered in the Override column at installation time. Install parameter EDMPOOL STORAGE SIZE on panel DSNTIPC, or ZPARM EDMPOOL in DSN6SPRM.

Max TSO users  The maximum number of concurrent TSO foreground connections (QMF, DSN, DB2I, and SPUFI). Each of the following is a separate user:
• Each TSO foreground user executing a DSN command.
• Each TSO foreground user connected to DB2 through the call attachment facility (CAF). This can include QMF users running in TSO foreground or user-written CAF applications running in TSO foreground.

When the number of TSO users attempting to access DB2 exceeds this limit, connection requests are rejected. There is no subsystem parameter to control the maximum concurrent connections for IMS and CICS. These are controlled by using IMS and CICS facilities. For CICS attachment, the maximum number of connections to DB2 can be controlled using the resource control table (RCT) TYPE=INIT THRDMAX value. Install parameter MAX TSO CONNECT on panel DSNTIPE, or ZPARM IDFORE in DSN6SYSP.

Merge error BP shortage  The total number of work files that were rejected during all merge passes because of insufficient buffer resources. This field and the degraded low buffers field determine the average number of work files that cannot be honored at each merge pass because of insufficient buffer pool space. Ideally, the number in this field should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are too many concurrent work files. For example, there
could be a number of concurrently open cursors that require sorting. Consider increasing the size of the buffer pool using the ALTER BUFFERPOOL command. Note that, when there are many concurrent sorts or large sorts, it is a good idea to dedicate a separate buffer pool for sort work files. This will greatly facilitate work-file performance tuning.

**Migrated DS timed out** The number of recall timeouts.

**MVS System** An ID for the MVS System Management Facility (SMF). It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**No QP BP shortage** The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool.

**No QP no MVS enclave serv** The total number of parallel groups that executed in sequential mode due to the unavailability of MVS/ESA enclave services.

**Nonstealable pages** Percentage of non-stealable pages in use.

**Number of Active DBATs** The current number of active and disconnected (pooled) DBATs.

**Number of batch users** The number of connections to a single instance from batch or TSO background tasks.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of GBP Connections** The total number of Group Buffer Pool (GBP) Connections.

**Number of TSO users** The number of connections to a single instance from TSO foreground tasks.

**Object Analysis DB Count** The total number of monitored databases in a specific data sharing group that are participating in object analysis. Valid value is an integer in the range 0 - 4999.

**Open DS thresh reached** The number of data sets that were closed because the total number of open data sets reached the deferred close threshold value. The deferred close value is based on the value of DMAX or the MVS DD limit (whichever is smaller).

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Output buffer full** The number of waits caused by an unavailable output log buffer. When DB2 wants to write a log record and the log buffer is not available, DB2 and the application must wait for an available log buffer.

**Output buffer size** The output log buffer size in kilobytes. There is only one output log buffer per DB2 subsystem. Increasing this parameter reduces BSDS I/O updates when there is a buffer wraparound. Frequent wraparounds are likely in LOAD or REORG with logging, and mass insert operations. Increasing this parameter also helps avoid log write waits for an available buffer during heavy
update workload. When the specified size is not a 4KB multiple, it is rounded up to the next 4 KB multiple. Install parameter OUTPUT BUFFER on DSNTIPL, or ZPARM OUTBUFF in DSN6LOGP.

**Pages castout** The number of times a group buffer pool castout was initiated because the group buffer pool castout threshold was detected. The GBP castout threshold, GBP class castout threshold, and the length of the GBP checkpoint interval determine the castout characteristics of the group buffer pool. You can consider this threshold a safety margin to protect the group buffer pool from being accidentally flooded by overactive applications. In most situations, the default value for the group buffer pool castout threshold of 50 percent is a good choice. Use the ALTER GROUPBUFFERPOOL command to tune the group buffer pool thresholds.

**Pages read from BPs** The number of Getpage requests including conditional and unconditional requests.

**Pages read from DASD** The number of synchronous read I/O operations performed by DB2 for applications and utilities. This number includes both Synchronous Reads Sequential Access Only (QBSTSIO) and synchronous read operations for non-sequential access. You can use this value and the value of Synchronous Reads Sequential Access Only to calculate the number of Non-Sequential Synchronous Reads. Check the buffer pool hit ratio if the number of non-sequential synchronous reads is larger than expected.

**Resource Timeout** The number of seconds before a timeout is detected. This is an integer multiple of DEADLOCK TIME on panel DSNTIPJ. Timeout means that a lock request has waited for a resource (or for claims on a resource for a particular claim class to be released) longer than this time. For data sharing, the actual timeout period is longer than the timeout value. Install parameter RESOURCE TIMEOUT on panel DSNTIPJ, or ZPARM IRLMRWT in DSN6SPRM.

**Resource unavailable** The number of read accesses delayed due to unavailable resources. Generally, this can be due to insufficient tape units allocated. If this is so, reissue the SET ARCHIVE command and use a higher value for the count parameter. Another (although unlikely) cause is insufficient archive log read service task availability.

**Resync attempted** The number of resynchronization connections attempted with all remote locations (two-phase commit operations only). A large value can indicate network or system problems.

**RID Pool size** The size of the RID pool in bytes.

**RID Pool size too small** The number of times the maximum RID pool storage was exceeded. The size is determined by the installation parameter RID POOL SIZE (DB2 install panel DSNTIPC). It can be 0, or between 128 KB and 10 GB. The general formula for calculating the RID pool size is: (Number of concurrent RID processing activities) x (average number of RIDs) x 2 x (5 bytes per RID).

**RIDPool Fail No Storage** Due to insufficient storage for the candidate RID lists, DB2 was unable to use more than one index when accessing a DB2 table.

**RIDPool Fail No Storage Rate** The number of RIDPOOL fallbacks per second in this interval.
**SMF overruns**  The total number of SMF buffer overruns. Ideally, this field should be 0 or very small.

**Sort degraded BP too small**  The number of times that a merge pass was not efficiently performed due to a shortage of space in the buffer pool. The number in this field is incremented for each merge pass where the maximum number of work files allowed is less than the number of work-files requested. The maximum number of work files allowed is calculated as follows: Buffers consumed=2*(work files already allocated); Buffers available = (sequential steal threshold * buffer pool size - buffers consumed); Maximum work files allowed = buffers available / (2 * 8); Ideally, the number in this field should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are too many concurrent work files. For example, there could be a number of concurrently open cursors that require sorting. Consider increasing the buffer pool size using the ALTER BUFFERPOOL command.

**Sort error BP shortage**  The number of times a work file could not be created due to insufficient buffer resources. It indicates that a sort is in progress and limited in regard to the number of work files it can use. Ideally, this should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are many concurrent work files. For example, there could be a number of open cursors that require sorting. Generally, sorts are performed more efficiently with additional work files, but there are internal DB2 limits on the number of work files a transaction can have. It is possible that at run time a transaction cannot use as many work files as it had planned. You can control this by increasing the buffer pool size (ALTER BUFFERPOOL), or changing the transaction so it requires fewer concurrent work files.

**SP abends**  The number of times a stored procedure terminated abnormally.

**SP start failed/rejected**  The number of times an SQL CALL statement was rejected due to the procedure being in the STOP ACTION(REJECT) state.

**SP timed out**  The number of times an SQL call timed out waiting to be scheduled.

**Status**  Indicates whether a DB2 subsystem or data sharing group for a monitored entity is operational. Valid values are OFFLINE or ONLINE.

**Tape volume contention**  The number of read accesses that were delayed because of a tape volume contention when only one reader per tape is possible.

**Threads Wait Limit**  The number of inactive connections waiting because the system thread limit (MAXDBAT) has been reached: If CONQUED is less than or equal to DSCDBAT and CONQUED is less than or equal to (MDBAT-ADBAT), inactive connections waiting equals to 0, otherwise inactive connections waiting equals to CONQUED - (MDBAT-ADBAT+DSCDBAT); refer to the DB2 DISPLAY DDF DETAIL command for the field names.

**Threads Wait Lock**  The number of threads in a suspend state because they are waiting to obtain a lock.

**Time**  The date and time, as set on the monitored system, indicating the instance when the agent collects information.

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• M = Month
• D = Day
• H = Hour
• M = Minute
• S = Second
• m = Millisecond

Timeouts The number of times a unit of work was suspended for a time exceeding the timeout value. This number should be low, ideally 0.

Transactions per second The number of successful requests for commit phase 1 in a two-phase commit environment such as CICS or IMS. It includes successfully prepared agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF). It does not include successful single-phase commits or distributed two-phase commits. IMS and CICS applications use the PREPARE and COMMIT sequence to commit work.

Trigger Depth The depth of the largest trigger stack.

UDF abended The number of times a user-defined function abended.

UDF start failed/rejected The number of times a user-defined function was rejected.

UDF timed out The number of times a user-defined function timed out while waiting to be scheduled.

Users Waiting Threads The count of users waiting for threads.

Wait Tape Mount The state will be true if the DB2 system is waiting on a tape mount to recover from an archive log. It is an alphanumeric text string, with a maximum length of one character.

Write failed no storage The number of coupling facility write requests that could not complete due to a lack of coupling facility storage resources. It is an alphanumeric text string, with a maximum length of one character.

DB2 Thread Accounting Attributes
Use these attributes to view DB2 Thread accounting information.

ACE Address The agent control element (ACE) (see QWHSACE) of the thread that is reported. The value in QWHSACE is the ACE of the IFI application that requested this trace record (Field name: QW0148AC).

Agent Class 1 It comprises the class 1 CPU time of the allied agent, which may include the accumulated class 1 CPU time for processing stored procedures, user-defined functions, and triggers if present.

Agent Non-Nested Class 1 The class 1 CPU time of the non-nested activity of the allied agent.
Authorization ID  The primary authorization ID from connection or signon. For z/OS operator commands and DB2 system internal agents, the value is SYSOPR. Secondary authorization IDs might be the RACF groups associated with this primary authorization ID. The SQL ID is initially set to this primary authorization ID. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it is not the same as the original primary authorization ID (QWHCOPID). Distributed authorization ID translation can also change the primary authorization ID (Field name: UWHCAID).

CP CPU Outside DB2 Class 2  The CP CPU time outside DB2 (Class 2) (DB2 field name: ADCPUODB).

CP CPU Time Class 1  The class 1 CPU time in an application (Field name: ADCPUT).

Collection Name  The collection name (Field name: UW0148CI).

Connection ID  The connection name (Field name: QWHCCN). It is not valid on end of memory and reflects the z/OS home address space (ASID) connection name for:

- Batch: 'BATCH'
- TSO: 'TSO'
- QMF: 'DB2CALL'
- Utility: 'UTILITY'
- DB2 internal subsystem ID
- IMS: IMS-ID
- CICS: CICS-ID
- RRSAF: 'RRSAF'

Distributed database access threads:
- For threads from a DB2 requester, this field contains the connection name of the thread at the requesting location.
- For threads using the DRDA protocol from a non-DB2 requester, this field contains the constant 'SERVER'.

Correlation ID  The correlation ID value (Field name: QWHCCV).
- For batch: JOBNAME
- For TSO: LOGON-ID
- For IMS/VS: PST#.PSBNAME
- For CICS: CONNECTION_TYPE.THREAD_TYPE.THREAD_#.TRAN-ID
- For RRSAF: CORRELATION-ID value from signon function
- For threads from a DB2 requester: this field contains the correlation-ID name of the thread at the requesting location.
- For threads using the DRDA protocol from a non-DB2 requester, this field contains the first 12 characters in the DDM external name (EXTNAM) parameter of the DDM EXCSAT command received as part of the SQL connect.

DB2 Subsystem  The DB2 subsystem ID.
**DB2 Version** The DB2 version.

**DSG Member Name** The Data Sharing Group (DSG) member name.

**Data Sharing Group** The Data Sharing Group name.

**Elapsed Outside DB2 Class 2** The elapsed time outside DB2 (Class 2) (DB2 field name: ADTTTOTOD).

**Elapsed class 1** The class 1 elapsed time of the allied agent (Field name: ADRECETT).

**End User ID** The user ID of the end user’s workstation (Field name: QWHCEUID). This can be different from the authorization ID used to connect to DB2. This field contains blanks if the client did not supply this information. If QWHCEUID_OFF is not 0, this value is truncated.

**In-DB2 Agent CPU Time Class 2** It comprises the class 2 CPU time of the allied agent. This time includes the accumulated class 2 CPU time for processing stored procedures, user-defined functions, and triggers, if present. CPU time for processing parallel tasks is not charged to this counter. This CPU time does not include the CPU time that is consumed on an IBM specialty engine (Field name: ADAGENT2).

**In-DB2 CP CPU Time Class 2** The class 2 CPU time (in DB2) (Field name: ADDBCPUT). It indicates:

- The class 2 CPU time for the allied agent. This includes the accumulated class 2 TCB time for processing any stored procedures, user-defined functions, and triggers.
- The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks generated by utilities. In sysplex query parallelism, only CPU times of parallel tasks, running on the same member of the sysplex group as the originating task, are included. This CPU time does not include time that is consumed on an IBM specialty engine.

**In-DB2 Elapsed Class 2** The class 2 elapsed time of the allied agent accumulated in DB2 (Field name: ADDB2ETT).

**In-DB2 Non-Nested CPU Time Class 2** The accumulated CPU time for all environments (CICS, IMS, RRSAF, TSO, and DDF). This CPU time does not include:

- CPU time that is consumed on an IBM specialty engine.
- CPU time for processing SQL on behalf of a stored procedure. For stored procedure time, see **In-DB2 SP CPU Time Class 2** (QWACSPTT).

A value of binary zero means that no time value is available (Field name: QWCAJST).

**In-DB2 Non-Nested Class 2/3** The accumulated elapsed time in DB2 (Field name: QWACASC). This field is calculated if accounting class 2 is on. This field is calculated for threads by taking the store clock (STCK) time on exit from DB2 and subtracting the store clock value on entry to DB2. However, the times for most thread allocation and certain abend conditions are not included.
In-DB2 Not Accounted Class 2 The time not accounted in DB2 (Field name: ADNOTACC). This time determines whether there is a large percentage of time that has not been captured within the DB2 accounting record and whether system monitoring tools (such as RMF) should be examined to determine the cause of a performance problem.

In-DB2 Parallel CPU Time Class 2 The sum of the CPU times of the parallel tasks running in DB2 (Field name: ADDBCPC2). These tasks can be query CP, sysplex query parallel tasks, parallel tasks produced by utilities, or rollup autonomous tasks. In sysplex query parallelism, the accumulated time reflects only parallel tasks running on the same DB2 subsystem as the originating task. This time does not include the CPU time consumed on an IBM specialty engine.

In-DB2 SE CPU Class 2 The accumulated and consumed class 2 time on an IBM specialty engine that consists of times for non-nested, stored procedures, user-defined functions, triggers, and parallel tasks (Field name: AWACC2Z).

Note: All CPU times of an IBM specialty engine (SE) that are reported in DB2 trace records are already normalized by DB2 to the speed of the purpose processor.

In-DB2 SP CPU Time Class 2 The Accumulated CPU time that was spent in DB2 for processing SQL statements that were issued by stored procedures in WLM-established stored procedure address spaces (Field name: QWACSPPTT). This time also includes DB2 time that was used for connecting and disconnecting the stored procedure task for external stored procedures. SQL procedure times are included in this time if the SQL procedures were called on a nested task, and were not invoked by the main application execution unit. This time is a subset of the QWACSPCP time. It does not include time that is consumed on an IBM specialty engine.

In-DB2 SP Class 2/3 The total elapsed time that was spent for processing SQL statements that were issued by stored procedures in WLM-established stored procedure address spaces. This time also includes time that was used for connecting and disconnecting the stored procedure task, for external stored procedures. SQL procedure times are included in this time if the SQL procedures were called on a nested task, and were not invoked by the main application execution unit. (Field name: QWACSPEB).

In-DB2 Suspend Time Agent Class 2 The waiting time of the allied agent for all types of class 3 suspension (Field name: ADTCBCL3). This counts class 3 suspension time within nested activity. Suspension time of parallel tasks in query or utility parallelism is not included.

In-DB2 Suspend Time Class 2 The waiting time for all types of class 3 suspensions by the originating task and parallel tasks, if parallelism is employed (Field name: ADTSUST).

In-DB2 Suspend Time Parallel Class 2 The sum of the suspension times spent for parallel tasks (Field name: ADCPCL3T). These tasks can be query CP or sysplex query parallel tasks, parallel tasks produced by utilities, or roll-up autonomous tasks.

In-DB2 UDF CPU Time Class 2 The accumulated CPU time that was spent in DB2 for processing SQL statements that were issued by user-defined functions in WLM-established stored procedure address spaces (Field name: QWACUDTT). This time also includes DB2 time that was used for connecting and disconnecting the
user-defined function task. This time includes time for a non-inline user-defined function if the user-defined function was called on a nested task and was not invoked by the main application execution unit. This time is a subset of the QWACUDCP time. It does not include time that is consumed on an IBM specialty engine.

**In-DB2 UDF Class 2/3** The total elapsed time that was spent in DB2 for processing SQL statements that were issued by user-defined functions in WLM-established stored procedure address spaces (Field name: QWACUDEB). This time also includes DB2 time that was used for connecting and disconnecting the user-defined function task. This time includes time for a non-inline user-defined function if the user-defined function was called on a nested task and was not invoked by the main application execution unit.

**In-DB2 Waiting Time Class 2** The waiting time in DB2 (Class 2/3) (Field name: ADTWTDB).

**Interval Start** The start time of this interval.

**Location Name** The location name (Field name: UW0148LN). The location name contains the name of the local location or remote location, depending on where the thread executes a package. The following statements execute locally, regardless of the current package name:
- COMMIT
- ROLLBACK
- SET <HOST VARIABLE> = CURRENT PACKAGE
- SET <HOST VARIABLE> = CURRENT SERVER

For these statements, this field contains the location where the package executes, not the location where the statement executes.

**Logical Unit of work ID** The logical unit of the work ID (LUWID) as defined for the LU 6.2 interface (Field name: QW0148LU). The LUWID uniquely identifies the thread within the network, and consists of the following:
- A fully qualified network name (QW0148LM)
- An LUW instance number (QW0148UV) and an LUW sequence number (see fields below).

It consists of two 8-character fields: QW0148NI and QW0148LM, which together uniquely identify a client system.

**MVS System ID** The MVS identifier.

**Non Nested Class 1** The non-nested class 1 elapsed time of the allied agent (Field name: ADNNNET1).

**Non-Nested Outside DB2 Class 2** The class 2 CP CPU time of the non-nested activity of the allied agent outside DB2 (Field name: ADTTCBOD).

**Originating System** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Package ID** The package ID (Field name: UW0148PN).
**Parallel Tasks CPU Class 1** The sum of the CPU times of the parallel tasks running in an application. It can also include the accumulated class 1 CPU time for processing stored procedures, user-defined functions, and triggers if present. These parallel tasks can be query CP, sysplex query parallel tasks, or parallel tasks produced by utilities. In sysplex query parallelism, the accumulated time reflects only parallel tasks running on the same DB2 subsystem as the originating task (Field name: ADCPUPLL).

**Plan Name** The plan name (Field name: QWHCPLAN). It shows blank for DB2 command thread; otherwise:
- For SPUFI with cursor stability: 'DSNESPCS'
- For SPUFI with repeatable read: 'DSNESPPR'
- For TSO: the application plan name
- For IMS: the application plan name
- For CICS: application plan name, IMS and CICS commands have a blank plan name.
- For RRSAF create thread with the collection parameter: '?RRSAF '
- For QMF: 'DSQPLAN'
- For Distributed Database Access threads:
  - For threads using the DRDA protocol from a requester, this field contains the plan name that is executed at the requesting location.
  - For threads using the DRDA protocol from a non-DB2 requester or from a DB2 2.3 requester, this field contains the constant 'DISTSERV'.
- For binding: 'DSNBIND' (system plan)
- For utility: 'DSNUTIL ' (system plan)
- For authorization: 'ACT' + X'0000000000' (system plan)
- For unallocated threads and miscellaneous DB2 system service tasks: 'BCT' + X'0000000000' (system plan)
- For startup: 'STARTCT' + X'00' (system plan)

**QWACFLGS** Flags (Field name: QWACFLGS).

**SE CPU Class 1** The sum of several accumulated CPU times consumed while running on an IBM specialty engine in all environments (Field name: AWACCC1Z). These times are consumed when:
- Running stored procedure requests and triggers on the main application execution unit.
- Satisfying stored procedure requests processed in a DB2 stored procedure or WLM address space.
- SQL procedure times are included in this time if the SQL procedure was called on a nested task and was not invoked by the main application execution unit.
- Satisfying UDF requests processed in a DB2 stored procedure or WLM address space.
- Running triggers on a nested task.
- Running parallel tasks in an application which contains the accumulated CPU time used to satisfy UDF requests.

**Note:** All CPU times of an IBM specialty engine (SE) that are reported in DB2 trace records are already normalized by DB2 to the speed of the general purpose processor.
**SE CPU Eligible** The accumulated CPU time that ran on a standard CP for work eligible on an IBM specialty engine (Field name: AWACZEL).

**SE Trigger CPU** The accumulated CPU time consumed on an IBM specialty engine while running triggers on a nested task or on the main application execution unit (Field name: AWACTRZ).

**SP CPU Class 1** The accumulated CPU time used to satisfy external stored procedure requests that were processed in WLM-established stored procedure address spaces. SQL procedure time is included only if the SQL procedures were called on a nested task, and were not invoked by the main application execution unit. This time does not include CPU time that was consumed on an IBM specialty engine (Field name: QWACSPCP).

**Stored Proc Class 1** The total elapsed time used to satisfy external stored procedure requests that were processed in WLM-established stored procedure address spaces. SQL procedure time is included only if the SQL procedures were called on a nested task, and were not invoked by the main application execution unit. This value includes time that was used for executing SQL statements (Field name: QWACSPCP).

**Thread Type** The connecting system type code (in hexadecimal). This field can have a null value. For example, this field contains a null value for some utilities (Field name: QWHCATYP).

**Transaction Name** The transaction or application name that the end user is running (Field name: QWHCEUTX). This identifies the application that is currently running, not the product that is used to run the application. This field contains blanks if the client did not supply this information.

**Trigger CPU Class 1** The accumulated CPU time consumed while executing under the control of triggers. For triggers there is no distinction between class 1 and class 2 CPU time. All processing controlled by a trigger is within DB2 (Field name: ADTRCP).

**Triggers Class 1** The total elapsed time spent by the allied agent in triggers (Field name: ADTRET).

**UDF CPU Class 1** The accumulated CPU time that was used to satisfy user-defined function requests that were processed in a WLM-established stored procedure address space. This time includes time for a non-inline user-defined function if the user-defined function was called on a nested task and was not invoked by the main application execution unit. This time does not include CPU time that is consumed on an IBM specialty engine (DB2 field name: QWACUDCP).

**UDF Class 1** The total elapsed time that was spent in user-defined functions in WLM-established stored procedure address spaces. This time includes time for a non-inline user-defined function if the user-defined function was called on a nested task and was not invoked by the main application execution unit. This time includes time that was spent executing SQL statements (Field name: QWACUDEA).

**Workstation Name** The end user’s workstation name. This field contains blanks if the client did not supply this information (Field name: QWHCEUWN).
**DB2 Thread Class 3 Attributes**

Use these attributes to view DB2 Thread Class 3 information.

**ACE Address** The agent control element (ACE) (see QWHSACE) of the thread that is reported. The value in QWHSACE is the ACE of the IFI application that requested this trace record (Field name: QW0148AC).

**Archive Log Quiesce Events** Events due to processing ARCHIVE LOG MODE(QUIESCE) commands (Field name: QWACALCT).

**Archive Log Quiesce** The waiting time caused by processing ARCHIVE LOG(QUIESCE) commands (DB2 field name: QWACALOG).

**Archive Log Read Events** Events due to processing ARCHIVE LOG READ commands (Field name: QWACANAR).

**Archive Log Read** The waiting time caused by processing ARCHIVE LOG READ commands (Field name: QWACAWAR).

**Authorization ID** The primary authorization ID from connection or signon (Field name: UWHCAID). For z/OS operator commands and DB2 system internal agents, the value is SYSOPR. Secondary authorization IDs might be the RACF groups associated with this primary authorization ID. The SQL ID is initially set to this primary authorization ID. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it is not the same as the original primary authorization ID (QWHCOPID). Distributed authorization ID translation can also change the primary authorization ID.

**Collection Name** The collection name (Field name: UW0148CI).

**Connection ID** The connection name (Field name: QWHCCN). It is not valid on end of memory and reflects the z/OS home address space (ASID) connection name for:

- **Batch:** 'BATCH'
- **TSO:** 'TSO'
- **QMF**: 'DB2CALL'
- **Utility:** 'UTILITY'
- **DB2 internal** DB2 subsystem ID
- **IMS** IMS-ID
- **CICS** CICS-ID
- **RRSAF** 'RRSAF'

**Distributed database access threads:**

- For threads from a DB2 requester, this field contains the connection name of the thread at the requesting location.
- For threads using the DRDA protocol from a non-DB2 requester, this field contains the constant 'SERVER'.

**Correlation ID** The correlation ID value (Field name: QWHCCCV).

- For batch: JOBNAME
• For TSO: LOGON-ID
• For IMS/VS: PST#.PSBNAME
• For CICS: CONNECTION_TYPE.THREAD_TYPE.THREAD_.#.TRAN-ID
• For RRSAF: CORRELATION-ID value from signon function
• For threads from a DB2 requester: this field contains the correlation-ID name of
  the thread at the requesting location.
• For threads using the DRDA protocol from a non-DB2 requester, this field
  contains the first 12 characters in the DDM external name (EXTNAM) parameter
  of the DDM EXCSAT command received as part of the SQL connect.

DB I/O Events The number of wait trace events processed for waits for database
I/O under this thread (Field name: QWACARNE).

DB2 Subsystem The DB2 subsystem ID.

DB2 Version The DB2 version.

DSG Member Name The Data Sharing Group (DSG) member name.

Data Sharing Group The Data Sharing Group name.

Drain Lock Events Events due to drain lock processing during the execution of the
package or DBRM (Field name: QWACARND).

Drain Lock The waiting time caused by drain lock processing (Field name:
QWACAWDR).

End User ID The user ID of the end user's workstation (Field name: QWHCEUID).
This can be different from the authorization ID used to connect to DB2. This field
contains blanks if the client did not supply this information. If QWHCEUID_OFF
is not 0, this value is truncated.

Extended Delete Define Dataset The accumulated wait time for a synchronous
execution unit switch to the DB2 data space manager services, which include
define data set, extend data set, delete data set, reset data set, and VSAM catalog
access (DB2 field name: QWAXDSSE).

Extended Delete Define Events The number of wait trace events processed for
waits for synchronous execution unit switching to the data space manager service
tasks (Field name: QWAXDSNS).

Interval Start The start time of this interval.

Latch Events The number of wait trace events processed for waits for latch
contention (Field name: QWACARLH).

Location Name The location name (Field name: UW0148LN). The location name
contains the name of the local location or remote location, depending on where the
thread executes a package. The following statements execute locally, regardless of
the current package name:
• COMMIT
• ROLLBACK
• SET <HOST VARIABLE> = CURRENT PACKAGE SET
• SET <HOST VARIABLE> = CURRENT SERVER
For these statements, this field contains the location where the package executes, not the location where the statement executes.

**Lock Events** The number of wait trace events processed for waits for local contention for locks (Field name: QWACARNL).

**Log Write I/O Events** The number of wait trace events that were processed for waits for log read I/O (Field name: QWACARLG).

**Logical Unit of work ID** The logical unit of the work ID (LUWID) as defined for the LU 6.2 interface (Field name: QW0148LU). The LUWID uniquely identifies the thread within the network, and consists of the following:

- A fully qualified network name (QW0148LM)
- An LUW instance number (QW0148UV) and an LUW sequence number (see fields below).

It consists of two 8-character fields: QW0148NI and QW0148LM, which together uniquely identify a client system.

**MVS System ID** The MVS identifier.

**Open Close Dataset** The accumulated wait time for a synchronous execution unit switch to the DB2 OPEN/CLOSE data set service or the HSM recall service (Field name: QWAXOCSE).

**Open Close Events** The number of wait trace events processed for waits for the synchronous execution unit switching to the OPEN/CLOSE service (Field name: QWAXOCNS).

**Originating System** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Other Read I/O Events** The number of wait trace events processed for waits for read I/O under another thread (Field name: QWACARNR).

**Other Read I/O** The accumulated wait time for read I/O that is done under a thread other than this one (Field name: QWACAWTR). This value is calculated for threads by subtracting the store clock (STCK) time on entry to event wait from STCK time on exit resume from the event. This time represents the time the thread that is reported waited for the subject I/O and not the total duration of that I/O. This field is collected if accounting class 3 is on. The following I/O waits are included in this field:

- SEQUENTIAL PREFETCH
- SEQUENTIAL DETECTION
- LIST PREFETCH
- SYNCHRONOUS READ I/O performed by a thread
- Other than the thread that is reported.

**Other Service Events** The number of wait trace events processed for waits for synchronous execution unit switching to other service tasks (Field name: QWAXOTNS).

**Other Services** The accumulated wait time for a synchronous execution unit switch to other DB2 service tasks (Field name: QWAXOTSE).
Other Write I/O Events The number of wait trace events processed for waits for write I/O under another thread. This number includes wait trace events for buffer manager force write I/O waits (Field name: QWACARNW).

Other Write I/O The accumulated wait time for write I/O that is done under a thread other than this one (Field name: QWACAWTW). This value is calculated for threads by subtracting the store clock (STCK) time on entry to event wait from STCK time on exit resume from the event. This time represents the time the thread being reported waited for the subject I/O and not the total duration of that I/O. This field is collected if accounting class 3 is on. The following I/O waits are included in this field:

- ASYNCHRONOUS WRITE I/O
- SYNCHRONOUS WRITE I/O performed by a thread other than the thread being reported
- BUFFER MANAGER FORCE WRITE I/O

Package ID The package ID (Field name: UW0148PN).

Plan Name The plan name (Field name: QWHCPLAN). It shows a blank for a DB2 command thread; otherwise:

- For SPUFI with cursor stability: 'DSNESPCS'
- For SPUFI with repeatable read: 'DSNESPRR'
- For TSO: the application plan name
- For IMS: the application plan name
- For CICS: application plan name, IMS and CICS commands have a blank plan name.
- For RRSAF create thread with the collection parameter: '?RRSAF '
- For QMF: 'DSQPLAN'
- For Distributed Database Access threads:
  - For threads using the DRDA protocol from a requester, this field contains the plan name that is executed at the requesting location.
  - For threads using the DRDA protocol from a non-DB2 requester or from a DB2 2.3 requester, this field contains the constant 'DISTSERV'.
- For binding: 'DSNBIND' (system plan)
- For utility: 'DSNUTIL ' (system plan)
- For authorization: 'ACT' + X'0000000000' (system plan)
- For unallocated threads and miscellaneous DB2 system service tasks: 'BCT' + X'0000000000' (system plan)
- For startup: 'STARTCT' + X'00' (system plan)

QWACFLGS Flags (Field name: QWACFLGS).

Sync I/O Events The total number of synchronous I/O suspensions (Field name: ADIOSUSC).

SYSLGRNG Events The number of wait trace events processed for waits for synchronous execution unit switching to the SYSLGRNG recording service (Field name: QWAXSLNS).
**SYSLGRNG** Accumulated wait time for a synchronous execution unit switch to the DB2 SYSLGRNG recording service. This service is also sometimes used for level ID checking for down-level detection (Field name: QWAXSLSE).

**Service Task Switch Events** The total number of suspensions due to a synchronous execution unit switching to DB2 services from the thread being reported (Field name: ADSTSUSC).

**Service Task Switch** The accumulated waiting time due to a synchronous execution unit switching to DB2 services from the thread being reported (Field name: ADSTSUST). It includes:
- Open/close data set
- SYSLGRNG or SYSLGRNX update
- Commit phase 2 for read-only threads originating from TSO or batch
- Dataspace manager services
- Define data set
- Extend data set
- Delete data set
- Log I/Os for commit and abort processing

**Special Considerations:**
1. A probable cause for high values in this field is data set preformatting.
2. There are no service waits associated with commit phase 2 under read-only threads originating from CICS or IMS. There is a service wait for any thread doing commit phase 2 after an update.
3. There is no overlap between the elapsed time reported in this field and the other class 3 elapsed times.

**Thread Type** The connecting system type code (in hexadecimal). This field can have a null value. For example, this field contains a null value for some utilities (Field name: QWHCATYP).

**Transaction Name** The transaction or application name that the end user is running (Field name: QWHCEUTX). This identifies the application that is currently running, not the product that is used to run the application. This field contains blanks if the client did not supply this information.

**Update Commit Events** The number of wait trace events processed for waits for synchronous execution unit switching for COMMIT or ABORT (Field name: QWACARNS).

**Update Commit** The accumulated wait time because of a synchronous execution unit switch for DB2 COMMIT, ABORT, or DEALLOCATION processing (Field name: QWACAWTE). For RRSAF threads, this value includes explicit COMMIT time for SRRCMIT calls. See QWACAWLG for implicit RRS COMMIT time.

**Wait Time DB I/O** The accumulated I/O elapsed wait time for database I/O done under this thread (Field name: QWACAWTI). This field is for synchronous I/O only. It includes synchronous read and write I/O. This value is calculated for threads by subtracting the store clock (STCK) time on entry to event wait from STCK time on exit resume from the event. Its value indicates the elapsed time the allied agent waited for its I/O in DB2. When db2 makes an I/O request for an allied agent and makes the agent wait, the store clock value is saved. When the
I/O completes, the ending time is used to calculate the total elapsed I/O time. The result is added to the previously saved elapsed synchronous I/O wait time in DB2.

**Wait Time Latches** The accumulated wait time due to latch contention (Field name: QWACAWLH).

**Wait Time Locks** The accumulated wait time due to local contention for locks (Field name: QWACAWTL). Local contention does not involve intersystem communication. Local contention is resolved entirely within a single subsystem. Global contention, which involves intersystem communication, is reported in field QWACAWTJ.

**Wait Time Log Write** The accumulated wait time for log write I/O (Field name: QWACAWLIG). For RRSAF threads, this value includes implicit commit time for RRS at EOT if uncommitted work exists. SEE QWACAWTE for explicit RRS commit time.

**Wait Time Sync I/O** The I/O elapsed time accumulated due to synchronous I/O suspensions. DB2 calculates this value by subtracting the store clock time when an agent begins waiting for a synchronous I/O from the time the agent is resumed (Field name: ADIOSUST).

**Workstation Name** The end user's workstation name. This field contains blanks if the client did not supply this information (Field name: QWHCEUWN).

**DB2 Thread Wait 2 Attributes**

Use these attributes to view DB2 Thread Wait 2 information.

**ACE Address** The agent control element (ACE) (see QWHSACE) of the thread that is reported. The value in QWHSACE is the ACE of the IFI application that requested this trace record (Field name: QW0148AC).

**Accelerator Wait Events** The number of wait trace events that were processed for requests to an accelerator (Field name: QWACAACC).

**Accelerator Wait Time** The accumulated wait time for requests to an accelerator (Field name: QWACAACW).

**Asynchronous IXL Events** The number of wait trace events processed for asynchronous IXLCACHE/IXLCOMP invocations. These are incremented by IFCID 329, which is not part of a begin/end pair, so this number represents the true number of events. It is not doubled, as other wait events are (Field name: QWAXIXLE).

**Asynchronous IXL requests** The waiting time of the asynchronous IXL requests (Field name: AQWAXIXL).

**Authorization ID** The primary authorization ID from connection or signon (Field name: UWHCAID). For z/OS operator commands and DB2 system internal agents, the value is SYSOPR. Secondary authorization IDs might be the RACF groups associated with this primary authorization ID. The SQL ID is initially set to this primary authorization ID. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it is not the same as the original primary authorization ID (QWHCOPID). Distributed authorization ID translation can also change the primary authorization ID.
**Autonomous Procedure Events** The number of autonomous procedures that were executed (Field name: QWACACNT).
- For a non-rollup record, this value is the number of autonomous procedures that were executed.
- For a parallel query rollup record, this value is 0.
- For a ddf or RRSAF rollup record, this value is the number of autonomous procedures that were executed.

**Autonomous Procedure** The accumulated wait time for autonomous procedures to complete (Field name: QWACWAIT).

**Child L-Lock Events** The number of global contention wait events for child L-locks (Field name: ADLCSUSC).

**Child L-Locks** The accumulated wait time due to global contention for child L-Locks (Field name: QWACAWTK).

**Claim Release Events** The total number of suspensions until the claims are released (Field name: QWACARNC).

**Claim Release** The waiting time for a claim to be released (Field name: QW02542W).

**Collection Name** The collection name (Field name: UW0148CI).

**Commit Phase 1 Write I/O Events** The number of wait trace events processed for FORCE-COMMIT. (Field name: QWAXFCCT).

**Commit Phase 1 Write I/O** The accumulated wait time for commit phase 1 database write I/O completion (Field name: QWAXAWFC).

**Connection ID** The connection name (Field name: QWHCCN). It is not valid on end of memory and reflects the z/OS home address space (ASID) connection name for:
- **Batch:** 'BATCH'
- **TSO:** 'TSO'
- **QMF** 'DB2CALL'
- **Utility** 'UTILITY'
- **DB2 internal**
  - DB2 subsystem ID
- **IMS** IMS-ID
- **CICS** CICS-ID
- **RRSAF** 'RRSAF'

**Distributed database access threads:**
- For threads from a DB2 requester, this field contains the connection name of the thread at the requesting location.
- For threads using the DRDA protocol from a non-DB2 requester, this field contains the constant 'SERVER'.
**Correlation ID** The correlation ID value (Field name: QWHCCV).
- For batch: JOBNAME
- For TSO: LOGON-ID
- For IMS/VS: PST#.PSBNAME
- For CICS: CONNECTION_TYPE.THREAD_TYPE.THREAD_.TRAN-ID
- For RRSAF: CORRELATION-ID value from signon function
- For threads from a DB2 requester: this field contains the correlation-ID name of the thread at the requesting location.
- For threads using the DRDA protocol from a non-DB2 requester, this field contains the first 12 characters in the DDM external name (EXTNAM) parameter of the DDM EXCSAT command received as part of the SQL connect.

**DB2 Subsystem** The DB2 subsystem ID.

**DB2 Version** The DB2 version.

**DSG Member Name** The Data Sharing Group (DSG) member name.

**Data Sharing Group** The Data Sharing Group name.

**End User ID** The user ID of the end user's workstation (Field name: QWHCEUID). This can be different from the authorization ID used to connect to DB2. This field contains blanks if the client did not supply this information. If QWHCEUID OFF is not 0, this value is truncated.

**Global Contention Events** The number of suspensions caused by global lock contention. This value is only calculated if accounting class 3 is active and DB2 is a member of a data sharing group (Field name: ADGCSUSC).

**Global Contention** The total accumulated waiting time caused by the suspension of IRLM lock requests due to global lock contention in a data sharing environment that requires intersystem communication to resolve (Field name: ADGCSUST).

**Interval Start** The start time of this interval.

**L-Lock Events** The number of global contention waits for all L-locks (Field name: ADLKSUSC).

**L-Locks** The accumulated global contention wait time for all L-locks. (Field name: ADLKSUST).

**Location Name** The location name (Field name: UW0148LN). The location name contains the name of the local location or remote location, depending on where the thread executes a package. The following statements execute locally, regardless of the current package name:
- COMMIT
- ROLLBACK
- SET <HOST VARIABLE> = CURRENT PACKAGE SET
- SET <HOST VARIABLE> = CURRENT SERVER

For these statements, this field contains the location where the package executes, not the location where the statement executes.
Logical Unit of work ID The logical unit of the work ID (LUWID) as defined for the LU 6.2 interface (Field name: QW0148LU). The LUWID uniquely identifies the thread within the network, and consists of the following:

- A fully qualified network name (QW0148LM)
- An LUW instance number (QW0148UV) and an LUW sequence number (see fields below).

It consists of two 8-character fields: QW0148NI and QW0148LM, which together uniquely identify a client system.

MVS System ID The MVS identifier.

Notify Messages Events The number of wait trace events processed for waits for sending messages to other members in the data sharing group. This value is calculated only if accounting class 3 is active and DB2 is a member of a data sharing group (Field name: QWACARNG).

Notify Messages The accumulated elapsed wait time caused by suspension for sending messages to other members in the data sharing group (Field name: QWACAWTG). One common use of intersystem message sending is when database descriptors are changed due to create, alter, or drop statements. This value is calculated only if accounting class 3 is active and DB2 is a member of a data sharing group.

Originating System The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Other L-Lock Events The number of global contention wait events for other L-locks (Field name: ADLOSUSC).

Other L-Locks The accumulated wait time due to global contention for other L-locks. (Field name: QWACAWTM).

Other P-Locks The accumulated wait time due to global contention for other P-locks (Field name: QWACAWTQ).

P-Lock Events The number of global contention waits for all P-locks. (Field name: ADPLSUSC).

P-Lock Other Events The number of global contention waits for other P-locks (Field name: ADPOSUSC).

P-Lock Page Events The number of global contention waits for page P-locks (Field name: ADPPSUSC).

P-Lock Pgset Part Events The number of global contention waits for pageset and partition P-locks (Field name: ADPSSUSC).

P-Locks Page The accumulated wait time due to global contention for page P-locks (Field name: QWACAWTO).

P-Locks Pageset Partition The accumulated wait time due to global contention for page set or partition P-locks (Field name: QWACAWTN).

P-Locks The accumulated global contention wait time for all P-locks (Field name: ADPLSUST).
**Package ID** The package ID (Field name: UW0148PN).

**Page Latch Events** The number of wait trace events processed for page latch contention (Field name: QWACARNH).

**Page Latch** The accumulated wait time because of page latch contention. For example, when runstats and copy utilities are run with the SHRLEVEL(CHANGE) option, they use a page latch instead of locking to serialize the collection of statistics or the copying of a page. You can reduce page latch contention by controlling the way you schedule your applications (Field name: QWACAWTP).

**Parallel Sync Events** The number of times that waits for parallel query processing to synchronize parent and child tasks were suspended (Field name: QWACPQSC).

**Parallel Sync Time** The accumulated wait time for parallel queries to synchronize parent and child tasks (Field name: QWACPQSW).

**Parent L-Lock Events** The number of wait trace events processed for waits for global lock contention for parent L-locks (Field name: QWACARNJ).

**Parent L-Locks** The accumulated wait time due to global contention for parent L-locks. Global contention occurs when intersystem communication is required to resolve an IRLM lock or change request. QPACAWTTL contains the wait time due to local contention. Local communication does not require intersystem communication. It can be resolved by the local subsystem (Field name: QWACAWTJ).

**Plan Name** The plan name (Field name: QWHCPLAN). It shows a blank for a DB2 command thread; otherwise:
- For SPUFI with cursor stability: 'DSNESPCS'
- For SPUFI with repeatable read: 'DSNESPRR'
- For TSO: the application plan name
- For IMS: the application plan name
- For CICS: application plan name, IMS and CICS commands have a blank plan name.
- For RRSAF create thread with the collection parameter: '?RRSAF '
- For QMF: 'DSQPLAN'
- For Distributed Database Access threads:
  - For threads using the DRDA protocol from a requester, this field contains the plan name that is executed at the requesting location.
  - For threads using the DRDA protocol from a non-DB2 requester or from a DB2 2.3 requester, this field contains the constant 'DISTSERV'.
- For binding: 'DSNBIND' (system plan)
- For utility: 'DSNUTIL ' (system plan)
- For authorization: 'ACT' + X'0000000000' (system plan)
- For unallocated threads and miscellaneous DB2 system service tasks: 'BCT' + X'0000000000' (system plan)
- For startup: 'STARTCT' + X'00' (system plan)

**QWACFLGS** Flags (Field name: QWACFLGS).
**Stored Procedure** The total elapsed time spent waiting for an available TCB before the stored procedure could be scheduled. This time is calculated only if accounting class 3 is active (Field name: QWACCAST).

**Stored Procedure Events** The number of times an SQL call statement had to wait for an available TCB before the stored procedure could be scheduled. This value is calculated only if accounting class 3 is active (Field name: QWACCANM).

**Suspensions Class 3 Events** The total number of class 3 suspensions (Field name: ADTSUSC).

**TCP/IP LOB XML Events** The number of wait trace events that were processed for waits for TCP/IP LOB or XML materialization (Field name: QWACALBC).

**TCP/IP LOB XML** Accumulated wait time for tcp/ip lob or xml materialization (Field name: QWACALBW).

**Thread Type** The connecting system type code (in hexadecimal). This field can have a null value. For example, this field contains a null value for some utilities (Field name: QWHCATYP).

**Total Class 3 Time** The waiting time for all types of class 3 suspensions by the originating task and parallel tasks, if parallelism is employed (Field name: ADTSUST).

**Transaction Name** The transaction or application name that the end user is running (Field name: QWHCEUTX). This identifies the application that is currently running, not the product that is used to run the application. This field contains blanks if the client did not supply this information.

**Workstation Name** The end user's workstation name (Field name: QWHCEUWN). This field contains blanks if the client did not supply this information.

**DB2 Thread Exceptions Attributes** Use the DB2 Thread Exceptions attributes to create situations to monitor thread-related performance.

**Ace Address** The DB2 thread ACE address for internal use.

**Archive Tape Wait** True if waiting for a tape for an archive operation. It is an alphanumeric text string, with a maximum length of one character.

**Asynchronous Page Reads** The number of asynchronous page reads for prefetch. Valid value is an integer in the range 0 - 2147483647.

**Authorization ID** The authorization ID of the thread. It is an alphanumeric text string, with a maximum length of eight characters.

**Authorization ID (Unicode)** The authorization ID of the thread. It is an alphanumeric text string, with a maximum length of eight characters.

**Begin Time** Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do
not terminate (such as CICS primed threads and ims wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

**Cancel Command** The command string needed to cancel a thread. It is an alphanumeric text string, with a maximum length of eight characters.

**CICS MVS ID** The MVS identifier used for CICS dynamic workspace linking.

**Collection ID** The collection ID.

**Collection ID (Unicode)** The collection ID.

**Commit Count** The number of times the thread successfully completed commit processing. DB2 resets the commit count at Create Thread and Signon. If Signon is not driven, the count is cumulative.

**Commit Ratio** The ratio of total system page updates to total commits.

**Connection ID** Identifies the connection of an application to a DB2 system. It is an alphanumeric text string, with a maximum length of eight characters.

**Connection Type** The type of thread connection.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application_Directed</td>
<td>Application directed access</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DB2_CALL_ATTACH</td>
<td>DB2 call attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>DISTRIBUTED</td>
<td>Distributed thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>IMS</td>
<td>IMS thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
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<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
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<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Correlation ID** The correlation ID for this thread. It is an alphanumeric text string, with a maximum length of 12 characters.

**CPU Utilization** The rate of CPU consumption during last interval.
**CP CPU Time** The total amount of central processor CPU time that DB2 has accumulated for a thread.

**CP DB2 CPU Used** The CP CPU time accumulated in DB2 when the SQL statement exit from DB2.

**DB2 Elapsed Time** The elapsed time accumulated in DB2 when the SQL statement exit from DB2.

**DB2 ID** The name of the DB2 system on which this thread is running. It is an alphanumeric text string, with a maximum length of four characters.

**Display CPU Time** The total amount of CPU time that DB2 has accumulated for a thread.

Valid format is HH:MM:SS:mmm, where:
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

If the time goes over 24 hours, the format is DD-HH:MM where:
- D = Day
- H = Hour
- M = Minute

For example, 00:14:59 indicates that the display CPU time is 14 minutes and 59 seconds.

**Display Elapsed Time** The total amount of elapsed time since thread creation or DB2 sign-on.

Valid format is DD-HH:MM:SS, where:
- D = Day
- H = Hour
- M = Minute
- S = Second

For example, 00-20:16:18 indicates that the display elapsed time is 20 hours, 16 minutes, and 18 seconds.

**Display Wait Time** The total amount of thread wait time. The collection of thread wait time requires activation of Accounting Class 2 in the monitored DB2 subsystem.

Valid format is HH:MM:SS:mmm, where:
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

If the time goes over 24 hours, the format is DD-HH:MM where:
- D = Day
- H = Hour
• M = Minute

For example, 00:14:59 indicates that the display CPU time is 14 minutes and 59 seconds.

**Distributed Bytes Received** The amount of data received by distributed threads from remote DB2.

**Distributed Bytes Received 64** The amount of data received by distributed threads from remote DB2. It has a length of 64 bit to resolve overflow problems.

**Distributed Bytes Sent** The amount of data sent by distributed threads to remote DB2.

**Distributed Bytes Sent 64** The amount of data sent by distributed threads to remote DB2. It has a length of 64 bit to resolve overflow problems.

**Distributed CPU Seconds** The amount of CPU time being used by a distributed DB access thread (in units that represent milliseconds).

**Dynamic Prefetch** The number of dynamic prefetch requests. Valid value is an integer in the range 0 - 2147483647.

**Elapsed Time** The elapsed time for a DB2 thread (in units that represent seconds).

**Getpage Count** The number of get page operations for this thread during the last interval.

**Getpage Ratio** The number of Get pages divided by the Read I/O count.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**Immediate Write I/O** The number of synchronous write I/O requests that DB2 issues on behalf of a thread. Valid value is an integer in the range 0 - 2147483647.

**In-DB2 IIP CPU Time** The IIP CPU time consumed when executing in DB2.

**In Doubt** If True, the thread is in an INDOUBT status. It is an alphanumeric text string, with a maximum length of one character.

**Interval Time** The amount of time this thread has existed during the last sampling period (in units that represent seconds).

**Job Name** The job name connected to a coupling facility structure. It is an alphanumeric text string with a maximum of 8 characters; for example, IRLM.

**List Prefetch** The number of list prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

**Lock Percentage** The number of locks owned divided by the maximum allowed locks for a thread.

**Locks Max** The maximum number of locks allowed for a single thread.

**Locks Owned** The number of locks this thread currently owns.
LUWID The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the LuwId field displays data such as the following:

USCAC001.02D22A.A1FE8E04B9D4=8

Misc Flag Miscellaneous flag. It is an alphanumeric text string, with a maximum length of one character.

MVS System The name of the MVS image where the DB2 system identified by the DB2ID field is running. It is an alphanumeric text string, with a maximum length of four characters.

Name The name of the DB2 thread. It is an alphanumeric text string, with a maximum length of four characters.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package DBRM (Unicode) The package DBRM name.

Package Name The name of the package to which this thread belongs.

Page Update Rate The number of page update requests per second made by a thread.

Plan Name The ID of the plan this thread is executing. It is an alphanumeric text string, with a maximum length of eight characters.

Parent Ace The token used to correlate parallel task or utility subtask records with the records of the originating task or main utility task. For a record that is issues from a parallel task or utility subtask this field contains a token that is equal to the agent control element (ACE) of the originating task or main utility task. Otherwise, the value in this field is zero.

Prefetch Count The number of sequential, prefetch operations during the interval.

Prefetch Rate The read sequential, prefetch rate.

Read Count The number of read operations during the interval.

Read I/O Rate The thread synchronous read I/O rate.

Resource Count The total resource count.

Resource Limit The limit on number of resources allowed.

Resource Limit Percent The resource usage divided by resource limit.
**Sync Read Count** The number of synchronous reads during last interval.

**Thread Connection Type** The type of thread connection.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
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<tbody>
<tr>
<td>BATCH</td>
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<td>IMS transaction BMP</td>
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<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
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<td>DB2 Utility</td>
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</tbody>
</table>

**Thread Create Wait** The application waiting for thread creation. It is an alphanumeric text string, with a maximum length of one character.

**Thread Group Member Name** The name of the member within a data sharing group for a thread.

**Thread Group Name** The name of a data sharing group for a thread. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDDB241G.

**Thread Status** The description of the current thread status. It is an alphanumeric text string, with a maximum length of 12 characters.

Valid values are:

**Status**  **Description**

NOT-AVAIL  The thread is not available.

IN-ABORT   The thread is in abort processing.

IN-ACCEL    The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC The thread is processing an autonomous procedure.

IN-BIND-DYNM The thread is in dynamic bind processing.
IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.
WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MGSSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

**WAIT-ACCEL**
The thread is currently waiting for claimers to be released after acquiring drain lock.

**WAIT-CLAIMER**
The thread is currently waiting for claimers to be released after acquiring drain lock.

**WAIT-CL3LOCK**
The thread is currently waiting for the completion of an identify call to the IRLM.

**WAIT-COMMIT**
The thread is waiting for the FORCE-AT-COMMIT event to complete.

**WAIT-DRNLOCK**
The thread is currently waiting to acquire drain lock.

**WAIT LOB**
The thread is currently waiting for TCP/IP to materialize a LOB.

**WAIT-LOCKLAT**
The thread is waiting for a LOCK-I/O-LATCH.

**WAIT-LOCKPIP**
The thread is currently waiting for a PIPE suspend.

**WAIT-LOCKPQS**
The thread is currently suspended for parallel task synchronization.

**WAIT-LOGQSCE**
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

**WAIT-PGLATCH**
The thread is currently waiting for page latch.

**WAIT-SP-SCHD**
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

**WAIT-SWITCH**
The thread is currently waiting for the completion of a synchronous execution switch.

**WAIT-SYNC-IO**
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

**Note:** This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

**Thread Stored Procedure Name** The name of the stored procedure that a thread invokes. It is an alphanumeric text string, with a maximum of 18 characters; for example, SPCALC_TAX.
Thread Token The thread token used as foreign key to DDF, also used for the cancel thread command.

Thread Type The type of thread. It can be:

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<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
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<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
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</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

Thread Wait Time The total amount of thread wait time. It is an integer in the range 09 - 99999999 seconds. Note: collection of thread time requires activation of Accounting Class 2 in the Monitored DB2 subsystem.

Time The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:
• C = Century (0 for 20th, 1 for 21st)
• Y = Year
• M = Month
• D = Day
• H = Hour
• M = Minute
• S = Second
• m = Millisecond

Type Indicator Indicates the type of parallel thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Not a parallel thread</td>
</tr>
<tr>
<td>Parent</td>
<td>Parallel thread is a parent</td>
</tr>
<tr>
<td>Child</td>
<td>Parallel thread is a child</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Autonomous SP</td>
<td>Originating thread which invoked autonomous stored procedures</td>
</tr>
</tbody>
</table>

**Unsuccessful Get Page Operation** The number of conditional getpage requests that failed. Valid value is an integer in the range 0 - 2147483647.

**Update Count** The number of update operations during last interval.

**Wait Resource** The resource being waited on. It is an alphanumeric text string, with a maximum length of six characters.

**Wait Time** Total class3 wait time for a thread.

**Wait Time Distributed Query** The time distributed allied thread has been waiting for response - remote SQL (in units that represent milliseconds).

**Wait Time Drain Claims** The time thread waiting for drain of claims.

**Wait Time Drain Lock** The time thread waiting for acquisition of drain lock.

**Wait Time Global Lock** The time thread waiting because of global contention.

**Wait Time Log Queue** The time thread waiting for ARCHIVE LOG MODE(QUIESCE).

**Wait Time Procedure** The time thread waiting for a TCB to schedule a stored procedure.

**Wait Time Resource** The time thread waiting for a resource.

**Wait Time Service** The time thread waiting for DB2 Service (in units that represent milliseconds).

**DB2 Volume Activity Attributes**
Use the DB2 Volume Activity attributes to create situations to monitor the status and performance of DB2 volume activity.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum length of eight characters.

**DB2 IO Percent** The percentage of DB2 I/O activity to the volume. Valid entry ranges from 0.0 to 100.0.

**DB2 ID** The name of the DB2 subsystem. It is an alphanumeric text string, with a maximum length of four characters.

**Extents per Data Set Ratio** The ratio of total extents allocated to the total data set count.

**Filler** A placeholder to keep fullword alignment.

**IDNAME** An internal attribute used for navigation, it contains either the data sharing group name or the DB2ID. It is an alphanumeric text string, with a maximum length of eight characters.
**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string, with a maximum length of four characters.

**Number of Data Sets** The total number of allocated data sets for the DB2 subsystem being monitored.

**Number of DB2 systems** The total number of monitored DB2 systems that are sharing this volume.

**Number of Extents** The number of extents the operating system has allocated for a data set.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:
- **C** = Century (0 for 20th, 1 for 21st)
- **Y** = Year
- **M** = Month
- **D** = Day
- **H** = Hour
- **M** = Minute
- **S** = Second
- **m** = Millisecond

**Volume DB2 IO** The total number of I/Os for this volume originating from the DB2 system being monitored.

**Volume DB2 IO Rate** The total number of I/Os per second for the volume originating from the DB2 subsystem being monitored.

**Volume DB2 IO Rate MAX** The maximum I/O rate per second during the collection period.

**Volume Name** The name of the volume that contains the DB2 objects. It is an alphanumeric text string, with a maximum length of six characters.

**Volume Service Time** The average service time for the volume since the beginning of the collection interval.

**Volume Service Time MAX** The maximum service time for the volume since the beginning of the collection interval.

**Volume Total IO** The total number of I/Os for this volume.

**Volume Total IO Rate** The total number of I/Os per second for the volume.
Volume Use Percent The percentage of DB2 I/O activity to the volume that is attributable to the database, computed by dividing the total I/O rate for the database by the total DB2 I/O rate to the volume. Valid entry ranges from 0.0 to 100.0.

Volume Utilization The percentage of volume utilization, which represents the percent of time the volume is in use. Valid entry ranges from 0.0 to 100.0.

Distributed Thread Detail Attributes
Use the Distributed Thread Detail attributes to create situations that monitor VTAM APPC conversations and TCP/IP conversations of a distributed (DDF) thread.

Aborts Received The number of rollback requests received from the requesting location (single-phase commit operators only). This value is maintained at the server location.

Aborts Sent The number of rollback requests sent to the server location (single-phase commit operations only). This value is maintained at the requesting location.

Ace Address The ace address.

Agent Address The agent address.

AGNT ASID The address space ID (ASID) of the agent.

Agent TCB Address The Agent TCB address.

Allocations Received The number of create database access thread (DBAT) requests received by the server DBAT from the requester allied agent. This value is maintained by the server DBAT and is always 1.

Allocations Sent The number of successful conversation allocations. All allocation attempts, whether successful or not, are counted in QLACCNVS. The difference between QLACCNVS and QLACCNVA can be used to identify a session resource on resource constraint problem.

Application Directed Access If using application directed access, this is on.

Authorization ID The authorization ID.

Authorization ID (Unicode) The authorization ID.

Backouts Received The number of backout requests received from the coordinator (two-phase commit operations only).

Backouts Received from Coordinator The number of backout responses received from the participant (two-phase commit operations only). This indicates that the participant voted no to the prepare request.

Backouts Sent The number of backout requests sent to the participant (two-phase commit operations only).
**Backouts Sent to Coordinator** The number of backout responses sent to the coordinator (two-phase commit operations only). This indicates that the participant voted no to the prepare request.

**Binds** The number of static SQL statements that were bound for remote access (DB2 private protocol only). This value is maintained at the requester location.

**Block Mode Switch Count** The number of times a switch was made from continuous block mode to limited block mode (DB2 private protocol only).

**Blocks Received** The number of blocks received using block fetch. This value is maintained at the requester location.

**Blocks Sent** The number of blocks transmitted using block fetch. This value is maintained at the server location.

**Bytes Received** The number of bytes of data received from the server location. More bytes of data might be sent from the server location than are received by the requester because of the way SQL statements are processed internally.

**Bytes Sent** The number of bytes of data sent to the requester location. This value is maintained at the server location.

**Collection** The package collection ID.

**Collection (Unicode)** The package collection ID.

**Commits Performed** The number of commit operations performed with the remote location as the coordinator (two-phase commit operations only).

**Commits Received** The number of commit requests received from the requester location (single-phase commit operations only). This value is maintained as the server location.

**Commits Received Phase 2** The number of commit requests received from the coordinator (two-phase commit operations only).

**Commits Sent** The number of commit requests sent to the server location (single-phase commit operations only). This value is maintained at the requester location.

**Commits Sent Phase 2** The number of commit requests sent to the participant (two-phase commit operations only).

**Distributed Thread Detail Attributes** Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**Distributed Thread Detail Attributes** The type of connection associated with the thread.

Valid values are:
Value | Description
---|---
BATCH | Batch job
CICS | CICS attach
DLIBATCH | DL/I batch
Distributed | Distributed Database Access thread
IMS_BMP | IMS attach BMP
IMS_CTL | IMS control region
IMS_MPP | IMS attach MPP
IMS_TBMP | IMS transaction BMP
DistAllied | Distributed Allied thread
RRSAF | DB2 Resource Recovery Services attachment facility
SYSTEM | System directed access
TSO | TSO foreground and background
UNKNOWN | Unrecognizable connection type
UTILITY | DB2 Utility

**Conversation ID** The conversation ID.

**Conversations Allocated** The number of successful conversation allocations.

**Conversations Deallocated** The number of conversations terminated.

**Conversations Initiated Location** The number of conversations that were initiated from the requester to the server location. This value is updated as the server location.

**Conversations Initiated Thread** The number of conversations that were initiated from the requester location. This value is maintained at the requester.

**Conversations Queued** The number of conversation requests queued by DDF that are waiting for allocation. This value is maintained at the requester location. If the value is a large number, you might want to increase the limit for the number of conversations. See SE for the number of conversations.

**Conversation Status** The conversation status.

**Correlation ID** The correlation ID.

**DBAT CPU** The database access agent CPU time at the serving location.

**DBAT Elapsed** The elapsed time at the requester. It includes the total of DB2 and network time (DB2 field name: ADDSELRQ).

**DB2 ID** The DB2 subsystem ID.

**End User ID** The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (DB2 field name: QWHCEUID).
Forgets Received  The number of forget responses received from the participant (two-phase commit operations only). This indicates that the participant was read only.

Forgets Sent  The number of forget responses sent to the coordinator (two-phase commit operations only). This indicates that the participant was read only.

From Location  The location from.

Host Name  The host name.

Interval Start  The start time of this interval.

IP Address  The TCP/IP address (prior to DB2 9).

Last Agents Received  The number of last agent requests received from the initiator (two-phase commit operations only). This counter is incremented when the DB2 server is receiving a last agent request from its upstream partner.

Last Agents Sent  The number of last agent requests sent to the coordinator (two-phase commit operations only).

Last Appc Request  The conversation last appc request issued.

Last Appc Qualifier Used  The conversation last appc qual issued.

Location  The requesting location.

Location (Unicode)  The requesting location.

Logical Unit Name  The conversation Logical Unit name.

Maximum Conversations  The largest number of conversations open at any time.

Message Buffer Rows  The number of rows transmitted in message buffers using block fetch. This field is maintained at both the requester and the server locations.

Messages Received  The number of messages received from the location. More messages might be sent from the server location than are received by the requester because of the way SQL statements are processed internally. This value is maintained internally.

Messages Sent  The number or messages sent to the location. A message, as defined by VTAM, is a group of characters and control IT sequences transferred as an entity. This value is maintained at the location where the messages originated.

MVS ID  The MVS system identifier.

Number In Doubt  The number of threads that became INDOUBTz with the remote location as the coordinator (two-phase commit operations only). This indicates that communication with the coordinator was lost.

Originating System ID  The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.
Package DBRM The package DBRM name.

Package DBRM (Unicode) The package DBRM name.

Plan The plan name.

Port The TCP/IP port number.

Prepares Received The number of prepare requests received from the coordinator (two-phase commit operations only).

Prepares Sent The number of prepare requests sent to the participant (two-phase commit operations only).

Product Name Shows the ACCRDB PRID parameter of the DDM command, where "ACCRDB" is the product specific ID of the "access relational database" and "PRID" is the product ID of the requester. The value is zero if the record is written at the application requester location.

Protocol Used The protocol used.

Remote Elapsed Time The remote elapsed time.

Remote Wait Time The time spent waiting for remote response.

Request Commits Received The number of request commit responses received from the participant (two-phase commit operations only).

Request Commits Sent The number of request commit responses sent to the coordinator (two-phase commit operations only).

Rollbacks Remote The number of rollback operations performed with the remote location as the coordinator (two-phase commit operations only).

Row Count The row counter.

Rows Received The number of rows of data retrieved from the server location (the count does not include either the SQLDA or SQLCA if they are transmitted). This value is maintained at the requester location.

Rows Send The number of rows of data sent to the requester location (includes SQLDA). This value is maintained at the server location.

Service Name The EXSCAT SRVNAM parameter.

Session ID The session ID.

Srvclsnm The EXSCAT SRVNAM parameter.

SQL Calls Received The number of SQL statements received from the requester.

SQL Calls Sent The number of SQL statements sent to the server. This value is maintained at the requester location.

System Access System access.
**Thread Type** The thread type is DBACCESS/ALLIED.

**Time Since Last VTAM Request** The time since the last VTAM request was issued.

**Transaction ID** The transaction ID at the workstation.

**Uniqueness Value** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

**Uniqueness Value 2** The DB2 thread uniqueness value. For internal use.

**VTAM Logmode** The VTAM log mode entry name in use by the session.

**VTAM Luname** The location Logical Unit name.

**Workstation ID** The workstation ID.

**DSG DB2 Parameters**  
Use DSG DB2 Parameters attributes to view DB2 parameters for data sharing groups.

**DB2 ID** The DB2 subsystem ID.

**Data Sharing Group** The name of the Data Sharing Group.

**Data Sharing Member** The name of the Data Sharing Group Member.

**Field Description** The description of the data field.

**Field Name** The name of the data field.

**Field Value** The data value.

**Interval Start** The start time of this interval.

**MVS System ID** The MVS system identifier.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Sequence Number** The sequence number of the data field.

**DSG GBP CF Statistics Attributes**  
Use these attributes to view the group buffer pool (GBP) coupling facility (CF) statistics of the Data Sharing Group (DSG).

**Changed Page Write Hit Counter Secondary GBP** The number of successful coupling facility write requests for changed pages (Field name: QW02542W).

**Changed Page Write Hit Counter** This is the number of times a coupling facility write request for a changed page successfully completed (Field name: QW0254WH).
Clean Page Write-Hit Counter This is the number of times a coupling facility write request for a clean page completed successfully (Field name: QW0254WC).

DB2 Subsystem The DB2 subsystem ID.

DB2 Version The DB2 version.

DSG Member Name The Data Sharing Group (DSG) member name.

Data Entry Counter of Secondary GBP This is the snapshot value of the number of allocated data entries (Field name: QW02542T).

Data Entry Reclaim Counter This is the number of times a name assignment required that a data page must be reclaimed by the coupling facility (Field name: QW0254TR).

Data Sharing Group The data sharing group name.

Dir Counter for Secondary Group Buffer Pool The directory-entry counter for the secondary group buffer pool. This is the snapshot value of the number of allocated directory entries (Field name: QW02542D).

Directory Entry Reclaim Counter This is the number of times a name assignment required that a directory entry must be reclaimed by the coupling facility (Field name: QW0254DR).

Explicit XI Requests This is the number of times that a request was made to the coupling facility to explicitly cross-invalidate a page. XI signals were sent because the named page was cached in one or more DB2 buffer pools (Field name: QW0254CI).

Global Group Buffer Pool Name The name of the global group buffer pool for which statistics are reported.

Global Group Buffer Pool ID The number of the global group buffer pool for which statistics are reported (Field name: QW0254GN).

Interval Start The start time of this interval.

MVS System ID The MVS identifier.

Number of Allocated Data Entries (snapshot) This is the number of data entries allocated for the coupling facility cache structure (DB2 group buffer pool). Data entries are the actual places where the data page resides. This is a snapshot value and is not affected by whether this is an incremental or cumulative display (Field name: QW0254TE).

Number of Allocated Directory Entries (Snapshot) This is the number of directory entries allocated for the coupling facility cache structure (DB2 group buffer pool). A directory entry contains control information for one database page. A directory entry is used by the coupling facility to determine where to send cross-invalidation signals when a page of data is changed or when the directory entry must be reused. This is a snapshot value and is not affected by whether this is an incremental or cumulative display (Field name: QW0254DE).
**Number of Castout Operations Performed** This is the number of castout operations performed. Castout is the process of writing pages from the group buffer pool to DASD (Field name: QW0254CC).

**Number of Data Entries in Changed State** This is the snapshot value of the current number of changed pages. The displayed value of this counter is not affected by whether this is an incremental or cumulative display (Field name: QW0254TC).

**Originating System** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Read Count** The total read count (Field name: SW254RDC).

**Read Hit Counter** This is the number of times that a page was returned on a coupling facility read request (Field name: QW0254RH).

**Read Hit Percent** The percentage of read hits (Field name: SW254RHR).

**Read Miss Directory Hit Counter** This is the number of times that a coupling facility read request specified a page for which a directory entry exists, but no data was cached for that page (Field name: QW0254RD).

**Read Miss Assignment Suppressed Counter** This is the number of times that a coupling facility read request specified a page for which no directory entry exists and no directory entry is created. DB2 does not create a directory entry when it does not need to register the page to the coupling facility for cross-invalidation (XI) because no other DB2 in the group has R/W interest in the page set or partition. This counter also represents the number of times that pages are deregistered due to buffer stealing (Field name: QW0254RS).

**Read Miss Cache Full Counter** This is the number of times that a coupling facility read request specified a page for which no directory entry exists and no directory entry is created because of a lack of storage in the group buffer pool. A nonzero value in this field indicates that the backing coupling facility cache structure size might be too small to support the current workload (Field name: QW0254RF).

**Read Miss Name Assigned** This is the number of times that a coupling facility read request specified a page for which a directory entry was created (Field name: QW0254RN).

**Total Changed Counter for Secondary GBP** This is the snapshot value of the number of allocated data entries that are currently in changed state (Field name: QW02542C).

**Write Miss Secondary Cache Full Counter** This is the number of coupling facility write requests that could not complete because of insufficient coupling facility storage resources (Field name: QW02542F).

**Write Miss Cache Full Counter** This is the number of times a coupling facility write request was not completed because of a lack of storage in the group buffer pool. A value in this field indicates that the data page resources of the coupling facility are being consumed faster than the DB2 castout process can free them. For more information about alleviating this condition refer to DB2 data sharing, planning and administration (Field name: QW0254WF).
**XI Directory Entry Reclaim Counter** This is the number of times a directory entry was reclaimed (stolen) and cross-invalidation (XI) signals had to be sent (that is, the stolen directory entry had registered DB2 interest). A high number might indicate a problem. Check the group buffer pool hit ratio to determine if the lack of directory entries might be causing excessive reads from the group buffer pool (Field name: QW0254XR).

**DSG Group Buffer Pool (GBP) Attributes**

Use these attributes to view the group buffer pool (GBP) of the Data Sharing Group (DSG).

- **Asynch GBP Requests** The number of asynchronous requests for the primary group buffer pool (Field name: QBGLHS).

- **Castout Class Threshold** The number of times group buffer pool castout was initiated because the class castout threshold was detected (Field name: QBGLCT).

- **Clean Pages Written Asyn** The number of clean pages asynchronously written to the group buffer pool (DB2 field name: QBGLAC).

- **DB2 Subsystem** The DB2 subsystem ID.

- **DB2 Version** The DB2 version.

- **DSG Member Name** The Data Sharing Group (DSG) member name.

- **Data Sharing Group** The Data Sharing Group name.

- **Delete Name** The number of group buffer pool requests to delete all directory and data entries for a page set or partition. DB2 issues this request when it converts a page set or partition from GBP-dependent to non GBP-dependent. For objects defined with GBPCACHE ALL, DB2 issues this request when the first DB2 member opens the object (Field name: QBGLDN).

- **Explicit Cross-Invalidation** The number of explicit cross-invalidations (Field name: QBGLEX).

- **GBP Checkpoints Triggered** The number of group buffer pool checkpoints triggered by this member (Field name: QBGLCK).

- **Group Buffer Castout Threshold** The number of times group buffer pool castout was initiated because the group buffer pool castout threshold was detected (Field name: QBGLGT).

- **Group Buffer Pool ID** The group buffer pool ID (Field name: QBGLGN).

- **Group Buffer Pool Name** The group buffer pool name (Field name: QBGLGNC).

- **Hit Ratio** The hit ratio (Field name: SGBPHITP).

- **Interval Start** The start time of this interval.

- **MVS System ID** The MVS identifier.

- **Number of Write and Register requests** The number of write and register (WAR) requests. one page is written for each request (Field name: QBGLWS).
**Originating System** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; example, DB91:SYS1:DB2.

**Page Locks For Data Pages** The number of page P-lock requests for data pages (Field name: QBGLP2).

**Page Locks For Index Pages** The number of page P-lock requests for index leaf pages (Field name: QBGLP3).

**Page Locks For Space Maps** The number of page P-lock requests for space map pages (Field name: QBGLP1).

**Page P-Lock Suspensions for Space Maps** The number of page P-lock suspensions for space map pages (Field name: QBGLS1).

**Page P-Lock Suspensions for Data Pages** The number of page P-lock suspensions for data pages (Field name: QBGLS2).

**Page P-Lock Suspensions for Index Leaf Pages** The number of page P-lock suspensions for index leaf pages (Field name: QBGLS3).

**Page Unlocks** The number of page P-lock unlock requests (DB2 field name: QBGLU1).

**Page in Write Around** The number of changed pages that were written to disk through group buffer pool write-around due to conditional write failures to the group buffer pool (Field name: QBGLWA).

**Pages Castout** The number of pages cast out from the group buffer pool to DASD (DB2 field name: QBGLRC).

**Pages Written Via WARM** The number of pages that were written using write and register multiple (Field name: QBGLWP).

**Participate in GBP rebuild** The number of coupling facility requests to write changed pages to the secondary group buffer pool for duplexing (Field name: QBGL2W).

**Read Castout Class** The number of coupling facility requests to read the castout class (Field name: QBGLCC).

**Read Castout Statistics** The number of coupling facility requests to read the castout statistics (Field name: QBGLCS).

**Read Directory Info** The number of coupling facility requests to read directory information (Field name: QBGLRD).

**Read Storage Statistics** The number of coupling facility requests to read storage statistics. The group buffer pool structure owner issues this request once for each checkpoint (Field name: QBGLOS).

**Read for Castout Multiple Requests** The number of read-for-castout-multiple requests. Each request is for multiple pages (Field name: QBGLCM).

**Read for Castout Requests** The number of read-for-castout requests. Each request is for a single page (Field name: QBGLCR).
Reads Prefetch Changed Pages Read After Register The number of coupling facility reads to retrieve a changed page from the group buffer pool as a result of feedback from the request to register a page list (see Reads Prefetch Register Page List Request (QBGLAX)) (Field name: QBGLAY).

Reads Prefetch Register Page List Request The number of requests to register a page list in the coupling facility. DB2 prefetch can do this only if the group buffer pool is allocated in a coupling facility with CFLEVEL=2 or above (Field name: QBGLAX).

Register Page The number of coupling facility requests to register a page (Field name: QBGLRG).

Secondary Async GBP Requests The number of asynchronous requests for the secondary group buffer pool (Field name: QBGL2H).

Secondary Delete Name List The number of group buffer pool requests to the secondary group buffer pool to delete a list of pages after they were cast out from the primary group buffer pool (Field name: QBGL2D).

Secondary Delete Name The number of group buffer pool requests to delete a page from the secondary group buffer pool (Field name: QBGL2N).

Secondary Read Castout Statistics The number of coupling facility requests to read the castout statistics for the secondary group buffer pool (Field name: QBGL2R).

Sync read XI Data returned The number of synchronous coupling facility read requests caused by the buffer that is marked invalid. Data is returned from the group buffer pool (Field name: QBGLXD).

Sync read XI No data returned The number of synchronous coupling facility read requests caused by the buffer that is marked invalid. Data is not returned from the group buffer pool and a directory entry is created if it does not already exist. This means another DB2 in the group has R/W interest in the page set or partition (Field name: QBGLXR).

Synch read (not found) No data returned The number of synchronous coupling facility reads necessary because the requested page was not found in the buffer pool to which data was not returned (Field name: QBGLMR).

Synchronous read (not found) Data returned The number of synchronous coupling facility reads necessary because the requested page was not found in the buffer pool to which data was returned from the group buffer pool (Field name: QBGLMD).

Total P-Lock Negotiations The sum of all page P-lock lock negotiations (Field name: SBGLPLN).

Total P-Lock Negotiations Data Pages The number of page P-lock negotiations for data pages (Field name: QBGLN2).

Total P-Lock Negotiations Index leaf Pages The number of page P-lock negotiations for index leaf pages (Field name: QBGLN3).
Total P-Lock Negotiations Space Map Pages The number of page P-lock negotiations for space map pages (Field name: QBGLN1).

Total Lock Suspensions The sum of all page P-lock lock suspensions (Field name: SBGLPLS).

Total P-Page Lock Requests The sum of all page P-lock lock requests (DB2 field name: SBGLPLR).

Unlock Castout The number of coupling facility requests to unlock the castout lock on the pages (Field name: QBGLUN).

Unregister Page The number of coupling facility requests to unregister a page (Field name: QBGLDG).

Write Failed No Storage The number of coupling facility write requests that could not complete because of a lack of coupling facility storage resources (Field name: QBGLWF).

Write and Register Multiple requests The number of write and register multiple (warm) requests. Multiple pages are written for each request (Field name: QBGLWM).

 Writes Changed pages Written async The number of changed pages asynchronously written to the group buffer pool under a system execution unit (DB2 field name: QBGLAW).

 Writes Changed pages Written sync The number of changed pages synchronously written to the group buffer pool under a user's execution unit (Field name: QBGLSW).

 Writes Clean pages Written sync The number of clean pages synchronously written to the group buffer pool under a user's execution unit (Field name: QBGLWC).

DSG SQL Count Attributes
Use these attributes to view the SQL count of the Data Sharing Group (DSG).

DB2 Subsystem The DB2 subsystem ID.

DB2 Version The DB2 version.

Data Sharing Group The Data Sharing Group name.

Data Sharing Member The Data Sharing Group (DSG) member name.

Delta Value The change since last sample.

Field Name The data field name.

Field Value The data field value.

Interval Start The start time of this interval.

Interval Time The collection interval time.
MVS System ID The MVS identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; example, DB91:SYS1:DB2.

Rate The amount over last sampling interval.

Sequence Number The data field sequence number.

Dynamic SQL Cache Attributes
Use these attributes to view dynamic SQL cache information.

AVG Actual Degree The average actual degree of parallelism for all parallel groups. The actual degree of parallelism is calculated at execution time, after buffer pool negotiation and system negotiation are taken into account (Field name: Q316ACT).

AVG Estimated Degree The average estimated degree of parallelism for all parallel groups. The estimated degrees are calculated at bind time, based on the cost formula. The average is calculated at execution time (Field name: Q316ESTI).

AVG Planned Degree The average planned maximum degree of parallelism for all parallel groups. The average is calculated at execution time. It is the optimal degree of parallelism that can be obtained at execution time, after host variables or parameter markers are resolved, and before buffer pool negotiation and system negotiation are performed (Field name: Q316PLAN).

Auth ID The text of the user ID. If QW0316T3_OFF is not 0, this value is truncated (Field name: QW0316T3).

CPU Time The accumulated CPU time. This value includes CPU time that is consumed on an IBM specialty engine (Field name: QW0316CT).

Claim Rel Wait The accumulated wait time for drains during waits for claims to be released (Field name: QW0316WA).

Coll Begin STCK The timestamp when statistics collection began. Data collection begins when a trace for IFCID 318 is started (Field name: QW0316TS).

Copies of Statements The number of copies of the STMT owned by all threads in the system. This includes QW0316US plus any copies owned by plans/packages bound with KEEP_DYNAMIC(YES) that were not used in their current unit of work. These users prepared the statement in a previous unit of work and still have it in a prepared state (Field name: QW0316CP).

Current users The number of current users of STMT. These are the users that have prepared or executed the statement during their current unit of work (Field name: QW0316US).

DB2 Subsystem The DB2 subsystem ID.

DB2 Version The DB2 version.

DSG Member Name The Data Sharing Group (DSG) member name.
Data Sharing Group  The Data Sharing Group name.

Drain Lock Wait  The accumulated wait time for drain locks (DB2 field name: QW0316W9).

Elapsed Time  The accumulated elapsed time used for statement (Field name: QW0316AE).

End User ID  The end-user ID. This value is provided during RRS signon or re-signon (Field name: SQW316XE).

Filler  Filler for padding.

Get Pages  The number of GETPAGE operations performed for statement (Field name: QW0316NG).

Global Lock Wait  The accumulated wait time for global locks (Field name: QW0316W4).

Global child\L-locks wait  Waits due to global contention for child L-locks (Field name: QW0316WC).

Global other\L-locks wait  Waits due to global contention for other L-locks (Field name: QW0316WD).

Global P/P P-locks wait  Waits due to global contention for Pageset/Partition P-locks (Field name: QW0316WE).

Global Page\P-locks wait  Waits due to global contention for Page P-locks (Field name: QW0316WF).

Global Other\P-locks wait  Waits due to global contention for other P-locks (Field name: QW316WG).

Index Scans  The number of index scans performed for statement (Field name: QW0316NI).

Insert Date Time  The date and time when the statement was inserted into the cache (in DB2 timestamp format) (Field name: QW0316TM).

Interval Start  The start time of this interval.

Latch Req Wait  The accumulated wait time for latch requests (Field name: QW0316W7).

Lock-Req Wait  The accumulated wait time for lock requests (Field name: QW0316W2).

Log Write Wait  The accumulated wait time for log writers. (Field name: QW0316WB).

MVS System ID  The MVS identifier.

Originating System  The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.
**Page Latch Wait** The accumulated wait time for page latches (Field name: QW0316W8).

**Parallel Groups Created** The number of parallel groups created for this statement (Field name: QW0316NL).

QW0316NM 1 Part 1 of QW0316NM.
QW0316NM 2 Part 2 of QW0316NM.
QW0316NM 3 Part 3 of QW0316NM.
QW0316NM 4 Part 4 of QW0316NM.

**RIDs HB Join/Limit** The number of times that appending to a RID list for a hybrid join was interrupted because the number RIDs exceeded one or more internal limits (Field name: QW316HJT).

**RIDs HB Join/Storage** The number of times that appending to a RID list for a hybrid join was interrupted because no RID pool storage was available to hold the list of RIDs (Field name: QW316HJS).

**RIDs No IX Access** The number of times that RID list retrieval for multiple index access was not done because DB2 could determine the outcome of index ANDing or ORing (Field name: QW316RSM).

**RIDs Not Used/Limit** The number of times that a RID list was not used because the number of RIDs exceeded one or more internal DB2 limits, and the number of RID blocks exceeded the value of subsystem parameter MAXTEMP_S_RID (Field name: QW0316RT).

**RIDs Not Used/Storage** The number of times that a RID list was not used because not enough storage was available to hold the RID list, or work file storage or resources were not available (Field name: QW0316RS).

**RIDs Overflow/Limit** The number of times that a RID list overflowed to a work file because the number of RIDs exceeded one or more internal limits (Field name: QW316WRT).

**RIDs Overflow/Storage** The number of times that a RID list overflowed to a work file because no RID pool storage was available to hold the list of RIDs (Field name: QW316WRS).

**Read Activity Wait** The accumulated wait time for read activity that is done by another thread (Field name: QW0316W5).

**Rows Examined** The number of rows examined for statement (Field name: QW0316NR).

**Rows Processed** The number of rows processed for statement. For example, the number of rows returned for a SELECT, or the number of rows affected by an INSERT, UPDATE, or DELETE (Field name: QW0316NP).

**SQL Text** The first 60 bytes of statement text (Field name: QW0316TX).
**Sorts Performed** The number of sorts performed for statement (Field name: QW0316NS).

**Statement Identifier** The unique statement identifier. A generated number for uniquely identifying a statement in the prepared statement cache (Field name: QW0316TK).

**Statement Name** The statement name generated by DB2 for this statement (Field name: QW0316NM).

**Stats Insert STCK** The date and time when the statement was inserted into the cache, in store clock format. (Field name: QW316TM2).

**Stats Update STCK** The date and time when the statement was updated, in store clock format (Field name: QW316UT1).

**Stmt Length** The length of entire statement (Field name: QW0316LN).

**Sync I/O Wait** The accumulated wait time for synchronous I/O. This wait time and the following wait times are collected only when a class 3 accounting trace is started (Field name: QW0316W1).

**Sync Switch Wait** The accumulated wait time for a synchronous execution unit switch (DB2 field name: QW0316W3).

**Sync Reads** The number of synchronous buffer reads performed for statement (Field name: QW0316NB).

**Sync Writes** The number of synchronous buffer write operations performed for statement (Field name: QW0316NW).

**Tablespace Scans** The number of tablespace scans performed for statement (Field name: QW0316NT).

**Times Exec.** The number of executions of the statement. For a cursor statement, this is the number of OPENs (Field name: QW0316NE).

**Total Wait** The total wait time for the dynamic SQL statement (Field name: QW0316WT).

**Transaction ID** The transaction name. This value is provided during RRS signon or re-signon (Field name: SQW316T2).

**Update Date Time** The date and time when the statement was updated, in internal format (Field name: QW316UT2).

**Workstation ID** The workstation name. This value is provided during RRS signon or re-signon (Field name: SQW316XF).

**Write Activity Wait** The accumulated wait time for write activity that is done by another thread (Field name: QW0316W6).

**Dynamic SQL Cache 1 Attributes**
Use these attributes to view dynamic SQL cache 1 information.
**Appl Data** User-provided identification string. If QW0316UI_OFF is not 0, this value is truncated (Field name: QW0316UI).

**Current Degree** Current degree special register value: ANY or 1 (Field name: AQW316X9).

**Current Precision** Current precision special register value: DEC31 or DEC15 (Field name: AQW316XB).

**Current Rule** Current rules special register value: DB2 or SQL (Field name: AQW316XA).

**Current Schema** Current schema special register contents (Field name: QW0316SC).

**Current data Bind** CURRENTDATA bind option: YES or NO (Field name: QW02542W).

**Cursor Hold** (DB2 field name: AQW316X7).

**DB2 Subsystem** The DB2 subsystem ID.

**DB2 Version** The DB2 version.

**DSG Member Name** The Data Sharing Group (DSG) member name.

**DSG Member** Data Sharing member that cached the SQL statement (Field name: QW0316MB).

**Data Sharing Group** The Data Sharing Group name.

**Dynamic Rules Bind** DYNAMICRULES bind option: BIND or RUN (DB2 field name: AQW316X8).

**End User ID** End-user ID. This value is provided during RRS signon or re-signon (Field name: QW0316XE).

**Expansion Reason** Expansion reason (Field name: AQW316EX). Possible values are:

- 'A' The query contains an implicit query transformation that was caused by the sysibmadm.get_archive built-in global variable.
- 'B' The query contains an implicit query transformation that was caused by the current temporal business_time special register.
- 'S' The query contains an implicit query transformation that was caused by the current temporal system_time special register.
- 'SB' The query contains an implicit query transformation that was caused by the current temporal business_time special register and the current temporal system_time special register.
- '' The query does not contain an implicit query transformation that was caused by the current temporal business_time special register, the current temporal system_time special register, or the sysibmadm.get_archive built-in global variable.
- 'N/A' Data is not available.
**Interval Start** The start time of this interval.

**Isolation Bind** Value of bind option isolation that is in effect for the initial prepare. This value does not reflect that it is specified in a WITH clause (DB2 field name: QW0316X6).

**Literal Replace Indic** Indicator for cache literal replacement (DB2 field name: QW0316LR).

**MVS System ID** The MVS identifier.

**Object Qualifier** Qualifier that is used for unqualified table names. If QW0316X5_OFF is not 0, this value is truncated (Field name: QW0316X5).

**Originating System** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Prepare ID** Text of the user ID. If QW0316T3_OFF is not 0, this value is truncated (Field name: QW0316T3).

**Program Name** Text of the program name. If QW0316T1_OFF is not 0, this value is truncated (Field name: QW0316T1).

**Ref Table Qualifier** Qualifier of the referenced table name. If QW0316QD_OFF is not 0, this value is truncated (Field name: QW0316QD).

**Ref Table** Text of the referenced table name. If QW0316TD_OFF is not 0, this value is truncated (Field name: QW0316TD).

**Statement Identifier** Unique statement identifier. A generated number for uniquely identifying a statement in the prepared statement cache (Field name: QW0316TK).

**Statement Name** Statement name generated by DB2 for this statement (Field name: QW0316NM).

**Statement Status** Status of the statement (Field name: AQW316FL). The statement has actually been removed from the cache but current users might still have an active copy:

**BYDROP**
Invalidated by DROP or ALTER

**BYREVOKE**
Invalidated by REVOKE

**BYLRU**
Removed from cache by LRU

**BYRUNSTA**
Invalidated by RUNSTATS

**UNKNOWN**
No statement status is set

**Transaction Name** Transaction name. This value is provided during RRS signon or re-signon (Field name: QW0316T2).
**User Group** User group (Field name: QW0316X4). User group is the current SQLID of the user who did the initial prepare. If QW0316X4_OFF is not 0, this value is truncated.

**Workstation Name** Workstation name (Field name: QW0316XF). This value is provided during RRS signon or re-signon.

**Dynamic SQL Cache Text Attributes**
Use these attributes to view dynamic SQL cache text information.

**DB2 Subsystem** The DB2 subsystem ID.

**DB2 Version** The DB2 version.

**DSG Member Name** The Data Sharing Group (DSG) member name.

**Data Sharing Group** The Data Sharing Group name.

**Interval Start** The start time of this interval.

**MVS System ID** The MVS identifier.

**Originating System** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Statement Text** The text of the SQL statement (Field name: QW0317TX).

**Statement Name** The name of the SQL statement (Field name: QW0317NM).

**Unique Identifier** The identifier of the SQL statement in hexadecimal (Field name: QW0317ID).

**EDM Pool Attributes**
Use the EDM Pool, DB2 SRM EDM, and DB2 SRM EDM Statistics attributes to create situations to monitor the Environmental Descriptor Manager (EDM) pool activity that is connected with DB2. The attributes depend on the DB2 version installed.

**Available Pages** The total number of EDM pages that are currently available. It is zero for DB2 10 or later.

**Available Percentage** The percentage of EDM Pool that is currently available. Valid entry ranges from 0.0 to 100.0. It is zero for DB2 9 or later.

**Cursor Table Load Rate (CT Loads)** The number of Cursor Table loads from DASD per second.

**Cursor Table Pages** The total number of EDM pages that are currently in use for Cursor Tables. It is zero for DB2 9 or later.

**Cursor Table Percentage** The percentage of EDM Pool that is currently in use for Cursor Tables. Valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.

**Cursor Table Request Rate (Cursor Table Reqs)** The number of Cursor Table requests per second.
<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dataspace Free Pages</strong></td>
<td>The number of free pages in EDM Pool Dataspace.</td>
</tr>
<tr>
<td><strong>Dataspace Total Pages</strong></td>
<td>The total number of pages in EDM Pool Dataspace.</td>
</tr>
<tr>
<td><strong>DB2 ID</strong></td>
<td>The name of a DB2 subsystem.</td>
</tr>
<tr>
<td><strong>DB2 Version</strong></td>
<td>The version of the DB2 system.</td>
</tr>
<tr>
<td><strong>DBD Free Pages</strong></td>
<td>The total number of DBD pages that are currently on free queue.</td>
</tr>
<tr>
<td><strong>DBD Free Percentage</strong></td>
<td>The percentage of DBD that is currently on the free queue. Valid entry ranges from 0.0 to 100.0.</td>
</tr>
<tr>
<td><strong>DBD Held Pct</strong></td>
<td>The percentage of DBD pages that are held.</td>
</tr>
<tr>
<td><strong>DBD Load Rate (DBD Loads)</strong></td>
<td>The number of database descriptor loads from DASD per second.</td>
</tr>
<tr>
<td><strong>DBD Pages</strong></td>
<td>The number of DBD pages that are in use.</td>
</tr>
<tr>
<td><strong>DBD Pages Held</strong></td>
<td>The number of DBD pages that are held.</td>
</tr>
<tr>
<td><strong>DBD Percentage</strong></td>
<td>The percentage of DBD pages that are in use; for DB2 10, this percentage is calculated as 100 - (((stealable+free)/total)*100).</td>
</tr>
<tr>
<td><strong>DBD Request Rate (Database Descriptor Reqs)</strong></td>
<td>The number of database descriptor requests per second.</td>
</tr>
<tr>
<td><strong>DBD Stealable Pages</strong></td>
<td>The current number of stealable pages used for database descriptors (DBDs).</td>
</tr>
<tr>
<td><strong>DBD Total Pages</strong></td>
<td>The total number of pages that are assigned to DBD pool.</td>
</tr>
<tr>
<td><strong>Dynamic SQL Cache</strong></td>
<td>The total number of EDM pages that are currently used for dynamic SQL cache.</td>
</tr>
<tr>
<td><strong>Dynamic SQL Cache Loads (DSC Loads)</strong></td>
<td>The total number of dynamic SQL cache loads from DASD.</td>
</tr>
<tr>
<td><strong>Dynamic SQL Cache Percentage</strong></td>
<td>The percentage of EDM Pool that is currently used for Dynamic SQL caching. Valid entry ranges from 0.0 to 100.0.</td>
</tr>
<tr>
<td><strong>Dynamic SQL Cache Requests (Dynamic SQL Reqs)</strong></td>
<td>The total number of dynamic SQL requests.</td>
</tr>
<tr>
<td><strong>EDM Free Pages</strong></td>
<td>The total number of free pages in the EDM pool (DB2 9 or below) or the DBD pool (DB2 10 or later). It is zero for DB2 10 or later.</td>
</tr>
<tr>
<td><strong>EDM Free Percentage</strong></td>
<td>The percentage of free pages in the EDM pool (DB2 9 or below) or the DBD pool (DB2 10 or later). A valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.</td>
</tr>
<tr>
<td><strong>EDM In Use Pages</strong></td>
<td>The total number of pages that are currently in use in the EDM pool (DB2 9 or below) or the DBD pool (DB2 10 or later). It is zero for DB2 10 or later.</td>
</tr>
</tbody>
</table>
EDM In Use Percentage The percentage of EDM pages (DB2 9 or below) or the percentage of DBD pages (DB2 10 or later) that is currently in use. A valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.

EDM Total Pages The total number of pages that are assigned to the EDM pool (DB2 9 or below) or the DBD pool (DB2 10 or later). It is zero for DB2 10 or later.

Fails because of Dataspace Full The total number of fails because the EDM Pool Dataspace is full.

Fails because of DBD Pool Full The total number of fails because the DBD Pool is full.

Fails because of EDM Pool Full The total number of fails because the EDM Pool is full.

Fails because of RDS Pool Full The total number of fails because the RDS Pool (above) is full.

Fails because of SKEL Pool Full The total number of fails because the Skeleton (SKEL) Pool is full.

Fails because of STMT Pool Full The total number of fails because the Statement (STMT) Pool is full.

Fails because of RDS Pool (below) Full The total number of fails because the RDS Pool (below) is full.

Interval Start The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package Search Not Found Delete The number of not found record deleted from CACHE.

Package Search Not Found Insert The number of not found record added to CACHE.

Package Search Not Found Match The number of CACHED not found record located.

Package Table Load Rate (PT Loads) The number of Package Table loads from DASD per second.

Package Table Pages The total number of pages that are currently in use for Package Table. It is zero for DB2 10 or later.

Package Table Percentage The percentage of EDM Pool that is currently in use for Package Table. Valid entry ranges from 0.0 to 100.0. It is zero for DB2 10 or later.

Package Table Request Rate (Package Table Reqs) The number of Package Table requests per second.
**RDS Above CT Pages**  The number of pages in the RDS pool above the bar used for the cursor tables (CTs). This is a snapshot value. It is zero for DB2 10 or later.

**RDS Above CT Percent**  The percentage of pages that are currently held for cursor table (CT) in the RDS Pool above the bar. It is zero for DB2 10 or later.

**RDS Above Free Pages**  The number of free pages in RDS Pool above the bar. It is zero for DB2 10 or later.

**RDS Above Free Percent**  The percentage of free pages in RDS Pool above the bar. It is zero for DB2 10 or later.

**RDS Above In Use Pages**  The number of pages that are currently in use in RDS Pool above the bar. It is zero for DB2 10 or later.

**RDS Above In Use Percent**  The percentage of pages that are currently in use in RDS Pool above the bar. It is zero for DB2 10 or later.

**RDS Above PT Pages Held**  The number of pages that are currently held for package tables (PT) in RDS Pool above the bar. It is zero for DB2 10 or later.

**RDS Above PT Percentage**  The percentage of pages that are currently held for package tables (PT) in RDS Pool above the bar. It is zero for DB2 10 or later.

**RDS Above Total Pages**  The total number of pages that are assigned to RDS Pool above the bar. It is zero for DB2 10 or later.

**RDS Below Cursor Table Pages**  The number of pages that are currently held for cursor tables in RDS Pool below the bar. It is zero for DB2 10 or later.

**RDS Below Cursor Table Percent**  The percentage of pages that are currently held for cursor tables in RDS Pool below the bar. It is zero for DB2 10 or later.

**RDS Below Free Pages**  The number of free pages in RDS Pool below the bar. It is zero for DB2 10 or later.

**RDS Below Free Percent**  The percentage of free pages in RDS Pool below the bar. It is zero for DB2 10 or later.

**RDS Below In Use Pages**  The number of pages that are currently in use in RDS Pool below the bar. It is zero for DB2 10 or later.

**RDS Below In Use Percent**  The percentage of pages that are currently in use in RDS Pool below the bar. It is zero for DB2 10 or later.

**RDS Below Package Table Pages**  The number of pages that are currently held for package tables in RDS Pool below the bar. It is zero for DB2 10 or later.

**RDS Below Package Table Percent**  The percentage of pages that are currently held for package tables in RDS Pool below the bar. It is zero for DB2 10 or later.

**RDS Below Total Pages**  The total number of pages that are assigned to RDS Pool below the bar. It is zero for DB2 10 or later.

**Skeleton Cursor Table Pages (SKCT Pages)**  The total number of EDM pages that are currently held for skeleton cursor tables (SKCT).
**Skeleton Cursor Table Percentage (SKCT Percentage)** The percentage of EDM that is currently held for skeleton cursor tables (SKCT). Valid entry ranges from 0.0 to 100.0.

**SKEL Free Pages** The number of free pages that are currently in the skeleton (SKEL) Pool.

**SKEL Free Percent** The percentage of free pages that are currently in the skeleton (SKEL) Pool.

**SKEL In Use Pages** The number of pages that are currently in use in the skeleton (SKEL) Pool.

**SKEL In Use Percentage** The percentage of pages that are currently in use in the skeleton (SKEL) Pool; for DB2 10, this percentage is calculated as 100 - (((stealable+free)/total)*100).

**SKEL Pool Pages** The current number of pages in the skeleton (SKEL) Pool above the bar.

**SKPT Pages** The total number of pages that are currently held for skeleton package tables (SKPT).

**SKPT Percentage** The percentage of pages that are currently held for skeleton package tables (SKPT). Valid entry ranges from 0.0 to 100.0.

**SKPT Stealable Pages** The total number of stealable pages used for skeleton package tables (SKPT) pages that can be reused.

**Statement Free Pages** The number of free pages that are currently in the Statement Pool.

**Statement Free Percent** The percentage of free pages that are currently in the Statement Pool.

**Statement in Global Cache** The number of statements in Global Cache.

**Statement Held Percentage** The percentage of pages that are currently held in the Statement Pool.

**Statements Pages Held** The number of pages that are currently held in the Statement Pool.

**Statement Total Pages** The current number of pages in the EDM Statement pool above the bar. This is a snapshot value.

**EDM Pool Statistics Attributes**
Use these attributes to view the Environmental Descriptor Manager (EDM) pool statistics.

4 bytes filler Not used.

CT Pages Used Not used.

DB2 Subsystem The DB2 subsystem ID.
<table>
<thead>
<tr>
<th><strong>DB2 Version</strong></th>
<th>The DB2 version.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DBD Pages Free</strong></td>
<td>The number of free pages in the EDM DBD (Field name: QISEDRE).</td>
</tr>
<tr>
<td><strong>DBD Pages Held</strong></td>
<td>The number of pages used for DBDs (Field name: QISEDDBD).</td>
</tr>
<tr>
<td><strong>DBD Pages</strong></td>
<td>The number of pages in the EDM DBD cache (Field name: QISEDPE).</td>
</tr>
<tr>
<td><strong>DBD Stealable pages</strong></td>
<td>The total number of DBD pages that can be reused (Field name: QISEDRLRU).</td>
</tr>
<tr>
<td><strong>DBD in Use (MB)</strong></td>
<td>The amount of storage used by database descriptors in the EDM DBD pool above the 2 GB bar (Field name: SISEDDBP).</td>
</tr>
<tr>
<td><strong>DBD in Use Percent</strong></td>
<td>The percentage of DBD pages in use expressed as a complement of the percentage of available DBD pages (ratio of stealable and free pages to the total number) (Field name: SISEDPIU).</td>
</tr>
<tr>
<td><strong>DSG Member Name</strong></td>
<td>The Data Sharing Group (DSG) member name.</td>
</tr>
<tr>
<td><strong>Data Sharing Group</strong></td>
<td>The Data Sharing Group name.</td>
</tr>
<tr>
<td><strong>Interval Start</strong></td>
<td>The start time of this interval.</td>
</tr>
<tr>
<td><strong>MVS System ID</strong></td>
<td>The MVS identifier.</td>
</tr>
<tr>
<td><strong>Originating System</strong></td>
<td>The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.</td>
</tr>
<tr>
<td><strong>PT Pages Used</strong></td>
<td>Not used.</td>
</tr>
<tr>
<td><strong>SKCT Pages Held</strong></td>
<td>The number of pages used for skeleton cursor tables (SKCTs) (Field name: QISESKCT).</td>
</tr>
<tr>
<td><strong>SKEL Pages Free</strong></td>
<td>The number of free pages in the skeleton EDM pool free chain (Field name: QISEKRFRE).</td>
</tr>
<tr>
<td><strong>SKEL Pool Pages</strong></td>
<td>The number of pages in the skeleton EDM POOL (Field name: QISEKPGE).</td>
</tr>
<tr>
<td><strong>SKEL Pool in Use (MB)</strong></td>
<td>The amount of storage used by objects in the EDM skeleton pool above the 2 GB bar (Field name: SISESKCP).</td>
</tr>
<tr>
<td><strong>SKEL in Use Percent</strong></td>
<td>The percentage of skeleton pages in use expressed as complement of the percentage of available skeleton pages (ratio of stealable and free pages to the total number) (Field name: SISEKPUI).</td>
</tr>
<tr>
<td><strong>SKPT Pages Held</strong></td>
<td>The number of pages used for the SKPT (Field name: QISESKPT).</td>
</tr>
<tr>
<td><strong>SKPT Stealable pages</strong></td>
<td>The total number of SKPT pages that can be reused (Field name: QISEKLRU).</td>
</tr>
</tbody>
</table>
**Shareable static SQL stmt** The total number of requests for shareable static SQL statements (Field name: QISEKSPG).

**Statement Pool in Use (MB)** The amount of storage used by cached dynamic SQL statements in the EDM Statement pool above the 2 GB bar (Field name: SISEDYNP).

**Statements in global cache** The number of statements in the EDM pool (Field name: QISESTMT).

**Stmt Pages Free** The number of free pages in the EDM statement pool (Field name: QISECFRE).

**Stmt Pages Held** The number of pages used in the EDM statement pool (Field name: QISEDYNP).

**Stmt Pool Pages** The number of pages in the EDM statement pool (Field name: QISECPGE).

**Storage alloc PKG ATB** The amount of storage above the bar that was allocated for packages (Field name: QISESQKA).

**Storage alloc PKG BTB** The amount of storage below the bar that was allocated for packages (Field name: QISESQKB).

**Storage alloc Plan ATB** The amount of storage above the bar that was allocated for plans (Field name: QISESQCA).

**Storage alloc Plan BTB** The amount of storage below the bar that was allocated for plans (Field name: QISESQCB).

**Total stg alloc static SQL statements** The total storage requested for shareable static SQL statements (Field name: QISEKSPA).

**EDM Statistics Attributes**

Use these attributes to view the Environmental Descriptor Manager (EDM) statistics.

**DB2 Subsystem** The DB2 subsystem ID.

**DB2 Version** The DB2 version.

**Delta Value** The change since the last sample.

**Field Name** The data field name.

**Data Sharing Group** The Data Sharing Group name.

**Interval Time** The collection interval time.

**Data Sharing Member** The Data Sharing Group member name.

**MVS System ID** The MVS identifier.
**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Rate** The amount over the last sampling interval.

**Sequence Number** The data field sequence number.

**Interval Start** The start time of this interval.

**Field Value** The data value.

**Group Buffer Pool Attributes**
Use Group Buffer Pool (GBP) attributes to create situations to determine the usage and availability of coupling facility structures relating to group buffer pools, the shared communication area, and the lock table.

**Cross Invalidate Count** The number of notifications that the DB2 buffer has modified. Valid value is an integer in the range 0 - 99999999.

**Cross Invalidate Rate** The rate of cross invalidations per second. Valid value is an integer in the range 0 - 99999999.

**Data Pages** The number of data pages that DB2 has allocated for the group buffer pool. Valid value is an integer in the range 0 - 99999999.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Directory Entries** The total number of directory entries that a DB2 system has allocated for a coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**IDNAME** An internal attribute used for navigation. It contains either the Data Sharing Group Name or the DB2ID.

Valid format is alphanumeric with a maximum of 8 characters; for example TDDDB242G.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Read Count** The total number of page read requests to a group buffer pool. Valid value is an integer in the range 0 - 99999999.

**Read Hit Count** The number of successful page read requests to a group buffer pool without causing a physical database read. Valid value is an integer in the range 0 - 99999999.

**Read Hit Percent** The percentage of successful page read requests in relation to the total page read requests for a group buffer pool. Valid value is an integer in the range 0 - 100.
**Structure Connect Count** The number of active connections to a structure. Valid value is an integer in the range 0 - 16.

**Structure Name** The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

**Structure Size** The size, in kilobytes, of a DB2 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**Structure Status** The current status of the coupling facility structure.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVE</td>
<td>The structure is active</td>
</tr>
<tr>
<td>INACTIVE</td>
<td>The structure is inactive</td>
</tr>
</tbody>
</table>

For duplexed group buffer pool structures, additional valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REB_NEW</td>
<td>Rebuild on new (secondary GBP)</td>
</tr>
<tr>
<td>REB_OLD</td>
<td>Rebuild on old (primary) GBP</td>
</tr>
<tr>
<td>REB_TRAN</td>
<td>Structure is in transition</td>
</tr>
<tr>
<td>REB_HOLD</td>
<td>Structure is in holding state</td>
</tr>
<tr>
<td>REB_ERR</td>
<td>Error during the structure rebuild</td>
</tr>
</tbody>
</table>

**Structure Type** The type of DB2 coupling facility structure.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CACHE</td>
<td>Cache data of interest to several DB2 systems in data sharing group</td>
</tr>
<tr>
<td>LIST</td>
<td>Shared Communications Area (SCA) for data sharing group members</td>
</tr>
<tr>
<td>LOCK</td>
<td>Controls locking</td>
</tr>
</tbody>
</table>

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.
**Group Buffer Pool Connection Attributes**

Use the Group Buffer Pool (GBP) Connection attributes to create situations that monitor connections to DB2 coupling facilities.

**Connection Status** The status of the connection between a DB2 coupling facility member (IRLM subsystem) and group.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVE</td>
<td>Active member connection</td>
</tr>
<tr>
<td>CONNECT</td>
<td>Member connected but not active</td>
</tr>
<tr>
<td>DISCONN</td>
<td>Member disconnected</td>
</tr>
<tr>
<td>FAILED</td>
<td>Member failed to connect</td>
</tr>
<tr>
<td>FAIL_PER</td>
<td>Member persistently fails to connect</td>
</tr>
</tbody>
</table>

**Coupling Facility Name** The name of a DB2 coupling facility. It is an alphanumeric text string with a maximum of 16 characters; for example, DB2_D411.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDBB241G.

**Data Sharing Group Element** The name of an element of within the data sharing group.

**DB2 ID** The name of a DB2 subsystem.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**Job Name** The job name connected to a coupling facility structure. It is an alphanumeric text string with a maximum of 8 characters; for example, IRLM.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Structure Name** The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDBB241G.SCA.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
- D = Day
- Y = Year
• H = Hour
• M = Minute
• S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Group Buffer Pool Statistics Attributes**

Use Group Buffer Pool (GBP) Statistics attributes to create situations that monitor the utilization of critical group buffer pool resources.

**Castout Engine Not Available** The number of times a castout engine was not available to write changed pages from a group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

**Castout for Class Threshold** The group buffer pool castout class threshold. Castout begins when the number of changed pages for a particular castout class exceeds this threshold. Valid value is an integer in the range 0 - 2147483647.

**Castout for GBP Threshold** The group buffer pool castout threshold. Castout begins when the number of changed pages in the group buffer pool exceeds this threshold. Valid value is an integer in the range 0 - 2147483647.

**Changed Page Writes** The number of changed pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Clean Page Writes** The number of clean pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Cross Invalidate Reads No Data** The number of reads to the group buffer pool because a page in the member's buffer pool was invalidated, where the data was not found in the group buffer pool and the member read the page from DASD. Valid value is an integer in the range 0 - 2147483647.

**Cross Invalidate Reads With Data** The number of reads to the group buffer pool because a page in the member's buffer pool was invalidated, where the data was found and returned to the member. Valid value is an integer in the range 0 - 2147483647.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 ID** The name of a DB2 subsystem.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**GBP Reads No Data** The number of reads to the group buffer pool where the data was not found. Valid value is an integer in the range 0 - 2147483647.

**GBP Reads With Data** The number of reads to the group buffer pool where the data was found. Valid value is an integer in the range 0 - 2147483647.

**IXLCACHE Delete Name** The number of times that DB2 issued a request to the group buffer pool to delete directory and data entries associated with a specific page set or partition. Valid value is an integer in the range 0 - 2147483647.
**IXLCACHE Read Castout Class** The number of requests from the pageset or partition castout owner or the group buffer pool owner to the group buffer pool to determine which pages are cached in the group buffer pool as changed pages that need to be cast out. Valid value is an integer in the range 0 - 2147483647.

**IXLCACHE Read Castout Stats** The number of requests that the group buffer pool structure owner issues when the GBPOOLT threshold is reached to determine which castout classes have changed pages. Valid value is an integer in the range 0 - 2147483647.

**IXLCACHE Read Directory Information** The number of requests that the group buffer pool structure owner issues for group buffer pool checkpoints to read the directory entries of all changed pages in the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**IXLCACHE Read STGSTATS** The number of times DB2 requested statistical information from the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**IXLCACHE Unlock Castout** The number of times that DB2 issues an unlock request to the coupling facility for castout I/Os that have completed. Valid value is an integer in the range 0 - 2147483647.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of Checkpoints** The number of times that DB2 writes the changed pages in the group buffer pool to the pageset. Valid value is an integer in the range 0 - 2147483647.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of Pages Castout** The number of data pages that a member has cast out of the group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

**Number of Rebuilds** The number of times that a member has participated in rebuilding a group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Prefetch Read No Data** The number of reads to the group buffer pool for prefetch processing, where the data is not found and the member reads the page from DASD. Valid value is an integer in the range 0 - 2147483647.

**Prefetch Read With Data** The number of reads to the group buffer pool for prefetch processing, where the data is found and returned to the member. Valid value is an integer in the range 0 - 2147483647.

**Read Fails for Storage** The number of group buffer pool read requests that failed because of a shortage of coupling facility resources. Valid value is an integer in the range 0 - 2147483647.
Register Page List Request  The number of register page list requests by prefetch. Valid value is an integer in the range 0 - 2147483647.

Register Page Request  The number of times that DB2 requested interest to the group buffer pool for a single page. Valid value is an integer in the range 0 - 2147483647.

RPL Reads Changed Pages  The number of group buffer pool reads by prefetch to retrieve a changed page from the group buffer pool as a result of feedback from the register page list. Valid value is an integer in the range 0 - 2147483647.

RPL Reads Clean Pages  The number of group buffer pool reads by prefetch to retrieve a clean page from the group buffer pool as a result of feedback from the register page list. Valid value is an integer in the range 0 - 2147483647.

Structure Name  The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

Time Stamp  Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
• M = Month
• D = Day
• Y = Year
• H = Hour
• M = Minute
• S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

For example, 07-16-12 14:58:29 indicates that data collection ended on July 16, 2012 at 14:58:29 PM.

Unregister Page Request  The number of times that DB2 unregistered interest for a single page from the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Write Engine Not Available  The number of times a write engine was not available to perform a coupling facility write. Valid value is an integer in the range 0 - 2147483647.

Write Fails for Storage  The number of group buffer pool write requests that failed because of a shortage of coupling facility resources. Valid value is an integer in the range 0 - 2147483647.

Write System Changed Page  The number of changed pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Write System Clean Page  The number of clean pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.
Group Buffer Pool Statistics Detail Attributes
Use the Group Buffer Pool (GBP) Statistics Detail attributes to create situations to
determine the usage of group buffer pools.

Castout Engine Not Available The number of times a castout engine was not
available to write changed pages from a group buffer pool to DASD. Valid value is
an integer in the range 0 - 2147483647.

Castout for Class Threshold The group buffer pool castout class threshold.
Castout begins when the number of changed pages for a particular castout class
exceeds this threshold. Valid value is an integer in the range 0 - 2147483647.

Castout for GBP Threshold The group buffer pool castout threshold. Castout
begins when the number of changed pages in the group buffer pool exceeds this
threshold. Valid value is an integer in the range 0 - 2147483647.

Changed Page Writes The number of changed pages written to the group buffer
pool. Valid value is an integer in the range 0 - 2147483647.

Clean Page Writes The number of clean pages written to the group buffer pool.
Valid value is an integer in the range 0 - 2147483647.

Cross Invalidate Reads No Data The number of reads to the group buffer pool
because a page in the member's buffer pool was invalidated, where the data was
not found in the group buffer pool and the member read the page from DASD.
Valid value is an integer in the range 0 - 2147483647.

Cross Invalidate Reads With Data The number of reads to the group buffer pool
because a page in the member's buffer pool was invalidated, where the data was
found and returned to the member. Valid value is an integer in the range 0 -
2147483647.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text
string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

GBP Reads No Data The number of reads to the group buffer pool where the data
was not found.
Valid value is an integer in the range 0 - 2147483647.

GBP Reads With Data The number of reads to the group buffer pool where the
data was found. Valid value is an integer in the range 0 - 2147483647.

IDNAME An internal attribute used for navigation, it contains either the Data
Sharing Group Name or the DB2ID. VIt is an alphanumeric text string with a
maximum of 8 characters; for example TDDB242G.

IXLCACHE Delete Name The number of times that DB2 issued a request to the
group buffer pool to delete directory and data entries associated with a specific
page set or partition. Valid value is an integer in the range 0 - 2147483647.

IXLCACHE Read Castout Class The number of requests from the page set or
partition castout owner or the group buffer pool owner to the group buffer pool to
determine which pages are cached in the group buffer pool as changed pages that need to be cast out. Valid value is an integer in the range 0 - 2147483647.

**IXLCACHE Read Castout Stats** The number of requests that the group buffer pool structure owner issues when the GBPOOLT threshold is reached to determine which castout classes have changed pages. Valid value is an integer in the range 0 - 2147483647.

**IXLCACHE Read Directory Information** The number of requests that the group buffer pool structure owner issues for group buffer pool checkpoints to read the directory entries of all changed pages in the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**IXLCACHE Read STGSTATS** The number of times DB2 requested statistical information from the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**IXLCACHE Unlock Castout** The number of times that DB2 issues an unlock request to the coupling facility for castout I/Os that have completed. Valid value is an integer in the range 0 - 2147483647.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of Checkpoints** The number of times that DB2 writes the changed pages in the group buffer pool to the page set. Valid value is an integer in the range 0 - 2147483647.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of Pages Castout** The number of data pages that a member has cast out of the group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

**Number of Rebuilds** The number of times that a member has participated in rebuilding a group buffer pool. Valid value is an integer in the range 0 - 2147483647.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Prefetch Read No Data** The number of reads to the group buffer pool for prefetch processing, where the data is not found and the member reads the page from DASD. Valid value is an integer in the range 0 - 2147483647.

**Prefetch Read With Data** The number of reads to the group buffer pool for prefetch processing, where the data is found and returned to the member. Valid value is an integer in the range 0 - 2147483647.

**Read Fails for Storage** The number of group buffer pool read requests that failed because of a shortage of coupling facility resources. Valid value is an integer in the range 0 - 2147483647.
Register Page List Request The number of register page list requests by prefetch. Valid value is an integer in the range 0 - 2147483647.

Register Page Request The number of times that DB2 requested interest to the group buffer pool for a single page. Valid value is an integer in the range 0 - 2147483647.

RPL Reads Changed Pages The number of group buffer pool reads by prefetch to retrieve a changed page from the group buffer pool as a result of feedback from the register page list. Valid value is an integer in the range 0 - 2147483647.

RPL Reads Clean Pages The number of group buffer pool reads by prefetch to retrieve a clean page from the group buffer pool as a result of feedback from the register page list. Valid value is an integer in the range 0 - 2147483647.

Structure Name The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
• M = Month
• D = Day
• Y = Year
• H = Hour
• M = Minute
• S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

Unregister Page Request The number of times that DB2 unregistered interest for a single page from the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Write Engine Not Available The number of times a write engine was not available to write changed pages from a group buffer pool to DASD. Valid value is an integer in the range 0 - 2147483647.

Write Fails for Storage The number of group buffer pool write requests that failed because of a shortage of coupling facility resources. Valid value is an integer in the range 0 - 2147483647.

Write System Changed Page The number of changed pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Write System Clean Page The number of clean pages written to the group buffer pool. Valid value is an integer in the range 0 - 2147483647.

Group Object Activity Summary Attributes
Use the Group Object Activity Summary attributes to create situations that monitor the I/O and getpage activity by database.
**ASYNC Write Rate** The number of asynchronous writes per second during the collection interval. Valid format is a decimal number, with 1 decimal place allowed, in the range 0.0 - 9999.9.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Database** The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNB06.

**DB2 ID** The name of a DB2 subsystem.

**Getpage Percent** The percentage of total getpage activity that is applicable to the database, space name, or thread. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.5.

**Getpage Rate** The number of getpage requests per second for the database or space name. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.3.

**Getpage RIO Ratio** The ratio of getpage requests to read I/Os for the database. The ratio is calculated by dividing the number of getpage requests by the sum of the following values:
- Number of synchronous reads
- Number of prefetch read I/Os

Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.8.

**ID Name** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of ASYNC Writes** The number of asynchronous writes during the collection interval. Valid value is an integer in the range 0 - 2147483647.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of Getpages** The number of getpage reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

**Number of Other Writes** The number of immediate and format writes. Valid value is an integer in the range 0 - 2147483647.

**Number of Prefetch Reads** The number of prefetch read I/Os for the database. Valid value is an integer in the range 0 - 2147483647.

**Number of SYNC Reads** The number of synchronous reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.
**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Other Write Rate** The number of immediate and format writes per second. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.6.

**Percent of I/O** The percentage of the total I/O activity that is applicable to the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.0.

**Prefetch Read Rate** The number of prefetch read I/Os per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.9.

**Space Name** The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example DSNUCX01.

**SYNC Read Rate** The number of synchronous reads per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Group Object Analysis Attributes**
Use the Group Object Analysis (GOA) attributes to create situations that monitor object volume and extent activity for all DB2 systems in a data sharing group.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDB241G.

**Database Name** The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

**DB2 ID** The name of a DB2 subsystem.

**Extents per Data Set Ratio** The average number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 100.
**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

**Max Number of Exts per DSN** The largest number of extents per data set of space name for a DB2 database. Valid value is an integer in the range 0 - 219.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of Data Sets** The total number of allocated data sets for the DB2 you are monitoring. Valid value is an integer in the range 0 - 10000.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of Extents** The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

**Number of Indexes** The number of index spaces that the operating system currently has allocated to DB2. Valid value is an integer in the range 0 - 99999.

**Number of Spaces** The total number of index spaces and table spaces that the operating system currently has allocated to DB2. Valid value is an integer in the range 0 - 99999.

**Number of Table Spaces** The number of table spaces that the operating system currently has allocated to DB2. Valid value is an integer in the range - 10000.

**Number of Volumes** The number of volumes on which the data set resides. Valid value is an integer in the range 0 - 256.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Group Object Analysis Thread Activity Summary Attributes**
Use the Group Object Analysis (GOA) Thread Activity summary attributes to create situations that monitor thread activity.
**ASYNC Write Rate** The number of asynchronous writes per second during the collection interval. Valid format is a decimal number, with one decimal place allowed.

**Authorization ID** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example, D412.

**Database** The name of a DB2 database. Valid format is alphanumeric with a maximum of 8 characters; for example, DSNDB06.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 ID** The name of a DB2 subsystem.

**Dynamic Prefetch Read Rate** The number of dynamic prefetch read I/Os made per second by the thread. Valid format is a decimal number, with one decimal place allowed.

**Getpage per Read I/O** The ratio of getpage requests to read I/Os for the database.

The ratio is calculated by dividing the number of getpage requests by the sum of the following values:

- Number of synchronous reads
- Number of prefetch read I/Os

Valid format is a decimal number, with one decimal place allowed.

**Getpage Percent** The percentage of total getpage activity that is applicable to the database, space name, or thread. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.5.

**Getpage Rate** The number of getpage requests per second for the database or space name. Valid format is a decimal number, with one decimal place allowed.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

**List Prefetch Read Rate** The number of list prefetch read I/Os made per second by the thread. Valid format is a decimal number, with one decimal place allowed.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of ASYNC Writes** The number of asynchronous writes during the collection interval. Valid value is an integer in the range 0 - 2147483647.
Number of Dynamic Prefetch Reads  The number of dynamic prefetch read I/Os made by the thread. Valid value is an integer in the range 0 - 2147483647.

Number of Getpage Reads  The number of getpage reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

Number of List Prefetch Reads  The number of list prefetch I/Os made by the thread. Valid value is an integer in the range 0 - 2147483647.

Number of Other Writes  The number of immediate and format writes. Valid value is an integer in the range 0 - 2147483647.

Number of Sequential Prefetch Reads  The number of sequential prefetch reads for the thread. Valid value is an integer in the range 0 - 2147483647.

Number of SYNC Reads  The number of synchronous reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

Number of Threads  The total number of currently monitored threads. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9.

Originating System ID  The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Other Write Rate  The number of immediate and format writes per second. Valid format is a decimal number, with one decimal place allowed.

Percent of I/O  The percentage of the total I/O activity that is applicable to the database or space name. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.0.

Plan Name  The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Sequential Prefetch Read Rate  The number of sequential prefetch read I/Os per second made by the thread. Valid format is a decimal number, with one decimal place allowed.

Space Name  The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example DSNUCX01.

SYNC Read Rate  The number of synchronous reads per second for the database or space name. Valid format is a decimal number, with one decimal place allowed.

Time Stamp  Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
- D = Day
• Y = Year
• H = Hour
• M = Minute
• S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Group Object Analysis Thread Volume Summary Attributes**

Use the Group Object Analysis (GOA) Thread Volume Summary attributes to create situations that monitor the thread activity for volumes.

**Authorization ID** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 ID** The name of a DB2 subsystem.

**DB2 Read I/O** The number of read I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 22.

**DB2 Read I/O Rate** The read I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

**DB2 Write I/O** The number of I/O writes. Valid value is an integer in the range 0 - 2147483647; for example, 20.

**DB2 Write I/O Rate** The write I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

**Max DB2 I/O Rate** The maximum DB2 I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

**Max DB2 Read I/O Rate** The maximum DB2 read I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

**Max DB2 Write I/O Rate** The maximum write I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.0.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.
Number of Threads The total number of currently monitored threads. Valid value is an integer in the range 0 - 999999.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Percent Volume Use The percentage of DB2 I/O activity to the volume. The program calculates the value by dividing the total I/O rate for the database by the total I/O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

Total DB2 I/O The total DB2 I/O count. Valid value is an integer in the range 0 - 2147483647.

Total DB2 I/O Rate The total I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

Volume Name The name of the volume that contains the DB2 objects. It is an alphanumeric text string, to a maximum of 6 characters; for example, PRI123.

**Group Object Analysis Volume Database Summary Attributes**
Use the Group Object Analysis (GOA) Volume Database Summary attributes to create situations that monitor I/O activity for a single volume in a DB2 database.

Database Name The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

DB2 Read I/O The number of read I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 22.
DB2 Read I/O Rate The read I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

DB2 Read I/O Rate Max The maximum DB2 read I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

DB2 Write I/O The number of write I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 20.

DB2 Write I/O Rate The write I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.0.

DB2 Write I/O Rate Max The maximum write I/O rate per second during the current interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of Data Sets The total number of allocated data sets for the DB2 being monitored. Valid value is an integer in the range 0 - 10000.

Number of DB2 systems The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

Number of Extents The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Space Name The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example DSNUCX01.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
• M = Month
• D = Day
• Y = Year
• H = Hour
• M = Minute
• S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.
**Total DB2 I/O** The total DB2 I/O count. Valid value is an integer in the range 0 - 2147483647.

**Total DB2 I/O Rate** The total I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

**Total DB2 I/O Rate Max** The maximum I/O rate per second during the collection interval. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.5.

**Volume Name** The name of the volume that contains the DB2 objects. It is an alphanumeric text string, to a maximum of 6 characters; for example, PRI123.

**Volume Use Percent** The percentage of DB2 I/O activity to the volume. The program calculates the value by dividing the total I/O rate for the database by the total I/O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

**Group Object Analysis Volume Summary Attributes**

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 ID** The name of a DB2 subsystem.

**DB2 I/O Percent** The percentage of total DB2 I/O that is attributable to the volume. It is calculated by dividing the volume DB2 I/O count by the total DB2 I/O count. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 24.

**Extents per Data Set Ratio** The ratio of total extents allocated to the total data set count.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example, SP11.

**Number of Data Sets** The total number of allocated data sets for the DB2 being monitored. Valid value is an integer in the range 0 - 10000.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of Extents** The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.
**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- **M** = Month
- **D** = Day
- **Y** = Year
- **H** = Hour
- **M** = Minute
- **S** = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Volume DB2 I/O** The total number of I/Os for the volume originating from the DB2 subsystem being monitored. Valid value is an integer in the range 0 - 2147483647.

**Volume DB2 I/O Rate** The total number of I/Os per second for the volume originating from the DB2 subsystem being monitored. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.9.

**Volume DB2 I/O Rate Max** The maximum I/O rate per second during the collection interval. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 2147483647.0; for example, 2.5.

**Volume Name** The name of the volume that contains the DB2 objects. It is an alphanumeric text string, with a maximum of 6 characters; for example, PRI123.

**Volume Service Time** The average service time for the volume since the beginning of the collection interval. This value is the sum of the average IOS pending time, the average IOS connect time, and the average IOS disconnected time for the volume. It does not include IOS queue time. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

**Volume Service Time Max** The maximum service time for the volume since the beginning of the collection interval. The value is the sum of the IOS pending time, the IOS connect time, and the IOS disconnect time for the volume. It does not include IOS queue time. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.5.

**Volume Total I/O** The total number of I/Os for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for the volume. Valid value is an integer in the range 0 - 2147483647; for example, 19.

**Volume Total I/O Rate** The total number of I/Os per second for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for the volume. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

**Volume Use Percent** The percentage of DB2 I/O activity to the volume. The program calculates the value by dividing the total I/O rate for the database by the
total I/O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

**Volume Utilization** The percentage of volume utilization and represents the percentage of time the volume is in use. Valid value is an integer in the range 0 - 100; for example, 22.

**Group Object Space Name Attributes**
Use the Group Object Space Name attributes to create situations that monitor object, volume, and extent activity for all DB2 object spaces in a data sharing group.

**Buffer Pool ID** An ID for a buffer pool.

Valid values are:
- 0 - 49
- 32K
- 32K0 - 32K9

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Database Name** The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

**DB2 ID** The name of a DB2 subsystem.

**Extents per Data Set Ratio** The average number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 100.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**Max Number of Extents per DSN** The largest number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 219.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of Data Sets** The total number of allocated data sets for the DB2 you are monitoring. Valid value is an integer in the range 0 - 10000.

**Number of DB2 systems** The total number of monitored DB2 systems. Valid value is an integer in the range 1 - 64.

**Number of Extents** The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

**Number of Volumes** The number of volumes on which the data set resides. Valid value is an integer in the range 0 - 256.

**Object Space Name** The name of a DB2 object space. It is an alphanumeric text string, with a maximum of 8 characters; for example, DSNUCX01.

**Object Type** The type of object space name.
Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDX</td>
<td>Index</td>
</tr>
<tr>
<td>PTIX</td>
<td>Partitioned index</td>
</tr>
<tr>
<td>PTTS</td>
<td>Partitioned table space</td>
</tr>
<tr>
<td>SEGM</td>
<td>Segmented table space</td>
</tr>
<tr>
<td>TBLS</td>
<td>Simple table space</td>
</tr>
<tr>
<td>UNDT</td>
<td>Undetermined</td>
</tr>
</tbody>
</table>

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Local DB2 Coupling Facility Attributes**

Use the Local DB2 Coupling Facility attributes to create situations to determine the excess usage and reduced availability of coupling facility structures relating to group buffer pools, the shared communication area, and the lock table.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 Change Requests** The number of change requests for P-locks. Valid value is an integer in the range 0 - 99999999.

**DB2 False Contention** Provides a global view of false contentions for all DB2 systems in a data sharing group. The formula is the number of false contentions divided by the total number of global contentions, multiplied by 100. Valid value is an integer in the range 0 - 99999999.

**DB2 False Suspends** The number of suspends because of MVS XES (Cross-system Extended Services) false contention. Valid value is an integer in the range 0 - 99999999.

**DB2 Global Contention** Provides a global view of global contentions for all DB2 systems in a data sharing group. The formula is the total number of suspends because global contention divided by the total number of XES requests, multiplied by 100. Valid value is an integer in the range 0 - 99999999.
**DB2 IRLM Suspends** The number of suspends because of IRLM global resource contentions. This occurs when IRLM states are in conflict and require inter-system communication for resolution. Valid value is an integer in the range 0 - 99999999.

**DB2 Lock Requests** The number of lock requests for P-locks. Valid value is an integer in the range 0 - 99999999.

**DB2 Unlock Requests** The number of unlock requests for P-locks. Valid value is an integer in the range 0 - 99999999.

**DB2 XES Suspends** The number of suspends because of MVS XES global resource contentions that are not IRLM-level contention. This occurs when XES lock states are in conflict but the IRLM lock states are not in conflict. Valid value is an integer in the range 0 - 99999999.

**False Contention** The number of contentions that the IRLM thought were competing for the same database resource. Valid value is an integer in the range 0 - 99999999.

Usage: An IRLM subsystem identifies a contention but grants a lock to a contending IRLM subsystem because the contending IRLM is requesting access to a different segment in the database.

**False Contention Rate** The number of false contentions divided by the number of seconds during the collection interval. Valid value is an integer in the range 0 - 99999999.

**Global Contention** The total number of contentions competing for the same database resource. Valid value is an integer in the range 0 - 99999999.

**Global Contention Rate** The number of contentions divided by the number of seconds during the collection interval. Valid value is an integer in the range 0 - 99999999.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

**List Entries Allocated** The total number of list entries that a DB2 system has allocated for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**List Entries Percent** The number of list entries that IRLM is currently using divided by the number of list entries that DB2 has allocated. Valid value is an integer in the range 0 - 100.

**List Entries Used** The total number of list entries IRLM is currently using for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**Lock Entries Allocated** The total number of lock entries that a DB2 system has allocated for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.
**Lock Entries Percent** The number of lock entries that IRLM is currently using divided by the number of lock entries DB2 has allocated. Valid value is an integer in the range 0 -100.

**Lock Entries Used** The total number of lock entries IRLM is currently using for the LOCK1 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Structure Connect Count** The number of active connections to a structure. Valid value is an integer in the range 0 - 16.

**Structure Name** The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

**Structure Size** The size in kilobytes of a DB2 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**Structure Status** The current status of the coupling facility structure.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVE</td>
<td>The structure is active</td>
</tr>
<tr>
<td>ALTER</td>
<td>The structure is being altered</td>
</tr>
<tr>
<td>CLEANUP</td>
<td>The structure is inactive</td>
</tr>
<tr>
<td>REBUILD</td>
<td>The structure is being rebuilt</td>
</tr>
</tbody>
</table>

For duplexed group buffer pool structures, additional valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REB_NEW</td>
<td>Rebuild on new (secondary GBP)</td>
</tr>
<tr>
<td>REB_ERR</td>
<td>Error during the structure rebuild</td>
</tr>
<tr>
<td>REB_HOLD</td>
<td>Structure is in holding state</td>
</tr>
<tr>
<td>REB_OLD</td>
<td>Rebuild on old (primary) GBP</td>
</tr>
<tr>
<td>REB_STOP</td>
<td>Structure rebuild is stopped</td>
</tr>
<tr>
<td>REB_TRAN</td>
<td>Structure is in transition</td>
</tr>
</tbody>
</table>

**Structure Type** The type of DB2 coupling facility structure.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CACHE</td>
<td>Cache data of interest to several DB2 systems in data sharing group</td>
</tr>
<tr>
<td>LIST</td>
<td>Shared Communications Area (SCA) for data sharing group members</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>LOCK</td>
<td>Controls locking</td>
</tr>
</tbody>
</table>

**Structure Used** The number of kilobytes that DB2 uses within a structure type. Valid value is an integer in the range 0 - 99999999.

**Structure Used Percent** The percent of the total available kilobytes that DB2 is currently using within a structure type. Valid value is an integer in the range 0 - 100.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
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- M = Minute
- S = Second

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**Local Group Buffer Pool Attributes**

Use Local Group Buffer Pool attributes to create situations to determine the usage and availability of coupling facility structures relating to group buffer pools, the shared communication area, and the lock table.

**Cross Invalidate Count** The number of notifications that the DB2 buffer has modified. Valid value is an integer in the range 0 - 99999999.

**Cross Invalidate Rate** The rate of cross invalidations per second. Valid value is an integer in the range 0 - 99999999.

**Data Pages** The number of data pages that DB2 has allocated for the group buffer pool. Valid value is an integer in the range 0 - 99999999.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Directory Entries** The total number of directory entries that a DB2 system has allocated for a coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.
**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Read Count** The total number of page read requests to a group buffer pool. Valid value is an integer in the range 0 - 99999999.

**Read Hit Count** The number of successful page read requests to a group buffer pool without causing a physical database read. Valid value is an integer in the range 0 - 99999999.

**Read Hit Percent** The percentage of successful page read requests in relation to the total page read requests for a group buffer pool. Valid value is an integer in the range 0 - 100.

**Structure Connect Count** The number of active connections to a structure. Valid value is an integer in the range 0 - 16.

**Structure Name** The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

**Structure Size** The size, in kilobytes, of a DB2 coupling facility structure. Valid value is an integer in the range 0 - 99999999.

**Structure Status** The current status of the coupling facility structure.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
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<td>ALTER</td>
<td>The structure is being altered</td>
</tr>
<tr>
<td>CLEANUP</td>
<td>The structure is inactive</td>
</tr>
<tr>
<td>REBUILD</td>
<td>The structure is being rebuilt</td>
</tr>
</tbody>
</table>

For duplexed group buffer pool structures, additional valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REB_NEW</td>
<td>Rebuild on new (secondary GBP)</td>
</tr>
<tr>
<td>REB_ERR</td>
<td>Error during the structure rebuild</td>
</tr>
<tr>
<td>REB_HOLD</td>
<td>Structure is in holding state</td>
</tr>
<tr>
<td>REB_OLD</td>
<td>Rebuild on old (primary) GBP</td>
</tr>
<tr>
<td>REB_STOP</td>
<td>Structure rebuild is stopped</td>
</tr>
<tr>
<td>REB_TRAN</td>
<td>Structure is in transition</td>
</tr>
</tbody>
</table>

**Structure Type** The type of DB2 coupling facility structure.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CACHE</td>
<td>Cache data of interest to several DB2 systems in data sharing group</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>LIST</td>
<td>Shared Communications Area (SCA) for data sharing group members</td>
</tr>
<tr>
<td>LOCK</td>
<td>Controls locking</td>
</tr>
</tbody>
</table>

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Local Group Buffer Pool Connection Attributes**

Use the Local Group Buffer Pool (GBP) Connection attributes to create situations that monitor connections to DB2 coupling facilities.

**Connection Status** The status of the connection between a DB2 coupling facility member (IRLM subsystem) and group.

Valid values are:
- **ACTIVE**  
  Active member connection
- **CONNECT**  
  Member connected but not active
- **CON-DUAL**  
  Dual connection for duplexing the group buffer pool structures.
- **DISCONN**  
  Member disconnected
- **FAILED**  
  Member failed to connect
- **FAIL_PER**  
  Member persistently fails to connect

**Coupling Facility Name** The name of a DB2 coupling facility. It is an alphanumeric text string with a maximum of 16 characters; for example, DB2_D411.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDB241G.

**Data Sharing Group Element** The name of an element of within the data sharing group.
**DB2 ID** The name of a DB2 subsystem.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

**Job Name** The job name connected to a coupling facility structure. It is an alphanumeric text string with a maximum of 8 characters; for example, IRLM.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example, SP11.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Structure Name** The name of a DB2 coupling facility structure. It is an alphanumeric text string, with a maximum of 16 characters; for example, TDDB241G.SCA.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Local Group Object Analysis Thread Activity Attributes**
Use the Local Group Object Analysis (GOA) Thread Activity attributes to create situations that monitor thread activity.

**ASYNC Write Rate** The number of asynchronous writes per second during the collection interval. Valid format is a decimal number, with 1 decimal place allowed, in the range 0.0 - 9999.9.

**Authorization ID** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.
**Database** The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

**DB2 ID** The name of a DB2 subsystem.

**Dynamic Prefetch Read Rate** The number of dynamic prefetch read I/Os made per second by the thread. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

**Getpage per Read I/O** The ratio of getpage requests to read I/Os for the database. The ratio is calculated by dividing the number of getpage requests by the sum of the following values:

- Number of synchronous reads
- Number of prefetch read I/Os

Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.8.

**Getpage Percent** The percentage of total getpage activity that is applicable to the database, space name, or thread. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.5.

**Getpage Rate** The number of getpage requests per second for the database or space name. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.3.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDDB242G.

**List Prefetch Read Rate** The number of list prefetch read I/Os made per second by the thread. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.5.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Number of ASYNC Writes** The number of asynchronous writes during the collection interval. Valid value is an integer in the range 0 - 2147483647.

**Number of Dynamic Prefetch Reads** The number of dynamic prefetch read I/Os made by the thread. Valid value is an integer in the range 0 - 2147483647.

**Number of Getpage Reads** The number of getpage reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

**Number of List Prefetch Reads** The number of list prefetch read I/Os made by the thread. Valid value is an integer in the range 0 - 2147483647.

**Number of Other Writes** The number of immediate and format writes. Valid value is an integer in the range 0 - 2147483647.

**Number of Sequential Prefetch Reads** The number of sequential prefetch reads for the thread. Valid value is an integer in the range 0 - 2147483647.
**Number of SYNC Reads** The number of synchronous reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Other Write Rate** The number of immediate and format writes per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.6.

**Percent of I/O** The percentage of the total I/O activity that is applicable to the database or space name. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.0.

**Plan Name** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Sequential Prefetch Read Rate** The number of sequential prefetch read I/Os per second made by the thread. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.1.

**Space Name** The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example DSNUCX01.

**SYNC Read Rate** The number of synchronous reads per second for the database or space name. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Local Group Object Analysis Thread Volume Attributes**
Use the Local Group Object Analysis (GOA) Thread Volume attributes to create situations that monitor the thread activity for volumes.

**Authorization ID** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.
**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**DB2 ID** The name of a DB2 subsystem.

**DB2 Read I/O** The number of read I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 22.

**DB2 Read I/O Rate** The read I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

**DB2 Write I/O** The number of I/O writes. Valid value is an integer in the range 0 - 2147483647; for example, 20.

**DB2 Write I/O Rate** The write I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Percent Volume Use** The percentage of DB2 I/O activity to the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 5.0.

**Plan Name** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.
Total DB2 I/O The total I/O count. Valid value is an integer in the range 0 - 2147483647; for example, 22.

Total DB2 I/O Rate The total I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

Volume Name The name of the volume that contains the DB2 objects. It is an alphanumeric text string, with a maximum of 6 characters; for example, PRI123.

Local Group Object Analysis Volume Database Attributes
Use the Local Group Object Analysis (GOA) Volume Database attributes to create situations that monitor I/O activity for a single volume in a DB2 database.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

Database The name of a DB2 database. Valid format is alphanumeric with a maximum of 8 characters; for example, DSNDB06.

DB2 ID The name of a DB2 subsystem. It is an alphanumeric text string with a maximum of 4 characters.

DB2 Read I/O The number of read I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 22.

DB2 Read I/O Rate The read I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

DB2 Write I/O The number of write I/Os. Valid value is an integer in the range 0 - 2147483647; for example, 20.

DB2 Write I/O Rate The write I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.2.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDDB242G.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of Data Sets The total number of allocated data sets for the DB2 being monitored. Valid value is an integer in the range 0 - 10000.

Number of Extents The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Space Name The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example DSNUCX01.
**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Total DB2 I/O** The total I/O count. Valid value is an integer in the range 0 - 2147483647.

**Total DB2 I/O Rate** The total I/O rate per second. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.4.

**Volume Name** The name of the volume that contains the DB2 objects. It is an alphanumeric text string, to a maximum of 6 characters; for example, PRI123.

**Volume Use Percent** The percentage of DB2 I/O activity to the volume. The value is calculated by dividing the total I/O rate for the database by the total I/O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

**Local Group Object Analysis Volume Group Attributes**

Use the Local Group Object Analysis (GOA) Volume Group attributes to create situations that monitor DASD performance by volume.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDB241G.

**DB2 ID** The name of a DB2 subsystem.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID. It is an alphanumeric text string with a maximum of 8 characters; for example TDB242G.

**MVS System** The MVS System Management Facility (SMF) ID. Valid format is alphanumeric with a maximum of 4 characters; for example SP11.

**Number of Data Sets** The total number of allocated data sets for the DB2 being monitored. Valid value is an integer in the range 0 - 10000.

**Number of Extents** The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

**Originating System ID** The managed system name of the agent. Valid format is alphanumeric, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.
Valid format is MM-DD-YY HH:MM:SS, where:

- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Volume DB2 I/O** The total number of I/Os for the volume originating from the DB2 subsystem being monitored. Valid value is an integer in the range 0 - 2147483647.

**Volume DB2 I/O Rate** The total number of I/Os per second for the volume originating from the DB2 subsystem being monitored. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.9.

**Volume Name** The name of the volume that contains the DB2 objects. It is an alphanumeric text string, with a maximum of 6 characters; for example, PRI123.

**Volume Service Time** The average service time for the volume since the beginning of the collection interval. This value is the sum of the average I/Os pending time, the average I/Os connect time, and the average I/Os disconnected time for the volume. It does not include I/Os queue time. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

**Volume Total I/O** The total number of I/Os for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for the volume. Valid value is an integer in the range 0 - 2147483647; for example, 19.

**Volume Total I/O Rate** The total number of I/Os per second for the volume. The value is from an MVS perspective. If the volume is shared by multiple MVS systems, the value may not reflect all I/O activity for the volume. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.7.

**Volume Use Percent** The percentage of DB2 I/O activity to the volume. The program calculates the value by dividing the total I/O rate for the database by the total I/O rate for the volume. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 3.0.

**Volume Utilization** The percentage of volume utilization. The value represents a percentage of time the volume is in use. Valid value is an integer in the range 0 - 100; for example, 22.

**Local DB2 Lock Conflict Attributes**
Use Local DB2 Lock Conflict Group attributes to create situations that monitor DB2 database lock conflicts.
**Authorization ID** The primary authorization ID from connection or signon, that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters; for example, TRAN5.

**Authorization ID (Unicode)** The primary authorization ID from connection or signon, that identifies the execution privileges an application has to a DB2 object or service. Valid format is alphanumeric with a maximum of 8 characters; for example, TRAN5.

**Begin Time** Beginning store clock value (STCK) for the period covered by this accounting record. You can determine the elapsed time of the application by subtracting this field from QWACESC (ending store clock value). Threads that do not terminate (such as CICS primed threads and ims wait-for-input message regions) can have an ending clock value that includes the time the thread was inactive and waiting to perform work.

**Local DB2 Lock Conflict Attributes** Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**Local DB2 Lock Conflict Attributes** The type of connection associated with the thread.

It can be:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example, DLKEX212.

**DB2 ID** The name of a DB2 subsystem.
**Display Elapsed Time** The total amount of elapsed time since thread creation or DB2 sign-on.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

It is an alphanumeric text string with a maximum of 8 characters; for example TDB242G.

**Lock Elapsed Time** The amount of time (in seconds) a waiter has been waiting for the resource.

**Lock Level** Identifies the lock resource usage.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS</td>
<td>Intent share</td>
</tr>
<tr>
<td>IX</td>
<td>Intent exclusive</td>
</tr>
<tr>
<td>NSU</td>
<td>Non-shared Update</td>
</tr>
<tr>
<td>S</td>
<td>Share</td>
</tr>
<tr>
<td>SIX</td>
<td>Share intent exclusive</td>
</tr>
<tr>
<td>U</td>
<td>Update</td>
</tr>
<tr>
<td>UNS</td>
<td>Unprotected shared</td>
</tr>
<tr>
<td>X</td>
<td>Exclusive</td>
</tr>
</tbody>
</table>

**Lock Resource** The resource a lock owner currently has locked or the resource that caused DB2 to suspend a lock request. It is an alphanumeric text string, with a maximum of 50 characters; for example, DB=TBLBLK2 PS=PAGELK2.

**Lock Status** The status of a job holding or waiting on a lock: If the status is OWN with a DB2 subsystem name, the lock is owned by another DB2 subsystem in the Data Sharing Group (DSG); for example, if lock status is OWN-DB2A, the lock is owned by DB2 subsystem DB2A.

**Lock Token** Lock Token.

**Lock Type** The lock type of the lock request.

Valid values are:

*Table 198. Lock types*

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACSC</td>
<td>The Accelerator Services commands (ACSC) lock.</td>
</tr>
<tr>
<td>ALBP</td>
<td>The Alter buffer pool (ALBP) lock indicates a lock on a buffer pool during execution of an ALTER BUFFERPOOL command.</td>
</tr>
<tr>
<td>BIND</td>
<td>The BIND lock indicates an autobind or remote bind lock.</td>
</tr>
</tbody>
</table>
Table 198. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMBA</td>
<td>The Buffer manager SCA MBA (BMBA) L-lock. The Buffer Manager (BM) gets this lock when it needs to read, insert, or update a multiple buffer pool (MBA) record in a Shared Communications Area (SCA). (BMC_MBAO or BMC_MBAR)</td>
</tr>
</tbody>
</table>
| BPPS      | The Buffer Manager Pageset (BPPS) RR (repeatable read) P-lock:  
  • BP = buffer pool ID  
  • DB = database name  
  • PS = pageset name |
| CCAT      | The CATMAINT convert catalog (CCAT) lock is acquired when catalog conversion is performed. |
| CDBL      | The Compress dictionary build (CDBL) lock. |
| CDIR      | The CATMAINT convert directory (CDIR) lock is acquired when directory conversion is performed. |
| CDRN      | The Cursor Stability drain (CDRN) lock is acquired to drain all CS read access to an object:  
  • DB = database name  
  • PS = pageset name  
  • PT = partition |
| CMDS      | The DB2 Command Serialization (CMDS) lock. |
| CMIG      | The CATMAINT migration (CMIG) lock is acquired when catalog migration is performed. |
| COLL      | The Collection (COLL) lock |
| DBDL      | The DBD load (DBDL) lock is the database descriptor load lock. |
| DBEX      | The Database exception (DBEX) lock indicates a lock on a "Logical page list" (LPL) or "Group buffer pool recovery pending" (GRECP) database exception status. This lock is only used in a data sharing environment. |
| DBXU      | The DB exception update lock is used for updating the database exception status. |
| DGTT      | The DGTT URID lock is acquired to protect segments that belong to a Declared Global Temporary Table (DGTT). These segments are deallocated during Commit 1 by logging them and serializing them using the Unit of Recovery ID (URID) lock. |
| DPAG      | The DB2 page (DPAG) lock in a tablespace. When programs read data or update data, they acquire a page lock containing the data:  
  • DB = database name  
  • PS = pageset name  
  • PG = page |
<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSET</td>
<td>The partitioned lock. A partitioned tablespace contains one or more partitions (up to 64). It is created when you create a table space using the SQL CREATE TABLESPACE statement with the NUMPARTS parameter. Only one table can be stored on a partitioned tablespace. Each partition contains one part of a table. The partitioned lock only locks the partition with the data that is referenced.</td>
</tr>
<tr>
<td>DTBS</td>
<td>The Database lock indicates a lock on the database.</td>
</tr>
<tr>
<td>GRBP</td>
<td>The Group buffer pool (GRBP) start/stop lock. BP=buffer pool ID</td>
</tr>
<tr>
<td>HASH</td>
<td>The Hash anchor (HASH) lock.</td>
</tr>
<tr>
<td>HPSP</td>
<td>The Header Page (HP) Bucket or Stored Procedure (SP) Command lock.</td>
</tr>
<tr>
<td>IEOF</td>
<td>The Index end of file (IEOF) lock is acquired at the index end of file.</td>
</tr>
<tr>
<td>IPAG</td>
<td>The Index page (IPAG) lock in an index space. When application programs read or update data, they acquire a lock on the page containing the index when indexing is used.</td>
</tr>
<tr>
<td>IXKY</td>
<td>The Index key (IXKY) lock.</td>
</tr>
<tr>
<td>LBLK</td>
<td>The Large object (LOB) lock.</td>
</tr>
<tr>
<td>LPLR</td>
<td>The Logical page list recovery (LPLR) lock.</td>
</tr>
<tr>
<td>MDEL</td>
<td>The Mass delete (MDEL) lock is acquired when doing a mass delete from a table (for example, when you DELETE FROM a table) within a segmented tablespace. It is used to prevent another user from reusing freed segments before a delete operation is committed.</td>
</tr>
</tbody>
</table>
Table 198. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
</table>
| PALK      | The Partition lock.  
            | • DB = database name  
            | • PS = pageset name  
            | • PT = partition |
| PBPC      | The Group BP level castout (PBPC) P-lock.  
            | A physical lock acquired when a castout of a group buffer pool  
            | occurs. Castout is the process of writing pages in the group buffer  
            | pool out to DASD.  
            | This lock is only used in a data sharing environment. |
| PCDB      | The DDF CDB P-lock.  
            | A Distributed Data Facility communication database physical lock.  
            | This lock is only used in a data sharing environment. |
| PDBD      | The DBD P-lock is a database descriptor physical lock.  
            | This lock is only used in a data sharing environment. |
| PDSO      | The Pageset or partitioned pageset open lock.  
            | If the data set supporting the tablespace that is referenced by the  
            | application is not opened, the program will acquire a lock to open the  
            | data set. The data set will stay open if CLOSE=NO is defined in the  
            | SQL statement creating the tablespace.  
            | • DB = database name  
            | • PS = pageset name |
| PITR      | The Index manager tree (PITR) is a physical lock (P-lock).  
            | This lock is only used in a data sharing environment.  
            | • DB = database name  
            | • PS = pageset name  
            | • PT = partition |
| PPAG      | The Page P-lock is a physical lock on a page.  
            | This lock is only used in a data sharing environment. |
| PPSC      | The Pageset/partition level castout physical lock (P-lock).  
            | This lock is only used in a data sharing environment. |
| PPSP      | The Pageset/partition physical lock (P-lock).  
            | This lock is only used in a data sharing environment. |
| PRLF      | The Resource Limit Facility (RLF) physical lock (P-lock).  
<pre><code>        | This lock is only used in a data sharing environment. |
</code></pre>
<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSET</td>
<td>The Pageset (PSET) lock can be a tablespace or indexspace. A pageset containing DB2 tables is a tablespace. A pageset containing DB2 index structure is an indexspace. A pageset can be simple or partitioned. This lock type is for the simple pageset only. • DB = database name • PS = pageset name</td>
</tr>
<tr>
<td>PSPI</td>
<td>The Pageset piece (PSPI) lock. A pageset is a collection of pageset pieces. Each pageset piece is a separate VSAM data set. A simple pageset contains from 1 to 32 pieces. Each piece of a simple pageset is limited to 2 GB. Whenever a simple pageset piece reaches this size, another piece is allocated and the pageset grows. This is a lock on the expanded pageset piece.</td>
</tr>
<tr>
<td>RDBD</td>
<td>The Repair DBD (RDBD) lock is acquired when REPAIR DBD REBUILD is running (test/diagnose).</td>
</tr>
<tr>
<td>RDRN</td>
<td>The Repeatable Read drain (RDRN) lock is acquired to drain all RR access to an object. • DB = database name • PS = pageset name • PT = partition</td>
</tr>
<tr>
<td>RGDA</td>
<td>The Retry Getpage During Abort (RGDA) lock.</td>
</tr>
<tr>
<td>ROW</td>
<td>The Row lock indicates a lock on a row.</td>
</tr>
<tr>
<td>RSTR</td>
<td>The Shared Communications Area (SCA) restart (RSTR) lock indicates a lock on SCA access for restart/redo information. (BMC-RSTP)</td>
</tr>
<tr>
<td>SDBA</td>
<td>The Start/stop lock on DBA (SDBA) table indicates a lock on the table, tablespace, or database when a CREATE/DROP is processed against these objects. • DB = database name • PS = pageset name</td>
</tr>
<tr>
<td>SENV</td>
<td>The System environment (SYSENV) serialization lock.</td>
</tr>
<tr>
<td>SKCT</td>
<td>The Skeleton cursor table (SKCT) lock indicates a lock on the application plan. PLAN=plan name</td>
</tr>
<tr>
<td>SKPT</td>
<td>The Skeleton package table (SKPT) lock indicates a lock on the application package. TOKEN= the consistency token (CONTOKEN) column from SYSIBM.SYSPACKAGE.</td>
</tr>
<tr>
<td>SPRC</td>
<td>The System level point in time (PIT) recovery lock. SYS_PITR</td>
</tr>
</tbody>
</table>
The Log range lock.

DB2 writes a record in the log range tablespace (SYSLGRNG) every time a tablespace is opened and updated, and updates SYSLGRNG whenever that tablespace is closed.

The record contains the opening and/or closing log RBA (relative byte address) for the tablespace. When DB2 writes to SYSLGRNG, the program acquires a lock on the tablespace with updates.

- DB = database name
- TS = tablespace name

The Table (TABL) lock on the table which resides in a segmented tablespace.

- DBID = DBid
- TABL = Tableid

The Util I/O Damage Assessment lock.

The Undetermined (UNDT) lock indicates that this lock cannot be determined because it is not part of the other listed lock types.

Resource ID (in hexadecimal).

The Unknown (UNKN) lock indicates the resource does not exist.

The Utility exclusive execution (UTEX) lock.

UID=utility id

The Utility identifier (UTID) lock.

The Utility object (UTOB) lock.

- DB = database name
- PS = pageset name
- PT = partition

The Utility serialization (UTSE) lock is required when running utility jobs.

The Write drain (WDRN) lock is acquired to drain all write access to an object.

- DB = database name
- PS = pageset name
- PT = partition

The XML lock.

 LUWID The logical unit of work ID (LUWID) for a thread.

MVS System An ID for the MVS System Management Facility (SMF). It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.
**Plan Name** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string with a maximum of 8 characters. For example PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Resource Name 1 (Unicode)** The resource name of type defined by type code.

**Resource Name 2 (Unicode)** The resource name of type defined by type code.

**Resource Name 3** The resource name of type defined by type code.

**Resource Name 4** The resource name of type defined by type code.

**Resource Type 1** This value indicates what is contained in Resource Name 1.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>Buffer Pool</td>
</tr>
<tr>
<td>CO</td>
<td>Collection name</td>
</tr>
<tr>
<td>DB Hash</td>
<td>Database</td>
</tr>
<tr>
<td>HC</td>
<td>Class</td>
</tr>
<tr>
<td>PL</td>
<td>Plan name</td>
</tr>
<tr>
<td>UT</td>
<td>Utility ID</td>
</tr>
</tbody>
</table>

**Resource Type 2** This value indicates what is contained in Resource Name 2.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PK</td>
<td>Package</td>
</tr>
<tr>
<td>PS</td>
<td>Page Set (Tablespace)</td>
</tr>
</tbody>
</table>

**Resource Type 3** This value indicates what is contained in Resource Name 3.

**Resource Type 4** This value indicates what is contained in Resource Name 4.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT</td>
<td>Partition</td>
</tr>
</tbody>
</table>

**SUBSYS** The IRLM subsystem name.

**Thread Status** The current status of a thread.

Valid values are:

**Status** Description
NOT-AVAIL
The thread is not available.

IN-ABORT
The thread is in abort processing.

IN-ACCEL
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=T status.

IN-TRIGGER
The thread is currently running in a trigger.
IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBBLOCK
The thread is currently waiting for either:
• Inter-system communication within the data sharing group to determine if there is lock contention.
• A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.
WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSN recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.
WAIT-SYNC-IO

The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Token The thread token uniquely identifies a specific thread.

Local DB2 Lock Conflict Attributes The type of thread.

It can be:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSASF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

Uniqueness Value The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).
Uniqueness Value
The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: the last 2 bytes of QWHSLUU). 

Local Object Activity Attributes
Use the Local Object Activity attributes to create situations that you can use to monitor the I/O and getpage activity by database.

ASYNC Write Rate The number of asynchronous writes per second during the collection interval. Valid format is a decimal number, with 1 decimal place allowed, in the range 0.0 - 9999.9; for example, 2.1.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

Database The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSND806.

DB2 ID The name of a DB2 subsystem.

Getpage Rate The number of getpage requests per second for the database or space name. Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.3.

Getpage RIO Ratio The ratio of getpage requests to read I/Os for the database.

The ratio is calculated by dividing the number of getpage requests by the sum of the following values:
• Number of synchronous reads
• Number of prefetch read I/Os

Valid format is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 1.8.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

Number of ASYNC Writes The number of asynchronous writes during the collection interval. Valid value is an integer in the range 0 - 2147483647.

Number of Getpages The number of getpage requests for the database or space name. Valid value is an integer in the range 0 - 2147483647.

Number of Other Writes The number of immediate and format writes. Valid value is an integer in the range 0 - 2147483647.

Number of Prefetch Reads The number of prefetch read I/Os for the database. Valid value is an integer in the range 0 - 2147483647.

Number of SYNC Reads The number of synchronous reads for the database or space name. Valid value is an integer in the range 0 - 2147483647.
**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Other Write Rate** The number of immediate and format writes per second. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.6.

**Percent of Getpage Activity** The percentage of total getpage activity that is applicable to the database, space name, or thread. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.6.

**Percent of I/O** The percentage of total I/O activity that is applicable to the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 100.0; for example, 2.0.

**Prefetch Read Rate** The number of prefetch read I/Os per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 0.9.

**Space Name** The name of the selected space for which thread activity has occurred. It is an alphanumeric text string, with a maximum of 8 characters; for example, DSNUCX01.

**SYNC Read Rate** The number of synchronous reads per second for the database or space name. Valid value is a decimal number, with one decimal place allowed, in the range 0.0 - 9999.9; for example, 2.2.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Local Object Space Name Attributes**
Use the Local Object Space Name attributes to create situations that monitor object, volume, and extent activity for a specific DB2 object space.

**Buffer Pool ID** The ID for a buffer pool. Valid values are:
- 32K = 80
- 32K1 = 81
- 32K2 = 82
- 32K3 = 83
- 32K4 = 84
- 32K5 = 85
- $32K6 = 86$
- $32K7 = 87$
- $32K8 = 88$
- $32K9 = 89$

**Database Name** The name of a DB2 database. It is an alphanumeric text string with a maximum of 8 characters; for example, DSNDB06.

**Data Sharing Group** The name of a data sharing group. It is an alphanumeric text string, with a maximum length of eight characters.

**DB2 ID** The name of a DB2 subsystem.

**Extents per Data Set Ratio** The average number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 100.

**IDNAME** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**Max Number of Extents per DSN** The largest number of extents per data set or space name for a DB2 database. Valid value is an integer in the range 0 - 219.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example, SP11.

**Number of Data Sets** The total number of allocated data sets for the DB2 you are monitoring. Valid value is an integer in the range 0 - 10000.

**Number of Extents** The number of data set extents that the operating system has allocated for a data set. Valid value is an integer in the range 0 - 219.

**Number of Volumes** The number of volumes on which the data set resides. Valid value is an integer in the range 0 - 256.

**Object Space Name** The name of a DB2 object space. It is an alphanumeric text string, with a maximum of 8 characters; for example, DSNUCX01.

**Object Type** The type of object space name.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDX</td>
<td>Index</td>
</tr>
<tr>
<td>PTIX</td>
<td>Partitioned index</td>
</tr>
<tr>
<td>PTTS</td>
<td>Partitioned table space</td>
</tr>
<tr>
<td>SEGM</td>
<td>Segmented table space</td>
</tr>
<tr>
<td>TBLS</td>
<td>Simple table space</td>
</tr>
<tr>
<td>UNDT</td>
<td>Undetermined</td>
</tr>
</tbody>
</table>

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.
**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- **M** = Month
- **D** = Day
- **Y** = Year
- **H** = Hour
- **M** = Minute
- **S** = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Log Detail Attributes**
Use the Log Detail attributes to view log activities of the primary, secondary, or archive log data sets.

**Archive Device** The device type of the archive data set.

**Begin RBA** The beginning of the Relative Byte Address (RBA) in the primary, secondary, or archive log data set.

It is an alphanumeric text string, with a maximum length of 20 characters. For DB2 11, the RBA can consist of up to 10 bytes. For versions prior to DB2 11, the RBA can consist of up to 6 bytes.

**Current RBA** The current Relative Byte Address (RBA) in the primary, secondary, or archive log data set.

It is an alphanumeric text string, with a maximum length of 20 characters. For DB2 11, the RBA can consist of up to 10 bytes. For versions prior to DB2 11, the RBA can consist of up to 6 bytes.

**DB2 ID** The name of a DB2 subsystem.

**DB2 Version** The version of the DB2 system.

**Data Set Name** The name of the primary, secondary, or archive log data set.

It is an alphanumeric text string, with a maximum length of 44 characters.

**Data Set Type** The type of the primary, secondary, or archive log data set.

It is an alphanumeric text string, with a maximum length of 4 characters.

**End RBA** The end of the Relative Byte Address (RBA) in the primary, secondary, or archive log data set.

It is an alphanumeric text string, with a maximum length of 20 characters. For DB2 11, the RBA can consist of up to 10 bytes. For versions prior to DB2 11, the RBA can consist of up to 6 bytes.

**Log Percent Used** The log percentage used in the primary or secondary log data set.
Log Size  The log size of the primary or secondary log data set.

Log Volume Count  The number of log volumes counted for the primary or secondary log data set.

Log Volser  The volume serial number (volser) identified for the primary or secondary log data set.

It is an alphanumeric text string, with a maximum length of 40 characters.

Interval Start  The start time of this interval.

MVS System ID  The MVS system identifier.

Originating System ID  The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Percent Archive Complete  The percentage of the archive activity that has been completed.

Log Statistics Attributes
Use these attributes to view the Log statistics.

DB2 Subsystem  The DB2 subsystem ID.

DB2 Version  The DB2 version.

Data Sharing Group  The Data Sharing Group name.

Data Sharing Member  The Data Sharing Group member name.

Delta Value  The change since the last sample.

Field Name  The data field name.

Field Value  The data value.

Interval Start  The start time of this interval.

Interval Time  The collection interval time.

MVS System ID  The MVS identifier.

Originating System ID  The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Rate  The amount over the last sampling interval.

Sequence Number  The data field sequence number.

MVS Storage Attributes
Use the MVS Storage attributes to view the system storage sizes. This information is provided with DB2 10.
24 Bit High Private (MB) Identifies the amount of private MVS storage below the 16 MB line (DB2 field name: QW0225HI). This storage is obtained from top downward, usually for authorized programs.

24 Bit Low Private (MB) Identifies the amount of private MVS storage below the 16 MB line (DB2 field name: QW0225LO). This storage is obtained from bottom upward, usually for unauthorized programs.

31 Bit Extended High Private (MB) Identifies the amount of private MVS storage above the 16 MB line (DB2 field name: QW0225EH). This storage is obtained from top downward, usually for authorized programs.

31 Bit Extended Low Private (MB) Identifies the amount of private MVS storage above the 16 MB line (DB2 field name: QW0225EL). This storage is obtained from bottom upward, usually for unauthorized programs.

Active and Disconnect DBATs Identifies the number of active and disconnected DBAT threads (DB2 field name: QW0225DB).

Active Threads Identifies the number of active allied threads (DB2 field name: QW0225AT).

Address Space Name Shows the address space name (DBM1 or DIST) (DB2 field name: QW0225AN).

Agent Local Storage (MB) Identifies the amount of storage allocated for agent-related local storage (DB2 field name: QW0225AL). This storage is used for operations such as sort.

Agent Non-System Storage (MB) Identifies the total agent non-system storage. It is the difference between the Total Agent Local Storage (QW0225AL) and the Total Agent System Storage (QW0225AS).

Agent System Storage (MB) Identifies the storage used by system agents (DB2 field name: QW0225AS).

Auxiliary 4K Slot in Use 31 Bit Identifies the number of auxiliary slots (4K) in use by DBM1 (DB2 field name: QW0225AX).

Auxiliary 4K Slot in Use 64 Bit Identifies the number of auxiliary 4K slots in use for 64-bit private pools (DB2 field name: QW0225HVAuxSlots). This value is available from z/OS 1.11.

Auxiliary Slots Used Shared Storage 64 Bit Identifies the number of auxiliary slots used for 64-bit shared storage for this MVS LPAR (DB2 field name: QW0225SHRAUXSLOTS).

Auxiliary Storage in Use (MB) Identifies the number of auxiliary slots (4K) in use by DBM1 (DB2 field name: QW0225AX).

Avg Thread Footprint (MB) The current average memory usage of active allied threads and the maximum number of existing active DBATs. Valid value is an integer.

It is calculated as follows:
Average Thread Footprint (MB) The current average memory usage of active allied threads and the maximum number of existing active DBATs. It is an alphanumeric text string with a maximum of 10 characters.

It is calculated as follows:

\[
\frac{\text{total variable storage} - \text{total agent system storage} - \text{amount of storage allocated for the local cache storage pool}}{\text{active allied threads} + \text{active DBATs}}
\]

Buffer Manager Data Manager Trace Table (MB) Identifies the storage used for Buffer Manager and Data Manager internal trace tables (DB2 field name: QW0225TT).

Buffer Manager Storage Control Blocks (MB) Identifies the storage used for page set control blocks (DB2 field name: QW0225BB).

Castout Buffers (MB) Identifies the storage used for castout buffers (DB2 field name: SW0225C2).

Castout Engines Identifies the number of engines available for data-sharing castout processing (DB2 field name: QW0225CE).

Common Fixed Pool Above (MB) Identifies the amount of storage allocated for 64-bit common fixed pool storage (DB2 field name: QW0225FCG).

Common Fixed Pool Below (MB) Identifies the amount of storage allocated for 31-bit common fixed pool storage (DB2 field name: QW0225FC).

Common Getmained Above (MB) Identifies the amount of storage allocated for 64-bit common getmained storage (DB2 field name: QW0225GCG).

Common Getmained Below (MB) Identifies the amount of storage allocated for 31-bit common getmained storage (DB2 field name: QW0225GC).

Common Storage Manager Control Block Above (MB) Identifies the amount of storage allocated for 64-bit common storage for storage manager control structures (DB2 field name: QW0225SMC).

Common Variable Pool Above (MB) Identifies the amount of storage allocated for 64-bit common variable pool storage (DB2 field name: QW0225VCG).

Common Variable Pool Below (MB) Identifies the amount of storage allocated for 31-bit common variable pool storage (DB2 field name: QW0225VC).

Compression Dictionary Identifies the storage space allocated for the compression dictionary (DB2 field name: QW0225CD).
Current Private High Addr 24 Bit Identifies the current high address of the 24-bit private region (DB2 field name: QW0225TP). It indicates the highest value (upper limit) of the private area of the DB2 database address space and the private area of the distributed data address space.

Current Private High Addr 31 Bit Identifies the current high address of the 31-bit private region (DB2 field name: QW0225EP).

DB2 ID Identifies the DB2 ID.

DB2 Version The version of the DB2 system.

Deferred Write Engines Identifies the number of engines used for deferred write operations (DB2 field name: QW0225DW).

Dynamic Statement Cache Control Block (MB) Identifies the amount of storage used for dynamic statement cache control blocks above the 2 GB bar (DB2 field name: QW0225S2).

Extended CSA Size (MB) Identifies the size of the common storage area (CSA) above the 16 MB line (DB2 field name: QW0225EC).

Fixed Storage Identifies the total amount of fixed storage (DB2 field name: QW0225FX).

Fixed Storage above (MB) Identifies the total amount of fixed storage above the 2 GB bar (DB2 field name: QW0225FA).

GBP Write Engines Identifies the number of engines for group buffer pool writes (DB2 field name: QW0225GW).

Getmained Storage (MB) Identifies the total storage acquired by GETMAIN (DB2 field name: QW0225GM). This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, hiperpool control blocks, and data space buffer pool control blocks. This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Getmained Storage above (MB) Identifies the total storage acquired by GETMAIN (DB2 field name: QW0225GA). This includes space for the compression dictionary, and statement and DBD cache that can be used by the Environmental Descriptor Manager (EDM). This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Getmained Stack Storage (MB) Identifies the total GETMAINED storage allocated for program stack use (DB2 field name: QW0225GS).

HWM Auxiliary 4K Slot in Use 64 Bit Identifies the high water mark for the number of auxiliary 4K slots in use for 64-bit private pools (DB2 field name: QW0225HVGAuxSlots). This value is available from z/OS 1.11.

HWM Real 4K Frame in Use 64 Bit Identifies the high water mark for the number of real 4K frames in use for 64-bit private pools (DB2 field name: QW0225HVGPagesInReal). This value is available from z/OS 1.11.
**HWM Shared Bytes 64 Bit (MB)** Identifies the high water mark for number of 64-bit shared bytes for this MVS LPAR (DB2 field name: QW0225SHRGBYTES).

**HWM Thread Copies Cached SQL (MB)** Identifies the statistics interval high-water mark of allocated storage for thread copies in the local cache storage pool (DB2 field name: QW0225HS).

**Interval Start** The time at the Tivoli Enterprise Monitoring Server location when the data was sampled. The format is MM/DD/YY HH:MM:SS.

**Local Dynamic Statement Cache Control Block (MB)** Identifies the storage for local dynamic statement cache control blocks (DB2 field name: QW0225SB).

**Max Extended Region Size (MB)** Identifies the maximum amount of MVS private storage available above the 16 MB line (DB2 field name: QW0225RG).

**Max Number of Threads** The maximum number of possible threads. This depends on the storage size, the average memory usage of active user threads, and the maximum number of existing active DBATs. Valid value is an integer.

It is calculated as follows:

\[
\frac{(\text{extended region size}) - (31 \text{ bit extended low private}) - \min (\text{extended region size} / 8, 200 \times 1024 \times 1024) - [(\text{total getmained storage}) + (\text{total getmained stack storage}) + (\text{total fixed storage})]}{(\text{average thread footprint})}
\]

**Maximum Number of Threads** The maximum number of possible threads. This depends on the storage size, the average memory usage of active user threads, and the maximum number of existing active DBATs. It is an alphanumeric text string with a maximum of 10 characters.

It is calculated as follows:

\[
\frac{(\text{extended region size}) - (31 \text{ bit extended low private}) - \min (\text{extended region size} / 8, 200 \times 1024 \times 1024) - [(\text{total getmained storage}) + (\text{total getmained stack storage}) + (\text{total fixed storage})]}{(\text{average thread footprint})}
\]

**MVS System ID** The MVS system identifier.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Prefetch Engines** Identifies the number of engines used for sequential, list, and dynamic prefetch (DB2 field name: QW0225PF).

**Pipe Manager Subpool Storage (MB)** Identifies the storage allocated to Pipe Manager for parallel query operations (DB2 field name: QW0225PM).

**P-Lock Notify Exit Engines** Identifies the number of data sharing P-Lock engines and Notify Exit engines (DB2 field name: QW0225PL).

**RDS OP Pool Storage (MB)** Identifies the storage for RDS operations pool used for sort, prepare, and so on (DB2 field name: QW0225RO).
Real 4K Frame in Use 31 Bit Identifies the amount of real-storage frames in use for 31-bit and 64-bit private pools (DB2 field name: QW0225RL).

Real 4K Frame in Use 64 Bit Identifies the number of real 4K frames in use for 64-bit private pools (DB2 field name: QW0225HVPagesInReal). This value is available from z/OS 1.11.

Real Storage in Use (MB) Identifies the amount of real storage in use for 31-bit and 64-bit private pools.

RID Pool Storage (MB) Identifies the storage for RID list processing such as list prefetch, index ANDing and ORing (DB2 field name: QW0225RP).

Shared Agent Local Storage (MB) Identifies the amount of storage allocated for agent-related 64-bit local storage (DB2 field name: QW0225ALG).

Shared Agent Non-System Storage (MB) Identifies the amount of 64-bit storage used by non-system agents. It is the difference between the Total Agent Local Storage (QW0225ALG) and the Total Agent System Storage.

Shared Agent System Storage (MB) Identifies the amount of 64-bit storage used by system agents (DB2 field name: QW0225ASG).

Shared Fixed Storage (MB) Identifies the amount of total fixed virtual shared storage above the 2 GB bar (DB2 field name: QW0225SF).

Shared Getmained Storage (MB) Identifies the amount of virtual shared storage acquired by GETMAIN above the 2 GB bar (DB2 field name: QW0225SG).

Shared Memory Objects Identifies the number of shared memory objects allocated for this MVS LPAR (DB2 field: QW0225SHRNMOMB).

Shared Memory Storage (MB) Identifies the total 64-bit storage allocated for storage manager control structures (DB2 field name: QW0225SM).

Shared Memory Pages 64 Bit Identifies the number of 64-bit shared memory pages allocated for this MVS LPAR (this count includes hidden pages) (DB2 field name: QW0225SHRPAGES).

Shared Non-System Agent Stack Storage (MB) Identifies the amount of 64-bit shared storage allocated for non-system agent stack use (DB2 field name: QW0225GSG).

Shared Non-System Stack Storage in Use (MB) Identifies the amount of 64-bit shared non-system agent stack that is in use (DB2 field name: QW0225SUG).

Shared Pages Backed in Real Storage 64 Bit Identifies the number of 64-bit shared pages backed in real storage (4K pages) for this MVS LPAR (DB2 field name: QW0225SHRINREAL).

Shared Pages Paged In from Auxiliary Storage 64 Bit Identifies the number of 64-bit shared pages paged in from auxiliary storage for this MVS LPAR (DB2 field name: QW0225SHRPAGEINS).
Shared Pages Paged Out from Auxiliary Storage 64 Bit Identifies the number of 64-bit shared pages paged out to auxiliary storage for this MVS LPAR (DB2 field name: QW0225SHRPAGEOUTS).

Shared Storage Manager Control Block (MB) Identifies the amount of 64-bit shared storage allocated for storage manager control structures (DB2 field name: QW0225SMS).

Shared System Agent Stack Storage (MB) Identifies the amount of 64-bit shared storage allocated for system agent stack use (DB2 field name: QW0225GSG_SYS).

Shared System Agent Stack Storage in Use (MB) Identifies the amount of 64-bit shared system agent stack that is in use (DB2 field name: QW0225SUG_SYS).

Shared Variable Storage (MB) Identifies the amount of virtual shared variable storage above the 2 GB bar (DB2 field name: QW0225SV).

Stack Storage In Use (MB) Identifies the amount of stack storage that is in use (DB2 field name: QW0225SU).

Storage Cushion (MB) Identifies the storage reserved to allow DB2 to complete critical functions while short on storage (DB2 field name: STORCUSH). This includes the contract warning cushion, storage reserved for must-complete operations, and storage for MVS use.

Storage Manager Control Block (MB) Identifies the total 64-bit storage allocated for storage manager control structures (DB2 field name: QW0225SM).

Thread Copies of Cached SQL (MB) Identifies the amount of storage allocated for the local cache storage pool (DB2 field name: QW0225SC). For DB2 10, the storage is allocated for executable code sequences of dynamic SQL statements.

Thread Copies of Cached SQL above HWM Allocated Statement (MB) Identifies the statistics interval high-water mark (HWM) of allocated storage for thread copies in the cache storage pool above the 2 GB bar (DB2 field name: QW0225H2).

Thread Copies of Cached SQL above In Use (MB) Identifies the amount of storage used for thread copies in the cache storage pool above the 2 GB bar (DB2 field name: QW0225L2).

Thread Copies of Cached SQL Date at HWM Identifies the timestamp at high-water storage (DB2 field name: QW0225HT).

Thread Copies of Cached SQL in Use (MB) Identifies the amount of storage used for thread copies in the local cache storage pool (DB2 field name: QW0225LS). This is a subset of the total allocated storage for thread copies QW0225SC.

Thread Copies of Cached SQL Statement Count Identifies the number of statements in the local cache storage pool (DB2 field name: QW0225LC).

Thread Copies of Cached SQL Statement Count at HWM Identifies the number of statements in the local cache storage pool at high storage time (DB2 field name: QW0225HC).
Thread Copies of Static SQL (MB) Identifies the amount of storage allocated below the bar for executable code sequences of static SQL statements (DB2 field name: QW0225SX).

Total Storage Below (MB) Identifies total DBM1 storage (DB2 field name: SW0225DB). This includes:
- Fixed length storage use
- Getmained storage
- Save areas
- Variables

Variable Storage (MB) Identifies the total storage used by all variable pools (DB2 field name: QW0225VR). This includes storage used by:
- System agents
- Local agents
- RID pool
- Pipe manager subpool
- Local dynamic statement cache control blocks
- Local dynamic statement cache statement pool
- Buffer and data manager trace tables

Variable Storage above (MB) Identifies the amount of variable storage available above the 2 GB bar (DB2 field name: QW0225VA).

QW0225AV Identifies the total amount of storage available for storage manager pools (DB2 field name: QW0225AV).

QW0225CR Identifies the storage reserved for operation that must complete before DB2 is allowed to stop (DB2 field name: QW0225CR).

QW0225F1 This field is for IBM service (DB2 field name: QW0225F1).

QW0225F2 This field is for IBM service (DB2 field name: QW0225F2).

QW0225MV Identifies the amount of storage available for operating system activity (DB2 field name: QW0225MV).

QW0225SO Identifies the amount of free storage, in megabytes, available in the DBM1 data space (DB2 field name: QW0225SO).

Storage Consumption Attributes
Use the Storage Consumption attributes to assess storage consumption issues for your DB2 version.

Agent Local Storage (MB) The amount of storage, in MB, allocated for agent-related local storage. This storage is used for operations such as sort. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225AL).

Agent System Storage (MB) The storage used by system agents. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225AS).

Auxiliary Storage in Use (MB) The auxiliary storage used by DBM1, in megabytes. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225AX).
**Average Thread Footprint (MB)** The current average memory usage of active allied threads and the maximum number of existing active DBATs. It is an alphanumeric text string with a maximum of 10 characters.

It is calculated as follows:

\[
\frac{[(\text{total variable storage}) - (\text{total agent system storage}) - (\text{amount of storage allocated for the local cache storage pool})]}{[(\text{active allied threads}) + (\text{active DBATs})]}
\]

**Buffer Manager Data Manager Trace Table (MB)** The storage used for Buffer Manager and Data Manager internal trace tables. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225TT).

**Buffer Manager Storage CNTL Blocks (MB)** The storage used for Buffer Manager Control Blocks. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225BB).

**Castout Engines** The number of engines available for data-sharing castout processing. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225CC).

**Compression Dictionary (MB)** The storage space, in megabytes, allocated for the compression dictionary. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225CD).

**DBM1 Storage (MB)** The total DBM1 storage. Valid value is an integer in the range 0 - 999999.

This includes:

- Fixed length storage use
- Getmained storage
- Save areas
- Variables

It is calculated as follows:

\[
(\text{total getmained storage}) + (\text{total variable storage}) + (\text{total fixed storage}) + (\text{total getmained stack storage})
\]

**Castout Buffers (MB)** The total storage for buffers needed for all castout engines. Valid value is an integer in the range 0 - 999999.

It is calculated as follows:

\[
(\text{castout engines}) \times 128 \times 1024
\]

**DB2ID** The name of a DB2 subsystem.
**DB2 Version** The version of the DB2 system.

**Deferred Write Engines** The number of engines used for deferred write operations. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225DW).

**Extended CSA Size (MB)** The size of the common storage area (CSA) above the 16 MB line. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225EC).

**Fixed Storage above (MB)** The total amount of fixed storage above the 2 GB bar. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225FA).

**Fixed Storage (MB)** The total amount of fixed storage. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225FX).

**Fixed Virtual 64 Bit Shared (MB)** The amount of total fixed virtual shared storage above the 2 GB bar. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225SF).

**GBP Write Engines** The number of engines for group buffer pool writes. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225GW).

**Getmained Stack Storage (MB)** The total GETMAINED storage allocated for program stack use. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225GS).

**Getmained Storage above (MB)** The total storage acquired by GETMAIN above the 2 GB bar. This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, hiperpool control blocks, and data space buffer pool control blocks. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225GA).

**Getmained Storage (MB)** The total storage acquired by GETMAIN. This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, hiperpool control blocks, and data space buffer pool control blocks. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225GM).

**Getmained Virtual 64 Bit Shared (MB)** The amount of virtual shared storage acquired by GETMAIN above the 2 GB bar. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225SG).

**Interval Start** The date and time, as set on the monitored system, indicating the instance when the agent collects information.

**Local Dynamic Statement Cache Control Blocks** The storage for local dynamic statement cache blocks. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225SB).

**Max Extended Region Size (MB)** The maximum amount of MVS private storage available above the 16 MB line. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225RG).
**Maximum Number of Threads** The maximum number of possible threads. This depends on the storage size, the average memory usage of active user threads, and the maximum number of existing active DBATs. It is an alphanumeric text string with a maximum of 10 characters.

It is calculated as follows:

\[
\text{MaxThreads} = \left\lfloor \frac{\text{extended region size} - (31 \text{ bit extended low private}) - \text{minimum (extended region size / 8, } 200 \times 1024 \times 1024) - [\text{total getmained storage} + \text{total getmained stack storage} + \text{total fixed storage}]}{\text{average thread footprint}} \right\rfloor
\]

**MVS System ID** The MVS system identifier.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Pipe Manager Subpool Storage (MB)** The storage allocated to Pipe Manager for parallel query operations. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225PM).

**P-Lock Notify Exit Engines** The number of engines for data sharing P-lock/notify exit engines. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225PL).

**Prefetch Engines** The number of engines used for sequential, list, and dynamic prefetch. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225PF).

**RDS OP Pool Storage (MB)** The storage for RDS operations pool used for sort, prepare, and so on. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225RO).

**Real Storage in Use (MB)** The real storage used by DBM1, in megabytes. Valid value is an integer in the range 0 - 999999.

**RID Pool Storage (MB)** The storage for RID list processing, such as list prefetch, index ANDing, and ORing. Valid value is an integer in the range 0 - 999999 (DB2 field name: QW0225RP).

**Shared Memory Storage (MB)** The amount of virtual shared memory storage above the 2 GB bar. Valid value is an integer in the range 0 - 999999.

**Stack Storage In Use (MB)** The amount of stack storage which is in use. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SU).

**Storage Cushion (MB)** The storage reserved to allow DB2 to complete critical functions while short on storage. This includes the contract warning cushion, storage reserved for must-complete operations, and storage for MVS use. Valid value is an integer in the range 0 - 999999.

**Thread Copies of Cached SQL (MB)** The amount of storage allocated for the local cache storage pool. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SC).
Thread Copies of Cached SQL above HWM for Allocated Statements (MB) The statistics interval high-water mark (HWM) of allocated storage for thread copies in the local cache storage pool above the 2 GB bar. This is a subset of the counter Thread Copies of Cached SQL Statement Count. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225H2).

Thread Copies of Cached SQL above In Use (MB) The amount of storage used for thread copies in the local cache storage pool above the 2 GB bar. This is a subset of the counter Thread Copies of Cached SQL Statement Count. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225L2).

Thread Copies of Cached SQL above (MB) The amount of storage allocated for the local cache storage pool above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225S2).

Thread Copies of Cached SQL Date at High Water Mark The timestamp at high-water storage (DB2 field name: QW0225HT).

Valid format is MM-DD-YY HH:MM:SS, where:
• M = Month
• D = Day
• Y = Year
• H = Hour
• M = Minute
• S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

Thread Copies of Cached SQL HWM for Allocated Statements (MB) The statistics interval high-water mark of the allocated storage for thread copies in the local cache storage pool. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225HS).

Thread Copies of Cached SQL In Use (MB) The amount of storage used for thread copies in the local cache storage pool. This is a subset of the total allocated storage for thread copies. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225LS).

Thread Copies of Cached SQL Statement Count The number of statements in the local cache storage pool. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225LC).

Thread Copies of Cached SQL Statement Count at High Water Mark The number of statements in the local cache storage pool at high storage time. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225HC).

Variable Storage (MB) The total storage used by all variable pools. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225VR).

This includes storage used by:
• System agents
• Local agents
• RID pool
Pipe manager subpool
Local dynamic statement cache control blocks
Local dynamic statement cache statement pool
Buffer and data manager trace tables

**Variable Storage above (MB)** The amount of variable storage available above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225VA).

**Variable Virtual 64 Bit Shared (MB)** The amount of virtual shared variable storage above the 2 GB bar. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225SV).

**24 Bit High Private (MB)** The amount of private MVS storage below the 16 MB line. This storage is obtained from top downward, usually for unauthorized programs. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225HI).

**24 Bit Low Private (MB)** The amount of private MVS storage below the 16 MB line. This storage is obtained from bottom upward, usually for unauthorized programs. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225LO).

**31 Bit Extended High Private (MB)** The amount of private MVS storage above the 16 MB line. This storage is obtained from top downward, usually for authorized programs. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225EH).

**31 Bit Extended Low Private (MB)** The amount of private MVS storage above the 16 MB line. This storage is obtained from bottom upward, usually for unauthorized programs. Valid value is an integer in the range 0 - 9999999 (DB2 field name: QW0225EL).

**SQL Counts Attributes**
Use the SQL Counts attributes to create situations to monitor the SQL DCL (Data Control Language) declarations, SQL DDL (Data Definition Language) statements, and SQL DML (Data Manipulation Language) statements, associated with a DB2 subsystem. They also show information for stored procedures, user-defined functions, triggers, direct row access, parallelism, RID pool access, and prepare statements. They provide information about multi-row processing and concentrate statements.

**4K Used Instead 32K** The number of times that space in a 4 KB page table space was used because space in a 32 KB page table space was preferred but not available (Field name: QISTWFP2).

**32K Used Instead 4K** The number of times that space in a 32 KB page table space was used because space in a 4 KB page table space was preferred but not available (Field name: QISTWFP1).

**Agent Max Storage** The maximum amount of storage that can be used for each agent (Field name: QISTWMXA).

**Allocate Cursor** The number of SQL ALLOCATE CURSOR statements executed (field name: QXALOCC).
Alter Database The number of ALTER DATABASE statements executed (Field name: QXALDAB).

Alter Function The number of ALTER FUNCTION statements executed (Field name: QXALUDF).

Alter Index The number of ALTER INDEX statements executed (Field name: QXALTIX).

Alter Procedure The number of ALTER PROCEDURE statements executed (Field name: QXALPRO).

Alter Stogroup The number of ALTER STOGROUP statements executed (Field name: QXALTST).

Alter Table The number of ALTER TABLE statements executed (Field name: QXALTTA).

Alter Tablespace The number of ALTER TABLESPACE statements executed (Field name: QXALTTS).

Alter Trusted Context The number of alter trusted context statements executed (Field name QXALTCTX) - not supported prior to DB2 9.

Associate Locator The number of SQL ASSOCIATE LOCATORS statements executed (Field name: QXALOCL).

Close Cursor The number of CLOSE statements executed. This number at the server location might not match the user application because of DDF's internal processing (DB2 field name: QXCLOSE).

Comment On The number of COMMENT ON statements executed (Field name: QXCMTON).

Connect (Type 1) The number of CONNECT type 1 statements executed (Field name: QXCON1).

Connect (Type 2) The number of CONNECT type 2 statements executed (field name: QXCON2).

Create Alias The number of CREATE ALIAS statements executed (Field name: QXCRALS).

Create Database The number of CREATE DATABASE statements executed (Field name: QXCRDAB).

Create Distinct Type The number of CREATE DISTINCT TYPE statements executed (Field name: QXCDIST).

Create Function The number of CREATE FUNCTION statements executed (Field name: QXCRUDF).

Create Global Temp Table The number of CREATE GLOBAL TEMPORARY TABLE statements executed (Field name: QXCRGTT).
Create Index  The number of CREATE INDEX statements executed (Field name: QXCRINX).

Create Procedure  The number of CREATE PROCEDURE statements executed (Field name: QXCRPRO).

Create Role  The number of CREATE ROLE statements executed (Field name QXCRROL) - not supported prior to DB2 9.

Create Stogroup  The number of CREATE STOGROUP statements executed (Field name: QXCRSTG).

Create Synonym  The number of CREATE SYNONYM statements executed (field name: QXCRSYN).

Create Table  The number of CREATE TABLE statements executed (Field name: QXCRTAB).

Create Tablespace  The number of CREATE TABLESPACE statements executed (Field name: QXCTABS).

Create Trigger  The number of CREATE TRIGGER statements executed (field name: QXCTRIG).

Create Trusted Context  The number of create trusted context statements executed (Field name QXCRCTX) - not supported prior to DB2 9.

Create View  The number of CREATE VIEW statements executed (Field name: QXDEFVU).

Current Total Storage  The total whole kilobytes of storage that are currently used in the workfile database (field name: QISTWCTO).

DB2 ID  The DB2 subsystem ID.

Delete  The number of DELETE statements executed (DB2 field name: QXDELET).

Delete Rows Accessed  The number of rows accessed by READ transactions because of uncommitted DELETE operations (using currently committed semantic for FETCH) - (Field name: QISTRCCD).

Delta  The changes since the last sample period.

Describe  The number of DESCRIBE, DESCRIBE CURSOR, DESCRIBE INPUT, and DESCRIBE PROCEDURE statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXDESC).

Describe Table  The number of DESCRIBE TABLE statements executed (Field name: QXDSCRRTB).

Description  The description of the monitored activity.

Direct Row Revert to Index  The number of times that direct row access failed and an index was used to find a record (Field name: QXROIIDX).
**Direct Row Revert to TS Scan** The number of times that an attempt to use direct row access reverted to using a table-space scan because DB2 was not able to use a matching index scan (Field name: QXROITS).

**Direct Row Successful** The number of times that direct row access was successful (Field name: QXROIMAT).

**Drop Alias** The number of SQL DROP ALIAS statements executed (field name: QXDRPAL).

**Drop Database** The number of DROP DATABASE statements executed (Field name: QXDRPDB).

**Drop Distinct Type** The number of DROP DISTINCT TYPE statements executed (Field name: QXDDIST).

**Drop Function** The number of DROP FUNCTION statements executed (field name: QXDRPFN).

**Drop Index** The number of DROP INDEX statements executed (Field name: QXDRPIX).

**Drop Package** The number of SQL DROP PACKAGE statements executed (field name: QXDRPPKG).

**Drop Procedure** The number of DROP PROCEDURE statements executed (Field name: QXDRPRP).

**Drop Role** The number of DROP ROLE statements executed (Field name QXDRPROL) - not supported prior to DB2 9.

**Drop Stogroup** The number of DROP STOGROUP statements executed (Field name: QXDRPST).

**Drop Synonym** The number of DROP SYNONYM statements executed (Field name: QXDRPSY).

**Drop Table** The number of DROP TABLE statements executed (Field name: QXDRPTA).

**Drop Tablespace** The number of DROP TABLESPACE statements executed (Field name: QXDRPTS).

**Drop Trigger** The number of DROP TRIGGER statements executed (Field name: QXDRPTR).

**Drop Trusted Context** The number of drop trusted context statements executed (Field name QXDRPCTX) - not supported prior to DB2 9.

**Drop View** The number of DROP VIEW statements executed (Field name: QXDRPVU).

**Fetch** The number of FETCH statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXFETCH).
Grant The number of GRANT statements executed (Field name: QXGRANT).

Incremental Bind The number of incremental binds (excluding prepare) (field name: QXINCRB).

Insert The number of INSERT statements executed (Field name: QXINSRT).

Insert Rows Skipped The number of rows skipped by READ transactions because of uncommitted INSERT operations (using currently committed semantic for FETCH) - (Field name: QISTRCCI).

Interval Time The number of seconds since last sample.

Job Name The job name that is associated with a thread.

Label On The number of LABEL ON statements executed (Field name: QXLABON).

Literals Dups Created The number of times DB2 created a duplicate STMT instance in the statement cache for a dynamic statement that had literals replaced by CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLD). The duplicate STMT instance was needed because a cache match failed because the literal reusability criteria was not met.

Literals Matches Found The number of times DB2 found a matching reusable copy of a dynamic statement in cache because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLM).

Literals Parsed The number of times DB2 parsed dynamic statements because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLP).

Literals Replaced The number of times DB2 replaced at least one literal in a dynamic statement because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLR).

Lock Table The number of LOCK TABLE statements executed (Field name: QXLOCK).

Max Nested SQL Trigger The maximum level of indirect SQL cascading (Field name: QXCASCDP). This includes cascading because of triggers, UDFs, or stored procedures.

Max Total Storage The maximum total amount of storage that is used in the workfile database (Field name QISTWMXU).

Merge The number of MERGE statements executed (DB2 field name QXMERGE) - not supported prior to DB2 9.

MVS ID The MVS system identifier.

Number of Max Exceeded The number of times the maximum amount of storage that an agent can use was exceeded (field name: QISTWFNE).

Open Cursor The number of OPEN statements executed (Field name: QXOPEN).
**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Parallel Bypass DB2 (Buffers)** The number of times the parallelism coordinator had to bypass a DB2 when distributing tasks because one or more DB2 members did not have enough buffer pool storage (Field name: QXXCSKIP). The number in this field is only incremented at the parallelism coordinator once per parallel group, even though more than one DB2 might have lacked buffer pool storage for that parallel group. It is also only incremented when the buffer pool is defined to allow for parallelism. For example, if VXPSEQT=0 on an assistant, DB2 does not send parallel work there and the number in this field is not incremented.

**Parallel Degree Executed** The total number of parallel groups that executed in the planned parallel degree (DB2 field name: QXNORGRP). This field is incremented by one for each parallel group that executed in the planned degree of parallelism (as determined by DB2).

**Parallel Degree Reduced (no buffer)** The total number of parallel groups that did not reach the planned parallel degree because of a lack of storage space or contention on the buffer pool (Field name: QXREDGRP).

**Parallel Failed (Cursor)** The total number of parallel groups that fell back to sequential mode because of a cursor that can be used by UPDATE or DELETE (Field name: QXEGRCUR).

**Parallel Failed (No Buffer)** The total number of parallel groups that fell back to sequential mode because of a storage shortage or contention on the buffer pool (Field name: QXEGBUF).

**Parallel Failed (No ESA Sort)** The total number of parallel groups that fell back to sequential mode because of a lack of ESA sort support (DB2 field name: QXEGRESA).

**Parallel Failed (No Enclaves)** The total number of parallel groups that executed in sequential mode because of the unavailability of MVS/ESA enclave services (Field name: QXEGRGENC).

**Parallel Grp Executed** The total number of parallel groups that were executed (Field name: QXTOTGRP).

**Parallel Maximum LOB Storage** The maximum storage used for LOB values (DB2 field name: QXSTLOBV).

**Parallel Single DB2 (Coord=NO)** The total number of parallel groups executed on a single DB2 subsystem due to the COORDINATOR subsystem value being set to NO (Field name: QXCOORNO). When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a DB2 subsystem with COORDINATOR=YES, but is run on a DB2 subsystem with COORDINATOR=NO.

**Parallel Single DB2 (Cursor)** The total number of parallel groups executed on a single DB2 subsystem because of a repeatable-read or read-stability isolation (Field name: QXEGRCUR).
**Parallel Sysplex Intent** The total number of parallel groups that DB2 intended to run across the data sharing group (Field name: QXXCBPNX). This number is only incremented at the parallelism coordinator at run time.

**Prepare** The number of PREPARE statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXPREP).

**Prepare Avoided KEEPDYN(YES)** The number of times where no SQL PREPARE or EXECUTE IMMEDIATE was issued by the application and a copy of a prepared SQL statement was found in local dynamic SQL cache (Field name: QXSTNPRP). When an application plan or package is bound with KEEPDYNAamic YES, a copy of each prepared SQL statement for the application thread is held in the local dynamic SQL cache and kept across a commit boundary. An application thread can save the total cost of a prepare by using a copy of the prepared statement in the local dynamic SQL cache from an earlier prepare by the same thread. To do this, the application must be modified to avoid issuing repetitive SQL PREPAREs for the same SQL statement.

**Prepare Copied from Cache** The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache (Field name: QXSTFND).

**Prepare Discarded - MAXKEEPD** The number of times statements are invalidated in the local dynamic SQL cache because the MAXKEEPD limit has been reached and prepared SQL statements in the local dynamic SQL cache have to be reclaimed (Field name: QXSTDEXP).

**Prepare Implicit KEEPDYN(YES)** An implicit prepare occurs when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEPDYNAamic YES (Field name: QXSTIPRP). If the skeleton copy of the prepared SQL statement exists in the global dynamic SQL cache in the EDM pool, a short prepare is executed, otherwise a full prepare is executed.

**Prepare No Match** The number of times that DB2 searched the prepared statement cache but could not find a suitable prepared statement (Field name: QXSTNFND).

**Prepare Purged - DROP/ALT/REV** The number of times statements are invalidated in the local dynamic SQL cache because of SQL DDL or updated RUNSTATS information and prepared SQL statements in the local dynamic SQL cache have to be reclaimed (Field name: QXSTDINV).

**Rate** The number of requests per second over the last sampling interval.

**Release** The number of RELEASE statements executed (DB2 field name: QXREL).

**Rename Index** The number of RENAME INDEX statements executed (Field name QXRNIX) - not supported prior to DB2 9.

**Rename Table** The number of RENAME TABLE statements executed (Field name: QXRNTAB).

**Revoke** The number of REVOKE statements executed (Field name: QXREVOOk).
RID HWM The highest number of RID blocks in use at any time since DB2 startup (Field name: QISTRHIG). This is a high-water mark.

RID In Use The number of RID blocks currently in use (snapshot value) (Field name: QISTRCUR).

RID Exceeded Pool The number of times the maximum RID pool storage was exceeded (Field name: QISTRMAX). The size is determined by the installation parameter RID POOL SIZE (DB2 install panel DSNTIPC). It can be 0, or between 128 KB and 10 GB. The general formula for calculating the RID pool size is: (Number of concurrent RID processing activities) x (average number of RIDs) x 2 x (5 bytes per RID).

RID Exhausted Virtual The number of times RID pool processing was not used because DBM1 storage was exhausted (Field name: QISTRSTG).

RID Not Used (no storage) The number of times DB2 detected that no storage was available to hold a list of RIDs during a given RID pool process involving one index (single index access with list prefetch) or multiple indexes (multiple index access) (DB2 field name: QXNSMIAP).

RID Not Used (Max Limit) The number of times DB2 detected that a RID list exceeded one or more internal limits during a given RID list (or RID pool) process involving one index (single index access with list prefetch) or multiple indexes (multiple index access) (DB2 field name: QXMRMIAP). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs.

RID Pool Used The number of times the RID (RECORD ID) pool has been processed (Field name: QXMIAP). During RID (RECORD ID) pool (also called RID list) processing, DB2 uses an index to produce a list of candidate RIDs, which is called a RID list. The RID list can be sorted and intersected (ANDed) or unioned (ORed) with other RID lists before actually accessing the data pages. RID list processing is used for a single index (index access with list prefetch) or for multiple indexes (multiple index access), which is when the RID lists are ANDed and ORed.

RID Terminated (> DM) The number of times a RID pool processing operation terminated because the number of RID entries was greater than the DM limit (Field name: QISTRPLM).

RID Terminated (> RDS) The number of times RID pool processing terminated because the number of RIDs that can fit into the guaranteed number of RID blocks was greater than the maximum limit (25% of table size) (Field name: QISTRLLM).

Row Triggers Executed The number of times a row trigger was activated (Field name: QXROWTRG).

Rows Deleted The number of rows that have been deleted because of SQL DELETE statements (Field name: QXRWSDELETED).

Rows Fetched The number of rows that have been fetched because of SQL FETCH statements (Field name: QXRWSFETCHD).

Rows Inserted The number of rows that have been inserted because of SQL INSERT statements (Field name: QXRWSINSRTD).
Rows Updated  The number of rows that have been updated because of SQL UPDATE statements (Field name: QXRWSUPDTD).

Select  The number of SQL SELECT statements executed (Field name: QXSELECT).

Set Connection  The number of SET CONNECTION statements executed (Field name: QXSETCON).

Set Current Degree  The number of SET CURRENT DEGREE statements executed (field name: QXSETCDG).

Set Current Path  The number of SET CURRENT PATH statements executed (Field name: QXSETPTH).

Set Current Rules  The number of SET CURRENT RULES statements executed (Field name: QXSETCRL).

Set Current SQLID  The number of SET CURRENT SQLID statements executed (Field name: QXSETSQL).

Set Host Variable  The number of SET HOST VARIABLE statements executed. The special register that was retrieved is not tracked (Field name: QXSETHV).

SP Abended  The number of times a stored procedure terminated abnormally (Field name: QXCALLAB).

SP Call Statements  The number of times the SQL CALL statements executed to invoke a stored procedure (SP).

SP Rejected  The number of times an SQL CALL statement was rejected because of the procedure that is in the STOP ACTION(REJECT) state (Field name: QXCALLRJ).

SP Timed-Out  The number of times an SQL CALL statement timed out when waiting to be scheduled (Field name: QXCALLTO).

SQL Error in Trigger  The number of times an SQL error occurred during the execution of a triggered action (Field name: QXTRGRERR). This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.

Stmt Triggers Executed  The number of times a statement trigger was activated (Field name: QXSTTRG).

Storage in 4K TS  The total whole kilobytes of storage that were used for 4 KB table spaces (Field name: QISTW4K).

Storage in 32K TS  The total whole kilobytes of storage that were used for 32 KB table spaces (Field name: QISTW32K).

Time Stamp  The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:

- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

**Total** The total count executed by the thread.

**UDFs Abended** The number of times a user-defined function (UDF) abended (Field name: QXCAUDAB).

**UDFs Executed** The number of user-defined functions (UDFs) executed (Field name: QXCAUD).

**UDFs Rejected** The number of times a user-defined function (UDF) was rejected (Field name: QXCAUDRJ).

**UDFs Timed Out** The number of times a user-defined function (UDF) timed out while waiting to be scheduled (Field name: QXCAUDTO).

**Update** The number of UPDATE statements executed (Field name: QXUPDTE).

**Update Rows Accessed** The number of rows accessed by READ transactions because of uncommitted UPDATE operations (using currently committed semantic for FETCH) - (Field name: QISTRCCU).

**Static SQL Cache Attributes**
Use these attributes to view static SQL cache information.

**Accum In-DB2 CPU Time** The accumulated in-DB2 CPU time. This time includes CPU consumed on an IBM specialty engine (Field name: QW0401CP).

**Accum In-DB2 Time** Accumulated in-DB2 elapsed time (Field name: QW0401ET).

**Accumulated wait for lock** The accumulated wait time for locks (Field name: QW0401LK).

**Append RID exceeded** The number of times that appending to a RID list for a hybrid join was interrupted because the number RIDs exceeded one or more internal limits.

**Append RID no stg** The number of times that appending to a RID list for a hybrid join was interrupted because no RID pool storage was available to hold the list of RIDs.

**Avg parallel degree** The average actual degree of parallelism for all parallel groups. The actual degree of parallelism is calculated at execution time, after buffer pool negotiation and system negotiation are taken into account (Field name: Q401ESTI).

**Avg parallel est degree** The average estimated degree of parallelism for all parallel groups. The estimated degrees are calculated at bind time, based on the cost formula. The average is calculated at execution time (Field name: Q401ACT).
**Avg parallel plan degree** The average planned maximum degree of parallelism for all of the parallel groups. The average is calculated at execution time. It is the optimal degree of parallelism that can be obtained at execution time, after host variables or parameter markers are resolved, and before buffer pool negotiation and system negotiation are performed (Q401PLAN).

**Buffer Write** The number of buffer writes (Field name: QW0401WT).

**Collection** The package collection ID (Field name: QW0401CL).

**Consistency Token** Consistency token of the package (Field name: QW0401CT).

**DB2 Limit Exceeded** The number of times RID list was not used (Field name: QW0401RL). Because the number of:
- RIDS would have exceeded the DB2 limits
- RID blocks exceeded the value set by the MAXTEMPS_RID system parameter

**DB2 Subsystem** The DB2 subsystem ID.

**DB2 Version** The DB2 version.

**DSG Member Name** The Data Sharing Group (DSG) member name.

**Data Sharing Group** The Data Sharing Group name.

**Executions** The number of executions (Field name: QW0401EX). Reason that the SQL statement was expanded. See QW0053ER for possible values.

**Expansion reason** Expansion reason (Field name: Q401EXR).

**Filler** Filler.

**Filler2** Filler for padding.

**Global child L-locks wait** Waits due to global contention for child L-locks (Field name: QW401WC).

**Global other L-locks wait** Waits due to global contention for other L-locks (Field name: QW401WD).

**Global P/P P-locks wait** Waits due to global contention for Pageset/Partition P-locks (Field name: QW401WE).

**Global Page P-locks wait** Waits due to global contention for Page P-locks (Field name: QW401WF).

**Global Other P-locks wait** Waits due to global contention for other P-locks (Field name: QW401WG).

**Getpages** The number of Getpages (Field name: QW0401GP).

**Global Locks Wait Time** The accumulated wait time for global locks (Field name: QW0401GL).

**Index Scan** The number of index scans (Field name: QW0401IX).
<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insert Date STCK</strong></td>
<td>The date or time when the statement was inserted into the EDM pool (in store clock format) (Field name: QW0401TM2).</td>
</tr>
<tr>
<td><strong>Insert Date</strong></td>
<td>The date or time when the statement was inserted into the EDM Pool, in internal format (Field name: QW401TM).</td>
</tr>
<tr>
<td><strong>Interval Start</strong></td>
<td>The start time of this interval.</td>
</tr>
<tr>
<td><strong>MVS System ID</strong></td>
<td>The MVS identifier.</td>
</tr>
<tr>
<td><strong>Originating System</strong></td>
<td>The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.</td>
</tr>
<tr>
<td><strong>Package Name</strong></td>
<td>The package ID (Field name: QW0401PK).</td>
</tr>
<tr>
<td><strong>Parallel Groups Created</strong></td>
<td>The number of parallel groups created (Field name: QW0401PG).</td>
</tr>
<tr>
<td><strong>RID list retrieval failed</strong></td>
<td>The number of times that RID list retrieval for multiple index access was not done because DB2 could determine the outcome of index ANDing or ORing (Field name: QW401RSM).</td>
</tr>
<tr>
<td><strong>RID overflow RIDs</strong></td>
<td>The number of times a RID list was overflowed to a work file because the number of RIDs exceeded one or more internal limits (Field name: QW401WRT).</td>
</tr>
<tr>
<td><strong>RID overflow no stg</strong></td>
<td>The number of times that a RID list overflowed to a work file because no RID pool storage was available to hold the list of RIDs (Field name: QW401WRS).</td>
</tr>
<tr>
<td><strong>Reads other Wait Time</strong></td>
<td>The accumulated wait time for a read activity done by another thread (Field name: QW0401OR).</td>
</tr>
<tr>
<td><strong>Rows Exam</strong></td>
<td>The number of rows examined (Field name: QW0401ER).</td>
</tr>
<tr>
<td><strong>Rows Proc</strong></td>
<td>The number of rows processed (Field name: QW0401PR).</td>
</tr>
<tr>
<td><strong>Sorts</strong></td>
<td>The number of sorts (Field name: QW0401ST).</td>
</tr>
<tr>
<td><strong>Statement ID</strong></td>
<td>The statement identifier (Field name: QW0401ID).</td>
</tr>
<tr>
<td><strong>Storage Limit Exceeded</strong></td>
<td>The number of times that a RID list was not used because there was not enough storage available to hold the RID list, or work file storage or resources were not available (Field name: QW0401RS).</td>
</tr>
<tr>
<td><strong>Sync I/O Wait Time</strong></td>
<td>The accumulated wait time for synchronous I/O (Field name: QW0401SI).</td>
</tr>
<tr>
<td><strong>Sync Read</strong></td>
<td>The number of synchronous buffer reads (Field name: QW0401SR).</td>
</tr>
<tr>
<td><strong>Tablespace Scan</strong></td>
<td>The number of tablespace scans (Field name: QW0401TB).</td>
</tr>
<tr>
<td><strong>Update Date 2</strong></td>
<td>The date or time when statement statistics were updated in internal format (Field name: QW401UT2).</td>
</tr>
</tbody>
</table>
Update Date  The date or time when statement statistics were updated in store clock format (Field name: QW401UT1).

Wait for drain lock  The accumulated wait time for drain locks (Field name: QW0401DL).

Wait for latch req  The accumulated wait time for a latch request (Field name: QW0401LH).

Wait for log writer  The accumulated wait time for log writers (Field name: QW0401LW).

Wait for page latch  The accumulated wait time for page latches (Field name: QW0401PL).

Waits other Wait Time  The accumulated wait time for a write activity done by another thread (Field name: QW0401OW).

Wait for claim release  The accumulated wait time for drain locks that are waiting for claims to be released (Field name: QW0401CM).

Wait for sync exec switch  The accumulated wait time for synchronous execution unit switch (Field name: QW0401EU).

Static SQL Text Attributes
Use these attributes to view the static SQL text

Collection  The package collection ID.

DB2 Subsystem  The DB2 subsystem ID.

DB2 Version  The DB2 version.

DSG Member Name  The Data Sharing Group (DSG) member name.

Data Sharing Group  The data sharing group name.

Filler  Filler for padding.

Interval Start  The start time of this interval.

MVS System ID  The MVS identifier.

Originating System  The managed system name of the agent. A It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package Name  The package identifier.

Statement ID  The statement identifier.

Statement Text  The statement text.
Statistics SQL Count Attributes
Use these attributes to view the Statistics SQL count.

DB2 Subsystem The DB2 subsystem ID.

DB2 Version The DB2 version.

Data Sharing Group The Data Sharing Group name.

Data Sharing Member The Data Sharing Group (DSG) member name.

Delta Value The change since last sample.

Field Name The data field name.

Field Value The data field value.

Interval Start The start time of this interval.

Interval Time The collection interval time.

MVS System ID The MVS identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; example, DB91:SYS1:DB2.

Rate The amount over last sampling interval.

Sequence Number The data field sequence number.

Thread Accelerator Information Attributes
Use these attributes to view thread accelerator information.

ACE Address The agent control element (ACE) (see QWHSACE) of the thread that is reported. The value in QWHSACE is the ACE of the IFI application that requested this trace record (Field name: QW0148AC).

Accel CPU The overall accelerator CPU time (Field name: Q8ACACPU).

Accel ET ime The overall accelerator elapsed time (Field name: Q8ACAELA).

Accel WTime The overall accelerator wait time (Field name: Q8ACAWAT).

Accelerator Name The accelerator name (Field name: Q8ACNAME).

Authorization ID The primary authorization ID from connection or signon (Field name: UWHCAID). For z/OS operator commands and DB2 system internal agents, the value is SYSOPR. Secondary authorization IDs might be the RACF groups associated with this primary authorization ID. The SQL ID is initially set to this primary authorization ID. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it is not the same as the original primary authorization ID (QWHCOPID). Distributed authorization ID translation can also change the primary authorization ID.
**Blks Received** The number of blocks returned from the accelerator (Field name: Q8ACBLKR).

**Blks Sent** Number of blocks sent to the accelerator (Field name: Q8ACBLKS).

**Bytes Received** Number of bytes returned from the accelerator (Field name: Q8ACBYTR).

**Bytes Sent** Number of bytes sent to the accelerator (Field name: Q8ACBYTS).

**Collection Name** The collection name (Field name: UW0148CI).

**Connection ID** The connection name (Field name: QWHCCN). It is not valid on end of memory and reflects the z/OS home address space (ASID) connection name for:

- **Batch**: 'BATCH'
- **TSO**: 'TSO'
- **QMF**: 'DB2CALL'
- **Utility**: 'UTILITY'
- **DB2 internal**: DB2 subsystem ID
- **IMS**: IMS-ID
- **CICS**: CICS-ID
- **RRSAF**: 'RRSAF'

**Distributed database access threads**:

- For threads from a DB2 requestor, this field contains the connection name of the thread at the requesting location.
- For threads using the DRDA protocol from a non-DB2 requestor, this field contains the constant 'SERVER'.

**Connects** Number of connections to the accelerator (DB2 field name: Q8ACCONN).

**Correlation ID** The correlation ID value (Field name: QWHCCV).

- For batch: JOBNAME
- For TSO: LOGON-ID
- For IMS/VS: PST#.PSBNAME
- For CICS: CONNECTION_TYPE.THREAD_TYPE.THREAD_.#.TRAN-ID
- For RRSAF: CORRELATION-ID value from signon function
- For threads from a DB2 requestor: this field contains the correlation-ID name of the thread at the requesting location.
- For threads using the DRDA protocol from a non-DB2 requestor, this field contains the first 12 characters in the DDM external name (EXTNAM) parameter of the DDM EXCSAT command received as part of the SQL connect.

**DB2 Subsystem** The DB2 subsystem ID.

**DB2 Version** The DB2 version.
DSG Member Name The Data Sharing Group (DSG) member name.

Data Sharing Group The Data Sharing Group name.

End User ID The user ID of the end user’s workstation (Field name: QWHCEUID). This can be different from the authorization ID used to connect to DB2. This field contains blanks if the client did not supply this information. If QWHCEUID_OFF is not 0, this value is truncated.

Failed Number of failed requests (Field name: Q8ACFAIL).

IP address of accel Accelerator IP address (Field name: Q8ACIPAD).

Interval Start The start time of this interval.

Location Name The location name (Field name: UW0148LN). The location name contains the name of the local location or remote location, depending on where the thread executes a package. The following statements execute locally, regardless of the current package name:
  - COMMIT
  - ROLLBACK
  - SET <HOST VARIABLE> = CURRENT PACKAGE SET
  - SET <HOST VARIABLE> = CURRENT SERVER

For these statements, this field contains the location where the package executes, not the location where the statement executes.

Logical Unit of work ID The logical unit of the work ID (LUWID) as defined for the LU 6.2 interface (Field name: QW0148LU). The LUWID uniquely identifies the thread within the network, and consists of the following:
  - A fully qualified network name (QW0148LM)
  - An LUW instance number (QW0148UV) and an LUW sequence number (see fields below).

It consists of two 8-character fields: QW0148NI and QW0148LM, which together uniquely identify a client system.

MVS System ID The MVS identifier.

Msgs Received Number of messages returned from the accelerator (Field name: Q8ACMSGR).

Msgs Sent Number of messages sent to the accelerator (Field name: QW02542W).

Originating System The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package ID The package ID (Field name: UW0148PN).

Plan Name The plan name (Field name: QWHCPLAN). It shows a blank for a DB2 command thread; otherwise:
  - For SPUFI with cursor stability: 'DSNESPCS'
  - For SPUFI with repeatable read: 'DSNESP RR'
  - For TSO: the application plan name
• For IMS: the application plan name
• For CICS: application plan name, IMS and CICS commands have a blank plan name.
• For RRSAF create thread with the collection parameter: '?RRSAF '
• For QMF: 'DSQPLAN'
• For Distributed Database Access threads:
  – For threads using the DRDA protocol from a requester, this field contains the plan name that is executed at the requesting location.
  – For threads using the DRDA protocol from a non-DB2 requester or from a DB2 2.3 requester, this field contains the constant 'DISTSERV'.
• For binding: 'DSNBIND' (system plan)
• For utility: 'DSNUTIL ' (system plan)
• For authorization: 'ACT' + X'0000000000' (system plan)
• For unallocated threads and miscellaneous DB2 system service tasks: 'BCT' + X'0000000000' (system plan)
• For startup: 'STARTCT' + X'00' (system plan)

Product ID Accelerator product ID. (Field name: Q8ACPRID).

QWACFLGS Flags (Field name: QWACFLGS).

Requests Number of requests to the accelerator (Field name: Q8ACREQL).

Rows Received Number of rows returned from the accelerator (Field name: Q8ACROWR).

Rows Sent Number of rows sent to the accelerator (Field name: Q8ACROWS).

SVCS CPU Accelerator services cpu time (Field name: Q8ACSCPU).

SVCS ETime Accelerator services elapsed time (Field name: Q8ACSELA).

TCP/IP CPU Accelerator services TCP/IP CPU time (Field name: Q8ACTCPU).

TCP/IP ETime Accelerator services TCP/IP elapsed time. This elapsed time is a subset of accounting class 3 wait time for accelerator services (Field name: Q8ACTELA).

Thread Type The connecting system type code (in hexadecimal). This field can have a null value. For example, this field contains a null value for some utilities (Field name: QWHCATYP).

Timeout Number of timed-out requests (Field name: Q8ACTOUT).

Transaction Name The transaction or application name that the end user is running (Field name: QWHCEUTX). This identifies the application that is currently running, not the product that is used to run the application. This field contains blanks if the client did not supply this information.

Workstation Name The end user's workstation name. This field contains blanks if the client did not supply this information (Field name: QWHCEUWN).
**Thread DB2 Connect Statement Attributes**

Use the DB2 Connect Statement attributes to create situations to identify any statement with long elapsed time.

**Ace Address** The DB2 thread ACE address for internal use.

**Application Creator** The authorization ID of the user who precompiled the application. You can use this counter to identify the SQL statement that is processing, in conjunction with the CREATOR column of the package section information in the catalogs.

**Application ID** The ID that is generated when the application connects to the database at the database manager or when Distributed Database Connection Services (DDCS) receives a request to connect to a DRDA database.

It is known at both the client and the server, so you can use it to correlate the client and server parts of the application. For DDCS applications, you will also need to use the **Outbound Application ID** to correlate the client and server parts of the application. This ID is unique across the network. There are different formats for the application ID, which are dependent on the communication protocol between the client and the server machine on which the database manager, the DDCS, or both, are running. Each of the formats consists of three parts separated by periods.

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Format</th>
<th>Example</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPC</td>
<td>Network Logical Unit Name.Application instance</td>
<td>CAIBMTR.OSFDBX0930131194520</td>
<td>This application ID is the displayable format of an actual SNA LUWID (logical unit-of-work ID) that flows on the network when an APPC conversation is allocated. APPC-generated application IDs are made up by concatenating the network name, the Logical Unit name, and the LUWID instance number, which create a unique label for the client/server application. The network name and Logical Unit name can each be a maximum of 8 characters. The application instance corresponds to the 12-decimal-character LUWID instance number.</td>
</tr>
<tr>
<td>Protocol</td>
<td>Format</td>
<td>Example</td>
<td>Details</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>IPAddr.Port.Application instance</td>
<td>A12CF9E8.3F0A.930131214645</td>
<td>A TCP/IP-generated application ID is made up by concatenating the IP address in hexadecimal characters, the port number (4 hexadecimal characters), and a unique ID for the instance of this application. The IP address is a 32-bit number displayed as a maximum of 8 hexadecimal characters.</td>
</tr>
</tbody>
</table>
| IPX/SPX  | Netid.nodeid.Application instance | A1A8E5C.4000115282C0131214645 | An IPX/SPX-generated application ID is made up by concatenating a character network ID (8 hexadecimal characters), a node ID (12 hexadecimal characters), and a unique ID for the instance of the application. The application instance corresponds to a 10-decimal-character timestamp of the form *mmddhhmmss*, where:  
  - M = Month  
  - D = Day  
  - H = Hour  
  - M = Minute  
  - S = Second |
<table>
<thead>
<tr>
<th>Protocol</th>
<th>Format</th>
<th>Example</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>NetBIOS</td>
<td>*NETBIOS.nname. Application instance</td>
<td>*NETBIOS.SBOIVIN. 930131214645</td>
<td>For nonpartitioned database systems, a NetBIOS application ID is made up by concatenating the string *NETBIOS, the NNAME defined in the database configuration file for the client, and a unique ID for the instance of this application. For partitioned database systems, a NetBIOS application ID is made up by concatenating the string N xxx.etc where xxx is the partition the application is attached to.</td>
</tr>
<tr>
<td>Local applications</td>
<td>*LOCAL.DB2 instance.Application instance</td>
<td>*LOCAL.DB2INST1. 930131235945</td>
<td>The application ID generated for a local application is made up by concatenating the string *LOCAL, the name of the DB2 instance, and a unique ID for the instance of this application.</td>
</tr>
</tbody>
</table>

**Application Name** The name of the application running at the client as known to the database manager or DB2 Connect.

Together with the Application ID counter, it can be used to relate data items with your application.

**Authorization ID** The authorization ID.

**Authid (Unicode)** The authorization ID.

**Blocking Cursor** Indicates whether the statement being executed is using a blocking cursor. Using blocking for data transfer for a query can improve its performance. The SQL used for a query can affect the use of blocking and might require some modification.

**Corrid** The correlation ID.

**Thread DB2 Connect Statement Attributes** Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.
**DB2 ID** The DB2 subsystem ID.

**Gateway Snapshot Time** The date and time at which the database system monitor information was collected.

**Host Response Time** For a DCS statement, this is the elapsed time between the time that the statement was sent from the DB2 Connect gateway to the host for processing and the time when the result was received from the host.

For a DCS database or a DCS application, it is the sum of the elapsed times for all the statements that were executed for a particular application or database. For a data transmission, this is the sum of host response times for all the statements that used this many data transmissions. Use this counter with the **Network statistic - Outbound number of bytes sent** and **Network statistic - Outbound bytes received** counters to calculate the outbound response time (transfer rate):

\[
\frac{\text{outbound number of bytes sent} + \text{outbound bytes received}}{\text{host response time}}
\]

**Inbound Number of Bytes Received** The number of bytes received by the DB2 Connect gateway from the client, excluding communication protocol overhead, for example, TCP/IP or SNA headers. Use this counter to measure the throughput from the client to the DB2 Connect gateway.

**Inbound Number of Bytes Sent** Shows the number of bytes sent by the DB2 Connect gateway to the client, excluding communication protocol overhead, for example, TCP/IP or SNA headers. Use this counter to measure the throughput from the DB2 Connect gateway to the client.

**IP Address** The current IP address.

**Local: System CPU Time** The total system CPU time, in seconds and microseconds, used by the statement that is currently executing.

Together with the other related CPU-time counters, it can help you understand the level of activity within an application and identify applications that could benefit from additional tuning. This counter includes time spent on SQL and non-SQL statements and on any fenced user-defined functions (UDF) or stored procedures executed by the application. System CPU represents the time spent in system calls. User CPU represents time spent executing database manager code.

**Note:** If this information is not available for your operating system, this counter is set to 0.

**Local: User CPU Time** The total user CPU time, in seconds and microseconds, used by the currently executing statement. Together with the other related CPU-time counters, it can help you understand the level of activity within an application and identify applications that could benefit from additional tuning. This counter includes time spent on SQL and non-SQL statements and on any fenced user-defined functions (UDF) or stored procedures executed by the application. System CPU represents the time spent in system calls. User CPU represents time spent executing database manager code.

**Most Recent Statement Elapsed Time** The elapsed execution time of the most recently completed statement. Use this counter as an indicator of the time that it takes for a statement to complete.

**MVSID** The MVS system identifier.
**Name** The name in the database manager configuration file at the client node. It identifies the client node that is running the application.

**Number of Successful Fetches** For statement snapshot monitoring and the statement event type, this is the number of successful fetches performed on a specific cursor. For DCS statement snapshot monitoring, this is the number of attempted physical fetches during the execution of a statement regardless of how many rows were fetched by the application. That is, this counter shows the number of times the server needed to send a reply data back to the gateway while processing a statement. You can use this counter to gain insight into the current level of activity within the database manager.

**Outbound Application ID (Internal)** This ID is generated when the application connects to the DRDA host database. It is used to connect the DB2 Connect gateway to the host, while the application ID is used to connect a client to the DB2 Connect gateway. You can use this counter in conjunction with the Application ID counter to correlate the client and server parts of the application information. This ID is unique across the network.

**Outbound Application ID** This ID is generated when the application connects to the DRDA host database. It is used to connect the DB2 Connect gateway to the host, while the application ID is used to connect a client to the DB2 Connect gateway. You can use this counter in conjunction with the Application ID counter to correlate the client and server parts of the application information. This ID is unique across the network.

**Outbound Blocking Cursor** Indicates whether blocking is used for data transfer from the DRDA server to the DB2 Connect gateway for a particular query. Using blocking for data transfer for a query can improve its performance. The SQL used for a query can affect the use of blocking and might require some modification.

**Outbound Bytes Received** The number of bytes received by the DB2 Connect gateway from the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers.

For a data transmission, this is the number of bytes received by the DB2 Connect gateway from the host during the processing of all the statements that used this number of data transmissions.
Network Logical Unit Name.Application instance

CAIBMTOR.OSFDBM0.930131194520

This application ID is the displayable format of an actual SNA LUWID (logical unit-of-work ID) that flows on the network when an APPC conversation is allocated. APPC-generated application IDs are made up by concatenating the network name, the Logical Unit name, and the LUWID instance number, which creates a unique label for the client/server application. The network name and Logical Unit name can each be a maximum of 8 characters. The application instance corresponds to the 12-decimal-character LUWID instance number.

Outbound Number of Bytes Sent
The number of bytes sent by the DB2 Connect gateway to the host, excluding communication protocol overhead, for example, TCP/IP or SNA headers. For a data transmission, this is the number of bytes sent by the DB2 Connect gateway to the host during the processing of all the statements that used this number of data transmissions. Use this counter to measure the throughput from the DB2 Connect gateway to the host database. Use this counter to measure the throughput from the host databases to the DB2 Connect gateway.

Originating System ID
The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package Name
The name of the package that contains the SQL statement that is currently executing. You can use this counter to identify the application program and the SQL statement that is executing.

Plan
The plan name.

Query Cost Estimate
The estimated cost, in timerons, for a query, as determined by the SQL compiler. It allows correlation of actual run-time with the compile-time estimates.

In addition, it returns information for the following SQL statements when you are monitoring DB2 Connect.

- PREPARE represents the relative cost of the prepared SQL statement.
- FETCH contains the length of the row retrieved if the DRDA server is DB2 for OS/400.

If information is not collected for a DRDA server, this counter is set to zero.
Note: If the DRDA server is DB2 for OS/390 and z/OS, this estimate could be higher than $2^{32} - 1$ (the maximum integer number that can be expressed through an unsigned long variable). In that case, the value returned by the monitor for this counter is $2^{32} - 1$.

Query Number of Rows Estimate
The estimated number of rows that is returned by a query.

This estimate by the SQL compiler can be compared with the run-time actuals. This counter also returns information for the following SQL statements when you are monitoring DB2 Connect:

- INSERT, UPDATE, and DELETE indicate the number of rows affected.
- PREPARE estimates the number of rows that are returned if the DRDA server is DB2 Universal Database, DB2 for VM and VSE, or DB2 for OS/400.
- FETCH sets to the number of rows fetched if the DRDA server is DB2 for OS/400.

If information is not collected for a DRDA server, this counter is set to zero.

Section Number
The internal section number in the package for the SQL statement that is currently processing or has processed most recently.

For a static SQL, you can use this counter together with the creator, package version, and package name to query the SYSCAT.STATEMENTS system catalog table and obtain the static SQL statement text, using the sample query as follows:

```
SELECT SEQNO, SUBSTR(TEXT,1,120)
FROM SYSCAT.STATEMENTS
WHERE PKGNAME = 'package_name'
AND PKGSCHEMA = 'creator'
AND VERSION = 'package_version_id'
AND SECTNO = section_number
ORDER BY SEQNO
```

Note: This query can cause lock contentions. Therefore, try to use it only when there is little other activity against the database.

Server Instance Name
The name of the database manager instance for which the snapshot was taken.

Statement Operation
The statement operation that is currently being processed or has processed most recently (if none is currently running).

You can use this counter to determine the operation that is executing or recently finished. It can be one of the following:

- For SQL operations:
  - SELECT
  - PREPARE
  - EXECUTE
  - EXECUTE IMMEDIATE
  - OPEN
  - FETCH
  - CLOSE
  - DESCRIBE
  - STATIC COMMIT
- STATIC ROLLBACK
- FREE LOCATOR
- PREP_COMMIT
- CALL
- PREP_OPEN
- PREP_EXEC
- COMPile

* For non-SQL operations:
  - RUN STATISTICS
  - REORG
  - REBIND
  - REDISTRIBUT E
  - GET TABLE AUTHORIZATION
  - GET ADMINISTRATIVE AUTHORIZATION

**Note:** API users should refer to the sqlmon.h header file containing definitions of database system monitor constants.

**Statement Start Timestamp** The date and time at which the statement operation started executing. You can use this counter with the SQL statements - Statement operation counter to calculate the elapsed statement operation execution time.

**Statement Stop Timestamp** The date and time at which the statement operation stopped executing. You can use this counter with the SQL statements - Statement operation counter to calculate the elapsed statement operation execution time.

**Elapsed Execution Time** For a DCS statement, this is the elapsed time spent processing an SQL request on a host database server. This value is reported by this server. In contrast to the Times - Host response time counter, this counter does not include the network elapsed time between DB2 Connect and the host database server. At other levels, this value represents the sum of the host execution times for all the statements that were executed for a particular database or application, or for those statements that used a given number of data transmissions.

**No. of Statements** The number of SQL statements that have been attempted since the latter of: application startup, database activation, or last reset. For a data transmission, this is the number of SQL statements that have been attempted against this DCS database or in this DCS application since the database was activated, the connection to it was established by the application, or RESET MONITOR was issued against the database, and that used this number of data transmissions between the DB2 Connect gateway and the host during statement processing.

**No. of Transmissions** The number of data transmissions between the DB2 Connect gateway and the host that was used to process this DCS statement. One data transmission consists of one send or one receive.

**Time Spent on Gateway Processing** The time, in seconds and microseconds, at the DB2 Connect gateway to process an application request since the connection was established, or to process a single statement. Use this counter to determine what portion of the overall processing time is because of DB2 Connect gateway processing.
Time Stamp  The start time of this interval.

Uniqueness Value  The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

Uniqueness Value 2  The DB2 thread uniqueness value. For internal use.

Thread DDF Statistics Attributes (64 bit)
Use the Thread DDF Statistics attributes for 64 bit to create situations to monitor Distributed Database Facility statistics.

Aborts Received  The number of aborts received from remote location.

Aborts Sent  The number of aborts sent to remote location.

Agent Elapsed Time  The elapsed time at the local site spent processing for the remote site (in units that represent tenths of seconds).

Block Mode Switches  The count of block mode switches performed.

Blocks Received  The blocks received from remote location.

Blocks Sent  The blocks sent to remote location.

Commits Received  The number of commits received from remote location.

Commits Sent  The number of commits sent to remote location.

Conversations Initiated Local  The number of conversations initiated by local side of connection.

Conversations Initiated Remote  The number of conversations initiated by remote side of connection.

Conversations Allocated  The conversations allocated.

Conversations DEALLOCATED  The conversations deallocated.

Conversations Queued  The number of conversations queued.

Coordinator Backouts Received  The number of backout requests received from coordinator (2-phase commit only).

Coordinator Backouts Sent  The number of backout requests sent to the coordinator (2-phase commit only).

Coordinator Commits Received  The number of commit requests received from coordinator (2-phase commit only).

Coordinator Commits Sent  The number of commit requests sent to the coordinator (2-phase commit only).

Coordinator Forgets Sent  The number of forget response requests sent to the coordinator (2-phase commit only).
Data Bytes Received The number of data bytes received from the remote location.

Data Bytes Sent The number of data bytes sent to the remote location.

Data Rows Received The number of data rows received from the remote location.

Data Rows Sent The number of data rows sent to the remote location.

DB Access CPU Time The database access agent CPU time at the remote site (in units that represent milliseconds).

DB2 ID The DB2 identifier.

DB2 Version The version of the DB2 system.

Directed Access The type of directed access.

Elapsed DB Access The elapsed database access agent time at the remote site (in units that represent tenths of seconds).

Interval Time The number of seconds since last sample (in units that represent seconds).

Last Agent Request Received The number of last agent requests received from initiator (2-phase commit only).

Last Agent Request Sent The number of last agent requests sent to coordinator (2-phase commit only).

Local Elapsed Time The elapsed time, in tenths of a second, for local thread (in units that represent tenths of seconds).

LUWID The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:

USCAC001.02D22A.A1FEBEBF8D9=8

Maximum Conversations The maximum conversations allowed.

Message Buffer Rows The message buffer rows.

Messages Received The number of messages received from remote location.

Messages Sent The number of messages sent to remote location.

MVS System ID The MVS system identifier.
**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Participant Backouts Received** The number of backout requests received from participant (2-phase commit only).

**Participant Backouts Sent** The number of backout requests sent to the participant (2-phase commit only).

**Participant Commits Received** The number of commit requests received from participant (2-phase commit only).

**Participant Commits Sent** The number of commit requests sent to the participant (2-phase commit only).

**Participant Forgets Received** The number of forget requests received from participant (2-phase commit only).

**Prepare Requests Received** The number of prepare requests received from participant (2-phase commit only).

**Prepare Requests Sent** The number of prepare requests sent to participant (2-phase commit only).

**Protocol Used** The protocol used for this conversation. It is an alphanumeric text string, with a maximum length of 12 characters.

**Remote Binds** The binds from remote access.

**Remote Commit Operations** The number of commit operations performed with the remote location as COORD.

**Remote CPU Time** The CPU time for remote system in milliseconds (in units that represent milliseconds).

**Remote Elapsed Time** The elapsed time for remote thread in tenths of a second (in units that represent tenths of seconds).

**Remote In Doubt Threads** The number of threads that went in doubt with the remote location as COORD.

**Remote Location Name** The name of the remote system to which this thread is connected.

**Remote Location Name (Unicode)** The name of the remote system to which this thread is connected.

**Remote Logical Unit Name** The LUNAME of the connection to the remote DB2 system. It is an alphanumeric text string, with a maximum length of eight characters.

**Remote Product ID** The remote product identifier (ID). It is an alphanumeric text string, with a maximum length of eight characters.
Remote Rollback Operations The number of rollback operations performed with the remote location as COORD.

SQL Calls Received The number of SQL calls received from the remote location.

SQL Calls Sent The number of SQL calls made to the remote location.

Thread Token The attribute that ties this entry to the owning thread by using the thread token as a foreign key.

Time Stamp The date and time, as set on the monitored system, indicating the instance when the agent collects information.

The timestamp format for SCAN and STR functions is CYYMMDDHHMMSSmmm (as in 1180315064501000 for 03/15/18 06:45:01) where:

- C = Century (0 for 20th, 1 for 21st)
- Y = Year
- M = Month
- D = Day
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

Transactions Received The number of transactions received from remote location.

Transactions Sent The number of transactions sent to remote location.

Thread Detail Attributes (Data Sharing)
Use Thread Detail attributes to create situations that monitor DB2 threads. This information is used locally for data sharing.

Authorization ID The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Authorization ID (Unicode) The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

Collection ID The collection ID.

This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 18 characters

Thread Detail Attributes (Data Sharing) Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Thread Detail Attributes (Data Sharing) The type of connection associated with the thread.

Valid values are:
<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example DLKEX212.

**CPU Rate** The thread CPU rate.

**DB2 ID** The name of a DB2 subsystem.

**Display CPU Time** The total amount of CPU time that DB2 has accumulated for a thread.

Valid format is HH:MM:SS:mmm, where:
- H = Hour
- M = Minute
- S = Second
- m = Millisecond

If the time goes over 24 hours, the format is DD-HH:MM where:
- D = Day
- H = Hour
- M = Minute

For example, 00:14:59 indicates that the display CPU time is 14 minutes and 59 seconds.

**Display Elapsed Time** The total amount of elapsed time since thread creation or DB2 sign-on.

Valid format is DD-HH:MM:SS, where:
- D = Day
- H = Hour
- M = Minute
• S = Second

For example, 00-20:16:18 indicates that the display elapsed time is 20 hours, 16 minutes, and 18 seconds.

**Display Wait Time** The total amount of thread wait time. The collection of thread wait time requires activation of Accounting Class 2 in the monitored DB2 subsystem.

Valid format is HH:MM:SS:mmm, where:
• H = Hour
• M = Minute
• S = Second
• m = Millisecond

If the time goes over 24 hours, the format is DD-HH:MM where:
• D = Day
• H = Hour
• M = Minute

For example, 00:14:59 indicates that the display CPU time is 14 minutes and 59 seconds.

**ID Name** An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

**IIP CPU** The accumulated CPU time consumed while executing on an IBM zIIP in all environments.

**In DB2 CP CPU Time** The CP CPU time accumulated in DB2 include the current in-DB2 CPU time for the SQL statement in progress.

**In DB2 Elapsed Time** The elapsed time accumulated in DB2 include the current in-DB2 time for the SQL statement in progress.

**MVS System** The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example SP11.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Package Name** Identifies the package name with which a thread is associated. It is an alphanumeric text string, with a maximum of 8 characters.

**Plan Name** The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

**Thread CPU Time** The total amount of CPU time that DB2 has accumulated for a thread. Valid value is an integer in the range 0 - 99999999 seconds.

**Thread Elapsed Time** The total amount of elapsed time since thread creation or DB2 sign-on. Valid value is an integer in the range 0 - 99999999 seconds.
**Thread Group Name** The name of a data sharing group for a thread. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

**Thread Group Member Name** The name of the member within a data sharing group for a thread.

**Thread Status** The current status of a thread.

Valid values are:

**Status**  **Description**

**NOT-AVAIL**  
The thread is not available.

**IN-ABORT**  
The thread is in abort processing.

**IN-ACCEL**  
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

**IN-AUTO-PROC**  
The thread is processing an autonomous procedure.

**IN-BIND-DYNM**  
The thread is in dynamic bind processing.

**IN-BIND-STAT**  
The thread is in static bind processing.

**IN-COMMAND**  
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

**IN-COMMIT**  
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

**IN-COMT-PHS1**  
The thread is in Commit phase 1 processing.

**IN-COMT-PHS2**  
The thread is in Commit phase 2 processing.

**IN-CRTE-THRD**  
The thread is in Create Thread processing.

**IN-DB2**  
The thread is executing in DB2. A more descriptive status could not be determined.

**INDOUBT**  
The thread is in doubt.

**IN-SIGNON**  
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

**IN-SQL-CALL**  
The thread is processing an SQL call.
IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.

SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.
WAIT-MGSSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.

WAIT-SP-STOP
The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
The thread is queued and waiting for thread termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=QD status.

UTIL-STOP
The DB2 utility was started but not completed because of abnormal termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CLAIMER
The thread is currently waiting for claimers to be released after acquiring drain lock.

WAIT-CL3LOCK
The thread is currently waiting for the completion of an identify call to the IRLM.

WAIT-COMMIT
The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
The thread is currently waiting to acquire drain lock.

WAIT LOB
The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
The thread is currently suspended for parallel task synchronization.
WAIT-LOGQSCE
The thread is currently suspended because of an ARCHIVE LOG MODE(QUIESCE) command.

WAIT-PGLATCH
The thread is currently waiting for page latch.

WAIT-SP-SCHD
The thread is waiting for a TCB to become available in the stored procedures address space to schedule a stored procedure.

WAIT-SWITCH
The thread is currently waiting for the completion of a synchronous execution switch.

WAIT-SYNC-IO
The thread is currently waiting for completion of a synchronous Read I/O or Write I/O.

Note: This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

Thread Stored Procedure Name The name of the stored procedure that a thread invokes. It is an alphanumeric text string, with a maximum of 18 characters; for example, SPCALC_TAX.

Thread Detail Attributes (Data Sharing) The type of thread.

It can be:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

Thread Wait Time The total amount of thread wait time. It is an integer in the range 09 - 99999999 seconds. Note: collection of thread time requires activation of Accounting Class 2 in the Monitored DB2 subsystem.
**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

The timestamp format for SCAN and STR functions is `CYYMMDDHHMMSmmm` (as in `1180315064501000` for 03/15/18 06:45:01) where:

- **C** = Century (0 for 20th, 1 for 21st)
- **Y** = Year
- **M** = Month
- **D** = Day
- **H** = Hour
- **M** = Minute
- **S** = Second
- **m** = Millisecond

**Thread Detail Attributes (Local DB2)**
Use the Thread Detail attributes to create situations that monitor DB2 threads. This information is used for a local DB2 system.

**Ace Address** The Ace address.

**Active Tasks** The number of active parallel tasks or utility sub-tasks created for the originating task or main utility task. The value is zero for parallel tasks or utility sub-tasks. This value is only calculated if accounting class 1 is active.

**Agent Address** The Agent address.

**AGNT ASID** The address space ID (ASID) of the agent.

**Agent TCB Address** The Agent TCP address.

**Archive Log Suspends** The number of suspends for processing of archive log mode (quiesce) commands.

**Archive Quiesce Time** The accumulated wait time for processing of archive log mode (quiesce) commands.

**Archive Quiesce Time Current** The current wait time for processing of archive log mode (quiesce) commands.

**Archive Quiesce Waits** The number of suspensions for processing of archive log mode (quiesce) commands.

**Archive Tape Wait** The number of wait trace events processed for archive reads.

**Archive Tape Wait Time** The accumulated wait time for archive reads from tape.

**Archive Tape Wait Time Current** The current wait time for processing of archive log mode quiesce commands.

**Async Read Time** The accumulated wait time for a read I/O that is done under a thread other than this one.

**Async Read Time Current** The current wait time for a read I/O that is done under a thread other than this one.
Async Read Waits The number of wait trace events processed for a read I/O under another thread.

Async Write Time The accumulated wait time for a write I/O that is done under a thread other than this one.

Async Write Time Current The current wait time for a write I/O that is done under a thread other than this one.

Async Write Waits The number of wait trace events processed for waits for a write I/O under another thread.

Authorization ID The authorization ID.

Authorization ID (Unicode) The authorization ID.

CICS MVSID The MVS identifier used for CICS dynamic workspace linking.

CICS Task Number The CICS transaction ID.

CICS Terminal ID The CICS terminal ID.

CICS Thread Type The CICS thread type.

CICS Transaction ID The CICS transaction ID.

CICS Transaction ID From EIB The CICS Transaction ID from E18.

Claimer Waits The claimer waits.

Claimer Wait Time The total claimer wait time.

Claimer Wait Time Current The current claimer wait time.

Collection The package collection ID.

Collection (Unicode) The package collection ID.

Thread Detail Attributes (Local DB2) Connection ID. Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Thread Detail Attributes (Local DB2) The type of connection associated with the thread.

Valid values are:

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>BATCH</td>
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<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
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<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Correlation ID** The DB2 Correlation ID.

**CPU Before Enclave** The accumulated TCB time used before the enclave is created.

**CPU Rate** The thread CPU rate.

**CPU Time** The total CPU time.

**DB2 ID** The DB2 subsystem ID.

**DB2 Service Time** The accumulated wait time because of a synchronous execution unit switch for DB2 commit, abort, or deallocation processing.

**DB2 Service Time Current** The current wait time because of a synchronous execution unit switch for DB2 commit, abort, or deallocation processing.

**DB2 Service Waits** The number of wait trace events processed for waits for synchronous execution unit switching for commit or abort.

**Drain Lock Waits** The drain lock waits.

**Drain Wait Time** The total drain lock wait time.

**Drain Wait Time Current** The current drain lock wait time.

**Elapsed Time** The elapsed time.

**Force At Commit Waits** The force at commit waits.

**End User ID** The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (DB2 field name: QWHCEUID).

**Force At Commit Wait Time** The total force at commit wait time.

**Force At Commit Wait Time Current** The current force at commit wait time.

**Global Child L-Lock Waits** The number of wait trace events processed for waits due to global contention for child L-locks.
Global Child L-Lock Wait Time The accumulated wait time due to global contention for child L-locks.

Global Child L-Lock Wait Time Current The current wait time due to global contention for child L-locks.

Global Contention Waits The global contention waits.

Global Contention Wait Time The accumulated wait time due to global contention for parent L-locks. Global contention occurs when intersystem communication is required to resolve an IRLM lock or change request. QPACA WTL contains the wait time due to local contention.

Global Contention Wait Time Current The current wait time due to global contention for parent L-locks. Global contention occurs when intersystem communication is required to resolve an IRLM lock or change request. QPACAWTL contains the wait time due to local contention.

Global Other L-Lock Waits The number of wait trace events processed for waits due to global contention for other L-locks.

Global Other L-Lock Wait Time The accumulated wait time due to global contention for other L-locks.

Global Other L-Lock Wait Time Current The current wait time due to global contention for other L-locks.

Global Other P-Lock Waits The number of wait trace events processed for waits due to global contention.

Global Other P-Lock Wait Time The accumulated wait time due to global contention for other P-locks.

Global Other P-Lock Wait Time Current The current wait time due to global contention for other P-locks.

Global Page P-Locks The number of wait trace events processed for waits due to global contention for page set or partition P-locks.

Global Page P-Lock Wait Time The accumulated wait time due to global contention for page P-locks.

Global Page P-Lock Wait Time Current The current wait time due to global contention for page P-locks.

Global Pageset P-Lock Waits The number of wait trace events processed for waits due to global contention for page set or partition P-locks.

Global Pageset P-Lock Wait Time The accumulated wait time due to global contention for page set or partition P-locks.

Global Pageset P-Lock Wait Time Current The current wait time due to global contention for page set or partition P-locks.

IIP CPU The accumulated CPU time consumed while executing on an IBM zIIP in all environments.
IMS Program Name The IMS region program name.

IMS Region Name The IMS region name.

IMS Region Number The IMS region number.

IMS Region Terminal Name The IMS region terminal name.

IMS Transaction Name The IMS transaction name.

In DB2 Allied CPU The allied CPU (TCB) time accumulated in DB2.

In DB2 CP CPU Time The CP CPU time accumulated in DB2 include the current in-DB2 CPU time for the SQL statement in progress.

In DB2 Elapsed Time The elapsed time accumulated in DB2 include the current in-DB2 time for the SQL statement in progress.

In DB2 SP CPU The accumulated TCB time spent processing SQL call statements in the DB2 stored procedures address space or a WLM address space. This time is calculated only if accounting class one is active.

In DB2 IIP CPU Time The IIP CPU time consumed when executing in DB2.

Interval Start The start time of this interval.

In UDF Time The accumulated TCB time in DB2 for processing SQL statements issued by user-defined functions (DB2 field name: QWACUDTT). This is a subset of the time recorded in QWACUDCP. The value is calculated only if accounting trace class 2 is active.

I/O Wait The accumulated I/O elapsed wait time for a database I/O done under this thread. This field is for synchronous I/O only. It includes synchronous read and write I/O.

I/O Wait Current The current I/O elapsed wait time for a database I/O done under this thread. This field is for synchronous I/O only. It includes synchronous read and write I/O.

Job Name The job name.

Location The requesting location.

Location (Unicode) The requesting location.

Lock Latch Waits The number of wait trace events processed for waits for a lock or latch.

Lock Latch Wait Time The accumulated lock and latch elapsed time.

Lock Latch Wait Time Current The current lock and latch elapsed time.

Log Write Waits The number of wait trace events processed for waits for log read I/O.

Log Write Wait Time The accumulated wait time for log write I/O.
**Log Write Wait Time Current** The current wait time for log write I/O.

**LUWID** LUWID for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the **Luwid** field displays data such as the following:

USCAC001.O2D22A.A1FE8E04B9D4=8

**Message Sent Waits** The number of wait trace events processed for waits for sending messages to other members in the data sharing group. This value is calculated only if accounting class three is active and DB2 is a member of the data sharing group.

**Message Sent Wait Time** The accumulated elapsed wait time caused by suspension for sending messages to other members in a data sharing group. One common use of intersystem message sending is when database descriptions are changed due to CREATE, ALTER, or DROP statements.

**Message Sent Wait Time Current** The current elapsed wait time caused by suspension for sending messages to other members in a data sharing group. One common use of intersystem message sending is when database descriptions are changed due to CREATE, ALTER, or DROP statements.

**MVS ID** The MVS system identifier.

**MVS Status** The thread MVS status.

**Number IO Waits** The number of wait trace events processed for waits for a database I/O under this thread.

**Open Close Waits** The number of wait trace events processed for waits for synchronous execution unit switching to the open/close service.

**Open Close Wait Time** The accumulated wait time for a synchronous execution unit switch to the DB2 open/close data set service or the HSM recall service.

**Open Close Wait Time Current** The current wait time for a synchronous execution unit switch to the DB2 open/close data service or the HSM recall service.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Other Service Waits** The number of wait trace events processed for synchronous execution unit switching to other service tasks.

**Other Service Wait Time** The accumulated wait time for a synchronous execution unit.
Other Service Wait Time Current The current wait time for a synchronous execution unit.

Package DBRM The package DBRM name.

Package DBRM (Unicode) The package DBRM name.

Page Latches The number of wait trace events processed for page latch contention.

Page Latch Time The accumulated wait time because of page latch contention.

Page Latch Time Current The current wait time because of page latch contention.

Parallel Tasks The number of parallel tasks or utility sub-tasks created for the originating task or main utility task. The value is zero for parallel tasks or utility sub-tasks. This value is calculated only if accounting class one is active.

Plan The plan name.

Release Save Points The number of SQL release savepoint statements executed.

Rollback Save Points The number of SQL rollback to savepoint statements executed.

Save Points The number of SQL savepoint statements executed.

SP CPU The accumulated TCB time spent processing SQL call statements in DB2 stored procedures address space or a WLM address space. This time is calculated only if accounting class 1 is active.

SP Elapsed Time The total elapsed time in stored procedures, including time executing SQL.

SP Schedule Waits The number of times an SQL call statement had to wait for an available TCB before the stored procedure could be scheduled. This value is calculated only if accounting class 3 is active.

SP Schedule Wait Time The total elapsed time spent waiting for an available TCB before the stored procedure could be scheduled. This time is calculated only if accounting class 3 is active.

SP Schedule Wait Time Current The current elapsed time spent waiting for an available TCB before the stored procedure could be scheduled. This time is calculated only if accounting class 3 is active.

SP SQL Elapsed Time The total time spent executing SQL in stored procedures.

Status Status is the current DB2 status of the thread. Valid values are:

Status  Description

NOT-AVAIL
The thread is not available.

IN-ABORT
The thread is in abort processing.
IN-ACCEL
The thread is executing on IBM DB2 Analytics Accelerator for z/OS.

IN-AUTO-PROC
The thread is processing an autonomous procedure.

IN-BIND-DYNM
The thread is in dynamic bind processing.

IN-BIND-STAT
The thread is in static bind processing.

IN-COMMAND
Command threads display this status when they are active in DB2 and executing within the DB2 command processor. (This type of thread always has a blank plan name.)

IN-COMMIT
The thread is in Commit processing (applies only to threads that originate from an attachment that does not use two-phase-commit protocol).

IN-COMT-PHS1
The thread is in Commit phase 1 processing.

IN-COMT-PHS2
The thread is in Commit phase 2 processing.

IN-CRTE-THRD
The thread is in Create Thread processing.

IN-DB2
The thread is executing in DB2. A more descriptive status could not be determined.

INDOUBT
The thread is in doubt.

IN-SIGNON
The thread is in signon processing. This status applies only to threads originating from CICS or IMS attachments.

IN-SQL-CALL
The thread is processing an SQL call.

IN-SQL-SORT
The thread is executing an SQL call and is doing the sort processing required to satisfy the call’s request.

IN-STOR-PROC
The thread is currently running in a stored procedure.

IN-TERM-THRD
The thread is in termination as a result of allied task termination. This status corresponds to DB2 DISPLAY THREAD=D status.

IN-TRIGGER
The thread is currently running in a trigger.

IN-USER-FUNC
The thread is currently running a user-defined function.

NOT-IN-DB2
The thread is not currently executing in DB2.
SP/UDF-INACT
The thread is trying but not able to run in a stored procedure or user-defined function.

SWAPPED-OUT
The thread is not currently executing in DB2. The thread originating address space is swapped out.

WAIT-ARCHIVE
The thread is waiting for an archive log tape mount necessary during thread abort processing.

WAIT-ARCREAD
The thread is currently waiting for read of archive log from tape.

WAIT-ASYNCRD
The thread is currently waiting for completion of a read I/O that is being done under a thread other than this one (for example, sequential or List Prefetch).

WAIT-ASYNCWR
The thread is currently waiting for completion of Write I/O that is being done under a thread other than this one (for example, Deferred Writes).

WAIT-CONVLIM
The distributed thread is in a synchronous wait because the conversation limit has been reached for its designated logmode.

WAIT-CTHREAD
The thread is queued in Create Thread processing because DB2 reached the CTHREAD value. This status corresponds to DB2 DISPLAY THREAD=QD status.

WAIT-GLBLOCK
The thread is currently waiting for either:
- Inter-system communication within the data sharing group to determine if there is lock contention.
- A lock held by another subsystem in the data sharing group.

WAIT-LOCK
The thread is waiting for a lock.

WAIT-MSGSEND
The thread is waiting because of inter-system message sending contention.

WAIT-REMREQ
The database access thread is in a synchronous wait (waiting for a response or a request from the originating DB2 subsystem).

WAIT-REMSQL
The distributed allied thread is in a synchronous wait (waiting for a response from the remote DB2 subsystem being accessed).

WAIT-REUSE
The thread is not currently in use and is waiting to be reused. This status applies only to CICS and IMS threads.

WAIT-SERVICE
The thread is currently waiting for completion of a DB2 service. Types of DB2 services include: open/close of a dataset, DFHSM recall of a dataset, SYSLGRNG update or define/extend/delete of a dataset, rollback, and Commit phase 2 for read only threads.
WAIT-SP-STOP
    The thread is queued waiting for a stopped stored procedure.

WAIT-TERM-TH
    The thread is queued and waiting for thread termination as a result of
    allied task termination. This status corresponds to DB2 DISPLAY
    THREAD=QD status.

UTIL-STOP
    The DB2 utility was started but not completed because of abnormal
    termination.

The following status are only available when class 2/3 traces are on:

WAIT-ACCEL
    The thread is currently waiting for claimers to be released after acquiring
    drain lock.

WAIT-CLAIMER
    The thread is currently waiting for claimers to be released after acquiring
    drain lock.

WAIT-CL3LOCK
    The thread is currently waiting for the completion of an identify call to the
    IRLM.

WAIT-COMMIT
    The thread is waiting for the FORCE-AT-COMMIT event to complete.

WAIT-DRNLOCK
    The thread is currently waiting to acquire drain lock.

WAIT LOB
    The thread is currently waiting for TCP/IP to materialize a LOB.

WAIT-LOCKLAT
    The thread is waiting for a LOCK-I/O-LATCH.

WAIT-LOCKPIP
    The thread is currently waiting for a PIPE suspend.

WAIT-LOCKPQS
    The thread is currently suspended for parallel task synchronization.

WAIT-LOGQSCE
    The thread is currently suspended because of an ARCHIVE LOG
    MODE(QUIESCE) command.

WAIT-PGLATCH
    The thread is currently waiting for page latch.

WAIT-SP-SCHD
    The thread is waiting for a TCB to become available in the stored
    procedures address space to schedule a stored procedure.

WAIT-SWITCH
    The thread is currently waiting for the completion of a synchronous
    execution switch.

WAIT-SYNC-IO
    The thread is currently waiting for completion of a synchronous Read I/O
    or Write I/O.
**Note:** This status can indicate that a DB2 resource is not large enough. You can use the OMEGAMON XE for DB2 PE resource manager or object analysis displays to further isolate the problem.

**Switches to DMS** The number of wait trace events processed for waits for a synchronous execution unit switching to the data space manager service tasks.

**Switch To DMS Wait Time** The accumulated wait time for a synchronous execution unit switch to the DB2 data space manager services. The DB2 data manager services include the define data set, the extend data set, the delete reset data set and the vsam catalog access.

**Switch To DMS Wait Time Current** The current wait time for a synchronous execution unit switch to the DB2 data space manager services. The DB2 data manager services include the define data set, the extend data set, the delete reset data set and the vsam catalog access.

**Sync EU Wait Time** The accumulated wait time for a synchronous execution unit switch to the DB2 open/close data set service or the HSM recall service.

**Syslgrng Waits** The number of wait trace events processed for waits for synchronous execution unit switching to the syslgrng recording service.

**Syslgrng Wait Time** The accumulated wait time for a synchronous execution unit switch to the DB2 syslgrng recording service. This service is also sometimes used to level ID checking for down-level detection.

**Syslgrng Wait Time Current** The current wait time for a synchronous execution unit switch to the DB2 syslgrng recording service. This service is also sometimes used to level ID checking for down-level detection.

**Transaction** The transaction ID at the workstation.

**Trigger CPU In Enclave** The accumulated TCB time used for executing triggers under and enclave. This value is calculated only if accounting class one is active.

**Trigger CPU Not Enclave** The accumulated TCB time consumed executing triggers while not under an enclave.

**Trigger Elapsed In Enclave** The accumulated time used for executing triggers under an enclave. This value is calculated only if accounting trace class 1 is active.

**Trigger Elapsed Not Enclave** The accumulated elapsed time consumed executing triggers while not under an enclave.

**UDF CP CPU Time** The accumulated CPU time consumed executing user-defined functions (UDFs) on the main application execution unit (DB2 field name: QWACUDFNF_CP). This time does not include CPU time consumed on an IBM specialty engine. Since these UDFs run entirely within DB2, this time represents class 1 and class 2 time.

**UDF Elapsed Time WLM** The total elapsed time spent by the allied agent in UDF functions processed in a DB2 stored procedure or WLM address space (DB2 field name: QWACUDEA). A user-defined function may initiate a trigger or invoke a stored procedure. Non-inline UDF times are included in this time if the native UDF
was called on a nested task and was not invoked by the main application execution unit. This time includes time executing SQL.

**UDF Elapsed Time Main** The accumulated elapsed time consumed executing user-defined functions (UDFs) on the main application execution unit (DB2 field name: QWACUDFNF_ELAP). Since these UDFs run entirely within DB2, this time represents class 1 and class 2 time.

**UDF IIP CPU Time** The accumulated CPU time consumed executing user-defined functions (UDFs) on the main application execution unit on an IBM specialty engine (DB2 field name: QWACUDFNF_zIIP). Since these UDFs run entirely within DB2, this time represents class 1 and class 2 time.

**UDF SQL Elapsed Time** The total elapsed time that user-defined functions spent to execute SQL (DB2 field name: QWACUDEB).

**UDF SQL Events** The number of SQL entry/exit events performed by user-defined functions (DB2 field name: QWACUDNE). This value is calculated only if accounting trace class 2 is active.

**UDF TCB Wait Time** The total elapsed time spent waiting for an available TCB before the user-defined function could be scheduled (DB2 field name: QWACUDST).

**UDF Wait Time** The accumulated TCB time used to satisfy user-defined function requests (DB2 field name: QWACUDCP).

**Uniqueness Value** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

**Uniqueness Value 2** The DB2 thread uniqueness value. For internal use.

**Waits IO Other Thread** The number of wait trace events processed for write I/O under another thread.

**Waits Sync Execution Units** The number of wait trace events processed for waits for synchronous execution unit switching for commit or abort.

**Wait Time** Total class3 wait time for a thread.

**Wait Time IO Other Thread** The accumulated wait time for write I/O that is done under a thread other than this.

**Wait Time IO Other Thread Current** The current wait time for write I/O that is done under a thread other than this.

**Wait Time Sync Execution Units** The total wait time because the synchronous execution unit switched to DB2 services from this thread while executing this package on DBRM.

**Wait Time Sync Execution Units Current** The current wait time because the synchronous execution unit switched to DB2 services from this thread while executing this package on DBRM.

**Workstation ID** The workstation ID.
Thread Enclave Attributes
Use the Thread Enclave attributes to create situations that monitor the activity of threads that are connected to DB2 and are associated with an enclave token.

Accounting The account information.

Ace Address The ace address.

Agent Address The agent address.

AGNT ASID The address space ID (ASID) of the agent.

Agent TCB Address The Agent TCB Address.

Authorization ID The authorization ID.

Authorization ID (Unicode) The authorization ID.

Average Time Goal The average response time goal.

Class The transaction class.

Collection The package collection ID.

Collection (Unicode) The package collection ID.

Collection Name The subsystem collection name.

Thread Enclave Attributes Connection ID. Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Thread Enclave Attributes The connection type.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**CPU Critical** CPU critical (Y or N).

**Correlation ID** The correlation ID.

**DB2 ID** The DB2 subsystem ID.

**Discretionary Goal** The discretionary goal.

**Duration Service Unit** The service class period duration in service units. The value is zero for the last period.

**Duration Service Unit 1** The service class period duration in service units. The value is zero for the last period.

**Duration Service Unit 2** The service class period duration in service units. The value is zero for the last period.

**Duration Service Unit 3** The service class period duration in service units. The value is zero for the last period.

**Duration Service Unit 4** The service class period duration in service units. The value is zero for the last period.

**Duration Service Unit 5** The service class period duration in service units. The value is zero for the last period.

**Duration Service Unit 6** The service class period duration in service units. The value is zero for the last period.

**Duration Service Unit 7** The service class period duration in service units. The value is zero for the last period.

**Duration Service Unit 8** The service class period duration in service units. The value is zero for the last period.

**Enclave CPU Time** The enclave CPU time.

**Enclave Export Token** The export token associated with the enclave, if any. A monitor can collect IWMRQRY answer areas from multiple systems and match RQAD for a particular multisystem enclave using the export token.

**Enclave STOKEN** The STOKEN of the address space that owns the enclave. If the enclave is foreign, this STOKEN refers to an address space on another system (not the local system).

**Enclave Token** The enclave token.

**End User ID** The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (DB2 field name: QWHCEUID).
**Function Name** The function name.

**Goal Description** The goal description.

**Goal Description 1** The goal description one.

**Goal Description 2** The goal description two.

**Goal Description 3** The goal description three.

**Goal Description 4** The goal description four.

**Goal Description 5** The goal description five.

**Goal Description 6** The goal description six.

**Goal Description 7** The goal description seven.

**Goal Description 8** The goal description eight.

**Goal Mode** The system WLM mode (G for Goal or C for Compatibility).

**Goal Type** The goal type indicator.

**IIP Flag** Indicates if the systems has a zIIP processor. Valid values are Y or N.

**IIP Speed** Indicates if the zIIP processor runs at a different speed than CP processor.

**Importance Level** The importance level. The range is one to five; One is the most important.

**IMPORTANCE1** The importance level. The range is one to five; One is the most important.

**IMPORTANCE2** The importance level. The range is one to five; One is the most important.

**IMPORTANCE3** The importance level. The range is one to five; One is the most important.

**IMPORTANCE4** The importance level. The range is one to five; One is the most important.

**IMPORTANCE5** The importance level. The range is one to five; One is the most important.

**IMPORTANCE6** The importance level. The range is one to five; One is the most important.

**IMPORTANCE7** The importance level. The range is one to five; One is the most important.

**IMPORTANCE8** The importance level. The range is one to five; One is the most important.
Information Flag The return information flag.

Interval Start The start time of this interval.

Location The requesting location.

Location (Unicode) The requesting location.

Logical Unit The logical unit name.

LUWID The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:
luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:
USCAC001.02022A.A1FEBE04B9D4=8

MVS ID The MVS system identifier.

Network ID The network ID.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Owner Job Name The job name of the address space that owns the enclave. If the enclave is foreign, the job name refers to a job on another system (not the local system).

Owner System The name of the system where the owner of the enclave resides. If the enclave is foreign, this is the system where the original enclave is located. Otherwise it is the local system name.

Package DBRM The package DBRM name.

Package DBRM (Unicode) The package DBRM name.

Parm1 The first start parameters.

Parm2 The second start parameters.

Percentile The goal percentile value.

Percentile1 The goal percentile value.

Percentile2 The goal percentile value.

Percentile3 The goal percentile value.

Percentile4 The goal percentile value.
Percentile5 The goal percentile value.

Percentile6 The goal percentile value.

Percentile7 The goal percentile value.

Percentile8 The goal percentile value.

Percentile Time Goal The percentile response time goal.

Performance Index The performance index.

Performance Value The performance value.

Period Number The service class period number in goal mode. When in goal mode, if the address space is a server, this value is always one. When in compatibility mode, this is the performance group period number.

Plan The plan name.

Priority The subsystem priority.

Process Name The enclave process name.

Program Name The transaction program name.

Report Class The name of the report class associated with this address space. This is only valid in goal mode.

Report Class Description The report class description.

Resource Group The name of the resource group associated with this address space. This is only valid in goal mode.

Scheduling Environment The enclave scheduling environment.

Service Class The name of the service class associated with this address space. This is only valid in goal mode.

Service Class Description The service class description.

Service Class Resource Description The service class resource description.

Service Class Resource Group The service class resource group.

Service Class Workload The workload name.

Service Class Workload Description The description of the workload.

Service Periods The number of service class periods for this service class.

Storage Protection Storage protection (Y or N).

Stored Procedure Name The name of the stored procedure.

Subsystem The subsystem name.
**Subsystem Type** The subsystem type.

**Subsystem Parameter** The subsystem parameter.

**System Goal** The system goal.

**Time Unit** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
- M = Minute
- H = Hour

**Time Unit1** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
- M = Minute
- H = Hour

**Time Unit2** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
- M = Minute
- H = Hour

**Time Unit3** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
- M = Minute
- H = Hour

**Time Unit4** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
- S = Second
- M = Minute
- H = Hour

**Time Unit5** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
- m = Millisecond
• S = Second
• M = Minute
• H = Hour

**Time Unit6** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
• m = Millisecond
• S = Second
• M = Minute
• H = Hour

**Time Unit7** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
• m = Millisecond
• S = Second
• M = Minute
• H = Hour

**Time Unit8** The response time unit indicator (mmm:SS:MM:HH).

Valid format is mmm:SS:MM:HH, where:
• m = Millisecond
• S = Second
• M = Minute
• H = Hour

**Total Delays** The total number of delay samples used in the SRMS execution velocity calculation.

**Total Usings** This is a sum of the number of times the work for the service class period is allowed to use WLM managed resources.

**Transaction** The transaction ID at the workstation.

**Type** The enclave type. It can be:

<table>
<thead>
<tr>
<th>Value</th>
<th>Enclave Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Original_Dependent</td>
<td>The enclave was created by IWMECREA and is a continuation of the transaction for the owning address space.</td>
</tr>
<tr>
<td>2</td>
<td>Original_Independent</td>
<td>The enclave was created by IWMECREA and is an independent transaction.</td>
</tr>
<tr>
<td>3</td>
<td>Foreign_Independent</td>
<td>The enclave was created by IWMIMPT and is a continuation of an independent enclave on another system.</td>
</tr>
<tr>
<td>4</td>
<td>Foreign_Dependent</td>
<td>The enclave was created by IWMIMPT and is a continuation of a dependent enclave on another system.</td>
</tr>
<tr>
<td>Value</td>
<td>Enclave Type</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>5</td>
<td>Inactive_Enclave</td>
<td>The enclave is currently on an inactive enclave queue because SRM did not find any work unit associated with the enclave. The enclave will move back to active queue once a work unit joins the enclave.</td>
</tr>
<tr>
<td>6</td>
<td>Currently_Promoted</td>
<td>The enclave is currently promoted because of a chronic resource contention.</td>
</tr>
<tr>
<td>7</td>
<td>Continuation_Independent</td>
<td>The enclave is a continuation of an independent enclave.</td>
</tr>
</tbody>
</table>

**Uniqueness Value** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

**Uniqueness Value 2** The DB2 thread uniqueness value. For internal use.

**User ID** The user ID.

**Velocity Goal** The velocity goal.

**Velocity or Response Time Goal** The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

**Velocity or Response Time Goal 1** The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

**Velocity or Response Time Goal 2** The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

**Velocity or Response Time Goal 3** The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

**Velocity or Response Time Goal 4** The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

**Velocity or Response Time Goal 5** The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

**Velocity or Response Time Goal 6** The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

**Velocity or Response Time Goal 7** The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.

**Velocity or Response Time Goal 8** The response time goal or the velocity goal. The value is zero if the goal is discretionary or if its a system goal or if no goal is defined.
**Version** The version.

**WLM Descriptor** The WLM environment description.

**WLM Procedure** The WLM environment procedure name.

**WLM System Type** The type of WLM application environment system.

**Workload Manager** The WLM (application) environment.

**Workload Name** The name of the workload associated with this address space. This is only valid in goal mode.

**Workstation** The workstation ID.

**Thread ID Attributes**
Use these attributes to view the thread IDs.

**DB2 Subsystem** The DB2 subsystem ID.

**DB2 Version** The DB2 version.

**Field Name** The thread long-name fields.

**QW0148CI**
Collection name.

**QW0148LN**
Location name. The location name contains the name the local location or remote location, depending on where the thread executes a package.

**QW0148PN**
Package ID.

**QWHCEUID**
The end user’s work station user ID. This can be different from the authorization ID used to connect to DB2. This field contains blanks if the client did not supply this information.

**QWHCEUTX**
The transaction or application name that the end user is running. This identifies the application that is currently running, not the product that is used to run the application. This field contains blanks if the client did not supply this information.

**QWHCEUWN**
The end user’s workstation name. This field contains blanks if the client did not supply this information.

**QWHCTCXT**
Trust context name.

**QWHCROLE**
Role name that is associated with the authorization.

**QWHCAID**
Primary authorization ID from connection or signon.

**QWHCOPID**
Initial primary authorization ID.
QMDASUFX
Account suffix.

QMDAACCT
The z/OS accounting string associated with the DB2 SQL application's z/OS address space.

Field Value The long name value.

QW0148CI
Collection name.

QW0148LN
Location name. The location name contains the name the local location or remote location, depending on where the thread executes a package.

QW0148PN
Package ID.

QWHCEUID
The end user's work station user ID. This can be different from the authorization ID used to connect to DB2. This field contains blanks if the client did not supply this information.

QWHCEUTX
The transaction or application name that the end user is running. This identifies the application that is currently running, not the product that is used to run the application. This field contains blanks if the client did not supply this information.

QWHCEUWN
The end user's workstation name. This field contains blanks if the client did not supply this information.

QWHCTCXT
Trusted context name.

QWHCROLE
Role name that is associated with the authorization.

QWHCAID
Primary authorization ID from connection or signon.

QWHCOPID
Initial primary authorization ID.

QMDASUFX
Account suffix.

QMDAACCT
The z/OS accounting string associated with the DB2 SQL application's z/OS address space.

Interval Start The start time of this interval.

MVS System ID The MVS identifier.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.
**QW0148AC** The agent control element (ACE) (see QWHSACE) of the thread that is reported. The value in QWHSACE is the ACE of the IFI application that requested this trace record (Field name: QW0148AC).

**QW0148LU** The logical unit of the work ID (LUWID) as defined for the LU 6.2 interface (Field name: QW0148LU). The LUWID uniquely identifies the thread within the network, and consists of the following:
- A fully qualified network name (QW0148LM)
- An LUW instance number (QW0148UV) and an LUW sequence number (see fields below).

It consists of two 8-character fields: QW0148NI and QW0148LM, which together uniquely identify a client system.

**QWHCATYP** The connecting system type code (in hexadecimal). This field can have a null value. For example, this field contains a null value for some utilities (Field name: QWHCATYP).

**QWHCCN** The connection name (Field name: QWHCCN). It is not valid on end of memory and reflects the z/OS home address space (ASID) connection name for:
- **Batch**: 'BATCH'
- **TSO**: 'TSO'
- **QMF**: 'DB2CALL'
- **Utility**: 'UTILITY'
- **DB2 internal**
  - DB2 subsystem ID
- **IMS**
  - IMS-ID
- **CICS**
  - CICS-ID
- **RRSAF**
  - 'RRSAF'

**Distributed database access threads:**
- For threads from a DB2 requester, this field contains the connection name of the thread at the requesting location.
- For threads using the DRDA protocol from a non-DB2 requester, this field contains the constant 'SERVER'.

**QWHCCCV** The correlation ID value (Field name: QWHCCCV).
- For batch: JOBNAME
- For TSO: LOGON-ID
- For IMS/VS: PST#.PSBNAME
- For CICS: CONNECTION_TYPE.THREAD_TYPE.THREAD_.#.TRAN-ID
- For RRSAF: CORRELATION-ID value from signon function
- For threads from a DB2 requester: this field contains the correlation-ID name of the thread at the requesting location.
- For threads using the DRDA protocol from a non-DB2 requester, this field contains the first 12 characters in the DDM external name (EXTNAM) parameter of the DDM EXCSAT command received as part of the SQL connect.
**QWHCEUID** The user ID of the end user’s workstation (Field name: QWHCEUID). This can be different from the authorization ID used to connect to DB2. This field contains blanks if the client did not supply this information. If QWHCEUID_OFF is not 0, this value is truncated.

**QWHCEUTX** The transaction or application name that the end user is running (Field name: QWHCEUTX). This identifies the application that is currently running, not the product that is used to run the application. This field contains blanks if the client did not supply this information.

**QWHCEUWN** The end user’s workstation name (Field name: QWHCEUWN). This field contains blanks if the client did not supply this information.

**QWHCPLAN** The plan name (Field name: QWHCPLAN). It shows a blank for a DB2 command thread; otherwise:
- For SPUFI with cursor stability: 'DSNESPCS'
- For SPUFI with repeatable read: 'DSNESPRR'
- For TSO: the application plan name
- For IMS: the application plan name
- For CICS: application plan name, IMS and CICS commands have a blank plan name.
- For RRSAF create thread with the collection parameter: '?RRSAF '
- For QMF: 'DSQPLAN'
- For Distributed Database Access threads:
  - For threads using the DRDA protocol from a requester, this field contains the plan name that is executed at the requesting location.
  - For threads using the DRDA protocol from a non-DB2 requester or from a DB2 2.3 requester, this field contains the constant 'DISTSERV'.
- For binding: 'DSNBIND' (system plan)
- For utility: 'DSNUTIL ' (system plan)
- For authorization: 'ACT' + X'0000000000' (system plan)
- For unallocated threads and miscellaneous DB2 system service tasks: 'BCT' + X'0000000000' (system plan)
- For startup: 'STARTCT' + X'00' (system plan)

**Sequence Number** The thread long name descriptions.

**QW0148CI** Collection name.

**QW0148LN** Location name. The location name contains the name the local location or remote location, depending on where the thread executes a package.

**QW0148PN** Package ID.

**QWHCEUID** The end user’s work station user ID. This can be different from the authorization ID used to connect to DB2. This field contains blanks if the client did not supply this information.

**QWHCEUTX** The transaction or application name that the end user is running. This
identifies the application that is currently running, not the product that is used to run the application. This field contains blanks if the client did not supply this information.

**QWHCEUWN**
The end user's workstation name. This field contains blanks if the client did not supply this information.

**QWHCTCXT**
Trusted context name.

**QWHCROLE**
Role name that is associated with the authorization.

**QWHCAID**
Primary authorization ID from connection or signon.

**QWHCOPID**
Initial primary authorization ID.

**QMDASUFX**
Account suffix.

**QMDAACCT**
The z/OS accounting string associated with the DB2 SQL application's z/OS address space.

**UW0148CI** The collection name (Field name: UW0148CI).

**UW0148LN** The location name (Field name: UW0148LN). The location name contains the name of the local location or remote location, depending on where the thread executes a package. The following statements execute locally, regardless of the current package name:
- COMMIT
- ROLLBACK
- SET <HOST VARIABLE> = CURRENT PACKAGE SET
- SET <HOST VARIABLE> = CURRENT SERVER

For these statements, this field contains the location where the package executes, not the location where the statement executes.

**UW0148PN** The package ID (Field name: UW0148PN).

**UWHCAID** The primary authorization ID from connection or signon (Field name: UWHCAID). For z/OS operator commands and DB2 system internal agents, the value is SYSOPR. Secondary authorization IDs might be the RACF groups associated with this primary authorization ID. The SQL ID is initially set to this primary authorization ID. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it is not the same as the original primary authorization ID (QWHCOPID). Distributed authorization ID translation can also change the primary authorization ID.

**Thread Locks Owned Attributes**
Use Thread Locks Owned attributes to view detailed information about all the locks and claims owned by an individual thread.

**AGNT ASID** The address space ID (ASID) of the agent.

**Authorization ID** The authorization ID.
Authorization ID (Unicode) The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 128 characters.

Claim Class The type of claim class. Possible claim classes are:

- **CS** Cursor stability
- **RR** Repeatable read
- **Write** Write access

Claim Type The type of object that is claimed. Possible claim types are:

- **TS** Tablespace
- **TS LPRT** Tablespace logical partition
- **TS PART** Tablespace partition
- **IX** Index space
- **IX LPRT** Index space logical partition
- **IX PART** Index partition

Collection ID (Unicode) The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

Thread Locks Owned Attributes Connection ID. Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

Thread Locks Owned Attributes The type of connection associated with the thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
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<tbody>
<tr>
<td>BATCH</td>
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<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
</tbody>
</table>
Correlation ID The DB2 Correlation ID.

DB2 ID The name of a DB2 subsystem.

Elapsed time Shows the elapsed time in milliseconds.

End User ID The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (DB2 field name: QWHCEUID).

Job Name The job name that is associated with a thread.

Lock Claim Resource The name of the object which is locked or claimed. The resource name can include the database name, pageset name, partition number, page number, record id (RID), collection ID, package name, or plan name:
- DB=database name can be represented as DBID=identifier.
- PS=pageset name can be represented as PSID=identifier.
- DBID represents the decimal identifier of the database.
- PSID represents the decimal identifier of the table space or index space.

Lock Level The level or mode of the lock request. This information describes the level of resource access demanded by the lock request. Possible lock levels are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS</td>
<td>Intent share</td>
</tr>
<tr>
<td>IX</td>
<td>Intent exclusive</td>
</tr>
<tr>
<td>NSU</td>
<td>Non-shared Update</td>
</tr>
<tr>
<td>S</td>
<td>Share</td>
</tr>
<tr>
<td>SIX</td>
<td>Share intent exclusive</td>
</tr>
<tr>
<td>U</td>
<td>Update</td>
</tr>
<tr>
<td>UNS</td>
<td>Unprotected shared</td>
</tr>
<tr>
<td>X</td>
<td>Exclusive</td>
</tr>
</tbody>
</table>

Lock Type The lock type of the lock request. Possible lock types are:

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACSC</td>
<td>The Accelerator Services commands (ACSC) lock.</td>
</tr>
<tr>
<td>ALBP</td>
<td>The Alter buffer pool (ALBP) lock indicates a lock on a buffer pool during execution of an ALTER BUFFERPOOL command.</td>
</tr>
<tr>
<td>BIND</td>
<td>The BIND lock indicates an autobind or remote bind lock.</td>
</tr>
</tbody>
</table>
### Table 199. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
</table>
| **BMBA**  | The Buffer manager SCA MBA (BMBA) L-lock.  
            | The Buffer Manager (BM) gets this lock when it needs to read, insert,  
            | or update a multiple buffer pool (MBA) record in a Shared  
            | Communications Area (SCA).  
            | (BMC_MBAO or BMC_MBAR) |
| **BPPS**  | The Buffer Manager Pageset (BPPS) RR (repeatable read) P-lock:  
            | • BP = buffer pool ID  
            | • DB = database name  
            | • PS = pageset name |
| **CCAT**  | The CATMAINT convert catalog (CCAT) lock is acquired when  
            | catalog conversion is performed. |
| **CDBL**  | The Compress dictionary build (CDBL) lock. |
| **CDIR**  | The CATMAINT convert directory (CDIR) lock is acquired when  
            | directory conversion is performed. |
| **CDRN**  | The Cursor Stability drain (CDRN) lock is acquired to drain all CS  
            | read access to an object:  
            | • DB = database name  
            | • PS = pageset name  
            | • PT = partition |
| **CMDS**  | The DB2 Command Serialization (CMDS) lock. |
| **CMIG**  | The CATMAINT migration (CMIG) lock is acquired when catalog  
            | migration is performed. |
| **COLL**  | The Collection (COLL) lock |
| **DBDL**  | The DBD load (DBDL) lock is the database descriptor load lock. |
| **DBEX**  | The Database exception (DBEX) lock indicates a lock on a "Logical  
            | page list" (LPL) or "Group buffer pool recovery pending" (GRECP)  
            | database exception status.  
            | This lock is only used in a data sharing environment. |
| **DBXU**  | The DB exception update lock is used for updating the database  
            | exception status. |
| **DGTT**  | The DGTT URID lock is acquired to protect segments that belong to a  
            | Declared Global Temporary Table (DGTT). These segments are  
            | deallocated during Commit 1 by logging them and serializing them  
            | using the Unit of Recovery ID (URID) lock. |
| **DPAG**  | The DB2 page (DPAG) lock in a tablespace. When programs read  
            | data or update data, they acquire a page lock containing the data.  
            | • DB = database name  
            | • PS = pageset name  
            | • PG = page |
## Table 199. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DSET</strong></td>
<td>The partitioned lock.</td>
</tr>
<tr>
<td></td>
<td>A partitioned tablespace contains one or more partitions (up to 64). It is created when you create a table space using the SQL CREATE TABLESPACE statement with the NUMPARTS parameter.</td>
</tr>
<tr>
<td></td>
<td>Only one table can be stored on a partitioned tablespace. Each partition contains one part of a table. The partitioned lock only locks the partition with the data that is referenced.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PT = partition number</td>
</tr>
<tr>
<td><strong>DTBS</strong></td>
<td>The Database lock indicates a lock on the database.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PT = partition number</td>
</tr>
<tr>
<td><strong>GRBP</strong></td>
<td>The Group buffer pool (GRBP) start/stop lock.</td>
</tr>
<tr>
<td></td>
<td>BP=buffer pool ID</td>
</tr>
<tr>
<td><strong>HASH</strong></td>
<td>The Hash anchor (HASH) lock.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PG = page</td>
</tr>
<tr>
<td><strong>HPSP</strong></td>
<td>The Header Page (HP) Bucket or Stored Procedure (SP) Command lock.</td>
</tr>
<tr>
<td><strong>IEOF</strong></td>
<td>The Index end of file (IEOF) lock is acquired at the index end of file.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PT = partition</td>
</tr>
<tr>
<td><strong>IPAG</strong></td>
<td>The Index page (IPAG) lock in an index space. When application programs read or update data, they acquire a lock on the page containing the index when indexing is used.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td></td>
<td>• PG = page</td>
</tr>
<tr>
<td><strong>IXKY</strong></td>
<td>The Index key (IXKY) lock.</td>
</tr>
<tr>
<td><strong>LBLK</strong></td>
<td>The Large object (LOB) lock.</td>
</tr>
<tr>
<td><strong>LPLR</strong></td>
<td>The Logical page list recovery (LPLR) lock.</td>
</tr>
<tr>
<td><strong>MDEL</strong></td>
<td>The Mass delete (MDEL) lock is acquired when doing a mass delete from a table (for example, when you DELETE FROM a table) within a segmented tablespace.</td>
</tr>
<tr>
<td></td>
<td>It is used to prevent another user from reusing freed segments before a delete operation is committed.</td>
</tr>
<tr>
<td></td>
<td>• DB = database name</td>
</tr>
<tr>
<td></td>
<td>• PS = pageset name</td>
</tr>
<tr>
<td>Lock type</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| PALK      | The Partition lock.  
  • DB = database name  
  • PS = pageset name  
  • PT = partition | |
| PBPC      | The Group BP level castout (PBPC) P-lock.  
  A physical lock acquired when a castout of a group buffer pool occurs. Castout is the process of writing pages in the group buffer pool out to DASD.  
  This lock is only used in a data sharing environment. | |
| PCDB      | The DDF CDB P-lock.  
  A Distributed Data Facility communication database physical lock.  
  This lock is only used in a data sharing environment. | |
| PDBD      | The DBD P-lock is a database descriptor physical lock.  
  This lock is only used in a data sharing environment. | |
| PDSO      | The Pageset or partitioned pageset open lock.  
  If the data set supporting the tablespace that is referenced by the application is not opened, the program will acquire a lock to open the data set. The data set will stay open if CLOSE=NO is defined in the SQL statement creating the tablespace.  
  • DB = database name  
  • PS = pageset name | |
| PITR      | The Index manager tree (PITR) is a physical lock (P-lock).  
  This lock is only used in a data sharing environment.  
  • DB = database name  
  • PS = pageset name  
  • PT = partition | |
| PPAG      | The Page P-lock is a physical lock on a page.  
  This lock is only used in a data sharing environment. | |
| PPSC      | The Pageset/partition level castout physical lock (P-lock).  
  This lock is only used in a data sharing environment. | |
| PPSP      | The Pageset/partition physical lock (P-lock).  
  This lock is only used in a data sharing environment. | |
| PRLF      | The Resource Limit Facility (RLF) physical lock (P-lock).  
  This lock is only used in a data sharing environment. | |
<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
</table>
| PSET      | The Pageset (PSET) lock can be a tablespace or indexspace.  
A pageset containing DB2 tables is a tablespace. A pageset containing DB2 index structure is an indexspace.  
A pageset can be simple or partitioned. This lock type is for the simple pageset only.  
• DB = database name  
• PS = pageset name |
| PSPI      | The Pageset piece (PSPI) lock.  
A pageset is a collection of pageset pieces. Each pageset piece is a separate VSAM data set.  
A simple pageset contains from 1 to 32 pieces. Each piece of a simple pageset is limited to 2 GB. Whenever a simple pageset piece reaches this size, another piece is allocated and the pageset grows.  
This is a lock on the expanded pageset piece. |
| RDBD      | The Repair DBD (RDBD) lock is acquired when REPAIR DBD REBUILD is running (test/diagnose). |
| RDRN      | The Repeatable Read drain (RDRN) lock is acquired to drain all RR access to an object.  
• DB = database name  
• PS = pageset name  
• PT = partition |
| RGDA      | The Retry Getpage During Abort (RGDA) lock. |
| ROW       | The Row lock indicates a lock on a row. |
| RSTR      | The Shared Communications Area (SCA) restart (RSTR) lock indicates a lock on SCA access for restart/redo information.  
(BMC-RSTP) |
| SDBA      | The Start/stop lock on DBA (SDBA) table indicates a lock on the table, tablespace, or database when a CREATE/DROP is processed against these objects.  
• DB = database name  
• PS = pageset name |
| SENV      | The System environment (SYSENV) serialization lock. |
| SKCT      | The Skeleton cursor table (SKCT) lock indicates a lock on the application plan.  
PLAN=plan name |
| SKPT      | The Skeleton package table (SKPT) lock indicates a lock on the application package.  
TOKEN= the consistency token (CONTOKEN) column from SYSIBM.SYSPACKAGE. |
| SPRC      | The System level point in time (PIT) recovery lock.  
SYS_PITR |
## Table 199. Lock types (continued)

<table>
<thead>
<tr>
<th>Lock type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SREC</td>
<td>The Log range lock. DB2 writes a record in the log range tablespace (SYSLGRNG) every time a tablespace is opened and updated, and updates SYSLGRNG whenever that tablespace is closed. The record contains the opening and/or closing log RBA (relative byte address) for the tablespace. When DB2 writes to SYSLGRNG, the program acquires a lock on the tablespace with updates.</td>
</tr>
</tbody>
</table>
|           | • DB = database name  
|           | • TS = tablespace name |
| TABL      | The Table (TABL) lock on the table which resides in a segmented tablespace. |
|           | • DBID = DBid  
|           | • TABL = Tableid |
| UIDA      | The Util I/O Damage Assessment lock. |
| UNDT      | The Undetermined (UNDT) lock indicates that this lock cannot be determined because it is not part of the other listed lock types. Resource ID (in hexadecimal). |
| UNKN      | The Unknown (UNKN) lock indicates the resource does not exist. |
| UTEX      | The Utility exclusive execution (UTEX) lock. |
| UTID      | The Utility identifier (UTID) lock. |
|           | UID=utility id |
| UTOB      | The Utility object (UTOB) lock. |
|           | • DB = database name  
|           | • PS = pageset name  
|           | • PT = partition |
| UTSE      | The Utility serialization (UTSE) lock is required when running utility jobs. |
| WDRN      | The Write drain (WDRN) lock is acquired to drain all write access to an object. |
|           | • DB = database name  
|           | • PS = pageset name  
|           | • PT = partition |
| XMLK      | The XML lock. |

**LUWID** The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

```
luw-id=token
```
The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:

USCAC001.02022A.A1FE8E04B9D4=8

**MVSID** The MVS system identifier.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Package DBRM (Unicode)** The package DBRM name.

**Plan** The plan name.

**Resource Type** The type of resource can be Lock or Claim.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- **M** = Month
- **D** = Day
- **Y** = Year
- **H** = Hour
- **M** = Minute
- **S** = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Total Locks** The number of locks of the same lock type owned by the thread.

**Uniqueness Value** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSLUUV).

**Uniqueness Value 2** The DB2 thread uniqueness value. For internal use.

**Thread Locks Owned Summary Attributes**

Use Thread Locks Owned Summary attributes to view a summary of all locks and claims owned by a thread.

**AGNT ASID** The address space ID (ASID) of the agent.

**Authorization ID** The authorization ID.

**Authorization ID (Unicode)** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 128 characters.

**Bind ACQUIRE Option** The ACQUIRE option specified at BIND time: ALLOCATE or USE. This allows you to control when the allocation of tablespace locks is to occur. If ACQUIRE(USE) is specified, tablespace locks will be acquired when the resource is used by the application. If ACQUIRE(ALLOCATE) is specified, all
tablespace locks will be obtained at plan allocation time. Dynamic SQL users (QMF, SPUFI) always execute with the ACQUIRE(USE) option.

**Bind RELEASE Option** The RELEASE option specified at BIND time: COMMIT or DEALLOCATE. The RELEASE option controls when tablespace and SKCT locks are freed. RELEASE(COMMIT) causes these locks to be released at each commit point. RELEASE(DEALLOCATE) causes these locks to be freed at application termination. Page locks are always released at commit time, regardless of the release option.

**Catalog Locks** The total number of all catalog locks owned. This number includes any locks owned on a page or tablespace in database DSNDB06. This is the total of the catalog pageset and page locks.

**Catalog Page Row Locks** The total number of page and row locks on the catalog (DSNDB06) database. This includes data page (DPAG), index page (IPAG), and row (ROW) locks.

**Catalog Pageset Locks** The total number of pageset locks in which the object of the lock is a pageset owned by the catalog (DSNDB06) database (PSET).

**Collection ID (Unicode)** The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

**Thread Locks Owned Summary Attributes** Connection ID. Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**Thread Locks Owned Summary Attributes** The type of connection associated with the thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>
**Correlation ID** The DB2 Correlation ID.

**DB2 ID** The name of a DB2 subsystem.

**Directory and Other Locks** The total number of directory and other locks owned by the thread. Directory locks are issued against resources contained in the DSNDB01 directory database.

**Elapsed time** Shows the elapsed time in milliseconds.

**End User ID** The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (DB2 field name: QWHCEUID).

**ISOLATION Option** The ISOLATION option specifies when the plan is bound. The isolation parameter allows you to control the data consistency in the pages that the plan accesses. It has an effect on the number of page or row locks held concurrently by an application.

The available options are:

**Cursor Stability (CS or CURSOR)**
Causes a page lock acquired for read processing to be released when the application subsequently accesses data contained on another data page. (Page locks acquired as a result of update activity are always retained until commit.)

**Read Stability (RS or READ)**
Is similar to Repeatable Read but this isolation option allows to insert new rows or update rows that did not satisfy the original search condition of the application.

**Repeatable Read (RR or REPEAT)**
Causes all application locks obtained for read processing to be retained until application commit time.

**RR with X-lock (REPEATX)**
Means Repeatable Read with X-lock.

**RS with X-lock (READX)**
Means Read Stability with X-lock.

**Uncommitted Read (UR or UNCOMMIT)**
Causes data to be read without acquiring locks. This can result in accessing data that has been updated but not yet committed. It applies only to read-only operations: SELECT, SELECT INTO, or FETCH from a read-only result table. Use this isolation level only when:
- Data consistency is not necessary or inconsistencies already exist
- Errors cannot occur with its use, such as with a reference table that is rarely updated

**Job Name** The job name that is associated with a thread.

**Locks Owned** The total number of all locks owned by the thread. This includes all lock types.

**LUWID** The logical unit of work ID (LUWID) for a thread.
This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

\[ \text{luw-id}=\text{token} \]

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the Luwid field displays data such as the following:

USCAC001.02022A.A1FE8E04B9D4=8

**MVSID** The MVS system identifier.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Package DBRM (Unicode)** The package DBRM name.

**Page Row Lock** Total number of page and row locks owned by the thread. It includes data page locks (DPAG), index page locks (IPAG), and row locks (ROW). It excludes any locks in which the lock object is owned by the catalog database or the directory database.

**Pageset and Dataset Locks** The total number of pageset locks held. This excludes pageset locks in which the lock object is a pageset owned by the catalog database or the directory database. Lock types included are PSET and DSET.

**Percent NUMLKUS** The current percentage of NUMLKUS reached by the thread. NUMLKUS is an installation parameter in DSNZPARM that specifies the maximum number of page, row, LOB, or XML locks that can be held by a single process at any one time. It includes locks for both, the DB2 catalog and directory and for user data.

**Plan** The plan name.

**Time Stamp** Represents the end of data collection or the end of an interval, and is the local time where the system is running.

Valid format is MM-DD-YY HH:MM:SS, where:
- \( M \) = Month
- \( D \) = Day
- \( Y \) = Year
- \( H \) = Hour
- \( M \) = Minute
- \( S \) = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Uniqueness Value** The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (DB2 field name: QWHSCLUUV).

**Uniqueness Value 2** The DB2 thread uniqueness value. For internal use.
Thread Statistics Attributes

Use Thread Statistics attributes to create situations that determine the usage of parallel threads.

Asynchronous Page Reads The number of asynchronous page reads for prefetch. Valid value is an integer in the range 0 - 2147483647.

Correlation ID The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 4 characters; for example D412.

Data Sharing Group The name of a data sharing group. It is an alphanumeric text string, with a maximum of 8 characters; for example, TDDB241G.

DB2 ID The name of a DB2 subsystem.

Dynamic Prefetch The number of dynamic prefetch requests. Valid value is an integer in the range 0 - 2147483647.

Get Page Requests The number of thread getpage requests. This includes conditional, unconditional, successful, and unsuccessful requests. Valid value is an integer in the range 0 - 2147483647.

IDNAME An internal attribute used for navigation, it contains either the Data Sharing Group Name or the DB2ID.

Immediate Write I/O The number of synchronous write I/O requests that DB2 issues on behalf of a thread. Valid value is an integer in the range 0 - 2147483647.

List Prefetch The number of list prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

MVS System The MVS System Management Facility (SMF) ID. It is an alphanumeric text string with a maximum of 4 characters; for example, SP11.

Number of SETW The number of set write requests to write a page out to DASD. Valid value is an integer in the range 0 - 2147483647.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.

Sequential Prefetch The number of sequential prefetch requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

Synchronous Read I/O The number of synchronous read I/O requests that a thread issues. Valid value is an integer in the range 0 - 2147483647.

Time Stamp Represents the end of data collection or the end of an interval, and is the local time where the system is running.
Valid format is MM-DD-YY HH:MM:SS, where:
- M = Month
- D = Day
- Y = Year
- H = Hour
- M = Minute
- S = Second

For example, 07-16-18 14:58:29 indicates that data collection ended on July 16th, 2018, at 14:58:29 PM.

**Type Indicator** Indicates the type of parallel thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>blank</td>
<td>Not a parallel thread</td>
</tr>
<tr>
<td>Parent</td>
<td>Parallel thread is a parent</td>
</tr>
<tr>
<td>Child</td>
<td>Parallel thread is a child</td>
</tr>
<tr>
<td>Autonomous SP</td>
<td>Originating thread who invoked autonomous stored procedures</td>
</tr>
</tbody>
</table>

**Unsuccessful Get Page Operation** The number of conditional getpage requests that failed. Valid value is an integer in the range 0 - 2147483647.

**Thread SQL Counts Attributes**

Use the Thread SQL Counts attributes to create situations to monitor the SQL DCL (Data Control Language) declarations, SQL DDL (Data Definition Language) statements, and SQL DML (Data Manipulation Language) statements, associated with a thread. These attributes also list information for stored procedures, user-defined functions, triggers, direct row access, parallelism, RID pool access, and prepare statements. They also show information for currently committed rows, multi-row processing, workfile storage, and concentrate statements.

**Abort** The number of times the thread has rolled back uncommitted data (Field name QWACCOMM).

**AGNT ASID** The address space ID (ASID) of the agent.

**Allocate Cursor** The number of SQL ALLOCATE CURSOR statements executed (Field name: QXALOCC).

**Alter Database** The number of ALTER DATABASE statements executed (Field name: QXALDAB).

**Alter Function** The number of ALTER FUNCTION statements executed (Field name: QXALUDF).

**Alter Index** The number of ALTER INDEX statements executed (Field name: QXALTIX).

**Alter Procedure** The number of ALTER PROCEDURE statements executed (Field name: QXALPRO).
**Alter Stogroup** The number of ALTER STOGROUP statements executed (Field name: QXALTST).

**Alter Table** The number of ALTER TABLE statements executed (Field name: QXALTTA).

**Alter Tablespace** The number of ALTER TABLESPACE statements executed (Field name: QXALTTS).

**Alter Trusted Context** The number of alter trusted context statements executed (Field name QXALTCTX) - not supported prior to DB2 9.

**Associate Locator** The number of SQL ASSOCIATE LOCATORS statements executed (Field name: QXALOCL).

**Authorization ID** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 8 characters.

**Authorization ID (Unicode)** The primary authorization ID from connection or sign-on that identifies the execution privileges an application has to a DB2 object or service. It is an alphanumeric text string with a maximum of 128 characters.

**Close Cursor** The number of CLOSE statements executed. This number at the server location might not match the user application because of DDF's internal processing (DB2 field name: QXCLOSE).

**Collection ID (Unicode)** The collection ID. This field is blank for DBRM. It is an alphanumeric text string, with a maximum of 128 characters.

**Comment On** The number of COMMENT ON statements executed (Field name: QXCMTON).

**Commit** The number of times the thread successfully concluded commit phase 2 processing (Field name QWACABRT).

**Connect (Type 1)** The number of CONNECT type 1 statements executed (Field name: QXCON1).

**Connect (Type 2)** The number of CONNECT type 2 statements executed (Field name: QXCON2).

**Thread SQL Counts Attributes** Connection ID. Identifies the connection of an application to a DB2 system.

It is an alphanumeric text string, with a maximum length of eight characters.

**Thread SQL Counts Attributes** The type of connection associated with the thread.

Valid values are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>Batch job</td>
</tr>
<tr>
<td>CICS</td>
<td>CICS attach</td>
</tr>
<tr>
<td>DLIBATCH</td>
<td>DL/I batch</td>
</tr>
<tr>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Distributed</td>
<td>Distributed Database Access thread</td>
</tr>
<tr>
<td>IMS_BMP</td>
<td>IMS attach BMP</td>
</tr>
<tr>
<td>IMS_CTL</td>
<td>IMS control region</td>
</tr>
<tr>
<td>IMS_MPP</td>
<td>IMS attach MPP</td>
</tr>
<tr>
<td>IMS_TBMP</td>
<td>IMS transaction BMP</td>
</tr>
<tr>
<td>DistAllied</td>
<td>Distributed Allied thread</td>
</tr>
<tr>
<td>RRSAF</td>
<td>DB2 Resource Recovery Services attachment facility</td>
</tr>
<tr>
<td>SYSTEM</td>
<td>System directed access</td>
</tr>
<tr>
<td>TSO</td>
<td>TSO foreground and background</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>Unrecognizable connection type</td>
</tr>
<tr>
<td>UTILITY</td>
<td>DB2 Utility</td>
</tr>
</tbody>
</table>

**Correlation ID** The correlation between an application and the connection to a DB2 system. It is an alphanumeric text string, with a maximum of 12 characters; for example DLKEX212.

**Create Alias** The number of CREATE ALIAS statements executed (Field name: QXCRALS).

**Create Database** The number of CREATE DATABASE statements executed (Field name: QXCRDAB).

**Create Distinct Type** The number of CREATE DISTINCT TYPE statements executed (Field name: QXCDIST).

**Create Function** The number of CREATE FUNCTION statements executed (field name: QXCRUDF).

**Create Global Temp Table** The number of CREATE GLOBAL TEMPORARY TABLE statements executed (field name: QXCRGTT).

**Create Index** The number of CREATE INDEX statements executed (Field name: QXCRINX).

**Create Procedure** The number of CREATE PROCEDURE statements executed (Field name: QXCRPRO).

**Create Role** The number of CREATE ROLE statements executed (Field name QXCRROL) - not supported prior to DB2 9.

**Create Stogroup** The number of CREATE STOGROUP statements executed (field name: QXCRSTG).

**Create Synonym** The number of CREATE SYNONYM statements executed (Field name: QXCRSYN).

**Create Table** The number of CREATE TABLE statements executed (Field name: QXCRTAB).
Create Tablespace The number of CREATE TABLESPACE statements executed (Field name: QXCTABS).

Create Trigger The number of CREATE TRIGGER statements executed (Field name: QXCTRIG).

Create Trusted Context The number of create trusted context statements executed (Field name: QXCRCTX) - not supported prior to DB2 9.

Create View The number of CREATE VIEW statements executed (Field name: QXDEFVU).

DB2 ID The DB2 subsystem ID.

Delete The number of DELETE statements executed (DB2 field name: QXDELET).

Describe The number of DESCRIBE, DESCRIBE CURSOR, DESCRIBE INPUT, and DESCRIBE PROCEDURE statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXDESC).

Describe Table The number of DESCRIBE TABLE statements executed (Field name: QXDSCR TB).

Description The description of the monitored activity.

Direct Row Revert to Index The number of times that direct row access failed and an index was used to find a record (Field name: QXROIIDX).

Direct Row Revert to TS Scan The number of times that an attempt to use direct row access reverted to using a table-space scan because DB2 was not able to use a matching index scan (Field name: QXROITS).

Direct Row Successful The number of times that direct row access was successful (Field name: QXROIMAT).

Drop Alias The number of SQL DROP ALIAS statements executed (Field name: QXDRPAL).

Drop Database The number of DROP DATABASE statements executed (field name: QXDRPDB).

Drop Distinct Type The number of DROP DISTINCT TYPE statements executed (Field name: QXDDIST).

Drop Function The number of DROP FUNCTION statements executed (Field name: QXDRPFN).

Drop Index The number of DROP INDEX statements executed (Field name: QXDRPIX).

Drop Package The number of SQL DROP PACKAGE statements executed (Field name: QXDRPPKG).

Drop Procedure The number of DROP PROCEDURE statements executed (Field name: QXDRPRR).
Drop Role The number of DROP ROLE statements executed (Field name: QXDRPROL) - not supported prior to DB2 9.

Drop Stogroup The number of DROP STOGROUP statements executed (Field name: QXDRPST).

Drop Synonym The number of DROP SYNONYM statements executed (Field name: QXDRPSY).

Drop Table The number of DROP TABLE statements executed (Field name: QXDRPTA).

Drop Tablespace The number of DROP TABLESPACE statements executed (Field name: QXDRPTS).

Drop Trigger The number of DROP TRIGGER statements executed (Field name: QXDRPTR).

Drop Trusted Context The number of drop trusted context statements executed (Field name: QXDRPCTX) - not supported prior to DB2 9.

Drop View The number of DROP VIEW statements executed (Field name: QXDRPVU).

End User ID The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information (Field name: QWHCEUID).

Fetch The number of FETCH statements executed. This number at the server location might not match the user application because of DDF's internal processing (Field name: QXFETCH).

Grant The number of GRANT statements executed (Field name: QXGRANT).

Incremental Bind The number of incremental binds (excluding prepare) (Field name: QXINCRB).

Insert The number of INSERT statements executed (Field name: QXINSRT).

Interval Start The date and time, as set on the monitored system, indicating the instance when the agent collects information.

Job Name The job name that is associated with a thread.

Label On The number of LABEL ON statements executed (Field name: QXLABON).

Literals Dups Created The number of times DB2 created a duplicate STMT instance in the statement cache for a dynamic statement that had literals replaced by CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLD). The duplicate STMT instance was needed because a cache match failed because the literal reusability criteria was not met.

Literals Matches Found The number of times DB2 found a matching reusable copy of a dynamic statement in cache because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLM).
**Literals Parsed** The number of times DB2 parsed dynamic statements because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLP).

**Literals Replaced** The number of times DB2 replaced at least one literal in a dynamic statement because of CONCENTRATE STATEMENTS WITH LITERALS behavior (Field name: QXSTCWLRR).

**Lock Table** The number of LOCK TABLE statements executed (Field name: QXLOCK).

**LUWID** The logical unit of work ID (LUWID) for a thread.

This value consists of two parts: the logical unit of work ID (luw-id) and a token. The token can be used in place of the luw-id in any DB2 command that accepts luw-id as input. Format:

luw-id=token

The luw-id consists of the network name, the originating VTAM LUNAME, and a unique identifier (separated by periods). Thus, the LuwId field displays data such as the following:

USCAC001.02022A.A1FE8E04B9D4=8

**Max Nested SQL Trigger** The maximum level of indirect SQL cascading (Field name: QXCASCNDEP). This includes cascading because of triggers, UDFs, or stored procedures.

**Max Parallel Degree** The maximum degree of parallel query processing executed among all parallel groups to indicate the extent to which queries were processed in parallel (Field name: QXMAXDEG).

**Merge** The number of MERGE statements executed (DB2 field name QXMERGE) - not supported prior to DB2 9.

**MVS ID** The MVS system identifier.

**Open Cursor** The number of OPEN statements executed (Field name: QXOPEN).

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**Package DBRM (Unicode)** The package name of the database request module (DBRM) with which a thread is associated. It is an alphanumeric text string with a maximum of 128 characters.

**Parallel Bypass DB2 (Buffers)** The number of times the parallelism coordinator had to bypass a DB2 when distributing tasks because one or more DB2 members did not have enough buffer pool storage (Field name: QXXCSKIP). The number in this field is only incremented at the parallelism coordinator once per parallel group, even though more than one DB2 might have lacked buffer pool storage for that parallel group. It is also only incremented when the buffer pool is defined to allow for parallelism. For example, if VPXSEQ=0 on an assistant, DB2 does not send parallel work there and the number in this field is not incremented.
Parallel Degree Executed The total number of parallel groups that executed in the planned parallel degree (Field name: QXNORGRP). This field is incremented by one for each parallel group that executed in the planned degree of parallelism (as determined by DB2).

Parallel Degree Reduced (no buffer) The total number of parallel groups that did not reach the planned parallel degree because of a lack of storage space or contention on the buffer pool (Field name: QXREDGRP).

Parallel Failed (Cursor) The total number of parallel groups that fell back to sequential mode because of a cursor that can be used by UPDATE or DELETE (Field name: QXDEGCUR).

Parallel Failed (No Buffer) The total number of parallel groups that fell back to sequential mode because of a storage shortage or contention on the buffer pool (Field name: QXDEGBUF).

Parallel Failed (No ESA Sort) The total number of parallel groups that fell back to sequential mode because of a lack of ESA sort support (Field name: QXDEGES).A.

Parallel Failed (No Enclaves) The total number of parallel groups that executed in sequential mode because of the unavailability of MVS/ESA enclave services (Field name: QXDEGEN).

Parallel Grp Executed The total number of parallel groups that were executed (Field name: QXTOTGRP).

Parallel Maximum LOB Storage The maximum storage used for LOB values (DB2 field name: QXSTLOBV).

Parallel Single DB2 (Coord=NO) The total number of parallel groups executed on a single DB2 subsystem due to the COORDINATOR subsystem value being set to NO (Field name: QXCOORNO). When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a DB2 subsystem with COORDINATOR=YES, but is run on a DB2 subsystem with COORDINATOR=NO.

Parallel Single DB2 (Cursor) The total number of parallel groups executed on a single DB2 subsystem because of a repeatable-read or read-stability isolation (Field name: QXISOR).

Parallel Sysplex Intent The total number of parallel groups that DB2 intended to run across the data sharing group (Field name: QXXCBPNX). This number is only incremented at the parallelism coordinator at run time.

Parallelism Disabled YES indicates that query parallelism is disabled by the Resource Limit Facility for at least one dynamic SQL SELECT statement.

Plan Name The name of an application plan that DB2 produces during the bind process and uses for processing SQL statements during execution. It is an alphanumeric text string, with a maximum of 8 characters. For example, PLANLCK2 is the name of an application plan. *SYSTEM* indicates DB2 subsystem-generated threads that own or are waiting on a lock.
**Prepare** The number of PREPARE statements executed. This number at the server location might not match the user application because of DDF’s internal processing (Field name: QXPREP).

**Prepare Avoided KEEPDYN(YES)** The number of times where no SQL PREPARE or EXECUTE IMMEDIATE was issued by the application and a copy of a prepared SQL statement was found in local dynamic SQL cache (Field name: QXSTNPRP). When an application plan or package is bound with KEEPDYNAMIC YES, a copy of each prepared SQL statement for the application thread is held in the local dynamic SQL cache and kept across a commit boundary. An application thread can save the total cost of a prepare by using a copy of the prepared statement in the local dynamic SQL cache from an earlier prepare by the same thread. To do this, the application must be modified to avoid issuing repetitive SQL PREPAREs for the same SQL statement.

**Prepare Copied from Cache** The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache (Field name: QXSTFND).

**Prepare Discarded - MAXKEEPD** The number of times statements are invalidated in the local dynamic SQL cache because the MAXKEEPD limit has been reached and prepared SQL statements in the local dynamic SQL cache have to be reclaimed (Field name: QXSTDEXP).

**Prepare Implicit KEEPDYN(YES)** An implicit prepare occurs when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEPDYNAMIC YES (Field name: QXSTIPRP). If the skeleton copy of the prepared SQL statement exists in the global dynamic SQL cache in the EDM pool, a short prepare is executed, otherwise a full prepare is executed.

**Prepare No Match** The number of times that DB2 searched the prepared statement cache but could not find a suitable prepared statement (Field name: QXSTNFND).

**Prepare Purged - DROP/ALT/REV** The number of times statements are invalidated in the local dynamic SQL cache because of SQL DDL or updated RUNSTATS information and prepared SQL statements in the local dynamic SQL cache have to be reclaimed (Field name: QXSTDINV).

**Release** The number of RELEASE statements executed (DB2 field name: QXREL).

**Rename Index** The number of RENAME INDEX statements executed (Field name QXRNX) - not supported prior to DB2 9.

**Rename Table** The number of RENAME TABLE statements executed (Field name: QXRNTAB).

**Revoke** The number of REVOKE statements executed (Field name: QXREVO).

**RID HWM** The highest number of RID blocks in use at any time since DB2 startup (Field name: QISTRHIG). This is a high-water mark.

**RID In Use** The number of RID blocks currently in use (snapshot value) (Field name: QISTRCUR).
**RID Exceeded Pool** The number of times the maximum RID pool storage was exceeded (Field name: QISTRMAX). The size is determined by the installation parameter RID POOL SIZE (DB2 install panel DSNTIPC). It can be 0, or between 128 KB and 10 GB. The general formula for calculating the RID pool size is:

Number of concurrent RID processing activities x average number of RIDs x 2 x 5 bytes per RID.

**RID Exhausted Virtual** The number of times RID pool processing was not used because DBM1 storage was exhausted (Field name: QISTRSTG).

**RID Not Used (no storage)** The number of times DB2 detected that no storage was available to hold a list of RIDs during a given RID pool process involving one index (single index access with list prefetch) or multiple indexes (multiple index access) (DB2 field name: QXNSMIAP).

**RID Not Used (Max Limit)** The number of times DB2 detected that a RID list exceeded one or more internal limits during a given RID list (or RID pool) process involving one index (single index access with list prefetch) or multiple indexes (multiple index access) (DB2 field name: QXMRMIAP). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs.

**RID Pool Used** The number of times the RID (RECORD ID) pool has been processed (Field name: QXMIAP). During RID (RECORD ID) pool (also called RID list) processing, DB2 uses an index to produce a list of candidate RIDs, which is called a RID list. The RID list can be sorted and intersected (ANDed) or unioned (ORed) with other RID lists before actually accessing the data pages. RID list processing is used for a single index (index access with list prefetch) or for multiple indexes (multiple index access), which is when the RID lists are ANDed and ORed.

**RID Terminated (> DM)** The number of times a RID pool processing operation terminated because the number of RID entries was greater than the DM limit (Field name: QISTRPLM).

**RID Terminated (> RDS)** The number of times RID pool processing terminated because the number of RIDs that can fit into the guaranteed number of RID blocks was greater than the maximum limit (25% of table size) (Field name: QISTRLLM).

**Row Triggers Executed** The number of times a row trigger was activated (Field name: QXROWTRG).

**Rows Deleted** The number of rows that have been deleted because of SQL DELETE statements (Field name: QXRWSDELETED).

**Rows Fetched** The number of rows that have been fetched because of SQL FETCH statements (Field name: QXRWSFETCHD).

**Rows Inserted** The number of rows that have been inserted because of SQL INSERT statements (Field name: QXRWSINSERTD).

**Rows Updated** The number of rows that have been updated because of SQL UPDATE statements (Field name: QXRWSUPDTD).

**Select** The number of SQL SELECT statements executed (Field name: QXSELECT).
Set Connection  The number of SET CONNECTION statements executed (Field name: QXSETCON).

Set Current Degree  The number of SET CURRENT DEGREE statements executed (Field name: QXSETCDG).

Set Current Path  The number of SET CURRENT PATH statements executed (Field name: QXSETPTH).

Set Current Rules  The number of SET CURRENT RULES statements executed (Field name: QXSETCRL).

Set Current SQLID  The number of SET CURRENT SQLID statements executed (Field name: QXSETSQL).

Set Host Variable  The number of SET HOST VARIABLE statements executed. The special register that was retrieved is not tracked (Field name: QXSETHV).

SP Abended  The number of times a stored procedure terminated abnormally (Field name: QXCALLAB).

SP Call Statements  The number of times the SQL CALL statements executed to invoke a stored procedure (SP).

SP Rejected  The number of times an SQL CALL statement was rejected because of the procedure that is in the STOP ACTION(REJECT) state (Field name: QXCALLRJ).

SP Timed-Out  The number of times an SQL CALL statement timed out when waiting to be scheduled (Field name: QXCALLTO).

SQL Error in Trigger  The number of times an SQL error occurred during the execution of a triggered action (Field name: QXTRGERR). This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.

Stmt Triggers Executed  The number of times a statement trigger was activated (Field name: QXSTTRG).

Total  The total count executed by the thread.

UDFs Abended  The number of times a user-defined function (UDF) abended (Field name: QXCAUDAB).

UDFs Executed  The number of user-defined functions (UDFs) executed (Field name: QXCAUD).

UDFs Rejected  The number of times a user-defined function (UDF) was rejected (Field name: QXCAUDRJ).

UDFs Timed Out  The number of times a user-defined function (UDF) timed out while waiting to be scheduled (Field name: QXCAUDTO).

Uniqueness Value  The instance number: When concatenated with the fully qualified network name, it uniquely identifies a distributed thread (Field name: QWHSLUUU).
Uniqueness Value 2 The DB2 thread uniqueness value. For internal use.

Update The number of UPDATE statements executed (Field name: QXUPDTE).

**Thread SQL Count Attributes**

Use these attributes to view the thread SQL count.

**DB2 Subsystem** The DB2 subsystem ID.

**DB2 Version** The DB2 version.

**Data Sharing Group** The Data Sharing Group name.

**Data Sharing Member** The Data Sharing Group member name.

**Field Name** The data field name.

**Field Value** The data value.

**Interval Start** The start time of this interval.

**MVS System ID** The MVS identifier.

**Originating System ID** The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

**QW0148AC** The agent control element (ACE) (see QWHSACE) of the thread that is reported. The value in QWHSACE is the ACE of the IFI application that requested this trace record (Field name: QW0148AC).

**QW0148LU** The logical unit of the work ID (LUWID) as defined for the LU 6.2 interface (Field name: QW0148LU). The LUWID uniquely identifies the thread within the network, and consists of the following:

- A fully qualified network name (QW0148LM)
- An LUW instance number (QW0148UV) and an LUW sequence number (see fields below).

It consists of two 8-character fields: QW0148NI and QW0148LM, which together uniquely identify a client system.

**QWHCATYP** The connecting system type code (in hexadecimal). This field can have a null value. For example, this field contains a null value for some utilities (Field name: QWHCATYP).

**QWHCCN** The connection name (Field name: QWHCCN). It is not valid on end of memory and reflects the z/OS home address space (ASID) connection name for:

- **Batch**: 'BATCH'
- **TSO**: 'TSO'
- **QMF**: 'DB2CALL'
- **Utility**: 'UTILITY'
- **DB2 internal**
  - DB2 subsystem ID
IMS  IMS-ID
CICS  CICS-ID
RRSAF  'RRSAF'

**Distributed database access threads:**

- For threads from a DB2 requester, this field contains the connection name of the thread at the requesting location.
- For threads using the DRDA protocol from a non-DB2 requester, this field contains the constant 'SERVER'.

**QWHCCV** The correlation ID value (Field name: QWHCCV).
- For batch: JOBNAME
- For TSO: LOGON-ID
- For IMS/VS: PST#.PSBNAME
- For CICS: CONNECTION_TYPE.THREAD_TYPE.THREAD_#.TRAN-ID
- For RRSAF: CORRELATION-ID value from signon function
- For threads from a DB2 requester: this field contains the correlation-ID name of the thread at the requesting location.
- For threads using the DRDA protocol from a non-DB2 requester, this field contains the first 12 characters in the DDM external name (EXTNAM) parameter of the DDM EXCSAT command received as part of the SQL connect.

**QWHCEUID** The user ID of the end user's workstation (Field name: QWHCEUID). This can be different from the authorization ID used to connect to DB2. This field contains blanks if the client did not supply this information. If QWHCEUID_OFF is not 0, this value is truncated.

**QWHCEUTX** The transaction or application name that the end user is running (Field name: QWHCEUTX). This identifies the application that is currently running, not the product that is used to run the application. This field contains blanks if the client did not supply this information.

**QWHCEUWN** The end user's workstation name (Field name: QWHCEUWN). This field contains blanks if the client did not supply this information.

**QWHCPLAN** The plan name (Field name: QWHCPLAN). It shows a blank for a DB2 command thread; otherwise:
- For SPUFI with cursor stability: 'DSNESPCS'
- For SPUFI with repeatable read: 'DSNESPRR'
- For TSO: the application plan name
- For IMS: the application plan name
- For CICS: application plan name, IMS and CICS commands have a blank plan name.
- For RRSAF create thread with the collection parameter: '?RRSAF '
- For QMF: 'DSQPLAN'
- For Distributed Database Access threads:
  - For threads using the DRDA protocol from a requester, this field contains the plan name that is executed at the requesting location.
  - For threads using the DRDA protocol from a non-DB2 requester or from a DB2 2.3 requester, this field contains the constant 'DISTSERV'.

2400  IBM Db2 Performance Expert on z/OS
• For binding: 'DSNBIND' (system plan)
• For utility: 'DSNUTIL' (system plan)
• For authorization: 'ACT' + X'0000000000' (system plan)
• For unallocated threads and miscellaneous DB2 system service tasks: 'BCT' + X'0000000000' (system plan)
• For startup: 'STARTCT' + X'00' (system plan)

**Sequence Number** The thread long name descriptions.

**QW0148CI**
Collection name.

**QW0148LN**
Location name. The location name contains the name the local location or remote location, depending on where the thread executes a package.

**QW0148PN**
Package ID.

**QWHCEUID**
The end user's work station user ID. This can be different from the authorization ID used to connect to DB2. This field contains blanks if the client did not supply this information.

**QWHCEUTX**
The transaction or application name that the end user is running. This identifies the application that is currently running, not the product that is used to run the application. This field contains blanks if the client did not supply this information.

**QWHCEUWN**
The end user's workstation name. This field contains blanks if the client did not supply this information.

**QWHCTCXT**
Trusted context name.

**QWHCROLE**
Role name that is associated with the authorization.

**QWHCAID**
Primary authorization ID from connection or signon.

**QWHCOPID**
Initial primary authorization ID.

**QMDASUFX**
Account suffix.

**QMDAACCT**
The z/OS accounting string associated with the DB2 SQL application's z/OS address space.

**UW0148CI** The collection name (Field name: UW0148CI).

**UW0148LN** The location name (Field name: UW0148LN). The location name contains the name of the local location or remote location, depending on where the thread executes a package. The following statements execute locally, regardless of the current package name:
• COMMIT
- ROLLBACK
- SET <HOST VARIABLE> = CURRENT PACKAGE SET
- SET <HOST VARIABLE> = CURRENT SERVER

For these statements, this field contains the location where the package executes, not the location where the statement executes.

**UW0148PN** The package ID (Field name: UW0148PN).

**UWHCAID** The primary authorization ID from connection or signon (Field name: UWHCAID). For z/OS operator commands and DB2 system internal agents, the value is SYSOPR. Secondary authorization IDs might be the RACF groups associated with this primary authorization ID. The SQL ID is initially set to this primary authorization ID. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it is not the same as the original primary authorization ID (QWHCOPID). Distributed authorization ID translation can also change the primary authorization ID.

**Thread SQL Text Attributes**

Use these attributes to view thread SQL text.

**ACE Address** The agent control element (ACE) (see QWHSACE) of the thread that is reported. The value in QWHSACE is the ACE of the IFI application that requested this trace record (Field name: QW0148AC).

**Authorization ID** The primary authorization ID from connection or signon (Field name: UWHCAID). For z/OS operator commands and DB2 system internal agents, the value is SYSOPR. Secondary authorization IDs might be the RACF groups associated with this primary authorization ID. The SQL ID is initially set to this primary authorization ID. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it is not the same as the original primary authorization ID (QWHCOPID). Distributed authorization ID translation can also change the primary authorization ID.

**Collection Name** The collection name (Field name: UW0148CI).

**Connection ID** The connection name (Field name: QWHCCN). It is not valid on end of memory and reflects the z/OS home address space (ASID) connection name for:

- **Batch**: 'BATCH'
- **TSO**: 'TSO'
- **QMF**: 'DB2CALL'
- **Utility**: 'UTILITY'
- **DB2 internal**
  - DB2 subsystem ID
- **IMS**
  - IMS-ID
- **CICS**
  - CICS-ID
- **RRSAF**
  - 'RRSAF'

Distributed database access threads:
• For threads from a DB2 requester, this field contains the connection name of the thread at the requesting location.
• For threads using the DRDA protocol from a non-DB2 requester, this field contains the constant ‘SERVER’.

**Correlation ID** The correlation ID value (Field name: QWHCCV).

- For batch: JOBNAME
- For TSO: LOGON-ID
- For IMS/VS: PST#.PSBNAME
- For CICS: CONNECTION_TYPE.THREAD_TYPE.THREAD Baton.TRAN-ID
- For RRSAF: CORRELATION-ID value from signon function
- For threads from a DB2 requester: this field contains the correlation-ID name of the thread at the requesting location.
- For threads using the DRDA protocol from a non-DB2 requester, this field contains the first 12 characters in the DDM external name (EXTNAM) parameter of the DDM EXCSAT command received as part of the SQL connect.

**DB2 Subsystem** The DB2 subsystem ID.

**DB2 Version** The DB2 version.

**DSG Member Name** The Data Sharing Group (DSG) member name.

**Data Sharing Group** The Data Sharing Group name.

**End User ID** The user ID of the end user’s workstation (Field name: QWHCEUID). This can be different from the authorization ID used to connect to DB2. This field contains blanks if the client did not supply this information. If QWHCEUID OFF is not 0, this value is truncated.

**Interval Start** The start time of this interval.

**Location Name** The location name (Field name: UW0148LN). The location name contains the name of the local location or remote location, depending on where the thread executes a package. The following statements execute locally, regardless of the current package name:

- COMMIT
- ROLLBACK
- SET <HOST VARIABLE> = CURRENT PACKAGE SET
- SET <HOST VARIABLE> = CURRENT SERVER

For these statements, this field contains the location where the package executes, not the location where the statement executes.

**Logical Unit of work ID** The logical unit of the work ID (LUWID) as defined for the LU 6.2 interface (Field name: QW0148LU). The LUWID uniquely identifies the thread within the network, and consists of the following:

- A fully qualified network name (QW0148LM)
- An LUW instance number (QW0148UV) and an LUW sequence number (see fields below).

It consists of two 8-character fields: QW0148NI and QW0148LM, which together uniquely identify a client system.
MVS System ID The MVS identifier.

Originating System The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Package ID The package ID (Field name: UW0148PN).

Plan Name The plan name (Field name: QWHCPLAN). It shows a blank for a DB2 command thread; otherwise:
- For SPUFI with cursor stability: 'DSNESPCS'
- For SPUFI with repeatable read: 'DSNESPRR'
- For TSO: the application plan name
- For IMS: the application plan name
- For CICS: application plan name, IMS and CICS commands have a blank plan name.
- For RRSAF create thread with the collection parameter: '?RRSAF '
- For QMF: 'DSQPLAN'
- For Distributed Database Access threads:
  - For threads using the DRDA protocol from a requester, this field contains the plan name that is executed at the requesting location.
  - For threads using the DRDA protocol from a non-DB2 requester or from a DB2 2.3 requester, this field contains the constant 'DISTSERV'.
- For binding: 'DSNBIND' (system plan)
- For utility: 'DSNUTIL ' (system plan)
- For authorization: 'ACT' + X'0000000000' (system plan)
- For unallocated threads and miscellaneous DB2 system service tasks: 'BCT' + X'0000000000' (system plan)
- For startup: 'STARTCT' + X'00' (system plan)

Statement Text The SQL statement text. This section is shown if the agent is at thread level and an SQL statement is present. For dynamic SQL, the reported statement might be a SELECT statement, even though the statement that is processed by the application is a PREPARE, OPEN, or FETCH statement. For static SQL, the reported statement might be a SELECT statement, even though the actual statement is DECLARE CURSOR. Check the RDISTYPE field to determine the actual SQL statement type. Host variables are displayed as ' :H ' in this field.

Thread Type The connecting system type code (in hexadecimal). This field can have a null value. For example, this field contains a null value for some utilities (Field name: QWHCATYP).

Transaction Name The transaction or application name that the end user is running (Field name: QWHCEUTX). This identifies the application that is currently running, not the product that is used to run the application. This field contains blanks if the client did not supply this information.

Workstation Name The end user’s workstation name. This field contains blanks if the client did not supply this information (Field name: QWHCEUWN).

ZOS CPU Utilization Attributes
Use the ZOS CPU Utilization attributes to determine how much of your processor is used by DB2.
Note: Parameter ZOSMETRICS must be set to YES for enabling DB2 to retrieve data from the RMF interface. If ZOSMETRICS is not set to YES, you might see negative Operating System CPU data. ZPARAM ZOSMETRICS in DSN6SPRM.

CPU Utilization DB2 The percentage of the processor used by the DB2 subsystem; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

CPU Utilization DB2 DBM1 The percentage of the processor used by the DB2 DBM1 address space; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

CPU Utilization DB2 MSTR The percentage of the processor used by the DB2 MSTR address space; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

CPU Utilization LPAR The average processor usage per LPAR; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

DB2ID The name of a DB2 subsystem.

DB2 Version The version of the DB2 system.

Free Real Storage LPAR (MB) The free real storage on the logical partition (LPAR), in MB.

Free Virtual Storage LPAR (MB) The free virtual storage on the LPAR, in MB.

Interval Start The date and time, as set on the monitored system, indicating the instance when the agent collects information.

MVS System ID The MVS system identifier.

Number of CPU on LPAR The number of processors on the LPAR; if parameter ZOSMETRICS is not set to YES for enabling DB2 to retrieve data from the RMF interface, you might see negative Operating System CPU data.

Originating System ID The managed system name of the agent. It is an alphanumeric text string, with a maximum of 32 characters; for example, DB91:SYS1:DB2.

Page-in Rate LPAR The Page-in Rate in percents for the LPAR.

Page-in Rate DB2 The Page-in Rate in percents for the DB2 subsystem.

Real Storage non LPAR (MB) The total real storage on the LPAR, in MB.

RMF API Reason Code The reason code from the RMF API call.

RMF API Return Code The return code from the RMF API call.

RMF API Status Flag The status flag for the Resource Measurement Facility (RMF) API call.
**Unreferenced Interval Count** The unreferenced interval count.

**Used Free Real DB2 (MB)** The real storage used by the DB2 subsystem, in MB.

**Used Virtual Storage DB2 (MB)** The virtual storage used by the DB2 subsystem, in MB.

**Virtual Storage LPAR (MB)** The total virtual storage on the LPAR, in MB.

**OMEGAMON XE for DB2 PE Workspaces**

The OMEGAMON XE for DB2 PE workspaces contain the table views you use to obtain information about the various aspects of DB2. The workspaces may also display other types of information such as graphs and charts.

The workspaces contain several counters that display data related to DB2 performance. If a counter value or specific information in a panels is not shown, the following notation is used to indicate the reason:

*Table 200. Notations for missing information*

<table>
<thead>
<tr>
<th>Value</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| N/A   | Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:  
|       | • A counter is not available in one DB2 version.  
|       | • Counters are mutually exclusive. |
| N/C   | Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:  
|       | • A divide by zero (percentages, ratios).  
|       | • Suppression of negative elapsed time values.  
|       | • Required counter values for calculation marked as N/A or N/P.  
|       | • Insufficient data or small counter values to allow significant statements (meaningless or misleading averages). |
| N/P   | Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:  
|       | • When counter values are not generated because of operational conditions (a trace class is not active).  
|       | • An application does not provide a value because it is optional. |

**All Threads Connected to DB2 Workspace**

The All Threads Connected to DB2 workspace provides an overview of the activity of all threads that are connected to DB2.

This workspace is comprised of the following views:

**In-DB2 CP CPU Time (bar chart)**  
Shows the class 2 CPU time (in DB2) for all threads.

**In-DB2 Time (bar chart)**  
Shows the class 2 elapsed time (in DB2) for all threads.

**All Threads Connected to DB2 (table view)**  
Provides key data for all threads that are connected to DB2.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces
that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:
- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

**Application Information Workspace**
The Application Information workspace provides details on the Database Connection Services (DCS) application. You can use it for problem determination on DCS applications.

This workspace is comprised of the following views:

- **Application Information (table view)**
  Shows the key data for the DCS application.

- **Client Information (table view)**
  Shows details on the client application.

- **DB2 Host (table view)**
  Identifies the host database and shows how communication between the DB2 Connect gateway and the host database is established.

- **Thread/Application ID (table view)**
  Identifies the thread and the DCS application.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Buffer Pool Details Workspace**
The Buffer Pool Details workspace provides status, threshold, and ratio details associated with specific buffer pool activity.

This workspace is comprised of the following views:

- **Ratio (table view)**
  Provides thread performance details associated with the buffer pool.
Status (table view)
Provides "at a glance" buffer pool details, including size and page allocation information.

Thresholds (table view)
Lists the thread’s performance and status thresholds for the selected buffer pool.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Buffer Pool Management Workspace
Buffer pools, also called virtual buffer pools, are areas of virtual storage where DB2 temporarily stores pages of table spaces or indexes.

The Buffer Pool Management workspace provides an overview of buffer pool activity. This workspace is comprised of the following views:

Buffer Pool Management (table view)
Shows activity details for specific buffer pools.

Buffer Pool Rates (bar chart)
Shows the rate of get page operations, read I/O operations, prefetch requests, and write I/Os performed.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

CICS Connections Workspace
The CICS Connections workspace provides an overview of DB2 thread activity originating from connected CICS subsystems. It provides information on a connection level about all CICS subsystems identified to DB2.

This workspace is comprised of the following views:

CICS Connections Summary (table view)
Lists thread status details, including the components of the Thread Usage chart and thread utilization data.

Thread Usage (bar chart)
Shows the counts of currently active pool threads, pool threads that are waiting because the maximum has been reached, and active threads for this CICS connection (including entry and pool threads).

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

CICS Threads Workspace
The CICS Threads workspace provides data to monitor DB2 thread activity originating from connected CICS subsystems.
This workspace is comprised of the following views:

**CICS Threads (table view)**
Identifies and measures thread activity from the CICS region.

**Thread Counts (bar chart)**
Shows "at a glance" counts of entry threads in use, entry threads waiting, and pool thread overflow.

**Note:** This workspace is available only when at least one thread is active from the CICS region.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**CICS Thread Summary Workspace**
The CICS Thread Summary workspace provides an overview for threads originating from CICS.

This workspace is comprised of the following views:

**CICS Thread Summary (table view)**
Shows summary information for the CICS threads.

**In-DB2-CPU Time (bar chart)**
Shows the class 2 CPU time (in DB2) for CICS threads.

**In-DB2 Time (bar chart)**
Shows the class 2 elapsed time (in DB2) for CICS threads.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:
- "All Threads Connected to DB2 Workspace" on page 451
- "CICS Thread Summary Workspace" on page 479
- "Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831
Common Storage Workspace
The Common Storage workspace provides an overview of the common storage above and below the 2 GB bar. You can view this information if DB2 10 is installed.

This workspace is comprised of the following views:
- Common Storage Below 2 GB (table view)
- Common Storage Above 2 GB (table view)
- MVS LPAR Shared Storage Above 2 GB
- DB2 Subsystem Shared Storage Above 2 GB
- DB2 Subsystem Shared Variable Storage Above 2 GB

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can use the navigation links in the MVS LPAR Shared Storage Above 2 GB view to open:
- “MVS Storage Above 2 GB Workspace” on page 750
- “MVS Storage Below 2 GB Workspace” on page 750

Coupling Facility Connections Workspace
The Coupling Facility Connections workspace displays connection status information for all connections to a coupling facility structure.

Use the Coupling Facility Connections workspace to:
- View the status of all connections to a structure
- Identify the operating system name, the associated coupling facility name and job name

To investigate a non-active connection, review the information provided in Accessing an OMEGAMON Host Session.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Coupling Facility Structures Workspaces
The Coupling Facility Structures workspace provides a global view of LOCK1 and SCA coupling facility structures for a specific data sharing group.

Use the workspace to:
- Monitor activity rates within a structure
- Track structure utilization over a period of time
- View structure data for a true coupling facility situation
- View comprehensive global and false contention data

Analyzing Coupling Facility Connections
You can analyze a specific coupling facility structure to view the connection status of all connections to the structure.
From the Coupling Facility Structure table view, right-click a structure name and then click **Link to --> Coupling Facility Connections**. The **Coupling Facility Connections workspace** is displayed. This view shows the connection status details for your coupling facility structure.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Critical DB2 Messages by Message ID Workspace**

The Critical DB2 Messages by Message ID workspace displays critical DB2 messages sorted by message identification number.

This workspace is comprised of the following views:

- **Critical DB2 Messages by Message ID (table view)**
  Reports information about critical messages, including when the message was generated, the message identification number, and the message text.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following workspace from the Critical DB2 Messages by Message ID workspace:

- [DB2 Messages](#)

**Data Sharing Thread Activity Workspace**

The Data Sharing Thread Activity workspace provides a global view of thread activity for an entire data sharing group. A consolidated list of DB2 threads displays on the table view in alphabetical order by plan name. Your table view may sort differently if you have changed the sort field or sort order.

This workspace is comprised of the following views:

- Threads Using CP CPU (bar chart)
- Threads that have Wait Times (bar chart)
- Data Sharing Threads (table view)

Use the Data Sharing Threads table view to:

- Identify all active threads.
- Track thread activity for application threads over a period of time.
- Analyze thread data when a thread evaluates to true.

**Monitoring Thread Activity**

You can use the Data Sharing Threads table view to identify all active application threads and track thread activity over a period of time. You can use the thread data to:

- Monitor critical application threads.
- Evaluate the thread elapsed and wait times for critical threads.
- Observe thread activity for threads within the same system, group, and member.
Analyzing Thread Statistics

You can analyze a specific application thread on the Data Sharing Threads table view and review statistical information.
1. Right-click a row on the Data Sharing Threads table view.
2. Click Link to --> Thread Statistics.

The Thread Statistics workspace displaying statistical information for your thread is displayed.

Investigating Excessive Thread Elapsed Time

You can use the Tivoli Enterprise Portal terminal emulator adapter to access an OMEGAMON host session. You can then review further information that will assist you in investigating a thread with excessive elapsed time. For information about using this feature, see the Tivoli Enterprise Portal online help.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Data Sharing Thread Statistics Workspace

The Data Sharing Thread Statistics workspace displays thread statistics for a specific application thread. If the application thread is a parallel thread, the table view displays thread statistics for all the associated parallel threads.

Viewing Additional Thread Information

You can use the Tivoli Enterprise Portal terminal emulator adapter to access an OMEGAMON host session to investigate a thread with excessive elapsed time. For information about using this feature, see the Tivoli Enterprise Portal online help.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Connect/Gateway Statistics Workspace

The DB2 Connect/Gateway Statistics workspace provides statistics about the selected DB2 Connect gateway, including details about the number of agents and pooled agents, the connections waiting for the host to reply, and the connections waiting for the client to send a request.

This workspace is comprised of the following views:

DB2 Connect Server - Key Events (bar chart)
Shows the key events of the selected DB2 Connect gateway.

DB2 Connect Server - High Water Mark (bar chart)
Shows key high water marks with regard to agents.

DB2 Connect Information (table view)
Shows key data on the selected DB2 Connect gateway.

DB2 Connect Agents (table view)
Provides information about the agents.

Connections (table view)
Provides information about the connections.
Sorts/Memory (table view)

Shows the total number of allocated pages of sort heap space for all sorts at the level chosen and at the time the snapshot was taken.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Connect Server Workspace

The DB2 Connect Server workspace provides key information about all active and inactive DB2 Connect gateways.

This workspace is comprised of the following views:

DB2 Connect Server - Key Events (bar chart)

Shows the key events of all active DB2 Connect gateways.

DB2 Connect Server (table view)

Shows key data on all active and inactive DB2 Connect gateways.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Connect Server at Thread Level Workspace

The DB2 Connect Server at Thread Level workspace provides summary information about the Database Connection Services (DCS) application related to this thread.

This workspace is comprised of the following views:

Application Time (bar chart)

Shows the elapsed execution time of the unit of work that was completed most recently. It indicates the time that it takes for units of work to complete.

Thread/Application ID (table view)

Identifies the thread and the DCS application.

DB2 Connect Server Information (table view)

Shows key data on the DCS application.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Connect Server Package Statistics Workspace

The Package Statistics workspace provides statistics about the packages that were received at the selected DB2 Connect gateway.

This workspace is comprised of the following views:
DB2 Connect Server - Package Network Time (bar chart)
Shows the network time and the average network time required for processing a sample SQL statement. The network time is the difference between the host response time and the elapsed execution time for a statement.

DB2 Connect Information (table view)
Shows key information about the selected DB2 Connect gateway.

Package Statistics (table view)
Provides details on the packages received at the DB2 Connect gateway.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DB2 Messages Workspace
The DB2 Messages workspace displays messages that can help you identify problems with your DB2 system.

This workspace is comprised of the following views:

Critical DB2 Messages (table view)
Displays all critical DB2 messages and warning DB2 messages. Critical messages are highlighted in red and warning messages are highlighted in yellow.

Last 10 DB2 Messages (table view)
Displays the ten most recent DB2 messages. Critical messages are highlighted in red and warning messages are highlighted in yellow.

Note: Not all messages are written to the message log. DISPLAY commands, for example, are filtered out and are not shown in the log.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Note: By default DB2 messages are not collected. If you want to collect DB2 messages, use the Configuration Tool and select: Monitoring Profile configuration –> Additional configuration settings. If you configure it to YES, the DB2 message subtask is started during DB2 instance initialization.

To start or stop DB2 message collection manually, specify the following:
F <cccccccc>, F PESERVER,F<db2>,,DB2MSGMON=<p>

where:
cccccccc
Identifies the OMEGAMON Collector started task name.

$db2$
Identifies the DB2 name.

$p$
Enter Y to start or N to stop the message subtask.

If you do not see any DB2 messages, check if the DB2 message subtask is started from the OMEGAMON Collector started task.

You can link to the following workspaces from the DB2 Messages workspace:
• Critical DB2 Messages by Message ID
• DB2 Messages by Time Interval
• DB2 Messages by Message ID

DB2 Messages by Message ID Workspace
The DB2 Messages by Message ID workspace displays DB2 messages sorted by message identification number.

This workspace is comprised of the following views:

DB2 Messages by Message ID (table view)
   Reports when the message was generated, the message identification number, and the message text.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following workspaces from the DB2 Messages by Message ID workspace:
• DB2 Messages
• DB2 Messages by Time Interval

DB2 Messages by Time Interval Workspace
The DB2 Messages by Time Interval workspace displays DB2 messages sorted by time. The most recent messages are at the top of the list.

This workspace is comprised of the following views:

DB2 Messages by Time Interval (table view)
   Reports when the message was generated, the message identification number, and the message text.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following workspaces from the DB2 Messages by Time Interval workspace:
• DB2 Messages
• DB2 Messages by Message ID

DBAT End-to-End SQL Monitoring Workspace
The DBAT End-to-End SQL Monitoring workspace provides summarized performance information about DDF (Distributed Data Facility) thread activity. From here you can launch to the Extended Insight Analysis Dashboard, which collects the various SQL statement executions and shows them in an aggregated view.

This workspace is comprised of the following views:

DDF DB Access Thread CPU% (bar chart)
   Shows the percentage of CPU that is used by distributed database access threads, which are server threads responding to SQL requests from a remote DB2 location.
DDF DB Access Thread In-DB2 CP CPU Time (bar chart)
Shows the class 2 CPU time (in DB2) that is used by distributed database access threads.

Distributed Database Access Thread Connection Summary (table view)
Provides the distributed database access threads connection summary. Click the End-to-End SQL Monitoring link to launch to the Extended Insight Analysis Dashboard.

Distributed Database Access Thread Summary (table view)
Provides key data to identify which distributed database access threads use resources excessively.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units:Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:
- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

DDF Conversations Workspace
The DDF Conversations workspace presents conversation (connection between two transaction programs) information.

This workspace is comprised of the following view:

DDF Conversations (table view)
Lists conversation details, including IDs, counts, and maximums.

Note: This workspace is available only when the DB2 system is configured to use the distributed data facility.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DDF Statistics Workspace
The DDF Statistics workspace monitors Distributed Database Facility (DDF) statistics, including send and receive counts.
This workspace is comprised of the following views:

**Send/Receive Counts (bar chart)**
Shows “at a glance” counts of SQL calls, messages, and transactions (received and sent).

**Distributed Thread Statistics (table view)**
Lists activity data associated with the DDF.

**Note:** This workspace is available for any thread defined as an allied-distributed thread.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Detailed Thread Exception Workspace**
The Detailed Thread Exception workspace provides a detailed view of threads and thread exceptions connected to DB2.

This workspace is comprised of the following views:

**Locks owned (bar chart)**
Provides information about the number of locks owned by an individual thread.

**Detailed Thread Exceptions (table view)**
Lists “status” data for the activity of individual threads.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:
- "All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- "IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

**Distributed Allied Thread Summary Workspace**
The Distributed Allied Thread Summary workspace provides summarized performance information about DDF (Distributed Data Facility) thread activity.
This workspace is comprised of the following views:

**DDF Allied Thread-Remote Elap Time (bar chart)**
Shows the remote elapsed time for the distributed allied threads that are used to issue SQL requests to a remote DB2 location.

**DDF Allied Thread-Remote CPU (bar chart)**
Shows the remote CPU for distributed allied threads.

**Distributed Allied Thread Summary (table view)**
Provides key data to identify which distributed allied threads use resources excessively.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:
- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
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- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
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- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

**Distributed Thread Detail Workspace**
The Distributed Thread Detail workspace provides information about the VTAM APPC conversations and TCP/IP conversations of a distributed (DDF) thread.

This workspace is comprised of the following views:

**Thread ID (table view)**
Identifies the thread.

**Distributed VTAM APPC Conversations (table view)**
Shows the VTAM APPC conversations data of the thread if the thread is connected through VTAM APPC.

**Distributed TCP/IP Data (table view)**
Shows the TCP/IP data of the thread if the thread is connected through TCP/IP.

**Distributed Remote Location Summary (table view)**
Each row provides a SQL statistics summary for each remote DB2 location with which the thread has communicated, as a requester or a server.
You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Distributed Thread SQL Statistics Workspace**
The Distributed Thread SQL Statistics workspace provides distributed SQL statistics for a remote DB2 location with which the distributed (DDF) thread has communicated, as a requester or a server.

This workspace is comprised of the following views:

**Thread ID (table view)**
Identifies the thread.

**Distributed VTAM APPC Conversations (table view)**
Shows the VTAM APPC conversations data of the thread if the thread is connected through VTAM APPC.

**Distributed TCP/IP Data (table view)**
Shows the TCP/IP data of the thread if the thread is connected through TCP/IP.

**Distributed SQL Statistics (table view)**
Shows SQL-related statistics for the selected remote DB2 location with which the thread has communicated, as a requester or a server.

**Send & Receive (table view)**
Shows send and receive data for the selected remote DB2 location with which the thread has communicated, as either a requester or a server.

**2-Phase Commit: Send & Receive (table view)**
Shows two-phase-commit-related send and receive data for the selected remote DB2 location with which the thread has communicated, as either a requester or a server.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**EDM Pool Workspace**
The EDM Pool workspace provides an overview of the Environmental Descriptor Manager (EDM) pool activity connected with DB2. The workspace layout depends on the DB2 version installed.

The EDM Pool workspace prior to DB2 10 is comprised of the following views:

**EDM Statistics (table view)**
Lists total counts, counts during the last sample period, and the "per second" count for a variety of tasks associated with the EDM pool.

**EDM Pool Load Activity Summary (bar chart view)**
Provides activity details of the EDM pool, including the number of pages dedicated to a type of pool usage and the percentage of the EDM pool dedicated to that type of usage.
EDM Pool Utilization (bar chart view)
- Shows the relative distribution of available pages, cursor table pages, database descriptor pages, and package table pages.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Note: If DB2 10 is installed, click the navigation link EDM Pool (DB2 10) in the EDM Statistics view to open the “EDM Pool (DB2 10) Workspace” on page 676.

EDM Pool (DB2 10) Workspace
- The EDM Pool (DB2 10) workspace provides an overview of the Environmental Descriptor Manager (EDM) pool activity connected with DB2. You can view this information if DB2 10 is installed.

The EDM Pool (DB2 10) workspace is comprised of the following views:

EDM Statistics (table view)
- Lists total counts, counts during the last sample period, and the "per second" count for a variety of tasks associated with the EDM pool.

EDM Pool Load Activity Summary (bar chart view)
- Provides activity details of the EDM pool, including the number of pages dedicated to a type of pool usage and the percentage of the EDM pool dedicated to that type of usage.

EDM Pool Utilization (bar chart view)
- Shows the relative distribution of available pages, cursor table pages, database descriptor pages, and package table pages.

DBD Pool (table view)
- Lists information about database descriptors (DBDs).

DBD Pool Utilization (pie chart view)
- Shows information about the utilization of the database descriptor (DBD) pool.

PKG Search / STMT in Global Cache (table view)
- Lists information about package search and statement in global cache.

SKEL Pool (table view)
- Lists information about the EDM skeleton pool.

Statement Pool (table view)
- Lists information about the statements.

SKEL Pool Utilization (pie chart view)
- Shows information about the EDM skeleton pool.

Statement Pool Utilization (pie chart view)
- Shows information about the statements.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces
that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Enclave Thread Summary Workspace**
The Enclave Thread Summary Workspace provides an overview of the activity of all threads that are connected to DB2 and are associated with an enclave token.

This workspace is comprised of the following views:

**Enclave Thread CPU% (bar chart)**
Shows the percentage of the CPU used by each thread that is associated with an enclave token.

**Enclave Thread Enclave CPU Time (bar chart)**
Shows the CPU time used by each thread that is associated with an enclave token.

**Enclave Thread Summary (table view)**
Provides an overview of the activity of all threads that are connected to DB2 and are associated with an enclave token.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:
- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

**End-to-End SQL Monitoring Workspace**
The End-to-End SQL Monitoring workspace launches to the Extended Insight Analysis Dashboard for the selected subsystem.

The Extended Insight Analysis Dashboard collects the various SQL statement executions and shows them in an aggregated view. This view is updated every 1
minute. It does not display real-time snapshots. These SQL statements may be grouped using the application server, the end-user ID, end-user transaction name, or end-user workstation name.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:
- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
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**Global Lock Conflicts Workspace**
The Global Lock Conflicts workspace lets you view summary information about your enterprise.

This includes the number of:
- Lock conflicts, threads, and GBP connections
- Monitored databases for a data sharing group
- Monitored DB2 systems
- Object analysis databases

This workspace is comprised of the following views:

**Lock Elapsed Time in Seconds (bar chart)**
Shows the elapsed time in seconds.

**Local Lock Conflict Table View**
Shows more information about global locking conflicts.

Thread information is not available if the thread is owned by the other member of the data sharing group.

**Group Buffer Pool Workspace**
The DB2 Group Buffer Pool workspaces provide detailed coupling facility structure information about your group buffer pool (GBP) structures.

Using the Group Buffer Pool workspaces, you can:
Monitor structure utilization over a period of time
Verify the status of all connections to a structure

You must be running in a DB2 data sharing environment with the MVS/ESA Coupling Facility to take advantage of the DB2 Group Buffer Pools feature.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Buffer Pool Connections Workspace:**

The Group Buffer Pool (GBP) Connections workspace displays connection status information for all connections to a specific group buffer pool structure.

Use this workspace to:
- Review the status of all connections to a structure
- Identify the operating system, together with the associated coupling facility name and job name

To investigate a nonactive connection, review the information provided in Accessing an OMEGAMON Host Session.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Buffer Pool Detailed Statistics Workspace:**

Use the Group Buffer Pool (GBP) Detailed Statistics workspace to display group buffer pool statistics for a specific group buffer pool structure.

You can use data to monitor:
- The dynamic rebuild of a group buffer pool
- Castout paging and I/O activity

You can use the Tivoli Enterprise Portal terminal emulator adapter feature to access an OMEGAMON host session and view additional group buffer pool information.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Buffer Pool Statistics Workspace:**

The Data Sharing Group Buffer Pool (GBP) Statistics workspace displays detailed information about the activity in a DB2 group buffer pool during the collection interval.

Using this workspace, you can:
- Monitor structure utilization over a period of time
- Verify the status of all connections to a structure
- Review GBP statistics for a data sharing group and GBP structure
You must be running in a DB2 data-sharing environment with MVS/ESA Coupling Facility to take advantage of the Data Sharing Group Buffer Pools Statistics feature.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Buffer Pool Structures Workspace:**

You can use the Group Buffer Pool (GBP) Structures workspace to verify that your group buffer pool structures are active and to track structure utilization over a period of time.

Use the structure data on the workspace to:
- Monitor the read hit percent and buffer invalidate rate for group buffer pool structures
- Identify the number of DB2 subsystems using a group buffer pool
- Monitor the ratio of directory entries to data pages allocated

**Analyzing Group Buffer Pool Connections**

You can analyze a specific group buffer pool structure to view the connection status of all connections to the structure.

1. Right-click a structure name.
2. Click **Link to --> GBP Connections**.

The GBP Connections workspace is displayed showing the connection status details for your group buffer pool structure.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Object Activity Database Workspace**

The Group Object Activity Database workspace displays information so that you can do a high-level analysis of getpage and I/O activity for a DB2 database.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Group Object Analysis Workspace**

The DB2 Group Object Analysis workspaces provide detailed object analysis information about DB2 databases.

Using the Group Object Analysis workspaces, you can:
- Monitor and evaluate object allocation data for DB2 databases
- Evaluate and analyze space name allocation data for a specific DB2 database

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
Group Object Analysis Thread Database Workspace:

The Group Object Analysis (GOA) Thread Database workspace displays information so that you can analyze which threads are generating I/O activity for a selected database.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Thread Space Name Workspace:

The Group Object Analysis (GOA) Thread Space Name workspace displays information so that you can analyze which threads are generating I/O activity for the space name.

The workspace displays information for each thread that generated I/O activity to the space name during the collection interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Thread Space Name Detail Workspace:

The Group Object Analysis (GOA) Thread Space Name Detail workspace displays detailed information about the threads that are generating I/O activity for the space name.

For example, for a space name, you can display the:
- Plan name
- Authorization ID
- Correlation ID
- DB2 ID

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Group Object Analysis Volume Workspace:

The Group Object Analysis (GOA) Volume workspace displays information about the performance of volumes that contain DB2 objects so that you can monitor the DASD performance by volume.

The workspace displays only the volumes that contain DB2 objects that are allocated and available for use by DB2.

Using this table view, you can:
- Display the number of DB2 systems for the volume
- Monitor for volumes with a high utilization rate
- Determine the number of data sets and extents that are allocated

To display the view:
1. Right-click a volume name.
2. Click Link to followed by a specific Data Sharing workspace from the pop-up menu.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

*Group Object Analysis Volume Database Workspace:*

The Group Object Analysis (GOA) Volume Database workspace displays information you can use to analyze I/O activity for a single volume in a DB2 database.

The table view displays a row for each database that has I/O to the selected volume during the collection interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

*Group Object Analysis Volume Space Name Workspace:*

The Group Object Analysis (GOA) Volume Space Name workspace displays information that permits you to analyze I/O activity for a single volume for a DB2 database or space name.

The table view displays information for each space name in the selected database with I/O activity to the volume during the collection interval.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

*Group Object Analysis Volume Space Name Detail Workspace:*

The Group Object Analysis (GOA) Volume Space Name workspace displays detailed information for a single volume for a DB2 database or space name.

For each space name, you can display:

- The DB2 ID
- Information about the DB2 operations (such as the number of I/O reads and I/O writes)

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

*Group Object Analysis Volume Thread Workspace:*

The Group Object Analysis (GOA) Volume Thread workspace displays information you can use to analyze which threads are generating I/O activity for a single volume in a DB2 database.

The view shows information for each thread that generated I/O activity to the selected database during the collection interval.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

*Group Object Analysis Volume Thread Detail Workspace:*

The Group Object Analysis (GOA) Volume Thread Detail workspace displays detailed information about the DB2 threads that are generating I/O for the volume.

For each volume name, you can display the:
- Plan name
- Authorization ID
- Correlation ID
- DB2 ID

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

*Group Object Activity by Space Name:*

The Group Object Activity by Space Name workspace displays information about the getpage and I/O activity for spaces for a selected DB2 database.

The table view shows information about the spaces that have had getpage and I/O activity during the collection period.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

*Group Object Activity by Space Name Detail Workspace:*

The Group Object Activity by Space Name Detail workspace displays detailed information about the getpage and I/O activity for spaces for each DB2.

For example, for each space name, you can display:
- The DB2 ID
- Information about the DB2 operations, such as number of getpages and synchronous reads

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

*IMS Connections Workspace*

The IMS Connections workspace provides an overview of DB2 thread activity originating from connected IMS subsystems.

It provides information on a connection level about all IMS subsystems identified to DB2. This workspace is comprised of the following views:
IMS Connections (table view), which
Lists the number of active threads, unconnected regions, dependent regions currently connected to this DB2 system, and dependent regions defined for this IMS connection.

IMS Region Counts (bar chart)
Shows this information in a "graphic" form.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

IMS Region Information Workspace
The IMS Region Information workspace provides detailed status information for a specific IMS dependent region.

This workspace is comprised of the following view:

IMS Region Information (table view)
Lists region identification data and region status.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

IMS Thread Summary Workspace
The IMS Thread Summary workspace provides an overview for threads originating from connected IMS subsystems.

This workspace is comprised of the following views:

IMS Thread Summary (table view)
Shows summary information for the IMS threads.

In-DB2 CPU Time (bar chart)
Shows the class 2 CPU time (in DB2) for IMS threads.

In-DB2 Time (bar chart)
Shows the class 2 elapsed time (in DB2) for IMS threads.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:
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- "CICS Thread Summary Workspace" on page 479
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- "DBAT End-to-End SQL Monitoring Workspace" on page 544
- "Enclave Thread Summary Workspace" on page 677
Installation Parameters
The Installation Parameters navigator item opens the DSNZPARM Thread Parameters workspace.

Select the Installation Parameters workspace to view information about DB2 parameters for a:
- Single DB2 subsystem
- Data sharing group (DSG)

DSG DSNZPARM Application Parameters Workspace:
The DSG DSNZPARM Application Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect the default settings of the DB2 application.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPF - Application Default 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

DSNTIP4 - Application Default 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

DSNTIP4 - Application Default 3 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
DSG DSNZP Archiving Parameters Workspace:

The DSG DSNZP Archiving Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect DB2 archiving.

This workspace is comprised of the following views:

**DSNZPARCH Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARCH module.

**DSNTIPA - Archive Log Parameters (table view)**
Shows the DB2 field names, ZPARCH names, and the values set for each parameter. These entries define the characteristics of archive log data sets.

**DSNTIPH - System Resource (table view)**
Shows the DB2 field names, ZPARCH names, and the values set for each parameter. These entries specify the names of bootstrap data sets, active logs, and archive logs. These entries also specify the number of copies (1 for single logging or 2 for dual logging) for the active and archive logs.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARCH Authorization, RLF, and DDF Parameters Workspace:

The DSG DSNZPARCH Authorization, RLF, and DDF Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect DB2 access and security.

This workspace is comprised of the following views:

**DSNZPARCH Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARCH module.

**DSNTIPO - Operator Functions (table view)**
Shows the DB2 field names, ZPARCH names, and the values set for each parameter. These entries affect various operator functions. These functions include write-to-operator route codes, automatic recall, and the maximum amount of CPU time that is to be allocated for a dynamic SQL statement.

**DSNTIPP - Protection 1 (table view)**
Shows the DB2 field names, ZPARCH names, and the values set for each parameter. These entries define security information.

**DSNTIPP - Protection 2 (table view)**
Shows the DB2 field names, ZPARCH names, and the values set for each parameter. These entries define security information.

**DSNTIPR - DDF 1 (table view)**
Shows the DB2 field names, ZPARCH names, and the values set for each parameter.
parameter. These entries define the configuration options for the SYSIBM.USERNAMES encryption routine.

**DSNTIPR - DDF 2 (table view)**

Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the configuration options for the SYSIBM.USERNAMES encryption routine.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSG DSNZPARM Buffer Pool Parameters Workspace:**

The DSG DSNZPARM Buffer Pool Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect DB2 buffer pool default settings.

This workspace is comprised of the following views:

- **DSNZPARM Module Information (table view)**
  Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

- **DSNTIP1 - Buffer Pools (table view)**
  Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries specify the size of your virtual buffer pools.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSG DSNZPARM Data Parameters Workspace:**

The DSG DSNZPARM Data Parameters workspace for data sharing groups (DSG) shows information about the data that affects the default settings of the DB2 application.

This workspace is comprised of the following views:

- **DSNZPARM Module Information (table view)**
  Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

- **DSNTIPA2 - Data (table view)**
  Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the name of the ICF catalog for DB2 VSAM
data sets and indicate whether to create the specified catalog. The entries also define z/OS Storage Management Subsystem (SMS) classes that are to be used when defining data sets for the DB2 catalog and directory.

**DSNTIPO3 - Default Startup (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the default member names of certain modules that are to be loaded at DB2 startup. These modules are the system parameter module, the application default module, and the exit modules.

**DSNTIPM - MVS Parameters (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the specifications for the DSNTIJMV job, which defines DB2 to z/OS and updates several PARMLIB members.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSG DSNZPARM Data Sharing Parameters Workspace:**

The DSG DSNZPARM Data Sharing Parameters workspace for data sharing groups (DSG) shows information about the data sharing installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIPK - Data Sharing Parameters (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the data sharing function (GROUP, MEMBER, or ENABLE).

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSG DSNZPARM Data Set and Database Parameters Workspace:**

The DSG DSNZPARM Data Set Parameters workspace for data sharing groups (DSG) shows information about the data set and database-related installation parameters in the DSNZPARM module.
This workspace is comprised of the following views:

DSNZP Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZP module.

DSNTIP7 - SQL Object Defaults 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define default values for the system-required objects that DB2 creates automatically. DB2 uses these options for any indexes or table spaces that it implicitly creates. The remaining fields provide general default settings for creating table spaces.

DSNTIP71 - SQL Object Defaults 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define default values for the system-required objects that DB2 creates automatically. DB2 uses these options for any indexes or table spaces that it implicitly creates. The remaining fields provide general default settings for creating table spaces.

DSNTIP9 - Workfile Database (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the 4 KB and 32 KB page size table spaces in the DB2 Workfile Database.

DSNTIPS - Auto Start DB/TS (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the databases, table spaces, and index spaces to restart automatically when you start DB2.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZP DDCS Parameters Workspace:

The DSG DSNZP DDCS Data Definition Control Support (DDCS) Parameters workspace for data sharing groups (DSG) shows information about the DDCS installation parameters in the DSNZP module.

This workspace is comprised of the following views:

DSNZP Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZP module.

DSNTIPZ - Data Definition Control (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the data definition control support.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli
Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSG DSNZPARM IRLM Parameters Workspace:**

The DSG DSNZPARM Internal Resource Lock Manager (IRLM) Parameters workspace for data sharing groups (DSG) shows information about the IRLM with which DB2 communicates.

This workspace is comprised of the following views:

**DSNZPARAM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARAM module.

**DSNTIPI - IRLM 1 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the installation of the internal resource lock manager (IRLM).

**DSNTIPI - IRLM 2 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the installation of the internal resource lock manager (IRLM).

**DSNTIPI - IRLM Processing Parms (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the IRLM processing parameters.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSG DSNZPARM Logging Parameters Workspace:**

The DSG DSNZPARM Logging Parameters workspace for data sharing groups (DSG) shows information about the parameters that affect DB2 logging.

This workspace is comprised of the following views:

**DSNZPARAM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARAM module.

**DSNTIPL - Active Log Parms (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define characteristics of active log data sets.
DSNTIPL1 - Checkpoint Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define characteristics for log checkpoints.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Other System Parameters Workspace:
The DSG DSNZPARM Other System Parameters workspace for data sharing groups (DSG) shows information about the other system parameters invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

From DSN6SYSP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SYSP macro.

From DSN6SPRM1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SPRM macro.

From DSN6SPRM2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SPRM macro.

From DSN6LOGP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6LOGP macro.

From DSN6ARVP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6ARVP macro.

From DSN6FAC (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the data-only subsystem parameters that are provided with the DSN6FAC macro.

From DSNHDECP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter.
parameter. These entries show the parameters of the application default load module DSNHDECP which is generated as part of the DB2 installation or migration.

**Others (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the other system parameters.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSG DSNZPARAM Performance and Optimization Parameters Workspace:**
The DSG DSNZPARAM Performance and Optimization Parameters workspace for data sharing groups (DSG) shows information about the installation parameters for performance and optimization invoked by SQL CALL statements.

This workspace is comprised of the following views:

**DSNZPARAM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARAM module.

**DSNTIP8 - Performance and Optimization 1 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries set the application programming default values pertaining to performance and optimization.

**DSNTIP81 - Performance and Optimization 2 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries set the application programming default values pertaining to performance and optimization.

**DSNTIP82 - Query Accelerator Ref (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the performance and optimization parameters for query accelerators.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
DSG DSNZPARM Storage and Size Parameters Workspace:

The DSG DSNZPARM Storage and Size Parameters workspace for data sharing groups (DSG) shows virtual storage allocations for the DB2 buffer pools and the Environmental Descriptor Manager (EDM) pool.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
- Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIPC - Storage Sizes (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the messages that the installation CLIST issues to indicate calculated storage sizes.

**DSNTIPD - Sizes (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the size of the DB2 catalog, directory, and log data sets. They also define the amount of storage that can be used for storing large object (LOB) values.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZPARM Stored Procedures Parameters Workspace:

The DSG DSNZPARM Stored Procedures Parameters workspace for data sharing groups (DSG) shows information about the installation parameters in the DSNZPARM module for stored procedures invoked by SQL CALL statements.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
- Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIPX - Routine Parameters (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries are used to start the stored procedures address space so that it can run stored procedures or user-defined functions.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
DSG DSNZP ARM Thread Parameters Workspace:

The DSG DSNZP ARM Thread Parameters workspace for data sharing groups (DSG) shows information about the DB2 system-related installation parameters in the DSNZP ARM module.

This workspace is comprised of the following views:

**DSNZP ARM Module Information (table view)**
- Shows the name and the assembly date of the current, initial, and previous DSNZP ARM module.

**DSNTIPE - Thread Management 1 (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

**DSNTIPE1 - Thread Management 2 (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSG DSNZP ARM Trace Parameters Workspace:

The DSG DSNZP ARM Trace Parameters workspace for data sharing groups (DSG) shows information about the automatic startup of traces in DB2.

This workspace is comprised of the following views:

**DSNZP ARM Module Information (table view)**
- Shows the name and the assembly date of the current, initial, and previous DSNZP ARM module.

**DSNTIPN - Trace Parameters (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the audit, global, accounting, and monitor traces and the checkpoint frequency.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
DSG DSNZPARM Utility Parameters Workspace:

The DSG DSNZPARM Utility Parameters workspace for data sharing groups (DSG) shows information about the utility parameters invoked by SQL CALL statements.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTP6 - Utility Parms 1 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

**DSNTP6 - Utility Parms 2 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

**DSNTP6 - Utility Parms 3 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Application Parameters Workspace:

The DSNZPARM Application Parameters workspace shows information about the parameters that affect the default settings of the DB2 application.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTPF - Application Default 1 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

**DSNTP4 - Application Default 2 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.
DSNTIP4 - Application Default 3 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define application programming default values. These values are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. These values can also be used as default values by other programs, such as DB2 QMF.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARAM Archiving Parameters Workspace:

The DSNZPARAM Archiving Parameters workspace shows information about the parameters that affect DB2 archiving.

This workspace is comprised of the following views:

DSNZPARAM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARAM module.

DSNTIPA - Archive Log Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the characteristics of archive log data sets.

DSNTIPH - System Resource (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries specify the names of bootstrap data sets, active logs, and archive logs. These entries also specify the number of copies (1 for single logging or 2 for dual logging) for the active and archive logs.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARAM Authorization, RLF, and DDF Parameters Workspace:

The DSNZPARAM Authorization, RLF, and DDF Parameters workspace shows information about the parameters that affect DB2 access and security.

This workspace is comprised of the following views:

DSNZPARAM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARAM module.
**DSNTIPO - Operator Functions (table view)**
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries affect various operator functions. These functions include write-to-operator route codes, automatic recall, and the maximum amount of CPU time that is to be allocated for a dynamic SQL statement.

**DSNTIPP - Protection 1 (table view)**
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries define security information.

**DSNTIPP - Protection 2 (table view)**
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries define security information.

**DSNTIPR - DDF 1 (table view)**
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries define the configuration options for the SYSIBM.USERNAMES encryption routine.

**DSNTIPR - DDF 2 (table view)**
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries define the configuration options for the SYSIBM.USERNAMES encryption routine.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM Buffer Pool Parameters Workspace:**

The DSNZPARM Buffer Pool Parameters workspace shows information about the parameters that affect DB2 buffer pool default settings.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIP1 - Buffer Pools (table view)**
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries specify the size of your virtual buffer pools.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
**DSNZP ARM Data Parameters Workspace:**

The DSNZP ARM Data Parameters workspace shows information about the data that affects the default settings of the DB2 application.

This workspace is comprised of the following views:

**DSNZP ARM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZP ARM module.

**DSNTIP A2 - Data (table view)**
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries define the name of the ICF catalog for DB2 VSAM data sets and indicate whether to create the specified catalog. The entries also define z/OS Storage Management Subsystem (SMS) classes that are to be used when defining data sets for the DB2 catalog and directory.

**DSNTIPO3 - Default Startup (table view)**
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries define the default member names of certain modules that are to be loaded at DB2 startup. These modules are the system parameter module, the application default module, and the exit modules.

**DSNTIPM - MVS Parameters (table view)**
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries show the specifications for the DSNTIJMV job, which defines DB2 to z/OS and updates several PARMLIB members.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZP ARM Data Sharing Parameters Workspace:**

The DSNZP ARM Data Sharing Parameters workspace shows information about the data sharing installation parameters in the DSNZP ARM module.

This workspace is comprised of the following views:

**DSNZP ARM Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZP ARM module.

**DSNTI PK - Data Sharing Parameters (table view)**
Shows the DB2 field names, ZP ARM names, and the values set for each parameter. These entries define the data sharing function (GROUP, MEMBER, or ENABLE).

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli
Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM Data Set and Database Parameters Workspace:**

The DSNZPARM Data Set Parameters workspace shows information about the data set and database-related installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
- Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIP7 - SQL Object Defaults 1 (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define default values for the system-required objects that DB2 creates automatically. DB2 uses these options for any indexes or table spaces that it implicitly creates. The remaining fields provide general default settings for creating table spaces.

**DSNTIP71 - SQL Object Defaults 2 (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define default values for the system-required objects that DB2 creates automatically. DB2 uses these options for any indexes or table spaces that it implicitly creates. The remaining fields provide general default settings for creating table spaces.

**DSNTIP9 - Workfile Database (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the 4 KB and 32 KB page size table spaces in the DB2 Workfile Database.

**DSNTIPS - Auto Start DB/TS (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the databases, table spaces, and index spaces to restart automatically when you start DB2.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM DDCS Parameters Workspace:**

The DSNZPARM Data Definition Control Support (DDCS) Parameters workspace shows information about the DDCS installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:
DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPZ - Data Definition Control (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the data definition control support.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM IRLM Parameters Workspace:

The DSNZPARM Internal Resource Lock Manager (IRLM) Parameters workspace shows information about the IRLM with which DB2 communicates.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPI - IRLM 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the installation of the internal resource lock manager (IRLM).

DSNTIPI - IRLM 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the installation of the internal resource lock manager (IRLM).

DSNTIPI - IRLM Processing Parms (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define the IRLM processing parameters.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Logging Parameters Workspace:

The DSNZPARM Logging Parameters workspace shows information about the parameters that affect DB2 logging.

This workspace is comprised of the following views:
DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIPL - Active LogParms (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define characteristics of active log data sets.

DSNTIPL1 - Checkpoint Parameters (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries define characteristics for log checkpoints.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Other System Parameters Workspace:

The DSNZPARM Other System Parameters workspace shows information about the other system parameters invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

From DSN6SYSP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SYSP macro.

From DSN6SPRM1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SPRM macro.

From DSN6SPRM2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6SPRM macro.

From DSN6LOGP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6LOGP macro.

From DSN6ARVP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the DSN6ARVP macro.
From DSN6FAC (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the data-only subsystem parameters that are provided with the DSN6FAC macro.

From DSNHDECP (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the parameters of the application default load module DSNHDECP which is generated as part of the DB2 installation or migration.

Others (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the subsystem parameters that are associated with the other system parameters.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

DSNZPARM Performance and Optimization Parameters Workspace:

The DSNZPARM Performance and Optimization Parameters workspace shows information about the installation parameters for performance and optimization invoked by SQL CALL statements.

This workspace is comprised of the following views:

DSNZPARM Module Information (table view)
Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

DSNTIP8 - Performance and Optimization 1 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries set the application programming default values pertaining to performance and optimization.

DSNTIP81 - Performance and Optimization 2 (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries set the application programming default values pertaining to performance and optimization.

DSNTIP82 - Query Accelerator Ref (table view)
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the performance and optimization parameters for query accelerators.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM Storage and Size Parameters Workspace:**

The DSNZPARM Storage and Size Parameters workspace shows virtual storage allocations for the DB2 buffer pools and the Environmental Descriptor Manager (EDM) pool.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
- Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIPC - Storage Sizes (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the messages that the installation CLIST issues to indicate calculated storage sizes.

**DSNTIPD - Sizes (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries show the size of the DB2 catalog, directory, and log data sets. They also define the amount of storage that can be used for storing large object (LOB) values.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM Stored Procedures Parameters Workspace:**

The DSNZPARM Stored Procedures Parameters workspace shows information about the installation parameters in the DSNZPARM module for stored procedures invoked by SQL CALL statements.

This workspace is comprised of the following views:

**DSNZPARM Module Information (table view)**
- Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

**DSNTIPX - Routine Parameters (table view)**
- Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries are used to start the stored procedures address space so that it can run stored procedures or user-defined functions.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM Thread Parameters Workspace:**

The DSNZPARM Thread Parameters workspace shows information about the DB2 system-related installation parameters in the DSNZPARM module.

This workspace is comprised of the following views:

- **DSNZPARM Module Information (table view)**
  Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

- **DSNTIPE - Thread Management 1 (table view)**
  Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

- **DSNTIPE1 - Thread Management 2 (table view)**
  Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries determine the main storage sizes.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**DSNZPARM Trace Parameters Workspace:**

The DSNZPARM Trace Parameters workspace shows information about the automatic startup of traces in DB2.

This workspace is comprised of the following views:

- **DSNZPARM Module Information (table view)**
  Shows the name and the assembly date of the current, initial, and previous DSNZPARM module.

- **DSNTIPN - Trace Parameters (table view)**
  Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries affect the audit, global, accounting, and monitor traces and the checkpoint frequency.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
DSNZP Utility Parameters Workspace:

The DSNZP Utility Parameters workspace shows information about the utility parameters invoked by SQL CALL statements.

This workspace is comprised of the following views:

**DSNZP Module Information (table view)**
Shows the name and the assembly date of the current, initial, and previous DSNZP module.

**DSNTIP6 - Utility Parms 1 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

**DSNTIP6 - Utility Parms 2 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

**DSNTIP6 - Utility Parms 3 (table view)**
Shows the DB2 field names, ZPARM names, and the values set for each parameter. These entries configure the default behavior of enhancements to the BACKUP SYSTEM, RESTORE SYSTEM, RECOVER, and other utilities.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Lock Conflicts Workspace**

The Lock Conflicts workspace provides an overview of the DB2 database lock conflicts.

This workspace is comprised of the following views:

**Lock Elapsed Time in Seconds (bar chart)**
Shows the elapsed time in seconds.

**Local Lock Conflicts (table view)**
Shows more information about local locking conflicts.

Thread information is not available if the thread is owned by the other member of the data sharing group.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

Log Manager Workspace

The Log Manager workspace provides an overview of the DB2 log manager active logging and archiving activity.

This workspace is comprised of the following views:

Archive in Progress (table view)
Shows details associated with the log data sets of the current archiving activity.

Data Set Utilization (linear gauge chart view)
Indicates the percent of the current data set that is in use.

Log Manager Statistics (table view)
Lists total counts, counts during the last sample period, and the "per second" count for a variety of reads, writes, and allocations associated with DB2 SRM log management.

Log Manager Summary (table view)
Shows details associated with logging and archiving activity.

Primary Data Set (table view)
Shows details associated with the data sets of the primary log activity

Secondary Data Set (table view)
Shows details associated with the data sets of the secondary log activity.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
MVS Storage Above 2 GB Workspace
The MVS Storage Above 2 GB workspace provides an overview of MVS storage above the 2 GB bar. It shows information about storage allocation within the DBM1 address space. You can view this information if DB2 10 is installed.

This workspace is comprised of the following views:
- MVS Storage Above 2 GB (table view)
- MVS Storage Above 2 GB (bar chart view)
- DBM1 MVS Storage above 2 GB (table view)
- Real and Auxiliary Storage (table view)

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can use the navigation links in the MVS Storage Above 2 GB view to open:
- “MVS Storage Below 2 GB Workspace” on page 750
- “Common Storage Workspace” on page 480

MVS Storage Below 2 GB Workspace
The MVS Storage Below 2 GB workspace provides an overview of MVS storage below the 2 GB bar. It shows information about storage allocation within the DBM1 address space. You can view this information if DB2 10 is installed.

This workspace is comprised of the following views:
- MVS Storage Below 2 GB (table view)
- MVS Storage Below 2 GB (bar chart view)
- MVS Storage (table view)
- DBM1 MVS Storage Below 2 GB (table view)
- System Storage Engines and Thread Information (table view)
- DB2 IRLM Storage (table view) shows the usage of IRLM storage (DB2 11 or later)

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can use the navigation links in the MVS Storage view to open:
- “MVS Storage Above 2 GB Workspace” on page 750
- “Common Storage Workspace” on page 480

Object Analysis Database Workspace
The Object Analysis Database workspace provides a global view of object allocation data for a specific data sharing group.

A consolidated list of DB2 databases is displayed on the table in ascending order by database name. Your view may sort differently if you have changed the sort field or sort order.

Use this view to:
- Evaluate DB2 database object allocations
- Track object allocation data over a period of time
• Analyze space name allocation data for a specific DB2 database

The Object Analysis Database table view only displays databases that contain spaces currently allocated to the DB2 subsystems that are part of the data sharing group you are monitoring.

**Note:** The Event Manager for Object Analysis must be active to allow object analysis data to be collected.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Object Analysis Space Name Workspace:**

The Object Analysis Space Name workspace displays space name allocation data for a specific DB2 database.

Use this workspace to evaluate and analyze the space name allocation data that a specific DB2 database owns.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Object Analysis Space Name Detail Workspace:**

The Object Analysis Space Name Detail workspace displays detail object analysis data for each DB2 object space in a DB2 database.

Use this workspace to evaluate and analyze space name allocation data for each DB2 object space in a DB2 database.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Overall Transaction Data Workspace**

The Overall Transaction Data workspace provides information about the Database Connection Services (DCS) application at the transaction level.

This workspace is comprised of the following views:

**Application - Network (bar chart)**

Shows the number of data transmissions between the DB2 Connect gateway and the host database and the number of bytes sent between the client application, the DB2 Connect gateway, and the host database. This view enables you to measure the throughput between the client and the DB2 Connect gateway and between the DB2 Connect gateway and the host database.

**Application - SQL Statement (bar chart)**

Shows the number of SQL, SQL COMMIT, and SQL ROLLBACK statements that have been attempted and the number of SQL statements that have been attempted but have failed. This view enables you to measure the database activity for the DCS application.
Thread/Application ID (table view)
Identifies the thread and the DCS application.

Last Reset and Connect Timestamp (table view)
Shows when the monitor counters were reset for the application issuing the GET SNAPSHOT and when the first connection to the host database was initiated from the DB2 Connect gateway.

Network & Times (table view)
Provides details about the throughput, and the times for data transmissions, between the client application, the DB2 Connect gateway, and the host database.

Unit of Work (table view)
Provides details about the SQL statements and units of work performed.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Package Statistics Workspace
The Package Statistics workspace provides information about the size of the data exchanged between the DB2 Connect gateway and the host database and about the network time required.

It enables you to measure the throughput between the host database and the DB2 Connect gateway and gives you a better idea of the database activity and network traffic at the application level.

This workspace is comprised of the following views:

Thread/Application ID (table view)
Identifies the thread and the Database Connection Services (DCS) application.

Outbound Data (table view)
Shows the number of bytes exchanged between the host database and the DB2 Connect gateway during the processing of statements.

Network Time (table view)
Shows how many statements required which network time. The network time is the difference between the host response time and the elapsed execution time for a statement.

Data Sent (table view)
Shows how many packages of a certain size were sent from the DB2 Connect gateway to the host database.

Data Received (table view)
Shows many packages of a certain size were sent from the host database to the DB2 Connect gateway.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Performance Workspace
The Performance workspace shows the information obtained by running a sample SQL statement between the DB2 Connect gateway and the host database. It enables you to detect any bottlenecks.
This workspace is comprised of the following views:

**DB2 Connect Server - SQL Statement Time (pie chart)**
Shows the distribution of the various amounts of time required to process the sample SQL statement.

**DB2 Connect Information (table view)**
Shows key information about the selected DB2 Connect gateway.

**Time for Sample SQL Statement (table view)**
Shows the various amount of time required to process the sample SQL statement.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**SQL Counts 1 Workspace**
The SQL Counts 1 workspace provides information about SQL DCL (Data Control Language) declarations, SQL DDL (Data Definition Language) statements, and SQL DML (Data Manipulation Language) statements.

This workspace is comprised of the following views:

**DML (table view)**
Provides information on SQL DML (Data Manipulation Language) statements.

**DCL (table view)**
Provides information on DCL (Data Control Language) declarations.

**DDL Create (table view)**
Provides information on SQL DDL (Data Definition Language) statements for Create.

**DDL Drop (table view)**
Provides information on SQL DDL (Data Definition Language) statements for Drop.

**DDL Alter / Rename (table view)**
Provides information on SQL DDL (Data Definition Language) statements for Alter / Rename.

**Note:** Each table view provides the following information:

**Information**

**Description**

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>The total counts since the last sample period.</td>
</tr>
<tr>
<td>Delta</td>
<td>The changes since the last sample period.</td>
</tr>
<tr>
<td>Rate</td>
<td>The number of requests per second over the last sampling interval.</td>
</tr>
</tbody>
</table>

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**SQL Counts 2 Workspace**
The SQL Counts 2 workspace provides information about stored procedures, User-defined functions, triggers, direct row access, parallelism, RID pool access, and prepare statements.
This workspace is comprised of the following views:
- Stored Procedures
- User-defined functions
- Triggers
- Direct row access
- Parallelism
- RID Pool Access
- Prepare Statements.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**SQL Counts 3 Workspace**
The SQL Counts 3 workspace provides information about currently committed rows, multi-row processing, workfile storage, and concentrate statements.

This workspace is comprised of the following views:

**Use Currently Committed**
Shows, for the selected thread, the number of rows for currently committed data that is skipped or accessed by read transactions when processing a DB2 application.

**Multi-Row Processing**
Enables you to track performance improvements such as multi-row fetch and multi-row insert.

**Workfile Storage**
Shows the statistics on the usage and storage of DB2 workfiles.

**Concentrate Statements**
Indicates if literal constants, which are referenced in dynamic SQL statements, are replaced with special markers so that these constants are not cached with the statement in the dynamic SQL statement cache.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Statement Information Workspace**
The Statement Information workspace provides information about the SQL statement that was last performed by the Database Connection Services (DCS) application.

It enables you to measure the throughput between the client application, the DB2 Connect gateway, and the host database and to measure the times required for processing an SQL statement.

This workspace is comprised of the following views:

**Application - Network (bar chart)**
Shows the number of data transmissions between the DB2 Connect gateway and the host database and the number of bytes sent between the client, the DB2 Connect gateway, and the host database.
Thread/Application ID (table view)
Identifies the thread and the DCS application.

Statement Information (table view)
Provides information about the SQL statement that was last performed by the DCS application.

Time (table view)
Shows the times required for processing an SQL statement.

Network Statistics (table view)
Shows the number of bytes exchanged between the client application, the DB2 Connect gateway, and the host database.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Storage Consumption Workspace
The Storage Consumption workspace provides an overview of DB2 DBM1 virtual storage, MVS storage and real storage.

This workspace is comprised of the following views:

Key Indicators (table view)
Shows the average size of the thread footprint and the projected maximum number of threads that you can run with the current storage configuration.

DBM1 Storage below 2 GB with Cushion (table view)
Shows the amount of virtual storage below 2 GB that is used by the DBM1 address space.

DBM1 Storage below 2 GB with Cushion (bar chart)
Shows the amount of virtual storage below 2 GB that is used by the DBM1 address space.

MVS Storage (table view)
Shows the amount of storage used by MVS.

MVS Storage (bar chart)
Shows the amount of storage used by MVS.

Real Storage (table view)
Shows the amount of real storage used by the main storage device and by the auxiliary storage device.

Real Storage (bar chart view)
Shows the amount of real storage used by the main storage device and by the auxiliary storage device.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.
You can link to one of the following workspaces from the DBM1 Storage Consumption workspace. In your workspace, you will only see the link that corresponds to the version of DB2 that you are monitoring.

- If DB2 10 is installed, click the navigation link DB2 10 MVS Storage in the EDM Statistics view to open the “MVS Storage Below 2 GB Workspace” on page 750 workspace.

**Subsystem Management Workspace**

The Subsystem Management workspace provides an overview of workload related information about the DB2 subsystem that you are monitoring.

This workspace is comprised of the following views:

**Background Utilization (needle gauge)**
- Shows the percentage of available threads being used for background connections.

**Foreground Utilization (needle gauge)**
- Shows the percentage of available threads being used for foreground connections.

**Subsystem Management Statistics (table view)**
- Lists total counts, counts during the last sample period, and the “per second” count for a variety of subsystem requests, abends, and thread statuses associated with the System Resource Manager (SRM) system.

**Subsystem Management Summary (table view)**
- Lists thread availability and usage statistics for foreground and background connections.

**Thread Events Approaching Max (bar chart view)**
- Shows the utilization of the thread events for foreground and background connections.

**Thread Events High Water Mark (bar chart view)**
- Shows the high-water marks for thread events for foreground and background connections.

**Thread Events (bar chart view)**
- Shows information on the thread events for foreground and background connections.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**System Status Workspace**

The System Status workspace reflects the health of your DB2 system.

This workspace is comprised of the following views:

**System Key Events (table view)**
- Shows the system key events.
System Key Events (bar chart)
Shows the system key events.

DDF Send Rate (needle gauge)
Reports the send rate of the Distributed Data Facility (DDF).

DDF Receive Rate (needle gauge)
Reports the receive rate of the Distributed Data Facility (DDF).

Thread Events Approaching Max (bar chart view)

EDM Utilization (needle gauge)
Reports the number of current EDM pages divided by total EDM pages for DB2 9 or below. For DB2 10 or later, it reports the number of current DBD pages divided by total DBD pages.

DBAT Wait Percent (needle gauge)
Shows the percentage of threads that are waiting for database services.

System State Information (table view)
Provides activity and performance details of your DB2 system.

Operating System CPU (table view)
Provides CPU information about the operating system.

Operating System CPU Utilization (bar chart)
Provides CPU information about the operating system.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Tasks List Workspace
The Tasks List workspace provides statistics about the processes at the selected DB2 Connect gateway, such as the CPU and the working set. It enables you to determine if the DB2 Connect gateway is overloaded by DB2 Connect or any other allocation application.

This workspace is comprised of the following views:

DB2 Connect Server - Process Memory Usage (bar chart)
Shows the current working set of a process. The current working set is the number of pages that are currently resident in memory.

DB2 Connect Information (table view)
Shows key information about the selected DB2 Connect gateway.

Tasks List (table view)
Provides details on the processes.

Process CPU % (bar chart)
Shows the percentage of time that a process used the CPU since the last update.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Threads Workspaces**

The DB2 Threads workspaces provide detailed thread activity information about your DB2 threads.

Using the Thread workspaces, you can:

- Identify all active threads within a data sharing group
- Evaluate and analyze thread activity for application threads
- Monitor and track thread activity over a period of time
- View statistics for an application thread
- View claim or locks owned by threads

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Distributed Thread Detail Workspace:**

The Distributed Thread Detail workspace provides information about the VTAM APPC conversations and TCP/IP conversations of a distributed (DDF) thread.

This workspace is comprised of the following views:

- **Thread ID (table view)**
  Identifies the thread.

- **Distributed VTAM APPC Conversations (table view)**
  Shows the VTAM APPC conversations data of the thread if the thread is connected through VTAM APPC.

- **Distributed TCP/IP Data (table view)**
  Shows the TCP/IP data of the thread if the thread is connected through TCP/IP.

- **Distributed Remote Location Summary (table view)**
  Each row provides a SQL statistics summary for each remote DB2 location with which the thread has communicated, as a requester or a server.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Thread Activity Workspace:**

The Thread Activity workspace provides a global view of thread activity for a specific DB2 subsystem. A consolidated list of DB2 threads displays on the table view in alphabetical order by plan name. Your table view may sort differently if you have changed the sort field or sort order.
Use the Thread Activity table view to:
- Identify all active threads
- Track thread activity for specific threads
- Analyze thread data when a thread evaluates to true
- View thread SQL counts 1, 2, or 3

Monitoring Thread Activity

You can view the Top Ten In-DB2 CPU Time threads from a bar chart as well as from the table view. You can use the thread data to:
- Monitor critical application threads
- Evaluate the thread elapsed and wait times for critical threads

Analyzing Specific Threads

You can analyze a specific application thread from the Thread Activity table view by viewing the thread detail.
1. Right-click a row on the Thread Activity table view.
2. Click Link to --> Thread Detail.

The Thread Detail workspace displays detailed information about a specific thread including the thread ID, thread activity, triggers, user-defined functions, and stored procedures.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread Activity by Package Workspace:

The Thread Activity by Package workspace provides an overview of the activity of the ten threads, sorted by package name, that use the most class 2 CPU and elapsed time (in DB2).

This workspace is comprised of the following views:

Top Ten In-DB2 CPU Time Threads (bar chart)
Shows the class 2 CPU time (in DB2) for the ten threads that use the most class 2 CPU time.

Top Ten In-DB2 Time Threads (bar chart)
Shows the class 2 elapsed time (in DB2) for the ten threads that use the most class 2 elapsed time.

Top Ten In-DB2 CP CPU Time Threads (table view)
Provides key data for the ten threads, sorted by package name, that use the most class 2 CPU time (in DB2).

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

**Thread Activity by Plan Workspace:**

The Thread Activity by Plan workspace provides an overview of the activity of the top ten threads, sorted by plan name, that use the most class 2 CPU and elapsed time (in DB2).

This workspace is comprised of the following views:

**Top Ten In-DB2 CP CPU Time Threads (bar chart)**

Shows the class 2 CPU time (in DB2) for the ten threads that use the most class 2 CPU time.

**Top Ten In-DB2 Time Threads (bar chart)**

Shows the class 2 elapsed time (in DB2) for the ten threads that use the most class 2 elapsed time.

**Top Ten In-DB2 CP CPU Time Threads (table view)**

Provides key data for the ten threads, sorted by plan name, that use the most class 2 CPU time (in DB2).

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
Thread Detail Workspace:

The Thread Detail workspace provides detailed information about the activity of an individual thread.

This workspace is comprised of the following views:
- Thread ID (table view), which identifies the thread.
- Accounting Time (chart view)
- In-DB2 Times (table view), which shows class 2 CPU time (in DB2).
- Triggers (table view)
- Thread Activity (table view), which provides information about the status of the thread, the CPU, and parallel tasks.
- User-Defined Functions (table view)
- Stored Procedures (table view)
- Savepoints (table view)
- Thread SQL counts 1 (table view), which provides information on the following statements associated with a thread:
  - SQL DCL (Data Control Language) declarations
  - SQL DDL (Data Definition Language) statements
  - SQL DML (Data Manipulation Language) statements
- Thread SQL counts 2 (table view), which provides information on:
  - Stored Procedures
  - User-Defined Functions
  - Triggers
  - Direct Row Access
  - Parallelism
  - RID Pool Access
  - Prepare Statements
- Thread SQL counts 3 (table view), which provides information on:
  - Multi-Row Processing
  - Concentrate Statements

All other tables provide details on the named activities.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli
Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Thread Enclave Detail Workspace:**

The Thread Enclave workspace provides detailed information about the attributes of an enclave.

This workspace is comprised of the following views:

- Thread ID (table view)
- General Information (table view)
- Performance Index Input Data for Velocity Goal (table view)
- Service Period Information (table view)
- Classification Work Qualifiers (table view)
- Service Class Information (table view)
- WLM Application Environment (table view)
- zIIP Information (table view)

The Thread ID table identifies the thread. The General Information table shows details about the enclave token and the CPU. All other tables provide details on the named activities.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Thread Enclave Service Period Information Workspace:**

The Thread Enclave Service Period Information workspace provides detailed information about the service periods for the current service class.

This workspace is comprised of the following views:

**Thread ID (table view)**

Identifies the thread.

**Current Period (table view)**

Provides the service class name and current period information.

**First Four Periods (table view)**

Provides information about the first four entries of period. If the period is not defined, a zero or no data is shown.

**Next Four Periods (table view)**

Provides information about the next four entries of period. If the period is not defined, a zero or no data is shown.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.
Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Thread Locks Owned Workspace:**

The Thread Locks Owned workspace provides detailed information about all the locks and claims owned by an individual thread.

This workspace is comprised of the following views:

- **Thread ID (table view)**  
  Identifies the thread.

- **Locks Ownership Information (table view)**  
  Provides totals of all the types of locks owned by the thread, as well as the percentage of total locks allowed that are currently held (the percent of the DB2 parameter NUMLKUS).

- **Locks Owned (table view)**  
  Shows all the locks owned by this thread.

- **Claims Owned (table view)**  
  Shows all the claims owned by this thread.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Thread Statistics Workspace:**

The Thread Statistics workspace displays thread statistics for a specific application thread. If the application thread is a parallel thread, the table view displays thread statistics for all the associated parallel threads.

**Viewing Additional Thread Information**

You can use the Tivoli Enterprise Portal terminal emulator adapter to access an OMEGAMON host session to investigate a thread with excessive elapsed time. For information about using this feature, see the Tivoli Enterprise Portal online help.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

**Single Thread Summary for Transplex workspace:**

The Single Thread Summary for Transplex workspace provides information for a specific thread originating from IMS or CICS.

This workspace is comprised of the following views:
In-DB2 Time/In-DB2 CPU Time (bar chart)
Shows both the class 2 elapsed time as well as the CPU time (in DB2) for the specific thread.

Commits/GetPage Requests/Update counts (bar chart)
Shows the number of commits, getpage requests, and update counts for the specific thread.

Single Thread Summary for Transplex (table view)
Shows summary information for a thread originating from IMS or CICS.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread Wait Events Workspace:

The Thread Wait Events workspace provides wait time and counts on events that the thread waited on.

This workspace is comprised of the following views:
- Thread ID (table view)
- Archive Log Wait Events (table view)
- Other Wait Events (table view)
- Local Lock/Latch Wait Events (table view)
- Global Lock Wait Events (table view)
- I/O & Switch Wait Events (table view)
- Log & Sync Ex Unit Wait Events (table view)

The Thread ID table identifies the thread. All other tables provide time information and counts with regard to the named events.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread SQL Counts 1 Workspace:

The Thread SQL Counts 1 workspace provides information about SQL DCL (Data Control Language) declarations, SQL DDL (Data Definition Language) statements, and SQL DML (Data Manipulation Language) statements.

This workspace is comprised of the following views:

Thread ID (table view)
Lists the thread IDs.

DML (table view)
Provides information on SQL DML (Data Manipulation Language) statements.
DCL (table view)
Provides information on DCL (Data Control Language) declarations.

DDL Create (table view)
Provides information on SQL DDL (Data Definition Language) statements for Create.

DDL Drop (table view)
Provides information on SQL DDL (Data Definition Language) statements for Drop.

DDL Alter / Rename (table view)
Provides information on SQL DDL (Data Definition Language) statements for Alter / Rename.

Note: For DML, DCL, and DDL, each table view provides total counts since the last sample period.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread SQL Counts 2 Workspace:

The Thread SQL Counts 2 workspace provides information about stored procedures, user-defined functions, triggers, direct row access, parallelism, RID pool access, and prepare statements.

This workspace is comprised of the following views:
• Thread ID (table view)
• Stored Procedures
• User-Defined Functions
• Triggers
• Parallelism
• RID Pool Access
• Prepare Statements
• Direct Row Access

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Thread SQL Counts 3 Workspace:

The Thread SQL Counts 3 workspace provides information about multi-row processing and concentrate statements.

This workspace is comprised of the following views:

Thread ID (table view)
Lists the thread IDs.

Multi-Row Processing
Enables you to track performance improvements such as multi-row fetch and multi-row insert.
Concentrate Statements
Indicates if literal constants, which are referenced in dynamic SQL statements, are replaced with special markers so that these constants are not cached with the statement in the dynamic SQL statement cache.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

Utility Jobs Workspace
The Utility Jobs workspace provides an overview of all active utilities. Workspace monitoring includes utilities that because of abnormal termination, have not yet completed their run.

This workspace is comprised of the following view:

Notepad (notepad view)
Is a simple text editor for writing notes about the workspace.

Utility Jobs (table view)
Lists the phase, record counts, and status of DB2 utility jobs.

You can use the HTML navigation feature to navigate from one workspace to another, while passing context information to the next workspace. The workspaces that belong to the same functional unit are linked using HTML navigation. Tivoli Enterprise Portal workspaces are grouped into the following units: Thread Summary workspaces, Thread Detail workspaces, and Statistics workspaces.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

You can link to the following Thread summary workspaces:

- “All Threads Connected to DB2 Workspace” on page 451
- “CICS Thread Summary Workspace” on page 479
- “Detailed Thread Exception Workspace” on page 554
- “Distributed Allied Thread Summary Workspace” on page 564
- “DBAT End-to-End SQL Monitoring Workspace” on page 544
- “Enclave Thread Summary Workspace” on page 677
- “IMS Thread Summary Workspace” on page 731
- “Lock Conflicts Workspace” on page 732
- “Thread Activity by Package Workspace” on page 803
- “Thread Activity by Plan Workspace” on page 803
- “Utility Jobs Workspace” on page 831

Volume Activity Workspace
The Volume Activity workspace provides an overview of the performance of volumes that contain DB2 objects in order to evaluate DASD performance by volume.

This workspace is comprised of the following views:

Service Time (bar chart)
Shows the average service time for the volume since the beginning of the collection interval.
Volume Activity (table view)
Includes data that allows you to monitor I/O activity for individual volumes.

Based on the information that this workspace provides, you can recommend changes, set up situations, and verify that your recommended changes improve system performance.

OMEGAMON XE for DB2 PE Situations
OMEGAMON XE for DB2 PE provides numerous predefined situations that you can use to immediately begin monitoring your DB2 managed systems, to monitor and manage, through localized automation, widely dispersed resources, or as models for creating your own situations.

Most of the predefined situations have an alert status of either Critical or Warning. You can view these situations as they augment by selecting the Logical View tab. If you choose to make changes to a predefined situation, we recommend you change a copy and preserve the original situation in the form in which it was shipped.

You can change conditions, relational operators, and compare values in these predefined situations to ones more appropriate to your environment.

Note: All of the predefined situations are disabled when shipped.

Buffer Pool Management Situations
Use the series of predefined situations associated with the Buffer Pool Management workspace to begin monitoring your system immediately or as templates for creating your own situations.

The names, descriptions, logic, and threshold values for the situations follow.

KDP_BMTH_Critical monitors a buffer pool mn, detecting a critical condition when a particular buffer pool reaches 90% capacity. The situation’s formula is:
KDP_SRM_BPM.Utilization GE 90.0

KDP_BMTH_Warning monitors a buffer pool mn, detecting a warning condition when a particular buffer pool’s capacity is in the range of 72% to 90%. The situation’s formula is:
KDP_SRM_BPM.Utilization GE 72.0

AND
KDP_SRM_BPM.Utilization LT 90.0

CICS Connections Situations
Use the series of predefined situations associated with the CICS Connections workspace to begin monitoring your system immediately or as templates for creating your own situations.

The names, descriptions, logic, and threshold values for the situations follow.

KDP_CICT_Critical monitors the percentage of active CICS threads to THRDMAX, detecting a critical condition when that percentage reaches 80%. The THRDMAX value is specified in the CICS RCT. The situation’s formula is:
DP_CICS_Exceptions.Total_Thread_Utilization GE 80.0
**KDP_CICT_Warning** monitors the percentage of active CICS threads to THRDMAX, detecting a warning condition when that percentage is in the range of 64% to 80%. The THRDMAX value is specified in the CICS RCT. The situation's formula is:

\[ \text{KDP_CICS_Exceptions.Total_Thread_Utilization} \geq 64.0 \]

AND

\[ \text{KDP_CICS_Exceptions.Total_Thread_Utilization} \lt 80.0 \]

**KDP_ENTO_Critical** monitors pool thread usage. A critical condition is detected when the number of POOL threads in use because of ENTRY thread overflow activity reaches 3 transactions. This situation limits its analysis to ENTRY definitions that specify TWAIT=POOL and THRDA>0. The situation's formula is:

\[ \text{KDP_CICS_Threads.Pool_Thread_Overflow} \geq 3 \]

**KDP_ENTO_Warning** monitors pool thread usage. A warning condition is detected when the number of POOL threads in use because of ENTRY thread overflow activity is in the range of two to three transactions. This situation limits its analysis to ENTRY definitions that specify TWAIT=POOL and THRDA>0. The situation's formula is:

\[ \text{KDP_CICS_Threads.Pool_Thread_Overflow} \geq 2 \]

AND

\[ \text{KDP_CICS_Threads.Pool_Thread_Overflow} \lt 3 \]

**KDP_ENTU_Critical** monitors CICS ENTRY thread usage. The definition and use of ENTRY threads enables the DB2 user to assign one or more DB2 threads to a single DB2 plan. It also allows definition of one or more transactions that may use the plan. A critical condition is detected when the percentage of active threads that originate from a CICS ENTRY definition to THRDA reaches 95%. The THRDA value is specified in the resource RCT. The situation's formula is:

\[ \text{KDP_CICS_Threads.Entry_Threads_InUse} \geq 95 \]

**KDP_ENTU_Warning** monitors CICS ENTRY thread usage. The definition and use of ENTRY threads enables the DB2 user to assign one or more DB2 threads to a single DB2 plan. It also allows definition of one or more transactions that may use the plan. A warning condition is detected when the percentage of active threads that originate from a CICS ENTRY definition to THRDA is in the range of 76% to 95%. The THRDA value is specified in the resource RCT. The situation's formula is:

\[ \text{KDP_CICS_Threads.Entry_Threads_InUse} \geq 76 \]

AND

\[ \text{KDP_CICS_Threads.Entry_Threads_InUse} \lt 95 \]

**KDP_ENTW_Critical** monitors CICS transactions waiting for ENTRY threads. A critical condition is detected when the number of CICS transactions waiting for a thread reaches two transactions. This situation detects transactions that are waiting, because all threads defined for use in the RCT ENTRY definition are already in use. This situation limits its analysis to ENTRY definitions that specify TWAIT=YES. The situation's formula is:

\[ \text{KDP_CICS_Threads.Entry_Thread_Waiting} \geq 2 \]

**KDP_ENTW_Warning** monitors CICS transactions waiting for ENTRY threads. A warning condition is detected when the number of CICS transactions waiting for a
thread is in the range of one to two transactions. This situation detects transactions that are waiting, because all threads defined for use in the RCT ENTRY definition are already in use. This situation limits its analysis to ENTRY definitions that specify TWAIT=YES. The situation's formula is:

\[ KDP\_CICS\_Threads.Entry\_Thread\_Waiting \geq 1 \text{ AND } KDP\_CICS\_Threads.Entry\_Thread\_Waiting < 2 \]

**KDP\_POLU\_Critical** monitors the percentage of pool threads in use. A critical condition is detected when the percentage of active CICS POOL threads to THRDA reaches 90%. The THRDA value is specified in the resource control table (RCT). The situation's formula is:

\[ KDP\_CICS\_Exceptions.Pool\_Threads\_Inuse \geq 90 \]

**KDP\_POLU\_Warning** monitors the percentage of pool threads in use. A warning condition is detected when the percentage of active CICS POOL threads to THRDA is in the range of 72% to 90%. The THRDA value is specified in the resource control table (RCT). The situation's formula is:

\[ KDP\_CICS\_Exceptions.Pool\_Threads\_Inuse \geq 72 \text{ AND } KDP\_CICS\_Exceptions.Pool\_Threads\_Inuse < 90 \]

**KDP\_POLW\_Critical** monitors the number of CICS transactions waiting for a POOL thread that originates from a CICS connection. A critical condition is detected when the number of CICS transactions waiting reaches two transactions. The situation's formula is:

\[ KDP\_CICS\_Exceptions.Pool\_Thread\_Waits \geq 2 \]

**KDP\_POLW\_Warning** monitors the number of CICS transactions waiting for a POOL thread that originates from a CICS connection. A warning condition is detected when the number of CICS transactions waiting is in the range of one to two transactions. The situation's formula is:

\[ KDP\_CICS\_Exceptions.Pool\_Thread\_Waits \geq 1 \text{ AND } KDP\_CICS\_Exceptions.Pool\_Thread\_Waits < 2 \]

**Data Sharing Situations**

Use the series of predefined situations associated with the Data Sharing workspace to begin monitoring your system immediately or as templates for creating your own situations.

The names, descriptions, logic, and threshold values for the situations follow.

**DB2\_CF\_Connections\_Warning** monitors the status of connections to coupling facility and group buffer pool structures, detecting a warning condition when Connection Status equals FAIL. Its formula is:

\[ Group\_Buffer\_Pool\_Connections.Connection\_Status \text{ EQ FAIL} \]

**DB2\_CF\_Structure\_Use\_Critical** monitors the percent of structures that a coupling facility uses, detecting a critical condition when Structure Used Percent is greater than 90%. Its formula is:
Group_Buffer_Pool.Structure_Used_Percent GT 90

**DB2_CF_Structure_Use_Warning** monitors the percent of structures that a coupling facility uses, detecting a warning condition when **Structure Used Percent** is in the range of 80 to 90%. Its formula is:

\[ \text{Group_Buffer_Pool.Structure_Used_Percent} \text{ GT 80 AND Group_Buffer_Pool.Structure_Used_Percent GE 90} \]

**DB2_CMD_Connection_Failed** monitors the status of connections to coupling facility and group buffer pool structures and automatically issues a message when data sharing is not active for a DB2 subsystem. To use this situation, you must replace the user ID with your TSO/E user ID. Its formula is:

\[ \text{Group_Buffer_Pool_Connections.Connection_Status EQ FAIL, send the following message to user (xxxxxxx): 'Coupling Facility for Group_Buffer_Pool_Connections.Data_Sharing_Group_Element has failed.'} \]

where: xxxxxxx should be replaced with your TSO/E user ID and a value will be substituted for the attribute in italics

**DB2_CMD_Group_BP_Read_Hit_Warning** monitors the percent of read hits for group buffer pools, and automatically issues a message when **Read_Hit_Percent** is in the range of 60 to 80 percent. To use this situation, you must replace the user ID with your TSO/E user ID. Its formula is:

\[ \text{Group_Buffer_Pool.Read_Hit_Percent GE 60 AND Group_Buffer_Pool.Read_Hit_Percent LT 80, send the following message to user (xxxxxxx): 'Group Buffer Pool.Read_Hit_Percent Decreasing'} \]

where: xxxxxxx should be replaced with your TSO/E user ID and a value will be substituted for the attribute in italics

**DB2_CMD_Lock_Wait_Time_Critical** monitors the lock elapsed time for application threads with a waiter lock status and automatically issues a message when **Lock_Elapsed_Time** is greater than 10 seconds. To use this situation, you must replace the user ID with your TSO/E user ID. Its formula is:

\[ \text{DB2_Lock_Conflict.Lock_Elapsed_Time GT 10, send the following message to user (xxxxxxx): 'Thread ID DB2_Lock_Conflict.Plan_Name has reached a critical state' \]

where: xxxxxxx should be replaced with your TSO/E user ID and a value will be substituted for the attribute in italics

**DB2_CMD_Thrd_Wait_Time_Critical** monitors the thread wait time and automatically issues a message when **Thread_Wait_Time** is greater than 10 seconds. To use this situation, you must replace the user ID with your TSO/E user ID. Its formula is:

\[ \text{Thread_Detail.Thread_Wait_Time GT 10, send the following message to user (xxxxxxx): 'Thread Thread_Detail.Plan_Name executing over 10 sec'} \]

where: xxxxxxx should be replaced with your TSO/E user ID and a value will be substituted for the attribute in italics
**DB2_Group_BP_Read_HitCritical** monitors the percent of read hits for group buffer pools, detecting a critical condition when **Read_Hit_Percent** is less than 60%. Its formula is:

\[ \text{Group_Buffer_Pool.Read_Hit_Percent} \lt 60 \]

**DB2_Group_BP_Read_Hit_WARNING** monitors the percent of read hits for group buffer pools, detecting a warning condition when **Read_Hit_Percent** is in the range of 60% to 80%. Its formula is:

\[ \text{Group_Buffer_Pool.Read_Hit_Percent} \geq 60 \text{ AND } \text{Group_Buffer_Pool.Read_Hit_Percent} \lt 80 \]

**DB2_Lock_Waiter_Time_Critical** monitors the lock elapsed time for application threads with a waiter lock status, detecting a critical condition when **Lock_Elapsed_Time** is greater than 10 seconds. Its formula is:

\[ \text{DB2_Lock_Conflict.Lock_Status} = \text{WAITER} \text{ AND } \text{DB2_Lock_Conflict.Lock_Elapsed_Time} > 10 \]

**DB2_Lock_Waiter_Time_Warning** monitors the lock elapsed time for application threads with a waiter lock status, detecting a warning condition when **Lock_Elapsed_Time** is in the range of 5 to 10 seconds. Its formula is:

\[ \text{DB2_Lock_Conflict.Lock_Status} = \text{WAITER} \text{ AND } \text{DB2_Lock_Conflict.Lock_Elapsed_Time} > 5 \text{ AND } \text{DB2_Lock_Conflict.Lock_Elapsed_Time} \leq 10 \]

**DB2_Thread_Wait_Time_Critical** monitors the thread wait time, detecting a critical condition when **Thread_Wait_Time** is greater than 10 seconds. Its formula is:

\[ \text{Thread_Detail.Thread_Wait_Time} > 10 \]

**DB2_Thread_Wait_Time_Warning** monitors the thread wait time, detecting a warning condition when **Thread_Wait_Time** is in the range of 5 to 10 seconds. Its formula is:

\[ \text{Thread_Detail.Thread_Wait_Time} > 5 \text{ OR } \text{Thread_Detail.Thread_Wait_Time} \leq 10 \]

**DB2 Connect Server Situations**

Use the series of predefined situations associated with the DB2 Connect Server workspace to begin monitoring your system immediately or as templates for creating your own situations.

The names, descriptions, logic, and threshold values for the situations follow.
KD5_Max_Agent_Overflows_Warning monitors the number of times that the Maximum Agent Overflows exceeds the threshold. A warning condition is detected when the system receives a number of requests to create a new agent after the MAXAGENTS configuration parameter has already been reached. This can indicate too high a workload for this node or that the MAXAGENTS configuration parameter is too small. The situation's formula is:

*IF  
  *VALUE DB2_CONNECT_SERVER.Maximum_Agent_Overflows *GE 20"

KD5_Max_Agents_Waiting_Warning monitors the maximum number of agents waiting for a token. A warning condition is detected when the maximum number of agents waiting for a token exceeds the threshold. You can use this element to help you evaluate the MAXCAGENTS configuration parameter. If the MAXCAGENTS parameter is set to its default value(-1), no agents need to wait for a token and the value of this monitor element is zero. The situation’s formula is:

*IF  
  *VALUE DB2_CONNECT_SERVER.Maximum_Agents_Waiting *GE 20

KD5_Stolen_Agents_Warning monitors the number of times that agents are stolen from an application. A warning condition is detected when the number of agents are stolen from an application exceeds the threshold. Agents are stolen when an idle agent associated with an application is reassigned to work on a different application. Reduce the number of agents stolen by increasing the NUM_POOLAGENTS configuration parameter. The situation’s formula is:

*IF  
  *VALUE DB2_CONNECT_SERVER.Stolen_Agents *GE 20

KD5_CPU_Usage_Per_Process_Warning monitors the CPU usage percentage for a process. A warning condition is detected when the CPU usage percentage of a process exceeds the threshold. The situation's formula is:

*IF  
  *VALUE DB2_CONNECT_TASKLIST.CPU_Usage_Per_Process *GE 20

KD5_Most_Recent_Stmt_ETIM_Warning monitors the most recent statement of elapsed time for an application. A warning condition is detected when the most recent statement of elapsed time for an application exceeds the threshold. The situation’s formula is:

*IF  
  *VALUE THREAD_DB2_CONNECT_STATEMENT.Most_Recent_Statement_Elapsed_Time *GE 20

KD5_Fail_Stmt_Percent_Warning monitors the percent of failed SQL statements for an application. A warning condition is detected when the failed SQL statement percentage for an application exceeds the threshold. The situation's formula is:

*IF  
  *VALUE THREAD_DB2_CONNECT_OVERVIEW.Failed_Statement_Percentage *GE 20

DB2 Message Situations

Use the series of predefined situations associated with the DB2 Message workspace to begin monitoring your system immediately or use them as templates for creating your own situations.

The names, descriptions, logic, and threshold values for the situations follow.

KD5_DSNP001I_Space_Warning monitors datasets for impending space shortages. A warning condition is detected when DB2 generates message DSNP001I. The situation’s formula is:

DB2_Message.Message_ID EQ 'DSNP001I'
KD5_DSNP007I_Space_Critical monitors dataset extensions that failed with a return code and with a thread ID. A critical condition is detected when DB2 generates message DSNP007I. The situation’s formula is:

DB2_Message.Message_ID EQ 'DSNP007I'

KD5_DSNT375I_Deadlock_Critical monitors deadlocks. A critical condition is detected when DB2 generates message DSNT375I. The situation’s formula is:

DB2_Message.Message_ID EQ 'DSNT375I'

KD5_DSNT376I_Timeout_Critical monitors timeouts for threads that exceed the specified wait time for a locked resource. A critical condition is detected when DB2 generates message DSNT376I. The situation’s formula is:

DB2_Message.Message_ID EQ 'DSNT376I'

KD5_DSNT500I_ResUnavail_Warning provides the reason, the resource type, and the name for an unavailable resource. A warning condition is detected when DB2 generates message DSNT500I. The situation’s formula is:

DB2_Message.Message_ID EQ 'DSNT500I'

KD5_DSNT501I_ResUnavail_Warning provides the thread ID, the reason, the resource type, and the name for an unavailable resource. A warning condition is detected when DB2 generates message DSNT501I. The situation’s formula is:

DB2_Message.Message_ID EQ 'DSNT501I'

KD5_DSNU511I_Recovery_CRITICAL warns if an object is not recoverable when recovery is requested. A critical condition is detected when DB2 generates message DSNU511I. The situation’s formula is:

DB2_Message.Message_ID EQ 'DSNU511I'

KD5_DSNU548I_Recovery_CRITICAL warns of a RECOVER utility job in which the DBID and the PSID in the header do not match the DB2 catalog (job ends with return code 8). A critical condition is detected when DB2 generates message DSNU548I. The situation’s formula is:

DB2_Message.Message_ID EQ 'DSNU548I'

KD5_DSNU621I_Runstats_Critical warn of a RUNSTATS commit or rollback that failed. A critical condition is detected when DB2 generates message DSNU621I. The situation’s formula is:

DB2_Message.Message_ID EQ 'DSNU621I'

**DDF Conversations Situations**

Use the series of predefined situations associated with the DDF Conversations workspace to begin monitoring your system immediately or as templates for creating your own situations.

The names, descriptions, logic, and threshold values for the situations follow.

KD5_MCNV_Critical monitors the number of conversations in use against the preset maximum for a given log mode. A critical condition is detected when the percentage of conversations in use to the specified maximum reaches 85%. The situation’s formula is:

KDP_System_States.Conversation_Utilization GE 85.0
**KDP_MCNV_Warning** monitors the number of conversations in use against the preset maximum for a given log mode. A warning condition is detected when the percentage of conversations in use to the specified maximum is in the range of 65% to 85%. The situation's formula is:

\[
\text{KDP System States.Conversation Utilization GE } 65.0 \text{ AND KDP System States.Conversation Utilization LT 85.0}
\]

**Detailed Thread Exception Situations**

Use the series of predefined situations associated with the Detailed Thread Exception workspace to begin monitoring your system immediately or as templates for creating your own situations.

OMEGAMON XE for DB2 PE includes a series of predefined situations associated with the Detailed Thread Exception workspace. You can use these situations to begin monitoring almost immediately, or as templates for creating your own situations.

The names, descriptions, logic, and threshold values for the situations follow.

**KDP_ARCM_Critical** monitors the status of thread backout processing, detecting a critical condition when the thread backout processing is waiting for an archive tape mount. DB2 requires the archive tape mount during abort processing to backout changes made in the current unit of recovery. The thread does not do any processing until the tape is mounted. It holds DB2 resources until the abort request is complete. The situation's formula is:

\[
\text{KDP Thread Exceptions.Archive Tape Wait EQ TRUE}
\]

**KD5_ARCM_Warning** monitors the status of thread backout processing, detecting a warning condition when the thread backout processing is waiting for an archive tape mount. DB2 requires the archive tape mount during abort processing to backout changes made in the current unit of recovery. The thread does not do any processing until the tape is mounted. It holds DB2 resources until the abort request is complete. The situation's formula is:

\[
\text{KD5 Thread Exceptions.Archive Tape Wait EQ TRUE}
\]

**KDP_COMT_Critical** monitors the ratio of updates to commits for the thread, detecting a critical condition when the ratio reaches 100. The situation's formula is:

\[
\text{KDP Thread Exceptions.Commit Ratio GE 100}
\]

**KDP_COMT_Warning** monitors the ratio of updates to commits for the thread, detecting a warning condition when the ratio is in the range of 80% to 100%. The situation's formula is:

\[
\text{KDP Thread Exceptions.Commit Ratio GE 80 AND KDP Thread Exceptions.Commit Ratio LT 100}
\]

**KDP_CTHD_Critical** monitors the state of an application, detecting a critical condition when an application is waiting for DB2 to create a thread. This condition arises when the system's maximum thread limit is reached. The situation's formula is:
KDP_Thread_Exceptions.Thread_Create_Wait EQ TRUE

**KD5_CTHD_Warning** monitors the state of an application, detecting a warning condition when an application is waiting for DB2 to create a thread. This condition arises when the system's maximum thread limit is reached. The situation's formula is:

KDP_Thread_Exceptions.Thread_Create_Wait EQ TRUE

**KDP_DWAT_Critical** monitors the period of time a distributed allied thread has been waiting for a response to a remote SQL request. A critical condition is detected when the period reaches ten seconds. The situation's formula is:

KDP_Thread_Exceptions.Wait_Time_Distributed_Query GE 00:00:10.000

**KD5_DWAT_Warning** monitors the period of time a distributed allied thread has been waiting for a response to a remote SQL request. A warning condition is detected when the period is in the range of eight to ten seconds. The situation's formula is:

KDP_Thread_Exceptions.Wait_Time_Distributed_Query GE 00:00:08.000

AND

KDP_Thread_Exceptions.Wait_Time_Distributed_Query LT 00:00:10.000

**KDP_ETIM_Critical** monitors the elapsed time for a DB2 thread (from sign-on or create thread). A critical condition is detected when the elapsed time reaches ten minutes. The situation's formula is:

KDP_Thread_Exceptions.Elapsed_Time GE 00:10:00

**KD5_ETIM_Warning** monitors the elapsed time for a DB2 thread (from sign-on or create thread). A warning condition is detected when the elapsed time ranges from eight to ten minutes. The situation's formula is:

KDP_Thread_Exceptions.Elapsed_Time GE 00:08:00

AND

KDP_Thread_Exceptions.Elapsed_Time LT 00:10:00

**KDP_GETP_Critical** monitors the status of getpage requests. A critical condition is detected when the ratio of logical page read (getpage) requests to physical page read (read I/O) requests is less than the specified threshold of 15. The default threshold for GETP is specified as an integer, where one equals 0.1 getpages to read I/Os. The situation's formula is:

KDP_Thread_Exceptions.Getpage_Ratio LT 15.0

**KD5_GETP_Warning** monitors the status of getpage requests. A warning condition is detected when the ratio of logical page read (getpage) requests to physical page read (read I/O) requests is in the range of 18 to 15. The default threshold for GETP is specified as an integer, where one equals 0.1 getpages to read I/Os. The situation's formula is:

KDP_Thread_Exceptions.Getpage_Ratio GE 15.0

AND

KDP_Thread_Exceptions.Getpage_Ratio LT 18.0
**KDP_IDBC_Critical** monitors the amount of CPU time used by DB2 to process a thread. A critical condition is detected when the CPU time reaches the specified threshold of one minute ten seconds. The situation's formula is:

KDP_Thread_Exceptions.DB2_CPU_Used GE 00:01:10.000

**KD5_IDBC_Warning** monitors the amount of CPU time used by DB2 to process a thread. A warning condition is detected when the CPU time ranges from 56 seconds to one minute ten seconds. The situation's formula is:

KD5_Thread_Exceptions.DB2_CPU_Used GE 00:00:56.000 AND KD5_Thread_Exceptions.DB2_CPU_Used LT 00:01:10.000

**KDP_IDBT_Critical** provides information about the length of time DB2 has been processing this thread. A critical condition is detected when the length of time that DB2 has been processing a thread is greater than five seconds. The situation's formula is:

KDP_Thread_Exceptions.DB2_Elapsed_Time GE 00:00:05.0

**KD5_IDBT_Warning** provides information about the length of time DB2 has been processing this thread. A warning condition is detected when the length of time that DB2 has been processing a thread is in the range of four to five seconds. The situation's formula is:

KD5_Thread_Exceptions.DB2_Elapsed_Time GE 00:00:04.0 AND KD5_Thread_Exceptions.DB2_Elapsed_Time LT 00:00:05.0

**KDP_INDB_Critical** provides information about individual threads that are in INDOUBT status. These threads may cause DB2 resources to be unavailable to other active threads until either restart or RECOVER INDOUBT processing occurs. A critical condition is detected when individual threads are in doubt. The situation's formula is:

KDP_Thread_Exceptions. Indoubt EQ TRUE

**KD5_INDB_Warning** provides information about individual threads that are in INDOUBT status. These threads may cause DB2 resources to be unavailable to other active threads until either restart or RECOVER INDOUBT processing occurs. A warning condition is detected when individual threads are in doubt. The situation's formula is:

KD5_Thread_Exceptions. Indoubt EQ TRUE

**KDP_LKUS_Critical** monitors the number of locks owned by an individual thread. A critical condition is detected when the percentage of page locks owned by an active thread to the total allowable number of held page locks reaches 80%. The situation's formula is:

KDP_Thread_Exceptions.Lock_Percentage GE 80.0

**KDP_LKUS_Warning** monitors the number of locks owned by an individual thread. A warning condition is detected when the percentage of page locks owned by an active thread to the total allowable number of held page locks is in the range of 64% to 80%. The situation's formula is:

KDP_Thread_Exceptions.Lock_Percentage GE 64.0
KDP_Thread_Exceptions.Lock_Percentage LT 80.0

**KDP_PGUP_Critical** monitors the number of page update requests per second made by a thread.

The update count reflected in this exception is incremented each time a row in a page is updated. Updated pages are not necessarily written at commit, but rather later, asynchronously as determined by the DB2 deferred write algorithm. There is no direct, immediate relationship, therefore, between page updates and page writes.

The counters that DB2 maintains for this activity are updated throughout the life of the thread, and are reset at DB2 sign-on if the thread is reused. A critical condition is detected when the number of row updates per second on behalf of a thread reaches ten. The situation's formula is:

KDP_Thread_Exceptions.Page_Update_Rate GE 10.0

**KDP_PGUP_Warning** monitors the number of page update requests per second made by a thread.

The update count reflected in this exception is incremented each time a row in a page is updated. Updated pages are not necessarily written at commit, but asynchronously as determined by the DB2 deferred write algorithm. There is no direct, immediate relationship between page updates and page writes.

The counters that DB2 maintains for this activity are updated throughout the life of the thread, and are reset at DB2 sign-on if the thread is reused. A warning condition is detected when the number of row updates per second on behalf of a thread is in the range of eight to ten. The situation's formula is:

KDP_Thread_Exceptions.Page_Update_Rate GE 8.0 AND KDP_Thread_Exceptions.Page_Update_Rate LT 10.0

**KDP_PREF_Critical** monitors read sequential prefetch activity.

Unlike normal read I/O, sequential prefetch read I/O is performed asynchronously with the user's request. It provides a read-ahead capability. A single sequential prefetch I/O results in multiple pages being read. Threads with excessive sequential prefetch rates may cause a negative impact on overall DB2 performance.

The counters which DB2 maintains for this activity are updated throughout the life of the thread, and are reset during DB2 sign-on if the thread is reused. A critical condition is detected when the number of sequential prefetch requests reaches ten per second. The situation's formula is:

KDP_Thread_Exceptions.Prefetch_Rate GE 10.0

**KDP_PREF_Warning** monitors read sequential prefetch activity.

Unlike normal read I/O, sequential prefetch read I/O is performed asynchronously with the user's request. It provides a read-ahead capability. A single sequential prefetch I/O results in multiple pages being read. Threads with excessive sequential prefetch rates may cause a negative impact on overall DB2 performance.
The counters which DB2 maintains for this activity are updated throughout the life of the thread, and are reset during DB2 sign-on if the thread is reused. A warning condition is detected when the number of sequential prefetch requests is in the range of eight to ten per second. The situation's formula is:

\[
\text{KDP\_Thread\_Exceptions.\text{Prefetch\_Rate} \geq 8.0 \text{ AND } KDP\_Thread\_Exceptions.\text{Prefetch\_Rate} < 10.0}
\]

**KDP\_RCPU\_Critical** monitors the amount of CPU time being used by a distributed database access thread at the remote DB2 location. A critical condition is detected when the amount of CPU time used by a database access thread at a remote DB2 location reaches fifty seconds. The situation's formula is:

\[
\text{KDP\_Thread\_Exceptions.\text{Distributed\_CPU\_Seconds} \geq 00:00:50.000}
\]

**KD5\_RCPU\_Warning** monitors the amount of CPU time being used by a distributed database access thread at the remote DB2 location. A warning condition is detected when the amount of CPU time used by a database access thread at a remote DB2 location is in the range of forty to fifty seconds. The situation's formula is:

\[
\text{KDP\_Thread\_Exceptions.\text{Distributed\_CPU\_Seconds} \geq 00:00:40.000 \text{ AND } KDP\_Thread\_Exceptions.\text{Distributed\_CPU\_Seconds} < 00:00:50.000}
\]

**KDP\_RELM\_Critical** monitors the ratio of the resource limit high water mark (CPU seconds) to the current resource limit. A critical condition is detected when the ratio of the resource limit high water mark (CPU seconds) to the resource limit in effect (CPU seconds) reaches 80%. The situation's formula is:

\[
\text{KDP\_Thread\_Exceptions.\text{Resource\_Limit\_Percent} \geq 80.0}
\]

**KDP\_RELM\_Warning** monitors the ratio of the resource limit high water mark (CPU seconds) to the current resource limit. A warning condition is detected when the ratio of the resource limit high water mark (CPU seconds) to the resource limit in effect (CPU seconds) is in the range of 64% to 80%. The situation's formula is:

\[
\text{KDP\_Thread\_Exceptions.\text{Resource\_Limit\_Percent} \geq 64.0 \text{ AND } KDP\_Thread\_Exceptions.\text{Resource\_Limit\_Percent} < 80.0}
\]

**KDP\_RIO\_Critical** monitors the thread synchronous read I/Os rate.

Generally, this exception indicates excessive physical read I/O on behalf of a thread. While a single SELECT may return a limited number of rows, the pages searched may be enormous. I/O may be caused by access path selection changes which occurred because of object changes (indexes dropped or no longer clustered), or by inadvertent use of stage 2 predicates. It might result from the fact that the SQL is a set-oriented language, that operates on sets of data, rather than on individual rows (records).

The counters which DB2 maintains for this activity are updated throughout the life of the thread, and are reset during DB2 sign-on if the thread is reused. A critical condition is detected when the physical read I/O rate per second on behalf of a thread reaches ten. The situation's formula is:
**KDP_Thread_Exceptions.Read_I/O_Rate**

**KD5_RIO_Warning** monitors the thread synchronous read I/Os rate.

Generally, this exception indicates excessive physical read I/O on behalf of a thread. While a single SELECT may return a limited number of rows, the pages searched may be enormous. I/O may be caused by access path selection changes which occurred because of object changes (indexes dropped or no longer clustered), or by inadvertent use of stage 2 predicates. It might result from the fact that the SQL is a set-oriented language, that operates on sets of data, rather than on individual rows (records).

The counters which DB2 maintains for this activity are updated throughout the life of the thread, and are reset during DB2 sign-on if the thread is reused. A warning condition is detected when the physical read I/O rate per second on behalf of a thread is in the range of eight to ten. The situation's formula is:

\[
\text{KD5_Thread_Exceptions.Read_I/O_Rate} \geq 8.0 \quad \text{AND} \quad \text{KD5_Thread_Exceptions.Read_I/O_Rate} < 10.0
\]

**KDP_TCPU_Critical** monitors the CPU rate (percent) of active threads.

For non-CICS threads, this is the CPU rate of the address space from which the thread originates. It includes both TCB and SRB time. For CICS threads, this is the CPU rate attributable to the thread originating from the CICS connection. It includes only TCB time incurred by the thread.

This situation limits its analysis of CPU use to DB2 connections that contain active threads. It does not report CPU use for connections with no active threads. A critical condition is detected when CPU utilization for an address space that has DB2 connections and threads reaches 20%. The situation's formula is:

\[
\text{KDP_Thread_Exceptions.CPU_Utilization} \geq 20.0
\]

**KD5_TCPU_Warning** monitors the CPU rate (percent) of active threads.

For non-CICS threads, this is the CPU rate of the address space from which the thread originates. It includes both TCB and SRB time. For CICS threads, this is the CPU rate attributable to the thread originating from the CICS connection. It includes only TCB time incurred by the thread.

This situation limits its analysis of CPU use to DB2 connections that contain active threads. It does not report CPU use for connections with no active threads. A warning condition is detected when CPU utilization for an address space that has DB2 connections and threads is in the range of 16% to 20%. The situation's formula is:

\[
\text{KD5_Thread_Exceptions.CPU_Utilization} \geq 16.0 \quad \text{AND} \quad \text{KD5_Thread_Exceptions.CPU_Utilization} < 20.0
\]

**KDP_TRCV_Critical** monitors the amount of data received by distributed threads from a remote DB2 subsystem. A critical condition is detected when the amount of data received by a requestor (allied) or server (distributed) DB2 thread in response to SQL requests reaches 1000 kilobytes. The situation's formula is:
KDP_Thread_Exceptions.Distributed_Receive_Bytes GE 1000

**KD5_TRCV_Warning** monitors the amount of data received by distributed threads from a remote DB2 subsystem. A warning condition is detected when the amount of data received by a requestor (allied) or server (distributed) DB2 thread in response to SQL requests is in the range of 800 to 1000 kilobytes. The situation's formula is:
KDP_Thread_Exceptions.Distributed_Receive_Bytes GE 800 AND
KDP_Thread_Exceptions.Distributed_Receive_Bytes LT 1000

**KDP_TSND_Critical** monitors the amount of data sent by distributed threads to a remote DB2 subsystem. A critical condition is detected when the amount of data sent by a requestor (allied) or server (distributed) DB2 thread in response to SQL requests reaches 1000 kilobytes. The situation's formula is:
KDP_Thread_Exceptions.Distributed_Send_Bytes GE 1000

**KD5_TSND_Warning** monitors the amount of data sent by distributed threads to a remote DB2 subsystem. A warning condition is detected when the amount of data sent by a requestor (allied) or server (distributed) DB2 thread in response to SQL requests is in the range of 800 to 1000 kilobytes. The situation's formula is:
KDP_Thread_Exceptions.Distributed_Send_Bytes GE 800 AND
KDP_Thread_Exceptions.Distributed_Send_Bytes LT 1000

**KDP_Wait_Time_Warning** indicates when the total wait time for a thread exceeded the threshold. The default threshold is 10 seconds. The situation's formula is:
Wait_Time GT 10

**KDP_WCLM_Critical** indicates when a thread has been waiting for more than the specified length of time for a resource to be drained of claimers. The default threshold is 60 seconds. The situation's formula is:
KDP_Thread_Exceptions.Wait_Time_Drain_Claims GE 60.000

**KD5_WCLM_Warning** cautions that a thread has been waiting for more than the specified length of time for a resource to be drained of claimers. The default warning range is 48 to 60 seconds. The situation's formula is:
KD5_Thread_Exceptions.Wait_Time_Drain_Claims GE 48.000 AND
KD5_Thread_Exceptions.Wait_Time_Drain_Claims LT 60.000

**KDP_WDLK_Critical** monitors the state of a thread waiting to acquire a drain lock. A critical condition is detected when the length of time to acquire a drain lock reaches 60 seconds. The situation's formula is:
KDP_Thread_Exceptions.Wait_Time_Drain_Lock GE 60.000

**KD5_WDLK_Warning** monitors the state of a thread waiting to acquire a drain lock. A critical condition is detected when the length of time to acquire a drain lock is in the range of 48 to 60 seconds. The situation's formula is:
KD5_Thread_Exceptions.Wait_Time_Drain_Lock GE 48.000
KDP_WGLK_Critical monitors the state of threads waiting to acquire a global lock. A critical condition is detected when a thread has been waiting for 60 seconds to acquire a global lock in a data sharing environment. The situation’s formula is:

KDP_Thread_Exceptions.Wait_Time_Global_Lock GE 60.000

KDP_WLGQ_Critical indicates that a thread has been waiting for more than the specified length of time for an ARCHIVE LOG MODE (QUIESCE) command to complete. A critical condition is detected when the amount of time that a thread has been suspended because of ARCHIVE LOG MODE (QUIESCE) reaches 60 seconds. The situation’s formula is:

KDP_Thread_Exceptions.Wait_Time_Log_Queue GE 60.000

KDP_WSPS_Critical indicates that a thread has been waiting for more than the specified length of time for the stored procedures address space to become available in order for a stored procedure to be scheduled. A critical condition is detected when the amount of time a thread has been waiting for an available TCB to schedule a stored procedure reaches 60 seconds. The situation’s formula is:

KDP_Thread_Exceptions.Wait_Time_Procedure GE 60.000

KDP_WSRV_Critical indicates that a thread has been waiting for more than the specified length of time for a DB2 service. DB2 service waits include open/close
A critical condition is detected when the amount of time a thread has been waiting for a DB2 service to complete reaches 30 seconds. The situation’s formula is:

\[ \text{KDP\_Thread\_Exceptions\_Wait\_Time\_Service} \geq 00:00:30.000 \]

**KD5\_WSRV\_Warning** indicates that a thread has been waiting for more than the specified length of time for a DB2 service. DB2 service waits include open/close data set, SYSLGRNG update, DFHSM recall, Dataspace Manager services, and define/delete/extend data set. A warning condition is detected when the amount of time a thread has been waiting for a DB2 service to complete ranges from 24 to 30 seconds. The situation's formula is:

\[ \text{KDP\_Thread\_Exceptions\_Wait\_Time\_Service} \geq 00:00:24.000 \]

\[ \text{AND} \]

\[ \text{KDP\_Thread\_Exceptions\_Wait\_Time\_Service} \lt 00:00:30.000 \]

**KDP\_WTRE\_Critical** monitors a thread’s wait time for a resource. A critical condition is detected when a thread has been waiting for 60 seconds. The situation's formula is:

\[ \text{KDP\_Thread\_Exceptions\_Wait\_Time\_Resource} \geq 60.000 \]

**KDP\_WTRE\_Warning** monitors a thread’s wait time for a resource. A critical condition is detected when a thread has been waiting between 48 and 60 seconds. The situation's formula is:

\[ \text{KDP\_Thread\_Exceptions\_Wait\_Time\_Resource} \geq 48.000 \]

\[ \text{AND} \]

\[ \text{KDP\_Thread\_Exceptions\_Wait\_Time\_Resource} \lt 60.000 \]

**OMEGAMON XE for DB2 PE Situations**

OMEGAMON XE for DB2 PE provides numerous predefined situations that you can use to immediately begin monitoring your DB2 managed systems, to monitor and manage, through localized automation, widely dispersed resources, or as models for creating your own situations.

Most of the predefined situations have an alert status of either Critical or Warning. You can view these situations as they augment by selecting the Logical View tab. If you choose to make changes to a predefined situation, we recommend you change a copy and preserve the original situation in the form in which it was shipped.

You can change conditions, relational operators, and compare values in these predefined situations to ones more appropriate to your environment.

**Note:** All of the predefined situations are disabled when shipped.

**IDAA Situations**

Use the series of predefined situations associated with IDAA to begin monitoring your system immediately or as templates for creating your own situations.

The names, descriptions, logic, and threshold values for the situations follow.

**KD5\_IDAA\_Avg\_QueueTime\_Warning** IDAA average query wait time exceeded warning threshold. Average query wait time greater then n seconds. High query
workload impacts query performance. More accelerator capacity might be needed, bigger model or additional accelerator server. n is customer defined.

**KD5_IDAA_Elap_Time_Warning** IDAA accumulated elapsed time exceeded warning threshold. The accumulated elapsed time spent in the accelerator when executing requests from the DB2 subsystem. It could be a run-away queries that trigger this situation.

**KD5_IDAA_Not_Online_Warning** IDAA is not online warning. The Accelerator is not operational. This could be due to planned maintenance, network problems or other issues related to the setup of the Accelerator.

**KD5_IDAA_Queue_Length_Warning** IDAA current queue length exceeded warning threshold. A high number in this counter can be an indication that the accelerator is not able to process the scheduled work efficiently as the current queue length at the accelerator is large. The elements queued can be queries, loads, replication and maintenance tasks.

**KD5_IDAA_Replic_Latency_Warning** IDAA average query wait time exceeded warning threshold. When replication latency too high (5min/300s in this sample), it may impact query result correctness as the data on the Accelerator is not current. Note that sporadically high values of this counter might be acceptable and the value should be observed for a certain interval of time. If the value constantly increases or stay on an elevated value, this indicates a potential problem with the replication setup, that might have to be tuned.

**KD5_IDAA_Replic_State_Warning** There is an issue with incremental update function warning. There is an issue with replication (incremental update) function.

**KD5_IDAA_Req_Fail_Warning** IDAA failed requests exceeded warning threshold. The number of connections that failed when this DB2 system sent requests to the accelerator. Failed requests shouldn't normally occur.

**KD5_IDAA_SQL_Exe_Fail_Warning** IDAA SQL execution failed exceeded warning threshold. The number of SQL statements sent by all DB2 systems since accelerator started that were not successfully executed for any reason.

**KD5_IDAA_Wait_Time_Warning** IDAA wait time spent exceeded warning threshold. The wait time spent in the accelerator when executing requests from the DB2 subsystem. It could be a run-away query that triggers this situation.

**IMS Connections Situations**

Use the series of predefined situations associated with the IMS Connections workspace to begin monitoring your system immediately or as templates for creating your own situations.

The names, descriptions, logic, and threshold values for the situations follow.

**KDP_IMCN_Critical** warns when an IMS region is defined to DB2, but the connection failed. A critical condition is detected when the specified IMS dependent region for the IMSID fails to connect to DB2 because of an error. The situation's formula is:

KDP_IMS_Connections.Defined_Dependent_Regions EQ 0
**KDP_IMND_Critical** warns when no IMS dependent region is defined to DB2. A critical condition is detected when there are no IMS dependent regions defined to DB2 for the IMSID. The situation's formula is:

```
KDP_IMS_Regions.Connection_Status NE 0
```

**Localized Automation Situations**

Use the series of predefined situations associated with the Localized Automation workspace to begin monitoring your system immediately or as templates for creating your own situations.

These situations have a name prefixed by **DB2_CMD**. Localized automation situations return a message to your TSO/E user ID. To use a localized automation situation, you must edit the Action modifier in the situation condition to specify your own TSO/E user ID.

**Log Manager Situations**

Use the series of predefined situations associated with the Log Manager workspace to begin monitoring your system immediately or as templates for creating your own situations.

The name, description, logic, and threshold value for the situation follows.

**KDP_LOGN_Critical** monitors the availability of primary active logs. Active log data sets are allocated to DB2 during start-up processing. When an active log data set is full, it is automatically archived by DB2 to an archive log. When an active log is successfully archived, it is available for reuse.

The availability of active logs is critical to the functioning of DB2. If no active log is available, the DB2 subsystem hangs until one becomes available.

The lack of an active log could be caused by an insufficient number of logs defined at installation time, too small a log data set size, or possibly because of problems encountered during the archive process. A critical condition is detected when the logs available is less than one. The situation's formula is:

```
KDP_SRM_Log_Manager.Logs_Available LT 1
```

**KD5_Percent_Log_Avail_Warning** indicates that the percentage of active logs available is dropping below the threshold. This indicates that the log files might be too small. This exception can happen when logs are filled up faster than they can be archived. The situation's formula is:

```
Percent Logs Available = Logs_Available * 100 / Logs_Defined
```

**Storage Consumption Situations**

Use the series of predefined situations associated with the Storage Consumption workspace to begin monitoring your system immediately or use them as templates for creating your own situations.

The names, descriptions, logic, and threshold values for the situations follow.

**KD5_MVS_Extended_CSA_Warning** monitors extended CSA storage to detect storage shortages. A warning condition is detected when the extended CSA size is more than 300 MB. The situation's formula is:

```
DBM1_Storage.Extended_CSA_Size GT 300
```
KD5_MVS_low_private_Warning monitors low private storage to detect storage shortages. A warning condition is detected when the low private size is less than 1 MB. The situation's formula is:

\[ \text{DBM1\_Storage.24\_Bit\_Low\_Private} \lt 1 \]

KD5_Real_Storage_Usage_Warning monitors real storage to detect storage shortages. A warning condition is detected when the real storage in use is more than 100 MB. The situation's formula is:

\[ \text{DBM1\_Storage.Real\_Storage\_in\_Use} \gt 100 \]

KD5_Storage_Cushion_Warning monitors the storage cushion to detect storage shortages. A warning condition is detected when the storage cushion is less than 300 MB. The situation's formula is:

\[ \text{DBM1\_Storage.Storage\_cushion} \lt 300 \]

KD5_Total_DBM1_Warning monitors total DBM1 storage to detect storage shortages. A warning condition is detected when the total DBM1 storage is more than 100 MB. The situation's formula is:

\[ \text{DBM1\_Storage.Total\_DBM1\_Storage} \gt 100 \]

**Subsystem Management Situations**

Use the series of predefined situations associated with the Subsystem Management workspace to begin monitoring your system immediately or as templates for creating your own situations.

The names, descriptions, logic, and threshold values for the situations follow.

KD5_DBA_T_Wait_Warning indicates the percentage of DBA_T (Database Access Thread) that has to wait because MAXDBA_T exceeded the threshold. A critical condition is detected when the percentage of active background connections to DBA_T_Wait reaches 0%. The situation's formula is:

\[ \text{DB2\_System\_States.DB\_Wait\_Percent} \geq 0 \]

KD5_DSMAX_Approach_Max_Warning indicates when the maximum percentage of open data sets exceeded the threshold. A critical condition is detected when the percentage of open data sets to DSMAX is approaching 80%. The situation's formula is:

\[ \text{DB2\_System\_States.DSMAX\_Approaching\_Max} \geq 80.0 \]

KDP_IDBK_Critical monitors how close DB2 is to the maximum background connections allowed. A critical condition is detected when the percentage of active background connections to IDBACK reaches 90%. The situation's formula is:

\[ \text{KDP\_SRM\_Subsystem.Background\_Utilization} \geq 90.0 \]

KDP_IDBK_Warning monitors how close DB2 is to the maximum background connections allowed. A warning condition is detected when the percentage of active background connections to IDBACK is in the range of 72% to 90%. The situation's formula is:

\[ \text{KDP\_SRM\_Subsystem.Background\_Utilization} \geq 72.0 \]

\[ \text{AND} \]

\[ \text{KDP\_SRM\_Subsystem.Background\_Utilization} \lt 90.0 \]
KDP_IDFR_Critical provides information about how close DB2 is to the maximum foreground connections allowed. A critical condition is detected when the percentage of active foreground connections to IDFORE reaches 85%. The situation's formula is:

\[ \text{KDP\_SRM\_Subsystem.\text{Foreground\_Utilization}} \geq 85.0 \]

KDP_IDFR_Warning provides information about how close DB2 is to the maximum foreground connections allowed. A warning condition is detected when the percentage of active foreground connections to IDFORE is in the range of 68% to 85%. The situation's formula is:

\[ \text{KDP\_SRM\_Subsystem.\text{Foreground\_Utilization}} \geq 68.0 \]

AND

\[ \text{KDP\_SRM\_Subsystem.\text{Foreground\_Utilization}} < 85.0 \]

KD5_LOCK_ESCAL_EXCL_Warning indicates when the number of times lock escalation exclusive happened exceeded the threshold. A warning condition is detected when the number of count of lock escalations to exclusive mode is greater than 20. The situation's formula is:

\[ \text{DB2\_System\_States.\text{Lock\_Escalation\_Excl}} \geq 20.0 \]

KD5_RID_Fallback_Warning indicates when the number of times RID Pool fallback exceeded the threshold. A warning condition is detected when the number of times RID fallback is greater than 20. The situation's formula is:

\[ \text{DB2\_System\_States.\text{RIDPool\_Fail\_No\_Storage}} \geq 20 \]

KD5_CONDBAT_Appr_Max_Warning indicates that the number of DBAT connections is approaching DSNZPARM CONDBAT. If this condition is detected, make sure CONDBAT is defined accurately for remote connections. The situation's formula is:

\[ \text{DB2\_SRM\_Subsystem.\text{DBAT\_Conn\_Utilization}} \geq 70 \]

**System Status Situations**

Use the series of predefined situations associated with the System Status workspace to begin monitoring your system immediately or as templates for creating your own situations.

The names, descriptions, logic, and threshold values for the situations follow.

KD5_LPAR_CPU_Warning monitors the processor consumption for the LPAR that is being monitored. A warning condition is detected when the consumption reaches 70% of the capacity of the processor. The situation's formula is:

\[ \text{ZOS\_System\_Statistics.\text{CPU\_Utilization\_LPAR}} \geq 70 \]

KDP_ARCV_Critical monitors the status of a DB2 recovery log archive. A critical condition is detected when an active DB2 log is full and must be archived, and a tape mount is outstanding for the archive log. The situation's formula is:

\[ \text{KDP\_System\_States.\text{Waiting\_On\_Tape\_Mount}} = \text{TRUE} \]

KDP_ARCV_Warning monitors the status of a DB2 recovery log archive. A warning condition is detected when an active DB2 log is full and must be archived, and a tape mount is outstanding for the archive log. The situation's formula is:

\[ \text{KDP\_System\_States.\text{Waiting\_On\_Tape\_Mount}} = \text{TRUE} \]
**KDP_DDFS_Critical** monitors the status of the distributed database facility (DDF), detecting a critical condition when the DDF is inactive. This condition could indicate that the DDF terminated abnormally or that it was not started. The situation's formula is:

\[ \text{KDP System States.Dist_DB_Inactive EQ TRUE} \]

**KDP_DDFS_Warning** monitors the status of the distributed database facility (DDF), detecting a warning condition when the DDF is inactive. This condition could indicate that the DDF terminated abnormally or that it was not started. The situation's formula is:

\[ \text{KDP System States.Dist_DB_Inactive EQ TRUE} \]

**KDP_DRCV_Critical** monitors the rate of data received by a requestor (local) or server (remote) DB2 subsystem in response to SQL requests. A critical condition is detected when the rate reaches 1000 kilobytes/second. The situation's formula is:

\[ \text{KDP System States.Dist_Receive_Rate GE 1000.0} \]

**KDP_DRCV_Warning** monitors the rate of data received by a requestor (local) or server (remote) DB2 subsystem in response to SQL requests. A warning condition is detected when the rate is in the range of 800 to 1000 kilobytes/second. The situation's formula is:

\[ \text{KDP System States.Dist_Receive_Rate GE 800.0 AND KDP System States.Dist_Receive_Rate LT 1000.0} \]

**KDP_DSND_Critical** monitors the amount of data sent to a requestor (local) or server (remote) DB2 subsystem. A critical condition is detected when the rate reaches 1000 kilobytes/second. The situation's formula is:

\[ \text{KDP System States.Dist_Send_Rate GE 1000.0} \]

**KDP_DSND_Warning** monitors the amount of data sent to a requestor (local) or server (remote) DB2 subsystem. A warning condition is detected when the rate is in the range of 800 to 1000 kilobytes/second. The situation's formula is:

\[ \text{KDP System States.Dist_Send_Rate GE 800.0 AND KDP System States.Dist_Send_Rate LT 1000.0} \]

**KDP_EDMU_Critical:**

- For DB2 9 or below: KDP_EDMU_Critical monitors the usage of environmental descriptor manager (EDM) pool pages. DB2 uses the EDM pool to manage and contain cursor tables (CTs) and package tables (PTs).
- For DB2 10 or later: KDP_EDMU_Critical monitors the usage of database descriptor (DBD) pool pages. DB2 uses the DBD pool to manage and contain database descriptors (DBDs).

A critical condition is detected when the percentage in use based on the total pool size reaches 90%. The situation's formula is:

\[ \text{KDP System States.EDM_Utilization GE 90.0} \]

- For DB2 9 or below: KDP_EDMU_Critical monitors the usage of environmental descriptor manager (EDM) pool pages. DB2 uses the EDM pool to manage and contain cursor tables (CTs) and package tables (PTs).
• For DB2 10 or later: KDP_EDMU_Critical monitors the usage of database descriptor (DBD) pool pages. DB2 uses the DBD pool to manage and contain database descriptors (DBDs).

A warning condition is detected when the percentage in use based on the total pool size is in the range of 72% to 90%. The situation’s formula is:

\[
\text{KDP\_System\_States.EDM\_Utilization} \geq 72.0 \\text{ AND } \text{KDP\_System\_States.EDM\_Utilization} < 90.0
\]

KDP_EDMU_Warning monitors the usage of environmental descriptor manager (EDM) pool pages. DB2 uses the EDM pool to manage and contain database descriptors (DBDs), cursor tables (CTs), skeleton cursor tables (SKCTs), package tables (PTs), skeleton package tables (SKPTs), and dynamic SQL caches (DSCs). A warning condition is detected when the percentage in use based on the total pool size is in the range of 72% to 90%. The situation’s formula is:

\[
\text{KDP\_System\_States.EDM\_Utilization} \geq 72.0 \\text{ AND } \text{KDP\_System\_States.EDM\_Utilization} < 90.0
\]

KDP_GTRC_Critical monitors the status of the DB2 global trace. It should not be active unless there is a specific purpose, such as diagnostic testing. The DB2 global trace can increase performance overhead. A critical condition is detected when the DB2 global trace is active. The situation’s formula is:

\[
\text{KDP\_System\_States.Global\_Trace\_Active} = \text{TRUE}
\]

KDP_GTRC_Warning monitors the status of the DB2 global trace. It should not be active unless there is a specific purpose, such as diagnostic testing. The DB2 global trace can increase performance overhead. A warning condition is detected when the DB2 global trace is active. The situation’s formula is:

\[
\text{KDP\_System\_States.Global\_Trace\_Active} = \text{TRUE}
\]

KDP_INDT_Critical monitors the number of in doubt threads in the DB2 system. A critical condition is detected when the number of terminated threads that are in doubt reaches two. The situation’s formula is:

\[
\text{KDP\_System\_States.Indoubt\_Threads} \geq 2
\]

KDP_INDT_Warning monitors the number of in doubt threads in the DB2 system. A warning condition is detected when the number of terminated threads that are in doubt reaches two. The situation’s formula is:

\[
\text{KDP\_System\_States.Indoubt\_Threads} \geq 2
\]

KDP_MDBT_Critical monitors the percentage of maximum allowed database access threads that are in use. The maximum is set in DSNZPARM by the MAXDBAT parameter. When the MAXDBAT limit is reached, conversations are queued (waiting on DBAT allocation), which can greatly increase response time. A critical condition is detected when the number of distributed database access threads in use reaches 85% of the preset maximum. The situation’s formula is:

\[
\text{KDP\_System\_States.DB\_Wait\_Percent} \geq 85.0
\]

KDP_MDBT_Warning monitors the percentage of maximum allowed database access threads that are in use. The maximum is set in DSNZPARM by the MAXDBAT parameter. When the MAXDBAT limit is reached, conversations are queued (waiting on DBAT allocation), which can greatly increase response time. A
warning condition is detected when the number of distributed database access threads in use is in the range of 68% to 85% of the preset maximum. The situation's formula is:

\[
\text{KDP\_System\_States\_DB\_Wait\_Percent} \geq 68.0 \\
\text{AND} \\
\text{KDP\_System\_States\_DB\_Wait\_Percent} < 85.0
\]

**KDP\_MDBW\_Critical** monitors the number of database access threads that are waiting because MAXDBAT was reached. Queuing of conversations when the MAXDBAT limit is reached can greatly impact response time. A critical condition is detected when the number of database access threads that are waiting reaches two. The situation's formula is:

\[
\text{KDP\_System\_States\_Thread\_Wait\_Limit} \geq 2
\]

**KDP\_MDBW\_Warning** monitors the number of database access threads that are waiting because MAXDBAT was reached. Queuing of conversations when the MAXDBAT limit is reached can greatly impact response time. A warning condition is detected when the number of database access threads that are waiting is in the range of one to two. The situation's formula is:

\[
\text{KDP\_System\_States\_Thread\_Wait\_Limit} \geq 1 \text{ AND } \text{KDP\_System\_States\_Thread\_Wait\_Limit} < 2
\]

**KDP\_SPAC\_Critical** monitors the number of ASIDs executing stored procedures. Stored procedures can be executed in a DB2 stored procedure address space and in any WLM-managed stored procedure address space. The threshold is a count of address spaces capable of executing stored procedures. A critical condition is detected when the count reaches five. The situation's formula is:

\[
\text{KDP\_System\_States\_ASIDs\_Stored\_Procedures} \geq 5
\]

**KDP\_SPAC\_Warning** monitors the number of ASIDs executing stored procedures. Stored procedures can be executed in a DB2 stored procedure address space and in any WLM-managed stored procedure address space. The threshold is a count of address spaces capable of executing stored procedures. A warning condition is detected when the count is in the range of two to five. The situation's formula is:

\[
\text{KDP\_System\_States\_ASIDs\_Stored\_Procedures} \geq 2 \text{ AND } \text{KDP\_System\_States\_ASIDs\_Stored\_Procedures} < 5
\]

**KDP\_STPE\_Critical** monitors the number of stored procedures executing. The threshold is expressed as a count of stored procedures currently executing. A critical condition is detected when the count reaches 20. The situation's formula is:

\[
\text{KDP\_System\_States\_Active\_Stored\_Procedures} \geq 20
\]

**KDP\_STPE\_Warning** monitors the number of stored procedures executing. The threshold is expressed as a count of stored procedures currently executing. A warning condition is detected when the count is in the range of 10 to 20. The situation's formula is:

\[
\text{KDP\_System\_States\_Active\_Stored\_Procedures} \geq 10 \text{ AND } \text{KDP\_System\_States\_Active\_Stored\_Procedures} < 20
\]
**KDP_SUSL_Critical** monitors the number of threads that are unable to continue execution because the number of lock waits exceeds the specified threshold. A critical condition is detected when the count reaches five suspended threads. The situation's formula is:

\[
\text{KDP\_System\_States.Thread\_Wait\_Lock} \geq 5
\]

**KDP_SUSL_Warning** monitors the number of threads that are unable to continue execution because the number of lock waits exceeds the specified threshold. A critical condition is detected when the count is in the range of four to five suspended threads. The situation's formula is:

\[
\text{KDP\_System\_States.Thread\_Wait\_Lock} \geq 4 \\&\& \text{KDP\_System\_States.Thread\_Wait\_Lock} < 5
\]

**KDP_THDQ_Critical** detects users waiting for thread creation to occur. This exception may indicate that DB2 reached the CTHREAD value that controls the number of active threads. A critical condition is detected when the number of users waiting for create thread processing reaches two. The situation's formula is:

\[
\text{KDP\_System\_States.User\_Waiting\_Threads} \geq 2
\]

**KDP_THDQ_Warning** detects users waiting for thread creation to occur. This exception may indicate that DB2 reached the CTHREAD value that controls the number of active threads. A warning condition is detected when the number of users waiting for create thread processing is in the range of one to two. The situation's formula is:

\[
\text{KDP\_System\_States.User\_Waiting\_Threads} \geq 1 \\&\& \text{KDP\_System\_States.User\_Waiting\_Threads} < 2
\]

**KDP_TMAX_Critical** monitors the percentage of active threads, by indicating when the number of active threads approaches the maximum number allowed. DB2 thread concurrency can be controlled by the CTHREAD value. CTHREAD defines the maximum number of concurrent threads allowed. A critical condition is detected when the percentage of active threads to the specified maximum reaches 85%. The situation's formula is:

\[
\text{DB2\_SRM\_Subsystem.Thread\_Utilization} \geq 85
\]

**KDP_TMAX_Warning** monitors the percentage of active threads, by indicating when the number of active threads approaches the maximum number allowed. DB2 thread concurrency can be controlled by the CTHREAD value. CTHREAD defines the maximum number of concurrent threads allowed. A warning condition is detected when the percentage of active threads to the specified maximum is in the range of 68% to 85%. The situation's formula is:

\[
\text{DB2\_SRM\_Subsystem.Thread\_Utilization} \geq 68 \\&\& \text{DB2\_SRM\_Subsystem.Thread\_Utilization} < 85
\]

**KDP_TRGD_Critical** monitors the depth of the largest trigger stack. A critical condition is detected when the number of triggers in the largest trigger stack reaches two. The situation's formula is:

\[
\text{KDP\_System\_States.Trigger\_Depth} \geq 2
\]
**KDP_TRGD_Warning** monitors the depth of the largest trigger stack. A warning condition is detected when the number of triggers in the largest trigger stack is in the range of one to two. The situation's formula is:

\[ KDP\_System\_States.Trigger\_Depth \geq 1 \]
\[ \text{AND} \]
\[ KDP\_System\_States.Trigger\_Depth < 2 \]

**KDP_TRGE_Critical** monitors the number of triggers. A critical condition is detected when the number of active triggers reaches 20. The situation's formula is:

\[ KDP\_System\_States.Active\_Triggers \geq 20 \]

**KDP_TRGE_Warning** monitors the number of triggers. A warning condition is detected when the number of active triggers is in the range of 10 to 20. The situation's formula is:

\[ KDP\_System\_States.Active\_Triggers \geq 10 \]
\[ \text{AND} \]
\[ KDP\_System\_States.Active\_Triggers < 20 \]

**KDP_UDFE_Critical** monitors the number of user-defined functions executing. A critical condition is detected when the number of user-defined functions reaches 20. The situation's formula is:

\[ KDP\_System\_States.Active\_User\_Functions \geq 20 \]

**KDP_UDFE_Warning** monitors the number of user-defined functions executing. A warning condition is detected when the number of user-defined functions is in the range of 10 to 20. The situation's formula is:

\[ KDP\_System\_States.Active\_User\_Functions \geq 10 \]
\[ \text{AND} \]
\[ KDP\_System\_States.Active\_User\_Functions < 20 \]

**KDP_UFAC_Critical** monitors the number of ASIDs executing user functions. A critical condition is detected when a count of address spaces capable of executing user-defined functions reaches five. User-defined functions can be executed only from WLM-managed stored procedure address spaces. The situation's formula is:

\[ KDP\_System\_States.ASIDs\_User\_Functions \geq 5 \]

**KDP_UFAC_Warning** monitors the number of ASIDs executing user functions. A warning condition is detected when a count of address spaces capable of executing user-defined functions is in the range of two to five. User-defined functions can be executed only from WLM-managed stored procedure address spaces. The situation's formula is:

\[ KDP\_System\_States.ASIDs\_User\_Functions \geq 2 \]
\[ \text{AND} \]
\[ KDP\_System\_States.ASIDs\_User\_Functions < 5 \]

**Thread Situations**

Use the series of predefined situations associated with the thread workspaces to begin monitoring your system immediately or as templates for creating your own situations.
You can use these situations to begin monitoring almost immediately, or as a template for creating your own situations. All of the predefined situations are disabled when shipped. The name, description, logic, and threshold value for the situation follows.

**KD5_CPU_Time** monitors the state of the CPU time. A warning is detected when a thread using CPU_Time is greater than 00:00:05.000. The situation formula is:

*IF *VALUE THREADDETAILS.CPU_Time *GE 5"

**KD5_In_DB2_IIP_CPU_Time** monitors the amount of time that DB2 has accumulated for a thread in the zIIP processor. A warning is detected when a thread using In_DB2_IIP_CPU_Time is greater than 00:00:02.000. The situation formula is:

*IF *VALUE THREADDETAILS.In_DB2_IIP_CPU *GE

**Utility Jobs Situations**

Use the series of predefined situations associated with the Utility Jobs workspace to begin monitoring your system immediately or as templates for creating your own situations.

The name, description, logic, and threshold value for the situation follows.

**KDP_UTIS_Critical** monitors the state of DB2 utilities. A critical condition is detected when a DB2 utility was started but did not finish running because of abnormal termination. Restart the utility with the corresponding phase. The situation's formula is:

KDP_SRM_UTL.Stat EQ 0

**Volume Activity Situations**

Use the series of predefined situations associated with the Volume Activity workspace to begin monitoring your system immediately or as templates for creating your own situations.

The names, descriptions, logic, and threshold values for the situations follow.

**KDP_VDIO_Critical** monitors volume DB2 I/O rate activity. A critical condition is detected when the DB2 I/O rate per second for the volume reaches 50. The situation's formula is:

KDP_Volume_Activity.DB2_IO_Percent GE 50

**KDP_VDIO_Warning** monitors volume DB2 I/O rate activity. A warning condition is detected when the DB2 I/O rate per second for the volume is in the range of 40 to 50. The situation's formula is:

KDP_Volume_Activity.DB2_IO_Percent GE 40 AND KDP_Volume_Activity.DB2_IO_Percent LT 50

**KDP_VEDR_Critical** monitors volume data set extend activity. A critical condition is detected when the number of DB2 extents on the volume divided by the number of DB2 data sets reaches ten. The situation's formula is:

KDP_Volume_Activity.Extents_per_Dataset_Ratio GE 10.0
**KDP_VEDR_Warning** monitors volume data set extend activity. A warning condition is detected when the number of DB2 extents on the volume divided by the number of DB2 data sets is in the range of eight to ten. The situation's formula is:

\[
\text{KDP\_Volume\_Activity}\text{.Extents\_per\_Dataset\_Ratio} \geq 8.0 \text{ AND } \text{KDP\_Volume\_Activity}\text{.Extents\_per\_Dataset\_Ratio} < 10.0
\]

**KDP_VSRV_Critical** monitors volume service time. A critical condition is detected when the service time for the volume reaches 25 milliseconds. The situation's formula is:

\[
\text{KDP\_Volume\_Activity}\text{.Volume\_Service\_Time} \geq 25.0
\]

**KDP_VSRV_Warning** monitors volume service time. A warning condition is detected when the service time for the volume is in the range of 20 to 25 milliseconds. The situation's formula is:

\[
\text{KDP\_Volume\_Activity}\text{.Volume\_Service\_Time} \geq 20.0 \text{ AND } \text{KDP\_Volume\_Activity}\text{.Volume\_Service\_Time} < 25.0
\]

**KDP_VTIO_Critical** monitors volume total I/O rate activity. A critical condition is detected when the total number of I/Os per second reaches 60. The situation's formula is:

\[
\text{KDP\_Volume\_Activity}\text{.Volume\_Total\_IO\_Rate} \geq 60
\]

**KDP_VTIO_Warning** monitors volume total I/O rate activity. A warning condition is detected when the total number of I/Os per second is in the range of 48 to 60. The situation's formula is:

\[
\text{KDP\_Volume\_Activity}\text{.Volume\_Total\_IO\_Rate} \geq 48 \text{ AND } \text{KDP\_Volume\_Activity}\text{.Volume\_Total\_IO\_Rate} < 60
\]

**KDP_VUTL_Critical** monitors volume utilization. A critical condition is detected when a volume's utilization reaches 30%. The situation's formula is:

\[
\text{KDP\_Volume\_Activity}\text{.Volume\_Utilization} \geq 30
\]

**KDP_VUTL_Warning** monitors volume utilization. A warning condition is detected when a volume's utilization is in the range of 24% to 30%. The situation's formula is:

\[
\text{KDP\_Volume\_Activity}\text{.Volume\_Utilization} \geq 24 \text{ AND } \text{KDP\_Volume\_Activity}\text{.Volume\_Utilization} < 30
\]

### Canceling Threads

The thread attribute groups DB2_Thread_Exceptions, ALL_THREADS, and Thread_Detail provide the cancel thread command attribute **Cancel_Command**.

Use **Cancel_Command** to cancel a thread via Take Action. Take Action is available from a table view or Situation Action.
The cancel thread command via Take Action in TEP uses TEP userids for security. For more information, refer to Take Action commands with TEP userids.

Performance Expert Client

This information describes how to monitor and tune IBM Database 2 products and create reports and traces using Performance Expert Client, which is one of the graphical interfaces of the following products:

- IBM OMEGAMON for Db2 Performance Expert on z/OS
- IBM OMEGAMON for Db2 Performance Monitor on z/OS

This information helps DB2 users perform the following tasks:
- Determine total DB2 performance and efficiency
- Analyze and improve SQL statements
- Tune DB2 systems and DB2 threads
- Identify the cause of performance problems

This information describes the individual tasks that you can perform with Performance Expert Client. For detailed information about the individual windows and the fields, buttons, and icons in the windows, refer to the Online Help. See "Getting help” on page 2507 for information on how to request help.

Always check the IBM DB2 and IMS Tools Library web page and the Tivoli library page for the most current version of this information:

- OMEGAMON for Db2 Performance Expert on z/OS (PDFs and Techdocs on Db2 Tools Product Page)
- OMEGAMON for Db2 Performance Monitor on z/OS (PDFs and Techdocs on Db2 Tools Product Page)

Who should read this information

This information is intended for those persons responsible for monitoring and tuning IBM Database 2 products and assumes a working knowledge of z/OS and OS/390®.

Before you begin

This section provides the information you need before you start working with OMEGAMON for Db2 PE.

It gives you an overview of OMEGAMON for Db2 PE and describes the main components and features of Performance Expert Client, which is one of the graphical interfaces of OMEGAMON for Db2 PE.

What does OMEGAMON for Db2 PE do?

OMEGAMON for Db2 PE is a host-based performance analysis and tuning tool for z/OS environments. Its main objective is to simplify DB2 performance management.

OMEGAMON for Db2 PE lets you monitor threads, system Statistics, and system parameters by using a single tool. It integrates performance monitoring, reporting, buffer pool analysis, and a Performance Warehouse function. It also provides a single overview system that monitors all DB2 subsystems and DB2 Connect gateways in a consistent way.
OMEGAMON for Db2 PE offers the following advantages:

- Performance analysis and tuning of DB2 and DB2 applications.
- Expert analysis, a real-time online monitor, and a wide range of reports for analyzing and optimizing DB2 applications and SQL statements.
- Performance Warehouse feature for storing performance data and analysis functions, and for collecting report data.
- Definitions and usage of analysis functions, such as rules of thumb and queries, to identify performance bottlenecks.
- A starter set of smart features that provide recommendations for system tuning to gain optimum throughput.
- An explain feature.
- A Reporting function that presents detailed information about DB2 events involving CPU times, buffer pool usage, locking, I/O activity, and more.
- A buffer pool analysis function that collects data and provides reports on related event activity to get information about current buffer pool behavior and to simulate anticipated future behavior. It can provide these reports in the form of tables, pie charts, and diagrams.
- Exception reports for common performance problems to help identify and quantify excessive CPU and elapsed time on a plan and package basis.
- Monitoring connections of remote applications using Performance Expert Agent for DB2 Connect Monitoring.

The stand-alone product OMEGAMON for Db2 PM provides a subset of the functions that are provided when you install OMEGAMON for Db2 PE. For a detailed description of the different capabilities, refer to the following Web site:

- OMEGAMON for Db2 Performance Expert on z/OS (PDFs and Techdocs on Db2 Tools Product Page)
- OMEGAMON for Db2 Performance Monitor on z/OS (PDFs and Techdocs on Db2 Tools Product Page)

The main components of OMEGAMON for Db2 PE are:

- Performance Expert Client which is one of the graphical interfaces of OMEGAMON for Db2 PE
- OMEGAMON Collector
- Performance Expert Agent for DB2 Connect Monitoring

**Related reading:** For information about the OMEGAMON Collector and Performance Expert Agent for DB2 Connect Monitoring, refer to Configuration and Customization

**Components and features of Performance Expert Client**

This topic introduces the main components and features of Performance Expert Client, which is one of the graphical interfaces of OMEGAMON for Db2 PE.

With Performance Expert Client you can monitor and analyze the performance of an application online and handle exception notifications. The Performance Warehouse provides a process-oriented view of the performance analysis tasks. It helps you manage and analyze buffer pools more efficiently by providing specific recommendations to adjust buffer pool sizes and threshold values.
Online monitoring and reporting:

Performance Expert Client enables online monitoring and reporting, including exception notification handling.

You can use the online monitoring and reporting component to:
- Determine the total DB2 system performance and efficiency.
- Measure the performance of an application.
- Review the resources used by an application.
- Evaluate an application’s impact on other applications and the DB2 system.
- Identify the cause of performance problems by checking certain thread-activity and Statistics fields for exceptions and listing the occurrence of specific events.
- Determine the tuning requirements for DB2.
- View performance data graphically.
- Analyze and improve SQL statements by using Explain products.

For more information refer to “Using Explain products to analyze and improve SQL statements” on page 2544.
- Monitor DB2 Connect gateways, including system-related information.

This component is similar to the host-based (ISPF) Online Monitor. It has some advantages over the host-based Online Monitor, such as:
- The graphics improve the representation of the relationship between counters and the trends and evolution of counters.
- You can monitor several DB2 systems at the same time.
- When DB2 performance is not satisfactory, you receive tuning recommendations.

Performance Warehouse management:

Performance Warehouse provides a process-oriented view of the performance analysis tasks.

It allows you to automate tasks that previously required user interaction, such as loading DB2 data into the Performance Warehouse database or generating reports.

Using the Performance Warehouse window, you can define, schedule, and run processes that automate the following tasks:
- Generating DB2 performance data
- Loading this data into the Performance Warehouse database
- Creating reports on the data in the Performance Warehouse database
- Collecting report data

You can then use rules of thumb and queries to analyze and evaluate the data in the Performance Warehouse database.

Samples of processes, rules of thumb, and queries are provided to help you get started.

Buffer pool analysis:

Buffer pool analysis helps you manage buffer pools more efficiently by providing specific recommendations to adjust buffer pool sizes and threshold values.
If you are interested in background information about current buffer pool behavior, you can get in-depth statistical data, comprehensive reports, and easy-to-read graphic information for all buffer pools and their objects.

Buffer pool analysis helps you tune DB2 buffer pools and get the most out of your system resources. It lets you optimize memory usage by specifically recommending which buffer pools to change and by how much.

It allows you to:
- Save central processing unit (CPU) cycles
- Improve response times and elapsed times
- Simulate buffer pool behavior

**Related reading:** This information does not cover buffer pool analysis. For information about how to use this component, see [Buffer Pool Analyzer User’s Guide](#).

**Getting started**

This section describes the tasks you need to perform before you can start working with OMEGAMON for Db2 PE.

Before you start working with OMEGAMON for Db2 PE, ensure that you have the correct authorization and DB2 privileges to perform monitoring tasks.

**Related reading:** To find out what authorization and DB2 privileges you need, see [Configuration and Customization](#).

Before you start working with OMEGAMON for Db2 PE, ensure that all DB2 traces are running. If you do not get any monitoring data, check if one or more DB2 traces are switched off.

**Starting Performance Expert Client:**

You can start Performance Expert Client directly or from the DB2 Control Center.

If you installed a firewall on your workstation, ensure that Performance Expert Client has correct access permissions. Otherwise, Performance Expert Client does not work correctly.

You can start Performance Expert Client directly in one of the following ways:
- Double-click the **IBM DB2 Performance Expert for zOS** icon on your desktop.
- Click **Start > All Programs > IBM DB2 Performance Expert for zOS > IBM DB2 Performance Expert for zOS**.

To start Performance Expert Client from the DB2 Control Center, click the toolbar button.

If you want to start Performance Expert Client more than once on a workstation and on the same operating system, Performance Expert Client must run under different user IDs. For example, if you want to start Performance Expert Client three times in such an environment, Performance Expert Client must run under three different user IDs or on different workstations.

After you start Performance Expert Client, the System Overview window is displayed, which is the main window.
Working with the System Overview window:

The System Overview window shows the main performance information about the DB2 systems that you monitor and to which you are logged on. From this window, you can access all monitoring functions that are supported by Performance Expert.

You can view performance information for all DB2 systems or for a specific DB2 system. If a member is in DSG, you can view the information for each member. Figure 170 shows the KPIs page of the System Overview window after you logged on to a DB2 subsystem.

![System Overview window](image)

Figure 170. System Overview window

The folders pane on the left lets you select the information level. The contents pane on the right shows the performance information for the selected information level. The performance information is shown on the following tabbed pages:

- **The KPIs page** shows the counters that are key performance indicators (KPIs) for the selected information level. Many of these counters have cumulative values, where the delta between the values of the last two snapshots is calculated. When you move the cursor over a KPI, hover help is displayed, which contains a short description of the KPI. Double-clicking a KPI takes you to the pane or page of the Statistics Details or System Parameters window that contains this counter. The counter is then highlighted in green.

- **The Data Views page** shows the performance graphs for the selected information level. Performance graphs show Statistics information in graphical format. You create these performance graphs as data views in the System Health window.
and make them available in the System Overview window. When you click and move the cursor over a data view, the values for the counters that are represented by the data view are shown.

To open the pane or page of the Statistics Details that contains the counters in the data view, right-click the data view and then select **Show in Statistics Details**. To open the **System Health** window, in which you created the data view, right-click the data view and then select **Show in System Health**.

- **The Exceptions page** shows the last 10 periodic exceptions and the last 10 event exceptions for the selected information level.

To view more details on an event exception or a periodic exception, do one of the following:
- Click the exception. The exception details are shown at the bottom of the page.
- Double-click the exception. The appropriate Details window opens.
- Delete link removes the entry from the table.
- New exceptions are shown in red. Exceptions that you have double-clicked to display details are shown in grey.

The toolbar buttons at the top of the window take you directly to the monitoring functions.

Specific icons and colors indicate whether the value of a counter falls below or above a warning or problem threshold. Event exceptions are also indicated by an icon. You are only informed of a warning or problem if the warning or problem threshold is active and if you activated the threshold set that contains this warning or problem threshold. For more information, refer to “**Processing periodic exceptions**” on page 2539.

The data in the System Overview window is refreshed at the rate that you specify for a DB2 system.

**Defining the DB2 systems that must be monitored:**

To monitor a DB2 subsystem or DB2 Connect gateway, you must enable Performance Expert Client to access the performance data of this DB2 system which is described in the following sections.

**Note:** “**Changing the properties of a DB2 subsystem**” on page 2503 and “**Changing the properties of a DB2 Connect gateway**” on page 2504 show how to change the properties of a DB2 system.

**Defining a DB2 subsystem:**

Each OMEGAMON Collector monitors the DB2 subsystem on which it is installed. The OMEGAMON Collector collects the performance data of the subsystem and stores it in its DB2PM database.

To monitor a DB2 subsystem from Performance Expert Client, you must establish a connection between Performance Expert Client and the OMEGAMON Collector installed on the DB2 subsystem so that Performance Expert Client can access the performance data of this subsystem. You do this by defining the DB2 subsystem:

1. On the System Overview window, click **Monitor > New DB2 System**.
   
   The New DB2 System wizard is displayed.

2. On the Object tab, click **DB2 on z/OS, OS/390 systems**, and then click **Next**.
3. On the Data Collector tab, specify the connection to the DB2 subsystem on which OMEGAMON Collector is installed:

   **Host**  The MVS host name.

   **Port**  Specify the port number to which the Performance Expert Client can connect when communicating with the OMEGAMON Collector. The port number specifies the TCP/IP port on which the server listens for incoming sessions of Performance Expert Client for the specified DB2 subsystem.

   If you do not know this information, contact your database administrator (DBA).

4. Click Next.

5. On the DB2 Subsystem tab, do one of the following:
   - Click **Retrieve** to use the DB2 subsystem information defined on the host. The Logon window is displayed.
   - In the **User ID** field, type your MVS host user ID. In the **Password** field, type your password. Then click **OK**.

   The DB2 Subsystem page of the New DB2 System window is displayed. For the **Name** field, OMEGAMON for Db2 PE supplies the same value as for the **Database alias** field. Ensure that the name is unique throughout Performance Expert Client.

   - Type the values for the following fields:
     - **Name**  Type a name for the DB2 subsystem that is unique throughout all DB2 subsystems. If you clicked Retrieve, this field shows the same value as the Database alias field. Ensure that this value is unique throughout Performance Expert Client.
     - **Database alias**  Type the alias of the DB2 subsystem location. If you clicked Retrieve, this field shows the alias of the DB2 subsystem location as defined on the host. The specified alias will appear in the folders pane of the System Overview window.
     - **MVS system**  The name of the MVS system.
     - **Data Sharing Group**  If the DB2 subsystem is a member of a data sharing group, type the group name here.
     - **Data Sharing Member**  If the DB2 subsystem is a member of a data sharing group, type the member name here.
     - **Description**  Use this field for a description of the DB2 subsystem. This field is optional.
     - **Local DB alias**  If you want to use Query Workload Tuner, type the local database alias of the DB2 subsystem.

6. Click Next.

7. On the Performance Warehouse tab, you can associate a Performance Warehouse system with the DB2 subsystem you are defining. You must specify a Performance Warehouse system if you want to create SQL activity traces.
In the **Database alias** field, type the alias of the Performance Warehouse database that is maintained by the OMEGAMON Collector that monitors this DB2 subsystem. This is the database alias that you specified when cataloging the DB2PM database of the OMEGAMON Collector by using the Configuration Assistant of DB2.

**Related reading:** For further information about cataloging the DB2PM database, see [Configuration and Customization](#).

8. Click **Next**.

9. On the DSM Information tab, you specify the settings for the Data Server Manager (DSM) Server:

   **Protocol**
   - The transfer protocol to be used for the Data Server Manager (DSM) Server. This can be HTTP or HTTPS.

   **DSM Server**
   - Shows the host name of the DSM Server. When the Protocol field has been set to HTTPS, this value should be matched to the host name specified in the public key stored in TrustStore.

   **DSM Port**
   - The port number for the Data Server Manager.

   **TrustStore**
   - The path to the TrustStore file. TrustStore should have the public key for the host name in the DSM Server field. If the Protocol is HTTP, this field is greyed out.

   **DSM user**
   - The user ID for logging into DSM.

   **DSM user password**
   - The user password for logging into DSM.

   **DSM connection**
   - The profile name for the monitored subsystem. For example, VB6A_RS29. When the SSL Secured checkbox is checked, this profile name is the Database connection name in the DSM Database Connections, and this profile should have SSL connectivity as JDBC security.

   **SSL Secured**
   - This checkbox enables SSL Secured connections. Note: there must be a predefined DSM connection in order to use SSL.

   **JDBC URL**
   - The URL for the monitored Db2 subsystem. If the SSL Secured box is checked, this field is greyed out.

   **Explain SQLID**
   - An optional field that tells the tuning service to use the Explain tables pertaining to a specific SQLID. If this field is blank, the PE Client logon user ID will be used as the Explain SQLID.

10. Click **Finish**.

    The DB2 subsystem is shown in the **System Overview** window under the z/OS folder.
Defining a DB2 Connect gateway:

If an OMEGAMON Collector is registered for a Performance Expert Agent for DB2 Connect Monitoring, it receives information about the DB2 Connect server that is installed on the same system as Performance Expert Agent for DB2 Connect Monitoring. The DB2 Connect server serves as DB2 Connect gateway. The information is stored in the DB2PM database of the OMEGAMON Collector.

To monitor a DB2 Connect gateway from Performance Expert Client, you must establish a connection between Performance Expert Client and the OMEGAMON Collector collecting the information about the activities of a DB2 Connect server that serves as DB2 Connect gateway. You do this by defining the DB2 Connect gateway:

   The New DB2 System wizard is displayed.

2. On the Object page, click DB2 Connect/Gateways and then click Next.

3. On the DB2 Connect/Gateways page, do the following:
   a. From the DB2 system alias list, select the DB2 subsystem monitored by the OMEGAMON Collector that receives data from one or more Performance Expert Agents for DB2 Connect Monitoring.
   b. Click Retrieve to retrieve the names of all DB2 Connect gateways with Performance Expert Agents for DB2 Connect Monitoring that send data to the selected OMEGAMON Collector.
      The Logon window is displayed.
   c. In the User ID field, type your user ID. In the Password field, type your password. Then click OK.
      The DB2 Connect/Gateways page of the New DB2 System window is displayed. The DB2 Connect gateway name consists of the following parts: the IP address, the workstation name, and the name of the DB2 subsystem containing Performance Expert Agent for DB2 Connect Monitoring. The fields under Gateway Information are shown.
   d. Select a DB2 Connect gateway name.
      This name is also displayed in the Gateway alias field.
   e. Optionally you can specify another name in the Gateway alias field that is unique throughout Performance Expert Client. This name is shown in the folders pane of the System Overview window.
   f. Optionally you can specify a description for the selected DB2 Connect gateway.

4. Click Finish to return to the System Overview window.
   The name of the DB2 Connect gateway is displayed in the System Overview window under the DB2 Connect/Gateways folder.

Changing the properties of a DB2 subsystem:

This topic describes how to change the properties of a DB2 subsystem.

To change the properties of a DB2 subsystem:

1. Log off from the OMEGAMON Collector that monitors this DB2 subsystem. Refer to “Logging off from DB2 systems” on page 2507 for more information.

2. Click Selected > Properties.
   The DB2 System Properties window is displayed.
You can define your changes on the various pages.

Changing the properties of a DB2 Connect gateway:

This topic describes how to change the properties of a DB2 Connect gateway.

To change the properties of a DB2 Connect gateway:

1. Log off from the OMEGAMON Collector that receives information from this DB2 Connect gateway. Refer to “Logging off from DB2 systems” on page 2507 for more information.
2. Click Selected > Properties.
   The DB2 System Properties window is displayed.

On the DB2 Connect/Gateways page, you can change the Gateway alias and Description fields.

Organizing the DB2 systems:

When you specify or import a new DB2 subsystem or DB2 Connect gateway for monitoring from Performance Expert Client, this DB2 system is added to the corresponding folder of the System Overview window. Within these folders, the DB2 systems are listed in alphabetical order. You can structure and sort the DB2 systems according to your needs using the My Shortcuts folder.

You can copy one DB2 system and paste it as a shortcut to the My Shortcuts folder. In this folder, you can create a hierarchical structure of subfolders and copy the shortcuts to one or more subfolders.

You can change a DB2 system or shortcut in one of the following ways:

- Rename a DB2 system and thus all of its shortcuts. To do this, you must use the DB2 System Properties window (see “Changing the properties of a DB2 subsystem” on page 2503 and “Changing the properties of a DB2 Connect gateway”).
- Delete a DB2 system and thus all of its shortcuts: click the DB2 system that you want to delete in the All Subsystems, All Data Sharing Group, or DB2 Connect Gateways folder and then click Selected > Delete.
- Remove a shortcut from a folder: click the shortcut in the appropriate folder and then click Selected > Delete to delete only this shortcut.

Specifying global settings:

Click Monitor > Configuration to specify preferences for global settings that are used throughout OMEGAMON for Db2 PE, such as your Web browser of choice, diagnostics settings, and accessibility settings. The Configuration window is displayed.

- On the Preferences page, you can:
  - Specify the location of your Web browser.
  - Permanently save your logon passwords for all DB2 systems.
  - Reactivate the display of message DGOK3638 (Monitor switches are not set) if you suppressed this message.
- On the Diagnostics page, you can specify email settings for sending diagnostics reports to IBM support.
- On the Accessibility page, you can specify high-contrast settings for your screen.
Logging on to DB2 systems:

To monitor a DB2 system, you must log on to the OMEGAMON Collector that collects the performance data for this DB2 system.

If you use the same password for several OMEGAMON Collectors, you can log on to them at once. During such a multiple logon, you can start monitoring functions.

Logging on to one DB2 subsystem or DB2 Connect gateway:

You log on to one DB2 subsystem or DB2 Connect gateway by logging on to the OMEGAMON Collector that collects the performance data for this DB2 system.

To log on to one DB2 subsystem or DB2 Connect gateway:
1. In the System Overview window, click the DB2 system and then click **Selected > Logon**.
   The Logon window is displayed.
2. In the **User ID** field, type your MVS host user ID.
3. In the **Password** field, type your password.
4. You can type your TSO group ID in the **Group ID** field. This is optional.
5. Click **OK**.

Logging on to several DB2 subsystems:

You log on to several DB2 subsystems at once by logging on to the OMEGAMON Collectors that collect the performance data for these DB2 subsystems and that are accessible with the same password.

To log on to several DB2 subsystems at once:
1. In the System Overview window, click **Monitor > Multiple Logon**.
   The Multiple Logon window is displayed.
2. Select the DB2 subsystems to which you want to log on. You can access the OMEGAMON Collector of these DB2 subsystems with the same password. You can also select the monitoring functions that you want to start.
3. Click **OK**. The Logon window is displayed.
4. Fill in the fields as described under “Logging on to one DB2 subsystem or DB2 Connect gateway” and click **OK**.

The Log window is opened telling you whether your logon requests were successful. If you selected one or more monitoring functions, the appropriate windows are also opened.

Starting several monitoring functions in one or more DB2 subsystems:

You can start several monitoring functions in one or more DB2 subsystems to which you are logged on.

To start several monitoring functions in one or more DB2 subsystems:
1. In the System Overview window, click **Monitor > Multiple Launch**.
   The Multiple Launch window is displayed.
2. Select the DB2 subsystems and the monitoring functions that you want to start and click **OK**.
The Log window is opened telling you whether your launch requests were successful. In addition, the appropriate monitoring windows are displayed.

**Starting a monitoring function from the DB2 Control Center:**

When you are working with DB2 you might want to start a specific performance-monitoring function from DB2. You can do this using the DB2 Control Center.

The DB2 system for which you want to view the performance data must have already been defined for monitoring from Performance Expert Client (see "Defining the DB2 systems that must be monitored" on page 2500). However, Performance Expert Client need not be open when you select the monitoring function from the Control Center.

To start a monitoring function from the Control Center, do the following:

1. In the folders pane, expand the system folder and right-click the DB2 subsystem for which you want to view performance data. If you are not connected to the selected DB2 subsystem, you are prompted to log on. You can also select **DB2 Performance Expert** to open a submenu containing the monitoring functions available for this DB2 subsystem.
2. Select the monitoring function you want to work with.
3. If the DB2 subsystem location alias of a DB2 subsystem is not found, a window is opened where you can select the OMEGAMON Collector monitoring this DB2 subsystem.

If OMEGAMON Collector is not already open, it is started. You can then view the requested performance data for the selected DB2 subsystem in a window.

**Issuing DB2 commands:**

You can issue any DB2 command for which you have authority from Performance Expert Client, except –START DB2. This command can be issued only from an MVS terminal.

To issue a DB2 command:

1. You can select one of the following ways:
   - In the System Overview window, select the DB2 subsystem in the folders pane and then click the **DB2 Commands** toolbar button ( ).
   - You can also use the menu bar or pop-up menu: click the DB2 subsystem in the folders pane, then click **Selected > Monitor > DB2 Commands** on the menu bar or **Monitor > DB2 Commands** on the pop-up menu.

   If you are not connected to the selected DB2 subsystem, you are prompted to log on.

   The DB2 Commands window is displayed.

2. In the **Command input** field, type your command or click the arrow to select a previously issued command from the list.
3. Click **Send** to send the command to your DB2 subsystem.

The command is added to the **Command input** list. The DB2 response is displayed in the **DB2 response** box.
To remove the DB2 response, right-click the **DB2 response is** box and then click **Clear**.

**Getting help:**

You can display help for all elements in a window or wizard and for the windows and wizards themselves.

To get help on:

- A window or wizard, click the **Help** button or toolbar button ( ) or **Help > General Help**.
- A pane of a window, click the name of the pane in the folders pane and then press F1.
- A tabbed page of a window, click the tab and then press F1.
- A toolbar button, move your mouse pointer over this button.
- A field in a window or wizard, click in the field and then press F1 or display help for the window or wizard (general help) and click **Field help**. Field help also covers the buttons displayed between and next to the fields.
- A command button at the bottom of a window or wizard, move the input focus to this button and press F1 or display help for the window or wizard (general help) and click **Button help**.
- A table in a window or pane, click in the table and then press F1.

**Logging off from DB2 systems:**

To log off from a DB2 subsystem or DB2 Connect gateway you must log off from the OMEGAMON Collector that collects the performance data for this DB2 system.

In the System Overview window, click the DB2 system and then click **Selected > Logoff**. If one or more monitoring activities are still running on your DB2 system, you are asked whether you want to continue or stop them.

The exceptions that occurred for the DB2 system from which you logged off are removed from the 100 Most Recent Exceptions pane of the System Overview window even if exception processing continues running. After your next logon, the exceptions that were collected during your previous logon and logoff are shown again.

**Deleting a DB2 system:**

If you do not want to monitor a DB2 subsystem or DB2 Connect gateway from Performance Expert Client anymore, you can delete it.

To delete a DB2 system:

1. If you are still logged on to the OMEGAMON Collector that collects the performance data of the DB2 system that you want to delete, you must log off. See [[Logging off from DB2 systems]](2507) for more information.
2. In the System Overview window, click the DB2 system that you want to delete and then click **Selected > Delete**.
   A message appears asking you whether you also want to delete the DB2 catalog entries for this DB2 system. If you decide to leave the catalog entries
and a Performance Warehouse system is associated with this DB2 system, you can continue working with this Performance Warehouse.

3. Make your selection, then click Yes.

The DB2 system and all its shortcuts are removed from the folders pane of the System Overview window.

**Leaving Performance Expert Client:**

To leave Performance Expert Client, click Monitor > Exit.

A message or a window appears:

- If you have already logged off from all DB2 systems or stopped all monitoring activities on the systems to which you are still logged on, a message is displayed asking you whether you want to leave Performance Expert Client. Monitoring activities that you did not stop when logging off from a DB2 system continue running.

- If you are still logged on to DB2 systems on which monitoring activities are running, a window is displayed asking you whether you want to stop or continue all activities.

**Online monitoring and reporting**

These topics describe how to monitor the performance of DB2 subsystems and DB2 Connect gateways and how to create reports and traces.

**Monitoring threads**

You can view the current and recent activity of all active threads connected to a DB2 subsystem. You can get an overview of all connected threads and detailed information about a specific thread. You can also view the SQL activity of a single thread and create traces on this activity.

This section describes how to get the overview and the detailed information, customize the displayed windows, and create SQL activity traces.

**Viewing all connected threads:**

You can display all active threads connected to a DB2 subsystem or a member of a data sharing group.

To do this, you can choose one of the following ways:

- In the System Overview window, select the DB2 subsystem or member of the data sharing group in the folders pane and then click the Thread Summary toolbar button ( ).

- You can also use the menu bar or pop-up menu: click the DB2 subsystem or member of the data sharing group in the folders pane, then click Selected > Monitor > Thread Summary on the menu bar or Monitor > Thread Summary on the pop-up menu.

If you are not connected to the selected DB2 subsystem, you are prompted to log on.
The Thread Summary window is displayed. It contains the key performance counters for all connected threads. If a thread has children, the number shown in the Parallel Threads column includes the parent thread.

To refresh the thread activity data, in the toolbar, select **Automatic** in the **Refresh** field. By default, values are updated every six seconds. To change the interval, click in the time field next to the **Refresh** field and overtype the value according to your requirements.

**Related information:**
- If the Thread Summary window lists too many threads, you can filter them. For more information refer to “Filtering threads” on page 2511.
- You can sort the threads in the window. For more information, see “Sorting threads” on page 2510.
- The Thread Summary window shows the key performance counters in a table. One or more columns might be hidden. For information about how to view hidden counters, to hide counters that you are not interested in, or to change the order of the columns, refer to “Customizing table columns” on page 2546.
- If you are monitoring a member of a data sharing group, refer to “Monitoring data sharing groups” on page 2542 for more information.
- If you are working in different time zones, refer to “Working in different time zones” on page 2547 for more information.

**Viewing details of a selected thread:**

You can get more details of a thread by double-clicking it in the Thread Summary window to open the Thread Details window.

The Overview pane of the Thread Details window shows the main counters of the selected thread. The folders pane lists additional counter categories. You can get more details on a counter category by clicking it in the folders pane.

If a thread has children, the children are listed on the Parallel Threads pane. You can get more details on a child by double-clicking it.

The folders pane of the Thread Details window lists the counter categories. The contents pane shows the counters for the selected counter category. You can get more details on a counter category by clicking it in the folders pane.

Some DB2 counters are also shown as percentages in bar charts, stacked to 100%. Each bar in the chart represents a snapshot and reflects several counters. The percentages of these counters are shown proportionately and accumulated to add up to 100%. Click the bar chart to see which counters are represented. You can increase or decrease the number of snapshots that are shown in a bar chart by using the plus (+) and minus (-) signs next to the x-axis of the chart.

For one or more DB2 counters in the Thread Details window an icon appears next to the counter affected if:
- You run periodic exception processing
- You specified a warning threshold, problem threshold, or both
- A counter value falls below or above a threshold

When you move your mouse pointer over such a counter, you see the timestamp of the exception. The icon disappears after the counter value falls below or above
the threshold or after periodic exception processing is stopped and you refresh the data in the window. No icon is shown for counters listed in a table.

On the SQL Statement pane, you see the text of the SQL statement that was recently performed by the thread. You can view the access plan for this statement in graphical format by clicking Explain. Refer to “Using Explain products to analyze and improve SQL statements” on page 2544 for more information. If the statement text is much longer than the space provided and, therefore, difficult to read, you can view it in another window. Click View Statement in New Window.

Related information:
• The Thread Details window shows part of its performance information in tables. In contents panes containing a table:
  – You can filter the entries listed. For more information refer to “Filtering threads” on page 2511.
  – One or more columns might be hidden. For information about how to view hidden counters, to hide counters that you are not interested in, or to change the order of the columns, refer to “Customizing table columns” on page 2546.
  – You can choose to view details on a table entry in another window or on a notebook page. For more information, refer to “Viewing details on a table entry in a contents pane” on page 2547.
• Performance counter values that are too long are truncated. For information about how to view the entire value, refer to “Viewing long performance counter values” on page 2547.
• If you are working in different time zones, refer to “Working in different time zones” on page 2547 for more information.

Sorting threads:

You can sort threads by a specific performance counter (simple sort) or by using several performance counters (hierarchical sort).

In windows that list threads, the entries are sorted by a performance counter (simple sort). By default, this is the leftmost column in the window. To change the order, click the name of another column.

In the Thread Summary window, you can create a specific sort hierarchy. You can select up to five performance counters as sort criteria; the first one selected has the highest sort criterion. You can sort the rows in ascending or descending order. You can also view them in a different order for each DB2 subsystem.

To sort the threads:
1. Click View > Sort.
   The Sort window is displayed.
2. In the Available columns box, click the column name to be the highest sort criterion and then click Add ( ).
   The selected column name is removed from the Available columns box and displayed in the Sort columns box.
   You can continue selecting additional sort criteria until you have reached the limit of five column names. Your selection is always hierarchical. This means, the column name you select first is the highest sort criterion, the one you select second is the second highest criterion, and so on. For example, if you select Plan as the highest sort key and there are several threads with the same Plan,
you might want to sort these threads by another column name, such as Elapsed Class 2, and would thus select Elapsed Class 2 as second sort key.

3. Within a sort criterion, the threads are, by default, sorted in ascending order. In the Sort columns box, click the column name for which you want to specify descending order and then click Descending to sort the threads in descending order.

4. You can use the Move Up and Move Down buttons to change the hierarchy of the sort criteria.

5. At any time during or after your selection, you can remove a sort criterion from your selection. In the Sort columns box, click the column name to be removed and then click Remove ( ). The selected column name is removed from the Sort columns box and displayed in the Available columns box at its previous position.

6. When you have finished specifying your sort criteria, click OK.

The Thread Summary window is displayed. The rows are sorted according to your specifications. The Sort ( ) icon is displayed in the right-hand corner of the status bar to show that your sort criteria are active. The current sort criteria remain valid for this DB2 subsystem until you change them again or disable them.

If you want to keep your sort criteria but temporarily disable them to view the default order, right-click the Sort ( ) icon and then click Disable. The Sort ( ) icon is dimmed and the threads are displayed in the default order.

To reactivate your sort criteria, right-click the dimmed Sort ( ) icon and then click Enable. The threads are sorted according to your specifications again.

Filtering threads:

You can filter threads so that only those meeting your specifications are displayed. This minimizes network traffic and can decrease response times considerably. For example, if you suspect that threads with a certain CPU Class 1 are causing problems, you can specify your filter to display only threads within CPU Class 1. You can define a different filter for each DB2 subsystem.

You start filtering on the Thread Summary window. If you have large amounts of data, you can also set filter criteria in the System Overview window.

To filter threads:

1. Click View > Filter/Qualify.
   The Filter/Qualify window is displayed.
2. On the Identifier Type/Status page, under Column name, click the column name for which you want to specify one or more values.
3. Type a value in the Value field. You can use a wildcard character (*) in the value. For example, if you want to cover all values that start with PM, you would specify PM*. Characters following the wildcard are ignored.
4. Click Add ( ).
   The selected column name is displayed in the Filter table, with its value and the include ( ) symbol.
   The include symbol means that all threads having the specified value for the selected column name are included in the list of threads.
5. At any time during or after your selection, you can change your criterion:

- You can change the include symbol to an exclude (.exclude) symbol for any previous specification in order to exclude threads having the specified value:
  
  Click the column name and then click **Exclude** under **Qualifier criteria**.

- To narrow the filter, you can select the same column name several times to specify more values. For example, you might want all threads starting with PM but exclude those starting with PMD. Up to 10 values are allowed for the same column name.

6. You can continue specifying additional filter criteria. All criteria and values that you specify are evaluated in the sequence in which you specify them and are combined. This means, the more criteria you specify the narrower the filter and the fewer the threads that are displayed.

7. At any time during or after your selection, you can remove filter criteria from the table.

   In the **Filter** table, click the criterion to be removed and then **Remove** ( ). If you remove all criteria of a column name, this column name is removed from the **Filter** table.

8. Click the **Additional Qualification** tab to specify the thread status and type.

   On the Additional Qualification page:

   - By default, all check boxes are selected, except for the **Exclude threads with no work in process** check box.
   
   - If the **In DB2** check box is selected, all items in the list are automatically selected. You can deselect the ones that you do not need.
   
   - If the **In** check box is selected, the field next to this check box and the check box of **Exclude threads with no work in process** can be selected. By default, **Application** is selected and the check box of **Exclude threads with no work in process** is not selected.

9. Click **OK**.

   The Thread Summary window is displayed, which is refreshed according to your specifications. The **Filter/Qualify** ( ) icon is displayed in the right-hand corner of the status bar to show that your filter is active. The current filter remains valid until you change it again or disable it.

   If you want to keep your filter but temporarily view the threads unfiltered, right-click the **Filter** ( ) icon and then click **Disable**. The **Filter** ( ) icon is dimmed and the data is displayed in the default order.

   To make your filter active again, right-click the dimmed **Filter** ( ) icon and then click **Enable**.

   The window is refreshed according to your specifications.

**Canceling threads:**

If you have the appropriate DB2 authority, you can cancel threads.

You can do this from the Thread Summary or the Thread Details window:

1. Do one of the following:
   
   - In the Thread Summary window, click the thread you want to cancel and then click **Selected > Cancel Thread**.
• In the Thread Details window, click **Thread Details > Cancel Thread**.

2. Click **Yes** to confirm the cancelation.

Creating and viewing SQL activity traces:

If you have MONITOR1 and MONITOR2 privileges, you can create traces on the DB2 system-wide SQL activity that takes place during the processing of a DB2 application. You can create such traces only if you are not viewing history data.

The trace results are displayed in a Web browser window. To ensure the correct display, use Netscape Communicator 7.0 or later, or Microsoft Internet Explorer 5.50 or later.

A trace can only be created if:

• The Performance Warehouse server is running.

• A Performance Warehouse system has been associated with the monitored DB2 subsystem. Verify that the Performance Warehouse page of the DB2 System Properties window contains the alias of the Performance Warehouse database maintained by the OMEGAMON Collector that is monitoring the DB2 subsystem. This alias is equal to the database alias that you specified when cataloging the DB2PM database by using the Configuration Assistant of DB2.

For information about how to display the DB2 System Properties window, refer to the "Defining a DB2 subsystem" on page 2501.

To create a trace, start in the Thread Summary or Thread Details window. When you select a thread, all threads with the same LUWID as the selected one, are included in the trace.

1. Do one of the following:

   • In the Thread Summary window, select the thread for which you want to create the trace and then click **Selected > SQL Activity Tracing**.

   • In the Thread Details window, click **Thread Details > SQL Activity Tracing**.

   The SQL Activity Report Generation window is displayed.

   Here, you can specify the criteria for the data collection to stop and the SQL activity events you want to see in the trace report.

2. In the **Elapsed time** and **Number of records collected** fields, you can leave the default specifications or specify both or only one of the criteria.

   If you specify both criteria, data collection stops as soon as the first criterion is met. For example, if you specify an elapsed time of five minutes (00:05:00) and a number of records of 5 and this number is reached after a minute, the trace stops and disregards the remaining four minutes.

3. Optionally, select the SQL statements with a negative return code and the workload blocks that are shown in trace report.

4. Click **OK**.

   If the message **Data set not cataloged** is displayed, set the OMEGAMON Collector startup parameter USERAUTHORIZATION to YES.

   **Related reading**: For more information about how to set this parameter, refer to the Configuration and Customization.

The collection of the performance data and the generation of the SQL activity trace are started and the SQL Activity Tracing window is displayed.

When the trace report is complete and the data sets are downloaded, the results are shown in a Web browser window.
The SQL activity trace results are downloaded as temporary files and are deleted when you leave OMEGAMON for Db2 PE. To save these files, use the save functions provided by your Web browser.

**Resolving locking conflicts**

When several threads try to access the same data at the same time, DB2 uses locks to control these concurrent attempts. A lock associates a DB2 resource with an application process in a way that affects how threads can access this resource.

You can view the threads involved in a locking situation where at least one thread is suspended. You can view the threads of a single DB2 subsystem or an entire data sharing group.

This section describes how to display the threads independently of the associated resource and to view only the threads associated with a specific resource.

**Related information:**

- Some windows show the key performance counters in a table. One or more columns might be hidden. For information about how to view hidden counters, to hide counters that you are not interested in, or to change the order of the columns, refer to “Customizing table columns” on page 2546.

**Viewing all threads involved in a locking situation:**

This topic describes how to view all threads for an entire DB2 subsystem or data sharing group.

To view all threads for an entire DB2 subsystem or data sharing group you can do one of the following:

- In the System Overview window, select the DB2 subsystem in the folders pane and then click the **Threads in Lock Conflicts** toolbar button ( ).
- You can also use the menu bar or pop-up menu: click the DB2 subsystem in the folders pane, then click **Selected > Monitor > Threads in Lock Conflicts** on the menu bar or **Monitor > Threads in Lock Conflicts** on the pop-up menu.

If you are not connected to the selected DB2 subsystem, you are prompted to log on.

The Threads in Lock Conflicts window shows all threads that are involved in a locking situation, independent of the resource with which they are associated. They are grouped by the thread that holds the lock (Holder) and the threads that wait for the resource to be freed (Waiter).

This window shows all threads involved in a locking situation, independent of the resource that they are associated with. They are grouped by the thread holding the lock (Holder) and the threads waiting for the resource to be freed (Waiter).

To view more details on a thread, double-click the thread, or click the thread and then click **Selected > Thread Details**.

**Related information:**

- If you are monitoring a member of a data sharing group, refer to “Monitoring data sharing groups” on page 2542 for more information.
Viewing the threads associated with a specific resource:

This topic describes how to view the threads associated with a specific resource.

To view the threads associated with a specific resource:

1. Open the Locking Conflicts window in one of the following ways:
   • In the System Overview window, select the DB2 subsystem in the folders pane and then click the Locking Conflicts toolbar button ( ).
   • You can also use the menu bar or pop-up menu: click the DB2 subsystem in the folders pane, then click Selected > Monitor > Locking Conflicts on the menu bar or Monitor > Locking Conflicts on the pop-up menu.

   This window lists all resources involved in a locking situation.

2. In the Locking Conflicts window, double-click the resource, or click the resource for which you want to view the associated threads and then click Selected > Threads in Lock Conflicts.

   The Threads in Lock Conflicts window for the selected resource type is displayed.

   This window contains detailed information about the selected resource and a list of the associated threads. The resource information changes with the selected resource. The threads are grouped by the thread holding the lock (Holder) and the threads waiting for the resource to be freed (Waiter).

3. To view more details on a thread, double-click the thread, or click the thread and then click Selected > Thread Details.

Viewing DB2 Statistics

You can view important Statistics and ratios of a DB2 subsystem in various levels of detail and processing modes.

This section explains some Statistics terms and the processing modes. It also describes how to get the Statistics information and how to refresh buffer pool Statistics.

Statistics values:

Most of the DB2 Statistics values accumulate while DB2 is active. When DB2 is started, accumulation begins and continues until DB2 is stopped. There are, however, certain fields that are not cumulative.

Some are reported as snapshot values (gauge values in a workgroup environment), and some are reported as high-water mark values. A snapshot value is a current value. It is updated each time the Statistics values are displayed. A high-water mark is the highest value reached since startup. It is updated each time the Statistics values are displayed.
The values in fields other than snapshot or high-water mark fields are *accumulated* or *delta values*. They are calculated by the Statistics display and derived differently for each of the Statistics processing modes.

**Processing modes:**

You can display the Statistics values in different modes: regular, interval, and delta.

*Interval* and *delta* modes determine the time period over which delta values are accumulated.

In all modes, Statistics values are updated each time a refresh occurs.

**Regular processing:**

Regular processing is the default processing mode whenever you open a Statistics window.

Figure 172 shows that the values displayed are accumulated from the start of DB2.

No calculations are performed on the Statistics values in this mode.

**Interval processing:**

The interval mode allows you to isolate DB2 Statistics activity beginning at a specific time.
Figure 173 shows the interval processing mode.

Figure 173. Interval processing

In this mode, all Statistics windows show the delta values accumulated since the start of interval processing. In Figure 173, interval processing was requested when the snapshot showed a value of 9. In this case, accumulation is set to zero and all future snapshots are accumulated from this point. When you stop interval processing, all following snapshots are shown in regular mode again, that is, as accumulated since the start of DB2.

Delta processing:

Delta processing allows you to isolate DB2 Statistics activity between two snapshot refreshes.

Figure 174 shows delta processing. It can help you discover a problem when running exception processing.

Figure 174. Delta processing

In this mode, all Statistics windows show the delta between the values of two consecutive snapshots. This means, accumulation starts at zero after each snapshot. When you stop delta processing, all following snapshots are shown in regular mode again, that is, as accumulated since the start of DB2.

Viewing Statistics information:

This topic describes how to view Statistics information for a DB2 subsystem.

To view Statistics information for a DB2 subsystem:

- In the System Overview window, select the DB2 subsystem in the folders pane and then click the Statistics Details toolbar button ( ).

- You can also use the menu bar or pop-up menu: click the DB2 subsystem in the folders pane, then click Selected > Monitor > Statistics Details on the menu bar or Monitor > Statistics Details on the pop-up menu.

If you are not connected to the selected DB2 subsystem, you are prompted to log on.

The Statistics Details window is displayed.
The folders pane of the Statistics Details window lists the counter categories. The contents pane shows the counters for the selected counter category. You can get more details on a counter category by clicking it in the folders pane.

Some DB2 counters are also shown as percentages in bar charts, stacked to 100%. Each bar in the chart represents a snapshot and reflects several counters. The percentages of these counters are shown proportionately and accumulated to add up to 100%. Click the bar chart to see which counters are represented. You can increase or decrease the number of snapshots that are shown in a bar chart by using the plus (+) and minus (-) signs next to the x-axis of the chart.

An icon appears next to the counter affected if:
• You run periodic exception processing.
• You specified a warning threshold, problem threshold, or both for one or more DB2 counters in the Statistics Details window.
• A counter value falls below or above a threshold.

When you move your mouse pointer over such a counter, you see the timestamp of the exception. The icon disappears after the counter value falls below or above the threshold or after periodic exception processing is stopped and you refresh the data in the window. No icon is shown for counters listed in a table.

On the SQL Statement pane, you see the text of the SQL statement that was recently performed by the thread. You can view the access plan for this statement in graphical format by clicking Explain. Refer to “Using Explain products to analyze and improve SQL statements” on page 2544 for more information. If the statement text is much longer than the space provided and, therefore, difficult to read, you can view it in another window. Click View Statement in New Window.

Related information:
• The Statistics Details window shows part of its performance information in tables. In contents panes containing a table:
  – One or more columns might be hidden. For information about how to view hidden counters, to hide counters that you are not interested in, or to change the order of the columns, refer to “Customizing table columns” on page 2546.
  – You can choose to view details on a table entry in another window or on a notebook page. For more information, refer to “Viewing details on a table entry in a contents pane” on page 2547.
• Performance counter values that are too long are truncated. For information about how to view the entire value, refer to “Viewing long performance counter values” on page 2547.
• If you are monitoring a member of a data sharing group, refer to “Monitoring data sharing groups” on page 2542 for more information.
• If the OMEGAMON Collector and Performance Expert Client are in different time zones, refer to “Working in different time zones” on page 2547 for more information.

Viewing the SQL statements in the dynamic SQL cache:

This topic describes how to view the SQL statements in the dynamic SQL cache.

You can view detailed information about the SQL statements in the dynamic SQL cache as follows:
1. In the folders pane of the Statistics Details window, click **Dynamic SQL Statements** and then click **SQL Statements**. The SQL Statements pane is displayed without any entries.

2. To display the SQL statements that are in the cache:
   a. Click the **Filter** toolbar button to check the filter values and set the appropriate values for your subsystem. For more information about defining filter criteria, see step 5.
   b. Select the **Receive Statement Cache information** check box. The list is refreshed whenever you click **View > Refresh** or when an automatic refresh occurs.

3. The SQL statements in the cache might be shown with the value 0 for all counters because no trace data has been collected yet. To get all values for the counters, click the **Start** toolbar button to start the collection of the specified counter values.

   After the next refresh, the counter values of all SQL statements displayed reflect the values collected since the trace started.

   Trace data collection continues until you click the **Stop** toolbar button. Because tracing can increase the overhead, stop tracing when you have finished working with the SQL statements. You can only stop the traces that you started.

4. To view the text of an SQL statement, double-click the statement. The SQL Statements text page opens, where text stands for the first couple of characters of the statement text.

   **Note:** If the text is much longer than the space provided and therefore difficult to read, click **View Statement in New Window** to view the text in another window.

   This page contains the text and the counters of the SQL statement. If you have an Explain product installed and the statement contains a SELECT, UPDATE, INSERT, DELETE, or VALUES clause, you can click **Explain** to view the access path. For more information about Explain products, refer to “Using Explain products to analyze and improve SQL statements” on page 2544.

5. To reduce the list of SQL statements:
   a. Return to the SQL Statements pane of the Statistics Details window.
   b. Click the **Filter** toolbar button.
      The Dynamic Statement Cache Filter Criteria window is displayed.
   c. Choose your filter method:
      * If you want to list only those SQL statements where a specific counter exceeds a certain value:
         Click **Statements with value higher than**, specify a value, and then select one of the counters listed under Fields.
      * If you want to display the SQL statements sorted by the values of a counter in descending order:
         Click **Statements with highest value** and then select one of the counters listed under Fields.

   This option is useful, for example, if there are more SQL statements in the cache than can be displayed (up to 1 MB). For example, if there are 5 MB of SQL statements in the cache and you are mainly interested in those with high Getpage counter values, ensure that these SQL statements are displayed by using this option.
d. Click **OK** to return to the SQL Statements pane.

The list of SQL statements is changed according to your filter criteria. The filter remains valid until you change it.

**Restriction:** If you are viewing history data, you cannot define a filter. For more information about history data, refer to “Viewing history data” on page 2543.

6. To change the order of the table columns shown or hide the table columns that you are not interested in, click the **Customize Columns** (工作任务栏按钮) toolbar button. The Customize Columns window is displayed.

For further information about how to customize columns, see “Customizing table columns” on page 2546.

**Refreshing buffer pool Statistics:**

The contents of a window or contents pane is normally refreshed when an automatic refresh occurs or when you click **View > Refresh**.

This does not apply, however, to buffer pool Statistics at dataset level.

Buffer pool Statistics at dataset level are received using IFCID 199. If I/O activity has taken place (at least one I/O per second), DB2 updates the list of buffer pool data sets every five minutes or according to the time interval set in the Online data set Statistics time interval (minutes) parameter in the Tracing Parameters (DSNTIPN) pane of the System Parameters window.

To view the update:
1. On the Data Sets pane of the Buffer Management page of the Statistics Details window, select the **Receive data set information** check box.
2. Click **View > Refresh** when the time interval has elapsed.

**Viewing system health**

Statistics information for a DB2 subsystem can be viewed as numerical values and percentages on various Statistics Details windows or as snapshots in graphical format.

“Viewing DB2 Statistics” on page 2515 explains the Statistics Details windows.

To view Statistics information in graphical format you can do one of the following:
- In the System Overview window, select the DB2 subsystem in the folders pane and then click the **System Health** toolbar button (工具栏按钮).
- You can also use the menu bar or pop-up menu: click the DB2 subsystem in the folders pane, then click **Selected > Monitor > System Health** on the menu bar or **Monitor > System Health** on the pop-up menu.

If you are not connected to the selected DB2 subsystem, you are prompted to log on.

The System Health window is displayed, split into the following panes:
- The folders pane on the left lists one or more of the following data groups:
  - The System Overview data group, which contains links to data views in data groups that you have defined. These linked data views are displayed as performance graphs on the Data Views page of the System Overview
window. They are refreshed at the refresh rate that you specified for the DB2 subsystem in the System Overview window.

- Any data groups and data views that you have defined.

- The contents pane on the right displays the contents of the selected data group.

You can arrange one or more counter categories, such as Hit ratios or Physical locks (P-locks), as data views in a data group. Each data view consists of a graphical representation, a legend, and a report of the counters selected for the counter category. Each data group can contain a different selection and arrangement of data views.

This section uses scenarios to help you understand and get started with system health. In addition, it describes the tasks that you are most likely to perform in system health.

**Related information:**

- If you are monitoring a member of a data sharing group, refer to “Monitoring data sharing groups” on page 2542 for more information.
- If you are working in different time zones, refer to “Working in different time zones” on page 2547 for more information.

**Getting started:**

The scenarios in this section are based on a data view that you create with the following steps. The options that you select and any alternatives are explained later in the section.

Perform the following steps:

1. Define a data group in which you will place the data view:
   a. Click **Data Groups** and then click **Selected > New**. The New Data Group window is displayed.
   b. Type My Locking in the **New name** field and then click **OK**.
      The new group appears in the folders pane of the System Health window.

2. Click **Data views** and then click **Selected > New** to define a data view. The New Data View wizard appears.

3. On the Category page:
   - In the **Data view name** field, type Locking as the name for this data view.
   - In the **Data view category** list, select Locking. The categories in the list correspond to the Statistics categories for counters and data elements.
   - Click **Next** to display the Counter page.

4. On the Counters page:
   - In the **Counter selection** list, select the Lock requests and Unlock requests check boxes to specify the counters for the data view.
   - Leave **Not stacked** selected as type of counter display. The counters are then displayed independently of one another as separate bars in a bar chart or lines in a line chart.
   - Click **Next** to display the Thresholds page.

5. On the Thresholds page:
   - Next to **Static scale**, change the default 1000 units to 30 and select **Second**.
   - Click **Next** to display the Graphics page.
6. On the Graphics page, leave the default selections and values. Note that Bar chart is selected to display the counters as bars.

Click Finish.

When you work with System Health for the first time, data is refreshed every 6 seconds and the new My Locking data view looks similar to this one:

![System Health window containing new data group and data view](image)

**Figure 175. System Health window containing new data group and data view**

**Scenario 1: Viewing current system health:**

The following scenario shows how to collect and display snapshots and helps you understand the chart and the values displayed. As an example, it uses the data view that you previously created.

Perform the following steps:

1. To start the collection and display of snapshots, in the toolbar, select **Automatic** in the **Refresh** field.

2. To specify how often a snapshot is to be collected and shown in the data view: click in the time field next to the **Refresh** field and overtype the displayed time with 0:00:06, which is 6 seconds. Then press Enter.

The data in the data view is refreshed every 6 seconds, which is the minimum refresh time.

By default, the latest eight snapshots are displayed in a bar chart. When this number is exceeded, a scroll bar appears at the bottom of the chart for you to scroll through the snapshots collected since the start of the collection. By default, up to 100 snapshots are kept in memory and can be viewed. Any older
snapshots are stored in the history data set and can be viewed in history mode. See [“Scenario 2: Viewing past system health.”]

The background color of a snapshot alternates for you to see when a new snapshot starts. This is useful if you selected several counters for a data view and, therefore, a snapshot consists of several bars.

The y-axis of the chart ends slightly above unit 700 because the highest visible value of one of the counters is just under 700. The y-axis changes when the highest value of one of the counters increases or decreases.

The values shown in the chart represent the delta between two subsequent snapshots. For example, assume that each minute 30 lock and unlock requests are performed, which is one every two seconds. Then a delta value of 3 is shown for snapshots that are taken every 6 seconds. The delta is smaller if you decrease the refresh time and is higher if you increase the refresh time.

3. To see which counters are represented in the data view and in which colors, click Legend.

4. To view the values for the individual counters, you can do one of the following:
   • Click a snapshot in the data view, to view the values for a specific snapshot.
   • Click Report to get an overview of several snapshots.

The scale of a chart depends on the threshold that you set for the counters in the data view.

5. To change the threshold for the data view:
   a. Click Selected > Properties. The Properties window is displayed. Click the Thresholds tab.
      A threshold for a counter is specified as units per time interval. The Static scale field shows 30 units per second, which you specified when creating the data view. This means that the threshold is reached if a lock or an unlock request is performed 30 times per second.
   b. Change 30 to 60 and then click Finish.

The y-axis of the data view reflects the threshold change. Because the data is refreshed every 10 seconds, the threshold is reached if a lock or an unlock request is performed, 600 times during this period. Therefore, the red horizontal (threshold) line is now at unit 600 and the y-axis of the chart ends slightly above it.

**Scenario 2: Viewing past system health:**

If your system is not performing well and you want to know when this started, you are interested in snapshots that were taken earlier and are probably no longer displayed to you. The following scenario tells you how to view past system health using the data view that you created and helps you understand the chart and the values displayed.

For the purpose of this scenario, it is assumed that you have collected locking data for at least a couple of minutes and you selected a refresh time of 10 seconds and a threshold of 60 units per second.

Perform the following steps:

1. To start the display of past system health, in the toolbar, select History in the Data field.
   The history slider is activated and the Refresh field is disabled.
2. Move the slider to a time during which snapshots were collected and wait a couple of seconds to receive the data.

The chart has changed as follows:

- The chart shows the eight snapshots collected from the time that the slider indicates. The time of the first and last snapshots displayed is shown below the chart.
  Note that the collection of the current snapshot continues in the background. So when you leave history mode, the most recent snapshots are displayed.
- The scale of the y-axis, the place of the threshold line, and the size of the bars changed:
  When you view the current system health you can specify how often the snapshots are refreshed. History snapshots are, however, displayed at the interval at which the OMEGAMON Collector collects data, which is 60 seconds for the recording interval. Because the refresh rate is now 60 seconds (instead of the 10 seconds you previously specified), the y-axis of the chart now ends above 3500 and contains a (threshold) line at unit 3600 and the size of the bars is adjusted accordingly.

For more information about how to select history snapshots in different ways, see “Viewing history data” on page 2543.

The number of snapshots available is limited by the size of the history file on the host. If their number exceeds this size, the oldest snapshot is deleted. Your chart reflects this change and the timestamp to the lower left of the chart is adapted.

Scenario 3: Creating a data view:

Scenario 3 describes how to create a data view.

You can create a data view in one of the following ways:

- Create a data view from scratch as shown in “Getting started” on page 2521.
- Copy an existing data view and then change it according to your needs. You can also copy a data view that is delivered with OMEGAMON for Db2 PE and contained in the Default Group data group.
- Use the templates delivered with OMEGAMON for Db2 PE. To create a data view using a template click Data views under the data group that is to contain the new data view and then click Selected > Open Predefined Data View. The Open Predefined Data View window appears, which lists the templates that you can select.

Changing the properties of a data view:

This topic describes how to change the properties of a data view.

Most of your tasks in system health are changes to the system health chart. They are explained in the following sections using the data view you created in “Getting started” on page 2521. To change this data view:

Click the data view in the folders pane and then click Selected > Properties. The Properties window is displayed, which is similar to the New Data View wizard.
Changing the method for displaying the counters:

In many cases, it is useful to display the counters as lines instead of bars. Or, you might want to see the ratio between the counters.

OMEGAMON for Db2 PE provides the following chart types:
- "Non-stacked bar chart"
- "Non-stacked line chart"
- "Stacked bar chart" on page 2526
- "Stacked area chart" on page 2527
- "Stacked-to-100% bar chart" on page 2527

To view these charts, you must change your selections under **Type of counter display** on the Counters page of the Properties window and under **Chart type** on the Graphics page of this window.

If a data view contains counters represented by numeric values and counters expressed as percentages, the chart has two scales, one for the numeric values and one for the percentages.

**Non-stacked bar chart:**

This section describes the non-stacked bar chart.

A sample is shown in **Figure 176:**
- Characteristics and purpose:
  - The counters are displayed independently of one another as separate bars in a bar chart. They can be a mixture of numeric and percentage values. This chart type is useful if you want to know the absolute values of each counter displayed and specify thresholds for individual counters (see "Specifying and adjusting single thresholds" on page 2528).
- Selections on Counters and Graphics pages:
  - On the Counters page, select **Not stacked** as type of counter display.
  - On the Graphics page, select **Bar chart** as chart type.

![Figure 176. Non-stacked bar chart](image)

**Non-stacked line chart:**

This section describes the non-stacked line chart.

A sample is shown in **Figure 177 on page 2526**
• Characteristics and purpose:
The counters are displayed independently of one another as separate lines in a line chart. They can be a mixture of numeric and percentage values. This chart type is useful if you want to get an overview of the absolute values of each counter displayed over a larger time period. You can specify thresholds for individual counters (see “Specifying and adjusting single thresholds” on page 2528).

• Selections on Counters and Graphics pages:
  On the Counters page, select **Not stacked** as type of counter display.
  On the Graphics page, select **Line chart** as chart type.

Figure 177. Non-stacked line chart

Stacked bar chart:

This section describes the stacked bar chart.

A sample is shown in [Figure 178]

• Characteristics and purpose:
The counters are accumulated in a single bar. They can be numeric values or percentage values. This chart type is useful if you want to see the value that each snapshot adds up to.

• Selections on Counters and Graphics pages:
  On the Counters page, select **Stacked** as type of counter display.
  On the Graphics page, select **Bar chart** as chart type.

Figure 178. Stacked bar chart
Stacked area chart:

This section describes the stacked area chart.

A sample is shown in Figure 179:

- Characteristics and purpose:
  The counters are accumulated in an area. They can be numeric values or percentage values. This chart type is useful if you want to view, over a larger period, the value that each snapshot adds up to.

- Selections on Counters and Graphics pages:
  On the Counters page, select Stacked as type of counter display.
  On the Graphics page, select Area chart as chart type.

![Figure 179. Stacked area chart](image)

Stacked-to-100% bar chart:

This section describes the stacked-to-100% bar chart.

A sample is shown in Figure 180 on page 2528:

- Characteristics and purpose:
  The counters are shown proportionally in a bar chart. They are accumulated to add up to 100%. For example, if the counters have the values: a=2, b=5, c=7, the values shown are a=14%, b=36%, c=50%.
  This chart type is comparable to a pie chart where single values are changed to percentages to fill 100%. It is useful if you want to see the ratio between the counter values and you are not interested in thresholds for individual counters.

- Selections on Counters and Graphics pages:
  On the Counters page, select Stacked to 100% as type of counter display.
  On the Graphics page, Bar chart is selected because this is the only choice.
Specifying a global threshold:

When defining a data view, you must specify a global threshold for all counters. This threshold enables you to see at which time a counter exceeds a certain value.

For example, when setting the threshold for the My Locking data view to 60 units per second, you want to see at a glance when a lock or an unlock request is performed, more than 60 times per second. The global threshold determines the scale of the chart and is represented as a red horizontal line. Step 5 on page 2523 shows you how to define or change this global threshold.

If you are not sure which unit and time interval to specify, you can try a couple of values for the units and time interval. Or, to get you started, you can define the scale to automatically adapt to the highest visible value of a counter.

To adapt the scale to the highest visible value:
1. Display the Thresholds page of the Properties window.
2. Click Dynamic scale and then click Finish.

You can use this kind of counter display to calculate the units and time interval for the scale. However, it is also useful if you want to compare the actual values of the counters with each other or get a better view of the relation between two counters.

Specifying and adjusting single thresholds:

In addition to the global threshold, you can also specify a threshold for each counter in your data view. These thresholds do not affect the scale of the chart. You can specify the thresholds if you view the counters in a non-stacked bar or line chart.

To specify thresholds for the lock and unlock request counters of the My Locking data view:
1. Display the Thresholds page of the My Locking Properties window.
2. Under Single thresholds, select the Threshold check box for each counter and specify a threshold:
   - For Lock requests, specify higher than 200 per Minute
   - For Unlock requests, specify higher than 100 per Minute
3. On the Graphics page, click Line chart as chart type and then click Finish.

You get a line chart with two additional threshold lines in the color of the respective counter. They are at about 20 units for lock requests and about 15 for unlock requests.
If you select a bar chart as chart type, you only see the threshold line if it is exceeded. In this case, the part of the bar exceeding this threshold is shaded.

Later you might want to change the global threshold (next to Static scale on the Thresholds page), which affects the scale of the chart. If you leave the single thresholds as they are, the proportions between the scale and the single thresholds are no longer correct.

To set the proportions right, perform the following steps on the Thresholds page of the Properties window:

1. Double the number next to Static scale: change 30 to 60.
2. The Adjust single thresholds button becomes available. Click this button.
   Under Single thresholds, the thresholds for the counters are automatically doubled.
3. Click Finish.

Changing the appearance of the bars, lines, or areas in the chart:

At any time, you can change the color of bar, line, and area charts and the pattern of bar charts. In addition, you can add a grid to your chart where a vertical line separates the snapshots. You perform these changes on the Graphics page of the Properties window.

Except for non-stacked bar charts, a grid separates each snapshot. In a non-stacked bar chart, however, two subsequent snapshots are distinguished by a different background. Therefore, the grid appears after every two snapshots.

Changing the number of visible snapshots in the chart:

By default, a chart contains eight snapshots in a bar chart or 30 snapshots in a line or area chart. This is defined in the Number of visible snapshots field on the Graphics page of the Properties window. You might, however, want to examine a longer snapshot period in a bar chart or view fewer snapshots in a line chart. You can change the default to a number from 4 through 99 or the number in the Maximum number of kept snapshots field.

You can also use the plus (+) and minus (-) signs next to the x-axis of the chart to increase or decrease the number of snapshots displayed.

The Maximum number of kept snapshots field defines how many snapshots are kept in memory by the data view. When this limit is exceeded the oldest snapshot is deleted and the latest snapshot is added. You can change the number in this field according to your needs.

Freezing the display of snapshots:

If you want to examine a snapshot in more detail or print the current chart, you must stop the continuous addition of new snapshots to your chart without canceling data collection. To achieve this freeze the display of snapshots. In the folders pane, click the data view that you want to freeze and then click Selected > Freeze.

The name of the data view is shown in italics in the folders pane for you to see that the view is frozen. Data collection continues in the background. To see the dynamic updates, click Selected > Freeze again.
Displaying data views as performance graphs in the System Overview window:

You can display one or more data views as performance graphs on the Data Views page of the System Overview window. This data view must have been created in a data group that you defined and it must contain a link in the System Overview data group of the System Health window.

If you want to display the IFI interface data view in the System Overview window, click the IFI interface data view in the folders pane of the System Health window and then click **Selected > Display in System Overview**.

A link to the selected data view is shown in the System Overview data group and the linked data view immediately appears on the Data Views page of the System Overview window. The name of the link consists of the name of the original data group and the name of the original data view. The icon in front of the original data view has changed to indicate that this data view is shown in the System Overview window.

When you change a data view, you always change the original data view. The link is automatically updated.

The data views that are displayed on Data Views page of the System Overview are refreshed at the rate that you specified for the DB2 subsystem on the System Overview window. Snapshots continue to be collected and shown in the System Overview window even after you stop snapshot collection in the System Health window.

Reusing data-view and data-group configurations:

You can copy data views and data groups within a DB2 subsystem and export and import entire data groups. This is useful, for example, if you want to share your configurations with your colleagues or use the same data views or data groups under several DB2 subsystems. Copying and moving data views between data groups also helps you organize your views.

To export or import a data group, click the data group in the folders pane and then click **Selected > Export** or **Selected > Import**. Use copy, cut, and paste to copy or move a data group or data view.

Gaps and sudden drops or rises in charts:

This topic lists reasons for gaps and sudden drops or rises in charts.

If there is a gap in a line chart or between two bars in a bar chart, or two consecutive snapshots differ considerably from each other, the interval between the snapshots might have changed for one of the following reasons:

- DB2 has been restarted. Because the data view shows delta values, the delta between the last value before the DB2 stop and the first value after the DB2 restart would be a negative number. To reflect this situation, a gap appears in the chart and the Report section of the data view shows a value of N/C. To view the Report section click **Report**.
- The interval at which history data is collected might have been configured. A line chart shows a sudden drop or rise and a bar chart continues with much smaller or larger bars.
Monitoring activities of DB2 Connect gateways and connections of DCS applications

You can monitor the activities of DB2 Connect servers (DB2 subsystem) that serve as DB2 Connect gateways. You can also monitor the connections of Database Connection Services (DCS) applications within the Distributed Relational Database Architecture (DRDA) of DB2. You can use the information that you obtain through these monitoring activities to evaluate the health of a DB2 Connect gateway and to make changes necessary to tune the system.

To monitor the activities of a DB2 Connect gateway and the connections of DCS applications, your system must meet the following criteria:

- Performance Expert Agent for DB2 Connect Monitoring is installed on the system, on which the DB2 Connect gateway runs, and is configured.
- At least one OMEGAMON Collector is registered for a Performance Expert Agent for DB2 Connect Monitoring.
- Performance Expert Agent for DB2 Connect Monitoring and the OMEGAMON Collector are started.

Related reading: Refer to [Configuration and Customization](#) for information about how to install, configure, and start Performance Expert Agent for DB2 Connect Monitoring and to register the OMEGAMON Collector.

Performance Expert Agent for DB2 Connect Monitoring periodically collects snapshots of performance-related information about the DB2 Connect gateway and the connections of DCS applications and sends them to the OMEGAMON Collector. One Performance Expert Agent for DB2 Connect Monitoring can send data to one or more OMEGAMON Collectors, and one OMEGAMON Collector can receive data from one or more Performance Expert Agents for DB2 Connect Monitoring. The collected data is stored in the DB2PM database of the OMEGAMON Collector.

Figure 181 on page 2532 provides an overview of how the activities of DB2 Connect gateways and the DCS connections are monitored.
Performance Expert Client enables you to view the collected data from various perspectives. You can view:

- A list of all DB2 Connect gateways that are connected to a specific DB2 subsystem. You can also view Statistics details on them.
- Statistics details on a specific DB2 Connect gateway, independent of any DB2 subsystem
- A list of all DCS applications that are connected to any DB2 subsystem and view details on them
- Information about the DCS application that is related to a specific thread

**Related information:**

- Some windows or panes show the key performance counters in a table. One or more columns might be hidden. For information about how to view hidden counters, to hide counters that you are not interested in, or to change the order of the columns, refer to "Customizing table columns" on page 2546.

**Viewing all DB2 Connect gateways connected to a DB2 subsystem:**

You can display a list of all DB2 Connect gateways that are connected to a DB2 subsystem and view Statistics details on them.

To view Statistics details:

1. In the System Overview window, select a DB2 subsystem in the folders pane and then click the Statistics Details toolbar button ( ).
   
   If you are not connected to this DB2 subsystem, you are prompted to log on.

2. In the folders pane of the displayed Statistics Details window, click **DB2 Connect Server**.
   
   The DB2 Connect Server pane opens, which lists all the DB2 Connect gateways that are connected to this DB2 subsystem.

3. To get more Statistics details on a specific DB2 Connect gateway, double-click it.
The DB2 Connect Server ip page opens, where ip stands for the IP address of the selected DB2 Connect gateway. On the various panes, you find:

- Statistics about the DB2 Connect gateway, including details on the number of agents and pooled agents, the connections waiting for the host to reply, and the connections waiting for the client to send a request
- Statistics about the processes at the selected DB2 Connect gateway, such as the CPU and the working set
- The amount of time that is required to process a sample SQL statement
- Statistical details on the packages received at the DB2 Connect gateway

**Viewing Statistics details on a specific DB2 Connect gateway:**

You can view information about a specific DB2 Connect gateway. In the System Overview window, select a DB2 Connect gateway in the folders pane and then click the Statistics toolbar button ( ).

If you are not connected to this DB2 Connect gateway, you are prompted to log on to the OMEGAMON Collector that is receiving information from the Performance Expert Agent for DB2 Connect Monitoring that is monitoring the DB2 Connect gateway.

The Statistics window opens. The information shown in this window is identical to the information on the DB2 Connect Server ip page of the Statistics Details window. See “Viewing all DB2 Connect gateways connected to a DB2 subsystem” on page 2532.

**Viewing information about all DCS applications connected to any DB2 subsystem:**

You can display a list of all the DCS applications that are connected to any DB2 subsystem and view details on them.

To view details:

1. In the System Overview window, select a DB2 Connect gateway in the folders pane and then double-click Application Summary in the contents pane.
   
   If you are not connected to this DB2 Connect gateway, you are prompted to log on.
   
   The Thread Summary window opens, which shows the key data for the DCS application connected to any DB2 subsystem.

2. To get more details on a specific DCS application, double-click it.
   
   The Thread Details window opens. On its various panes, you find:
   
   - An overview of the DCS application, such as cumulative counters and status information.
   - Information about the SQL statement that was last executed by the DCS application, including network Statistics, the host response time, and the CPU time distribution.
   - Outbound and inbound data and the network time taken to transmit the data.
Viewing information about the DCS application related to a thread:

You can view information about the DCS application that is related to a specific thread.

To view information about the DCS application that is related to a specific thread:
1. In the System Overview window, click a DB2 subsystem in the folders pane and then double-click **Thread Summary** in the contents pane.
   If you are not connected to this DB2 subsystem, you are prompted to log on.
   The Thread Summary window opens, which shows the key performance counters for all connected threads.
2. Double-click a thread.
   The Thread Details window opens.
3. In the folders pane of the Thread Details window, click **DB2 Connect Server**.
   The DB2 Connect Server pane is displayed, which lists the related DCS application.
4. To get more details on this DCS application, double-click it.
   The DB2 Connect Server **appl_id** page is displayed. **appl_id** stands for the identifier that is generated when the application connects to the database at the database manager or when Distributed Database Connection Services (DDCS) receives a request to connect to a DRDA database. The information shown on the various panes of this page is identical to the information on the Thread Details window. See “Viewing information about all DCS applications connected to any DB2 subsystem” on page 2533.

The gateway snapshot time:

The Gateway Snapshot Time counter on the DB2 Connect Server pane of the Statistics Details window and on the Statistics window shows the timestamp at which the snapshot was taken at the DB2 Connect gateway. This timestamp usually differs from the snapshot timestamp of the OMEGAMON Collector.

If you are viewing current data, the OMEGAMON Collector displays the most recent data that was received from the DB2 Connect gateway. In history mode, the OMEGAMON Collector searches for a DB2 Connect gateway snapshot that is closest to the history snapshot of the OMEGAMON Collector.

If the DB2 Connect gateway, OMEGAMON Collector, Performance Expert Client, or all of them are in different times zones, the times shown in the Gateway Snapshot Time counter and for the OMEGAMON Collector snapshot are adapted to the Performance Expert Client time. For example, if the OMEGAMON Collector receives a snapshot from the DB2 Connect gateway that was taken at 11 a.m., the OMEGAMON Collector location is two hours ahead of the DB2 Connect gateway location, and the Performance Expert Client location is three hours ahead of the OMEGAMON Collector location, the Gateway Snapshot Time counter displays a time of 16:00 (4 p.m.).

**Viewing DB2 system parameters**

You can view the system parameter values that you specified when configuring a DB2 subsystem.

To view the database configuration do one of the following:
• In the System Overview window, select the DB2 subsystem in the folders pane and then click **System Parameters** toolbar button.

• You can also use the menu bar or pop-up menu: click the DB2 subsystem in the folders pane, then click **Selected > Monitor > System Parameters** on the menu bar or **Monitor > System Parameters** on the pop-up menu.

If you are not connected to the selected DB2 subsystem, you are prompted to log on.

The System Parameters window shows the current values for the selected DB2 subsystem.

To view detailed information for a system parameter, click the name of the parameter in the folders pane.

**Related information:**

• The System Parameters window shows some of its system parameters in tables. In contents panes containing a table:
  – One or more columns might be hidden. For information about how to view hidden counters, to hide counters that you are not interested in, or to change the order of the columns, refer to “Customizing table columns” on page 2546.
  – You can choose to view details on a table entry in another window or on a notebook page. For more information, refer to “Viewing details on a table entry in a contents pane” on page 2547.

• Some windows or panes show the key performance counters in a table. One or more columns might be hidden. For information about how to view hidden counters, to hide counters that you are not interested in, or to change the order of the columns, refer to “Customizing table columns” on page 2546.

• Performance counter values that are too long are truncated. For information about how to view the entire value, refer to “Viewing long performance counter values” on page 2547.

• If you are working in different time zones, refer to “Working in different time zones” on page 2547 for more information.

**Working with exception processing**

Exception processing is an efficient way to monitor DB2 subsystems for performance problems. When exception processing is active, you are informed when certain events occur, or when specific counters reach levels that might produce problems.

Exceptions are recorded by the OMEGAMON Collector. To run exception processing, it must be set up during the customization of the OMEGAMON Collector.

**Related reading:** For more information about setting up exception processing, refer to **Configuration and Customization**.

Exception processing is started when the OMEGAMON Collector is started. It continues until you stop it, the OMEGAMON Collector or DB2 is stopped, or you log off from the DB2 subsystem that you are monitoring. When you leave Performance Expert Client you can request that the collection of exception processing data is continued.
OMEGAMON for Db2 PE supports:

- Event exception processing: This monitors a DB2 subsystem for the occurrence of particular events.
- Periodic exception processing: This periodically monitors thread-activity and Statistics fields for exception conditions.

This section explains how to start and stop exception processing, to view the exceptions that occurred, and to use the exception user exit.

**Starting exception processing:**

This topic explains how to start exception processing.

To work with exception processing, you can do one of the following:

- In the System Overview window, select the DB2 subsystem in the folders pane and then click the Exception Processing toolbar button ( ).
- In the System Overview window, click Tools > Exceptions > Exception Processing.

The Exception Processing window is displayed.

This window provides information about the status of both event and periodic exception processing for all DB2 subsystems to which you are logged on. The icons that are displayed when you click Event Exceptions in the folders pane of the window have the following meaning:

- The event is supported by the OMEGAMON Collector and switched on at its startup.
- The event is supported by the OMEGAMON Collector but was not switched on at its startup.
- N/A The event is not supported by the OMEGAMON Collector.

The Exception Processing window shows up to the latest 9999 exceptions recorded. If you want to change this number, click Exception Processing > Settings. The Exception Settings window is displayed. On its pages, you can change the number of entries that is collected in the log for event exception and periodic exception processing.

If you want to be informed whenever an exception is recorded, you can choose to be notified by a message or a beep. Click Exception Processing > Settings. The Exception Settings window is displayed. On its pages, you can specify the kind of notification for event exceptions and periodic exceptions.

**Processing event exceptions:**

This topic shows how to process event exceptions.

When you monitor event exceptions, you are informed about the following events:

- Authorization failure
- Coupling facility rebuild start
- Coupling facility rebuild stop
- Coupling facility alter
- Data set extension
- Deadlock
- EDM pool full
- Global trace start
- Log space shortage
- Thread commit in doubt
- Timeout
- Unit of recovery problem

All events must be enabled on the OMEGAMON Collector.

**Related reading:** Refer to [Configuration and Customization](#) for information about how to enable an event.

You can monitor exceptions for one or more DB2 subsystems.

**Starting and stopping event exception processing:**

This topic show how to start and stop event exception processing.

To start monitoring for event exceptions:

1. In the Exception Processing window, click **Exception Processing > Activation - z/OS**.
   
   The Activation window is displayed. The exact name of, the layout of, and the selections possible on, this window depend on whether you are logged on to one or to several DB2 subsystems. The following table shows the various possibilities.

<table>
<thead>
<tr>
<th>If you are logged on to ...</th>
<th>Description of Activation window</th>
</tr>
</thead>
<tbody>
<tr>
<td>One DB2 subsystem</td>
<td>The Activation – subsystem is displayed, where subsystem stands for the name of the DB2 subsystem to which you are logged on. The event list shows all events supported by z/OS. The events enabled by the OMEGAMON Collector are selected.</td>
</tr>
<tr>
<td>Several DB2 subsystems</td>
<td>The Activation – z/OS window is displayed. This window consists of the DB2 subsystems pane, listing all DB2 subsystems to which you are logged on, and the Activation pane. Select the DB2 subsystems you want to monitor. The event list appears and shows all events supported by z/OS. The events that are enabled on the OMEGAMON Collector of at least one DB2 subsystem are selected. The selected events that are not enabled by all OMEGAMON Collectors are followed by an asterisk (*).</td>
</tr>
</tbody>
</table>

2. Click the **Start ( )** button next to **Event exception processing**.

To stop event exception processing:

1. In the Exception Processing window, click **Exception Processing > Activation**.
   
   The Activation window is displayed.

2. Click the **Stop ( )** button next to **Event exception processing**.
Viewing event exceptions:

To get more information about an event exception, double-click it in the Event Exception Log pane of the Exception Processing window or in the 100 Most Recent Exceptions pane of the System Overview window.

When an event exception occurs, you are informed in the following ways:

- An entry is added to the Event Exception Log pane of the Exception Processing window.
- An entry is added to the 100 Most Recent Exceptions pane of the System Overview window.
- A message appears, a beep is issued, or both, if you requested this kind of notification in the Exception Settings window.

Viewing deadlocks:

This topic shows how to find out if a deadlock occurs.

When a deadlock occurs, you are informed in the following ways:

- An entry is added to the Event Exception Log pane of the Exception Processing window.
- In the folders pane of the System Overview window, the icon changes next to the DB2 Subsystem for which the deadlock was recorded and next to the folders that contain this DB2 Subsystem. The event exception icon changes, by default, for at least five minutes or for the minimum period of time that you specified on the Preferences page of the Configuration window. See “Specifying global settings” on page 2504. An event exception icon overrules any warning or problem icon.
- An entry is added to the Exceptions page of the System Overview window.
- By a message, a beep, an e-mail, or a mixture of them. Whether you receive these types of information, and which of them, depends on your specifications in the Exception Settings window and on the Exception page of the OMEGAMON Collector Properties window. To receive an e-mail, you must also have requested this type of information about the Activation window.
- By using a user exit. In this case, you must have enabled the user exit and specified its path on the Exception page of the OMEGAMON Collector Properties window. In addition, you must have selected the user exit in the Activation window. For information about how to write a user exit, refer to “Working with the exception user exit” on page 2541.

Viewing details on a deadlock:

When a deadlock occurs, you need to know what caused the deadlock and how to resolve it. OMEGAMON for Db2 PE helps you find the reasons for a deadlock by supplying information, such as which threads are involved in the deadlock, which statements led or might have led to the deadlock, and which thread holds the resource that is requested by another thread.

To view this information:

1. Double-click a deadlock in the Event Exception Log pane of the Exception Processing window or on the Exceptions page of the System Overview window. The various pages of the Deadlock Details window provide you with all the information that you need to narrow down the reasons for the deadlock.
2. To get information about the thread that was rolled back (victim), about the system and the DB2 Subsystem on which the deadlock occurred, and about the number of threads that are involved in the deadlock, have a look at the Overview page.

Processing periodic exceptions:

You can use periodic exception processing to periodically check DB2 counters against specific thresholds. When the value of a counter falls above or below these thresholds, an exception is logged.

To run periodic exception processing, you must first define thresholds for specific fields.

Establishing thresholds:

DB2 provides a comprehensive set of thread-activity and Statistics fields. However, you usually need to define only a limited number of thresholds. Long response times are a good indicator of a performance problem, so start by defining exception thresholds for time fields. You can, for example, set thresholds that are appropriate to your environment for class 1 and class 2 elapsed times.

Decide which are the most important applications or transactions in your system. Always define exception thresholds for critical business applications. Frequently executed applications are also good candidates for exception thresholds.

In a threshold set, you specify thresholds for all DB2 counters that you want to monitor together.

To create a threshold set:

1. In the Exception Processing window, click Exception Processing > New Threshold Set. The New Threshold Set window is displayed.
2. Select z/OS as operating system.
3. Type a unique name for the set and your name (this is usually your logon user ID). Then click OK. An empty Threshold Set Editor window is displayed.
4. To add a threshold, click Threshold Set > New Threshold. The New Threshold window is displayed.
5. Under Exception field, you select the counter you want to monitor. Select the appropriate exception category and exception subcategory. Then select the counter from the Select the exception field list.
6. Under Warning and problem thresholds, specify the threshold values for warnings and problems for the selected counter.
7. Under Qualifier, you can specify filter criteria for the counter.
8. Click OK to save your specifications.
9. You can continue with one or more of the following tasks or proceed with step [10 on page 2540]
   * To define more thresholds to the threshold set, click Threshold Set > New Threshold.
• To change a threshold, click it and then click **Selected > Edit**.
• If a threshold in the set should not be used during period exception processing, deactivate it: click the threshold and then click **Selected > Active**.

10. When you have finished defining thresholds and want to save your changes, click **Threshold Set > Save**. The Exception Processing window lists the new threshold set under the z/OS folder in the **Threshold Sets** folder.

To change the properties of a threshold set, click it in the folders pane of the Exception Processing window and then click **Selected > Properties**. The Threshold Set Properties window is displayed, which is similar to the New Threshold Set window.

To change the contents of a threshold set by adding more thresholds or removing or changing some of them, click the threshold set in the folders pane of the Exception Processing window and then click **Selected > Edit**. TheThreshold Set Editor window is displayed.

*Starting and stopping periodic exception processing:*

This topic describes how to start and stop periodic exception processing.

To start periodic exception processing:

1. In the Exception Processing window, click, for example, **Exception Processing > Activation - z/OS** (depending on which operating system you want to start periodic exception processing).
   The Activation window is displayed. For more information about the exact name of, the layout of, and the selections possible on this window, refer to [Table 201 on page 2537](#).

2. If you want to start periodic exception processing for several DB2 subsystems at once, you must select the subsystems you want to monitor.

3. Ensure that your threshold set is displayed in the **Threshold set** field. In addition, type the time interval at which the thread and Statistics fields are checked for exceptions.

4. Click the **Start (графика)** button next to **Periodic exception processing**.

All active thresholds in the threshold set are used during periodic exception processing.

To stop periodic exception processing:

1. In the Exception Processing window, click **Exception Processing > Activation**.
   The Activation window is displayed.

2. Click the **Stop (квадрат)** button next to **Periodic exception processing**.

*Viewing periodic exceptions:*

This topic describes how to view periodic exceptions.

When a periodic exception occurs that is outside of the specified warning or problem threshold, you are informed in the following ways:

- An entry is added to the Event Exception Log pane of the Exception Processing window.
• A warning icon (⚠️) or a problem icon (🔴) appears:
  – Next to the affected counter in the window that contains this counter.
  – In the folders pane of the System Overview window, next to the DB2 subsystem that contains the affected counter and next to the folders that include this DB2 subsystem.

A problem icon overrules a warning icon. No icon is shown for counters that are listed in a table.

When you move your mouse pointer over the counter, hover help shows the timestamp of the exception. If this counter is on a KPIs page of the System Overview window, hover help also contains the defined warning and problem thresholds.

The icon disappears after the counter value falls below or above the threshold or you stop periodic exception processing and after you refresh the data. In the System Overview window, you need not refresh the data.

• An entry is added to the 100 Most Recent Exceptions pane of the System Overview window.

• A message is displayed, a sound (beep) is played, or both, if you specify this kind of notification in the Exception Settings window.

You can get more information about a periodic exception from the Periodic Exception Log pane of the Exception Processing window and the 100 Most Recent Exceptions pane of the System Overview window. In the Periodic Exception Log pane, click the exception and then:

• Click Selected > Current Statistics Details to see the corresponding Statistics values.

• Click Selected > Field Exception History to see a log of the exception values for the counter.

• Click Selected > Thread Identity to see information about the application causing the exception.

• Click Selected > Current Thread Details to see thread information. (This is available only if your OMEGAMON Collector supports this function.)

In the 100 Most Recent Exceptions pane, right-click the exception and select the information you want to see.

**Working with the exception user exit:**

OMEGAMON for Db2 PE supports a user exit to handle event and periodic exceptions. This user exit is a predefined exit point where a user-written routine can be given control.

The name of the exception processing user exit is DGOMUPXT. A sample of this user exit is provided in TKO2SAMP.

To activate the user exit, do the following in the Exception Processing window:

1. Click Exception Processing > Activation.
   The Activation window is displayed.
2. Select the User exit check box.
3. Click the Start (►) button next to Periodic exception processing.
   Periodic exception processing must be running in order to use the user exit—even if you are only interested in event exceptions.
Related reading: Refer to Configuration and Customization for information about customizing this user exit.

Monitoring data sharing groups

If you are working with a member of a data sharing group, you might want to view, from time to time, the monitoring information collected for another member in the data sharing group. Or you might want to compare the data collected for all members in the group. Most of the monitoring functions allow you to switch among the individual members and between a member and the group. You find a Show Data for list in the toolbar.

From this list, you can select another member or the group. Depending on your selection, the window shows the data for the selected member or the group. If a member is not active, the member name in the list is followed by QUIESCED or FAILED. This depends on why the member became inactive.

Sometimes, while you are working with a member, another member is added to the group, a member is deleted, or the status of a member is changed. To refresh the displayed list, click View > Refresh Data Sharing Group Information.

To get monitoring information from all members of a data sharing group, ensure that the monitor traces are started on all members.

Related reading: For information about how to ensure this, refer to the description of the DATASHARINGGROUP and DB2COMMAND startup parameters in Configuration and Customization.

This section describes the windows displayed when you monitor the thread of a data sharing group and view Statistics information about it.

Monitoring the threads of a data sharing group:

When you request the display of all active threads connected to a member of a data sharing group, the Thread Summary window shows the member name in the Show Data for list and lists all active threads running on this member.

When you select the group from the Show Data for list, all active threads running on the entire group are displayed.

The Member column in the window shows, for each thread, the member on which it is running. In the case of CP parallelism or sysplex query parallelism, the parent thread is displayed and the values of the children are accumulated.

Viewing Statistics on a data sharing group:

When you request Statistics information about a member of a data sharing group, the Statistics Details window shows the member name in the Show Data for list and displays the Statistics information for this member.

When you select the group from the Show Data for list, the entries in the folders pane are reduced to those available in group view. The performance counters are displayed in tabular format, with a column for each active member of the data sharing group.

In member view, part of the Statistics information is already displayed in tabular format, such as the information about the Buffer Management pane. When you
view this pane for the entire group, the Buffer Management pane shows the values for the most important buffer-pool performance counter, which is the hit ratio, for each buffer pool and member in the data sharing group. The counter name is displayed above the buffer-pool table.

Thus, when Statistics information is shown in tabular format in member view and you want to view this information in group view, OMEGAMON for Db2 PE selects the most important performance counter in the table and displays its values for the entire group.

**Viewing the system health of a data sharing group:**

When you want to view the system health of a member of a data sharing group, the System Health window shows the member name in the Show Data for list and displays the system health for this member.

When you select another member from the Show Data for list, the displayed data views are cleared and the snapshots of the selected member appear.

When you select the group from the Show Data for list, the displayed data views show the following:

- A chart for each member in the data sharing group.
- A list of all members in the data sharing group, instead of a report.

To hide the chart of a member, clear the appropriate check box in the member list. To display the charts in a different order, right-click the member you want to move and then click the appropriate command. To view the report on a member, right-click its chart.

**Viewing history data**

You can view history data for threads, locking conflicts, Statistics, and system parameters. This data is stored as snapshots.

History data is useful, for example, if you want to examine events that lead to or follow an exception without recreating the situation.

The OMEGAMON Collector must be enabled for collecting history data. The data is then collected at intervals that you defined during installation.

**Related reading:** For information about setting up the OMEGAMON Collector to collect history data, see [Configuration and Customization](#).

You can display history data in the Thread Summary, Statistics Details, System Health, and System Parameters window, and in all windows dealing with threads involved in a locking situation.

To view history data:

1. Click View > History.

   The history slider is activated.

   The slider is divided into units where each unit stands for the date and time at which a snapshot was collected. The timestamp above the slider indicates the date and time of the snapshot at the current slider position. The timestamps below the slider show the time range through which data is available in history mode. This is useful, for example, if you zoom the time interval displayed to you.
2. To view the data of a specific snapshot, do one of the following:
   - Move the slider to the date and time you want.
   - Click View > History Settings. A window is displayed on which you can specify the date and time of the snapshot data you want. Click OK to get the snapshot data.
   - To view the next snapshot, click the right arrow (→) or View > Forward. To view the previous snapshot, click the left arrow (←) or View > Back. You can repeat these commands until you have reached the snapshot you want.
   - If the slider contains too many units for you to move the slider to an exact date and time, you can decrease the time interval shown by clicking the plus (+) sign above the slider as often as you need. To increase it again, click the minus (-) sign.

To display the current data again, click View > History again to deactivate the history slider.

**Restriction:** When you view SQL statements in the dynamic SQL cache in history mode, you cannot define a filter. For more information about SQL statements data, refer to “Viewing the SQL statements in the dynamic SQL cache” on page 2518.

### Using Explain products to analyze and improve SQL statements

This topic explains how to use Explain products to analyze and improve SQL statements.

To determine and improve the access path of dynamic and static SQL statements that contain a SELECT, UPDATE, INSERT, DELETE, or VALUES clause, you can use one of the following Explain products:

- IBM Db2 Query Workload Tuner for z/OS Version 5.1
- IBM InfoSphere Optim Query Workload Tuner Version 4.1 or later (including Data Studio) (before Db2 12)

You can use Explain products to view the access path of a dynamic or static SQL statement when:

- Monitoring an application or thread
- Viewing Statistics on the SQL statements stored in the dynamic SQL statement cache

If you want to use Query Workload Tuner, you must first define the local database alias of the currently monitored DB2 subsystem:

1. Open the following wizard or window:
   - The New DB2 System wizard as described in “Defining a DB2 subsystem” on page 2500
   - The DB2 System Properties window as described in “Changing the properties of a DB2 subsystem” on page 2503

2. Open the DB2 Subsystem page.
3. In the Local DB Alias field, type the local database alias of the DB2 subsystem.

### Displaying the access path while monitoring an application or thread:

This topic shows how to view the access path while monitoring an application or thread.

To view the access path:
1. Open the Thread Details window.

2. In the folders pane, click **SQL Statement**.
   The SQL Statement pane shows the SQL statement that is currently run by the thread. The Explain button is enabled.

3. Under **SQL statement text**, click Explain. If the statement contains a SELECT, UPDATE, INSERT, DELETE, or VALUES clause, Query Workload Tuner is opened to view the access path for this statement.

**Note:** Usually only one of the Explain products is started at the same time. (This depends on the data bridge server connection that is used.) You can also cut and paste the SQL statement text from Performance Expert Client to manually create a project.

**Displaying the access path while viewing Statistics on SQL statements:**

This topic shows how to display the access path while viewing Statistics on SQL statements stored in the dynamic SQL statement cache.

To display the access path:
1. Open the Statistics Details window.
2. In the folders pane, click **SQL Statements**.
   The SQL Statements pane is displayed without any entries.
3. To display the SQL statements that are in the cache:
   a. Click the Filter button to check the filter values and set the appropriate values for your system. For more information about defining filter criteria, see step 5 on page 2519.
   b. Select the Receive statement cache information check box.
      The list is refreshed whenever you click View > Refresh or when an automatic refresh occurs.
4. Double-click a statement.
   The SQL Statements text page opens, where text stands for the first couple of characters of the statement text.
5. Under **SQL statement**, click Explain.
6. If the statement contains a SELECT, UPDATE, INSERT, DELETE, or VALUES clause, the following window opens depending on the Explain products installed:
   • If Query Workload Tuner is installed and launched, a new Project is defined and the Statement text is shown. Use the corresponding function of Query Workload Tuner to generate the Access Plan.

**Exporting snapshot data for saving and printing**

You can export snapshot data to HTML format. You can then print the data or save it as an HTML file.

To export snapshot data:
1. Do one of the following in the window containing the snapshot data:
   • Click the Print/Export toolbar button.
   • Click the leftmost menu and then click Print/Export.
      The Print/Export window is displayed.
2. You can change the settings in this window as follows:
- If the window consists of several pages and you want to export them all, click **All** under **Pages**.
- If the window contains a large table, you can:
  - Specify how many columns and rows you want to export.
    
    **Example:** To export only the first five columns, select **Only first for Columns** and then specify 5 in the field.
  - Specify after which column the table is split. Select the **Split after** check box and then select the column number.

3. Click **OK**.

A Web browser window is displayed showing the window contents in HTML format. You can use your Web browser to save or print the contents of the window.

If your window contains a table with many columns and you specified to split the table after a specific number of columns, for example three, your HTML file looks similar to the example shown in **Figure 182**.

![Buffer Manager](image)

<table>
<thead>
<tr>
<th>Number</th>
<th>Buffer Pool</th>
<th>Hit Ratio</th>
<th>Getpage Requests</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BP0</td>
<td>75.0</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>TOTAL</td>
<td>75.0</td>
<td>20</td>
</tr>
</tbody>
</table>

**Figure 182. Example of a split wide table**

To make the table easier to read, the rows are numbered in the **Number** column.

**Working with windows displaying snapshots**

This section provides you with the information that applies to all windows displaying snapshots.

**Customizing table columns:**

Some contents panes of the Thread Details, Statistics Details, and System Parameters window show the key performance counters in a table. One or more columns might be hidden.

To view hidden counters, to hide counters that you are not interested in, or to change the order of the counters, perform the following steps:

1. Click **View > Customize Columns**.

   The Customize Columns window is displayed.

2. To make a column visible, click the column in the **Hidden columns** list and then click **Add (►)**. The column is removed from the **Hidden columns** list and displayed at the bottom of the **Visible columns** list.

   To make all hidden columns visible, click ◄→ .

3. To hide a column, click the column in the **Visible columns** list and then click **Remove (▼)**. The column is removed from the **Visible columns** list and displayed in the **Hidden columns** list.

   To hide all columns, click ◄► .

---

2546   IBM Db2 Performance Expert on z/OS
4. To move a column up in the hierarchy, click the column in the **Visible columns** box and then click **Move up**. To move this column to the top of all columns, click **Move to top**. To move a column down in the hierarchy, click the column in the **Visible columns** box and then click **Move down**. To move this column to the bottom of all columns, click **Move to bottom**.

5. Click **OK**.
   The previous window is displayed with the columns rearranged, hidden, or made visible according to your specifications.

**Viewing details on a table entry in a contents pane:**

Some windows show part of the performance information and system parameters in tables. In the contents panes containing a table, you can get further details on a table entry by double-clicking the entry. When you work with Performance Expert Client for the first time, the window becomes a notebook where the initial counter categories or system parameters are shown on the Main page and where further details on the additional notebook pages are displayed.

If you want to compare the data on the individual pages, you can change to window view where each notebook page becomes a window within the main window that you can move, cascade, and tile according to your needs. Click **View > Switch to window view** in the main window. To return to page view, click **View > Switch to page view** in the main window. Your selection remains valid throughout Performance Expert Client until you change it again.

**Viewing long performance counter values:**

Some performance counter values exceed the length of the field in which they are displayed and are therefore truncated.

To view the entire value, move your mouse pointer over the field containing the value. Hover help is displayed showing the value in its full length. If the value is longer than 40 characters, a line break is inserted after every 40 characters.

To view the invisible parts of the value, click in the field containing the value and then use the left or right arrow, or press the Home or End key to go to the beginning or end of the value.

You can also copy the value by marking it and using copy and paste.

**Working in different time zones:**

The windows displaying snapshots contain timestamps to inform you when the snapshots were taken. If the OMEGAMON Collector and Performance Expert Client are in different time zones, the snapshot times are adapted to the Performance Expert Client time.

For example, if a snapshot is taken at 4 p.m. and the time at the OMEGAMON Collector location is six hours ahead of your Performance Expert Client, the window displaying this snapshot shows a time of 10:00 (10 a.m.).
Working with Performance Warehouse

This topic first describes the tasks you need to perform before you can start working with Performance Warehouse and then how to use Performance Warehouse to perform analysis tasks on DB2 performance data using processes, rules of thumb, and queries.

Performance Warehouse provides a process-oriented view of performance-analysis tasks. It allows you to automate tasks that previously required user interaction, such as loading DB2 data into the Performance Warehouse database or generating reports.

A process can consist of steps that link together these manual tasks. For example, you might want to transfer DB2 trace records on your MVS system to the Performance Warehouse database for further analysis. Your corresponding Performance Warehouse process might consist of a:

- **CONVERT** step that converts a save data set to a Save-File data set.
- **LOAD STATISTICS** step that loads the data set into the Performance Warehouse database.

Processes represent recurring performance-analysis tasks, they can be scheduled for automatic and repeated execution. You can trace these process executions from the workstation.

Processes produce output data that provides DB2 performance-related information. You can load this data into the Performance Warehouse database and then use rules of thumb and SQL queries to analyze it. Rules of thumb represent a category of expert rules. These rules help you identify more complex performance problems and provide you with tuning recommendations. For example, you can combine several performance counters in a value expression and relate this expression to problem and warning thresholds. You can also create, store, and run SQL queries on the Performance Warehouse database.

Sample processes, rules of thumb, and queries are provided to help you get started.

Running Performance Warehouse in a data-sharing environment

The Performance Warehouse database is maintained by the OMEGAMON Collector that runs with the startup parameter PERFORMANCEWAREHOUSE=YES. In a data sharing group, the OMEGAMON Collectors might be installed on more than one member.

Start the Performance Warehouse server task only for one OMEGAMON Collector in the data sharing group to avoid conflicts.

Figure 183 on page 2549 shows a typical data-sharing environment running Performance Warehouse.
The environment includes:

- Two MVS systems in a Parallel Sysplex® environment with one data sharing group, DSG 1, that comprises the members A1, A2, and A3, and additional DB2 subsystems B1 and C1.
- A Performance Warehouse that contains the performance data of the DB2 subsystems A1, A2, and A3, and a Performance Warehouse each for B1 and C1.
- OMEGAMON Collector 1 that is dedicated to data sharing group DSG 1 on MVS 1 maintains the Performance Warehouse database in a data sharing group.

The OMEGAMON Collectors 1, 2, and 4 run the processes to produce reports and load data into the Performance Warehouse database. If SMF data is to be loaded, the OMEGAMON Collector requires read access to the corresponding SMF data set.

Performance Expert Clients that want to use Performance Warehouse connect to the DB2 subsystem or the DB2 data sharing group that contains Performance Warehouse. If you wanted to connect to the data sharing group and access Performance Warehouse, you would specify the location of DSG 1 as the database name and MVS 1 or MVS 2 as the host name when cataloging the DB2PM database of the OMEGAMON Collector by using the Configuration Assistant of DB2, regardless of which member of DSG 1 you want to connect to.

**Logging on to Performance Warehouse**

You log on to a Performance Warehouse by connecting to its Performance Warehouse database.

You can log on to Performance Warehouse automatically or manually:

- You can automatically log on to a Performance Warehouse associated with a DB2 subsystem. You can associate a Performance Warehouse with a DB2 subsystem when defining the DB2 subsystem for monitoring from Performance Expert.
Client (see step 7 on page 2501) or when changing the properties of the DB2 subsystem (see “Changing the properties of a DB2 subsystem” on page 2503).

- You can manually log on to an associated Performance Warehouse or to any Performance Warehouse that was configured using the Configuration Assistant of DB2. When you log on manually the DB2 subsystem that it is associated with, the database need not exist any more. If you removed the associated DB2 subsystem from the System Overview window but kept the DB2 catalog entries, you can still work with Performance Warehouse.

If you log on to a Performance Warehouse database that is maintained by an OMEGAMON Collector that is not running, you can define processes, rules of thumb, and queries but you cannot run them.

Logging on to a Performance Warehouse automatically:

To log on to a Performance Warehouse automatically, select a DB2 subsystem ID in the folder pane of the System Overview window, then click Selected > Monitor > Performance Warehouse - Expert.

The Expert page of the Performance Warehouse window is displayed. The folders pane lists, under the z/OS folder, all Performance Warehouse systems to which you previously logged on or that you added manually (see “Adding a Performance Warehouse” on page 2551). The names that appear are the DB2 connection aliases, which associate a Performance Warehouse with a DB2 subsystem.

In addition, you are logged on to the Performance Warehouse that is associated with the selected DB2 subsystem. You can now work with the items that are listed on the displayed page of the Performance Warehouse window, or you can move to another page to perform a different set of tasks.

Logging on to a Performance Warehouse manually:

To log on to a Performance Warehouse manually, click the Performance Warehouse toolbar button ( ) in the System Overview window.

The Expert page of the Performance Warehouse window is displayed. The folders pane lists, under the z/OS folder, the DB2 connection alias of all Performance Warehouse systems to which you previously logged on or that you added manually (see “Managing Performance Warehouse systems” on page 2551).

If no Performance Warehouse systems are listed because you are working with Performance Warehouse for the first time or the Performance Warehouse of your choice is not listed, add the Performance Warehouse systems you need. For more information refer to “Managing Performance Warehouse systems” on page 2551.

Click the Performance Warehouse to which you want to log on and click Selected > Connect to open the Connect to Performance Warehouse window.

Specify your DB2 user ID and your password and then click OK.

You are logged on to the specified Performance Warehouse. You can now work with the items listed on the displayed page of the Performance Warehouse window or move to another page to perform a different set of tasks.
Managing Performance Warehouse systems
You can add and delete Performance Warehouse systems.

Adding a Performance Warehouse

You can add a Performance Warehouse system automatically or manually.

A Performance Warehouse is automatically added to the folders pane of the Performance Warehouse window the first time you perform an automatic logon to a Performance Warehouse. For information on how to do this, refer to “Logging on to a Performance Warehouse automatically” on page 2550. The name under which a Performance Warehouse appears in the Performance Warehouse window is the database alias, which associates a Performance Warehouse with a DB2 subsystem.

To add a Performance Warehouse manually, perform the following steps:
1. In the Performance Warehouse window, click **Performance Warehouse > New Performance Warehouse**.
   The New Performance Warehouse window is displayed.
2. Select **z/OS**.
3. In the **Database alias** field, type the alias of a Performance Warehouse database. This is the alias that you specified as database alias when cataloging the DB2PM database of an OMEGAMON Collector by using the Configuration Assistant of DB2.
   **Related reading:** For further information about cataloging the DB2PM database, see [Configuration and Customization](#).
4. If you want to log on to the new Performance Warehouse after leaving this window, select the **Connect immediately after configuration** check box.
5. Click **OK**.

The new Performance Warehouse is added to the **z/OS** folder and remains part of this folder until you delete it again. If you requested to log on immediately after defining the new Performance Warehouse, the Connect to Performance Warehouse window is displayed.

The name under which Performance Warehouse appears in the Performance Warehouse window is the database alias that you specified in the **Database alias** field of the New Performance Warehouse window and which associates a Performance Warehouse with a DB2 subsystem.

Deleting a Performance Warehouse

To delete a Performance Warehouse:
1. Select the Performance Warehouse to be deleted.
2. If you are still logged on to this Performance Warehouse, click **Selected > Disconnect**.
3. Click **Selected > Delete**.

The Performance Warehouse is removed from the respective folder.

Defining and running processes
Processes consist of one or more steps that perform tasks, such as loading existing DB2 performance data into the Performance Warehouse database or generating reports.
This section describes processes and reports in more detail, uses scenarios to show how to define and run processes, and gives hints and tips on certain tasks.

A process can consist of one or more of the following steps or step combinations:

- The **CONVERT step** reads an existing save data set and produces a save-file data set that can be used as input for a LOAD step.
- The **LOAD step** loads an existing file or save-file data set into the Performance Warehouse database.
- The **REPORT step** generates Statistics and Accounting reports from existing DB2 performance data. You can use various commands and subcommands to produce different report types. This step can include:
  - Creation, conversion, and loading of save data sets into the Performance Warehouse database.
  - Creation and loading of file data sets into the Performance Warehouse database.
- The **CRD (collect report data) step** collects report data and stores it in MVS data sets.

**Report types:**

To create different report types, you add various commands and subcommands to the REPORT step.

The GLOBAL command automatically appears as the first command in the REPORT step. You use this command to filter input data, set default values for subcommand options, and define global processing options. The following options are, for example, supported by the GLOBAL command:

- **FROM**
- **TO**
- **INTERVAL**
- **BOUNDARY**
- **INCLUDE/EXCLUDE**
- **TIMEZONE**

Table 202 shows the command options for Accounting commands and subcommands. Table 203 on page 2553 shows the command options for Statistics commands and subcommands. For more information about the individual command options, refer to Report Command Reference.

**Restriction:** After a process has run, all output data sets on the host are stored in the Performance Warehouse database and removed from the host. If you want to use the output data sets created by a REPORT step as input for a LOAD step or a CONVERT and LOAD step, you must include a LOAD FILE or LOAD SAVE subcommand as part of your REPORT step.

### Table 202. Supported Accounting command options.

<table>
<thead>
<tr>
<th>Command options</th>
<th>ACCOUNTING REDUCE</th>
<th>ACCOUNTING REPORT</th>
<th>ACCOUNTING TRACE</th>
<th>ACCOUNTING SAVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>TO</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>INTERVAL</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The Accounting subcommands FILE and RESTORE are not supported.
Table 202. Supported Accounting command options (continued).

**Note:** The Accounting subcommands FILE and RESTORE are not supported.

<table>
<thead>
<tr>
<th>Command options</th>
<th>ACCOUNTING REDUCE</th>
<th>ACCOUNTING REPORT</th>
<th>ACCOUNTING TRACE</th>
<th>ACCOUNTING SAVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOUNDARY</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXCEPTION/NOEXCEPTION</td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>SCOPE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORDER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAYOUT</td>
<td></td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>INCLUDE/EXCLUDE</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>TIMEZONE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOP</td>
<td></td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

Table 203. Supported Statistics command options

<table>
<thead>
<tr>
<th>Command options</th>
<th>STATISTICS REDUCE</th>
<th>STATISTICS REPORT</th>
<th>STATISTICS TRACE</th>
<th>STATISTICS SAVE</th>
<th>STATISTICS FILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>TO</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>INTERVAL</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>BOUNDARY</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>EXCEPTION/NOEXCEPTION</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>SCOPE</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORDER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAYOUT</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INCLUDE/EXCLUDE</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>DSETSTAT</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIMEZONE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Scenario 1: Transferring performance data into the Performance Warehouse database:**

The following scenario shows how you can make use of existing data sets that were not generated by a Performance Warehouse REPORT step. It describes how to transfer save or save-file data sets on an MVS system to the Performance Warehouse database.

You can perform this scenario on the following pages of the Performance Warehouse window:

- Expert
- Report and Load
Creating a process group:

A process needs a process group as a container.

To create a process group:

1. In the folders pane, select Process Groups and then click Selected > Create. The Process Group Properties window is displayed. The Author, Creation date and time, and Modification date and time fields are filled in when you click OK. The Author field will contain your DB2 user ID.

2. In the Name field, type a unique name for the process group. Example: Type Legacy.

3. In the Description field, you can type a description for the process group. Example: Type Transfer "legacy" performance data sets into Performance Warehouse.

4. Click OK to save the process group and return to the Performance Warehouse window. The new group appears in the folders pane as a subitem of Process Groups.

Creating a process using a process template:

Process templates are supplied with the product. You can find these templates in the Public process group. Here, you use the template DB2PM.Templates.Load Warehouses 2 to create a process.

This template contains a CONVERT step and a LOAD STATISTICS step.

1. In the folders pane, under Public, select DB2PM.Templates.Load Warehouses 2 and then click Selected > Copy. The Copy Process window is displayed.

2. In the New process group list, select the Legacy process group.

3. In the New process name field, type a unique name for the copied process. Example: Transfer Statistics Save.

4. Click OK.

When you return to the Performance Warehouse window, the process appears under Processes of the Legacy process group. The template's steps are also copied.

Viewing the process properties:

To view the process properties, select the Transfer Statistics Save process in the folders pane, and then click Selected > Properties.

The Process Properties window is displayed:

1. Ensure that the following is set:

   • Status is set to in definition so that you can make changes to the process.
   • Scope is set to private. When you copy a process template, the scope changes from public to private so that this process is not available to other users.
   • Schedule of process is set to immediately.

2. Change the description in the Description field to match the process.
3. Click **OK** to save the changes to the process and return to the Performance Warehouse window.

*Configuring the process steps:*

The copied template contains default values for the process steps.

You must configure the steps to add:
- An input data set to the CONVERT step
- Target tables to the LOAD STATISTICS step

To configure the CONVERT step:

1. In the folders pane, click **Steps**. In the contents pane, select the CONVERT step and then click **Selected > Properties**.
   
   The Convert Properties window is displayed.

2. Click the **Options** tab.

3. Change the name of the input data set to *my.input.data.set* and click **OK** to save the changes.

To configure the LOAD STATISTICS step:

1. In the folders pane, click **Steps**. In the contents pane, select the LOAD STATISTICS step and then click **Selected > Properties**.

   The Load Statistics Step Properties window is displayed.

2. Click the **Options** tab. Specify the types of target tables that you want to load into the Performance Warehouse database.

3. Click **OK** to save the changes.

The process definition is now complete so you can run the process.

*Running the process:*

To run the process immediately, select the process in the folders pane, and then click **Selected > Execute**. The process is scheduled to start immediately and is activated.

The following information is recorded about processes:

- The processes (with their start and stop timestamps and their status) that are currently running and have run since you started working with Performance Warehouse.
- The individual steps of each process, with their start and stop timestamps and their status.
- The output data sets of each step in a process.

While the process is running, you can view its progress. In the folders pane, click **Process Executions** to view the progress of the process. The Process Executions pane is displayed, listing the process executions for all the processes. To view only the Transfer Statistics Save process, you must define filter criteria.

To define filter criteria:

1. Click **View > Filter**.

   The Filter Process Execution window is displayed.

2. Specify the filter conditions.
You can use wildcard characters in the filter criteria: _ (underscore) for one character and % for more than one character.

Example:

- In the Name field, type Transfer Sta%
- In the Group field, type Legacy
- As Comparison operator next to the Name field, select Like because you are using a wildcard character in the name

3. Click OK.

The Process Executions pane then lists only the process-execution entries for the Transfer Statistics Save process.

Viewing the output data sets:

When the process finishes (status FINISHED on the Process Execution pane), you can view its output.

To view the output:

1. On the Process Executions pane, select the process execution and then click Selected > Details.
   The Process Execution Details window is displayed. It contains information about all the steps of the process and the output data sets generated by these steps.

2. To view the list of output data sets generated by the LOAD STATISTICS step, click the Output Data Set folder under LOAD.

3. To view the contents of a data set, double-click the data set.
   The contents of the data set are shown in a Web browser. You can use your browser to save and print the data set. For information about how to specify your Web browser of choice, see “Specifying global settings” on page 2504.

To delete the data set from the Performance Warehouse database, select the corresponding data set, and click Delete.

Scenario 2: Defining Accounting and Statistics reports using an existing input data set:

Suppose you are a database administrator for several OS/390 locations hosted on an MVS system. Users tell you that they have DB2 performance problems during online transaction processing on certain DB2 locations every day between 11 a.m. and 12 noon.

You decide to generate Accounting reports to determine if there is a DB2 problem. You also decide to generate a Statistics report to get an overview of system activity. You think that you might also need to analyze the data later using queries and rules of thumb, so you make sure that the performance data is transferred to the Performance Warehouse database.

To create the reports and transfer the data, you must:

1. Create a REPORT step.
2. Define the Accounting and Statistics reports.
3. Run the process to generate reports and transfer data to the Performance Warehouse database.
4. View and analyze the generated reports.
“Scenario 1: Transferring performance data into the Performance Warehouse database” on page 2553 describes how to work with process groups, processes and steps, how to run the process, and how to view the results. This scenario describes how to use Performance Warehouse to define the reports the DBA needs to analyze the problem. It assumes that you have an existing input data set containing the Accounting and Statistics performance records for the timeframe and DB2 locations in question. If this is not the case, proceed with “Scenario 3: Collecting performance data for the generation of Accounting and Statistics reports” on page 2560.

To define the reports you must:
1. Specify an input data set.
2. Filter the performance records to produce meaningful results.
3. Set up an Accounting report.
4. Transfer data to the Performance Warehouse database.
5. Set up a Statistics report.

You can perform these tasks on the following pages of the Performance Warehouse window:
- Expert.
- Report and Load.

**Specifying an input data set:**

The input data set on the MVS system contains the Accounting and Statistics performance records for the timeframe and the DB2 locations in question.

To specify the input data set:
1. In the folders pane, click **Steps**. In the contents pane, select the REPORT step and then click **Selected > Properties**.
   The Report Step Properties window is displayed.
2. Click the **Options** tab.
3. In the **Current data set specification** pane, click **Add**.
   The Add Input Data Set window is displayed.
4. Type the name of the data set and click **OK**.

**Specifying filter criteria for the performance records:**

You know that the performance problems occur during online processing for certain locations in a particular timeframe. You can specify filter criteria to account for these symptoms and apply them to all reports.

You use the GLOBAL command to specify these global performance-record filter criteria:
1. Click **GLOBAL** in the folders pane.
   The GLOBAL command options are shown in the Current data set specification pane.
2. To restrict the records to the timeframe, type 11:00:00:00 in the **From Time** field and 12:00:00:00 in the **To Time** field.
3. To include performance records from online transaction-processing applications only, click the **Include** filter button.
   The Include/Exclude Filter window is displayed.
a. Select the row containing the DB2 PE identifier CONNTYPE (connection type) and click Add.
   The Add Include/Exclude Value window is displayed.

b. Associate the following values with CONNTYPE:
   • CICS
   • IMS-MPP
   • IMS-TBMP

   The symbol in the Usage column shows whether the DB2 PE identifier is included or excluded.

c. Click OK to include the filter in the GLOBAL command options.

   The performance problems occur only at certain “slow” locations but you do not know exactly which locations are affected. However, you do know that the location names starting with BOE and DVI perform well. You use a filter with wildcard characters to ensure that these “good performers” are excluded from the report.

4. To exclude performance records from a particular location, click the Exclude filter button.

   The Include/Exclude Filter window is displayed.

   a. Select the row containing the DB2 PE identifier LOCATION and click Add.

   The Add Include/Exclude Value window is displayed.

   b. Associate the following values with LOCATION:
      • BOE*
      • DVI*

   c. Click OK to include the filter in the GLOBAL command options.

Setting up an Accounting report:

To set up an Accounting report, right-click REPORT in the folders pane and click Add.

On the Add Command window:

1. Select ACCOUNTING and click OK.

   The ACCOUNTING folder is added to the REPORT step.

2. Right-click the ACCOUNTING folder and click Add.

   The Add Command window is displayed

3. Select REPORT and click OK.

   The REPORT subcommand is added to the ACCOUNTING REPORT set and the current ACCOUNTING REPORT command options are shown in the Current ACCOUNTING REPORT command options pane.

4. To get as much detailed information in the report as possible, select LONG in the Layout field.

   You need to produce two reports with different aggregation levels:
      • Aggregated information for all online transaction application executions
      • Aggregated information for each online transaction application execution

5. To filter the information needed for all online transaction application executions:

   a. Click the Order filter button.

      The Order Filter window is displayed. Set 1 contains the default order criteria PRIMAUTH and PLANNAME.
b. Use the appropriate buttons to remove PRIMAUTH and PLANNAME and add the DB2 PE identifier INTERVAL. INTERVAL represents the information needed for all online transaction application executions.

6. To filter the information needed for each online transaction application execution:
   a. Select Set 2 in the **Selected identifier for** field.
   b. Add the DB2 PE identifier CORRNAME using the appropriate button. CORRNAME represents the information needed for each online transaction application execution.
   c. Click **OK** to add the filter criteria to the ACCOUNTING REPORT command options.

*Transferring Accounting performance data to the Performance Warehouse database:*

To analyze Accounting performance data produced by the REPORT step at a later date, you must transfer the data to the Performance Warehouse database. You need to include a LOAD command in the REPORT step to do this.

To transfer the data:

1. Right-click the **ACCOUNTING** folder and click **Add**.
The Add Command window is displayed.
2. Select **SAVE** and click **OK**.
The **SAVE** folder is added to the Accounting report.
3. Right-click the **SAVE** folder and click **Add**.
The Add Command window is displayed.
4. Select **LOAD SAVE** and click **OK**.
The LOAD SAVE subcommand is added to the ACCOUNTING SAVE set and the current LOAD command options are shown in the Current DB2 LOAD command options pane.
5. Select the target tables to be loaded with the performance records and click **Add**.

*Setting up a Statistics report:*

To set up a Statistics report, right-click **REPORT** in the folders pane and click **Add**.

On the Add Command window:

1. Select **STATISTICS** and click **OK**.
The **STATISTICS** folder is added to the REPORT step.
2. Right-click the **STATISTICS** folder and click **Add**.
The Add Command window is displayed.
3. Select **REPORT** and click **OK**.
The REPORT subcommand is added to the STATISTICS REPORT set and the current STATISTICS REPORT command options are shown in the Current STATISTICS REPORT command options pane.
4. To get as much detailed information in the report as possible, select **LONG** in the **Layout** field and click **OK**.
The REPORT step is now complete and you can run the process. For information about how to run a process and view the output, see “Running the process” on page 2555 and “Viewing the output data sets” on page 2556.

Scenario 3: Collecting performance data for the generation of Accounting and Statistics reports:

If an input data set does not exist, you must collect the relevant performance data before you can define your Accounting and Statistics reports.

In “Scenario 2: Defining Accounting and Statistics reports using an existing input data set” on page 2556, you used an input data set that contained the Accounting and Statistics performance records for the timeframe and DB2 locations in question.

The list of tasks necessary to define the reports would then look as follows:
1. Create a CRD (collect report data) step.
2. Filter the performance records to produce meaningful results.
3. Set up an Accounting report.
4. Transfer data to the Performance Warehouse database.
5. Set up a Statistics report.
6. Schedule the process containing the CRD and REPORT steps.

You can perform this scenario on the following pages of the Performance Warehouse window:
- Expert
- Report and Load

Creating a CRD (collect report data) step:

To create a CRD step, click Steps in the folders pane and click Selected > Create.

On the Create Step window:
1. Select CRD.
   The CRD Step Properties window is displayed.
2. Click the Options tab.
3. To configure the data collection, select Data under Options categories.
   The Current data option pane is displayed.
4. Under Data categories, select Accounting and Statistics.
5. Specify which IFCIDs you want to collect.
6. To specify the criteria for the data collection to stop, select Stop under Options categories.
   The Current stop conditions pane is displayed.
7. In scenario 2, the database administrator wants to collect data between 11 a.m. and 12 noon. To specify this, select the Elapsed time check box and type a duration of one hour.
8. Click OK to save the configuration of the CRD step.

Steps 2 to 5 are described in “Scenario 2: Defining Accounting and Statistics reports using an existing input data set” on page 2556.
Scheduling the process containing the CRD (collect report data) and REPORT steps:

To start data collection at 11 a.m., you must schedule the process containing the CRD and REPORT steps. In the folders pane, select the appropriate process and then click Selected > Properties.

In the Process Properties window:
1. Click Schedule.
   The Process Schedule Properties window is displayed.
2. Click At schedule time and then click the button next to the schedule string.
   The Schedule Process window is displayed.
3. Set the schedule to 11 a.m.:
   - Under Minutes, select Specify minutes and type 0.
   - Under Hours, select Specify hours and type 11.
4. Click OK until you return to the Performance Warehouse window.

Recommendation: The Public process group contains the template Ad-Hoc Report, which consists of a CRD step and a REPORT step. This template collects data for five minutes and generates an Accounting and Statistics report in LONG format. You can use this template to get started.

Scenario 4: Collecting performance data regularly:

You might want to collect performance data on a regular basis, for example, to collect Statistics data between 12 noon and 4 p.m. every day.

To perform this task:
1. Define a process consisting of a single CRD (collect report data) step.
2. Schedule the process to run periodically and activate it.

You can perform this scenario on the following pages of the Performance Warehouse window:
- Trace
- Report and Load
- Expert

It is recommended that you use the Trace page because it only contains the items you need to configure and activate, and for which you want to view the progress, such as the CRD process.

To define a CRD process:
1. Copy the process template DB2PM_Templates.Collect Report Data from the Public process group to a process group of your own. This template collects Accounting and Statistics data for the duration of 5 minutes.
2. Display the properties for the Collect Report Data step and change the following option categories on the Options page:
   - For Output data set, type an output data set name and select Append.
   - For Data, clear the Accounting check box.
   - For Stop, specify an elapsed time of 4 hours.
To schedule the process, proceed as described in "Scheduling the process containing the CRD (collect report data) and REPORT steps" on page 2561, but type 12 under Hours.

To activate the process, display the process properties and change the status from in definition to active.

For more details on how to define, schedule, activate, and view the progress of a process, refer to "Scenario 1: Transferring performance data into the Performance Warehouse database" on page 2553.

Hints and tips:

The following sections give hints and tips on process-related Performance Warehouse tasks.

Understanding the schedule string:

When you specify a schedule for a process, the specifications you make in the Schedule Process window are reflected as a string in the Schedule of process field of the Process Properties window and in the At scheduled time field of the Process Schedule Properties window. This string can look as follows: 2007/1/16/*/16/58

A string consists of the following parts, in this sequence: year/month/day/day-of-the-week/hour/minute. A 0 for the day of the week stands for Saturday. An asterisk (*) represents all allowed values for a field.

Important: When you define a schedule in the Schedule Process window, you can specify the dates and weekdays when you want to run a process. However, you cannot specify that a process should run at a certain date only if this date is a specific day of the week.

For example, if you type 1 under Days and 5 under Months and select the Monday check box under Day of week, the process will run on May 1st and on every Monday. In this example, the string would look similar to this one: */5/1/2/*/*

Deleting process executions of processes scheduled ‘immediately’:

If you run a process that is scheduled ‘immediately’ and delete the process execution entry within five minutes after the process has finished, the OMEGAMON Collector runs the process again.

This is because the OMEGAMON Collector replaces ‘immediately’ with the time at which the process was started and interprets this time as a schedule when no process execution is available.

Reusing output data sets produced by a REPORT step:

After a process has run, all output data sets on the host are stored in the Performance Warehouse database and removed from the host.

If you want to use the output data sets created by a REPORT step as input for a LOAD or a CONVERT and a LOAD, you must define a LOAD FILE or LOAD SAVE subcommand as part of your REPORT step.
Deleting data permanently:

To permanently delete data sets and files from the Performance Warehouse database, you must delete them in the Process Execution Details window or delete the appropriate process execution entry from the Process Executions pane of the Performance Warehouse window.

For information about how to delete data from the tables in the Performance Warehouse database, refer to "Overview of the Performance Warehouse database" on page 2577.

Using rules of thumb to analyze performance data

Rules of thumb apply a few simple rules and ratios to key performance indicators.

The sample rules of thumb delivered with the product have been assembled by DB2 experts in the field over many years and are valuable criteria by which to measure the performance of applications in a DB2 system. They can be executed as they are.

Related reading:

• For more information about the sample rules of thumb, see Reporting User’s Guide.
• The samples are described in detail in the Online Help:
  – Click Help in the following windows:
    - Definition page of the Rules-of-Thumb Cluster Properties window
    - Definition page of the Rule-of-Thumb Properties window
    - Rules-of-Thumb Analysis window.
  – Use the links under the related topic Predefined rule-of-thumb cluster definitions for z/OS.

This section describes how to define rules of thumb and how to use them to analyze performance data. You always start in the Performance Warehouse window.

In the System Overview window, click the Performance Warehouse toolbar button to start Performance Warehouse. The Performance Warehouse window is displayed.

Managing rule-of-thumb groups:

A rule-of-thumb group is a container for rule-of-thumb clusters and rules of thumb.

The Public rule-of-thumb group contains the sample rules of thumb delivered with the product and those rules of thumb that other users have made generally available.

Creating a rule-of-thumb group:

To create a rule-of-thumb group, select Rule-of-Thumb Groups in the folders pane of the Performance Warehouse window and then click Selected > Create.

The Rule-of-Thumb Group Properties window is displayed. The Author, Creation date and time, and Modification date and time fields are filled in when you click OK. The Author field will contain your DB2 user ID. Then:

1. Specify a unique name for the rule-of-thumb group in the Name field.
2. You can type a description for the rule-of-thumb group in the **Description** field. This is optional.

3. Click **OK** to save this rule-of-thumb group and return to the Performance Warehouse window.
   
The new group appears in the folders pane as a subitem of **Rule-of-Thumb Groups**.

*Changing a rule-of-thumb group:*

You can change the description of the rule-of-thumb group, or rename or delete the rule-of-thumb group.

You can change a rule-of-thumb group in one of the following ways:

- Change the description of the rule-of-thumb group.
  
  To change the description, click the rule-of-thumb group and click **Selected > Properties**.

- Rename a rule-of-thumb group.
  
  To rename a group, click the rule-of-thumb group and click **Selected > Rename**.

- Delete a rule-of-thumb group.
  
  To delete a group, click the rule-of-thumb group and click **Selected > Delete**.

*Copying a rule-of-thumb group:*

If you want to create several rule-of-thumb groups that only differ in a rule-of-thumb cluster property or a rule of thumb, you might prefer to copy and change a rule-of-thumb group.

When you copy a rule-of-thumb group, any rule-of-thumb clusters and rules of thumb that it contains are copied with it.

To copy a rule-of-thumb group:

1. In the folders pane of the Performance Warehouse window, under **Rule-of-Thumb Groups**, click the rule-of-thumb group and then click **Selected > Copy**.
   
The Copy Rule-of-Thumb Group window is displayed.

2. In the **New rule-of-thumb group name** field, specify a unique name for the copied group.

3. Click **OK**.
   
The copied group appears in the folders pane.

*Managing rule-of-thumb clusters and rules of thumb:*

A rule-of-thumb cluster represents a counter category that you want to analyze and for which you want to define rules of thumb. Examples of counter categories are Accounting and Statistics.

The first rule of thumb that you define for a cluster or copy or move into the cluster determines the cluster category. Any additional rules of thumb that you create for a cluster, or copy or move into the cluster must match this cluster category.
Creating a rule-of-thumb cluster:

You can create a rule-of-thumb cluster using a template. Templates are displayed under the Public rule-of-thumb group. To create a cluster using a template, copy the template, and then change the copy.

To create a rule-of-thumb cluster without a template:
1. In the folders pane of the Performance Warehouse window, click Rule-of-Thumb Clusters and then click Selected > Create.
   The Rule-of-Thumb Cluster Properties window is displayed.
   The Author, Creation date and time, and Modification date and time fields are filled in when you click OK. The Author field will contain your DB2 user ID.
2. Specify a unique name for the rule-of-thumb group in the Name field.
3. In the Scope list, click one of the following:
   • private if you do not want to make this rule-of-thumb cluster available to other users.
   • public if you want other users to view, copy, and use this rule-of-thumb cluster as a template.
4. You can type a description for the rule-of-thumb cluster in the Description field.
5. Click OK to save the new rule-of-thumb cluster and return to the Performance Warehouse window.
   The new rule-of-thumb cluster appears as a subitem of Rule-of-Thumb Clusters and contains the subitem Rules of Thumb.
   To ensure name uniqueness throughout the rules-of-thumb-group folder, the rule-of-thumb cluster is displayed under the following name:
   user.rotgroup.rotclustername, where user stands for the DB2 user ID of the rule-of-thumb cluster creator, rotgroup for the rule-of-thumb group that this rule-of-thumb cluster belongs to, and rotclustername for the name of the rule-of-thumb cluster.

Creating a rule of thumb:

In a rule of thumb, you specify the tables, report blocks, and columns that you want to analyze for a specific counter category.

You also define the analysis rules, set the thresholds, and provide tuning recommendations.

To create a rule of thumb:
1. Click Rules of Thumb for the cluster in the folders pane of the Performance Warehouse window and then click Selected > Create.
   The General page of the Rule-of-Thumb Properties window is displayed.
   The Author, Creation date and time, and Modification date and time fields are filled when you click OK. The Author field will contain your DB2 user ID.
2. Specify a unique name for the rule of thumb in the Name field.
3. If this is the first rule of thumb in the cluster, select the counter category for the rules of thumb that you want to add in the Type list.
   You can define rules of thumb for Accounting and Statistics.
**Important:** The counter category you select here determines the category for the entire cluster. Therefore, this selection is not available for the second and subsequent rules of thumb in the cluster.

4. You can type a description for the rule of thumb in the **Description** field. This is optional.

5. Click the **Definition** tab. On the Definition page you can select the:
   - Tables
   - Report blocks
   - Columns that you want to analyze and for which you want to set rules, threshold values, and tuning recommendations.

You can do the following:
   - Select a report block or a table. Your selection determines the content of the **Columns** box.
   - Fill the **Filter expression** and **Additional columns** boxes by clicking a column in the **Columns** box and then clicking the appropriate **Add** button. The entry appearing in these boxes consists of the table and column names.
   - If you add several columns to the **VALUE expression** box, you must use operators to combine the columns into expressions. Simple arithmetic expressions are allowed that contain the operators (, ), +, -, /, *. The result of the arithmetic expression is run against the values that you specify under **WARNING** and **PROBLEM** thresholds.
   - If you want to include the values of columns that are not part of the arithmetic expression in the analysis result, add these columns to the **Additional columns** box.
   - The SQL query generated from the specifications for this and all other rules of thumb in the cluster and for the rules-of-thumb cluster itself must not exceed 32 KB.

6. Make your selections and fill in the various fields.

7. Click **OK** to save the new rule of thumb and to return to the Performance Warehouse window.
   The new rule of thumb appears in the contents pane of the Performance Warehouse window.

**Example of a rule-of-thumb definition:**

This example shows how to define your rule of thumb on the Definition page of the Rule-of-Thumb Properties window.

Assume the following:

You want to analyze specific data of the Buffer Pool Read report block of the **DB2PM_STAT_BUFFER** table. If the result of dividing the value in the **NO_PREFETCH_NO_BUF** column by the value in the **SEQ_PREFETCH_REQ** column is greater than 0.01, you want to get a warning. If the result exceeds 0.05, you want to be informed that a problem exists. In both cases, you want to give the recommendation that the EDM pool must be increased. In addition, you want the analysis result to include the value of the **SEQ_PREFETCH_REQ** column.

Your selections and specifications would then look as follows:

1. In the **Report block** list, click **BUFFER POOL READ**.
2. In the Columns box, click NO_PREFETCH_NO_BUF and then click Add ( ) next to the VALUE expression box.
   The selected column is added to the VALUE expression box, preceded by the table name.
3. In the Columns box, click SEQ_PREFETCH_REQ and then click Add ( ) next to the VALUE expression box.
   The selected column is added to the VALUE expression box, preceded by the table name. Performance Expert leaves a space between this and the previously added column.
4. In the VALUE expression box, type the operator / between the two columns to specify the division.
5. In the Columns box, click SEQ_PREFETCH_REQ and then click Add ( ) next to the Additional columns box.
6. In the VALUE list (under WARNING and PROBLEM thresholds), click the operator > because you want to be notified when the result of the previously selected columns exceeds a certain value.
7. In the WARNING threshold field, type 0.01.
8. In the PROBLEM threshold field, type 0.05.
9. In both Recommendation fields, type Increase BP size as needed.

Defining filter criteria and additional columns for the rule-of-thumb cluster:

You can specify additional columns and define filter criteria to reduce the analysis result. Your specifications apply to all rules of thumb in the cluster.

To define the additional columns and filter criteria:
1. Click the rule-of-thumb cluster, and then click Selected > Properties.
   The Rule-of-Thumb Cluster Properties window is displayed.
2. Click the Definition tab to do the following:
   • Select a report block or a table. Your selection determines the content of the Columns box.
   • Fill the Filter expression and Additional columns boxes by clicking a column in the Columns box and then clicking the appropriate Add ( ) button. The entry appearing in these boxes consists of the table and column names.
   • If you want the values of additional columns included in the analysis result of all rules of thumb, add these columns to the Additional columns box.
   • If you add several columns to the Filter expression box, you must use operators to combine the columns into an SQL query.
   • You can use variables in the filter expression that you can resolve during the rules-of-thumb analysis. See “Resolving variables” on page 2570 for more information.
   • The SQL query generated from the specifications on this page and for all rules of thumb in the cluster must not exceed 32 KB.
3. Make your selections and fill in the various fields.
4. Click OK to save the changes.

Changing a rule-of-thumb cluster or a rule of thumb:

You can change the properties of a rule-of-thumb cluster or a rule of thumb, or rename or delete a rule-of-thumb cluster or a rule of thumb.
You can change a rule-of-thumb cluster and its rules of thumb in one of the following ways:

- Change the properties of a rule-of-thumb cluster or a rule of thumb.
  To change the properties, click the cluster or the rule of thumb and click Selected > Properties.
- Rename a rule-of-thumb cluster or a rule of thumb.
  To rename a cluster or a rule of thumb, click the cluster or the rule of thumb and click Selected > Rename.
- Delete a rule-of-thumb cluster or a rule of thumb.
  To delete a cluster or a rule of thumb, click the cluster or the rule of thumb and click Selected > Delete.

Copying or moving a rule-of-thumb cluster to another rule-of-thumb group:

The tasks of copying and moving rule-of-thumb clusters are similar. You move a rule-of-thumb cluster to another rule-of-thumb group by copying it to the other rule-of-thumb group and then deleting it from the original rule-of-thumb group.

You can copy a rule-of-thumb cluster within the same rule-of-thumb group.

To copy a rule-of-thumb cluster:
1. In the folders pane of the Performance Warehouse window, under Rule-of-Thumb Clusters, click the rule-of-thumb cluster and then click Selected > Copy.
   The Copy Rule-of-Thumb Cluster window is displayed.
2. In the Rule-of-thumb group list, click an existing rule-of-thumb group to which you want to copy the rule-of-thumb cluster. You can select the same rule-of-thumb group that already contains the rule-of-thumb cluster.
3. In the New rule-of-thumb cluster name field, specify a name for the copy that is unique throughout the destination process group.
4. Click OK to return to the Performance Warehouse window.

The copied rule-of-thumb cluster appears under Rule-of-Thumb Clusters of the selected rule-of-thumb group.

If you copied a public rule-of-thumb cluster, its scope has changed from public to private.

Copying or moving a rule of thumb to another rule-of-thumb cluster:

The tasks of copying and moving rules of thumb are similar. You move a rule of thumb to another rule-of-thumb cluster by copying it to the other rule-of-thumb cluster and then deleting it from the original rule-of-thumb cluster. You can copy a rule of thumb within the same rule-of-thumb cluster.

To copy a rule of thumb, the following must apply:
- The destination rule-of-thumb group must contain at least one rule-of-thumb cluster.
- The rule of thumb that you want copy must be the first rule of thumb in the rule-of-thumb cluster or fit the cluster category. The cluster category is determined by the counter category of the first rule of thumb that you copy or move into, or create for, this cluster.
To copy a rule of thumb:

1. In the folders pane of the Performance Warehouse window, click **Rules of Thumb**. In the contents pane, click the rule of thumb and then click **Selected > Copy**.

The Copy Rule of Thumb window is displayed.

2. In the **Rule-of-thumb group** list, click a rule-of-thumb group to which you want to copy the rule of thumb. You can select the same rule-of-thumb group that already contains this rule of thumb.

3. In the **Rule-of-thumb cluster** field, click a rule-of-thumb cluster to which you want to copy the template. You can select the same rule-of-thumb cluster that already contains this rule of thumb.

4. In the **New rule-of-thumb name** field, specify a name for the copy that is unique throughout the destination rule-of-thumb cluster.

5. Click **OK** to return to the Performance Warehouse window.

The copied rule of thumb appears under the selected rule-of-thumb group and rule-of-thumb cluster.

**Analyzing the performance data:**

You can use rules of thumb to analyze data in the Performance Warehouse database.

For information about how to load data, see “Scenario 1: Transferring performance data into the Performance Warehouse database” on page 2553. You can analyze the data using all rules of thumb in a cluster or using individual rules of thumb. If you analyze an entire rule-of-thumb cluster, the analysis result will show a column for each of the rules of thumb in the cluster.

Several users can analyze the same data at the same time. To avoid a locking conflict, make sure that you are not analyzing the data while another user is loading data into the Performance Warehouse database.

1. To analyze the data, do one of the following:
   - If you want to use a single rule of thumb:
     a. In the folders pane of the Performance Warehouse window, select the appropriate rule-of-thumb cluster and then click its subitem **Rules of Thumb**.

     The contents pane lists all rules of thumb that you defined for this rule-of-thumb cluster.

     b. Select the rule of thumb you want and then click **Selected > Analyze**.
   - If you want to use all rules of thumb defined for a rule-of-thumb cluster:

     In the folders pane of the Performance Warehouse window, select the appropriate rule-of-thumb cluster and then click **Selected > Analyze**.

     The Options page of the Rules-of-Thumb Analysis window is displayed, which shows the filter expression specified for the rule-of-thumb cluster.

     2. **Specify filter criteria.** For more information refer to “Specifying filter criteria” on page 2570.

     3. **Resolve variables.** For more information refer to “Resolving variables” on page 2570.

     4. **Sort the analysis result by the result of the arithmetic expression defined for a specific rule of thumb.** For more information refer to “Sorting the analysis result” on page 2571.
5. Click Analyze to run the analysis.

The Result matrix page of the Rules-of-Thumb Analysis window is displayed. For more information about this and the other pages of this window, see “Viewing and understanding the analysis result” on page 2571.

Specifying filter criteria:

The LOADLOG table holds report and trace interval data for loaded data. You can use the trace start and end time, and the ID of the job step as criteria for filtering rules of thumb. This can be useful if you want to analyze only those trace records loaded by a specific user for a particular step at a certain time.

To specify filter criteria:


   The Time setting area is displayed in the lower-right corner of the contents pane.

   This area shows information from the LOADLOG table. It contains the user ID of the user that loaded the data, the trace interval data, and the load-job step ID associated with the load job. For more information about this table, refer to “The LOADLOG table” on page 2579.

2. Select a row that holds the appropriate trace-start time, trace-end time, or step-log ID and click Start time, End time, or LOAD step.

   If more than one table is referenced, the Select Table window is displayed. Select a table from the list and click OK.

   The corresponding filter expression is displayed in the text field. You can combine expressions using the AND, OR, and NOT operators.

   For example, if you clicked Start time, the filter expression comprises the table name, the trace-start time column name, and the value of the trace-start time for the selected row in the time-setting table.

   If you clicked LOAD step, the filter expression comprises the table name, the step-log ID column name, and the value of the step-log ID for the selected row in the time-setting table.

3. Click Apply. The filter expression is inserted in the Variables context field directly after the WHERE clause.

4. To remove the filter expression from the WHERE clause, click Reset.

Resolving variables:

Unresolved variables in the filter expression are prefixed by a colon.

To resolve these variables:

• On the Options page of the Rules-of-Thumb Analysis window, click Variables in the folders pane.

   The Variables setting area is displayed in the contents pane.

   This area shows a list of variables found in the filter expression with the last-saved values for these variables. Values are saved each time you analyze the trace data or execute a query using the same variables. You can enter a value for each of the variables shown. These values are used when you analyze the trace data.

• Click Reset to change the values of the variables back to the saved values.
Sorting the analysis result:

On the Result matrix and the Column details pages of the Rules-of-Thumb Analysis window, the analysis result is sorted by timestamp or as shown in the Variables context field on the Options page. You can change the order by selecting the result of the arithmetic expression specified for a rule of thumb as sort criterion. In this case, the Column details page shows the results of the arithmetic expression instead of the attention values.

To sort the analysis result:

1. On the Options page of the Rules-of-Thumb Analysis window, click Order by expression value in the folders pane.
   
   If you selected a single rule of thumb, the Select rule of thumb list contains this rule of thumb. If you selected a rule-of-thumb cluster, all rules of thumb in the rules-of-thumb cluster are listed.

2. Select the rule of thumb for the arithmetic expression that you want to use to sort the analysis result.

   You specified the arithmetic expression in the VALUE expression box on the Definition page of the Rule-of-Thumb Properties window for a rule of thumb. The sort direction (ascending or descending) depends on whether you set lower or upper limits for the WARNING and PROBLEM thresholds.

Viewing and understanding the analysis result:

The first page that you see after the analysis finishes is the Result matrix page.

The Result matrix page shows:

- A list of the entire trace data that was created between the trace-start and trace-end times that you specified on the Time pane of the Options page. The data is sorted as follows:
  
  - By timestamp
  
  - As shown in the Variables context field on the Options page
  
  - By the result of the arithmetic expression of the rule of thumb selected on the Order by value expression pane on the Options page

- Additional columns you specified for the rule-of-thumb cluster (cluster definition columns).

- A column for each rule of thumb that you used for the analysis.

- The attention value (OK, warning, problem) of the analysis for each timestamp and rule of thumb. The result depends on your specifications on the Definition page of the Rule-of-Thumb Properties window.

   A dash (–) means that a value is not available.

To reduce the list displayed on the Result matrix page, you can display only rows with at least one warning or a higher attention level or only rows with at least one problem:

- Click View > Warning to view all rows that contain at least one warning or at least one problem.

- Click View > Problem to view only rows that contain at least one problem.

Your selection remains valid until you click View > All again.

If there are a lot of entries in the list, they are not displayed all at one time. You can move to the next or previous set of entries by clicking View > Next or View >
**Previous.** If you previously reduced the list, for example, to rows that show only problems, this selection remains valid when you move to the next or previous set of entries.

*Viewing the results for a specific timestamp:*

In the Result matrix page, click a row in the **Timestamp** column to view the result of all rules of thumb for a specific timestamp. The Row details page of the Rules-of-Thumb Analysis window is displayed.

This page lists all the rules of thumb, the attention values, and the cluster-definition column values for a specific date and time.

The **Cluster definition columns** field shows the values for the columns that you added as additional columns to the rules-of-thumb cluster that contains the analyzed rules of thumb (see the Definition page of the Rules-of-Thumb Cluster Properties window).

The **Rule of thumb details** shows the result of the first rule of thumb in the list for which the **Attention** column contains a value.

To view the result of another rule of thumb, click it in the **ROT Name** column. For more information about the individual fields, see [Explanation of the individual fields in the Rules of thumb details](#).

*Viewing the results for all timestamps:*

In the Result matrix page, click a column other than the **Timestamp** column or the **Cluster definition columns** to view the result of a rule of thumb for all timestamps. The Column details page of the Rules-of-Thumb Analysis window is displayed.

This page lists the timestamps, the attention values, and the cluster-definition column values for the selected rule of thumb. If the analysis result is sorted by the result of the arithmetic expression of a specific rule of thumb, the results of the arithmetic expression are shown instead of the attention values and you are informed of the sort.

The **Cluster definition columns** field shows the values for the columns that you added as additional columns to the rules-of-thumb cluster that contains the selected rule of thumb (see the Definition page of the Rules-of-Thumb Cluster Properties window).

The **Rules of thumb details** shows the result of the first timestamp in the list for which the **Attention** column contains a value. To view the result of another timestamp, click it in the **Timestamp** column.

Explanation of the individual fields under **Rules of thumb details** on the Row Details and Column Details pages:

**ROT description**

The description that you specified for the rule of thumb on the General page of the Rule-of-Thumb Properties window.

**VALUE expression**

The arithmetic expression that you specified in the **VALUE expression** box on the Definition page of the Rule-of-Thumb Properties window.
VALUE
The result of the arithmetic expression and its relation to the appropriate threshold value, as defined on the Definition page of the Rule-of-Thumb Properties window.

Recommendation
The recommendation that you specified on the Definition page of the Rule-of-Thumb Properties window in the case of a problem or a warning.

VALUE expression columns
The individual table columns that you selected for the VALUE expression box on the Definition page of the Rule-of-Thumb Properties window and the value produced by the analysis.

Additional columns
The table columns that you added as additional columns to the selected rule of thumb (see the Definition page of the Rule-of-Thumb Properties window) and the values produced by the analysis.

Defining and running queries
You can use the query facility to define performance-management queries to run on the Statistics and Accounting tables in the Performance Warehouse database.

For example, Accounting tables contain performance data that shows how many resources are consumed by the applications. Appropriate queries on the ACCOUNTING table can help you achieve performance improvements. A set of queries is provided. They can be run as they are but you can also define and save your own queries.

You always start on the Performance Warehouse window. In the System Overview window, click the Performance Warehouse toolbar button to start Performance Warehouse. The Performance Warehouse window is displayed.

Managing query groups:
A query group is a container for queries. The Public query group contains the sample queries delivered with the product and those queries that other users have made generally available.

In the sample queries, the query strings and value expressions are not formatted. However, you can copy the queries and rules, and insert blanks or new lines to get a more readable format.

Creating a query group:
Before you define a query, you must create a query group to contain this query.

To create a query group:
1. In the folders pane of the Performance Warehouse window, select Query Groups and then click Selected > Create.
   The Query Group Properties window is displayed.
   The Author, Creation date and time, and Modification date and time fields are filled in when you click OK. The Author field will contain your DB2 user ID.
   
2. In the Name field, specify a unique name for the query group.
3. You can type a description for the query group in the **Description** field. This is optional.

4. Click **OK** to save this query group and return to the Performance Warehouse window.
   
The new group appears in the folders pane as a subitem of **Query Groups**.

**Changing a query group:**

You can change the description of the query group, or rename or delete a query group.

You can change a query group in one of the following ways:

- Change the description of the query group.
  
  To change the description, click the query group and click **Selected > Properties**.
- Rename a query group.
  
  To rename a group, click the query group and click **Selected > Rename**.
- Delete a query group.
  
  To delete a group, click the query group and click **Selected > Delete**.

**Copying a query group:**

If you want to create several query groups that only differ in a query property, you might prefer to copy and change a query group. When you copy a query group, any queries that it contains are copied with it.

To copy a query group:

1. In the folders pane of the Performance Warehouse window, under **Query Groups**, click the query group and then click **Selected > Copy**.
   
The Copy Query Group window is displayed.

2. In the **New query group name** field, specify a name for the copy that is unique within the query-group folder.

3. Click **OK**.
   
   When you return to the Performance Warehouse window, the copy appears in the folders pane.

**Managing queries:**

After you define query groups you can create and change queries.

**Creating a query:**

To create a query, select **Queries** in the folders pane of the Performance Warehouse window and then click **Selected > Create**.

The General page of the Query Properties window is displayed. The **Author**, **Creation date and time**, and **Modification date and time** fields are filled in when you click **OK**. The **Author** field will contain your DB2 user ID. Then:

1. Specify a unique name for the query in the **Name** field.
2. You can type a description for the query in the **Description** field. This is optional.
3. Click the **Definition** tab. Here you can select or specify the SQL string that makes up the query.
4. Select a report type.
5. Select a report block or a table. Your selection determines the content of Columns.
6. Select a row in Columns that contains the column or table name you want to include in your query and then select this name to include it in the query. For more information about the Columns contents, refer to “The Performance Warehouse data tables” on page 2577.
7. Click Add column or Add table to add the column or table name to the query. You can use SQL query operators to combine the names.
8. Click OK to save the query and return to the Performance Warehouse window.

Changing a query:

You can change the properties of a query, or rename or delete a query.

You can change a query in one of the following ways:

• Change the properties of a query, such as the scope, description, or query definition.
  To change the properties, click the query and click Selected > Properties.
• Rename a query.
  To rename a query, click the query and click Selected > Rename.
• Delete a query.
  To delete a query, click the query and click Selected > Delete.

Copying or moving a query to another query group:

The tasks of copying and moving queries are similar. You move a query to another query group by copying it to the other query group and then deleting it from the original query group.

You can copy a query within the same query group.

To copy a query:
1. In the folders pane of the Performance Warehouse window, click Queries. In the contents pane, click the query you want to copy and then click Selected > Copy.
   The Copy Query window is displayed.
2. In the Query group list, click an existing query group to which you want to copy the query. You can select the same query group that already contains this query.
3. In the New query name field, specify a unique name for the copied query.
4. Click OK to return to the Performance Warehouse window.
   The copied query appears under the selected query group.

Running a query:

You can run queries on the data in the Performance Warehouse database.

For information about how to load data, see “Scenario 1: Transferring performance data into the Performance Warehouse database” on page 2553. Several users can run their queries on the same data. In this case, however, to avoid a locking
conflict, make sure that you are not running the query while another user is loading data into the Performance Warehouse database.

1. In the folders pane of the Performance Warehouse window, select the appropriate query group and then click its subitem Queries. The contents pane lists all the queries in the query group.

2. Click the query you want to run and then click Selected > Execute. The View SQL page of the Query Execution window is displayed. It shows the query definition. From here you can edit the query, specify filter criteria, and resolve any unresolved variables in the query expression. Note that variables must begin with a colon followed by at least one alphanumeric character, such as :c. It can also consist of alphanumeric and underscore characters, for example, :connect_type6.

3. Specify filter criteria. For more information refer to “Specifying filter criteria.”

4. Resolve variables. For more information refer to “Resolving variables” on page 2577.

5. Click Execute to start the query. The View Result page of the Query Execution window is displayed. For more information about this window, see “Viewing the query results” on page 2577.

Specifying filter criteria:

The LOADLOG table holds report and trace interval data for loaded data. You can use the trace start and end time, and the ID of the job step as criteria for filtering queries. This can be useful if you want to analyze only those trace records loaded by a specific user for a particular step at a certain time.

To specify filter criteria:

1. On the View SQL page of the Query Execution window, click Time. The Time setting area is displayed in the contents pane. This area shows information from the LOADLOG table. It contains the user ID of the user that loaded the data, the trace-interval data, and the load-job step ID associated with the load job. For more information about this table, refer to “The LOADLOG table” on page 2579.

2. Select a column that holds the appropriate trace-start time, trace-end time, or step-log ID and click Start time, End time, or LOAD step. The Select Table window is displayed.

3. Select a table from the list and click OK. The corresponding filter expression is displayed in the text field. You can combine expressions using the AND, OR, and NOT operators. For example, if you clicked Start time, the filter expression comprises the table name, the trace start time column name, and the value of the trace start time of the selected row in the time-setting table. If you clicked LOAD step, the filter expression comprises the table name, the step-log ID column name, and the value of the step-log ID of the selected row in the time-setting table.

4. Click Apply. The filter expression is inserted in the query at the current cursor position.
Resolving variables:

Unresolved variables in the query expression are prefixed by a colon.

To resolve these variables:

1. On the View SQL page of the Query Execution window, click Variables. The Variables setting area is displayed in the contents pane.
   This area shows a list of variables found in the query expression with the last-saved values for these variables. Values are saved each time you analyze the trace data or execute a query using the same variables. You can enter a value for each of the variables shown. These values are used when you run the query.

2. Click Reset to change the values of the variables back to the saved values.

Viewing the query results:

After the query has run, the View SQL page of the Query Execution window is displayed.

The query expression is shown at the top of the page. The table shows the result of the query. The column headings are defined by the query. The number of rows read from the result set is shown at the bottom of the table. To sort the contents of the table, click a column heading.
- To save the results in a format that can be used by standard spreadsheet programs, click Save.
  The result matrix, the query properties, and the query expression are saved.
- To view the query results in a Web browser, click Browse.
  You can use the Web browser's standard functions to print the query results.

Overview of the Performance Warehouse database

To analyze your performance data, you can run SQL queries against the tables in the Performance Warehouse database. The sample queries delivered with Performance Warehouse help you understand the contents of, and relationships between, the tables and how data can be joined to evaluate performance data and identify performance problems.

However, to use your queries efficiently, you must understand the data model designed for the performance-relevant tables. In addition, you must be familiar with the LOADLOG table, which you need to access and manage the data in the Performance Warehouse database, for example, if you want to delete or archive it.

The Performance Warehouse database consists of:
- Performance Warehouse data tables that store the DB2 performance data collected from DB2.
- Control tables that establish the infrastructure of Performance Warehouse.

The Performance Warehouse data tables

The Performance Warehouse database contains the following Performance Warehouse data tables for table space STAT.
<table>
<thead>
<tr>
<th>Table name</th>
<th>Table description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2PM_STAT_BUFFER</td>
<td>One row for each buffer pool that is active at the start of:</td>
</tr>
<tr>
<td></td>
<td>• The corresponding delta record for file data.</td>
</tr>
<tr>
<td></td>
<td>• The interval record for save-file data.</td>
</tr>
<tr>
<td>DB2PM_STAT_DATASET</td>
<td>One row for each open data set that has an I/O event rate of at least one event per second during the reporting interval.</td>
</tr>
<tr>
<td>DB2PM_STAT_DDF</td>
<td>For each delta record (file data) or interval record (save-file data), one row per remote location participating in distributed activity using the system-directed access method and one row for all remote locations using the application-directed access method.</td>
</tr>
<tr>
<td>DB2PM_STAT_GBUFFER</td>
<td>One row per group buffer pool that is active at the start of the corresponding delta record for file data or of the interval record for save-file data.</td>
</tr>
<tr>
<td>DB2PM_STAT_GENERAL</td>
<td><strong>For file data:</strong> One row for each Statistics delta record, containing data from IFCID 1 and 2. A delta record is a set of counters describing the DB2 activity between two consecutive DB2 Statistics records pairs.</td>
</tr>
<tr>
<td></td>
<td><strong>For save-file data:</strong> One row for each Statistics interval record, containing data from IFCID 1 and 2. A Statistics interval record is a set of counters describing the DB2 activity within the interval specified by the user.</td>
</tr>
</tbody>
</table>

The Performance Warehouse database contains the following Performance Warehouse data tables for table space **ACCS**:

<table>
<thead>
<tr>
<th>Table name</th>
<th>Table description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2PMSACCT_BUFFER</td>
<td>One row per buffer pool used.</td>
</tr>
<tr>
<td>DB2PMSACCT_DDF</td>
<td>One row per remote location participating in distributed activity.</td>
</tr>
<tr>
<td>DB2PMSACCT_GBUFFER</td>
<td>One row per group buffer pool used.</td>
</tr>
<tr>
<td>DB2PMSACCT_GENERAL</td>
<td>One row per DB2 Accounting record, which is written when a thread terminates, is reused, or becomes inactive.</td>
</tr>
<tr>
<td>DB2PMSACCT_PROGRAM</td>
<td>One row per package and DBRM executed.</td>
</tr>
<tr>
<td>DB2PMSACCTRLF</td>
<td>One row per resource limit type encountered.</td>
</tr>
</tbody>
</table>

Related reading: For more information about these tables, refer to the part on the Performance Warehouse database in [Reporting User’s Guide](#).

The Performance Warehouse database described in the Reporting User’s Guide contains more tables than the one described here. However, it must be created and managed manually using the sample CREATE and LOAD parts shipped with OMEGAMON for Db2 PE. The Performance Warehouse database described here is created automatically, managed by the OMEGAMON Collector, and is accessible using the Performance Warehouse client.

Related reading: The Accounting and Statistics tables are associated in a 1:n relationship as described in [Reporting User’s Guide](#).

The general table is the parent table for all other tables. Each row in the general table is associated with zero, one, or several rows in the other tables. For Accounting SAVE tables, use the columns LOCAL_LOCATION to
CLIENT TRANSACTION for joining related data. For Statistics tables, use the columns LOCAL LOCATION, GROUP NAME, SUBSYSTEM ID, MEMBER NAME, INTERVAL TSTAMP, and BEGIN REC TSTAMP for joining related data.

The Accounting and Statistics tables in the Performance Warehouse database contain the following additional columns: STEPLOGID of type INTEGER and ROW_ID of type ROWID. These columns are populated by the OMEGAMON Collector and DB2 when performance data is loaded into the Performance Warehouse data tables. The value of STEPLOGID references the LOADLOG table and can be used to correlate the performance data and the LOAD step that loaded the data. DB2 generates the ROW_ID values automatically when rows are added to the Performance Warehouse data tables. They are used in the rules-of-thumb analysis to correlate general and detailed analysis results.

The LOADLOG table

The LOADLOG table contains the information you need to access and manage the performance data.

<table>
<thead>
<tr>
<th>Column name</th>
<th>Data type</th>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LL_ID</td>
<td>INTEGER</td>
<td>P</td>
<td>Unique LOADLOG ID</td>
</tr>
<tr>
<td>LL_INSERTEDBY</td>
<td>VARCHAR(8)</td>
<td></td>
<td>User ID of the user who inserted the data</td>
</tr>
<tr>
<td>LL.STARTTTS</td>
<td>TIMESTAMP</td>
<td></td>
<td>Date and time of the first event recorded</td>
</tr>
<tr>
<td>LL.STOPTS</td>
<td>TIMESTAMP</td>
<td></td>
<td>Date and time of the last event recorded</td>
</tr>
<tr>
<td>LL_LOADTYPE</td>
<td>CHAR(10)</td>
<td></td>
<td>Load type: ACCOUNTING, STATISTICS</td>
</tr>
</tbody>
</table>

Each row in the table is associated with a LOAD step executed by the OMEGAMON Collector and has a unique LL_ID. This LL_ID is referenced by an Accounting or a Statistics table with its foreign key STEPLOGID, which is defined with delete rule ON DELETE SET NULL. If you delete a row from the LOADLOG table, the column STEPLOGID of the dependent rows is set to NULL. To delete data from the DB2PM_STAT and DB2PMSACCT tables:

1. Determine the entries using the LOADLOG table and apply a search condition on the STEPLOGID column in the DELETE statements.
2. Delete the corresponding LOADLOG entries.

The LOADLOG entries related to the LOAD steps are displayed under Time setting on the View SQL page of the Query Execution window and on the Options page of the Rules-of-Thumb Analysis window. They help you restrict your queries and rules of thumb to the time intervals during which data was loaded.

Accessibility features in Performance Expert Client

This section describes the major accessibility features in Performance Expert Client.

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, use software products successfully. For general information about accessibility refer to “Accessibility features” on page 26.
You can:
• Operate all features using the keyboard instead of the mouse.
• Access the individual help files.
• Change the system settings to high contrast for all user interface controls and all client area contents.

This section explains how to use these accessibility features.

**Operating all features by using the keyboard**
You can use keys or key combinations to perform operations that can also be done through mouse actions. All menu items can be accessed from the keyboard. In those cases, the keyboard equivalent appears to the right of the menu item, or the shortcut letter is underlined. Some keyboard items also have shortcuts.

To navigate through a window or dialog by using the keyboard instead of the mouse, use the following keyboard shortcuts:

*Table 207. Navigating through a window or dialog*

<table>
<thead>
<tr>
<th>Navigating through a window or dialog</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access the window menu</td>
<td>Alt, then down arrow (consecutively)</td>
</tr>
<tr>
<td>Access the menu bar in a window</td>
<td>Alt+underlined letter or F10</td>
</tr>
<tr>
<td>Activate a menu item in the menu bar</td>
<td>Enter</td>
</tr>
<tr>
<td>Access controls in a dialog</td>
<td>Alt+underlined letter</td>
</tr>
<tr>
<td>Navigate through the menu bar</td>
<td>Right arrow, left arrow, down arrow, up arrow</td>
</tr>
<tr>
<td>Move to the next set of controls</td>
<td>Tab or F6</td>
</tr>
<tr>
<td>Move to the previous set of controls</td>
<td>Shift+Tab</td>
</tr>
<tr>
<td>Move within tables</td>
<td>Tab or right arrow, Shift+Tab or left arrow, down arrow, up arrow</td>
</tr>
<tr>
<td>Move within folders panes</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Expand a folder</td>
<td>Right arrow</td>
</tr>
<tr>
<td>Collapse a folder</td>
<td>Left arrow</td>
</tr>
<tr>
<td>Move within list boxes</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Move within combo boxes</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Move to a split bar in a window</td>
<td>F8</td>
</tr>
<tr>
<td>Resize a window by using the split bar</td>
<td>Arrow keys</td>
</tr>
</tbody>
</table>

To perform main tasks in windows by using the keyboard instead of the mouse, use the following keyboard shortcuts:

*Table 208. Keyboard shortcuts in a window*

<table>
<thead>
<tr>
<th>Task</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Help</td>
<td>F1</td>
</tr>
<tr>
<td>Close the active window</td>
<td>Ctrl+W or Alt+F4</td>
</tr>
<tr>
<td>Exit the application</td>
<td>Ctrl+Q</td>
</tr>
<tr>
<td>Cut</td>
<td>Ctrl+X</td>
</tr>
<tr>
<td>Copy</td>
<td>Ctrl+C</td>
</tr>
</tbody>
</table>
### Table 208. Keyboard shortcuts in a window (continued)

<table>
<thead>
<tr>
<th>Task</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paste</td>
<td>Ctrl+V</td>
</tr>
<tr>
<td>Print</td>
<td>Ctrl+P</td>
</tr>
<tr>
<td>Refresh displayed data</td>
<td>F5</td>
</tr>
<tr>
<td>Enter or leave history mode</td>
<td>Ctrl+H</td>
</tr>
<tr>
<td>Move back in history mode</td>
<td>Alt+left arrow</td>
</tr>
<tr>
<td>Move forward in history mode</td>
<td>Alt+right arrow</td>
</tr>
<tr>
<td>Add a new DB2 system in System Overview</td>
<td>Ctrl+N</td>
</tr>
<tr>
<td>Add a new configuration in Trace Configurations</td>
<td>Ctrl+N</td>
</tr>
<tr>
<td>Cancel thread in Thread Summary and Details</td>
<td>Del</td>
</tr>
<tr>
<td>Delete Trace Configuration in Trace Configurations</td>
<td>Del</td>
</tr>
<tr>
<td>Open Trace Configuration</td>
<td>Ctrl+Alt+N</td>
</tr>
<tr>
<td>Open Trace Activation</td>
<td>Ctrl+Alt+A</td>
</tr>
<tr>
<td>Open Exception Processing</td>
<td>Ctrl+Alt+E</td>
</tr>
<tr>
<td>Open System Overview</td>
<td>Ctrl+Alt+O</td>
</tr>
<tr>
<td>Open Buffer Pool Analysis</td>
<td>Ctrl+Alt+B</td>
</tr>
<tr>
<td>Open DB2 command for the active DB2 subsystem</td>
<td>Ctrl+Alt+D</td>
</tr>
<tr>
<td>Open Statistics Details for the active DB2 subsystem</td>
<td>Ctrl+Alt+S</td>
</tr>
<tr>
<td>Open System Health for the active DB2 subsystem</td>
<td>Ctrl+Alt+H</td>
</tr>
<tr>
<td>Open Threads in Lock Conflicts for the active DB2 subsystem</td>
<td>Ctrl+Alt+L</td>
</tr>
<tr>
<td>Open Locking Conflicts for the active DB2 subsystem</td>
<td>Ctrl+Alt+C</td>
</tr>
<tr>
<td>Open System Parameters for the active DB2 subsystem</td>
<td>Ctrl+Alt+Y</td>
</tr>
<tr>
<td>Open Performance Warehouse for the active DB2 subsystem</td>
<td>Ctrl+Alt+P</td>
</tr>
<tr>
<td>Open Thread Summary for the active DB2 subsystem</td>
<td>Ctrl+Alt+T</td>
</tr>
</tbody>
</table>

To perform main tasks in dialogs by using the keyboard instead of the mouse, use the following keyboard shortcuts:

### Table 209. Keyboard shortcuts in a dialog

<table>
<thead>
<tr>
<th>Task</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirm a dialog</td>
<td>Enter</td>
</tr>
<tr>
<td>Cancel a dialog</td>
<td>Esc</td>
</tr>
<tr>
<td>Activate a button that has the focus</td>
<td>Spacebar or Enter</td>
</tr>
<tr>
<td>Select and deselect check boxes and radio buttons</td>
<td>Spacebar</td>
</tr>
</tbody>
</table>
Table 209. Keyboard shortcuts in a dialog (continued)

<table>
<thead>
<tr>
<th>Task</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navigate within check box and radio button groups</td>
<td>Tab</td>
</tr>
<tr>
<td>Open combination box menu</td>
<td>Alt+down arrows</td>
</tr>
<tr>
<td>Close combination box menu</td>
<td>Esc</td>
</tr>
<tr>
<td>Move up and down in combination box menu</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Activate combination box menu item</td>
<td>Spacebar or Enter</td>
</tr>
<tr>
<td>Move within a list box</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Activate a list box entry</td>
<td>Enter</td>
</tr>
<tr>
<td>Move to a tab in a window containing tabbed pages</td>
<td>Ctrl+Up</td>
</tr>
<tr>
<td>Move between the pages of a window containing tabs</td>
<td>Right arrow, left arrow</td>
</tr>
<tr>
<td>if the tab has the focus</td>
<td></td>
</tr>
</tbody>
</table>

**Changing the system settings for colors, fonts, and accessibility options**

If you are not satisfied with the colors, fonts, and accessibility options supplied by OMEGAMON for Db2 PE you can change them within your operating system or within Performance Expert Client.

You must restart OMEGAMON for Db2 PE before the new settings take effect.

To change the settings within Performance Expert Client:

1. In the System Overview window, click **Monitor > Configuration**. The Configuration window is displayed.
2. Click the **Accessibility** tab.
3. To specify the appearance scheme for high contrast and font size, select one of the following options in the **High contrast scheme** list:
   - To use the default settings, select **[None]**.
   - To specify a white background containing black text in normal font size, select **Black on white**.
   - To specify a white background containing black text in large font size, select **Black on white (large font)**.
   - To specify a black background containing white text in normal font size, select **White on black**.
   - To specify a black background containing white text in large font size, select **White on black (large font)**.

**Buffer Pool Analyzer**

This information describes how to use the suite of IBM Database 2 (DB2) Buffer Pool Analysis tools to analyze and tune the buffer pool performance of DB2 systems. Initially, it introduces the concept of buffer pool analysis and tuning and describes the tasks that can be performed to acquire comprehensive performance information. Further on, the information guides the user through the sophisticated object placement and simulation components that provide recommendations for tuning of buffer pool resources.
This information is designed to help performance analysts and database administrators perform these tasks:

- Plan for the analysis and optimization of DB2 buffer pool performance
- Collect appropriate buffer pool performance data
- Create and interpret reports from collected performance data
- View and interpret performance data in graphical form on a client
- Optimize the buffer pool usage by identifying optimal placements of table spaces and index spaces in buffer pools, and optimal buffer pool sizes and parameters
- Simulate different buffer pool scenarios and their effects to evaluate buffer pool tuning alternatives

This information focuses intentionally on the usage aspects of the Buffer Pool Analyzer tools and functions. Information regarding the task of buffer pool analysis is necessarily presented in a condensed form to keep the information focused. Users of this information should consider the Db2 IBM Redbook Performance Expert for z/OS (SG24-6867) which is written by experienced specialists and dedicates an entire chapter to optimizing buffer pool resources.

The product often provides context-related online help information that can be invoked from menus, panels, and windows through the F1 (Help) key or the Help button. Online help information is not necessarily repeated in this information, especially if it is very detailed information that is of interest only when you actively work with a function. You are encouraged to use F1 or Help to see the entire available information.

Always check the IBM DB2 and IMS Tools Library web page and the Tivoli library page for the most current version of this information:

- OMEGAMON for Db2 Performance Expert on z/OS (PDFs and Techdocs on Db2 Tools Product Page)
- OMEGAMON for Db2 Performance Monitor on z/OS (PDFs and Techdocs on Db2 Tools Product Page)

**Overview of Buffer Pool Analyzer**

This topic gives an overview of Buffer Pool Analyzer and the Buffer Pool Analysis tools of DB2 Performance Expert.

**What does Buffer Pool Analyzer do**

Buffer Pool Analyzer provides a suite of tools that support in-depth analysis of the performance of DB2 buffer pools.

- Collection of buffer pool related performance data
- Host-based creation of reports about buffer pool performance and group buffer pool performance
- Conversion of performance data to formats suitable for client-based functions and for loading into DB2 tables
- Client-based graphical representation of buffer pool performance data
- Client-based optimization of major buffer pool attributes, like the optimum assignment of objects in buffer pools and optimum buffer pool sizes, based on actual performance data
- Client-based simulation of the effects of different buffer pool attributes, based on actual performance data
- Client-based long-term analysis of historical and current performance data
These tools help performance analysts and database administrators to monitor, analyze, and optimize DB2 buffer pools on different levels in an effective way.

**Buffer Pool Analyzer functions and components**

Buffer Pool Analyzer consists of several functions and components. They are identical for the Buffer Pool Analyzer stand-alone product and the integrated Buffer Pool Analysis functions of DB2 Performance Expert.

- DB2 performance data is collected on a z/OS or OS/390 host. ISPF and the Collect Report Data (CRD) function, or the batch JCL, is used to configure and control a collect task.
- Reports are created from collected data through batch JCL and the **BPACTIVITY** (Buffer Pool Activity) command, which provides options to customize reports for different needs. The same function is used for conversion of performance data.
- The client-based Buffer Pool Analyzer functions are combined in a Windows-based application. Through its graphical user interface you can view reports, use the optimization and simulation functions, perform long-term analyses, and get access to previously generated results.

**How Buffer Pool Analyzer is used**

The suite of Buffer Pool Analyzer tools can be used to monitor, analyze, and tune buffer pools.

The tools’ usage varies with the goal to be achieved.

- If frequent monitoring and performance observation with minimum effort is the goal, high level summary reports can be created on the host from collected performance data. This process can be automated by frequently running batch jobs. Data collection and report creation can be configured for individual needs. Optionally, data can be viewed on the Buffer Pool Analyzer client in attractive and intuitive graphical representations.
- If an analysis of buffer pool related problems is needed, several summary and detail reports can be created to quickly identify possible problem areas. Reports can be customized to provide timely and content-specific information.
- If optimization and tuning of buffer pool resources and usage is the goal, the object placement and buffer pool sizing tool and the buffer pool simulation tool are first choice. Based on real and representative buffer pool performance data, these tools ease the process of finding optimal use of buffer pool resources and simulating the effects of possible changes.
  - The object placement and initial buffer pool sizing tool uses predefined and modifiable expert rules and the objects actual access behavior to calculate optimized buffer pool arrangements. It recommends ready-to-use SQL ALTER statements and DB2 ALTER commands, with their parameters set to the recommended values. The tool can be used to balance buffer pool sizes, for example to separate sequentially from randomly accessed objects into different buffer pools, to optimize memory usage, and to improve application response times.
  - The simulation tool uses actual objects’ access behavior and simulates different object placements and buffer pool size ranges. The simulation results provide a reliable prediction about the effects that different placements and sizes would have on a system. Simulation is used to perform what-if scenarios to balance buffer pool sizes and performance and to provide precise information about the prospective effects of different buffer pool scenarios.

Both tools complement each other by performing the (often complex and iterative) task of optimization and tuning on a client, thereby still relying on actual performance data. The strength of object placement and initial buffer pool
sizing is its rule-based algorithm and its ready-to-use recommendations. Simulation takes the surprises out of planned changes and minimizes the number of system disruptions.

The long-term analysis function adds another dimension to monitoring, analysis, and tuning: historical and current performance data can be combined and analysed as a whole to easily detect trends, hourly, daily, and weekly peaks, repetitive performance pattern, unbalanced resource usage, and much more. The client-based long-term analysis function provides an array of intuitive selections to focus on important performance indicators, buffer pools, and database objects.

Benefits of using Buffer Pool Analyzer

Buffer Pool Analyzer offers performance analysts and database administrators tuning advice that is based on the analysis of DB2 trace data.

The benefits from analyzing buffer pool performance with Buffer Pool Analyzer are:

- Easy monitoring of the performance of buffer pools and group buffer pools to detect bottlenecks, trends, and unused resources
- Fast adaptation of buffer pool parameters to changing DB2 usage conditions
- Optimized use of buffer pools by aligning buffer pool size and object placement to available resources
- Non-disruptive simulation of buffer pool behavior to test the impact of changes before they are applied
- Long-term analysis of factual performance for improved prediction of future performance and resource needs

Introduction to Buffer Pool Analyzer

This topic introduces the concept of DB2 buffer pool analysis and tuning, and the role of Buffer Pool Analyzer components and functions on the host and on the client.

Furthermore, the terminology that is used throughout this information is introduced and the mandatory and optional tasks that you can perform for each type of analysis are identified.

The following topics provide additional information:

- “The role and importance of DB2 buffer pools”
- “The role and importance of DB2 group buffer pools in data sharing groups” on page 2586
- “How Buffer Pool Analyzer supports performance analyses” on page 2587
- “Buffer pool analysis and tuning processes” on page 2588
- “The functions of Buffer Pool Analyzer” on page 2592
- “Summary of user tasks” on page 2602
- “Where to start” on page 2604

The role and importance of DB2 buffer pools

DB2 buffer pools are the means of caching frequently used DB2 data in fast memory to prevent or at least reduce the number of slow input/output (I/O) operations.

Buffer pools are used to cache disk pages of databases. Buffer pool management algorithms handle prefetching of blocks of data before the pages are needed,
maintain them in buffers for faster access by DB2 applications, and write them back to disk asynchronously, thus maximizing the performance of applications.

When DB2 is started, buffer pools are initiated with attributes that determine, for example, the sizes and thresholds of individual buffer pools. The activity in buffer pools and their efficiency is affected by these static attributes.

![Figure 184. The role of buffer pools in DB2 systems](image)

However, the activity in buffer pools is far more dependent on how the data in DB2 table spaces and index spaces is accessed. Table spaces and index spaces, commonly called objects in this information, hold DB2 tables and associated indexes. These spaces are divided into equal-sized pages, which are written to or read from disk in one operation. When the size of DB2 tables and indexes changes over time, or when the frequency and nature of accesses from DB2 changes, the initial buffer pool attributes might not be optimal after some time.

DB2 provides a set of commands and SQL statements to alter the size of buffer pools and the assignments of DB2 objects to buffer pools. These commands provide a means of altering buffer pool attributes that were set when DB2 was started, and they can be used to adapt the buffer pool characteristics to match the changing usage of DB2 data.

Despite the availability of commands, expert knowledge is required to optimally lay out a system and set up the parameters correctly. Important buffer pool attributes, like buffer pool sizes and assignments of objects to buffer pools, should not be seen as being final and might need to be varied over time to efficiently use the available buffer pools. Therefore, it is essential to frequently monitor the actual usage and performance of buffer pools to identify bottlenecks and to adjust the buffer pool attributes to their most efficient values. The performance of buffer pools strongly influences the data throughput of a DB2 system.

**The role and importance of DB2 group buffer pools in data sharing groups**

In a parallel sysplex environment two or more DB2 subsystems can be grouped in a so-called data sharing group to share a single set of data while maintaining data integrity.

Each member, respectively DB2 subsystem, of a data sharing group continues to own its local set of buffer pools for the purposes and benefits described so far. However, to coordinate the flow of data between multiple subsystems and the shared set of physical 1/0s, a common set of buffer pools is required as intermediary. This set is called group buffer pool because it serves all members of a data sharing group. Group buffer pools (GBPs) are located in a coupling facility.
(CF), the piece of hardware that provides a shared memory capability in a parallel sysplex environment.

DB2 provides the necessary data sharing mechanisms for locking and caching of data to ensure data coherence among member and group buffer pools, and to ensure data consistency in the entire data sharing group. Further, DB2 provides commands to create, alter, and monitor group buffer pools, similar to commands for buffer pools of individual subsystems.

With regard to performance, it can easily be seen that group buffer pools are subject to similar criteria than the members' buffer pools: They prefetch data from disks in advance, cache it for use by the members' buffer pools, and cast out data to disks asynchronously. The important point is that the activity in group buffer pools is the cumulative activity of the members' buffer pools. Therefore, it is even more essential to frequently monitor and tune the performance of group buffer pools to maintain a high data throughput.

**Related reading:** For a detailed introduction to DB2 data sharing and group buffer pools, see *DB2 11 Data Sharing: Planning and Administration*.

**How Buffer Pool Analyzer supports performance analyses**

Buffer Pool Analyzer specializes in the analysis of buffer pool-related performance data. It belongs to a suite of DB2 tools and products that assist in the management of DB2 systems. It is also an integrated part of DB2 Performance Expert that specializes in the entire performance of DB2 systems.

At this time, it should be clear that buffer pool-related analysis, monitoring, and tuning are accompanying measures in the overall analysis, monitoring, and tuning
Buffer pool analysis and tuning processes

Analyzing the performance of buffer pools and tuning a DB2 system for optimum performance is a process that can serve several purposes and that involves one or more tasks dependent on your requirements and motivations.

Different tasks take varying amounts of time, might require different levels of knowledge, and require different level of information or support. This topic outlines some typical database administrator goals and tasks. It is basically about why, what, and when something should be done.

Observe performance of buffer pools:

Administrators with many systems need a single method of monitoring those systems, especially when they are complex as in data sharing groups.
A single observation provides you with a snapshot of current system behavior. Repeated observation keeps systems healthy by regularly checking for deviations from an expected level of performance.

These tasks require high-level summary information about critical buffer pool components and activities. The information should reflect a representative workload, and it should ideally be comparable with previous information. It should be easy to obtain and cause no significant load on the monitored system.

Current summary information should be collected and analyzed regularly.

You can use this information to detect out-of-line situations, to develop reference points for future comparisons, and to detect performance trends. Administrators can automate the collection of data by setting up scheduled batch jobs that collect specified performance data and create appropriate activity reports about buffer pools and group buffer pools. This ensures that up-to-date reports are always available for analysis.

**React to out-of-line situations:**

Up-to-date performance data is used to quickly react to out-of-line situations.

This task is often driven by user concerns about the performance of DB2 applications. It can also be driven by unexpected results observed in basic reports described previously. If such problems prove to be related to buffer pools or group buffer pools, they require in-depth analysis.

You need to be able to recognize these problems quickly and to react to them quickly. Your immediate needs are up-to-date performance information at several levels of detail, usually beginning with summary information, followed by more detailed information. This information must reflect the performance from the time that applications were observed to run slowly, or when summary report information shows unexpected behavior.
Optimize buffer pool usage and sizes:

A major task of database administrators is the tuning of complex systems.

This task includes the optimization of buffer pools for the most effective use by DB2. It is the process of finding the most effective distribution of DB2 objects in the available buffer pools, based on the characteristics of the objects. And it includes determining efficient buffer pool parameters for these placements. An optimized buffer pool provides the best possible hit ratios, in terms of pages found in the buffer pools, related to the given sizes of the buffer pools.

The need for optimizing the usage of buffer pools can have several reasons:

- New DB2 applications might require new objects, and they might need to share existing buffer pool resources.
- Table spaces are resized, table columns are added, or page sizes are changed.
- The usage of DB2 objects changed over time and demands a new balancing of individual buffer pools.
- Regular review and analysis of buffer pool performance indicates inefficiencies or shows unused buffer pool resources.

Database administrators often perceive buffer pool performance in context with the design and usage of tables and indexes, and also in context with the available buffer pool memory. Database systems are often so complex that it is more or less impossible to tune them manually. Expert knowledge is often required to find a good balance among the many parameters and rules.

The task of optimizing the performance will usually take several iterations of analyzing the current state, finding better object placements and buffer pool sizes, tuning the system, and reviewing the effects.

**Predict the effect of changes:**

Database administrators need to predict the effect of changes to buffer pool parameters before the changes are applied to the system.
Database administrators often want to evaluate tuning alternatives. Therefore, they need to estimate the effects of alternative object placements and buffer pool sizes and parameters to find an acceptable correlation between buffer pool effectiveness (in terms of hit ratios) and buffer pool size (cost). Most important, they need to be able to estimate the effect of changes to buffer pool parameters before these changes are applied to a system.

Considering the effect of different buffer pool sizes and parameters is an iterative and time-consuming task, especially under restricting conditions such as limited total buffer pool size and fixed object to buffer pool assignments. Expert knowledge is required to obtain reliable predictions and to minimize the number of tuning iterations.

Database administrators need to be able to verify their changes by comparing expected with actual performance data after they have tuned a system.

**Iterations of analysis and tuning:**

Analyzing the performance of buffer pools and tuning a DB2 system for optimum performance is a process that can serve several purposes and that involves one or more tasks dependent on your requirements and motivations.

Different tasks take varying amounts of time, might require different levels of knowledge, and require different level of information or support. This topic outlines some typical database administrator goals and tasks. It is basically about why, what, and when something should be done.
As described, buffer pool analysis and tuning is an iterative process that involves assessing the actual state, recognizing problems, identifying solutions in the form of changes, and applying changes to a system by means of DB2 ALTER BUFFERPOOL commands and SQL ALTER statements. The process is repeated by verifying the success of changes until further improvements are not visible or no longer economical. Buffer Pool Analyzer supports all the tasks described previously. The solutions it provides are described in the following topic.

Analysis and tuning can serve different purposes and can be performed at different levels. The previous figure outlines how you can combine several tasks for successful tuning over a longer period. You should have a work plan that clearly records your goals, the current state of buffer pool performance, the tasks you have performed, and the tuning actions you have applied. Consider also the following tips:

- Review and analysis of the actual performance should always be the first step. It should also be repeated as the last step to verify the success of tuning.
- Finding the optimal buffer pool usage and size can directly lead to a tuning action, or can be followed by an intermediate step to estimate the probable effects of changes.

**The functions of Buffer Pool Analyzer**

This topic introduces the suite of Buffer Pool Analyzer tools that are available for z/OS, respectively the equivalent tools of DB2 Performance Expert for z/OS. This topic is relevant only for users of the Buffer Pool Analyzer stand-alone product or DB2 Performance Expert for z/OS.

- Before Buffer Pool Analyzer can provide any useful information about buffer pool activities and its performance, it needs to collect data from a DB2 subsystem. Buffer Pool Analyzer lets you collect buffer pool related DB2 trace data on the host and makes this data available in data sets on the host. Buffer Pool Analyzer uses this trace data for performance reports, object placement optimization, and simulation tasks.
- Buffer Pool Analyzer can create activity reports at different levels from collected trace data. Reports are provided in textual form in data sets on the host. You can use them to review the buffer pool performance or to perform an in-depth analysis of the buffer pool behavior.
- Buffer Pool Analyzer can create aggregated buffer pool data files, referred to as bpd files, from collected trace data. These bpd files contain data in a format that is suitable for most client-based functions of Buffer Pool Analyzer. The contents of bpd files can also be loaded into DB2 tables.
- In addition to the host-based text reports, you can view performance data on a client in graphical form. This function shows buffer pool comparison data and individual buffer pool information.
- Buffer Pool Analyzer can optimize the object placement in buffer pools. It analyzes bpd file data on the client and generates recommendations for the assignment of objects to buffer pools and for initial buffer pool sizes and parameters. This function provides a wizard that guides you through the optimization. You can manipulate the predefined expert rules and the parameters of an optimization. The function generates appropriate DB2 ALTER BUFFERPOOL commands and SQL ALTER statements. You can use these results to tune a system directly.
- Buffer Pool Analyzer can perform a simulation of the effects of different object placements and buffer pool sizes. It uses representative trace data on a client, lets you vary the parameters, and predicts the effectiveness of buffer pools in terms of hit ratios. You can use this function to assess the effects of planned changes before you actually apply them to a system.
The following topics provide the basic knowledge about each function and should enable you to perform the how-to instructions that are described in the remaining topics.

Collecting data:

DB2 performance data is made accessible through the DB2 Instrumentation Facility as DB2 trace data. DB2 tools and products, including Buffer Pool Analyzer, can get access to this trace data through the Instrumentation Facility Interface (IFI), and the DB2 command START TRACE can be used to record trace data.

A few hundred different types of trace records exist for different purposes; each is identified by an Instrumentation Facility Component ID (IFCID). Buffer Pool Analyzer collects only buffer pool related IFCDs.

Different data collection options result in a varying performance overhead to a DB2 subsystem. Further, not all Buffer Pool Analyzer functions require the same set of trace data. Therefore, when you use Buffer Pool Analyzer to collect trace data, you can specify what trace data you want Buffer Pool Analyzer to collect, when to collect it, and how to collect it. This keeps any overhead minimized for a given task.

Trace data is collected on the host. You can use ISPF and the Collect Report Data (CRD) function of Buffer Pool Analyzer, or you can use a batch job to collect data. The CRD function provides a menu-driven interface to interactively configure and control this task. In a batch job you can use JCL to prepare and configure this task. Both methods provide the same results. The CRD function provides instant feedback about the collection process and status, but requires that you are logged on to TSO/E. The batch JCL lets you prepare the job offline and run it unattended, but requires that you verify the success of the job. The CRD function might be more appropriate for shorter, single tasks. Batch jobs are better for longer, repetitive, or scheduled tasks.

When a task is started by one or the other method, the DB2 command START TRACE is used to actually collect the data. However, you do not need to care about the trace command and its parameters. The command is performed invisible.

Determining what to collect:

By making certain specifications, you can determine what data should be collected.

When you collect data with ISPF, or prepare a batch job to collect data, you can determine what to collect by specifying:

- A record format, which determines whether Standard or Short header information from each IFCID record is collected.
  
  Standard includes all IFCID record header information, which allows you to create more sophisticated reports from the collected data (inclusion of associated information, better aggregation and presentation, and better sorting).
  
  Short includes only part of the IFCID record header information, which minimizes the amount of collected data and is appropriate when collecting large amounts of data.

- A data type, which determines whether Summary or Detail data is collected.
  
  The data type affects the content. Summary and Detail are the base for the corresponding summary and detail reports.
Technically, Summary collects buffer pool statistics (IFCID 2), data set statistics (IFCID 199), and buffer pool characteristics (IFCID 202) data. Detail additionally collects buffer pool activity data (IFCID 6, 7, 8, 9, 10, and 198). Note that especially IFCID 198 can cause noticeable overhead to a system during the collection of trace data. (It records the page requests Getpage, Set write intend, and Release page being sent to the DB2 Buffer Manager.)

Beginning with Buffer Pool Analyzer Version 2, the group buffer pool related IFCIDs 230, 251, and 254 are collected in addition to a subsystem's buffer pool related IFCIDs. If the DB2 subsystem from which performance data is collected is a member of a data sharing group, summary reports contain several additional topics with group buffer pool specific performance information. The collection of group buffer pool specific trace data and its inclusion in activity reports is performed automatically and remains hidden to you. “Interpreting activity reports” on page 2628 describes also the group buffer pool specific details, including the IFCIDs from which this data is derived.

Besides the technical aspect of what is collected, Summary and Detail data require further distinction regarding dynamic availability of current data. Both types of data are provided and recorded by DB2. Detail data is recorded by DB2 at the time an activity occurs. This means that the activity counts of the associated IFCIDs are current. However, summary data is recorded by DB2 at so-called statistics intervals. The interval value is a DB2 subsystem parameter, with a default setting of 1 minute (or the value specified as STATIME in DSNZPARM). This means that statistics records are to be written at the end of this interval. Beginning with DB2 10, the STATIME subsystem parameter applies only to IFCIDs 0105, 0106, 0199, and 0365. IFCIDs 0001, 0002, 0202, 0217, 0225, and 0230 are no longer controlled by STATIME, and the corresponding trace records are written at fixed, one-minute intervals. In addition, another DB2 subsystem parameter (specified as SYNCVAL in DSNZPARM) can be set to determine whether the recording and update is synchronized with some part of the hour, for example, 15, 30, 45 minutes past the hour (no synchronization is the default). The consequence for collecting summary data is that you need to consider also for how long you collect data. As a rule of thumb, assuming that you do not know the STATIME and SYNCVAL parameter settings, the time should span two default statistics intervals. Usually, one hour is a reliable choice to obtain meaningful summary reports from collected data.

A continuity, which determines for how long trace data is collected and whether it is collected continuously or in regular intervals (for example, every 30 minutes for 40 seconds). The basic rules are:

- Continuous collection of data simplifies matters and is recommended when the overhead to a system is negligible (for example, when you collect summary data).
- Collection in regular intervals is recommended to minimize the overhead to a system or to minimize the amount of data being collected (for example, when you collect Detail data on a heavily used system).

Your specifications for record format, data type, and continuity are highly dependent on the intended usage of collected data, as outlined in Table 210 on page 2595 and the following topics.
Table 210. Intended usage of collected data and recommended specifications of record format, data type, and continuity.

<table>
<thead>
<tr>
<th>Intended usage</th>
<th>Record format</th>
<th>Data type</th>
<th>Continuity</th>
</tr>
</thead>
<tbody>
<tr>
<td>On the host:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• To create summary reports</td>
<td>Short or Standard</td>
<td>Summary</td>
<td>Continuously to analyze activity during a certain time (for example, between 10:00 a.m. and 12:00 a.m.), or in intervals to analyze the performance of longer periods (for example, every 60 minutes for 60 seconds for all day long).</td>
</tr>
<tr>
<td>On the host:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• To create detail reports</td>
<td>Short or Standard</td>
<td>Detail</td>
<td>As required, but should be limited to reduce overhead (IFCID 198).</td>
</tr>
<tr>
<td>On the host:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• To create buffer pool data files for use on the client</td>
<td>Format, type, and continuity is determined by the client-based functions that require bpd files as input. See further entries.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On the client:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• To view performance data</td>
<td>Short is sufficient.</td>
<td>Detail</td>
<td>Continuously, or in intervals to analyze the performance of longer periods.</td>
</tr>
<tr>
<td>• To optimize object placements and buffer pool sizes</td>
<td>Short is sufficient.</td>
<td>Detail is recommended.</td>
<td>Continuously or in intervals, depending on the goal of the optimization.</td>
</tr>
<tr>
<td>• To perform simulations</td>
<td>Short is required.</td>
<td>Detail</td>
<td>Continuous collection is required, for approximately 20 minutes (subject to system load and the amount of collected data).</td>
</tr>
<tr>
<td>• To analyze the long-term performance of buffer pools</td>
<td>Short is sufficient.</td>
<td>Detail is recommended.</td>
<td>As available, because this function usually uses existing bpd files as input.</td>
</tr>
</tbody>
</table>
Determining when and how long to collect:

When you use ISPF or a batch job to collect data, you can specify whether data should be collected immediately or at a specific time, and you can specify whether a collect task should stop after an elapsed time or after a number of records are collected.

The decision when to start and stop a collect task depends on the system load, the intended usage of the data, and the purpose of the analysis. The following scenarios provide some ideas:

• To collect summary information (data type Summary) of the buffer pool performance over a day, you can start collecting data at midnight (start time) and run the job for 24 hours (elapsed time), but only take samples of 10 seconds every 60 minutes (continuity). You can also combine data from multiple collect tasks and use the accumulated data as input when you create reports. This might be helpful to detect trends over a longer period or regular peaks. Note that DB2 updates data that is used for summary information at so-called statistics intervals. Also, most statistics counters are incremental counters. To report a valid counter value for a given period, the difference between the latest and earliest counter value is computed. This means that a collect task should cover at least a statistics interval to produce meaningful summary information. The sampling duration, here 10 seconds, is long enough to capture any updates made by DB2.

• To collect detailed information (data type Detail) during peak times in your organization’s business, which might be around 11:00 a.m. and 3:00 p.m., you can start two collect tasks through ISPF, one at 10:30 and one at 2:30 p.m. (start times). Each task can collect data for an hour (elapsed time) and take samples every 10 minutes for five seconds (continuity). Note that detail information in activity reports is based on actual counts of events, opposed to summary information. You can keep a collect task as short as required without losing accurateness. More details are described in “Preliminary remarks about the accuracy of summary and detail reports” on page 2629.

• If you must analyze the cause of a current performance problem, you can start a collect task immediately (start time) and run it for 45 minutes (elapsed time) to collect summary data. This step might be followed by a second step that collects detailed data for a shorter time.

• If you need to collect data to perform an optimization or simulation (both are described in detail in the following topics), for example to tune a subsystem or peak load periods, you need to identify the peak load periods and collect a representative mean of trace data from this time.

• The collection of data can also serve multiple purposes. For example, if you need to perform an optimization of object placements and a simulation (before you apply any changes to a system), you collect data continuously for approximately 20 minutes during a defined system load period. Simulation requires the record format Short, the data type Detail, and a continuous collection of data, but these specifications serve as well the requirements for an optimization.

The important point is that the collection of data (what, when, and how) must always be performed with regard to the intended usage of this data. Buffer Pool Analyzer can analyze and report performance data, but inadequate selection of
trace data might lead to wrong conclusions. For successful tuning, you should understand that the results of an analysis are always based on workload at the time trace data was collected. Other workloads, which run at other times, may have different results. If you plan to optimize the buffer pool usage, you should carefully determine which workload you consider representative for your optimization.

Using the collected data:

The collected data can be used in different ways.

When trace data is actually collected, it is written to an output data set. The name of the data set is specified by you, either during an interactive ISPF dialog or in a batch job. Nevertheless, some conventions are recommended in “File and data set naming conventions” on page 2599.

Briefly, the trace data in an output data set can be used as follows. More details are described in the following topics.

- The data can directly be used to create summary or detail activity reports on the host.
- To view the data in graphical form on the client, a bpd file must be created from the trace data and downloaded to the client.
- To perform optimizations of object placements and buffer pool sizes on the client, a bpd file must be created from the trace data and downloaded to the client.
- To perform simulations on the client, the trace data must be downloaded to the client. The creation of a bpd file is not required because Buffer Pool Analyzer uses the raw, binary data for this purpose.
- To perform object placements and simulations, the trace data and the bpd file must be downloaded.
- To perform long-term analyses of performance data, one or more historical or current bpd files must be available on the client.

For the matter of completeness, note that data from several collect tasks can also be accumulated in a single data set, which then can be used to create reports and bpd files. Also, multiple input data sets can be used as combined input to create reports and bpd files. However, these uses are subject to some restrictions, which are described at the appropriate places in this information.

Finally, note that the functions that create activity reports and bpd files provide options to select subsets from collected and accumulated data to limit the scope of the output in reports or bpd files. All details are described in “Creating activity reports and bpd files” on page 2618.

Creating activity reports:

Buffer Pool Analyzer provides the BPACTIVITY command (for “Buffer Pool Activity”) and its subcommand REPORT to create activity reports from collected trace data.

The command is used in batch jobs, together with data definition (DD) statements that specify, among others, one or more input data sets with collected trace data. The command creates one or more reports in table form and stores them in a sequential data set. The reports can be viewed or printed by means of appropriate system utilities.
Command options are available to specify the type of report (summary or detail), to selectively use the input data for reports (for example, to limit the time frame or to filter out uninteresting information), and to specify the aggregation and sorting of the reported data.

The reports provide you with comprehensive information about how the buffer pools and the objects are used, for example:

- System and application hit ratios, buffer pool activity counts, I/O activity counts
- Information sorted according to different identifiers, such as buffer pool, plan name, object, or primary authorization ID
- Data ranked by the type of buffer pool operation, for example, by the number of Getpage requests, Sequential prefetches, or Synchronous reads
- Changeable thresholds to show only the most active objects in reports
- Information filtered to include, or to exclude, only specific buffer pools, plans, or time frames
- If the trace data in the input data sets is from a member of a data sharing group, where multiple DB2 subsystems share a group buffer pool, activity reports additionally contain detailed performance information about the group buffer pool.

“Creating activity reports and bpd files” on page 2618 describes the details of using the BPACTIVITY command and its options in batch jobs to create summary and detail reports.

“Interpreting activity reports” on page 2628 shows examples of summary reports and detail reports and explains how to interpret them.

Creating buffer pool data (bpd) files:

Buffer Pool Analyzer provides the BPACTIVITY command (for “Buffer Pool Activity”) and its subcommand FILE to create buffer pool data (bpd) files from collected trace data.

The command is used in batch jobs, together with DD statements that specify, among others, one or more input data sets with collected trace data. It creates bpd files that contain the data in a format that is required by all the client-based functions of Buffer Pool Analyzer, except simulation.

Command options are available to specify the type of data to be included (Summary or Detail) and to selectively use the input data for bpd files (for example, to include only data about specific identifiers).

The FILE subcommand is similar to the REPORT subcommand. Both use the same type of input data (DB2 trace data). Both can extract Summary or Detail data from the input and selectively use input data. However, only the REPORT subcommand has options to manipulate the aggregation and sorting of data. These options are not needed for bpd files. The FILE subcommand has an option to exclude data from inactive objects, which creates smaller, better manageable bpd files.

“Creating activity reports and bpd files” on page 2618 describes the details of using the BPACTIVITY command and its options in batch jobs to create bpd files.

The data in bpd files is not intended for direct interpretation. It is in DB2 load format and can be loaded into DB2 tables for additional analysis by SQL queries. “Loading a bpd file into a DB2 table” on page 2736 provides some information
how the contents of bpd files can be loaded into DB2 tables. However, the further use is outside the scope of this information.

**File and data set naming conventions:**

Adhering to the following naming conventions eases data set and file handling on the host and client, and you do not need to rename files after they are downloaded to the client.

The Buffer Pool Analyzer functions introduced so far are performed on the host; the functions introduced in the following topics are performed on the client. To summarize, the input data required by the client-based functions is either in the format of bpd files (for all functions except simulation) or raw trace data (for simulation).

On the client these files require the file name extension bpd for buffer pool data files, respectively trace for raw trace data (and terse, if the trace data is compressed). You can apply these file name extensions already on the host when you collect data or create a bpd file. Use TRACE as low-level qualifier in the name of the output data set that holds collected data (and TRACE.TERSE as low-level qualifiers if the trace data is compressed). Use BPD as low-level qualifier when you create a bpd file from the trace data (the trace data set).

**Viewing performance data on the client:**

This function lets you view buffer pool performance data in graphical form and as diagrams on the client. It uses buffer pool data (bpd) files that are created on the host system. The bpd files need to be downloaded to the client before they can be viewed.

The client-based graphical user interface (GUI) of Buffer Pool Analyzer provides a convenient environment to select a bpd file and to view system and buffer pool information. For example, you can view:

- General system information, such as:
  - DB2 location, group, and member information
  - Start and end timestamps of trace data contained in a bpd file
  - System and application hit ratios, and the number of accessed buffer pools and objects
  - Counter information, such as Getpage, Read request, Write page
- Buffer pool comparison data, such as a comparison by Read request or Write request
- Individual buffer pool characteristics and counters

"Viewing performance data on the client" on page 2678 describes how to use this function and shows examples of how the information is presented as diagrams, pie charts, and graphs.

**Optimizing object placements and buffer pool sizes:**

This function determines the optimal placements of table spaces and index spaces in buffer pools, the optimal buffer pool sizes, and the optimal values for some buffer pool thresholds. It uses predefined and modifiable expert rules and the object’s access behavior to determine the optimum. The function is performed on
the client and uses buffer pool performance data (from a bpd file) as input. These bpd files need to be downloaded to the client before they can be used.

This function analyzes the data, finds the optimum placements, sizes, and thresholds, and generates recommendations as ready-to-use SQL statements and DB2 commands:

- The SQL ALTER statements contain parameters that determine which object (table space or index spaces) should be assigned to which buffer pool.
- The DB2 ALTER BUFFERPOOL commands contain parameters that determine the recommended size and thresholds of each buffer pool.

The trace data must be a representative snapshot of the buffer pool performance, as described in “Determining when and how long to collect” on page 2596. This function uses the objects’ access behavior to determine the optimal object placements, and it uses many factors to determine the buffer pool sizes based on the placements. Approximations are used by the algorithms for data that cannot be retrieved from the input data.

You use the object placement tool on the client to select an appropriate bpd file and perform the optimization. The GUI provides an easy-to-use wizard that guides you through a few steps to determine the optimal object placements and buffer pool sizes. The wizard uses defaults based on information from the bpd file, but you can influence the optimization in several ways:

- Buffer Pool Analyzer determines the available memory for buffer pools from the bpd file and uses this value as the default for the optimization. You can adjust the total buffer pool size, if you want this function to use a different size.
- Buffer Pool Analyzer uses one of several predefined pattern files to determine the object placements. Pattern files contain expert rules that define which objects should be placed in which buffer pool according to each object’s characteristics. The rules define criteria that must be met to assign an object to a buffer pool. The sequence of rules defines in which order the rules are applied to the objects. Buffer Pool Analyzer preselects a pattern file based on the total buffer pool size of the DB2 subsystem. You can choose a different pattern file. You can also edit a pattern file to adjust the object placement rules according to your needs. Modified pattern files can be saved and will automatically be preselected whenever a bpd file from the same subsystem is opened.

Note: You can save a pattern file only if the file has at least one rule.

- Buffer Pool Analyzer calculates the optimized assignments of objects to buffer pools, based on the available memory for buffer pools and the placement rules, and it calculates the optimum size of each buffer pool. You can adjust the assignments and the sizes of individual buffer pools, if required.
- When Buffer Pool Analyzer has generated its recommendations for object placements and buffer pool sizes, you can adjust them according to specific needs. Your adjustments are reflected in the generated SQL ALTER statements and DB2 ALTER BUFFERPOOL commands.
The results from optimizations are lists of SQL ALTER statements and DB2 ALTER BUFFERPOOL commands that have their parameters set to the recommended values. Your adjustments and changes to an optimization are reflected in the results.

Results from optimizations are kept on the client. You can select them from the Buffer Pool Analyzer main window and view them in a web browser to assess them. To apply the statements and commands to a subsystem, you must upload them to the host and run them as usual. Right-click an object placement result to directly start a simulation using this placement.

You can also work with different performance scenarios by using different bpd files. You can compare the results and assess the variations on the client before you apply the recommendations to a DB2 subsystem.

"Optimizing object placements and initial buffer pool sizes" on page 2683 describes how to use this function and explains how to work with object placement rules in pattern files.

**Simulating buffer pool behavior:**

This function simulates different object placements and buffer pool size ranges in a representative performance snapshot and lets you see and interpret the effects. You can use it to perform what-if scenarios to balance buffer pool sizes and performance. It is performed on the client and uses buffer pool performance data (as raw DB2 trace data) as input. The file containing the trace data (in short format) needs to be downloaded to the client before it can be used.

If you use this function to test the recommendations from the object placement tool, the trace data file downloaded should be ideally the file from which the bpd file for object placement was created. To directly start the simulation function, right click the object placement result, then select Simulate....

The trace data that is used for simulations must be a good representation of the activity of the buffer pools that you want to optimize, as described in "Determining when and how long to collect" on page 2596. This function uses recorded detailed activity of each object to accurately determine the effects of changes to the system.

You use the simulation tool on the client to select an appropriate trace data file and to perform simulations. The GUI provides an easy-to-use wizard that guides you through the few steps to adjust the simulation parameters and to assign objects to buffer pools. The wizard uses defaults that are based on information from the trace data file, but you can adjust these defaults interactively to see the effects of changes.

- You can vary simulation parameters, such as:
  - The buffer pools to be included in a simulation.
  - The minimum and maximum buffer pool sizes to be simulated, and the increments by which the sizes are varied during a simulation.
  - The sequential steal thresholds to be simulated.
- You can vary the assignment of DB2 table spaces and index spaces to buffer pools.

Results from simulations are kept on the client. You can select them from the Buffer Pool Analyzer main window and view them in a web browser. The results
show the recommended distribution of memory between buffer pools, and detailed information about misses and hit ratios as functions of buffer pool size.

You can also work with different performance scenarios by using different trace data files, and you can apply different simulation parameters to these simulations. By comparing the results, your predictions about the effects of changes become more reliable.

“Simulating buffer pool behavior” on page 2698 describes how to perform simulations and shows examples of simulation results.

Analyzing long-term buffer pool performance:

This function analyzes performance data from several bpd files according to your needs. The function is performed on the client, which means that the bpd files need to be downloaded before they can be used as input for the long-term analysis.

The client-based graphical user interface (GUI) provides the environment to select the bpd files to use, to specify the type of analysis to be performed, to specify counters and buffer pool objects of interest, and to view and save the result of an analysis.

Long-term analysis can mean anything, but ready-made results might not fit your needs and interests. The long-term analysis function of Buffer Pool Analyzer provides a flexible way of specifying your needs and provides instant results. The following procedure introduces the functionality and your interaction with this function:

• You select the bpd files to be included in the analysis. Any number of bpd files existing on the client can be selected. You do not need to care from which subsystem they were created.

• The long-term analysis function identifies the subsystems from which these bpd files were created. If multiple subsystems are involved, you need to choose one (which causes the function to ignore all bpd files from the other subsystems).

• You select the type of analysis to be performed, which can be, for example, a weekly view by day, a daily view by hour, a view of a period of time, bar charts, or pie charts. Every type has its strengths and is instantly explained when you use this function.

• You select the counters and buffer pool objects you are interested in and the relationships between them. Counters can be single counters, groups of counters, even ratios. Objects can be all objects, single objects, some or all in a buffer pool, a mixture from several pools, and more. You can also restrict the time frame to consider for the analysis. The long-term analysis function takes care that only those data from the bpd files is used for the analysis that matches your selections.

• The long-term analysis function shows the result instantly in the main window. The result is kept on the client for future use and comparison with other results.

“So Analyzing long-term buffer pool performance” on page 2707 describes how to use this function and also shows and explains several examples of the various analysis types.

Summary of user tasks
This topic illustrates user tasks and their relationships.
Figure 191 illustrates and summarizes the previously introduced user tasks and their relationships. It shows the order of tasks that must be performed to create reports on the host or to perform one or more of the client-based functions. For example, to perform a simulation of buffer pool behavior based on actual trace data, first you need to collect data in a trace data file and download this file to the client. Note that the descriptive text of the tasks complies with the topic titles in this information.

The illustration also shows the flow of data between the components. Collected trace data can be used on the host to create reports, or downloaded and used for simulations. Just as well, collected data can be aggregated in bpd files and loaded into DB2 tables, or downloaded to the client and viewed or used for an optimization.

Note that Buffer Pool Analyzer provides sample performance data as bpd files and trace data files on the client. You can use them to acquaint yourself with Buffer Pool Analyzer. The individual topics describe the locations of these files and how to select, open, and use them.
Where to start
This topic shows possible workflows and the needed steps to perform them.

So far, the introduction explained the buffer pool analysis and tuning tasks and what Buffer Pool Analyzer offers to solve these tasks. Table 21 summarizes possible workflows that guide you from a potential buffer pool related task through a sequence of activities to achieve your aim. For a more problem-oriented approach see also “A generalized approach to performing analyses” on page 2605.

Table 21. Possible workflows for Buffer Pool Analyzer

<table>
<thead>
<tr>
<th>If you want to</th>
<th>Perform the following steps</th>
</tr>
</thead>
</table>
| Create several activity reports on the host. | 1. Collect performance data (or use data from a previous data collection). Refer to “Collecting data” on page 2607 and also to “Determining what to collect” on page 2593. Decide about the type of report (summary or detail).  
2. Write a batch job that creates a report. See “Creating activity reports and bpd files” on page 2618. Use the trace data file as input. Note that you can use the BPACTIVITY REPORT in the batch job without any options.  
3. Study the activity report in detail.  
4. Modify your batch job and use some of the BPACTIVITY options. Compare the effects in the reports.  
5. Use different input data (created with different collection parameters) and different BPACTIVITY options in your batch job and see how this effects the reports.  
You will notice how data collection parameters (format, type, continuity, duration) relate to BPACTIVITY command options; above all, that data can only be reported if it was previously collected. |
| Learn about what kind of buffer pool information can be viewed on the client. | 1. Start reporting and select and open one of the sample bpd files. See “Viewing performance data on the client” on page 2678.  
2. Expand the tree in the Reporting folder and study the contents in the different subfolders.  
3. View how comparison data is presented in graphical forms. |
| Get a first glance at the object placement or simulation capabilities on the client. | 1. Select and open a sample file. See “Optimizing object placements and initial buffer pool sizes” on page 2683, respectively “Simulating buffer pool behavior” on page 2698.  
You will notice when bpd files and trace data files are used.  
2. Start and follow the wizard. Accept the default input values.  
3. Note the purpose of each step, and the output from these functions. |
### Table 211. Possible workflows for Buffer Pool Analyzer (continued)

<table>
<thead>
<tr>
<th>If you want to</th>
<th>Perform the following steps</th>
</tr>
</thead>
</table>
| Perform a simulation on the client with real performance data. | 1. Collect performance data through ISPF. Choose Short format, **Detail** data type, and collect data for approximately 10 minutes. See “Collecting data” on page 2607 and also to “Determining what to collect” on page 2593.  
2. Note the options you have chosen in specifying data collection parameters. Note how many trace records were collected during the specified time.  
3. Download the trace data file to the client. See “Downloading files from the host to the client” on page 2732.  
4. Start the simulation function on the client and select and open the trace data file you have created.  
5. Optional: To directly simulate the results of an object placement, right-click the object placement result file, then select **Simulate**...  
6. Repeat the simulations with different simulation parameters, object placements or both. Note how the parameters influence the execution times of simulations.  
7. Study the simulation results in more detail. |
| View performance data or perform an optimization of object placements and buffer pool sizings on the client with real performance data. | 1. Collect performance data (or use data from a previous data collection). Choose Short format, **Detail** data type, and collect data for a few minutes. See “Collecting data” on page 2607 and “Determining what to collect” on page 2593.  
2. Write a batch job that creates a bpd file. See “Creating activity reports and bpd files” on page 2618. Use the trace data file as input. Note that you can use the **BPACTIVITY FILE** command in the batch job without any options for default behavior.  
3. Download the bpd file to the client. See “Downloading files from the host to the client” on page 2732.  
4. Start the view function or object placement function on the client and select and open the bpd file you have created.  
5. Study the optimization results in more detail. Note the recommendations. You might want to compare them with your actual system settings.  
Consider creating a trace data file and a bpd file from every data collection, and keeping them together on the client. This lets you iteratively perform optimizations and simulations on the same snapshot of performance data. |
| Study a detailed use case. | Read “Example of a use case” on page 2720. |

### A generalized approach to performing analyses

This topic outlines a problem-oriented approach of how to analyze buffer pool performance and related problems.

The proposed approach is a combination of using the suite of Buffer Pool Analyzer tools in reasonable sequence and applying reasoning and experience to a
well-defined task. As each system setup and behavior is different, the following approach is one possible example. It is not meant as a step-by-step instruction.

- On the host, use a trace data file that contains data from a representative time and create a summary activity report, a few detail activity reports (for example, a TOP(25) report, sorted by Getpage, Readreq, or Readpage request), and a bpd file. See “Creating activity reports and bpd files” on page 2613 for details.

- Inspect the summary activity report to determine how the system is set up (the number and the sizes of buffer pools, the threshold values for certain buffer pool operations, and others). See “The Buffer Pool Characteristics section” on page 2632 for details.

- Download the bpd file to the client and load it into the graphical report utility. See “Viewing performance data on the client” on page 2678 for details. This function is excellent when used in parallel to the host reports, to get a feeling for the distribution of work and the type of access behavior of each buffer pool. For example, when you navigate to Buffer Pools ➤ Buffer Pool Comparison ➤ Getpages, the buffer pools with the most Getpage operations are immediately identified. All other buffer pools can usually be ignored until a simulation is performed later. The other graphical buffer pool comparisons, by ReadRequest, ReadPage, WriteRequest, and Writepage operations, are also important indicators for directing further analysis.

- Inspect the detail activity reports to determine whether a small number of objects are dominating the overall system or single buffer pool activity. Investigate these objects in detail. See “The Detail Activity section” on page 2665 for details.

For example:
- Read Request - Delay (msec) - Synchronous
  
  If some of these high-activity objects have a relatively high value, compared to the average for this counter, you may be experiencing disk problems and should consider moving such objects to a faster disk.

- BP Hit Ratio (%) - System / Application

  A large discrepancy among system and application hit ratios may indicate a conflict, such as a wrongly set Virtual Sequential Threshold, or the object is mainly accessed sequentially but the buffer pool also contains many objects with high synchronous access.

- Use the graphical report utility on the client to further check for “unusual” objects:
  
  - For each of the high-access buffer pools navigate to BPx ➤ Object Comparison. The graphical representation makes it immediately apparent if some high-activity objects do not “fit” in this buffer pool, as their access type is not typical of the rest of the buffer pool objects. A reorganization of the buffer pools, using the object placement function, might be appropriate.

  - Be especially critical of high-activity objects with an unexpectedly large amount of RID-List activities. This may indicate an overdue REORG, a missing index, or an application programming style issue.

- Use the simulation function to determine if memory distribution between buffer pools is correct. See “Simulating buffer pool behavior” on page 2698 for details.
Perform the simulation with “Minimum / Maximum buffer simulation sizes” initially set to approximately 50 percent, respectively 200 percent of the current buffer pool sizes. Initially, only check the recommended memory distribution in the “list of recommended buffer pool sizes” (the second table in the simulation results) for the value nearest to the current total buffer pool size. If these values differ significantly from the current memory distribution, you should question whether the activity data in the trace data file is typical for the workload you wish to optimize, especially regarding buffer pools that the simulation recommends to make smaller. You may need to collect traces from other times and also perform the same simulation on them, determining a best middle value from the combined reports.

- In a following step, the simulation results should also make it immediately clear whether an increase in overall memory would result in a significant performance increase. If a recommended size for a buffer pool is the smallest or largest size that was simulated for that buffer pool, consider performing a further simulation with a larger range of values.

- Consider simulating what happens if you move any “unusual” objects found earlier into other or even new buffer pools. Compare the results with the original simulation with no object movement.

- Finally, even if it was not determined earlier that object placement is required, consider using it, followed by simulation to determine whether a different distribution of objects can also result in a performance improvement. This is a time-consuming exercise, but can produce significant performance improvements.

**Collecting data**

This topic describes how to collect the performance data that is used by Buffer Pool Analyzer. It describes two methods to collect buffer pool trace data. The first method uses ISPF and the Collect Report Data (CRD) function to configure and control a collect task, the second method uses a batch job that contains equivalent specifications for a collect task.

**About this task**

For the sake of completeness, note that the Generalized Trace Facility (GTF) and the System Management Facility (SMF) can also collect buffer pool related trace data. The data is recorded in appropriate GTF and SMF data sets, which can be used as alternative or additional input for the creation of activity reports and bpd files. In “Creating activity reports and bpd files” on page 2618, the description of the INPUTDD statement provides more details about specifying alternative or multiple input data sets. However, the important point is that GTF or SMF must be set up in SYS1.PROCLIB to collect, besides others, also buffer pool related data (as specified in “Determining what to collect” on page 2593).

**Related tasks:**

- Collecting data is always the first task before you can perform any of the other Buffer Pool Analyzer functions.

- After you have performed this task, the trace data is available in named data sets and can be used for the tasks described in:
  - “Creating activity reports and bpd files” on page 2618
    Activity reports are created on the host. Bpd files need to be downloaded to the client before they can be used for the tasks described in:
    - “Viewing performance data on the client” on page 2678
DB2 trace data files need to be downloaded before this task can be performed on the client.

General remarks:

1. Ensure that your output data sets are large enough. The amount of data that is being collected depends largely on the activity in the buffer pools. If you are going to collect detail data, remember that each activity produces at least one trace record. On a busy system you can rapidly generate several million records. Limit the data collection time, or the number of records to be collected, until you have a feeling about the amount of trace data being produced on your system.

2. If you are going to collect data for optimizing the object placements, ensure that the DB2 catalog statistics are up to date. Among other factors, Buffer Pool Analyzer considers the size of page sets and might otherwise produce inaccurate results. Run the RUNSTATS utility, if required.

3. If you are going to collect data for simulation:
   - Ensure that you collect detail data, in short format, for approximately 20 minutes continuously, which generally gives a good representation of a particular workload. If the workload varies significantly, collect a slightly smaller trace for each workload type.
   - For large amounts of data you can optionally create an additional output data set that contains the collected data in compressed format. The size and the download time of such data sets are roughly 25 percent of the equivalent uncompressed data sets. The simulation function can handle both types. See "The TRSMAIN terse utility" on page 2739 for more details.

   Note that an uncompressed data set is always created. Therefore, if you choose to create the additional compressed data set, you should have approximately 1.25 times the required disk space available. However, if the data is exclusively used for simulations, you can erase the uncompressed data set after both data sets are created.
   - Avoid collecting more than 2 GB of data. The simulation function on the client can handle trace data files of up to 2 GB (no matter whether the data is compressed or uncompressed). If you realize that the size of a trace data file on the client is too big, create and download a smaller file (less than 2 GB on the client), compare the actual sizes, and estimate the approximate maximum size of the host data set as follows:

     \[
     \frac{\text{Size}_{\text{on host actual}}}{\text{Size}_{\text{on host max}}} = \frac{\text{Size}_{\text{on client actual}}}{2 \text{ GB}}
     \]

     If necessary, collect a smaller trace to keep the trace data file below its maximal size.

4. If you are going to collect data for object placement and simulation, ensure that all requirements in remarks 2 and 3 are met. Furthermore, it is essential that you keep the trace data file and the bpd file together. (The bpd file must be created as described in "Creating activity reports and bpd files" on page 2618.)

The following topics provide additional information:

- "Collecting data by using ISPF" on page 2609
- "Collecting data by using the batch JCL" on page 2616
**Collecting data by using ISPF**

This section explains how to use the Collect Report Data (CRD) function of Buffer Pool Analyzer, respectively the equivalent function of DB2 Performance Expert.

**About this task**

To collect data by using ISPF, perform the following steps:

**Procedure**

1. Start ISPF from your TSO/E session.
2. Start the FPEJINIT exec.
   
   The exec automatically determines whether DB2 Performance Expert or the Buffer Pool Analyzer stand-alone product is installed on your system. If DB2 Performance Expert is installed on your system, the exec starts DB2 Performance Expert and you need to perform steps 3 to 4 on page 2610 to reach the Collect Report Data function. Otherwise, the exec directly starts the Collect Report Data function. If you see the Collect Report Data panel (shown in step 4 on page 2610), continue with step 5 on page 2610.

   IBM OMEGAMON for DB2 Performance Expert panel is displayed:

   ![IBM OMEGAMON for DB2 Performance Expert panel](image)

   3. Select the following options to specify the DB2 subsystem from which you want to collect data, as follows:
      
      a. Select option 3 (View online DB2 activity - PE ISPF OLM). The Online Monitor Main Menu panel is displayed.
      b. Select option 4 (Options). The Options panel is displayed.
      c. Select option 1 (DB2 Subsystem). The DB2 Subsystem subpanel is displayed.
      d. Specify the DB2 subsystem and return to the Online Monitor Main Menu panel:
4. On the Online Monitor Main Menu panel select option 6b, Collect Report Data - For Buffer Pool Analysis.

The Collect Report Data for Buffer Pool Analysis panel is displayed:

```
06/23/13 10:16   Collect Report Data - For Buffer Pool Analysis
Command ==> ________________________________________________________

PM01DC11       DC11

Select one of the following.

1. Configure task  
2. Activate task  
3. Display task status  
4. Stop task

Task Description          Status
collect_data_for_buffer_pool_activity___ Data available
```

Above the options menu, you see the name of the DB2 subsystem that you specified in step 3d.

You use this panel to configure and control a collect task. You can work with one task at the same time. If you leave Buffer Pool Analyzer (the stand-alone product) or DB2 Performance Expert before a task has finished, the task is stopped (no configuration settings are saved, no data is available). A task has finished when it is configured, activated, and all data has been collected.

5. Select one of the following options:
   - **Configure task**
     This step is mandatory and must be performed before you can use any other options. See "Configuring a collect task" on page 2611, which describes how to specify details of the collect task.
   - **Activate task**
Use this option to activate the collect task that you have configured.

- **Display task status**
  Use this option if you want to see status details of an activated collect task. These details are described in “Interpreting trace status summary and trace messages” on page 2614.

The overall status of a collect task is shown in the **Status** field. Depending on how a collect task was configured, one of the following status descriptors is shown:
- **Not yet activated**: A collect task was configured but not yet activated.
- **Activate issued**: A configured task was activated and started.
- **Waiting for start**: A scheduled task was configured and activated, but the start time is not yet reached.
- **Collecting data**: A task is active and is collecting data.
- **Waiting for next interval**: A task was configured to collect data in intervals. The task is active, but waiting for the next interval to take place.
- **Data available**: An activated task has stopped and written its data to the output data set.
- **Stopped**: An activated task has finished, either because it was stopped by you or because a configured stop condition was reached.

- **Stop task**
  Use this option to stop an activated collect task. If a DB2 trace is currently collecting data, this option also stops the DB2 trace.

6. In the **Task description** field, type a description for the collect task.

**Configuring a collect task:**

This section explains how to specify details of a collect task, such as the type of data to collect, and the start and stop conditions.

**About this task**

If you have selected the **Configure task** option on the Collect Report Data panel, the Collect Report Data for Buffer Pool Analysis panel is displayed:
The **Task description** field shows the description that you have entered in the previous step.

To configure a collect task, perform the following steps:

**Procedure**

1. In the field **Output DS name** specify the data set name to which the data is to be written. **Recommendation**: Data sets used for this purpose should have a variable record format (RECFM) and a record length (LRECL) of at least 6000. The data set name should have the low-level qualifier **TRACE**, for example NKA.COLLECT.TRACE, for the following reasons:
   - If this data set contains trace data that will be used for simulations on the client, the downloaded file on the client must have a file name extension of trace. Keeping the extension on both sides also eases the download procedure.
   - Avoid **BPD** as low-level qualifier because this qualifier is recommended for bpd files that are created from trace data. The reason is that bpd files must have a file name extension of bpd on the client.

2. In the field **Disposition** specify how the data is to be written to the specified data set:
   - **1=Append**
     - Data collected during this task is appended to any previously collected data in the named data set.
     - The disadvantage of appending data to existing data is that a copy of the catalog data is appended every time. If you want to use the data on
the client, the bpd file becomes unnecessarily large and difficult to handle. Furthermore, if the system setup changes between two collect tasks, some report values can become undefined. If possible, use one of the following options.

If you collect data for a simulation on the client, never use this option.

2=Overwrite
Data collected during this task overwrites any previously collected data in the named data set.

3=New
The data set is allocated dynamically with RECFM=VBS, LRECL=32756, and BLKSIZE=6233 before data is written to it.

3. In the field Record format specify which IFCID record header information you want to be included in the collected data:

1=Standard
Includes the complete IFCID record header.
Select this option if you want to create comprehensive activity reports.
Standard provides the information that is used by the INCLUDE, EXCLUDE, ORDER, and SORT options of the BPACTIVITY REPORT command.
Do not use this option if you want to use the data for simulation.

2=Short
Includes only part of the IFCID record header.
Select this option if you want to use the data for the client-based functions. This option is mandatory for simulation.
For most activity reports Short is also sufficient.

4. In the field Data type specify which DB2 trace data you want to collect:

1=Detail
Collects buffer pool statistics, catalog data, and buffer pool activity data.
Select this option if you want to create detail activity reports, or bpd files or trace data files for use on the client. This option is mandatory for simulation.

2=Summary
Collects buffer pool statistics and catalog data.
Select this option if you want to create summary activity reports.

Note: DB2 updates summary data at statistics intervals. When you specify the duration of the collect task, permit for sufficient time to “capture” several intervals. If required, see “Determining when and how long to collect” on page 2596 and “Preliminary remarks about the accuracy of summary and detail reports” on page 2629 for more details.

3=Catalog only
Collects only catalog data. For possible uses see “Concatenating trace data for activity reports and bpd files” on page 2734.

5. In the field OP Buffer size specify a value from 8 KB to 1024 KB. The Online Performance (OP) buffer is used by DB2 to pass the trace data to Buffer Pool Analyzer (and other monitor programs).
Specify a large buffer size to prevent a buffer overflow.
Specify a moderate buffer size if you are constrained on virtual storage in
DB2’s database services address space (DBM1).

6. In the field **Start the DB2 trace** specify one of the following start conditions:

1=**Immediately**
   Starts the DB2 trace immediately.

2=**At (hh:mm:ss)**
   Starts the DB2 trace at a specified time, whereby *hh* is the hour, *mm* is
   the minute, and *ss* is the second. If the specified time is less than the
current time, the trace starts the next day at the specified time. Note
that a trace is stopped if you leave DB2 Performance Expert or Buffer
Pool Analyzer. See also step 4 on page 2610.

7. In the field **Trace and collect data** specify how the data is to be traced:

1=**Continuously**
   Runs the DB2 trace for the entire tracing period. Select this option if
   you want to use the trace data for simulation.

2=**Every x minutes for y seconds**
   Runs the DB2 trace every *x* minutes for *y* seconds, whereby *x*
denotes the specified minutes, and *y* denotes the specified seconds.

8. Specify one or two stop conditions for the DB2 trace. The trace stops when one
   of the conditions becomes true.
   
   • Activate one or both stop conditions by typing a slash (/) in the field
     preceding the condition. A greater-than (>) symbol in this field indicates that
     this condition was previously selected.
   
   • Specify one or both conditions as follows:
   
     – In the field **Elapsed time** specify the number of seconds the trace should
       run.
   
     – In the field **Number of records collected** specify a maximum number of
       records to be collected.

**Examples:**

- 10000
- 100K (for 100000)
- 1M (for 1000000)

**Recommendation:** If you want to use the trace data for simulation,
ensure that you collect trace data for approximately 20 minutes,
respectively 1200 seconds. In the field **Elapsed time** specify an
appropriate value. Either deactivate the **Number of records collected**
condition, or set it to 13000000 (approximately 2 GB of data), to ensure
that the trace does not stop earlier.

**Interpreting trace status summary and trace messages:**

This topic shows examples of the Trace Status Summary panel and the Trace
Messages panel. You can use this information to assess the progress and success of
an activated or completed collect task.

**About this task**

If you have selected the **Display task status** option on the Collect Report Data
panel, the Trace Status Summary panel is displayed. The following is an example:
This panel shows details of the collect task, for example, when the task was started and stopped.

Procedure
1. Assess this information carefully with regard to the intended usage. For example:
   • The *Records read* count should show a reasonable number of collected trace records.
   • The *Buffer overflow* count gives an indication whether you should configure a larger OP Buffer size for this collect task.
   • The *Records lost* count should be less than 2% of the total number of records read (especially if the collected data is used for simulation).

   During data collection, trace records can get lost if the CRD task cannot keep up with reading the records at the speed that DB2 writes them. For most of the Buffer Pool Analyzer functions, this is not a grave situation. The only function that is sensitive to trace record loss is simulation.

   If the loss rate is too high, ensure that the Performance Expert address spaces are dispatched with a priority equal or higher than the DB2 database services address space (DBM1).

2. Select Display messages.

   The Trace Messages panel is displayed. The following is an example:
This panel shows messages about the progress and success of the collect task. In this example, the message FPEM0518E indicates that DB2 returned with a bad return code, RC 8, and with reason code REASON X'00E60820'. The DB2 trace command STOP TRACE (P) TNO (4) was issued, thereafter the collect task completed successfully.

If you have requested that the collected data is to be compressed into a separate data set, and if errors occur during the compression, you also see messages preceded by message identifier TERSEMVS. These messages are from the TRSMAIN utility, which is used to perform the compression. For these errors, use the system code and the following information to diagnose the error.

**Related reading:** For more information, see *IBM DB2 10 for z/OS: Messages and Codes* or *IBM DB2 11 for z/OS: Messages and Codes*.

### Collecting data by using the batch JCL

This topic shows an example of a batch job that performs a so-called Collect Report Data task.

**About this task**

The meaning of the parameters in the batch job is identical to those described in "Configuring a collect task” on page 261. Regarding the parameter syntax, note that keywords are succeeded by values in parentheses (), comment lines start with an asterisk (*), and blanks are allowed between keywords and values.

Note that you can use and modify the JCL sample provided in data set member `prefix.TK02SAMP(BPOMACRD)`. It is usually more current than the example in this information.

If you want to compress collected data into a separate data set, equivalent to the Collect Report Data (CRD) function, use a batch job similar to that shown in “The TRSMAIN terse utility” on page 2739.
Recommendation: You must assign a job class with a high priority to data collection batch jobs. This priority must be at least as high as that of DB2. Otherwise, trace records are not collected fast enough, resulting in lost records, or the trace might be started and stopped immediately after the catalog data is collected.

When the BPA CRD program is started from the APF-authorized steplib, it attempts to establish itself as an independent enclave that has a Workload Manager (WLM) subsystem type of DB2. It is possible that your WLM policy causes the generic WLM subsystem type of DB2 to get low dispatching priority. In this case, you can start the BPA CRD job from the non-APF copy of RKANMOD data set so the collection process will use the dispatching priority of the batch job.

Example:

```c
//*******************************************************************//
//** MODULE NAME : BPOMACRD **
//** DESCRIPTION : DB2 BPA Collect Report Data Batch Job **
//** COPYRIGHT : IBM DB2 Buffer Pool Analyzer for z/OS V5R4M0 **
//** Licensed Materials - Property of IBM **
//** 5655-W35 (C) Copyright IBM Corp. 2001, 2016 **
//** STATUS : Version 5.4.0 **
//** FUNCTION : Collect Report Data in Batch Mode **
//** Notes = **
//** 1. Add a valid job card **
//** 2. Change the prefix of the DB2 BPA load library db2bpa **
//** 3. Change the prefix of the DB2 load library db2load **
//** 4. Change the DPCOLLDD DD statement for the trace data **
//** 5. Change the collect parameters in the SYSIN data set **
//** End of Specifications*********************************************//
//** DB2BPA EXEC PGM=DB2BPCRD //STEPLIB DD DSN=db2bpa.SDSNLOAD,DISP=SHR // DSN=db2load.RKANMOD,DISP=SHR //SYSPRINT DD SYSOUT=* //SYSOUT DD SYSOUT=* //** Protocol of the CRD parameters and status information //DPMLOG DD SYSOUT=* //** Report of the data collection job //JOBSUMDD DD SYSOUT=* //**PCOLLDD DD DISP=OLD,DSN=your.db2trace.dsname //DPCOLLDD DD DISP=(NEW,CATLG),DSN=your.db2trace.dsname, //DCB=(RECFM=VBS,BLKSIZE=9076,LRECL=32756), //SPACE=(TRK,(500,100)),VOL=SER=xxxxxx,UNIT=3390 //SYSIN DD * // Mandatory parameters DB2SSID (ssid) * DB2 subsystem id PLANNAME (planname) * DB2 BPA planname // Optional parameters, for fixed values enter either the characters * specified in capital letters or the full word RECORD_FORMAT (short) * Standard or SHort(default) DATATYPE (detail) * Detai1(default), Summary, or Catalog STARTTIME (im) * IMMEDIATELY(default) or hh:mm:ss, * where hh:mm:ss gives the time within the * next 24 hours when the trace is to start * Instead of specifying a start time you can use your batch scheduling DURATION (nnnu) * Maximum job duration, where nnn specifies
```
* time units and \( u = s \) for seconds
* \( m \) for minutes or
* \( h \) for hours

**MAX_RECORDS** \( (rrrr) \)
* Maximum number of records to be
* collected, optionally in \( K (=1000) \)
* or \( M (= 1000000) \). An example is 25000 which
* is the same as 25K.

**SAMPLING** \( (mmm,sss) \)
* Indicates that tracing is done in
* sampling mode. \( mmm \) denotes the
* time interval between 2 collection
* periods in minutes. \( sss \) denotes
* the time in seconds when DB2 trace is
* active during a sampling interval.
* If SAMPLING is omitted (default), DB2
* trace data are collected continuously.

**BUFSIZE** \( (nnnn) \)
* Specifies the OP buffer size in the
* DB2 Start Trace command. \( nnnn \) indicates
* the number of KB and ranges from 8 to
* 16384, default is 2048 for 2048 KB.

The batch job generates the following files:

**DPCOLLDD**
Contains the trace data.

**DPMLOG**
Contains information about the parameter stream.

**JOBSUMDD**
Contains a protocol about the process and trace messages from Buffer Pool
Analyzer and DB2. The messages are identical to those shown in the Trace
Messages panel, which is described in "Interpreting trace status summary
and trace messages" on page 2614.

**Creating activity reports and bpd files**

This topic describes how to create activity reports and buffer pool data (bpd) files
from collected trace data. It describes an example of a batch job and the use of the
**BPACTIVITY** command.

**About this task**

**Related tasks:**
* Before you can perform these tasks, you must have performed the task described
  in "Collecting data" on page 2607. Note that the collected trace data must be
  available in uncompressed format.
* After you have performed this task, the reports and bpd files are available in
  named data sets and can be used for the tasks described in:
  * "Interpreting activity reports" on page 2628
  * "Viewing performance data on the client" on page 2678
  * "Optimizing object placements and initial buffer pool sizes" on page 2683
  * "Analyzing long-term buffer pool performance" on page 2707

Activity reports and buffer pool data files are created on the host by means of a
batch job. In a batch job you specify:

1. The source of your input data (the data set containing the collected trace data).
2. The data you want to extract from the input data set and include in the activity
   reports or buffer pool data files.
3. For activity reports, the appearance of the reported data.
4. The output data set where the reports or the bpd files are to be stored.

Step 2 and step 3 use the **BPACTIVITY** command and its **REPORT** (for activity reports) and **FILE** (for bpd files) subcommands. Both subcommands have options to specify the content and the level of detail to be included in the output. The content can be manipulated, for example, by selecting only a specified time frame, or by including or excluding specific identifiers. The level of detail defines that either summary information or detail information is taken from the input and included in the output. The **REPORT** subcommand has additional options to specify the aggregation and sorting of the reported data. The **FILE** subcommand has an additional option to exclude information about inactive objects from the bpd file, which results in a smaller file size.

The following topics provide additional information:
- “Preliminary remarks about the content and filtering of input data”
- “Specifying a JCL command stream” on page 2620
- “Specifying reports and bpd files with BPACTIVITY” on page 2622

**Preliminary remarks about the content and filtering of input data**
The **BPACTIVITY** command and its subcommands can only create information in reports or bpd files from information that is contained in the input data sets that are specified in the batch job.

**About this task**

For example, if you collected trace data of data type Summary, you should not expect detail information in reports even if you specify this with the **BPACTIVITY** command options. However, if you collected trace data of data type Detail, you can specify that only summary information is reported. Detail data always includes summary data, as described in “Determining what to collect” on page 2593.

The same considerations pertain to time frames of collected data in contrast to reported data. For example, if you collected trace data between 9:00 a.m. and 10:00 a.m., but specified 10:00 a.m. to 11:00 a.m. with the **BPACTIVITY** command options **FROM** and **TO**, your report or bpd file remains empty.

If you create bpd files (with the **FILE** subcommand) for use with the object placement function on the client, note that this function has options whether to include inactive objects into the assignment of objects to buffer pools. If you use the **FILE** subcommand with its **ACTIVEOBJECTS** option to exclude information about inactive objects from a bpd file, the object placement function consequentially treats only active objects. Plan ahead how you want to treat inactive objects with object placement and create the bpd file accordingly.

In your batch jobs you can use the **GLOBAL** command to preprocess input data before this data is processed by the **BPACTIVITY** command. The **GLOBAL** command has similar options to filter input data, and additional options to set default values for subcommands and to define processing options (such as DD statements for different data sets or time zone adjustments). The use of the **GLOBAL** command can improve the performance of your batch job, for example, if the **BPACTIVITY** command is used to produce multiple reports with a single invocation, or if the amount of input data is a multiple of the required output data.
Related reading: The **GLOBAL** command is available with Buffer Pool Analyzer and other DB2 performance tools and is described in the *Report Command Reference*. This book also provides more details about how to create reports and traces.

**Specifying a JCL command stream**

This topic describes a typical batch job that creates a detail report and a bpd file. The JCL command stream and the DD statements are described to enable you to write your customized batch job.

**About this task**

Note that you can use and modify the JCL sample provided in data set member `prefix.TK02SAMP(BPOQBTCH)`. It is usually more current than the example in this information.

In the following example the Buffer Pool Analyzer is installed under the high-level qualifier `db2bpa`. The batch job creates three different activity reports (using the `REPORT` subcommand with different options) and a trace data file (using the `FILE` subcommand without any option).

**Example:**

```plaintext
//***************JCL Sample: BPOQBTCH**************************/
//** MODULE NAME : BPOQBTCH
//** DESCRIPTION : DB2 BPA Batch Sample Job
//** COPYRIGHT : IBM DB2 Buffer Pool Analyzer for z/OS V5R4M0
//** Licensed Materials - Property of IBM
//** 5655-W35 (C) Copyright IBM Corp. 2001, 2016
//** STATUS : Version 5.4.0
//** FUNCTION : Create Batch Reports and a File
//** Notes *
//** 1. ADD A VALID JOB CARD
//** 2. Change the INPUTDD and BPFILODD1 DD statements
//** The commands in the SYSIN DD file can be changed
//** as described in the BPA User's Guide
//** End of Specifications**************************************************************************
//*/
//*/DB2BP EXEC PGM=DB2BP
//** CHANGE THE PREFIX OF THE LIBRARY db2bpa
//*/STEPLIB DD DSN=db2bpa.RKANMOD,DISP=SHR
//** DD statement for trace data set
//*/INPUTDD DD DISP=SHR,DSN=bpa.trace.dataset
//*/SYSPRINT DD SYSOUT=*  
//*/SYSPRINT DD SYSOUT=*  
//** DD statement for messages referring to the trace data set
//*/JOBSUMDD DD SYSOUT=*  
//*/DPMLOG DD SYSOUT=*  
//** DD statement for second report
//*/BPAREP2 DD SYSOUT=*  
//** DD statement for File, change parameters according to your needs
//*/BPFILODD1 DD DISP=(NEW,CATLG),DSN=file.name, 
//** DCB=(RECFM=VBS,BLKSIZE=9076,LRECL=32756),UNIT=SYSDA, 
//** SPACE=(9096,(1000,500),RLSE)
//** DD statement for BPA commands and parameters
//*/SYSSIN DD *
//** Global command to adjust reported GMT to local time
```
GLOBAL
timezone (-1:00)

* Command with subcommands to create buffer pool activity Reports
* and File with data to be loaded into a DB2 table or used on the
* client for graphical display or for expert analysis

BPACTIVITY

* Default report, output goes to default DD name BPREPDO
  REPORT

* Following report has data summarized by plan, buffer pool id, and
  page set. The data are sorted by plan and number of getpages.
* Only the first 5 combinations of buffer pool id and page set
* per plan are reported and the remainder.
  REPORT
    level(detail)
    order(planname-bpid-qpageset
                         sortby(planname,getpage) top(5))
* Output goes to DD name BPAREP2
  dname(bparesp2)

* The next is a summary report where only the 11 most
* active page sets in terms of asynchronous page activity is
* produced. Buffer pool activity is always there.
  REPORT
    level(summary)
    order( sortby(asyncpage) top(11))
* Output goes to the same DD name as the previous report.
  dname(bparesp2)

* File, output goes to default DD name BPFILDD1
  FILE
* EXEC command terminates reading of command input and starts
* processing of trace input.
EXEC
  //

INPUTDD

Lists one or more input data sets that contain trace data to be used to
create activity reports and buffer pool data files. Usually, this is the data
that you collected with the Collect Report Data (CRD) function of Buffer
Pool Analyzer. The name of the input data set usually has a low-level
qualifier of TRACE, as explained in “Configuring a collect task” on page
2611.

The default ddname for the input data set is INPUTDD. If you specify a
different ddname, use the INPUTDD option of the GLOBAL command. In this
case, ensure that your JCL includes a valid DD statement for the new
name.

You can also use DB2 trace data that is created by other means, such as
data in GTF or SMF data sets, and it is generally possible to process
multiple input data sets. See “Concatenating trace data for activity reports
and bpd files” on page 2734 for more details.

SYSOUT

Contains messages from DFSORT. If SYSOUT is not specified, it is
dynamically allocated to the SYSOUT message class of the job. The format of
SYSOUT is RECFM=FBA, LRECL=133, BLKSIZE=6251.

JOBSUMDD

If specified, it contains the job summary log and the IFCID frequency
distribution log. The format of JOBSUMDD is RECFM=FBA, LRECL=133,
BLKSIZE= 6251.
DPMLOG
Contains messages from the Buffer Pool Analyzer command processor. If
DPMLOG is not specified, it is dynamically allocated to the SYSOUT
message class of the job. The format of DPMLOG is RECFM=FBA,
LRECL=133, BLKSIZE=6251.

BPRPTDD
Contains the output from the BPACTIVITY REPORT subcommand. If
BPRPTDD is not specified, it is dynamically allocated to the SYSOUT
message class of the job. The format of BPRPTDD is RECFM=FBA,
LRECL=81, BLKSIZE=8100.

If multiple REPORT subcommands are used, the resulting activity reports are
written to BPRPTDD in corresponding sequence.

If you specify a different ddname with the DDNAME option of the REPORT
subcommand, ensure that your JCL includes a valid DD statement for the
new name.

BPFILDD1
Contains the output from the BPACTIVITY FILE subcommand. This is the
bpd file that can be used on the client for viewing performance data and
optimizing object placements. Also, its content can be loaded into DB2
tables. Ensure that your JCL contains a valid DD statement for this
ddname. The format of BPFILDD1 is RECFM=VB, LRECL=9072,
BLKSIZE=9076. The DD statement should specify a data set name with a
low-level qualifier of BPD (for buffer pool data). After this data set is
downloaded to the client, it must have a file name extension of bpd.

If you specify a different ddname with the DDNAME option of the FILE
subcommand, ensure that your JCL includes a valid DD statement for the
new name.

BPWORK
If specified, it determines where Buffer Pool Analyzer stores its temporary
data, which can be up to 68 MB. Usually, this data set is created on the
MVS-defined work volumes and deleted by Buffer Pool Analyzer. Use
BPWORK if you want to control placement or size of the data set, or if you
receive a B37 abend. The format of BPWORK is RECFM=VBS,
LRECL=32756, BLKSIZE=6233.

Recommendation: Do not specify DUMMY or DISP=MOD for this data
set.

SYSIN
This DD statement is mandatory. It contains the commands to be run by
the job stream.

The format of SYSIN is RECFM=FB, LRECL=80, BLKSIZE=6160.

Specifying reports and bpd files with BPACTIVITY
Context
Use the BPACTIVITY command within a JCL command stream to specify the
contents of reports and bpd files.

Purpose
The BPACTIVITY command and its REPORT subcommand is used to create reports
from collected data. Subcommand options specify the contents and appearances of
reports. The **REPORT** subcommand can be used up to five times within a batch job. This means that you can create up to five different reports by using different options.

The **BPACTIVITY** command and its **FILE** subcommand is used to create bpd files from collected data. Subcommand options specify the contents of bpd files. The **FILE** subcommand can be used only once within a batch job.

**Usage**

Some options are identical for both subcommands: **FROM** and **TO** limit the time frame, **INCLUDE** and **EXCLUDE** explicitly include or exclude specific contents, **LEVEL** specifies whether to include detail data or only summary data in a report or bpd (buffer pool data) file, and **DDNAME** overwrites the default output ddname.

The **REPORT** subcommand has one unique option: **ORDER** arranges the appearance of the reported data.

The **FILE** subcommand has one unique option: **ACTIVEOBJECTS** writes only information about active objects to the output ddname.

**Defaults**

All options provide default values, if none are specified. Thus, the simplest command usage is **BPACTIVITY REPORT** or **BPACTIVITY FILE** to produce usable results.

By default, the reports are written to BPRPTDD, and the bpd file is written to BPFILDD1. These defaults can be changed by means of the **DDNAME** subcommand option.

**Syntax**

FROM/TO options:

```
FROM/(date, time)
TO/(date, time)
```

INCLUDE/EXCLUDE options:

```
DETAIL
SUMMARY
```

Chapter 5. Monitoring 2623
INCLUDE (BPID

CONNTYPE

ENDUSER

PLANNAME

PRIMAUTH

PSTYPE

QPAGESET

TRANSACT

WSNAME)

EXCLUDE (value)

ORDER option:

ORDER (BPID-QPAGESET

id1

id1-id2

id1-id2-id3

SORTBY (id1, id2, sortfield)

TOP (11

id1

id2)

Subcommand options and keywords

FROM

TO

Use these options with the REPORT or FILE subcommand if you want to selectively use trace data from input data sets for activity reports or bpd files. You can specify the selection by a start date and time (FROM) or an end date and time (TO), or any meaningful combination of both. If these options are used, trace records with timestamps equal or greater, respectively less or equal, to the criteria are included.

Specify dates as mm/dd/yy, whereby mm is the month, dd the day, and yy the year. Specify times as hh/mm/ss.th, whereby hh is the hour, mm the minute, ss the second, and th the thousands of a second (two digits each).

The use of these options, aligned with appropriate data collection times and intervals, facilitates sophisticated reporting methods. For example, consider a collect task that accumulates summary data of your business' daily peak hours. Using this data as input, you can specify multiple REPORT subcommands in your batch job with different FROM and TO values to create separate summary reports for a comparison by day.

Usually, the use of this option is not required with the FILE subcommand. However, limiting the time scope of the bpd file content can make sense depending on the intended use on the client.

- For viewing performance data (described in “Viewing performance data on the client” on page 2678) or object placement optimization (described in “Optimizing object placements and initial buffer pool sizes” on page 2683) you can limit the time scope, for example, to isolate a known peak load period from the collected data. You can also segregate multiple periods from a single input data set to create several bpd files, each covering a different period, for example, to perform separate object placement optimizations. This of cause requires multiple runs of your batch job because the FILE subcommand can only be used once in a batch job. Note that both client functions do not provide means to limit the time scope; they use the entire content of the bpd file.
For long-term analyses, described in "Analyzing long-term buffer pool performance" on page 2707, you should ignore the FROM and TO options with the FILE subcommand. This function usually uses several bpd files as input and provides its own means to limit the time scope of data to be included in the analysis.

**INCLUDE**

**EXCLUDE**

Use these options with the REPORT or FILE subcommand if you want to selectively use trace data from input data sets for activity reports or bpd files. You can specify the inclusion (in the meaning of “include only these”) or exclusion (in the meaning of “use all but these”), or any meaningful combination. If these options are used, data associated with the specified identifier and value combination is included, respectively excluded.

Note that, although these options can be used with the FILE subcommand, they are of limited use and should therefore be avoided. If you are anyway using these options, for whatever reason, be aware that the content of the resulting bpd file is no longer a reliable input to the object placement and initial buffer pool sizing function.

You can use the identifiers listed in Table 212. However, two side effects should be noted:

- The absence of some identifiers affects the contents of summary reports and bpd files. To prevent missing information, ensure that these identifiers are not excluded.
- If the input data was collected with a short record format, some record header information is not present in the trace records. If you specify an identifier for which no header information is available, it will have no effect in reports or bpd files. For example, if you want to explicitly exclude records with a specific end user workstation name (identifier WSNAME), and short record format was used, those records cannot be identified because the WSNAME information is missing in the record header. Nevertheless, the presence of those identifiers do not harm.

**Table 212. Possible identifiers for the INCLUDE and EXCLUDE options of the BPACTIVITY command**

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Meaning</th>
<th>Affects summaries</th>
<th>No effect with short record format</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPID</td>
<td>Buffer pool ID</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>CONNTYPE</td>
<td>Connection type</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ENDSER</td>
<td>End user ID</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>PLANNAME</td>
<td>Plan name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRIMAUTH</td>
<td>Primary authorization ID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSTYPE</td>
<td>Type of page set for table space (T) or index space (I)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QPAGESET</td>
<td>Combination of database and page set</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>TRANSACT</td>
<td>End user transaction name</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>WSNAME</td>
<td>End user workstation name</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**LEVEL**
Use this option with the **REPORT** or **FILE** subcommand if you want to create a summary report (where detail information is not required) or to avoid detail data in a bpd (buffer pool data) file. By default, if **LEVEL** is not specified, detail information is processed, which results in a detail report, respectively detail data in a bpd file. (Provided that a data type of **Detail** was specified when the data was collected.)

If used with the **REPORT** subcommand, **LEVEL(SUMMARY)** simply determines that a summary report is to be created. **LEVEL(DETAIL)** is the default and creates a detail report.

If used with the **FILE** subcommand, **LEVEL(SUMMARY)** can considerably reduce the processing time and the file size of the resulting bpd file by eliminating detail data. However, most client-based functions that use bpd files as input require detail data. See “**Determining what to collect**” on page 2593 for further details and about which IFCIDs are included in detail and summary data. If processing time and file size are not critical, do not specify **LEVEL** and accept the default **LEVEL(DETAIL)**.

**Note:** If the **FILE** and **REPORT** subcommands are used together in the same batch job, the same **LEVEL** specification is required for both subcommands to ensure that either summary or detail data is processed with one invocation of the **BPACTIVITY** command.

The following examples are valid:

```c
/* Valid invocation. Both subcommands assume LEVEL(DETAIL) as default
BPACTIVITY
 FILE
 REPORT

/* Valid invocation, both subcommands use only summary data
BPACTIVITY
 FILE LEVEL(SUMMARY)
 REPORT LEVEL(SUMMARY)

/* Also a valid invocation because the second REPORT processes
 /* a subset of DETAIL data.
BPACTIVITY
 FILE
 REPORT LEVEL(DETAIL)
 REPORT LEVEL(SUMMARY)
```

The following examples are not valid:

```c
/* Not a valid invocation because FILE excludes detail data.
BPACTIVITY
 REPORT LEVEL(DETAIL)
 FILE LEVEL(SUMMARY)

/* Not a valid invocation because FILE excludes detail data.
BPACTIVITY
 FILE LEVEL(SUMMARY)
 REPORT LEVEL(DETAIL)
 REPORT LEVEL(SUMMARY)
```

**DDNAME**

Use this option with the **REPORT** or **FILE** subcommand if you want to specify a ddname other than the default for the output reports or bpd files. By default, reports are written to BPRPTDD, and bpd files are written to BPFILDD1. If you specify a ddname, ensure that your JCL contains a valid DD statement for this ddname. If a DD statement is not specified, it is dynamically allocated to the SYSOUT message class of the job. See “**Specifying a JCL command stream**” on page 2620 for more information.
Use this option with the `REPORT` subcommand if you want to manipulate the aggregation level and sequence of reported statistics, the sorting of the aggregation, and the threshold for a “top-n” list of an activity report.

Aggregation summarizes the trace records by specific identifiers. By default report entries are aggregated by buffer pool ID (BPID) and by a combination of database and page set (QPAGESET). Further, the topmost 11 entries are included in the activity report.

- If you want to modify the aggregation level and sequence, you can specify up to three identifiers (id1 to id3) of those listed in Table 213. The number of identifiers determines the aggregation level, and the sequence of identifiers determines the aggregation sequence. Multiple identifiers are separated by a dash (–). Note that some identifiers have no effect if the input data was collected with a short record format (where extensive IFCID header information is omitted).

Table 213. Possible aggregation identifiers for the ORDER option of the BPACTIVITY command

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Meaning</th>
<th>No effect with short record format</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPID</td>
<td>Buffer pool ID</td>
<td></td>
</tr>
<tr>
<td>CONNTYPE</td>
<td>Connection type</td>
<td></td>
</tr>
<tr>
<td>ENDUSER</td>
<td>End user ID</td>
<td>X</td>
</tr>
<tr>
<td>PLANNAME</td>
<td>Plan name</td>
<td></td>
</tr>
<tr>
<td>PRMAUTH</td>
<td>Primary authorization ID</td>
<td></td>
</tr>
<tr>
<td>PSTYPE</td>
<td>Type of page set for table space (T), or index space (I), or undetermined.</td>
<td></td>
</tr>
<tr>
<td>QPAGESET</td>
<td>Combination of database and page set</td>
<td></td>
</tr>
<tr>
<td>TRANSACT</td>
<td>End user transaction name</td>
<td>X</td>
</tr>
<tr>
<td>WSNABE</td>
<td>End user workstation name</td>
<td>X</td>
</tr>
</tbody>
</table>

- If you want to modify the sort sequence of the (default or specified) aggregation, use the `SORTBY` option. The sort sequence can be specified by up to two optional identifiers (of those used for the aggregation, listed in Table 213) and one mandatory sort field from those listed in Table 214. Note that the identifiers correspond to record header fields and sort fields to record data fields (containing activity counts).

Table 214. Possible sort fields for the SORTBY option of the BPACTIVITY command

<table>
<thead>
<tr>
<th>Sort field</th>
<th>Meaning</th>
<th>Valid for detail reports</th>
<th>Valid for summary reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>GETPAGE</td>
<td>Getpage - total</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>READREQ</td>
<td>Read request - total</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>READSEQ</td>
<td>Read request - Synchronous</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>READSYNC</td>
<td>Read request - Seq prefetch</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>MISSRAND</td>
<td>Getpage Miss Random</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>MISSASYN</td>
<td>Getpage Miss Asynch</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>READPAGE</td>
<td>Read page total</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>WRITEPAGE</td>
<td>Write page total</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>WRITEREQ</td>
<td>Write request total</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>SYNCREQ</td>
<td>Synchronous request</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Table 214. Possible sort fields for the SORTBY option of the BPACTIVITY command (continued)

<table>
<thead>
<tr>
<th>Sort field</th>
<th>Meaning</th>
<th>Valid for detail reports</th>
<th>Valid for summary reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASYNCREAD</td>
<td>Asynchronous request</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ASYNCPAGE</td>
<td>Asynchronous page</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

For example, if you specify ORDER (BPID-CONNTYPE SORTBY (BPID,GETPAGE)), the statistics records are aggregated by BPID and CONNTYPE, but sorted by BPID and the number of Getpage operations.

- If you want to modify the default threshold (11) for the inclusion of statistics records in the activity report, use the TOP option and specify any number other than 11. The TOP option skips reporting for objects that have low usage rates. A value of 0 (or a very high value) includes all records in the activity report. See “The report header” on page 2631 for an example of how this setting affects the report.

**ACTIVEOBJECTS**

Specify this option with the FILE subcommand if you want only information about active objects (those with buffer pool activities) in the output data set (the bpd file). By default, if this option is not used, also information about inactive objects (those without activities during the collection time) is included in the output.

The purpose of this subcommand option is to reduce the size of the bpd file if information about inactive objects is not needed. In large installations, the percentage of objects that show no activity during the time data is collected can be high, thus creating large bpd files. Smaller files are faster to download to the client and cause shorter preprocessing times.

Note that the object placement function on the client can make use of information about inactive objects. See “Preliminary remarks about the content and filtering of input data” on page 2619 and “Step 3: Assigning objects to buffer pools” on page 2690 (the description about the Used column and the Assign objects not accessed during data collection check box).

**Interpreting activity reports**

This topic shows examples of a summary report and a detail report and describes the layout and the elements of these reports. This topic helps to understand the host reports created by Buffer Pool Analyzer.

**Related tasks:**

- Before you can interpret reports, you must have performed the tasks described in:
  - “Collecting data” on page 2607
  - “Creating activity reports and bpd files” on page 2618

**General remarks:**

1. The reported data reflects the performance for the interval for which trace data was collected and for the time frame that was specified with the GLOBAL and the BPACTIVITY command.

2. Activity reports are composed of several sections in a fixed sequence. If data for a specific section is not available, a “no data to report” statement or similar is shown. For example, if group buffer pool specific information cannot be
reported because the data was collected from a DB2 subsystem that is not a member of a data sharing group, several sections in the summary report have no data to report.

3. If a counter value or specific information in reports, in windows, or on panels is not shown, the following notation is used to indicate the reason:

**N/A** Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

**N/C** Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

**N/P** Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

Related reading: Summary reports and detail reports show several elements that can be changed by means of the DB2 ALTER BUFFERPOOL command. For details on how to change them see the IBM DB2 11 for z/OS: Command Reference.

The following topics provide additional information:
- “Preliminary remarks about the accuracy of summary and detail reports”
- “Summary reports” on page 2630
- “Detail reports” on page 2663

**Preliminary remarks about the accuracy of summary and detail reports**
Summary and detail reports show in parts identical information, for example, the number of Getpage requests during the time data was collected.

If you work with summary and detail reports that cover identical time frames, you expect that identical counters report identical numbers, but might encounter that these numbers sometimes are not equal. This topic discloses the technical causes and helps to understand the accuracies of both reports.

As described in “Collecting data” on page 2593, different data types, identified by IFCIDs, are used for summary and detail reports. Summary reports use buffer pool and data set statistics data from DB2, whereas detail reports use activity data from DB2. Both data types are continuously provided by DB2. Tools like Buffer Pool Analyzer collect this data for specified time frames that you want to analyze.

Activity data is purely event based. DB2 keeps a record of every single event. When Buffer Pool Analyzer collects activity data from DB2 for a duration or time frame specified by you, it obtains precise information about every single activity.
during that time frame. This information and the known data collection start time and end time can be used for precise totaling and calculations and results in exact numbers in detail reports.

However, statistics data is recorded by DB2 at intervals, and this interval can vary dependent on the initial system settings. When Buffer Pool Analyzer collects statistics data from DB2 for a duration or time frame specified by you, it gets hold of a number of interval recordings during that time frame. Worse, the collection start time and end time rarely perfectly match the system's interval recordings. As a result, any calculations and the numbers in summary reports are based on the time frame between the first and last interval recording that is covered by the specified start and end times. Partial intervals at the beginning and ending of the collection time remain uncovered.

Example:

|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---
A summary report is created as a single entity; however, to facilitate reading it is shown here in separate sections, as follows:

- “The report header”
- “The Buffer Pool Statistics Highlights section”
- “The Group Buffer Pools Activity Data Highlights section” on page 2632
- “The Buffer Pool Characteristics section” on page 2632
- “The Buffer Pool Statistics section” on page 2636
- “The Data Set Statistics section” on page 2645
- “The Group Buffer Pools Activity Data section” on page 2648
- “The Group Buffer Pool Attributes section” on page 2656
- “The Buffer Manager PSET/Part P-lock Request section” on page 2658
- “The CF Cache Structure Statistics section” on page 2660

Note that the first two sections of a summary report are highlights sections. They show selected elements from “The Buffer Pool Statistics section” on page 2636 and “The Group Buffer Pools Activity Data section” on page 2648 of statistical significance, for example, when certain counter values in these sections deserve closer attention. Start your analysis and interpretation with these highlight sections.

The report header:

The report header is shown at the top of every report page and identifies the report and the command options that were used to create the report.

The following is an example of a report header:

```
1 OMEGAMON XE FOR DB2 PE (V5R4M0) - BUFFER POOL ACTIVITY REPORT PAGE: 1-1
ORDER: BPID-QPAGESET
SORTBY: BPID,ASYNCPAGE TOP: 17 LEVEL: SUMMARY
GROUP: DSNJ LOCATION: PMODSNJ DB2 VERSION: V11
MEMBER: SGGJ1 REQUESTED FROM: NOT SPECIFIED TO: NOT SPECIFIED
SUBSYSTEM: SGGJ1 INTERVAL FROM: 01/24/13 07:21:46 TO: 01/24/13 09:27:13
```

- LEVEL specifies the type of report, here, a summary report.
- ORDER specifies the aggregation, here, by buffer pool ID (BPID) and a combination of database and page set (QPAGESET).
- SORTBY specifies the sorting of the aggregated information, here, by buffer pool ID (BPID) and asynchronous page (ASYNCPAGE).
- TOP specifies that the 17 topmost aggregations are reported. If the trace data contains more than 17 objects, they are aggregated under the label Others in the report.

This example was created with the following command:

```
BPACTIVITY REPORT LEVEL(SUMMARY)
ORDER(BPID-QPAGESET SORTBY(BPID, ASYNCPAGE) TOP(17))
```

Note that the ORDER, SORTBY, and TOP options affect only the information in “The Data Set Statistics section” on page 2645.

The Buffer Pool Statistics Highlights section:

This report section shows selected elements from “The Buffer Pool Statistics section” on page 2636 that deserve further investigation. Note especially those values that are marked with asterisks; they mark counter values that should typically be zero. The content and length of this report section varies. Several
elements are always present, others only if the underlying counter values demand highlighting. If you need a detailed description of these elements, see “The Buffer Pool Statistics section” on page 2636. The elements are displayed in equal or der in both sections. The following example shows a hypothetical section, with some of the elements that can show up in your actual report.

The Group Buffer Pools Activity Data Highlights section:

This report section shows selected elements from “The Group Buffer Pools Activity Data section” on page 2648 that deserve further investigation. Note especially those values that are marked with asterisks; they mark counter values that should typically be zero. The content and length of this report section varies. Several elements are always present; others only if the underlying counter values demand highlighting. If you need a detailed description of these elements, see “The Group Buffer Pools Activity Data section” on page 2648. The elements are displayed in equal order in both sections. The following example shows a hypothetical section, with some of the elements that can show up in your actual report.

The Buffer Pool Characteristics section:

Buffer pool characteristics are attributes of individual buffer pools, such as sizes and thresholds.

They are defined during installation in the DB2 bootstrap data set. When DB2 is started, these settings apply by default. If these attributes are changed (by means
of the ALTER BUFFERPOOL command), they are stored and used until they are changed again. The buffer pool characteristics values are retrieved from IFCID 202.

OMEGAMON XE FOR DB2 PE (VSR4M0) - BUFFER POOL ACTIVITY REPORT  PAGE: 1-2
ORDER: BPID-QPAGESET
TOP: 11  LEVEL: SUMMARY

GROUP: N/P  LOCATION: PMODB11  DB2 VERSION: V11
MEMBER: N/P  REQUESTED FROM: NOT SPECIFIED  TO: NOT SPECIFIED
SUBSYSTEM: DB11  INTERVAL FROM: 12/03/14 13:19:39  TO: 12/03/14 14:32:00

<table>
<thead>
<tr>
<th>BPID</th>
<th>Buffer Pool Characteristics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BP0</td>
<td>BP1</td>
</tr>
<tr>
<td>------</td>
<td>-----</td>
<td>-----</td>
</tr>
</tbody>
</table>

### General

- **Virtual pool size**: 5000 10000 20000 5000 1000 100
- **Pages fixed in real stor**: No No No No No No
- **Page steal method**: LRU LRU LRU LRU LRU LRU
- **Autosize attribute**: No No No No No No
- **VPool size min**: 0 0 0 0 0 0
- **VPool size max**: 0 0 0 0 0 0
- **Frame size**: 4K 4K 4K 4K 4K 1M

#### Thresholds

- **Virtual sequential**: 80 80 80 80 80 80
- **Deferred write**: 30 30 30 30 30 30
- **Vert deferred write(buff)**: 0 0 0 0 0 0
- **Vert deferred write (%)**: 5 5 5 5 5 5
- **Parallel sequential**: 50 50 50 50 50 50
- **Assisting parallel seq**: 0 0 0 0 0 0

#### Simulated BP

- **Simulated BP size**: 550 550 550 0 0 10000
- **Simulated BP seq thresh**: 60 60 60 0 0 80

### General

- **Virtual pool size**: 50 50 1000 2000 1000 1000
- **Pages fixed in real stor**: No Yes No No No No
- **Page steal method**: LRU LRU LRU LRU LRU LRU
- **Autosize attribute**: Yes No No No No No
- **VPool size min**: 50 0 0 0 0 0
- **VPool size max**: 500 0 0 0 0 0
- **Frame size**: 4K 1M 4K 4K 4K 4K

#### Thresholds

- **Virtual sequential**: 80 99 80 80 80 80
- **Deferred write**: 30 30 30 30 30 30
- **Vert deferred write(buff)**: 0 0 0 0 0 0
- **Vert deferred write (%)**: 5 5 5 5 5 5
- **Parallel sequential**: 50 50 50 50 50 50
- **Assisting parallel seq**: 0 0 0 0 0 0

#### Simulated BP

- **Simulated BP size**: 5000 50000 0 0 0 0
- **Simulated BP seq thresh**: 80 50 0 0 0 0

---

**General — Virtual pool size**

Size of the virtual buffer pool.

**General — Page steal method**

Page stealing algorithm (PGSTEAL). When DB2 removes a page in the buffer pool to make room for a newer page, this action is called stealing the page from the buffer pool. By default, DB2 uses a Least-Recently-Used (LRU) algorithm for managing pages in storage. This means that it takes away pages that are not used so that more recently used pages can remain in the virtual buffer pool.
You can determine that DB2 uses a first-in-first-out (FIFO) algorithm. In this case, DB2 does not check how often a page is referenced. The oldest pages are always moved out, no matter how frequently they are referenced. This results in a small decrease in the cost of a Getpage operation. It can reduce internal DB2 latch contention in environments that require very high concurrency.

**VPool size min**
The minimum size of the auto-sized virtual pool. The field name is QDBPVPMI.

**VPool size max**
The maximum size of the auto-sized virtual pool. The field name is QDBPVPMA.

**Frame size**
The z/OS page frame size to back up the virtual pool buffers. The field name is QDBPFRAM.

**Thresholds — Virtual sequential**
Virtual pool sequential steal threshold (VPSEQT). This threshold is a percentage of the virtual buffer pool that might be occupied by sequentially accessed pages. The pages can be in the state updated, in use, or available. Therefore, each page might count regarding exceeding any other buffer pool threshold.

The default value for VPSEQT is 80%. You can change this value to a value from 0% to 100%.

VPSEQT is checked before stealing a buffer for a sequentially accessed page instead of accessing the page in the virtual buffer pool. If the threshold is exceeded, DB2 tries to steal a buffer that holds a sequentially accessed page rather than one that holds a randomly accessed page.

If you set VPSEQT to 0%, sequential pages cannot occupy space in the virtual buffer pool. In this case, prefetch is disabled, and sequentially accessed pages are discarded when they are released.

If you set VPSEQT to 100%, sequential pages can monopolize the entire virtual buffer pool.

**Thresholds — Deferred write**
Deferred write threshold (DWQT). This threshold is a percentage of the virtual buffer pool that might be occupied by unavailable pages, including updated pages and pages in use.

The default value for DWQT is 50%. You can change this value to any value from 0% to 90%.

DB2 checks DWQT when an update to a page is complete. If the percentage of unavailable pages in the virtual buffer pool exceeds DWQT, write operations are scheduled for up to 128 pages per data set to decrease the number of unavailable buffers to 10% below DWQT. For example, if DWQT is 50%, the number of unavailable buffers is reduced to 40%.

When the limit of DWQT is reached, the data sets containing the oldest updated pages are written asynchronously. DB2 continues to write pages until the ratio goes below the DWQT.

The number of pages is determined by the buffer pool page size as shown in Table 215 on page 2635.
Table 215. Number of changed pages based on buffer pool size

<table>
<thead>
<tr>
<th>Buffer pool size for pages</th>
<th>Number of changed pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 KB</td>
<td>40</td>
</tr>
<tr>
<td>8 KB</td>
<td>24</td>
</tr>
<tr>
<td>16 KB</td>
<td>16</td>
</tr>
<tr>
<td>32 KB</td>
<td>12</td>
</tr>
</tbody>
</table>

Thresholds — Vert deferred write

Vertical deferred write threshold (VDWQT). This threshold is similar to the deferred write threshold (DWQT), but it applies to the number of updated pages for one single page set in the buffer pool. If the percentage or number of updated pages for the data set exceeds the threshold, writes up to 128 pages are scheduled for that data set.

You can specify VDWQT in one of the following ways:

- As a percentage of the virtual buffer pool that might be occupied by updated pages from one single page set. The default value for this threshold is 10%. You can change the percentage to any value from 0% to 90%.
- As the total number of buffers in the virtual buffer pool that might be occupied by updated pages from one single page set. You can specify the number of buffers from 0 to 9999. If you want to use the number of buffers as your threshold, you must set the percentage threshold to 0.

Because any buffers that count for VDWQT also count for DWQT, setting the VDWQT percentage higher than DWQT has no effect: DWQT is reached first, write operations are scheduled, and VDWQT is never reached. Therefore, the ALTER BUFFERPOOL command does not allow you to set the VDWQT percentage to a value greater than DWQT. You can specify a number of buffers for VDWQT that is higher than DWQT, but this specification has no effect. The threshold is overridden by specific DB2 utilities that use a constant limit of 64 pages rather than a percentage of the virtual buffer pool size. LOAD, REORG, and RECOVER use a constant limit of 128 pages.

If you set VDWQT to zero for the percentage and number of buffers, the minimum number of pages written is the same as for DWQT.

Thresholds — Parallel sequential

Virtual buffer pool parallel sequential threshold (VPPSEQT). This threshold is a part of the virtual buffer pool that might support parallel operations. It is measured as a percentage of the sequential steal threshold (VPSEQT). Setting VPPSEQT to zero disables parallel operation.

The default value for this threshold is 50% of the sequential steal threshold (VPSEQT). You can change the default value to any value from 0% to 100%.

Thresholds — Assisting parallel seq

Virtual buffer pool assisting parallel sequential threshold (VPXPSEQT). This threshold is a part of the virtual buffer pool that might support parallel operations initiated from another DB2 in the data sharing group. It is measured as a percentage of VPPSEQT.

Setting VPXPSEQT to zero prevents DB2 from supporting Sysplex query parallelism at run time for queries that use this buffer pool.
The default value for this threshold is 0% of the parallel sequential threshold (VPSEQT). You can change the default value to any value from 0% to 100%.

**Simulated BP size**
Simulated Buffer pool size.

**Simulated BP seq thresh**
The sequential steal threshold (1-100) for the simulated buffer pool, expressed as a percentage of the total simulated buffer pool size.

**The Buffer Pool Statistics section:**

The buffer pool statistics values are retrieved from IFCID 2.

```
GROUP: N/P LOCATION: OMPDC61 MEMBER: N/P
REQUESTED FROM: NOT SPECIFIED TO: NOT SPECIFIED
SUBSYSTEM: DC61 INTERVAL FROM: 04/05/16 13:40:56 TO: 04/05/16 14:47:00

 Buffers allocated | BP32K | BP32K4 | BP8K0 | BP8K4 | BP16K0
                   -------|-------|-------|-------|-------|-------
 Reached threshold |
 Deferred write    | 0     | 0     | 0     | 0     | 0
 Vertical deferred write | 16   | 14    | 0     | 12    | 0
 Data manager      | 0     | 0     | 0     | 0     | 0
 SLRU length equ., VPSEQT | 0    | 0     | 0     | 0     | 0
 Current active buffer | 126  | 202   | 2     | 947   | 0
 Buffer pool full  | 0     | 0     | 0     | 0     | 0
 Data set opens    | 0     | 0     | 0     | 0     | 0
 Migrated data set | 0     | 0     | 0     | 0     | 0
 Recall timeout    | 0     | 0     | 0     | 0     | 0
 Expansion or contraction | 0    | 0     | 0     | 0     | 0
 Expansion failure | 0     | 0     | 0     | 0     | 0
 Concurrent prefetch I/O | 0    | 0     | 20    | 0     | 0
 Prefetch I/O reduction | 0   | 0     | 0     | 0     | 0
 Parallel query request | 0   | 0     | 0     | 0     | 0
 Reduced           | 0     | 0     | 0     | 0     | 0
 Pref quantity reduced |
 Reduced to 1/2    | 0     | 0     | 0     | 0     | 0
 Reduced to 1/4    | 0     | 0     | 0     | 0     | 0
 Min buffers on SLRU | 89   | 48    | 1579  | 53    | 10
 Max buffers on SLRU | 89   | 48    | 1579  | 53    | 10
 Random getpage SLRU hits | 1    | 0     | 0     | 0     | 0
 Pages added to LPL | 0     | 0     | 0     | 0     | 0

 System hit ratio   | 99.28 | 70.83 | 100.00 | 76.76 | n/c
 Application hit ratio | 99.52 | 99.57 | 100.00 | 99.32 | n/c
 Getpage request    | 5661  | 696   | 935    | 2780  | 0
 Sequential          | 2277  | 514   | 826    | 2076  | 0
 Overflow sequential | 0     | 212   | 0      | 746   | 0
 Random              | 3384  | 182   | 109    | 704   | 0
 Overflow random     | 0     | 172   | 0      | 594   | 0
 Unsuccessful getpages | 0    | 0     | 0      | 0     | 0
 Unsucc seq getpages | 0     | 0     | 0      | 0     | 0
 Read
 Synchronous read    | 27    | 3     | 0      | 19    | 0
 Sequential          | 1     | 2     | 0      | 18    | 0
 Overflow sequential | 0     | 2     | 0      | 18    | 0
 Random              | 26    | 1     | 0      | 1     | 0
 Overflow random     | 0     | 1     | 0      | 1     | 0
 Sequential prefetch
```

IBM Db2 Performance Expert on z/OS
<table>
<thead>
<tr>
<th>Buffer Pool ID</th>
<th>BP32K</th>
<th>BP32K4</th>
<th>BP8K0</th>
<th>BP8K4</th>
<th>BP16K0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic prefetch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Request</td>
<td>7</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Read</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pages read</td>
<td>14</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pages read/read</td>
<td>2.33</td>
<td>n/c</td>
<td>n/c</td>
<td>n/c</td>
<td>n/c</td>
</tr>
<tr>
<td>Prefetch disabled</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No buffer</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>No read engine</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Page-ins required</td>
<td>41</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Write</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buffer updates</td>
<td>5973</td>
<td>25948</td>
<td>67</td>
<td>27010</td>
<td>0</td>
</tr>
<tr>
<td>Page write</td>
<td>1027</td>
<td>192</td>
<td>9</td>
<td>1153</td>
<td>0</td>
</tr>
<tr>
<td>Updates/page write</td>
<td>5.82</td>
<td>135.15</td>
<td>7.44</td>
<td>23.43</td>
<td>n/c</td>
</tr>
<tr>
<td>Synchronous write</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>410</td>
<td>0</td>
</tr>
<tr>
<td>Asynchronous write</td>
<td>271</td>
<td>61</td>
<td>6</td>
<td>72</td>
<td>0</td>
</tr>
<tr>
<td>Pages/write req</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Page-ins required</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sort/merge</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Merge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pass requested</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pass degraded low buffer</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Workfile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max concurrent used</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Req rejected low buffer</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Req all merge passes</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Not created no buffer</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Prefetch not scheduled</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pages to destruct</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pages not written</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>Unlock castout</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I/O operations</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pages written</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Simulated BP Activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current pages in use</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
</tr>
<tr>
<td>Max pages in use</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
</tr>
<tr>
<td>Current seq pages in use</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
</tr>
<tr>
<td>Max seq pages in use</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
</tr>
<tr>
<td>Avoidable read 1/O</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sync read 1/O (R)</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
</tr>
<tr>
<td>Sync read 1/O (S)</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
</tr>
<tr>
<td>Async read 1/O</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
</tr>
<tr>
<td>Sync GBP reads (R)</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
</tr>
<tr>
<td>Sync GBP reads (S)</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
</tr>
<tr>
<td>Async GBP reads</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
</tr>
</tbody>
</table>

Asterisks (*) beside elements denote those elements that can show up in “The Buffer Pool Statistics Highlights section” on page 2631.
Buffers allocated *

The number of buffers that are allocated to a virtual buffer pool.

The number of buffers within each pool is always less than or equal to the corresponding value specified at installation time or when using the ALTER BUFFERPOOL command.

Reached threshold — Deferred write *

The number of times the deferred write threshold (DWTH) was reached.

This threshold is a percentage of the virtual buffer pool that unavailable pages might occupy, including both updated pages and pages in use. DB2 checks this threshold when an update to a page is completed. If the percentage of unavailable pages in the virtual buffer pool exceeds the threshold, write operations are scheduled for enough data sets (at up to 128 pages per data set) to decrease the number of unavailable buffers to 10% below the threshold.

Reached threshold — Vertical deferred write *

The number of times the vertical deferred write threshold was reached. This threshold is expressed as a percentage of the virtual buffer pool that may be occupied by updated pages from one single data set. This threshold is checked whenever an update to a page is completed. If the percentage of updated pages for the data set exceeds the threshold, writes are scheduled for that data set.

Reached threshold — Data manager *

The number of times the data manager critical threshold (DMTH-95%) was reached.

This field shows how many times a page was immediately released because the data management threshold was reached. If the threshold is constantly reached, you need to identify the objects that are monopolizing the buffer pool.

The threshold is checked before a page is read or updated. If the threshold has not been exceeded, DB2 accesses the page in the virtual buffer pool once for each page, no matter how many rows are retrieved or updated in that page. If the threshold has been exceeded, Getpage and Release requests apply to rows instead of pages. That is, when more than one row is retrieved or updated in a page, more than one Getpage and Release request is performed on that page.

The data manager threshold (DMTH) is fixed threshold, set to 95% of the virtual pool size. Reaching this threshold has a significant impact on a system's performance. Reaching this threshold for one pool can cause DB2 not to release pages in other pools as well.

Reached threshold — SLRU length equ. VPSEQT

The total number of times when length of SLRU = VPSEQT.

Current active buffer *

The total number of currently active (nonstealable) buffers. This field is an instantaneous sample of the number of buffers in the buffer pool that were updated or in use at the time this monitor data was requested. Because this field gives a snapshot value at statistics collection time, it only shows a problem if it happens at this time.

Buffer pool full *

The number of times a usable buffer cannot be located in the virtual buffer pool because the virtual buffer pool was full.
Data set opens
The number of data sets physically opened successfully. This value is cumulative from the start of the DB2 statistics interval.

Migrated data set
The number of times migrated data sets were encountered.

Recall timeout *
The number of recall timeouts.

Expansion or contraction
The number of successful virtual buffer pool expansions or contractions due to the ALTER BUFFERPOOL command. An increase in this counter indicates that buffer-pool-related system parameters have been changed.

Expansion failure
The total number of virtual buffer pool expansion failures due to the lack of virtual storage space.

Concurrent prefetch I/O
The highest number of concurrent prefetch I/O streams allocated to support a parallel I/O or CP query in this buffer pool. It reflects prefetch activities for non-work-file page sets. This number only applies to query I/O and CP parallelism.

Prefetch I/O reduction *
The total number of requested prefetch I/O streams that were denied because of a lack of buffer pool storage space.

It only applies to query I/O and CP parallelism. For example, if 100 prefetch I/O streams are requested and only 80 are granted, then 20 is added to the number in this field.

Parallel query request
The total number of requests made for parallel query support in this buffer pool. This field only applies to non-work-file page sets in query I/O and CP parallelism.

Parallel query request — Reduced *
The number of times that DB2 cannot allocate the requested number of buffer pages to allow a parallel group to run as planned. This field only applies to non-work-file page sets in query I/O and CP parallelism.

Pref quantity reduced — Reduced to 1/2 *
The total number of times prefetch quantity is reduced from normal to 50% of normal. The normal size depends on the page size of the buffer pool. This field only applies to query I/O and CP parallelism.

Pref quantity reduced — Reduced to 1/4 *
The total number of times prefetch quantity is reduced from 50% to 25% of normal. The normal size depends on the page size of the buffer pool. This field only applies to query I/O and CP parallelism.

Min buffers on SLRU
The minimum number of buffers on SLRU, low water mark within an interval.

Max buffers on SLRU
The maximum number of buffers on SLRU, high water mark within an interval.
Random getpage SLRU hits
The total number of times that the random Getpage request has a buffer hit and the buffer is on the least-recently-used (SLRU) chain.

Pages added to LPL
The number of times that one or more pages were added to the logical page list (LPL). The field name is QBSTLPL.

System hit ratio *
The number of Getpage requests by DB2 and satisfied by the buffer pool, expressed as a percentage of all Getpage requests.

This shows the percentage of pages that are found in the buffer pool without doing any type of I/O.

The system hit ratio is affected by prefetch I/O. The value is usually lower in an application that causes mostly sequential accesses, respectively higher if a series of similar operations are performed on the same data.

A negative system hit ratio indicates that the number of prefetched pages is greater than the number of Getpages. This happens if prefetch operations are bringing in pages that are not subsequently referenced. The reason for this is that the query stops before it reaches the end of the prefetched pages, or that the prefetched pages are stolen by DB2 for reuse before the query can access them. Consider increasing the sequential steal threshold (VPSEQT), increasing the buffer pool size, or revising the assignments of page sets to buffer pools.

Compare the value in this field with the application hit ratio to determine the efficiency of prefetch operations.

Application hit ratio *
The number of Getpage requests issued by applications and satisfied by the buffer pool, expressed as a percentage of all Getpage requests issued by applications.

A low hit ratio indicates the level of synchronous I/O because prefetched pages that are already in the buffer pool count as hits. The value is a relative value depending on the type of application. For example, an application that browses large amounts of noncontinuous data might have a buffer pool hit ratio of 0. Check those cases in which the hit ratio drops significantly for the same application.

Getpage request *
This counter is incremented for:
  • Each successful or unsuccessful page request, where the query is not processed in parallel.
  • Each successful page request, where the query is processed in parallel.

Unsuccessful page requests for queries processed in parallel are reported in the Unsuccessful Page Requests field.

Getpage request — Sequential
The number of Getpage requests issued by sequential access requesters.

Getpage request — Overflow sequential
The number of sequential GETPAGE requests using overflowed buffers (QBSTASGE).

Getpage request — Random
The number of random Getpage requests.
Getpage request — Overflow random
The number of non-sequential GETPAGE requests using overflowed buffers (QBSTAGET).

Getpage request — Unsuccessful
The number of times a conditional GETPAGE request could not be satisfied for this buffer pool during the specified time interval. This counter is used only when queries are processed in parallel. If the value is close to zero, most pages are already prefetched into the buffer pool and wait time for synchronous I/O is small. The field name is QBSTNGT.

Getpage request — Unsucc seq getpages
The total number of sequential getpage requests, which failed because the page was not in the buffer pool.

Read — Synchronous read
The number of synchronous read I/O operations performed by DB2 for applications and utilities.

Read — Synchronous read — Sequential *
The number of synchronous read I/O requests issued by sequential access requesters.

Read — Synchronous read — Overflow sequential
The number of synchronous read I/O operations for sequential GETPAGE requests using overflowed buffers (QBSTASSE).

Read — Synchronous read — Random
The number of random synchronous read I/O requests.

Read — Synchronous read — Overflow random
The number of synchronous read I/O operations for non-sequential GETPAGE requests using overflowed buffers (QBSTASYN).

Read — Sequential prefetch — Request
The number of sequential prefetch requests. This counter is incremented for each prefetch request (which can result in an I/O read). If it results in an I/O read, up to 32 pages may be read for SQL, and up to 64 pages for utilities. A request does not result in an I/O read if all pages to be prefetched are already in the buffer pool.

Sequential detection is not included in this counter but is separately recorded in the Dynamic Prefetch - Requested field.

Read — Sequential prefetch — Read
The number of asynchronous read I/O operations due to normal sequential prefetch (applications and utilities).

Read — Sequential prefetch — Pages read
The total number of pages read due to a normal sequential prefetch. A sequential prefetch request does not result in a read I/O if all the required pages are found in the buffer pool.

Read — Sequential prefetch — Pages read/read
The number of sequential prefetch pages read per sequential prefetch read I/O operation.

Read — List Prefetch — Request
The number of list sequential prefetch requests.

List sequential prefetch allows DB2 to access data pages efficiently even when the required data pages are not contiguous. It allows CP and I/O operations to be overlapped.
Read — List Prefetch — Read
The number of asynchronous read I/O operations caused by the list sequential prefetch.

The number of pages read is recorded in the List Prefetch Pages Read field.

Read — List Prefetch — Pages read
The number of pages read due to a list prefetch. A list sequential prefetch request does not result in a read I/O if all the required pages are found in the buffer pool.

Read — List Prefetch — Pages read/read
The number of list prefetch pages read per list prefetch read I/O.

Read — Dynamic Prefetch — Request
The number of dynamic prefetch requests. Dynamic prefetch is the process that is triggered because of sequential detection. If the prefetch request results in an I/O read, up to 32 advancing pages may be read at a time.

Read — Dynamic Prefetch — Read
The number of asynchronous read I/Os because of dynamic prefetch. The number of pages read is recorded in the Dynamic Prefetch Pages Read field.

Read — Dynamic Prefetch — Pages read
The number of pages read because of dynamic prefetch. Dynamic prefetch is the process that is triggered because of sequential detection.

Read — Dynamic Prefetch — Pages read/read
The number of dynamic prefetch pages read per dynamic prefetch read I/O.

Read — Prefetch disabled — No buffer *
The total number of times sequential prefetch was disabled or canceled because buffers were not available. This is the number of times the sequential prefetch threshold (SPTH) is reached. Ideally, this value should be 0. If the threshold is constantly reached, you need to identify the objects that are monopolizing the buffer pool.

The sequential prefetch threshold (SPTH) is a fixed threshold, set to 90% of the virtual pool size, that is compared prior to a sequential prefetch. If the threshold is reached, the prefetch is disabled.

Read — Prefetch disabled — No read engine *
The total number of times a sequential prefetch is disabled because of an unavailable read engine.

Read — Page-ins required *
The number of page-ins required for a read I/O.

If the number of Page-ins required is roughly approximately 5% of the total number of Getpage requests, the paging activity is at an acceptable rate. A rate near zero might indicate that the buffer pool is oversized.

Write — Buffer updates
The number of times buffer updates were requested against pages in the buffer pool.

Write — Page write
The number of pages in the buffer pool written to a hard disk drive.
Write — Updates/page write
The number of buffer update requests, divided by the number of pages written from the buffer pool to a hard disk drive.

The ratio of BUFFER UPDATES to PAGES WRITTEN suggests a high level of efficiency as the ratio increases, because more updates are being externalized per physical write. For example, if there are 10 updates on the same page before it is externalized, then the ratio is 10:1 or 10. If all 10 updates are on 10 distinct pages, then the ratio is 10:10 or 1.

Write — Synchronous write
The total number of immediate writes.

Immediate writes occur when:
• An immediate write threshold is reached
• No deferred write engines are available
• More than two checkpoints pass without a page being written

Immediate writes are a type of synchronous write, but not the only one. Sometimes DB2 uses synchronous writes even when the immediate write threshold (IWTH) is not exceeded, for example when more than two checkpoints pass without a page being written. This type of situation does not indicate a buffer shortage.

The immediate write threshold (IWTH) is a fixed threshold, set to 97.5% of the virtual pool size, that is checked whenever a page needs to be updated. If the threshold is reached, writes are synchronous. Then, the application cannot proceed until the write operation has completed.

Write — Asynchronous write
The number of asynchronous write I/O operations performed by media manager to a direct access storage device.

Write — Pages/write req
The number of pages written from the buffer pool to a hard disk drive per synchronous or asynchronous write I/O. This count does not include preformatting I/O, such as I/O needed to prepare a data set for use.

Write — Page-ins required *
The number of page-ins required for a write I/O.

This counter is incremented each time the media manager does not find a page in central storage. This counter does not differentiate between expanded storage and page data sets.

Merge — Pass requested
The total number of merge passes for DB2 sort activities. This value reflects how many merge passes were requested for DB2 to determine the number of work files permitted to support each merge pass.

Merge — Pass degraded low buffer *
The number of times that a merge pass was not efficiently performed due to a shortage of space in the buffer pool. The number in this field is incremented for each merge pass where the maximum number of work files allowed is less than the number of work files requested.

Workfile — Max concurrent used
The maximum number of work files concurrently used during merge processing within this statistics period.

Ideally, each work file needs 16 buffers to allow DB2 to perform a sequential prefetch for work files.
Workfile — Req rejected low buffer *
The total number of work files that were rejected during all merge passes because of insufficient buffer resources.

Workfile — Req all merge passes
The total number of work files requested for all merge passes.
This field and the merge passes requested field can be used to determine the average number of work files requested in one single merge pass.
For DB2 to perform an efficient prefetch for work files, each work file should have at least 16 dedicated buffers. Work files used during sort phase processing or other non-sort-related processing are not included in this number.

Workfile — Not created no buffer *
Only applicable if DB2 is running under MVS/XA. The number of times a work file cannot be created due to insufficient buffer resources. It indicates that a sort is in progress and limited in regard to the number of work files it can use.

Workfile — Prefetch not scheduled *
The number of times a sequential prefetch was not scheduled for a work file because the dynamic prefetch quantity is zero.

Workfile — Pages to destruct
The number of pages for which a destructive read was requested.

Workfile — Pages not written
The number of pages removed from the data set deferred write queue for destructive Read requests.

Unlock castout
The number of times DB2 issued an unlock request to the coupling facility for completed castout I/Os.

Unlock castout — I/O operations
Unlock castout — Pages written

Simulated BP Activity — Current pages in use
The total number of pages currently in the simulated buffer pool.

Simulated BP Activity — Max pages in use
The highest number of pages in the simulated buffer pool.

Simulated BP Activity — Current seq pages in use
The total number of sequential pages in the simulated buffer pool.

Simulated BP Activity — Max seq pages in use
The highest number of sequential pages in the simulated buffer pool.

Simulated BP Activity — Avoidable read I/O
Sync read I/O (R)
The total number of pages found in the simulated buffer pool for a random request that resulted in a synchronous read I/O.

Sync read I/O (S)
The total number of pages found in the simulated buffer pool for a sequential request that resulted in a synchronous read I/O.

Async read I/O
The total number of pages found in the simulated buffer pool for a prefetch request that resulted in an asynchronous read I/O.
Sync GBP reads (R)
The total number of pages found in the simulated buffer pool for a random request that resulted in a synchronous GBP read.

Sync GBP reads (S)
The total number of pages found in the simulated buffer pool for a sequential request that resulted in a synchronous GBP read.

ASync GBP reads
The total number of pages found in the simulated buffer pool for a prefetch request that resulted in an asynchronous GBP read.

Pages moved into sim BP
The total number of pages logically moved into the simulated buffer pool.

Total avoidable - sync I/O delay (msec)
The total time in milliseconds waiting for synchronous read I/O for pages found in the simulated buffer pool.

The Data Set Statistics section:

The data set statistics values are retrieved from IFCID 199.

<table>
<thead>
<tr>
<th>BPID</th>
<th>BP0</th>
<th>BP0</th>
<th>BP0</th>
<th>BP0</th>
<th>BP0</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSTYPE</td>
<td>T</td>
<td>I</td>
<td>T</td>
<td>T</td>
<td>I</td>
</tr>
<tr>
<td>QPAGESET</td>
<td>DSNDB01</td>
<td>DSNDB01</td>
<td>DSNDB06</td>
<td>DSNDB06</td>
<td>DSNDB06</td>
</tr>
<tr>
<td>PARTITION</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

---------- Dataset Statistics ----------

Synchronous Request
| Avg delay ms | 0.969 | 0.866 | 0.763 | 0.789 | 2.074 |
| Max delay ms | 21.957 | 13.411 | 8.566 | 9.661 | 35.771 |
| Tot delay sec | 0.196 | 0.116 | 0.047 | 0.048 | 0.124 |

Asynchronous Request
| Avg delay ms | 0.050 | 0.111 | 0.524 | 0.445 | 11.201 |
| Max delay ms | 0.376 | 0.329 | 39.198 | 17.518 | 171.133 |
| Tot delay sec | 0.000 | 0.001 | 0.032 | 0.021 | 0.258 |

VP current
| Avg pages | 201 | 134 | 15 | 59 | 4 |
| Max pages | 201 | 134 | 15 | 59 | 4 |

VP changed
| Avg pages | 0 | 0 | 1 | 2 | 1 |
| Max pages | 0 | 0 | 1 | 2 | 1 |

GBP-dependent
| No | No | No | No | No |
| Shadow DS | No | No | No | No |

Synchronous Request
| VP | 78 |

Chapter 5. Monitoring 2645
<table>
<thead>
<tr>
<th></th>
<th>Avg delay ms</th>
<th>Max delay ms</th>
<th>Tot delay sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asynchronous Request</td>
<td>4.413</td>
<td>33.024</td>
<td>0.344</td>
</tr>
<tr>
<td>Page</td>
<td>52</td>
<td>139</td>
<td></td>
</tr>
<tr>
<td>Avg delay ms</td>
<td>0.743</td>
<td>9.071</td>
<td>0.039</td>
</tr>
<tr>
<td>VP current</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg pages</td>
<td>132</td>
<td>132</td>
<td></td>
</tr>
<tr>
<td>VP changed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg pages</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>GBP-dependent</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Shadow DS</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

1 OMEGAMON XE FOR DB2 PE (V5R4M0) - BUFFER POOL ACTIVITY REPORT PAGE: 1-11
ORDER: BPID-QPAGESET
SORTBY: BPID, QPAGESET TOP: 17 LEVEL: SUMMARY

GROUP: N/P LOCATION: OMPDC61 DB2 VERSION: V12
MEMBER: N/P REQUESTED FROM: NOT SPECIFIED TO: NOT SPECIFIED
SUBSYSTEM: DC61 INTERVAL FROM: 04/05/16 13:40:56 TO: 04/05/16 14:47:00

---------- Dataset Statistics ----------

<table>
<thead>
<tr>
<th>BPID</th>
<th>PSTYPE</th>
<th>QPAGESET</th>
<th>PARTITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP16K4</td>
<td>T</td>
<td>EDVADB</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EDVATSA</td>
<td></td>
</tr>
</tbody>
</table>

---------- Synchronous ----------

<table>
<thead>
<tr>
<th>Request</th>
<th>Avg delay ms</th>
<th>Max delay ms</th>
<th>Tot delay sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>429</td>
<td>0.327</td>
<td>2.724</td>
<td>0.140</td>
</tr>
</tbody>
</table>

---------- Asynchronous Request ----------

<table>
<thead>
<tr>
<th>Request</th>
<th>Avg delay ms</th>
<th>Max delay ms</th>
<th>Tot delay sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>83</td>
<td>0.068</td>
<td>0.364</td>
<td>0.006</td>
</tr>
</tbody>
</table>

---------- VP current ----------

<table>
<thead>
<tr>
<th>Avg pages</th>
<th>Max pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>450</td>
<td>450</td>
</tr>
</tbody>
</table>

---------- Synchronous Request ----------

<table>
<thead>
<tr>
<th>Request</th>
<th>Avg delay ms</th>
<th>Max delay ms</th>
<th>Tot delay sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>525</td>
<td>0.337</td>
<td>2.227</td>
<td>0.177</td>
</tr>
</tbody>
</table>

---------- Asynchronous Request ----------

<table>
<thead>
<tr>
<th>Request</th>
<th>Avg delay ms</th>
</tr>
</thead>
<tbody>
<tr>
<td>136</td>
<td>0.053</td>
</tr>
</tbody>
</table>
OMEGAMON XE FOR DB2 PE (V5R4M0) - BUFFER POOL ACTIVITY REPORT  PAGE: 1-12
ORDER: BPID-PAGETSET

GROUP: N/P LOCATION: OMPDC61 DB2 VERSION: V12
MEMBER: N/P REQUESTED FROM: NOT SPECIFIED TO: NOT SPECIFIED
SUBSYSTEM: DC61 INTERVAL FROM: 04/05/16 13:40:56 TO: 04/05/16 14:47:00

********** TOTAL **********
BPID BPO BP32K BP8K4 BP16K4

Synchronous — Request
Number of synchronous I/Os in the reported interval for the page set.

Synchronous — Avg delay ms
Average synchronous I/O delay for pages in the page set, in milliseconds.

Synchronous — Max delay ms
Maximum synchronous I/O delay for pages in the page set, in milliseconds.

Synchronous — Tot delay sec
Total accumulated synchronous I/O delay for pages in the page set, in seconds.

Asynchronous — Request
Number of asynchronous I/Os for the page set in the reported interval.
Asynchronous — Page
Number of page set pages read or written asynchronously in the reported interval.

Asynchronous — Avg delay ms
Average asynchronous I/O delay for pages in the page set, in milliseconds.

Asynchronous — Max delay ms
Maximum asynchronous I/O delay for pages in the page set, in milliseconds.

Asynchronous — Tot delay ms
Total accumulated asynchronous I/O delay for pages in the page set, in seconds.

VP current
Number of page set pages in the virtual buffer pool.

VP current— Avg pages
Average number of page set pages in the virtual buffer pool per IFCID 199 interval.

VP current— Max pages
Maximum number of page set pages in the virtual buffer pool per IFCID 199 interval.

VP changed
Number of changed page set pages in the virtual buffer pool.

VP changed— Avg pages
Average number of changed page set pages in the virtual buffer pool per IFCID 199 interval.

VP changed — Max pages
Maximum number of changed page set pages in the virtual buffer pool per IFCID 199 interval.

The Group Buffer Pools Activity Data section:

This report section shows group buffer pool activity data, which is retrieved from IFCID 2 (DB2 statistics — Group Buffer Pool Activity data).

<table>
<thead>
<tr>
<th>Group Buffer Pool</th>
<th>GBP0</th>
<th>GBP2</th>
<th>GBP8K0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group BP Hit Ratio (%)</td>
<td>28.57</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>GBP-Dependent Getpages</td>
<td>8</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Syn.Read(XI)-Data returned</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Syn.Read(XI)-No data return</td>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Syn.Read(NF)-Data returned</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Syn.Read(NF)-No data return</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pages written using write-around</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Clean pages sync. written</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Changes pages sync. written</td>
<td>10</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Clean pages async. written</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Changes pages async. written</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reg.Page List(RPL) request</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Clean pages after RPL</td>
<td>n/p</td>
<td>n/p</td>
<td>n/p</td>
</tr>
</tbody>
</table>
Asterisks (*) beside elements denote those elements that can show up in "The Group Buffer Pools Activity Data Highlights section" on page 2632.

Group BP Hit Ratio (%) *

The group buffer pool hit ratio, expressed as a percentage. This is the percentage of pages successfully retrieved from the group buffer pool to those retrieved from a hard disk drive. Derived from the DB2 field SGBPHITP.

Calculated as:
\[
\frac{(qbglxd + qbglmd + qbglad + qbglay + qbglaz)}{(qbglxr + qbglmr + qbglar)} \times 100
\]

GBP-Dependent Getpages

The number of Getpage requests made for GBP-dependent objects. Derived from the DB2 field QBGLGG.

Syn.Read(XI)-Data returned

The number of requests made to read a page from the group buffer pool because the page was invalidated in the member's buffer pool. The member found the required page in the group buffer pool. Derived from the DB2 field QBGLXD.
When you increase the size of the group buffer pool, the number of pages returned from the GBP can increase. Conversely, decreasing the size of the GBP can cause DB2 to return fewer pages because the GBP cannot hold pages long enough to allow them to be retrieved again.

**Syn.Read(XI)-No data return**
The number of requests to read a page from the group buffer pool that were required because the page was invalidated in the member's buffer pool. The member did not find the data in the group buffer pool and had to retrieve the page from a hard disk drive. Derived from the DB2 field SBGLXR.

Normally, when the page in a member's buffer is cross-invalidated, the buffer is refreshed from the group buffer pool. In this instance, the requested page was not found in the group buffer pool though the page set is still GBP-dependent. The page has been removed from the group buffer pool for one of two reasons:

- Shortage of data pages and consequent reclamation of this page
- Shortage of directory entries and consequent removal of the page together with cross-invalidation (XI) of that page in the local buffer pools of all members using that page

If the value in this field is high, you may want to tune the group buffer pool (GBP). Depending on the reason, increase the number of GBP data pages, increase the size of the directory entry space, or increase both the number of GBP data pages and the space for directory entries. Oversizing the group buffer pool can cause unnecessary GBP checkpoint overhead.

**Syn.Read(NF)-Data returned**
The number of requests made to read a page from the group buffer pool because the page was not in the member's buffer pool (NF = page not found). The member found the page in the group buffer pool. Derived from the DB2 field QBGLMD.

The requesting member needs a page from a table space or index space that is GBP-dependent or has GBPCACHE ALL defined. To get that page, the group buffer pool is checked before the page set on a hard disk drive.

If the group buffer pool is used to cache both clean and changed pages (GBPCACHE ALL is used for all data), you can try to get more pages returned from the group buffer pool by increasing the size of the group buffer pool. Do not tune the GBP based on this counter if it is used for caching changed pages only (GBPCACHE CHANGED).

**Syn.Read(NF)-No data return**
The number of requests made to read a page from the group buffer pool because the page was not in the member's buffer pool (NF = page not found). The member did not find the required data in the group buffer pool and had to retrieve the page from a hard disk drive. Derived from the DB2 field SBGLMR.

The requesting member needs a page from a table space or index space that is GBP-dependent or has GBPCACHE ALL defined. To get that page, the group buffer pool is checked before the page set on a hard disk drive.

You can compare the value in this counter with the number of pages that were returned from the group buffer pool, see “Sync.Read (Not Found) - Data Returned”. If the group buffer pool is used to cache both clean and changed pages (GBPCACHE ALL is used for all data), you can try to get more pages returned from the group buffer pool by increasing the size of...
the group buffer pool. Do not tune the GBP based on this counter if it is used for caching changed pages only (GBPCACHE CHANGED).

**Pages written using write-around**
The total number of pages in write around. This means the pages written by DB2 to DASD directly from the local buffer pools thus eliminating page placement to GBP and associated overhead. Derived from the DB2 field QBGLWA.

**Clean pages sync. written**
The number of clean pages that were synchronously written to the group buffer pool from the virtual pool. Derived from the DB2 field QBGLWC.

Only GBPCACHE ALL causes clean (unchanged) pages to be written to the coupling facility. The pages are written to the coupling facility even when the page set is not GBP-dependent. When group buffer pool caching works effectively for prefetch, the value in this field should be much smaller than the value in “Synchronous Read (Not Found) - Data Returned”.

**Changed pgs.sync. written**
The number of changed pages written synchronously to the group buffer pool. Pages are written with Write and Register (WAR) requests or Write and Register Multiple (WARM) requests. At commit time changed pages are forced from the member’s virtual buffer pool to the coupling facility. For duplexed GBPs the counter values reflect writes to both primary and secondary group buffer pools. Derived from the DB2 field QBGLSW.

In data sharing, changed pages must have been written to the group buffer pool by the time a transaction commits. The pages are written either synchronously (force at commit) or asynchronously, for example, when a local buffer pool threshold is reached or at a member’s checkpoint. The number of pages that have to be forced out synchronously (in “burst mode”) at commit time can be reduced if asynchronous writes are triggered more frequently.

You can use the vertical deferred write threshold (VDWQT) to reduce the number of pages that have to be forced out synchronously and to increase the number of pages that are asynchronously written before the transaction commits. For GBP-dependent page sets, writes triggered by the vertical deferred write threshold go to the coupling facility. You can cause changed pages to be written out quicker and in smaller increments, by reducing the vertical deferred write threshold (VDWQT).

**Clean pages async. written**
Not applicable for versions later than DB2 Version 7. The number of clean pages that were asynchronously written to the group buffer pool from the virtual pool. Derived from the DB2 field QBGLAC.

Only GBPCACHE ALL causes clean (unchanged) pages to be written to the group coupling facility. In this instance pages are written even when the page set is not GBP-dependent. Asynchronous write is done under prefetch processing.

When group buffer pool caching works effectively for prefetch, the value in this field should be much smaller than the combined values in
- “Synchronous Read (Not Found) - Data Returned”
- “Asynchronous Reads - Data Returned” and
- “Clean pages - Read after Register Page List (RPL)”

**Changed pages async. written**
The number of changed pages written asynchronously to the group buffer.
Pages are written in response to Write and Register (WAR) and Write and Register Multiple (WARM) requests. Changed pages can be written from the member's virtual buffer pool to the group coupling facility before the application commits. This happens when, for example, a local buffer pool threshold is reached, or when P-lock negotiation forces the pages on the vertical deferred write queue to be written to the group buffer pool. For duplexed GBPs the counter values reflect writes to both primary and secondary group buffer pools. Derived from the DB2 field QBGLAW.

In data sharing, changed pages must have been written to the group buffer pool before a transaction commits. The pages are written either synchronously during commit processing or asynchronously before the transaction commits when, for example, a local buffer pool threshold is reached or at a member's checkpoint. See Changed Pages - Written Synchronously for the number of changed pages synchronously written to the group buffer pool.

The vertical deferred write threshold (VDWQT) can be used to reduce the number of pages that have to be forced out synchronously and to increase the number of pages that are asynchronously written before the transaction commits. For GBP-dependent page sets, writes triggered by the vertical deferred write threshold go to the coupling facility. If you want changed pages to be written out quicker and in smaller increments, you can lower the vertical deferred write threshold (VDWQT).

Reg.Page List (RPL) request

The number of Register Page List (RPL) requests made by prefetch. The group buffer pool must be allocated in a group coupling facility with CFLEVEL=2 or higher. Derived from the DB2 field QBGLAX.

Performance might be improved by enabling RPL.

Clean pages read after RPL

Not applicable for versions later than DB2 Version 7. The number of coupling facility reads performed by prefetch to retrieve a clean page from the group buffer pool. Derived from the DB2 field QBGLAZ.

Castout class threshold

The number of times group buffer pool castout was initiated because the group buffer pool class castout threshold was detected. Derived from the DB2 field QBGLCT.

The class castout threshold is one of two group buffer pool thresholds. In most cases the default value for the class threshold (10 percent) is a good choice. Depending on your workload, altering this value can reduce hard disk drive contention during castout.

Group BP castout threshold

The number of times a group buffer pool castout was initiated because the group buffer pool castout threshold was detected. Derived from the DB2 field QBGLGT.

The GBP castout threshold, together with the GBP class castout threshold and the length of the GBP checkpoint interval determine the castout characteristics of the group buffer pool.

You can consider this threshold a safety margin to protect the group buffer pool from being accidentally flooded by overactive applications.
In most situations, the default value for the group buffer pool castout threshold of 50 percent is a good choice. Use the ALTER GROUPBUFFERPOOL command to tune the group buffer pool thresholds.

**Pages castout**

The number of data pages that were cast out of the member's group buffer pool. Castout to a page set or partition is done by the castout owner of the page set or partition. This is normally the DB2 subsystem that had the first update intent on the page set or partition. Derived from the DB2 field QBGLRC.

The number of pages written per I/O is normally close to the value of this field divided by the value in “Unlock castout”. For example, if an average of four pages is written per castout write I/O, the number of pages cast out should be four times the number in this field.

Because DB2 usually includes more than one page in the request to write pages to a hard disk drive, the number in this field should always be significantly more than “Unlock castout”. If it is not (for example, when “Unlock castout” is more than half of “Pages castout”), the castout write I/O is inefficient; probably because you have random update patterns on the DB2 data or a low castout threshold.

**Unlock castout**

The number of times DB2 issued an unlock request to the coupling facility for completed castout I/Os. When pages are cast out to a hard disk drive, they are locked for castout in the coupling facility. This castout lock is not an IRLM lock; it is to ensure that only one system can cast out a given page at a time. Derived from the DB2 field QBGLUN.

The number of pages written per I/O is normally close to the value of “Pages castout” divided by the value of this field. For example, if an average of four pages is written per castout write I/O, the number of pages cast out should be four times the value in this field.

Because DB2 usually includes more than one page in a write request, the number in this field should always be significantly less than “Pages castout”. If it is not (for example, when “Unlock castout” is more than half of “Pages castout”), the castout write I/O is inefficient; possibly because you have random update patterns on the DB2 data or a low castout threshold.

**Read castout class**

The number of requests made to the group buffer pool to determine which pages, from a particular page set or partition, must be cast out because they are cached as changed pages. Derived from the DB2 field QBGLLCC.

This request is issued either by the page set or partition castout owner, or, when the group buffer pool castout threshold is reached, by the group buffer pool structure owner.

**Read castout statistics**

The number of requests issued by the group buffer pool structure owner to determine which castout classes have changed pages. Derived from the DB2 field QBGLCS.

This request is made by the group buffer pool structure owner when the group buffer pool threshold is reached. Normally, you would expect only one or two requests each time the group buffer pool threshold is reached.
RFCOM requests
The number of Read For Castout Multiple (RFCOM) requests. Derived from the DB2 field QBGLCM.

RFCO requests
The number of Read For Castout (RFCO) requests. One page read per request. Derived from the DB2 field QBGLCR.

Read directory info
The number of requests issued by the group buffer pool structure owner to read the directory entries of all changed pages in the group buffer pool. This request is issued at group buffer pool checkpoints to record the oldest recovery log record sequence number (LRSN). It is used as a basis for recovery if the group buffer pool fails. Such requests might have to be issued several times for each group buffer pool checkpoint to read the directory entries for all changed pages. Derived from the DB2 field QBGLRD.

If the value of this counter seems to be abnormally high, consider upgrading the coupling facility to CFLEVEL=2 or higher to raise the number of directory entries that can be read with one request. You can also increase the group buffer pool checkpoint interval, but this can lengthen the recovery for the group buffer pool.

Read storage statistics
The number of times DB2 requested statistics information from the group buffer pool. It is issued by the group buffer pool structure owner at timed intervals to determine whether the group buffer pool castout threshold (GBPPOOLT) has been reached. Derived from the DB2 field QBGLOS.

WAR requests
The number of Write and Register (WAR) requests. Derived from the DB2 field QBGLWS.

WARM requests
The number of Write and Register Multiple (WARM) requests. Derived from the DB2 field QBGLWM.

Pages written via WARM
Not applicable to DB2 Version 7 and earlier. (With DB2 Version 8, the group coupling facility allows multiple pages to be written and registered with a single write request.) The number of pages written using Write and Register Multiple (WARM) requests. Derived from the DB2 field QBGLWP.

Register page
The number of times DB2 registered interest in a single page. These are "register-only" requests, which means that DB2 is not requesting any data back from the request. This request is made only to create a directory entry for the page to be used for cross-invalidation when the page set or partition P-lock is downgraded from S to IS mode, or from SIX to IX mode. Derived from the DB2 field QBGLRG.

Unregister Page
The number of times DB2 unregistered interest for a single page. This happens when DB2 steals pages from the member's buffer pool that belong to GBP-dependent page sets or partitions. Derived from the DB2 field QBGLDG.

A large value here indicates that the local buffer pool contains a mixture of GBP-dependent data and non-GBP-dependent data.
The page stolen from the local buffer pool is replaced by a new one. This counter makes a distinction on whether the new page depends on the group buffer pool or not.

Usually a page of a GBP-dependent page set or partition is replaced by a page that is also GBP-dependent. In this instance, the unregister request for the page being stolen is combined with the read and register request for the new page. These combined requests do not contribute to this counter.

If, however, a page of a GBP-dependent page set or partition is replaced by a page that is not GBP-dependent, then only an unregister request is sent to the coupling facility. These separate requests are counted here.

Delete name
The number of requests made by DB2 to delete directory and data entries associated with a particular page set or partition from the group buffer pool. DB2 issues this request when it changes a page set or partition from GBP-dependent to non-GBP-dependent. DB2 also issues this request for objects that are defined with GBPCACHE ALL when those objects are first opened. Derived from the DB2 field QBGLDN.

This counter is a measure of how often page sets or partitions change between being and not being dependent on the group buffer pool. You can prevent DB2 going in and out of GBP-dependency too often by tuning the following subsystem parameters that affect when data sets are switched to a different state:

**PCLOSEN**
Pseudoclose frequency. The number of checkpoints required before a data set that was not updated can be a pseudoclose candidate.

If the PCLOSEN condition is met, the page set or partition is converted from read-write to read-only state. Depending on other concurrent users, this could raise the chance for the page set or partition to go out of GBP-dependency.

**PCLOSESET**
Pseudoclose time. The amount of time (in minutes) that must elapse before a data set can be a pseudoclose candidate.

If the PCLOSEN or PCLOSESET condition is met, the page set or partition is converted from read-write to read-only state. Depending on other concurrent users, this could raise the chance for the page set or partition to go out of GBP-dependency.

**LOGLOAD**
The number of log records that DB2 writes between successive checkpoints.

These parameters are specified in the CHECKPOINT FREQ field in panel DSNTIPN.

**Asynch. GBP requests**
The number of IXLCACHE invocations for the primary group buffer pool. Derived from the DB2 field QBGLHS.

**Explicit X-invalidations**
The number of times an explicit coupling facility cross-invalidation request was issued. Derived from the DB2 field QBGLEX.
GBP checkpoints triggered
The number of group buffer pool checkpoints triggered by this member. Derived from the DB2 field QBGLCK.

The value of this counter depends on the length of the group buffer pool checkpoint interval.

Write failed-no storage *
The number of coupling facility write requests that could not complete due to a lack of coupling facility storage resources. Derived from the DB2 field QBGLWF.

A value greater than zero indicates that the data page resources of the coupling facility are being consumed faster than the DB2 castout processes can free them.

On write failure, the affected DB2 member initiates castout and retries several times, and finally, if it is a changed page, it will be added to the logical page list (LPL) requiring recovery.

On write failure, the affected DB2 member initiates castout and retries several times, and finally, if it is a changed page, it will be added to the logical page list (LPL) requiring recovery. If the problem is not simply due to a momentary surge in activity, you need either to decrease the group buffer pool castout thresholds, or to increase the number of data entries in the group buffer pool. To increase the number of data entries, you can:

- Increase the total size of the group buffer pool
- Adjust the ratio of directory entries to data entries in favor of data entries

Write to secondary GBP failed *
The number of coupling facility requests to write changed pages to the secondary group buffer pool for duplexing that failed because of a lack of storage in the coupling facility. Derived from the DB2 field QBGL2F.

Delete name list secondary GBP
The number of DELETE NAME LIST requests to delete pages from the secondary group buffer pool that have just been cast out from the primary. Derived from the DB2 field QBGL2D.

Delete name from secondary GBP
The number of group buffer pool requests to delete a page from the secondary group buffer pool. These requests are issued by the group buffer pool structure owner to delete orphaned data entries in the secondary GBP as part of the garbage collection logic. Derived from the DB2 field QBGL2N.

Read castout statistics secondary GBP
The number of coupling facility requests to read the castout statistics for the secondary group buffer pool. These requests are issued by the group buffer pool structure owner to check for orphaned data entries in the secondary group buffer pool. Derived from the DB2 field QBGL2R.

Asynch. secondary GBP requests
The number of asynchronous IXLCACHE invocations for the secondary group buffer pool. Derived from the DB2 field QBGL2H.

The Group Buffer Pool Attributes section:

This report section shows group buffer pool attributes, which are retrieved from IFCID 230.
<table>
<thead>
<tr>
<th>Group Buffer Pool</th>
<th>GBP0</th>
<th>GBP2</th>
<th>GBP8K0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allocated GBP size (4K)</td>
<td>768</td>
<td>768</td>
<td>768</td>
</tr>
<tr>
<td>Current dir.to data ratio</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Class castout thresh. (%)</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Class castout thresh. (#)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Actual nbr. of dir. ents</td>
<td>1450</td>
<td>1450</td>
<td>621</td>
</tr>
<tr>
<td>Pending dir. to data ratio</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>GBP castout thresh. (%)</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Actual nbr. of data ents</td>
<td>287</td>
<td>287</td>
<td>124</td>
</tr>
<tr>
<td>Checkpoint interval (min)</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Autorec</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Directory-entry-reclaim</td>
<td>0</td>
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<td>318</td>
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<tr>
<td>Data-entry-reclaim</td>
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<td>1574</td>
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<td>GBP cache</td>
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<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Total-changed</td>
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<td>2</td>
<td>0</td>
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<tr>
<td>XI-dir.-entry-reclaim</td>
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<td>0</td>
<td>321</td>
</tr>
<tr>
<td>Mode</td>
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<td>SIMPLEX</td>
<td>SIMPLEX</td>
</tr>
<tr>
<td>Secondary-GBP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alloc GBP size (4K)</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Directories entries</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Data entries</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

### Allocated GBP size (4K)
The allocated size of the group buffer pool in 4 KB blocks. Derived from the DB2 field QBGBGSZ.

### Current dir. to data ratio
The current directory entry per data entry ratio. Derived from the DB2 field QBGBGR1.

### Class castout thresh. (%)
The threshold at which class castout is to be initiated. It is expressed as a percentage of the group buffer pool size. Derived from the DB2 field QBGBGCT.

If the GBP castout thresholds are not set correctly, castout processing is not kept in pace with the changed pages written to the CF (coupling facility). You can either use the ALTER GROUPBUFFERPOOL command to reduce the castout thresholds, or increase the number of GBP data pages by increasing the GBP size or by reducing the GBP RATIO.

### Class castout thresh. (#)
Class level castout threshold (buffer num). Derived from the DB2 field QBGBGCTN.

### Actual nbr. of dir. ents
The actual number of allocated directory entries. Derived from the DB2 field QBGBGR2.

### Pending dir. to data ratio
The pending directory entry per data entry ratio. Derived from the DB2 field QBGBGR2.

### GBP castout thresh. (%)
The threshold at which castout is to be initiated for the group buffer pool. It is expressed as a percentage of the size of the group buffer pool. Derived from the DB2 field QBGBGCT.
Actual nbr. of data entrs
The actual number of allocated data entries. Derived from the DB2 field QBGBGDT.

Checkpoint interval (min)
The time interval (in minutes) between successive group buffer pool checkpoints. Derived from the DB2 field QBGBGCK.

Autorec
A flag indicating how the AUTOREC option of the ALTER GROUPBUFFERPOOL command has been set. It specifies whether automatic recovery takes place in case of a structure failure or loss of connectivity of all members of the group buffer pool. Derived from the DB2 field QBGBGAS.

Directory-entry-reclaim
The number of times that a page name assignment required that a coupling facility directory entry be reclaimed (stolen). Derived from the DB2 field QBGBDRR.

Data-entry-reclaim
The number of times that a page name assignment required that a coupling facility data entry be reclaimed (stolen). Derived from the DB2 field QBGBDTR.

GBP cache
Caching attribute. Possible values are:
- YES: The GBP is used for both data caching and cross-invalidation.
- NO: The GBP is used only for cross-invalidation.

Total changed
The number of allocated data entries that are currently in “changed” state. This is a snapshot value and is not cumulative. Derived from the DB2 field QBGBTCC.

XI-dir.-entry-reclaim
The number of times that a directory entry was stolen and one or more XI signals had to be sent because the page in the directory was cached in one or more DB2 buffer pools. Derived from the DB2 field QBGBRXI.

Mode
Possible values are:
- DUPLEX
- SIMPLEX

Derived from the DB2 field QBGBDUP.

Secondary-GBP — Alloc. GBP size (4K)
When MODE is DUPLEX, the allocated size of the secondary group buffer pool. Derived from the DB2 field QBGBGSZ2.

Secondary-GBP — Directories entries
When MODE is DUPLEX, the number of allocated directory entries in the secondary group buffer pool. Derived from the DB2 field QBGBGDR2.

Secondary-GBP — Data entries
When MODE is DUPLEX, the number of allocated data entries in the secondary group buffer pool. Derived from the DB2 field QBGBGDT2.

The Buffer Manager PSET/Part P-lock Request section:
This section of the report provides information about physical lock (P-lock) activities in group buffer pools.
The DB2 Buffer Manager uses the P-lock mechanism to manage, negotiate, and resolve inter-DB2 R/W interests on a page set or partition level, that is, when programs running on different data sharing group members request incompatible locks on the same resource. The activity counter values are retrieved from IFCID 251.

<table>
<thead>
<tr>
<th>IRLM func mode</th>
<th>Buffer Manager PSET/Part P-lock Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPID</td>
<td>GBPO GBPO GBPO GBPO GBPO GBPO GBPO</td>
</tr>
<tr>
<td>PSTYPE</td>
<td>T    T    I    I    I    I    I</td>
</tr>
<tr>
<td>QPAGESET</td>
<td>DSNDB06 DSNDB04 DSNDB06 DSNDB06 DSNDB06 DSNDB06 DSNDB06</td>
</tr>
<tr>
<td>PARTITION</td>
<td>1    0    0    0    0    0    0</td>
</tr>
</tbody>
</table>

IRLM func mode

The number of requests to the data sharing group member's Internal Resource Lock Manager (IRLM) by lock type for an object. Note that an object is identified by BPID (buffer pool ID), PSTYPE (object type), QPAGESET (combination of database and page set), and partition number. Derived from the DB2 field QW0251IF.

- Lock requests
- Unlock requests
- Change requests by a member holding the lock because of a change of interest
- Change P-lock (short for Change from P-lock Exit) requests by another member causing the P-lock exit of this member

New held state

The number of new held P-lock states (the inter-DB2 interest level) determined for an object. Derived from the DB2 field QW0251NS.

Chapter 5. Monitoring
- **IS (Intent Shared):** This DB2 has R/O interest in the object and one or more other DB2 members have R/W interest.
- **IX (Intent Exclusive):** This DB2 has R/W interest in the object and one or more other DB2 members have R/W interest.
- **S (Shared):** This DB2 has R/O interest in the object and no other DB2 member has R/W interest.
- **SIX (Shared Intent Exclusive):** This DB2 has R/W interest in the object and one or more other DB2 members have R/O interest.
- **NSU (Non-Shared Update):** Acts like an X lock, but is only used during P-lock negotiation from an X to an SIX.
- **X (eXclusive):** This DB2 has R/W interest in the object. No other DB2 member has declared interest.
- **denied:** A request was denied; the object had Change P-lock active.

Normally, DB2 holds the P-lock in the cached state (see later in this list). In some special or abnormal cases, the P-lock will not be held in the cached state. It is the actual held state of the P-lock that determines whether the object is GBP-depended. If the held state is S or X, the object is not GBP-depended. Otherwise, the object is GBP-depended.

**Confl. member**
The number of conflicts determined by the IRLM for an object. (IRLM function code of Change From P-lock Exit active). Derived from the DB2 field QW0251DB.

**New cach. state**
The number of cached P-lock states (the inter-DB2 interest level) determined for an object. Derived from the DB2 field QW0251NC. See also

**New held state.**
- IS
- IX
- S
- SIX
- NSU
- X
- denied

**Request type**
The number of P-lock requests by request type for an object. Derived from the DB2 field QW0251F1.
- **Condition:** Conditional request.
- **Restart:** Restart lock request. Locks retained by a DB2 system are changed from retained to active.
- **Modify:** Modify lock request.

**The CF Cache Structure Statistics section:**
This report section shows coupling facility cache structure statistics, which are retrieved from IFCID 254.

The statistics break out the major activity details of the cache structure. A cache structure is a storage area that is used as group buffer pool for a DB2 data sharing group.
Explicit XI counter
The number of times a request was made to the group coupling facility to explicitly cross-invalidate a page and a number of XI signals were sent because the page was cached in one or more DB2 buffer pools. Derived from the DB2 field QW0254CI.

Read hit
The number of coupling facility read requests in which data was returned. Derived from the DB2 field QW0254RH.

Read miss directory hit
The number of coupling facility read requests for a page in which data was not returned but the page name was already assigned in the coupling facility directory (SES did not have to assign a directory entry for the page). Derived from the DB2 field QW0254RD.

Read miss assign. suppres.
The number of times that a coupling facility read request specified a page for which no directory entry exists and no directory entry is created. DB2 does not create a directory entry if it does not need to register the page to the coupling facility for cross-invalidation (XI); that is when no other DB2 member in the group has R/W interest in the page set/partition. Derived from the DB2 field QW0254RS.

Read miss name assigned
The number of times that a coupling facility read request specified a page for which a directory entry was created. Derived from the DB2 field QW0254RN.

Read miss cache full
The number of times that a coupling facility read request specified a page for which no directory entry exists and no directory entry is created due to the lack of storage in the group buffer pool. A nonzero value in this field
indicates that the backing coupling facility cache structure size might be too small to support the current workload. Derived from the DB2 field QW0254RF.

**Clean page write hit**
The number of facility write requests for clean pages successfully completed. Derived from the DB2 field QW0254WC.

**Changed page write hit**
The number of coupling facility write requests for changed pages that have successfully completed. Derived from the DB2 field QW0254WH.

**Write miss cache full**
The number of coupling facility write requests that could not complete due to a lack of coupling facility storage resources. Derived from the DB2 field QW0254WF.

Ideally, this value should be zero. These GBP write fails occur when a changed page must be written to the GBP and no GBP data entries are available. A data entry is unavailable if it contains a changed page that has not yet been externalized to a hard disk drive (casted out). A nonzero value indicates that castout processing cannot keep pace with the rate at which changed pages are being written to the group buffer pool. Usually, the best solution is to enlarge the GBP. Changing the castout threshold could lead to higher processor utilization for the mainframes handling castout processing.

**XI dir. entry reclaim**
The number of times that a directory entry was stolen and XI signals had to be sent because the page for the directory entry was cached in one or more DB2 buffer pools. Derived from the DB2 field QW0254XR.

**Directory entry reclaim**
The number of times that a page name assignment required a coupling facility directory entry to be reclaimed (stolen). Derived from the DB2 field QW0254DR.

Directory entry reclaims occur when a data or index page must be registered in the GBP but all the directory entries are in use. Then, an in-use entry will be reclaimed. When this happens, the copies of the page associated with the reclaimed directory entry are invalidated, even if they have not been changed. Invalidation causes extra reads from a hard disk drive, which can reduce system throughput. Consequently, larger group buffer pools reduce or eliminate directory entry reclaims because they can hold more entries. See also “Data entry reclaim”.

**Data entry reclaim**
The number of times that a page name assignment required a coupling facility data entry to be reclaimed (stolen). Derived from the DB2 field QW0254TR.

See also “Directory entry reclaim”. Besides the size of the group buffer pool, reclaims are also influenced by the ratio between directory entries and data entries. Nonzero values do not necessarily indicate a performance bottleneck; however, they should be further investigated.

**Total changed**
The snapshot value of the current number of changed pages. Derived from the DB2 field QW0254TC.
Castout
The number of castout operations performed. Derived from the DB2 field QW0254CC.

Directory entry
The number of allocated directory entries (not cumulative). Derived from the DB2 field QW0254DE.

Data entry
The number of allocated data entries (not cumulative). Derived from the DB2 field QW0254TE.

Secondary-GBP — Directory entry
The number of allocated directory entries. This is a snapshot value. Derived from the DB2 field QW02542D.

Secondary-GBP — Data entry
The number of allocated data entries. This is a snapshot value. Derived from the DB2 field QW02542T.

Secondary-GBP — Changed page write hit
The number of successful coupling facility write requests for changed pages. Derived from the DB2 field QW02542W.

Secondary-GBP — Total changed
The number of allocated data entries that are currently in “changed” state. This is a snapshot value. Derived from the DB2 field QW02542C.

Secondary-GBP — Write miss cache full
The number of unsuccessful coupling facility write requests because of insufficient coupling facility storage resources. Derived from the DB2 field QW02542F.

Detail reports
This topic shows and describes the elements of a detail report.

A detail report is created as a single entity; however, to facilitate reading it is shown here in separate sections, as follows:

- “The report header”
- “The Buffer Pool Characteristics section” on page 2664
- “The Detail Activity section” on page 2665

The report header:

The report header is shown at the top of every report page and identifies the report and the command options that were used to create the report.

The following is an example of a report header:

```
1   DB2 BUFFER POOL ANALYZER (V5R4M0) - BUFFER POOL ACTIVITY REPORT PAGE: 1-1

ORDER: BPID-QPAGESET
top: 11 level: detail
GROUP: N/P LOCATION: PM02D721 DB2 VERSION: V11
MEMBER: N/P REQUESTED FROM: NOT SPECIFIED TO: NOT SPECIFIED
SUBSYSTEM: D721 INTERVAL FROM: 12/06/13 16:08:30 TO: 12/06/13 16:09:22

• LEVEL specifies the type of report, here, a detail report.
• ORDER specifies the aggregation, here, by buffer pool ID (BPID) and a combination of database and page set (QPAGESET).
```
• **SORTBY** is not used for this example.
• **TOP** is not used; therefore, the default 11 applies. This means that the 11 topmost aggregations are reported. If the trace data contains more than 11 objects, they are aggregated under the label **Others** in the report.

This example was created with the following command:

```plaintext
BPACTIVITY REPORT LEVEL(DETAIL)
ORDER(BPID-QPAGESET)
```

Note that the **ORDER**, **SORTBY**, and **TOP** options affect only the information in **"The Detail Activity section" on page 2665**.

### The Buffer Pool Characteristics section:

The buffer pool characteristics values are retrieved from IFCID 202.

This section is the same as in summary reports. See **"The Buffer Pool Characteristics section" on page 2632** for a description of the elements.

<table>
<thead>
<tr>
<th>BPID</th>
<th>BP0</th>
<th>BP1</th>
<th>BP2</th>
<th>BP3</th>
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<th>BP5</th>
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</thead>
<tbody>
<tr>
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<td></td>
<td></td>
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<tr>
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<td>No</td>
<td>No</td>
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<td>LRU</td>
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<td>No</td>
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<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Thresholds</td>
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<tr>
<td>Virtual sequential</td>
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<td>Virtual sequential</td>
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<td>Deferred write</td>
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<td>50</td>
<td>50</td>
<td>50</td>
</tr>
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The detail activity counter values about buffer pool operations are retrieved from IFCIDs 6, 7, 8, 9, 10, and 198.
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<th>Dyn pref</th>
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| Buf Update | 2 | 2 | 1 | 0 | 0 | 0 |
| Write request | 2 | 2 | 2 | 0 | 0 | 0 |
| Synchronous | 1 | 1 | 1 | 0 | 0 | 0 |
| Asynch | 1 | 1 | 1 | 0 | 0 | 0 |
| Delay(msec) | 1.9 | 2.2 | 2.6 | n/c | n/c | n/c |
| Synchr | 199.5 | 93.2 | 129.3 | n/c | n/c | n/c |

---

1 DB2 BUFFER POOL ANALYZER (V5R4M0) - BUFFER POOL ACTIVITY REPORT PAGE: 1-4

ORDER: BPID=PAGESET
LEVEL: DETAIL

GROUP: N/P LOCATION: PMO2D721

MEMBER: N/P REQUESTED FROM: NOT SPECIFIED TO: NOT SPECIFIED

SUBSYSTEM: D721 INTERVAL FROM: 12/06/13 16:08:30 TO: 12/06/13 16:09:22

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| BP Hit ratio(%) | System | 98.9 | 66.7 | 93.3 | 95.1 | 93.0 | 90.9 |
| Application | 98.9 | 66.7 | 93.3 | 95.1 | 93.0 | 90.9 |
| Read I/O | 50.0 | 67.8 | 100.0 | 100.0 | 100.0 | 100.0 |
| Getpage | 350 | 6 | 30 | 61 | 43 | 22 |
| Sequential | 0 | 0 | 0 | 0 | 0 | 0 |
| Random | 350 | 6 | 30 | 61 | 43 | 22 |
| Ridlist | 0 | 0 | 0 | 0 | 0 | 0 |
| Hit | 346 | 4 | 28 | 58 | 40 | 20 |
| Miss random | 0 | 0 | 0 | 0 | 0 | 0 |
| Miss asynch | 0 | 0 | 0 | 0 | 0 | 0 |
| Noread | 0 | 0 | 0 | 0 | 0 | 0 |
| Read request | 0 | 0 | 0 | 0 | 0 | 0 |
| Synchronous | 0 | 0 | 0 | 0 | 0 | 0 |
| Seq prefetch | 0 | 0 | 0 | 0 | 0 | 0 |
| List prefetch | 0 | 0 | 0 | 0 | 0 | 0 |
| Dyn prefetch | 0 | 0 | 0 | 0 | 0 | 0 |
| Delay(msec) | 19.6 | 8.3 | 8.7 | 5.3 | 20.6 | 9.6 |

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2666 IBM Db2 Performance Expert on z/OS
<table>
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<th>Page/wrt req</th>
<th>Buf Update</th>
<th>Write request</th>
<th>Synchronous</th>
<th>Asynchr</th>
<th>Delay(msec)</th>
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### Chapter 5. Monitoring

**DB2 BUFFER POOL ANALYZER (V5R4M0) - BUFFER POOL ACTIVITY REPORT**

**PAGE: 1-5**

**ORDER: BPID-QPAGESET**

**GROUP: N/P**

**LOCATION: PM02D721**

**DB2 VERSION: V11**

**MEMBER: N/P**

**REQUESTED FROM: NOT SPECIFIED**

**TO: NOT SPECIFIED**

**SUBSYSTEM: D721**

**INTERVAL FROM: 12/06/13 16:08:30**

**TO: 12/06/13 16:09:22**

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<td>Read I/O</td>
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<tr>
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</tr>
<tr>
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<td></td>
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<tr>
<td></td>
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|      | Miss random | 2                | 49   | 2    | 2    | 5     | 261   |
|      | Miss async  | 0                | 0    | 0    | 0    | 0     | 1040  |
|      | Noread      | 0                | 0    | 0    | 0    | 0     | 18    |

|      | Read request | 2                | 52   | 2    | 2    | 6     | 1426  |
|      | Synchronous  | 2                | 49   | 2    | 2    | 5     | 1299  |
|      | Seq prefetch | 0                | 0    | 0    | 0    | 0     | 97    |
|      | List pref    | 0                | 0    | 0    | 0    | 0     | 8     |
|      | Dyn prefetch | 0                | 3    | 0    | 0    | 1     | 22    |

**Delay(msec)**

|      | Synchronous | 9.2              | 3.7  | 11.0 | 23.5 | 5.3   | 11.7  |
|      | Seq pref    | n/c              | n/c  | n/c  | n/c  | n/c   | 38.1  |
|      | List pref   | n/c              | n/c  | n/c  | n/c  | n/c   | 21.1  |
|      | Dyn pref    | n/c              | 11.9 | n/c  | n/c  | 3.9   | 22.1  |

|      | Read page   | 2                | 59   | 2    | 2    | 9     | 4572  |
|      | Synchronous | 2                | 49   | 2    | 2    | 5     | 1299  |
|      | Seq prefetch| 0                | 0    | 0    | 0    | 0     | 2857  |
|      | List pref   | 0                | 0    | 0    | 0    | 0     | 83    |
|      | Dyn prefetch| 0                | 10   | 0    | 0    | 4     | 333   |

|      | Upd/wrt page | n/c              | 37.7 | n/c  | n/c  | n/c   | 25.1  |
|      | Page/wrt req | 16.3             | n/c  | n/c  | n/c  | n/c   | 6.4   |
|      | Buf Update   | 0                | 1848 | 0    | 0    | 0     | 9097  |
|      | Write request| 0                | 3    | 0    | 0    | 0     | 57    |
|      | Synchronous  | 0                | 1    | 0    | 0    | 0     | 31    |
|      | Asynchr      | 0                | 2    | 0    | 0    | 0     | 26    |

**Delay(msec)**

|      | Synchr      | n/c              | 3.4  | n/c  | n/c  | n/c   | 7.2   |
|      | Asynchr     | n/c              | 121.0| n/c  | n/c  | n/c   | 99.1  |
|      | Write page  | 0                | 49   | 0    | 0    | 0     | 363   |
### Synchronous Activity Report

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### Delay (msec)

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### Write Page

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## Buffer Pool Activity Report

### Group: N/P  Location: PM20721  DB2 Version: V11

### Member: N/P  Requested From: Not Specified  To: Not Specified

### Subsystem: D721  Interval From: 12/06/13 16:08:30  To: 12/06/13 16:09:22

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**DB2 BUFFER POOL ANALYZER (V5R4M0) - BUFFER POOL ACTIVITY REPORT**

**GROUP:** N/P  
**LOCATION:** PMO2D721  
**DB2 VERSION:** V11  
**MEMBER:** N/P  
**REQUESTED FROM:** NOT SPECIFIED  
**TO:** NOT SPECIFIED  
**SUBSYSTEM:** D721  
**INTERVAL FROM:** 12/06/13 16:08:30  
**TO:** 12/06/13 16:09:22

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### DB2 Buffer Pool Analyzer (V5R4M0) - Buffer Pool Activity Report

Page: 1-10

**Order:** BPID-QPAGESET

**Top:** 11  **Level:** DETAIL

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**Subsystem:** D721  **Interval from:** 12/06/13 16:08:30  **To:** 12/06/13 16:09:22

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**DB2 BUFFER POOL ANALYZER (V5R4M0) - BUFFER POOL ACTIVITY REPORT**  
**PAGE: 1-11**  
**ORDER: BPID-QPAGESET**  
**TOP: 11**  
**LEVEL: DETAIL**

**GROUP:** N/P  
**LOCATION:** PMO2D721  
**DB2 VERSION:** V11

**MEMBER:** N/P  
**REQUESTED FROM:** NOT SPECIFIED  
**TO:** NOT SPECIFIED

**SUBSYSTEM:** D721  
**INTERVAL FROM:** 12/06/13 16:08:30  
**TO:** 12/06/13 16:09:22

---

**Detail Activity**  
**TOTAL**

---

IBM Db2 Performance Expert on z/OS
Buffer pool hit ratios

Primary indicator of buffer pool efficiency showing the number of pages contained in the buffer pool compared to the number of pages requested.

The highest possible hit ratio is 100%. This means that every page requested is always in the buffer pool. A low ratio indicates high read I/O.

To increase the buffer pool hit ratio, you can do one of the following:

- Run the REORG utility for table spaces or index spaces associated with the virtual buffer pool.
- Decrease the virtual pool sequential steal threshold (VPSEQT) to reserve more pages for random I/O.
- Increase the buffer pool size but be aware that the cost of paging can outweigh the benefit of I/O avoidance.
- Establish more separate buffer pools, for example, to isolate table spaces and index spaces according to their access characteristics.

Buffer pool hit ratio (%) — System

The number of Getpage requests by DB2 and satisfied by the buffer pool, expressed as a percentage of all Getpage requests.

This shows the percentage of pages in a prefetch Getpage request that are found in the buffer pool.

Usually, this value is low when prefetch is used. A high value indicates that applications perform a series of similar operations on the same data.

A negative value indicates that prefetched pages are not subsequently referenced. The reason for this is that the query stops before it reaches the end of the prefetched pages, or that the prefetched pages are stolen by DB2 for reuse before the query can access them.

Compare the value in this field with the application hit ratio to determine the efficiency of prefetch operations.

Buffer pool hit ratio (%) — Application

The number of Getpage requests issued by applications and satisfied by the buffer pool, expressed as a percentage of all Getpage requests issued by applications.

The hit ratio indicates the level of synchronous I/O because prefetched pages that are already in the buffer pool count as hits. The value is a relative value depending on the type of application. For example, an application that browses large amounts of noncontinuous data might have a buffer pool hit ratio of 0. Check those cases in which the hit ratio drops significantly for the same application.

Buffer pool hit ratio (%) — Read I/O

The number of read I/O requests without physical I/O activity (satisfied by the buffer pool), expressed as a percentage of all read I/O requests (with and without physical I/O activity).
The hit ratio indicates the percentage of read I/O requests that were satisfied by the buffer pool without requiring I/O activities to a hard disk drive.

Getpage
The total number of Getpage requests. Getpage requests are divided as follows:

Getpage — Sequential
The number of sequential Getpage requests because of prefetch operations.

Getpage — Random
The number of random Getpage requests, usually issued by applications.

Getpage — Ridlist
The number of record identifier (RID) list pages referenced.

Getpage — Hit
The number of Getpage requests for which pages are found in the buffer pool.

Getpage — Miss random
The number of random Getpage requests for which the page is not found in the buffer pool.

Getpage — Miss asynch
The number of Getpage Asynchronous requests for which the page is not found in the buffer pool.

Getpage — Noread
The number of Getpage requests for which the page is not found in the buffer pool and for which the request did not result in a read I/O operation. The page is a new page for INSERT.

Read request
The total number of read I/O requests (synchronous, sequential prefetch, list sequential prefetch, dynamic prefetch) with at least one page read from hard disk drive per request (content of DB2 field QW0007NP - number of pages read - greater zero). If no page is read from hard disk drive (all pages are found in the buffer pool), the counter is not incremented. The total number of read I/O requests is the result of the following types of read I/O requests:

Read request — Synchronous
The number of random, synchronous read I/O requests.

Read request — Seq prefetch
The number of sequential prefetch read I/O requests with at least one page read from hard disk drive per request (content of DB2 field QW0007NP - number of pages read - greater zero). If the prefetch results in an I/O read, up to 32 pages can be read for SQL, up to 64 pages can be read for utilities. If all pages to be prefetched are already in the buffer pool, a request does not result in an I/O read.

Sequential prefetch reads a sequential set of pages. It allows CP and I/O operations to overlap. DB2 determines at BIND time whether sequential prefetch is used.
Sequential prefetch is generally used for a table space scan. It can also be used to read index pages in an index scan. For an index scan that accesses eight or more consecutive data pages, DB2 requests sequential prefetch at bind time. The index must have a cluster ratio of 80% or higher. You can use REORG and RUNSTATS, and rebind relevant SQL if you do not know whether the target was met previously.

**Read request — List pref**

The number of list sequential prefetch read I/O requests with at least one page read from hard disk drive per request (content of DB2 field QW0007NP - number of pages read - greater zero).

List prefetch allows DB2 to access data pages efficiently even if the required data pages are not contiguous. It allows CP and I/O operations to overlap.

DB2 uses list prefetch to do the following tasks:

- **Always** to access data by multiple index access.
- **Always** to access data from the inner table during a hybrid join.
- **Usually** with one single index that has a cluster ratio lower than 80%.
- **Sometimes** on one single index with a high cluster ratio. This increases the efficiency of sequential prefetch if the estimated amount of data to be accessed is too small.
- **Never** when the estimated number of RIDs to be processed would take more than 50% of the RID pool.

During execution time, list prefetch processing stops if more than 25% of the rows with a minimum of 4075 in the table must be accessed.

**Read request — Dyn prefetch**

The number of dynamic prefetch requests with at least one page read from hard disk drive per request (content of DB2 field QW0007NP - number of pages read - greater zero). If the prefetch request results in an I/O read, up to 32 advancing pages can be read at a time.

Dynamic prefetch reads a sequential set of pages. It allows CP and I/O operations to overlap.

If DB2 does not choose prefetch at bind time, it can sometimes use it at execution time through sequential detection.

**Related reading:** For information on when sequential detection is used and when dynamic prefetch is triggered, see the *DB2 9 Administration Guide.*

**Read request — Delay (msec)**

The average elapsed time between start and completion of:

Read request — Delay (msec) — Synchronous

A synchronous read I/O

Read request — Delay (msec) — Sequential pref

A sequential prefetch read request

Read request — Delay — List pref

A list prefetch read request

Read request — Delay — Dynamic prefetch

A dynamic prefetch read request
Read page
The total number of pages read from a hard disk drive.

Read page — Synchronous
The number of pages read from a hard disk drive for applications and utilities.

Read page — Sequential prefetch
The number of pages read from a hard disk drive for sequential prefetch requests.

Read page — List prefetch
The number of pages read from a hard disk drive for list prefetch requests.

Read page — Dyn prefetch
The number of pages read from a hard disk drive for dynamic prefetch requests.

Upd/wrt page
The number of buffer updates per page written from the buffer pool to a hard disk drive.

A high value indicates a high level of efficiency because more updates are externalized per physical write cycle.

Buffer updates per pages written depends on the type of application. For example, a batch program that processes a table in skip sequential mode with a high row update frequency in a dedicated environment can achieve a high update efficiency. Usually, update efficiency is lower for transaction processing applications because these applications use more random page access.

The following factors can influence the number of updates per page:

- The number of rows per page: A small PCTFREE value gathers more rows on the same page. This might, however, impact concurrency.
- The buffer pool size and the deferred write thresholds: Increase the size of the buffer pool or the deferred write thresholds DWQT and VDWQT. This lets DB2 accumulate page updates in the buffer pool. DB2 might thus capture more updates per page. The effect depends on the type of transaction. It is less significant if the buffer pool is used concurrently by multiple transactions that access random pages.

Page/wrt req
The number of pages written from the buffer pool to a hard disk drive per synchronous or asynchronous write I/O. This count does not include preformatting I/O, such as I/O that is required to prepare a data set for use.

Use this field and the Upd/wrt page field to determine the efficiency of the buffer pool for write operations. The following factors impact the ratio of pages written per write I/O:

- The checkpoint frequency: At checkpoint time, I/Os write all updated pages on the deferred write queue to a hard disk drive. If this occurs too often, the deferred write queue does not grow large enough to achieve a high ratio of pages written per write I/O. The checkpoint frequency depends on the number of logs that are written between two consecutive checkpoints. This number is set at installation time.
• The frequency of active log switches: DB2 takes a system checkpoint when the active log is switched. Frequent active log switches cause a higher checkpoint frequency. This prevents the deferred write queue to grow to an optimum size.

• The buffer pool size and deferred write thresholds: The deferred write thresholds (VDWQT and DWQT) are a function of buffer pool size. If the buffer pool size decreases, these thresholds are reached more frequently and cause I/Os to write some of the pages on the deferred write queue to a hard disk drive more often. This prevents the deferred write queue from growing large enough to achieve a high ratio of pages written per write I/O.

• The number of data sets, and the spread of updated pages across them: The efficiency of write I/O also depends on the number of data sets associated with the buffer pool and spread of updated pages across them. Due to the way batch processing works, the ratio of pages written to write I/Os is expected to be higher than for transaction type workloads.

Related reading:
• For more information on the checkpoint frequency, see the DB2 10 Installation Guide or DB2 11 Installation Guide.
• For recommendations on active log data set size, see the DB2 10 Administration Guide or DB2 11 Administration Guide.

Buf Update
The number of times updates are requested against pages in the buffer pool.

Write request
The total number of write I/O operations that are made to a hard disk drive. The total number of write I/O requests is the result of the following types of write I/O requests:

Write request — Synchronous
The number of synchronous write I/O operations that are made to a hard disk drive. Synchronous or immediate writes occur if one of the following conditions apply:
• An immediate write threshold is reached.
• No deferred write engines are available.
• More than two checkpoints pass without a page being written.
  Note that this does not indicate a buffer shortage.

You should keep this value as small as possible. Synchronous writes occur if there are too many checkpoints, if the buffer pool is too small, or both.

Write request — Asynch
The number of asynchronous write I/O operations made to a hard disk drive.

Write request — Delay (msec)
The average elapsed time between start and completion of:
  • Write request — Delay (msec) — Synchronous
  a synchronous write I/O request.
  • Write request — Delay (msec) — Asynch
  an asynchronous write I/O request.

Write page
The total number of pages written to a hard disk drive.
Write page — Synchronous
The number of pages written synchronously to a hard disk drive.

Write page — Asynchronous
The number of pages written to a hard disk drive by asynchronous write requests.

Viewing performance data on the client
This topic describes how to view detailed buffer pool performance data on the client.

About this task

Related tasks:
• Before you can use this function, you must have performed the tasks described in:
  – “Collecting data” on page 2607
  – “Creating activity reports and bpd files” on page 2618. Here, only bpd files are of interest.
  – “Downloading files from the host to the client” on page 2732
    A buffer pool data file must be available on the client (the file with the recommended file name extension bpd).

General remarks:
• Your client should have approximately 40 MB of available physical memory (random access memory) for this function. You can check this in the Windows Task Manager. Close other applications, if necessary.
• The data used for this function reflects the performance for the interval for which trace data was collected and for the time frame that was specified with the GLOBAL and the BPACTIVITY command when the bpd file was created.
• If you want to print any of the graphical information from the following windows, place the cursor on the displayed graphical information and click View —► Open dataview in browser. When the browser window is displayed, use your browser’s printing capabilities to print the information. For colored printouts, check the browser settings.
  Example: In the Internet Explorer, click Tools —► Internet Options —► Advanced. Under Printing, select Print background colors and images.

Starting the view function
This section explains how to start the view function.

About this task

To start the view function, perform the following steps:

Procedure
1. Start the IBM DB2 Buffer Pool Analyzer by double-clicking the icon on your Windows desktop, or use the Start push button on the taskbar to start this client application.
   If you are using DB2 Performance Expert, click Tools > Buffer Pool Analysis for z/OS on the menu bar, or click the Opens the Buffer Pool Analysis for z/OS window toolbar button.
   The DB2 Buffer Pool Analyzer - z/OS main window is displayed.
2. On the menu bar, click File > Open Report. Alternatively, click the Opens report file toolbar button.
   The Open dialog box is displayed. You use this dialog box to select and open a bpd file that contains the performance data you want to view.
   Several sample buffer pool data files (*.bpd) are delivered with Buffer Pool Analyzer in the ...\samples\reporting folder. You can use them to become familiar with this function.

3. Continue with “Selecting and opening a buffer pool data file.”

Selecting and opening a buffer pool data file
This section explains how to select and open a buffer pool data file.

About this task

Procedure

1. Select a folder from the Look in list where the bpd file is located.
   The File of type field shows the file name extension of buffer pool data files (*.bpd). If your bpd file does not have the recommended file name extension bpd, select All files (*.*) from the Files of type list to see the appropriate files.

2. Click the bpd file to be opened.
   The File name field shows the name of the selected bpd file.

3. Click Open
   The selected bpd file is opened, and the following window is displayed:

   ![Image of buffer pool analyzer window]

   Figure 193. Viewing performance data – The Open dialog window

The menu bar of the window shows information about the opened bpd file:
- The File field shows the full path and name of the bpd file.
- The From and To fields show the start and end timestamps of data contained in the bpd file. This is the start and end of the data collection, respectively the corresponding values of the From and To options of the BPACTIVITY or GLOBAL command, if they were used to limit the time frame.

The contents pane on the left side of the window gives you access to Buffer Pool Analyzer data and results from other functions. You can expand or collapse the tree items by clicking the plus sign (+), respectively the minus sign (-), or by double-clicking the corresponding tree item.
Buffer pool performance data from the opened bpd file is in the **Reporting** folder and its subfolders.

On the following pages only a few examples of the available windows are shown. Use the contents pane to navigate through the information until you are familiar with its presentation.

4. Continue with one of the following:
   - “Getting system information”
   - “Getting information on buffer pools”

### Getting system information

You can view system information of the DB2 subsystem from which performance data was collected.

**About this task**

When you have opened a bpd file, as described in “Selecting and opening a buffer pool data file” on page 2679, you can view system information as follows:

1. In the **Reporting** tree of the contents pane, double-click **System**, then double-click **System information**.
   
The following window is displayed:

![System Information window](image)

*Figure 194. Viewing performance data – The System Information window*

The right pane shows general information about the DB2 subsystem from which performance data was collected, for example, DB2 location, DB2 group, and DB2 member.

### Getting information on buffer pools

This section lists the different ways how you can get information on buffer pools.

**About this task**

When you have opened a bpd file, as described in “Selecting and opening a buffer pool data file” on page 2679, you can view buffer pool information as follows:
1. In the **Reporting** folder of the contents pane, double-click **Buffer Pools**.

2. If you want to compare buffer pool data, continue with “Getting buffer pool comparison information.”

3. If you want to see detailed information about individual buffer pools, continue with “Getting individual buffer pool information.”

**Getting buffer pool comparison information:**

This section explains how to view and compare performance data of different buffer pools.

**Procedure**

1. In the **Buffer Pools** folder of the contents pane, click **Buffer Pool Comparison**. The different buffer pool counters, such as **Getpage**, **Read Request**, **Write Request**, and **Write Page** are displayed.

   **Note:** The content pane displays only the active counters. Counters that have no activity are not displayed.

2. Double-click a counter, for example **Read Request**.

   The following window is displayed:

   ![Buffer Pool Comparison window](image)

   **Figure 195. Viewing performance data – The Buffer Pool Comparison window**

   The right pane shows a comparison of buffer pools in your system regarding the selected counter in the form of a bar chart.

**Getting individual buffer pool information:**

You can view individual buffer pool characteristics and individual buffer pool counters of a selected buffer pool.
Procedure

1. In the **Buffer Pools** folder of the contents pane, click one of the icons representing individual buffer pools, for example **BP0**.
   The following items are displayed for the selected buffer pool:
   - Characteristics
   - Counters
   - Object Comparison
   - Objects
   Each item contains additional information about the selected buffer pool.

2. If you want to see general information and thresholds of the selected buffer pool, double-click **Characteristics**.
   The following window is displayed:

![Image of the Individual Buffer Pool Characteristics window]

   **Figure 196. Viewing performance data – The Individual Buffer Pool Characteristics window**

   The right pane shows general information, such as the buffer pool identifier and its virtual pool size, and thresholds for several types of buffer pool operations.

3. If you want to see buffer pool activity counters of the selected buffer pool, double-click **Counters**, then double-click one of the different counters, for example **Getpage**
   The following window is displayed:
Note: The content pane displays only the active counters. Counters that have no activity are not displayed.

The right pane shows the types for the selected counter Getpage in the form of a pie chart. The types are Sequential Access, Random Access, and RID List.

4. If you want to compare object activities of the selected buffer pool, double-click Object Comparison. Then double-click one of the different counters, for example Getpage.

A similar window is displayed. The right pane shows the types for the selected counter Getpage in the form of a bar chart. The types are Sequential Access, Random Access, and RID List. They are sorted in descending order.

5. If you want to see all objects and their counters of the selected buffer pool, double-click Objects. Then double-click one of the different counters, for example Write Request.

A similar window is displayed. The right pane shows the types for the selected counter Write Request in the form of a pie chart. The types are Synchronous and Asynchronous.

Optimizing object placements and initial buffer pool sizes

This topic describes how to optimize the object placements in buffer pools and buffer pool sizes on the client.

About this task

Related tasks:
- Before you can use this function, you must have performed the tasks described in:
  - “Collecting data” on page 2607
  - “Creating activity reports and bpd files” on page 2618. Here, only bpd files are of interest.
  - “Downloading files from the host to the client” on page 2732
A buffer pool data file must be available on the client (the file with the recommended file name extension bpd).

General remarks:
1. Your client should have at least 40 MB of available physical memory (random access memory) for this function. You can check this in the Windows Task Manager. Close other applications, if you receive an Out of memory message. Note that free memory requirements increase with the number of objects to be treated.

   Example: 1,000 objects require approximately 60 MB, 25,000 objects require approximately 90 MB, 100,000 objects require approximately 230 MB, and 200,000 objects require more than 500 MB.

2. The data used for this function reflects the buffer pool activity for the interval for which trace data was collected and for the time frame that was specified with the GLOBAL and the BPACTIVITY command when the bpd file was created.

3. The bpd file used for the object placement function usually contains information about active and inactive objects. With the object placement function, you can specify whether to include the inactive objects (also called unused objects) in rule processing and object placement considerations. However, if inactive objects were explicitly excluded from the bpd file (by means of the BPACTIVITY FILE ACTIVEOBJECTS command), your specifications have no effect on the object placement result.

4. If you want to print the object placement results shown in your web browser, use your browser's printing capabilities to print the information. For colored printouts, check the browser settings.

   Example: In the Internet Explorer, click Tools — Internet Options — Advanced. Under Printing, select Print background colors and images.

5. In DB2 Performance Expert for z/OS, you can configure a different web browser. If required, click Monitor — Configuration — Preferences and follow the instructions.

Starting the optimization function

About this task

To start the optimization function, perform the following steps:

Procedure

1. Start the IBM DB2 Buffer Pool Analyzer by double-clicking the icon on your Windows desktop, or use the Start push button on the taskbar to start the client application.

   If you are using DB2 Performance Expert, click Tools > Buffer Pool Analysis for z/OS on the menu bar, or click the Opens the Buffer Pool Analysis for z/OS window toolbar button.

   The DB2 Buffer Pool Analyzer - z/OS main window is displayed.

2. On the menu bar, click File > Start Object Placement. Alternatively, click the Starts object placement toolbar button.

   The Open dialog box is displayed. You use this dialog box to select and open a bpd file that contains the buffer pool activity data you want to use for the optimization.

   Several sample buffer pool data files (*.bpd) are delivered with Buffer Pool Analyzer in the ...\samples\reporting folder. You can use them to become familiar with this function.

3. Continue with  “Selecting and opening a buffer pool data file” on page 2685.
Selecting and opening a buffer pool data file

About this task

To select and open a buffer pool data file, complete the following steps:

Procedure

1. Select a folder from the Look in list where the bpd file is located.
   The File of type field shows the file name extension of buffer pool data files (*.bpd). If your bpd file lacks the recommended file name extension bpd, select All files (*.*) from the File of type list to see the appropriate files.
2. Click the bpd file to be opened.
   The File name field shows the name of the selected bpd file.
3. Click Open.
   The selected bpd file is opened and its content is checked. If the bpd file contains a concatenation of multiple sections, with performance data from different data sharing groups, different members of a data sharing group, or separated data collection time frames, only data from one section can be used for the object placement optimization. You need to select one of the sections found in the bpd file.
   Multiple sections in a bpd file are the result of multiple input data sets with trace data being used as input to create bpd files. For more information, see the INPUTDD statement in "Creating activity reports and bpd files" on page 2618 and "Concatenating trace data for activity reports and bpd files" on page 2734.
   • If the Buffer Pool Data File Section Selection dialog is displayed, select one section from the list and click OK to continue. You can click Cancel to return to the Open dialog. Note that you can expand the list by clicking the down arrow on the right side.
   The DB2 Buffer Pool Analyzer - Object Placement window is displayed. You see the first page of the object placement wizard, which guides you through the following steps:
   a. "Step 1: Selecting a pattern file"
   b. "Step 2: Editing a pattern file" on page 2687
   c. "Step 3: Assigning objects to buffer pools" on page 2690
   d. "Step 4: Setting the initial buffer pool sizes and characteristics" on page 2693

   When you have finished these steps, the object placement wizard closes, and you can continue with "Viewing the result of an optimization cycle" on page 2694.

   You can navigate through the pages by clicking Next or Back. On all four pages, you can click Cancel to return to the main window, or Help to get help on the current page.

Step 1: Selecting a pattern file

About this task

When you have opened a bpd file, as described in "Selecting and opening a buffer pool data file," the first page of the object placement wizard is displayed:
This page shows a list of pattern files, the available memory for buffer pools, and data about the DB2 subsystem from which data was collected.

- A pattern file contains a list of rules that determine which objects (table spaces and index spaces) should be placed in which buffer pool according to each object's characteristics.

Initially, Buffer Pool Analyzer recommends one of four pattern files based on the total buffer pool size that is determined from the content of the bpd file. The rules in each pattern file are predefined. They do not vary with the content of a bpd file.

If you edit a pattern file and save it under a user-defined name, as described in "Step 2: Editing a pattern file" on page 2687, Buffer Pool Analyzer recommends this user-defined pattern file whenever a bpd file from the same DB2 subsystem is processed by the object placement wizard.

- The Total virtual pool size (in MB) value is determined from the content of the bpd file and reflect the values at the time the data was collected from the DB2 subsystem.

- DB2 subsystem and the data collection is also determined from the content of the bpd file.

You can use this page to select a different pattern file and to adjust the available memory for buffer pools. In "Step 4: Setting the initial buffer pool sizes and characteristics" on page 2693, Buffer Pool Analyzer recommends a distribution of the available memory across the individual buffer pools. You can also accept the recommendations (the pattern file and the virtual pool) and proceed with the next step.

1. Under Pattern file selection, select Recommended or User-defined. Then click the pattern file that you want to use.

2. Under Buffer pool data file information, enter the value for Total virtual pool size (in MB) that you want the object placement wizard to use for the calculation of the initial buffer pool sizes.

3. Click Next and continue with "Step 2: Editing a pattern file" on page 2687.
Step 2: Editing a pattern file

About this task

When you have performed “Step 1: Selecting a pattern file” on page 2685, the second page of the object placement wizard is displayed:

This page shows the object placement rules from the selected pattern file.

- The list of rules acts like a series of filters. The object placement wizard processes all objects (table spaces and index spaces) through these rules, starting at the top of the list. If the characteristics of an object match the criteria for a specific buffer pool, the object is assigned to this buffer pool.

- Each rule specifies a series of object characteristics as criteria for a buffer pool. If an object matches all criteria of a rule, the wizard recommends it for placement in the corresponding buffer pool. If an object does not match all criteria of a rule, it is passed to the next rule for evaluation.

- An object matches a rule if Page Size, Seq Access, Change Rate and Size match, and if an object is one of the selected data types Data, Index, LOB, or Sort/Temp. (Selected here means that a check box is marked. If all check boxes of a rule are cleared, an object does never match the rule.)

- In summary, the rules causes a 1:n mapping of buffer pools to objects. Objects with similar characteristics are assigned to the same buffer pool.

You can use this page to adjust the object placement rules for this session, and you can save the rules under a user-defined name for future use with performance data from the same DB2 subsystem.

- You can add more placement rules by clicking Add, and you can delete selected rules by clicking Remove.

- You can define more than one rule for a specific buffer pool, which permits a buffer pool to contain objects with different characteristics.

- You can also change the position of a placement rule in the list by clicking Move Up or Move Down.

- To change one of a rule’s values, double-click the value and edit it. Then press Enter or select a different field.
If you adjust rules in pattern files:

- Ensure that all objects are covered by at least one rule. Otherwise, you cannot complete the next step.

- Place rules with restrictive criteria at the top of the list, and those with more general criteria at the bottom. Otherwise, the more specific rule might never become active.

**Example:** Assume that you want objects with a Change Rate above 80 percent to be assigned to buffer pool BP3, all others to BP4. The recommended way is to specify the first rule for BP3 with a criteria range of 80-100 percent, followed by another rule for BP4 with a criteria range of 0-80 percent. Alternatively, the second rule could also have a criteria range of 0-100 percent, which matches everything that did not match the first rule.

- If criteria ranges are specified, as in 50-80 percent, the algorithms consider the lower bound as inclusive (≥), the upper bound as exclusive (<).

**Example:** If two rules have specified criteria ranges of 50-80 and 80-90 percent, the first rule matches values equal or greater (≥) 50 and less than (<) 80, and the second rule matches values equal or greater (≥) 80 and less than (<) 90. The value 100 as an upper bound is an exception; it is interpreted as less or equal (≤) 100. Successive range specifications of, for example, 0-80 and 81-100 percent are likely to be erroneous.

- The specification of overlapping ranges in different rules for the same criterion is allowed. Nevertheless, the first rule has priority and consequently reduces the effect of any following rule to the non-overlapping part of the range.

**Example:** Assume a single criterion where a rule specifies a criteria range of 10-70 percent, and a subsequent rule specifies a criteria range of 50-100 percent. Here, the overlapping range from 50 to 70 percent in the second rule is without effects because the first rule has priority. The second rule only gets objects for evaluation in the range above 70 percent.

- Note that DB2 catalog objects and directory objects always remain in their original buffer pool (which is BP0 for DB2 Version 7 and earlier). These objects are not taken into account by the object placement algorithms.

The following list describes the elements of a rule, as shown on the page:

**Rule**  Shows the numerical sequence in which the object placement rules are applied to each object.

You can change the sequence by selecting the rule, and clicking **Move Up** or **Move Down**.

**Name**  Shows a buffer pool name, such as BP0 or BP16K9.

**Page**  Shows the size of each buffer pool page. The size is implicitly extracted from the name of the buffer pool. Buffer pool BP32K, for example, always has a page size value of 32 KB.

**Seq Access**  Specify a percentage range as criteria for an object’s sequential accesses. Objects with sequential accesses within the specified range, out of all accesses, are assigned to the specific buffer pool (if the other criteria are also met).

**Example:** A percentage range of 50-80 considers objects that are on average accessed sequentially 50 to less than 80 times out of 100 accesses.

You can also use the following notations to specify percentage ranges:

- 50 is the same as 0 to <50%
50- is the same as 50 to ≤100%
a11 is the same as 0 to ≤100%. If the Assign objects not accessed during data collection check box is selected, a11 also includes objects for which no sequential access characteristics could be determined. (These objects are marked as N/C (not calculated), which means a formula could not be applied because of missing data.)

Change Rate
Specify a percentage range as criteria for an object’s change rate. Objects with a change rate within the specified range, out of all accesses, are assigned to the specific buffer pool (if the other criteria are also met).

Example: A percentage of 50-80 considers objects that are changed 50 to less than 80 times out of 100 accesses.

You can also use the following notations to express percentage ranges:
- 50 is the same as 0 to <50%
- 50- is the same as 50 to ≤100%
a11 is the same as 0 to ≤100%. If the Assign objects not accessed during data collection check box is selected, a11 also includes objects for which no change rate characteristics could be determined. (These objects are marked as N/C (not calculated), which means a formula could not be applied because of missing data.)

Size Specify a size range as criteria for an object’s size. Objects with a size within the specified range are assigned to the specific buffer pool (if the other criteria are also met). Sizes are expressed as numbers of buffer pool pages. One buffer pool page can be 4, 8, 16, or 32 KB, depending on the page size of the buffer pool.

Example: A size range of 0-12 considers objects with a size of less than 12 buffer pool pages. For a buffer pool having a page size of 4 KB this affects objects having a size of less than 48 KB.

You can also use the following notations to express size ranges:
- 12 is the same as 0 to <12 pages
- 12- is the same as 12 to the maximum object size pages
a11 is the same as 0 to the maximum object size pages, and includes also objects for which the size could not be determined (marked as ?).

Data Select this check box if you want table space objects to be assigned to the specific buffer pool (if the other criteria are also met). Note that this field does not include LOB and Sort/Temp data. These must be explicitly selected if required.

Index Select this check box if you want index space objects to be assigned to the specific buffer pool (if the other criteria are also met).

LOB Select this check box if you want table space objects of data type LOB to be assigned to the specific buffer pool (if the other criteria are also met).

Sort/Temp Select this check box if you want database objects of type Sort (work files) or Temp to be assigned to the specific buffer pool (if the other criteria are also met). This should only be selected for buffer pools having a page size of 4 KB or 32 KB.

Comment Initially, this column shows a descriptive text for each rule. You can edit this information.

1. Review the rules on this page. Adjust them as required.
2. Use the Assign objects not accessed during data collection check box to indicate whether you want to include unused objects in the rule processing. Unused objects are table spaces and index spaces that are defined in the database catalog, but did not show any access or change information during the time trace data was collected. Note that unused (inactive) objects can be explicitly excluded from bpd files. If such bpd file was opened, the use of the check box has no effect.

If this check box is selected, unused objects are considered by the object placement rules. They match the all criteria for Seq Access and Change Rate. (Unused objects are marked as N/C (not calculated) in "Step 3: Assigning objects to buffer pools," because they have no sequential access or change rate characteristics.)

If this check box is cleared, unused objects are left in their current buffer pools. Note that any change that you make to this selection is retained for the next time you use the wizard.

3. If you want to save the pattern file, click the icon to the right of the current pattern file name and save it under a user-defined name. The file name extension should be .pat.

4. Click Next and continue with "Step 3: Assigning objects to buffer pools," or click Back to return to the previous page.

Step 3: Assigning objects to buffer pools

About this task

When you have performed "Step 2: Editing a pattern file" on page 2687, the third page of the object placement wizard is displayed:

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Figure 200. Object Placement – The Object Assignment window

This page shows the object placements that Buffer Pool Analyzer recommends based on the previously specified placement rules.

- Buffer Pool Analyzer has scanned the bpd file and has analyzed the characteristics of each table space and index space.
- The Current column shows the placement of objects at the time the data was collected.
- The Recommended column shows the recommended object to buffer pool assignments, as calculated by Buffer Pool Analyzer. The calculations are based on the placement rules for each buffer pool and the object’s characteristics.

- The User-defined column is initially identical with the Recommended column, and is intended to change assignments as described later in this topic.

You can use this page to change the object placements, which means, you can assign specific objects to buffer pools other than the ones determined by the placement rules. You might want to do this, for example, to assign certain objects to a particular large buffer pool to guarantee high performance for applications using these objects. These user-defined assignments overwrite the assignments recommended by Buffer Pool Analyzer.

- To change the assignment of an object, double-click the appropriate buffer pool name in the User-defined column and edit the buffer pool name. Then press Enter or select a different field.

- To reset a User-defined assignment of an object to the Recommended assignment, select the object and click Reset selected.

  You can reset multiple assignments by selecting multiple objects. To select a range of successive objects, click the first object, hold down the Shift key, then click the last object in the sequence. To select several separate objects, click the first object, hold down the Ctrl key, then click the other objects as required. To select all objects, press Ctrl+A.

The following list describes the elements of an assignment, as shown on the page. Note that you can sort the list by clicking a column header of choice one or more times. Small arrows indicate the sort order.

**Object Name**
Shows the name of an object, such as a table space or index space. If you selected the Assign objects not accessed during data collection check box on the previous page, this column also shows the names of unused objects. Note that unused (inactive) objects can be explicitly excluded from bpd files. If such bpd file was opened, the use of the check box has no effect.

**Type**
Shows the type of an object, as TABLESPACE, INDEX, LOB, TEMP, or WORK/SORT.

**Page**
Shows the page size of the buffer pool to which an object is currently assigned. If you assign an object to a different buffer pool, the new buffer pool must have the same page size.

**Used**
Shows whether an object was used during the time for which performance data was collected.

  If an object was used (indicated as YES), Buffer Pool Analyzer assigned the object to a buffer pool according to the object’s characteristics.

  If an object was not used (indicated by NO), Buffer Pool Analyzer retains the original assignment, unless you checked the Assign objects not accessed during data collection check box on the previous page. In this case, Buffer Pool Analyzer assigned the object using only the object’s Page Size, Size, and data type (Data, Index, LOB, or Sort/Temp).

**Catalog/Directory**
Shows whether this object is part of the database catalog (CAT) or database directory (DIR). No entry indicates that the object belongs to neither.

**Seq. Access [%]**
Shows how often the object was accessed sequentially, as a percentage of all accesses to this object.
N/C (not calculated) means that the percentage could not be computed because the object was not used.

**Change Rate [%]**
Shows how often the object was changed, as a percentage of all accesses to this object.
N/C (not calculated) means that the percentage could not be computed because the object was not used.

**Size [pages]**
Shows the size of an object, expressed as the number of buffer pool pages.

**Example:** For a buffer pool having a page size of 4 KB, a value of 12 corresponds to an object size of 48 KB.

**Current**
Shows the name of the buffer pool where an object is currently placed (at the time the data was collected).

**Recommended**
Shows the name of the buffer pool that Buffer Pool Analyzer recommends for the object.

**User-defined**
Initially, this column shows the same buffer pool names as in the Recommended column.

**Note:** If a field in this column is empty, an object was not assigned to a buffer pool because no matching rule was found. You must ensure that there are no empty user-defined fields before continuing. Return to “Step 2: Editing a pattern file” on page 2687 and add rules that cover such objects.

If you want to assign objects to specific buffer pools (other than those shown in the corresponding fields), you can change the assignment in this column as described previously.

You can also reset your changes to the recommended values by clicking **Reset selected** or **Reset all**. The latter resets the assignments of all objects in the window, but not those that are hidden if the **Show only objects with activity** check box is selected. If you want to reset all used and unused objects, clear the check box (which shows used and unused objects in the window), click **Reset all**, then select the check box again.

**Restriction:** Note that catalog objects and directory objects cannot be assigned to different buffer pools.

1. Review the assignments on this page. Change them in the **User-defined** column, if required.

2. Use the **Show only objects with activity** check box to indicate whether you want to see only used objects, or whether you want to see also unused objects. See step **2 on page 2690** for details about unused objects.

   If this check box is cleared, unused objects are included in the list of objects (their assignment to buffer pools is activated by the **Assign objects not accessed during data collection** check box on the previous page).

   Note that the state of the check box is retained for the next time you use the wizard.

3. Click **Next**. If any rows contain errors, they are highlighted in red. You must correct these errors before you can continue to “Step 4: Setting the initial buffer pool sizes and characteristics” on page 2693. You can click **Back** to return to the previous page.
Step 4: Setting the initial buffer pool sizes and characteristics

About this task

When you have performed “Step 3: Assigning objects to buffer pools” on page 2690, the fourth page of the object placement wizard is displayed:

![Figure 201. Object Placement – The Buffer Pool Size and Characteristics window](image)

This page shows the recommended initial buffer pool sizes and thresholds for the individual buffer pools, and shows the total storage required for these recommendations.

- The value in the **Planned** field, shown at the top of the page, is the sum of the **Total virtual pool size** and the **Total hiper pool size**. These are the pool sizes (in MB) that you have specified in “Step 1: Selecting a pattern file” on page 2685.
- The object placement and sizing algorithm has used this total storage to calculate the initial virtual sizes for the individual buffer pools, based on the object placements specified in the **User-defined** column on the previous page.
- The sum of all buffer pool sizes (the recommended number of pages for a buffer pool, multiplied by the page size of the buffer pool in MB) yields the planned size in MB.
- By default, the sizing algorithm allocates a minimum buffer pool size of 20% of the average buffer pool size for buffer pools to which objects are assigned.

You can use this page to adjust the initial buffer pool sizes and thresholds of individual buffer pools. Buffer Pool Analyzer will use the adjusted values when it generates the DB2 ALTER BUFFERPOOL commands and SQL ALTER statements.

- If you change the virtual buffer pool size of one of the listed buffer pools, the **New** size, at the top of the page, reflects the new sum (in MB). Initially, **Planned** and **New** show the same value. (Small differences are possible because only integer pages are calculated, not fractions.)
- To change a value, double-click the value and edit it. Then, press Enter or select a different field.

Note that the size of buffer pools that no longer have objects assigned to them is set to zero. When you apply the recommendations from the object placement and buffer pool sizing, access to objects assigned to these buffer pools is disabled.
The following list describes the elements of the buffer pool sizings, as shown on the page. Note that you can edit these values, except the buffer pool names. For more detailed information, see also “The Buffer Pool Characteristics section” on page 2632. Note that you can sort the list by clicking a column header of choice one or more times. Small arrows indicate the sort order. By default, the list is sorted by Name.

| Name | Shows the name of the buffer pool. |
| VP Size [pages] | Shows the recommended virtual buffer pool size, in number of pages, for the affected buffer pool. |
| VP Seq [%] | Shows the recommended virtual pool sequential steal threshold (VPSEQT) for the affected buffer pool. This is the portion of the buffer pool that can be occupied by sequentially accessed pages. For more details, see Thresholds — Virtual sequential in “The Buffer Pool Characteristics section” on page 2632. |
| DefWrite [%] | Shows the recommended deferred write threshold (DWQT) for the affected buffer pool. This is the percentage of the buffer pool that can be occupied by unavailable pages. For more details, see Thresholds — Deferred write in “The Buffer Pool Characteristics section” on page 2632. |
| VertDefWrite [%] | Shows the recommended vertical deferred write threshold (VDWQT) for the affected buffer pool. This is the percentage of the buffer pool that can be occupied by updated pages of a single page set. For more details, see Thresholds — Vert deferred write in “The Buffer Pool Characteristics section” on page 2632. |

1. Review the recommended initial buffer pool sizes and thresholds. Adjust them, if required.
2. Click Finish, or Back to return to the previous page.
   When the object placement wizard finishes, the result is immediately shown in a new browser window. In addition, the result is saved in the Results subfolder of the Object Placement folder for later viewing.
3. Continue with “Viewing the result of an optimization cycle,” or close the browser window and return to the Buffer Pool Analyzer main window.

Viewing the result of an optimization cycle  
About this task

When the object placement wizard finishes, the Buffer Pool Analyzer main window shows the result in the Results subfolder of the Object Placement folder. The subfolder can contain results from several optimization cycles. The result from the most recent optimization is highlighted.
Results are named OPL <bpd_file> <date> <time>, whereby OPL stands for Object Placement, <bpd_file> for the name of the bpd file that was used for the optimization, <date> and <time> for the date and time when the optimization started.

1. If you want to delete results from the folder, select it by clicking it. Then press the Delete key. To delete all results, right-click Results. Then click Delete all. You are asked to confirm the deletion.

   Note that results remain on the hard disk drive and take up space until they are deleted. They are usually located in folder C:\Documents and Settings <userid> \db2pev <version> \object placement reports. However, because of their special format, do not manipulate the folder contents manually.

2. To view the result of an object placement, double-click it, or select it and press Enter.

   The result is shown in your web browser and contains the following information:
   
   • A section showing details about the content of the bpd file that was used for this object placement optimization, such as the name of the DB2 subsystem from which data was collected, and the start and end times and the duration of the data collection. The bpd file is the one you selected when you performed the steps in "Selecting and opening a buffer pool data file" on page 2685. The details are identical with the information that was shown in the Pattern File Selection window (see Figure 198 on page 2686).

   • A section showing which pattern file and which object placement rules were used for this object placement optimization. This information corresponds to your specifications in "Step 1: Selecting a pattern file" on page 2685 and "Step 2: Editing a pattern file" on page 2687.

   • A section listing the other options that you specified for this object placement optimization.

   • A list of ALTER BUFFERPOOL commands for resizing and changing buffer pool characteristics.

   Example:

   ALTER BUFFERPOOL(BP0) VPSIZE(868) HPSIZE(0) VPSEQT(20) DWQT(0) VDWQT(0,0)
   ALTER BUFFERPOOL(BP7) VPSIZE(120) HPSIZE(0) VPSEQT(40) DWQT(10) VDWQT(3,0)
   ALTER BUFFERPOOL(BP32K) VPSIZE(15) HPSIZE(0) VPSEQT(100) DWQT(70) VDWQT(50,0)
   ALTER BUFFERPOOL(BP4) VPSIZE(1750) HPSIZE(0) VPSEQT(99) DWQT(0) VDWQT(0,0)
   ALTER BUFFERPOOL(BP1) VPSIZE(5) HPSIZE(0) VPSEQT(100) DWQT(70) VDWQT(50,0)
   ALTER BUFFERPOOL(BP2) VPSIZE(790) HPSIZE(0) VPSEQT(20) DWQT(0) VDWQT(0,0)
ALTER BUFFERPOOL(BP3) VPSIZE(426) HPSIZE(0) VPSEQT(100) DWQT(70) VDWQT(50,0)

- A list of STOP DATABASE commands. In data sharing environments, these commands must be performed before applying the following statements.
- A list of ALTER INDEX and ALTER TABLESPACE statements for placing each reassigned object in its new buffer pool.

Example:
ALTER INDEX CC390.UTLEX01 BUFFERPOOL BP7;
ALTER INDEX CC390.UTLSTX01 BUFFERPOOL BP7;
ALTER INDEX CC390.UTPEBX01 BUFFERPOOL BP7;
ALTER INDEX CC390.UTPETX01 BUFFERPOOL BP7;
ALTER INDEX CC390.UTPEX01 BUFFERPOOL BP7;
ALTER TABLESPACE CC390.UTPRCX01 BUFFERPOOL BP7;
ALTER INDEX CC390.UTRESTART2X BUFFERPOOL BP7;
ALTER INDEX CC390.UTRESTARTX BUFFERPOOL BP7;
ALTER TABLESPACE CC390.UTRSTRT BUFFERPOOL BP7;
ALTER TABLESPACE CC390.UTTEMPL BUFFERPOOL BP7;

- A list of START DATABASE commands, corresponding to the preceding STOP DATABASE commands. Required in data sharing environments.
- An object placement overview, which summarizes the information from the object placement task. Note that changed object placements are marked by a different color when the information is shown in the browser window. The following example shows the Object Placement window.

Figure 203. Example of optimization result, showing an object placement overview

3. A section listing the original and recommended buffer pool characteristics (not shown here).
4. Use the hypertext links in the browser window to navigate through the report.

Applying changes to a DB2 subsystem

About this task

You can use the DB2 Commands feature of DB2 Performance Expert (for the ALTER BUFFERPOOL commands).
To apply the SQL statements, you can copy them to SPUFI, or you can run them via DB2 Connect. Additionally, consider the following tips when you are going to apply the proposed changes:

- If you see a buffer pool size set to zero in the optimization result, double-check that this buffer pool is no longer used. Consider the eventuality that this buffer pool did not show any activity during the data collection time, but an unused object can become active under certain circumstances.
- If possible, you should stop the database before applying the changes, especially in a data sharing environment. Also consider applying the changes during planned outages.
- If the virtual buffer pool size is limited, or the proposed size is less than the original size, you should first apply the changes that reduce the sizes of buffer pools, then apply the changes that increase the sizes of buffer pools. The opposite order can result in insufficient virtual storage. However, buffer pools are not always freed immediately. DB2 reduces the sizes of buffer pools by first identifying buffers that are to be deleted. That means, those buffers cannot be used again. DB2 releases buffers immediately or at a later moment, whatever is more appropriate. Therefore, it is good practice to ensure that buffers have actually been released before enlarging buffer pools.
- After applying the ALTER INDEX and ALTER TABLESPACE statements, the reassignments of objects to different buffer pools remain pending until DB2 happens to close and reopen the data sets of the changed page sets, which depends on several parameters. If immediate reassignments are required, you need to stop and start the database.

Related reading:
- For details about the DB2 command ALTER BUFFERPOOL see the *IBM DB2 11 for z/OS: Command Reference*.
- For details about the SQL statements ALTER and CREATE see the *IBM DB2 11 for z/OS: SQL Reference*.

Performance-related tips

About this task

The following tips might be useful when you perform an optimization:

- Generally, objects with similar access characteristics should be grouped and placed in the same buffer pool.
  Mixing page sets with a high sequential access characteristic with those that exhibit random access characteristics will be detrimental to both types of page sets. The pages belonging to the predominantly random page set could be stolen by the prefetch on the page set with sequential characteristic and it will increase the number of I/Os for the random page set.
  The more you separate sequential processing from random processing, the more benefit you get. To achieve this, you can adjust the sequential threshold of each buffer pool. See also the **Seq Access** column in [Figure 199 on page 2687](#).
- Assigning table spaces and index spaces into separate buffer pools that have sequential and random data access can have a more positive impact on overall buffer pool efficiency. It is generally better to put indexes in a separate buffer pool from the data because the access characteristics for indexes are usually very different from the data. See also the **User-defined** column in [Figure 200 on page 2690](#).

Exceptions might be objects that are really small, such as lookup tables.
• Do not place any other objects in the buffer pool that is used by WORK/SORT data sets (DSNDB07), because of the intensive and special usage characteristics.
• BP0 should be used exclusively for DB2 catalog objects and directory objects. These objects are not taken into account by the object placement algorithms.
• A general recommendation is to distribute the objects in different pools based on the access intensity and the number of buffers the page set needs in the pool. The object placement function recommends the optimal size and thresholds for the buffer pools. The simulation function can be used to simulate if additional buffers to the pool will have an effect on reducing the buffer pool misses.
• Validate the recommended values for deferred write threshold (DWQT) and vertical deferred write threshold (VDWQT). If these values allow a particular page set to monopolize the buffer pool by filling up with too many changed pages, the amount of subsequent asynchronous writes can flood the I/O subsystem all at once, thus adversely affecting overall throughput. Usually, it is better to distribute these writes evenly over time rather than to have peaks. However, these thresholds depend on your workload and the type and size of data being cached.
• The first-in-first-out (FIFO) page steal algorithm is recommended, instead of the default Least-Recently-Used (LRU) algorithm, in either of the following situations:
  – For data and indexes residing entirely in the buffer pool
  – For objects with very low buffer pool hit ratio (< 1%)
The FIFO algorithm, which can be specified by the ALTER BUFFERPOOL PGSTEAL command, will reduce processor cost under these conditions. See “The Buffer Pool Characteristics section” on page 2632 for more information about the page steal methods.
• For buffer pools with high I/O rates (a high number of pages read or written) also consider the long-term page fix option for buffer pools, introduced with DB2 UDB for z/OS Version 8. This option fixes a buffer pool in real storage for an extended period of time and can help reduce the number of I/Os for I/O-intensive buffer pools. For more information, see the description of the ALTER BUFFERPOOL command and its PGFIX keyword in the IBM DB2 11 for z/OS: Command Reference.

Simulating buffer pool behavior
This topic describes how to simulate buffer pool behavior on the client.

About this task

Related tasks:
• Before you can use this function, you must have performed the tasks described in:
  – “Collecting data” on page 2607. The collected data can be made available for the simulation function in uncompressed or compressed format.
  – “Downloading files from the host to the client” on page 2732
    A trace data file must be available on the client (the file with the recommended file name extension trace, or terse if compressed).

General remarks:
1. Your client should have approximately 40 MB of available physical memory (random access memory) for this function. You can check this in the Windows Task Manager. Close other applications, if you receive an Out of memory message.

2. The data used for this function reflects the buffer pool activity for the interval for which trace data was collected.

3. Data used for simulations must be collected with short record format, continuously, and should have a record lost rate of less than 2%. If required, see "Configuring a collect task" on page 261 and "Interpreting trace status summary and trace messages" on page 2614 for more details.

4. The simulation function can handle trace data files of up to 2 GB. This size limit pertains to compressed and uncompressed trace data files. Uncompression requires additional time when a compressed trace data file is opened. Uncompression does not require additional disk space because uncompressed data is directly written into memory.

5. The time to preprocess the trace data file and the time to perform a simulation very largely depends on the number of active objects in the trace data file, the number of different buffer pools, and the buffer pool sizes to be simulated. Note that a compressed trace data file contains approximately four times as much data than an uncompressed file.

Example: On a 2.4 GHz client, a 1 GB trace data file takes roughly 1.5 minutes to be preprocessed and approximately five minutes to simulate four buffer pools from 25 000 to 1 000 000 pages (40 sizes). Note that a simulation runs considerably slower if other tasks are using the processor at the same time.

6. If you want to print the simulation results shown in your web browser, use your browser’s printing capabilities to print the information. For colored printouts, check the browser settings.

Example: In the Internet Explorer, click Tools — Internet Options — Advanced. Under Printing, select Print background colors and images.

7. In DB2 Performance Expert for z/OS, you can configure a different web browser. If required, click Monitor — Configuration — Preferences and follow the instructions.

Starting the simulation function

About this task

To start the simulation function, perform the following steps:

Procedure

1. Start the IBM DB2 Buffer Pool Analyzer by double-clicking the icon on your Windows desktop, or use the Start push button on the taskbar to start this client application.

   If you are using DB2 Performance Expert, click Tools > Buffer Pool Analysis for z/OS on the menu bar, or click the Opens the Buffer Pool Analysis for z/OS window toolbar button.

   The DB2 Buffer Pool Analyzer - z/OS main window is displayed.

2. On the menu bar, click File > Start Simulation. Alternatively, click the Starts simulating buffer pools toolbar button. To directly simulate Object Placement results right-click the object placement result file and select Simulate....

   Note: Simulate... passes the object placement recommendations to the simulation function. If the files match, the object placement output is used, otherwise an error message is displayed.
The Open dialog box is displayed. You use this dialog box to select and open a trace data file that contains the buffer pool activity data you want to use for the simulation.

Several sample buffer pool trace data files (*.trace) are delivered with Buffer Pool Analyzer in the ...\samples\simulation folder. You can use them to become familiar with this function.

3. Continue with “Selecting and opening a trace data file.”

Selecting and opening a trace data file
About this task

To select and open a trace data file, complete the following steps:

Procedure

1. Select a folder from the Look in list where the trace data file is located

   The File of type field shows the file name extension of buffer pool trace data files (*.trace for uncompressed files and *.terse for compressed files). If your trace data file lacks the recommended file name extension trace or terse, select All files (*.*) from the File of type list to see the appropriate files.

2. Click the trace data file to be opened.

   The File name field shows the name of the selected trace data file.

3. Click Open.

   The selected trace data file is opened, uncompressed if necessary, and the trace data is preprocessed. These steps can take some time, depending on compression and the size and contents of the trace data file.

   The DB2 Buffer Pool Analyzer - Simulation window is displayed. Perform the following steps before you start the simulation:

   a. “Step 1: Setting simulation parameters”

   b. “Step 2: Assigning objects to buffer pools” on page 2702

   You can navigate through the pages by clicking the appropriate page tab. On both pages, you can click Cancel to return to the main window, Help to get help on the current page, OK to start the simulation. When the simulation ends, continue with “Viewing the result of a simulation cycle” on page 2704.

Step 1: Setting simulation parameters
About this task

When you have opened a trace data file, as described in “Selecting and opening a trace data file,” and have clicked the Simulation Parameters tab, the following page is displayed:
This page shows a list of available buffer pools and their default parameters, and it provides controls to select buffer pools and change their parameters for the simulation.

- The top of the page shows the full path and name of the trace data file that you just opened.
- Each row of the list represents a single buffer pool and its simulation parameters. The list shows a set of 80 selectable buffer pools in the ranges of BP0 to BP49 (the 4 KB buffer pools), BP8K0 to BP8K9 (the 8 KB buffer pools), BP16K0 to BP16K9 (the 16 KB buffer pools), and BP32K0 to BP32K9 (the 32 KB buffer pools). Initially, active buffer pools (those for which activities were recorded during the time trace data was collected and stored in the trace data file) are preselected in the Simulate column.
- The Virtual sequential threshold field shows the percentage of the virtual buffer pool that might be occupied by sequentially accessed pages. The default value is 80%.
- The Minimum buffer simulation size field shows the minimum buffer pool size to be simulated. The size is shown in number of buffer pool pages (whereby a single page has a size of 4 KB, 8 KB, 16 KB, or 32 KB, depending on the buffer pool).
- The Maximum buffer simulation size field shows the maximum buffer pool size to be simulated. The size is shown in number of buffer pool pages.
- The Interval field shows the increment by which a buffer pool size is changed (between the minimum and maximum size) during the simulation. The increment is shown in number of buffer pool pages.

You use this page to determine which buffer pools you want to include in the simulation and to specify individual simulation parameters for each selected buffer pool.

- Select one or more buffer pools by selecting or clearing the respective check boxes. You can also use the Select all or Deselect all button to act on active buffer pools. Select the Show only active buffer pools check box to show only objects with buffer pool activity.
You can adjust the initial simulation parameters as required. Note that the time to perform a simulation increases with the number of buffer pools and the different buffer pool sizes to be simulated. Select the **Simulate single combined buffer pool** check box to run the simulation for the preselected buffer pools as a single combined buffer pool.

**Example:** With the initial values shown on this page, Buffer Pool Analyzer will simulate buffer pool sizes of 1,000, 2,000, 3,000 pages, and so on, up to 20,000 pages, for a selected buffer pool.

**Recommendation:** For practical reasons, choose a minimum and maximum buffer pool size and an interval that does not result in more than 40 buffer pool sizes per selected buffer pool. Otherwise, the time to generate the simulation result increases excessively. In addition, the simulation result becomes complex and difficult to interpret.

- Note that you can sort the list by clicking a column header of choice one or more times. Small arrows indicate the sort order.
- Review your selections and the simulation parameters for each selected buffer pool. To modify a parameter, ensure that the buffer pool is selected. Then click the respective field and edit the shown value. (Internally, the minimum, maximum, and interval values are slightly rounded to avoid odd-numbered simulation cycles.)
- If you have already performed “Step 2: Assigning objects to buffer pools,” click **OK** to start the simulation, otherwise continue with “Step 2: Assigning objects to buffer pools.”

**Step 2: Assigning objects to buffer pools**

**About this task**

When you have opened a trace data file, as described in “Selecting and opening a trace data file” on page 2700, and have clicked the Object to Buffer Pool Assignment tab, the following page is displayed:

![Figure 205. Simulation – The Object Assignment window](image)

This page shows objects and their assignments to buffer pools for this simulation, and provides controls to change these assignments.

- The list on the left side shows selectable objects, their original placements (in column **Trace buffer pool**), and their assignments (in column **Simulation buffer pool**) for this simulation.
The objects are shown in different sub-pages according to their sizes. Click the 4K, 8K, 16K, or 32K tab to see the respective objects. Note that these selections also change several button labels dynamically.

The **Name** field shows the name of the object. The **Type** field identifies the object as a table space (TS) or index space (IX). **DB ID** shows the corresponding database ID. **OB ID** shows the object ID.

The **Trace buffer pool** field shows the name of the buffer pool where the object is originally placed (determined from the content of the trace data file). The **Simulation buffer pool** field shows the name of the buffer pool to which the object is assigned for this simulation. Initially, before you change an assignment, both names are identical.

- On the right side the previously selected buffer pools are shown, and controls are given to change the objects' assignments for this simulation. Further, status information about the assignments is shown.

The **Current simulation buffer pools** field lists the names of the buffer pools to be simulated (those selected during the previous step). If the list becomes too long, which is indicated by trailing dots (...), move the mouse pointer above the list to display the complete list.

The **Total number of objects** field shows the total number of active objects contained in the trace data file. Active objects are objects for which buffer pool activities were recorded during the time trace data was collected (unlike inactive objects and objects in the DB2 catalog).

The **Number of objects for simulation** field shows the number of objects that are assigned to the current simulation buffer pools.

You use this page to change the assignment of objects to buffer pools for this simulation.

- Initially, the assignments are not changed. The buffer pool names in columns **Trace buffer pool** and **Simulation buffer pool** are identical for each object. If the assignments are not changed, the simulation is performed with the assignments that were active at the time trace data was collected.

- Objects can be assigned to buffer pools of matching page sizes (4 KB objects to 4 KB buffer pools, and so on). Use the 4K, 8K, 16K, or 32K tab to see and assign the respective objects.

- You can assign objects to any matching buffer pool, independently of whether a buffer pool is selected for this simulation. However, the simulation considers only those objects that are assigned to the buffer pools currently selected for simulation. Your assignments are saved and can be used for other simulations that use the same trace data file. The assignments are used if you select the corresponding buffer pools for simulation on the Simulation Parameters page.

To view only objects in the list that are assigned to the buffer pools to be simulated, select the **Show only 4K objects for current simulation buffer pools** check box. (The objects' page size changes dynamically.) If this check box is cleared, all objects (of that page size) that are contained in the trace data file are shown.

- To select a single object for an assignment, click the name of an object. To select a range of successive objects, click the first object, hold down the Shift key, then click the last object in the sequence. To select several separate objects, click the first object, hold down the Ctrl key, then click the other objects as required.

- To assign one or more selected objects to a buffer pool, select a buffer pool from the **Buffer pool** list and click **Set**.

- To return one or more selected objects to their original placements, click **Reset**.

To return all objects of the currently displayed page size, for example, 4 KB
objects, click **Reset 4K** (the button label changes dynamically). To return all objects, independently of their page sizes, click **Reset All**.

- Note that you can sort the list by clicking a column header of choice one or more times. Small arrows indicate the sort order.

1. Review your assignments and adjust them as required.

2. If you have already performed the **“Step 1: Setting simulation parameters”** on page 2700, click **OK** to start the simulation. Otherwise complete the **“Step 1: Setting simulation parameters”** on page 2700 before you start the simulation.

When the simulation starts, a progress indicator is shown. Note the estimated completion time. If you want to stop the simulation before completion, click **Cancel**. Control is returned to the DB2 Buffer Pool Analyzer - Simulation window.

When the simulation finishes, the result is saved in the **Results** subfolder of the **Simulation** folder for later viewing. You are asked whether the simulation report should be opened now.

- **Yes** immediately displays the result in a new browser window. The DB2 Buffer Pool Analyzer - Simulation window is closed.
- **Cancel** returns control to the DB2 Buffer Pool Analyzer - Simulation window.

3. Continue with **“Viewing the result of a simulation cycle.”**

### Viewing the result of a simulation cycle

#### About this task

When the simulation finishes, the Buffer Pool Analyzer main window shows the result in the **Results** subfolder of the **Simulation** folder. The subfolder can contain results from several simulation cycles. The result from the most recent simulation is highlighted.

![Figure 206. Simulation – The Results Selection window](image)

Results are named **SIM <trace_file> <date> <time>**, whereby **SIM** stands for Simulation, **<trace_file>** for the name of the trace data file that was used for the simulation, **<date>** and **<time>** for the date and time when the simulation started.

1. If you want to delete results from the folder, select a specific result by clicking it. Then press the Delete key. To delete all results, right-click **Results**. Then click **Delete all**. You are asked to confirm the deletion.

   Note that results remain on the hard disk drive and take up space until they are deleted. They are usually located in folder **C:\Documents and Settings \userid\db2pev<version>\simulation reports**. However, because of their special format, do not manipulate the folder contents manually.

2. To view the result from a simulation, double-click it, or select it and press Enter.
The result is shown in your web browser and contains the following information:

- A comparison of buffer pool efficiency for separate buffer pools versus a single combined buffer pool, as function of the simulated total buffer pool sizes.

**Table 216. Example of simulation result, showing a comparison of buffer pool efficiency**

<table>
<thead>
<tr>
<th>Total Pages</th>
<th>Separate Buffer Pools</th>
<th>Combined Buffer Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Misses</td>
<td>Application Hit Ratio</td>
</tr>
<tr>
<td>200</td>
<td>15332</td>
<td>14.9</td>
</tr>
<tr>
<td>250</td>
<td>141398</td>
<td>21.5</td>
</tr>
<tr>
<td>300</td>
<td>133484</td>
<td>25.9</td>
</tr>
<tr>
<td>350</td>
<td>93542</td>
<td>48.1</td>
</tr>
<tr>
<td>400</td>
<td>43537</td>
<td>75.8</td>
</tr>
<tr>
<td>450</td>
<td>31378</td>
<td>82.6</td>
</tr>
<tr>
<td>500</td>
<td>23449</td>
<td>87.0</td>
</tr>
</tbody>
</table>

- A list of recommended buffer pool sizes for the simulated buffer pools, as function of the simulated total buffer pool sizes.

**Table 217. Example of simulation result, showing a list of recommended buffer pool sizes**

<table>
<thead>
<tr>
<th>Total Pages</th>
<th>BP0 pages</th>
<th>BP1 pages</th>
<th>BP2 pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>200</td>
<td>100</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>250</td>
<td>50</td>
<td>50</td>
<td>150</td>
</tr>
<tr>
<td>300</td>
<td>50</td>
<td>50</td>
<td>200</td>
</tr>
<tr>
<td>350</td>
<td>100</td>
<td>50</td>
<td>200</td>
</tr>
</tbody>
</table>

- A detailed breakdown of efficiency by buffer pool operation for each simulated buffer pool, as function of the simulated total buffer pool sizes.

**Table 218. Example of simulation result, showing a detailed breakdown of efficiency**

<table>
<thead>
<tr>
<th>Buffer Pool Pages</th>
<th>Total Misses</th>
<th>All</th>
<th>Random</th>
<th>Sequential Prefetch</th>
<th>List Prefetch</th>
<th>Set write intent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Misses</td>
<td>% of Total Misses</td>
<td>Misses</td>
<td>% of Total Misses</td>
<td>Misses</td>
</tr>
<tr>
<td>50</td>
<td>24022</td>
<td>6269</td>
<td>26.1</td>
<td>14286</td>
<td>59.5</td>
<td>44</td>
</tr>
<tr>
<td>100</td>
<td>15670</td>
<td>1833</td>
<td>11.7</td>
<td>13795</td>
<td>88.0</td>
<td>42</td>
</tr>
<tr>
<td>150</td>
<td>14563</td>
<td>1409</td>
<td>9.7</td>
<td>13112</td>
<td>90.0</td>
<td>42</td>
</tr>
<tr>
<td>200</td>
<td>10195</td>
<td>1160</td>
<td>11.4</td>
<td>8993</td>
<td>88.2</td>
<td>42</td>
</tr>
<tr>
<td>250</td>
<td>4080</td>
<td>955</td>
<td>23.4</td>
<td>3083</td>
<td>75.6</td>
<td>42</td>
</tr>
<tr>
<td>300</td>
<td>3516</td>
<td>719</td>
<td>20.4</td>
<td>2755</td>
<td>78.4</td>
<td>42</td>
</tr>
<tr>
<td>350</td>
<td>3018</td>
<td>467</td>
<td>15.5</td>
<td>2509</td>
<td>83.1</td>
<td>42</td>
</tr>
</tbody>
</table>

- Summaries of data collection details and simulation parameters, as they were used with this simulation. A summary of buffer pool activity counts, as found in the trace data file, and a summary of those counts resulting from a changed object to buffer pool assignment of this simulation.

- A table of object details. In this report section you can interactively select for which simulated buffer pool and buffer pool size you want to display the
details of assigned objects. (This method avoids having to scroll through a long list of details.) For the objects assigned to the selected buffer pool the table shows object attributes, as found in the trace data file, and selective buffer pool activity counts resulting from the simulated buffer pool size.

In addition, this report section provides facilities to interactively sort the information in the table and to randomly search for specified information. See the actual report section header for instructions.

Table 219. Example of simulation result, showing a table of object details

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>DB ID</th>
<th>OB ID</th>
<th>Trace buffer pool</th>
<th>Trace entries</th>
<th>Getpages</th>
<th>Random misses</th>
<th>Sequential misses</th>
<th>List misses</th>
<th>Setwrite misses</th>
<th>Residency time</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSNDB06.SYSGROUP</td>
<td>TS</td>
<td>6</td>
<td>12</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>00:00:33</td>
</tr>
<tr>
<td>DSNDB06.SYSUSER</td>
<td>TS</td>
<td>6</td>
<td>15</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>00:02:17</td>
</tr>
<tr>
<td>DSNDB06.DSNAPH01</td>
<td>IX</td>
<td>6</td>
<td>101</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>00:01:31</td>
</tr>
</tbody>
</table>

Name
The name of the object.

Type
The type of the object (table space or index space).

DB ID
The corresponding database ID.

OB ID
The object ID.

Trace buffer pool
The original buffer pool to which the object was assigned at the time trace data was collected.

Trace entries
The number of buffer pool activity entries in the trace data file for this object.

Getpages
The total number of Getpage requests (Random, Sequential, List) for this object.

Random misses
The number of misses of Getpage - Random requests for this object resulting from the simulated size.

Sequential misses
The number of misses of Getpage - Sequential requests for this object resulting from the simulated size.

List misses
The number of misses of Getpage - List requests for this object resulting from the simulated size.

Setwrite misses
The number of misses of Setwrite Intent requests for this object resulting from the simulated size.

Residency time
The average duration, in hours, minutes, and seconds, this object would be kept in the simulated buffer pool and size.
3. Use the hypertext links to navigate through the report.

   You can open sections of the report by clicking **Open this report in a new browser window**.

   Note especially the **Click here to see more online help** links. They provide detailed information about how to interpret the report.

**Performance-related tips**

About this task

The following tips might be useful when you perform a simulation:

- The result from a simulation shows a comparison of buffer pool efficiency for separate buffer pools versus a single combined buffer pool (see step 2). Generally, a single buffer pool improves the total buffer pool hit ratio, requires less monitoring and tuning, treats applications equally, and offsets increasing workload of one application by decreasing workload in another. However, with a single buffer pool no preference to applications with different levels of importance can be given, and different access and usage pattern cannot be isolated.

Multiple buffer pools allow for performance preferences, grouping according to access pattern, different thresholds, separation of table spaces from index spaces to optimize the hit rate for indexes, and more. In most cases, multiple buffer pools are necessary to optimize among total buffer pool size and its cost, and overall transaction performance. However, too many buffer pools also increase the effort to monitor and administer the buffer pools.

- The total buffer pool size has a great effect on performance. However, if it is too large, and there is not enough memory to allocate them, then a minimum buffer pool for each page size will be allocated, and the performance will be sharply reduced. To calculate the maximum buffer pool size, all other storage utilization must be considered by DB2 as well as the operating system and any other applications. When the total available size is determined, this area can be divided into different buffer pools to improve utilization.

- Smaller buffer pools are more likely affected by fluctuating workload. Smaller buffer pools tend to show more performance peaks than larger buffer pools.

- The size of buffer pools that predominantly process write requests can be minimized. These buffer pools usually show a low hit ratio. Consecutive write operations fill up the buffer pool and require the data to be frequently written to disk. This applies typically to objects that log or journalize transaction data.

### Analyzing long-term buffer pool performance

This topic describes how to view performance data from several bpd files on the client to perform a long-term analysis of buffer pool performance.

About this task

Related tasks:

- Before you can use this function, you must have performed the tasks described in:
  - “Collecting data” on page 2607
  - “Creating activity reports and bpd files” on page 2618

  Here, only bpd files are of interest. Long-term analysis requires at least one bpd file as input; however, the intention is to analyze data from multiple bpd files to span a longer period.

- “Downloading files from the host to the client” on page 2732
One or more buffer pool data files must be available on the client (the files with the recommended file name extension bpd).

General remarks:
1. Your client should have approximately 40 MB of available physical memory (random access memory) for this function. You can check this in the Windows Task Manager. Close other applications, if necessary.
2. The data used for this function reflects the performance for the intervals for which trace data was collected and for the time frames that were specified with the GLOBAL and the BPACTIVITY command when the bpd files were created.
3. If you want to print any of the graphical information from the following windows, place the cursor on the displayed graphical information and click View → Open dataview in browser. When the browser window is displayed, use your browser's printing capabilities to print the information. For colored printouts, check the browser settings.
   Example: In the Internet Explorer, click Tools → Internet Options → Advanced. Under Printing, select Print background colors and images.

Starting the long-term analysis function
About this task

Procedure
1. Start the IBM DB2 Buffer Pool Analyzer by double-clicking the icon on your Windows desktop, or use the Start push button on the taskbar to start this client application.
   If you are using DB2 Performance Expert, click Tools > Buffer Pool Analysis for z/OS on the menu bar, or click the Opens the Buffer Pool Analysis for z/OS window toolbar button.
   The DB2 Buffer Pool Analyzer - z/OS main window is displayed.
2. On the menu bar, click File > Long-Term Analysis. Alternatively, click the Starts buffer pool long-term analysis toolbar button.
   The Buffer Pool Analysis - Long-Term Analysis window is displayed. You see the first page of the long-term analysis wizard, which guides you through the following steps:
   a. “Step 1: Selecting and opening buffer pool data files”
   b. “Step 2: Choosing a subsystem and specifying an analysis type” on page 2710
   c. “Step 3: Specifying counters, objects, time frame, and output” on page 2711
   You can navigate through the pages by clicking Next or Back. On all three pages, you can click Cancel to return to the main window, or Help to get help on the current page. When you have finished these steps, you can continue with “Viewing the result of a long-term analysis” on page 2715.

Step 1: Selecting and opening buffer pool data files
About this task

When you have started the long-term analysis function, as described in “Starting the long-term analysis function,” the first page of the long-term analysis wizard is displayed:
You use this page to select one or more bpd files that contain the performance data you want to analyze. Initially, this dialog box is empty. The example lists three bpd files that were already selected.

Procedure

1. Select one or more bpd files to be opened, using the following steps in reasonable order:
   
   • To add one or more bpd files to the (initially empty) list of selected bpd files, click Add Files. The Open dialog box is displayed. You use this dialog box to select one or more bpd files that you want to add to the list of selected bpd files. Several sample buffer pool data files (*.bpd) are delivered with Buffer Pool Analyzer in the ...\samples\reporting folder. The sample files are named bpa-zos-1ta-samplenn.bpd. You can use them to become familiar with this function.
     
     a. Select a folder from the Look in list where the bpd files you want to use are located.

     The File of type field shows the file name extension of buffer pool data files (*.bpd). If your bpd files do not have the recommended file name extension bpd, select All files (*.*) from the File of type list to see the appropriate files.

     b. Click the bpd file to be added to the list of selected bpd files.

     You can add multiple files by selecting multiple files in the Open dialog box. To select a range of files, click the first file, hold down the Shift key, then click the last file in the sequence. To select several separate files, click the first file, hold down the Ctrl key, then click the other files as required. To select all files, press Ctrl+A.

     The File name field shows the names of the selected bpd files.

     c. Click Open.

     The Open dialog box closes and the bpd files are added to the list of selected bpd files.

     Restriction: bpd files are usually named at your own discretion, except for the recommended file name extension bpd. Thus, it is possible that bpd files exist with different names, but identical or partially identical performance data. If you accidentally select such files for the long-term analysis, the duplicated performance records falsify the result. Buffer Pool Analyzer does not filter out duplicates from the selected bpd files.

     • To remove one or more bpd files from the list of selected bpd files, select one or more files in the list, then click Remove Selected Files.
2. When you have completed your selection of bpd files, and the list of selected bpd files contains at least one file, click **Next**. The selected bpd files are opened, and the data is preprocessed. This step can take some time, depending on the sizes and contents of the bpd files. A progress indicator is displayed that shows the percentage of preprocessing that has been completed. You can click **Cancel** to cancel preprocessing and restore the file selection page.

Preprocessing performs several activities on each bpd file, which eases your selections and specifications in the following steps:
- The subsystems are determined from which performance data was collected.
- The counters and active objects are determined.
- The earliest and the latest timestamp in each bpd file is determined.

3. Continue with **“Step 2: Choosing a subsystem and specifying an analysis type.”**

**Step 2: Choosing a subsystem and specifying an analysis type**

**About this task**

When you have performed **“Step 1: Selecting and opening buffer pool data files”** on page 2708, the second page of the long-term analysis wizard is displayed:

![Figure 208. Long-Term Analysis – The Subsystem and Analysis Type Selection window](image.png)

Use this page to verify your selection of bpd files and to specify the type of analysis you want to perform.

- The bpd files you selected in the previous step might contain performance data from different subsystems. However, a meaningful long-term analysis can only be performed with data from one subsystem. The **DB2 Subsystem** group box on this page shows from which subsystems the various selected bpd files were created. (This information was acquired when the selected bpd files were preprocessed.)

The subsystem folder with the most bpd files is opened, and the corresponding subsystem is preselected from the **Subsystem to analyze** list. You can expand or collapse the tree items by clicking the plus sign (+), respectively the minus sign (-), or by double-clicking the corresponding tree item.

Use this information to decide from which subsystem you want you use the data for the long-term analysis.
The Analysis type group box on this page shows a list of selectable presentation types, with one type being preselected. The analysis type determines how the information will be presented in the graphical report.

Use this list to decide about the analysis type. For the selected type, a brief description and an illustration of the chart type is shown on this page. You can select the types in any order to examine them. Viewing the result of a long-term analysis provides a more detailed description and explanation of the output from these analysis types.

1. Select the bpd files you want to use by selecting the appropriate subsystem from the Subsystem to analyze list.
2. Under Analysis type, select an appropriate analysis type.
3. Click Next and continue with “Step 3: Specifying counters, objects, time frame, and output,” or click Back to return to the previous page.

Step 3: Specifying counters, objects, time frame, and output

About this task

When you have performed “Step 2: Choosing a subsystem and specifying an analysis type” on page 2710, the third page of the long-term analysis wizard is displayed. This page differs somewhat depending on the analysis type you specified in the previous step. At first, this section shows and describes the more flexible specifications applicable to the first four analysis types (“Weekly view by day”, “Daily view by hour”, “View of a period of time”, and “Bar chart”), and the similarities of this page that apply to all analysis types. “Characteristics of the pie chart analysis types” on page 2713 details the specifications for remaining pie chart presentations (which is basically a more restrictive use of 1-to-n and n-to-1 relations between counters and objects).

Figure 209. Long-Term Analysis – The Counter and Object Selection window

Use this page to specify which counters and objects to consider for the analysis, the time frame to include, and the name to be used for saving the analysis result.
For a long-term analysis usually only a subset of counters and objects is of interest. This page is used to specify which of them are to be included in the analysis.

- **Counters to display** shows a tree view of selectable counters. You can expand or collapse the tree items by clicking the plus sign (+), respectively the minus sign (-), or by double-clicking the corresponding tree item.
  
  You use this list to specify which counters to consider for the long-term analysis, provided they pertain to selected active objects (see later in this topic).

- **Objects to display** shows a tree view of selectable objects. You can expand or collapse the tree items by clicking the plus sign (+), respectively the minus sign (-), or by double-clicking the corresponding tree item. The list of objects contains those objects that were identified as active objects in the selected bpd files during preprocessing, and which belong to the selected subsystem.
  
  You use this list to specify which objects to consider for the long-term analysis, provided they pertain to selected counters (see previous information).

In both trees you can select counters, respectively objects, on different levels and in any combination. The tree hierarchies denote the counter and object hierarchies, not selectable groups of counters or groups of objects. For example, the Getpage total count contains the sum of the Getpage random, Getpage ridlist, and Getpage sequential counts; nevertheless, you can select Getpage total and Getpage random only, which will only show these two counters in the result.

As indicated, the selections of counters and objects are interrelated. Technically, both selections act as filters, which means that the analysis result includes only information about selected counters pertaining to selected objects. Practically, deliberate selections of counters and objects on this page permit two different but powerful views:

- If you are interested how a single counter behaves in several objects (for example, to compare the Getpage sequential counts of several objects), you select one counter and several objects. This is basically a **1-to-n** relation between counters and objects. However, you can also set up a **few-to-many** relation, for example, to compare a few counters in several objects.

- If you are interested how several counters behave in one object (for example, to analyze the key counters of an object), you select the counters and a single object. This is basically a **n-to-1** relation between counters and objects. However, you can also set up a **many-to-few** relation.

As pointed out, you are not restricted in your choice of **n-to-m** relations between counters and objects. The long-term analysis function processes any of your selections, independently of whether they make sense or how complex the graphical representation of the result becomes. Start with simple **1-to-1**, **1-to-n**, or **n-to-1** counter-to-object relationships until you become familiar with the result. Refine these relations step by step.

Note that this degree of freedom in selecting counters and objects for the long-term analysis applies to the analysis types “Weekly view by day”, “Daily view by hour”, “View of a period of time”, and “Bar chart”. The selection of counters and objects for pie chart results is more restrictive (1-to-n and n-to-1) to avoid complex results. The details are described in the chart analysis types on page 2713.

- The **Time frame** group box shows, by default, the earliest and the latest timestamp of data found in the selected bpd files. The controls can be used to limit the time frame by changing one or both timestamps. Only data from the
selected bpd files with timestamps between the default, or specified, From and To dates is used for the long-term analysis. Reset From and Reset To reset any specified values to the default values. These push buttons are helpful if you change your mind; you do not need to remember the earliest and latest timestamps.

- The Graphic file name field shows the proposed name under which the result from the long-term analysis will be saved for later viewing. The proposed name can be changed, if required. The syntax of proposed names is explained in “Viewing the result of a long-term analysis” on page 2715.

1. Select the Counters to display by selecting or clearing the check boxes as required. At least one counter must be selected.
2. Select the Objects to display by selecting or clearing the check boxes as required. At least one object must be selected.
3. Review the information under Time frame. If required, change one or both timestamps. To enter a different timestamp, overwrite the timestamp. Adhere to the format, otherwise, this function might not be able to process the appropriate records from the bpd files, or might not be able to continue.
4. Review the proposed name in the Graphic file name field. Change it as required.
5. Click Create, or click Back to return to the previous page.

The wizard creates the graphical result and saves it under the specified name. If the name already exists, you are given the choice to replace the existing graphic file or to save the new one under a different name.

When the long-term analysis wizard finishes, the result is immediately shown in a new browser window and in the right pane of the Buffer Pool Analysis main window. In addition, the result is saved in the Results subfolder of the Long Term Analysis folder for later viewing.

6. Continue with “Viewing the result of a long-term analysis” on page 2715.

Characteristics of the pie chart analysis types

About this task

In “Step 2: Choosing a subsystem and specifying an analysis type” on page 2710, you were asked to select one of six analysis types. For the first four types, which are “Weekly view by day”, “Daily view by hour”, “View of a period of time”, and “Bar chart”, the previous description outlined your choice of specifying n-to-m relations between counters and objects, restricted only by its usefulness.

For the remaining analysis types “Pie chart: display 1 counter and n objects” and “Pie chart: display n counters and 1 object” this degree of freedom is not useful. Therefore, when you choose one of these analysis types, the third page of the long-term analysis wizard (the upper part) looks as follows:

- For the analysis type “Pie chart: display 1 counter and n objects”: 
In the left pane, **Counters to display** shows a tree view of selectable counters. Radio buttons indicate that you can select only one item. In the right pane, **Objects to display** shows a tree view of selectable objects. The check boxes indicate that you can select multiple objects. This restricts your selections to a 1-to-n relation (which includes 1-to-1) between counters and objects for this analysis type. Note that you can expand the tree items on both sides to select a counter, respectively one or more objects.

- For the analysis type “Pie chart: display n counters and 1 object”:

When you compare the list of selectable counters [Figure 210] and [Figure 211] you will notice on the left side that ratios are shown differently in context with counters. In [Figure 210] ratios are treated identical with counters because you can select only one counter or ratio (1-to-n relation to objects). Opposed to this, in [Figure 211] ratios are shown apart from counters to express their differences (ratios versus absolute values) and to emphasize that you can select multiple counters or multiple ratios (n-to-1 relation to objects). Counters and ratios are mutually exclusive for this analysis type.
Viewing the result of a long-term analysis
About this task

When the long-term analysis wizard finishes, the Buffer Pool Analyzer main window shows the result in one of the Results subfolders of the Long-Term Analysis folder. The subfolders can contain results from several long-term analyses. The result from the most recent analysis is highlighted.

Results are named <analysis_type>-<subsystem>-<date>-<time>, whereby <analysis_type> and <subsystem> correspond to your specifications in "Step 2: Choosing a subsystem and specifying an analysis type" on page 2710, and <date> and <time> stand for the date and time when the long-term analysis result was generated and saved.

1. If you want to delete results from the folder, select a specific result by clicking it. Then press the Delete key. To delete all results, right-click Results. Then click Delete all. You are asked to confirm the deletion.

Note that results remain on the hard disk drive and take up space until they are deleted. They are usually located in folder C:\Documents and Settings \<userid> \db2pev\version \bpa-ZOS-reports \long-term-analysis. However, because of their special format, do not manipulate the folder contents manually.

2. To view the result from a long-term analysis, double-click it, or select it and press Enter.

The result is shown in the right pane of the Buffer Pool Analysis main window. The result consists of a chart and a corresponding legend and report. The legend contains symbols and text that explain the chart. The report lists the information in table form and shows the values represented in the chart. The legend and the report can be switched on or off by using the Legend and Report push buttons.

All results can also be shown in your web browser. Right-click into a graphic and choose Open in browser.

The long-term analysis function generates results that differ depending on the analysis type that is specified in "Step 2: Choosing a subsystem and specifying an analysis type" on page 2710.

Figure 212. Long-Term Analysis – The Results Selection window
examples of charts from each analysis type to help you understand how your specifications (mainly the counters and objects) and the performance data from the bpd files are reflected in the result.

A "Weekly view by day" analysis result:

![Weekly view by day chart](image)

Figure 213. Long-Term Analysis – Example of "Weekly view by day" result

This analysis type shows counter values per weekday of selected counters and objects. Counter values represent per-minute values, for example 5 000 Getpage total operations per minute on average over a day. One counter value per counter, object, and weekday is shown, for example, 3 000 Read page operations (the counter) on BP0 (the object) on Monday (the weekday), 2 500 for the same combination on Tuesday, and so on. The counter values for the seven weekdays are connected by lines for better readability. (The lines themselves do not represent interim values.) The “Average” counts show the calculated averages over all affected objects for each counter per weekday, for example, the average of the Write page operations (the counter) of buffer pool BP0 and BP1 (the objects). The interpretation of these average counts is only reasonable if the affected objects are of the same type, for example only buffer pools or only page sets. If you selected objects of different types, the average values are calculated over all objects and do not yield helpful results. Note that counters and ratios are treated equally in this graphic, except that they have their dedicated y-axis.

If the data from the bpd file spans several weeks, the values are overlaid, which means that the described graphic for one week is overlaid with a similar graphic for the second week (having different values), and so on. This example clarifies what is already described in ["Step 3: Specifying counters, objects, time frame, and output" on page 2711](#). You can easily overload the graphic by selecting too many counters and objects for longer periods.

You can use this analysis type to analyze how certain counters develop over a week (if the time frame covers a week), or to compare how counters develop over several weeks. This type helps to identify counters that show conspicuously high or low values at specific weekdays or show a trend toward lower or higher values over weeks.

A “Daily view by hour” analysis result:
This analysis type shows counter values per hour of selected counters and objects. Counter values represent per-minute values, for example 5,000 Getpage operations per minute on average over an hour. One counter value per counter, object, and hour of the day is shown, for example, 7,000 Read page operations (the counter) on BP0 (the object) between 4:00 p.m. and 5:00 p.m. (the hour), 3,000 for the same combination during the next hour, and so on. The counter values for the 24 hours of a day are connected by lines for better readability. (The lines themselves do not represent interim values.) The “Average” counts show the calculated averages over all affected objects for each counter per hour, for example, the average of the Write page operations (the counter) of buffer pool BP0 and BP1 (the objects). The interpretation of these average counts is only reasonable if the affected objects are of the same type, for example only buffer pools or only page sets. If you selected objects of different types, the average values are calculated over all objects and do not yield helpful results. Note that counters and ratios are treated equally in this graphic, except that they have their dedicated y-axis.

If the data from the bpd file spans several days, the values are overlaid, which means that the described graphic for one day is overlaid with a similar graphic for the second day (having different values), and so on. The same precautions should be taken as with the “Weekly view by day” analysis to avoid overloaded results.

You can use this analysis type to analyze how certain counters develop over a day (if the time frame covers a day), or to compare how counters develop over several days. It is basically a more detailed analysis than the “Weekly view by day” analysis.

A “View of a period of time” analysis result:
This analysis type shows counter values of selected counters and objects from several bpd files in chronological order. Counter values represent per-minute values, as in the previous analysis types. One counter value per counter, object, and bpd file is shown, for example, 1,000 Read request operations (the counter) on BP0 (the object) on average from data from the first bpd file, 1,050 for the same counter and object from the second bpd file, and so on. The counter values are connected through lines for better readability. The y-axis on the left side is applicable to counter values, the one on the right side to ratios, if those were selected.

This analysis type provides meaningful information when several bpd files were selected, and if the effect of this selection was not canceled by a restrictive specification of a time frame. For example, if you have selected seven bpd files, whereby each file contains performance data of one subsequent day, but you have restricted the time frame to the second and third day, only these two bpd files are effectively used in this analysis.

Each effectively used bpd file is identified on the x-axis by a timestamp, and the files are shown in ascending order from left to right. The identifying timestamp is the timestamp of the latest performance record found in a bpd file (which might not necessarily be used in this analysis if the time frame restricts the use to some time before the latest record).

A further clarification on the y-values is appropriate: The calculated per-minute values of counters and ratios of effectively used bpd files are based on the specified (or default) time frame. For example, if the latest bpd file contains performance records of one day between 8:00 a.m. and 12:00 a.m., but you have specified a time frame limit of 9:00 a.m. (for whatever reason), the values for selected counters and ratios are calculated based on performance records between 8:00 a.m. and 9:00 a.m. (Nevertheless, the identifying timestamp for this bpd file on the x-axis shows 12:00 a.m.)

You can use this analysis type to analyze how certain counters develop over long periods, by using your portfolio of historical bpd files.

A “Bar chart” analysis result:
This analysis type shows the distribution of counter values of selected counters over selected objects as bar chart. As usual, counter values are per-minute values. The selected counters in this example are the Getpage total counter, the Read page counter, and the Read request counter. The selected objects are either one or more objects of one or more buffer pools, or all objects of one or more buffer pools, dependent on your selections in “Step 3: Specifying counters, objects, time frame, and output” on page 2711. In this example, buffer pools BP0, BP1, and BP2 were selected, which means that the three counters encompass the activities of all objects in these buffer pools. The x-axis reflects the selected objects, here the buffer pools.

You can use this analysis type to easily compare selected counters in selected objects, for example, to compare the workload in selected buffer pools.

A “Pie chart: display 1 counter and n objects” analysis result:

This analysis type shows a 1-to-n relationship of a selected counter to several selected objects as pie chart. Each slice of the pie represents one of
the selected objects; the size of the slice corresponds to the percentage of
the total of all selected objects. In this example, the selected counter is the
Getpage total counter, and the selected objects are the objects in buffer
pools BP0, BP1, and BP2. The percentages are shown in the graphic; the
corresponding values per object (as per-minute values) are shown in the
report following the graphic.

You can use this analysis type to compare a few values to a total, for
example, to determine how much of the Getpage total activity happens in
the most important buffer pools.

A “Pie chart: display n counters and 1 object” analysis result:

Figure 218. Long-Term Analysis – “Pie chart: display n counters and 1 object” analysis result

This analysis type shows a n-to-1 relationship of several selected counters
to a selected object as pie chart. Each slice of the pie represents one of the
selected counters; the size of the slice corresponds to the percentage of the
total of all selected counters. In this example, the selected counters are
Getpage total, Read page, and Read request, and the selected object is BP2.
The percentages are shown in the graphic; the corresponding values per
counter (as per-minute values) are shown in the report following the
graphic.

You can use this analysis type to compare a few values to a total, for
example, to determine which counters have the most activity in a buffer
pool.

Example of a use case

This section describes an example of a use case that explains how Buffer Pool
Analyzer tools can be used.

The example supports the generalized approach given in “Buffer pool analysis and
tuning processes” on page 2588. It is assumed that you already have a reasonable
understanding of host-based activity reports (described in “Interpreting activity
reports” on page 2628) and the use of the object placement and simulation
functions (described in and “Simulating buffer pool behavior” on page 2698). The
example is applicable for Buffer Pool Analyzer for z/OS, respectively the Buffer
Pool Analysis function of DB2 Performance Expert for z/OS.

The example shows:
1. How summary reports are used to quickly identify major buffer pool performance characteristics.
2. How detail reports are used to identify the most active and most expensive objects (in terms of synchronous operations).
3. How object placement and simulation are used to analyze the effects of different buffer pool attributes.

**Using reports to analyze trace data**

The following steps show how summary reports and detail reports are used to identify objects of interest.

The reports are shown partially; certain issues are highlighted.

1. Creating host reports and a buffer pool data file with batch job BPOQBTCH (described in “Specifying a JCL command stream” on page 2620):
   Data is collected over 30 minutes, with short record format. The trace data file is used for activity reports and the bpd file generation. The trace data file and the bpd file are used in later steps for object placements and simulations on the client.

2. Analyzing the activity reports:
   a. The summary report, ordered by BPID-QPAGESET and sorted by ASYNCPAGE, shows the buffer pool configuration (in the Buffer Pool Characteristics report section) and high-level activity (in the Buffer Pool Statistics report section):

      | BP0 | BP1 | BP2 | BP3 | BP10 | BP32K |
      |-----|-----|-----|-----|------|-------|
      | BPID | Buffer Pool Characteristics | -------- | -------- | -------- | -------- | -------- |
      | General | Virtual pool size | 1000 | 2000 | 297525 | 297525 | 3000 | 100 |

      | BP0 | BP1 | BP2 | BP3 | BP10 | BP32K |
      | BUFFER POOL ID | Buffer Pool Statistics | -------- | -------- | -------- | -------- | -------- |
      | Reached threshold | Deferred write | 0 | 0 | 0 | 0 | 0 |
      | System hit ratio | 39.73 | 97.15 | 75.03 | 99.24 | 100.00 |
      | Getpage request | 813 | 561 | 321601 | 665989 | 1018 |
      | Random | 807 | 126 | 315575 | 665948 | 962 |
      | Sequential prefetch | 49 | 16 | 2857 | 59 | 0 |
      | Dynamic prefetch | 304 | 0 | 70262 | 2876 | 0 |
      | Write | 3 | 0 | 10785 | 1222 | 0 |

   The report shows:
   - The system hit ratio is low for buffer pool BP2. The number of pages that are written to disk is moderate.
   - The applications are doing a lot of random Getpage operations in buffer pools BP2 and BP3.
   - Many Getpage operations in buffer pool BP2 are converted to Dynamic prefetch operations.
   - Dynamic prefetches are significant higher than Sequential prefetches, which implies that the application is causing unneeded prefetches. In this example, it would be advantageous if the applications could be modified to move away from the current random scanning of tables or indexes to
obvious scanning. This would change the prefetch behavior from dynamic to sequential and allow the optimizer to plan prefetches in a much more efficient way.

b. The detail report, ordered by BPID-QPAGESET and sorted by BPID and GETPAGE, shows the most active objects in the Detail Activity report section:

<table>
<thead>
<tr>
<th>BPID</th>
<th>QPAGESET</th>
<th>BP0</th>
<th>BP1</th>
<th>BP2</th>
<th>BP0</th>
<th>BP2</th>
<th>BP1</th>
<th>BP2</th>
<th>BP2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WTNSEC</td>
<td>WTNACT</td>
<td>WTNSEC</td>
<td>WTNACT</td>
<td>WTNSEC</td>
<td>WTNACT</td>
<td>WTNSEC</td>
<td>WTNACT</td>
<td>WTNSEC</td>
</tr>
<tr>
<td>BPID</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>System</td>
<td>100.0</td>
<td>44.0</td>
<td>65.5</td>
<td>98.4</td>
<td>99.1</td>
<td>72.3</td>
<td>100.0</td>
<td>98.4</td>
<td>95.0</td>
</tr>
<tr>
<td>Getpage</td>
<td>2037600</td>
<td>790940</td>
<td>761760</td>
<td>552562</td>
<td>496460</td>
<td>230257</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sequential</td>
<td>1358310</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Random</td>
<td>679286</td>
<td>790940</td>
<td>761760</td>
<td>552562</td>
<td>496460</td>
<td>230257</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miss random</td>
<td>0</td>
<td>12462</td>
<td>37987</td>
<td>1085</td>
<td>552</td>
<td>21277</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

...  

<table>
<thead>
<tr>
<th>BPID</th>
<th>QPAGESET</th>
<th>BP0</th>
<th>BP1</th>
<th>BP2</th>
<th>BP0</th>
<th>BP2</th>
<th>BP1</th>
<th>BP2</th>
<th>BP2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WTNSEC</td>
<td>WTNACT</td>
<td>WTNSEC</td>
<td>WTNACT</td>
<td>WTNSEC</td>
<td>WTNACT</td>
<td>WTNSEC</td>
<td>WTNACT</td>
<td>WTNSEC</td>
</tr>
<tr>
<td>BPID</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>System</td>
<td>97.7</td>
<td>38.1</td>
<td>37.8</td>
<td>49.5</td>
<td>64.4</td>
<td>65.1</td>
<td>100.0</td>
<td>92.6</td>
<td>53.0</td>
</tr>
<tr>
<td>Getpage</td>
<td>152187</td>
<td>151998</td>
<td>76591</td>
<td>56987</td>
<td>48059</td>
<td>48048</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sequential</td>
<td>0</td>
<td>86459</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Random</td>
<td>152187</td>
<td>66539</td>
<td>76591</td>
<td>56987</td>
<td>48059</td>
<td>48048</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miss random</td>
<td>34</td>
<td>11227</td>
<td>35964</td>
<td>5620</td>
<td>367</td>
<td>3085</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The report shows:

- A very high proportion of the total system activity is concentrated in buffer pool BP2 in only a few table spaces.
- An even larger proportion of the random misses is concentrated in a subset of these table spaces.

c. The detail report, ordered by BPID-QPAGESET and sorted by BPID and READSYNC, shows the most "expensive" objects in terms of I/O:

<table>
<thead>
<tr>
<th>BPID</th>
<th>QPAGESET</th>
<th>BP0</th>
<th>BP1</th>
<th>BP2</th>
<th>BP0</th>
<th>BP2</th>
<th>BP1</th>
<th>BP2</th>
<th>BP2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WTNSEC</td>
<td>WTNACT</td>
<td>WTNSEC</td>
<td>WTNACT</td>
<td>WTNSEC</td>
<td>WTNACT</td>
<td>WTNSEC</td>
<td>WTNACT</td>
<td>WTNSEC</td>
</tr>
<tr>
<td>BPID</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>Getpage</td>
<td>6311</td>
<td>125821</td>
<td>5782260</td>
<td>5476585</td>
<td>14488</td>
<td>11405465</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sequential</td>
<td>36</td>
<td>63134</td>
<td>1490275</td>
<td>883</td>
<td>2670</td>
<td>1557018</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Random</td>
<td>6255</td>
<td>62687</td>
<td>4291981</td>
<td>5475702</td>
<td>11181</td>
<td>9848443</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miss random</td>
<td>1810</td>
<td>0</td>
<td>175602</td>
<td>59389</td>
<td>0</td>
<td>236801</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The report shows:

- Again, a very large proportion of all disk accesses is concentrated in a relatively small number of objects.
- One object stands out by a different average delay time on synchronous read operations.
The conclusion so far is: It is worth simulating the effect of moving such objects into a buffer pool of their own.

The recommendation so far is: Objects with frequent misses should be moved to a faster disk, if possible.

**Analyzing effects of different buffer pool attributes**

The following steps show the effects of using object placement and simulation, based on the information found in the activity reports.

1. Performing a simulation using the actual object placements:
   a. The four most active buffer pools BP1, BP2, BP3, and BP10 are chosen.
   b. A minimum and maximum page size for all buffer pools of 25\,000 and 1\,000\,000 and a simulation interval of 25\,000 is chosen (the actual buffer pool size for BP2 and BP3 is approximately 300\,000 pages each).
   c. The object to buffer pool assignments remain unchanged (the actual object placements are to be simulated).

<table>
<thead>
<tr>
<th>Total Pages</th>
<th>Misses</th>
<th>Application Hit Ratio</th>
<th>Global Miss Ratio</th>
<th>Misses</th>
<th>Application Hit Ratio</th>
<th>Global Miss Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>100000</td>
<td>2418999</td>
<td>79.1</td>
<td>20.9</td>
<td>463512</td>
<td>96.0</td>
<td>4.0</td>
</tr>
<tr>
<td>125000</td>
<td>880442</td>
<td>92.4</td>
<td>7.6</td>
<td>436713</td>
<td>96.2</td>
<td>3.8</td>
</tr>
<tr>
<td>150000</td>
<td>464793</td>
<td>96.0</td>
<td>4.0</td>
<td>412713</td>
<td>96.4</td>
<td>3.6</td>
</tr>
<tr>
<td>175000</td>
<td>439478</td>
<td>96.2</td>
<td>3.8</td>
<td>389354</td>
<td>96.6</td>
<td>3.4</td>
</tr>
<tr>
<td>200000</td>
<td>415460</td>
<td>96.4</td>
<td>3.6</td>
<td>366904</td>
<td>96.8</td>
<td>3.2</td>
</tr>
<tr>
<td>225000</td>
<td>397097</td>
<td>96.6</td>
<td>3.4</td>
<td>353614</td>
<td>96.9</td>
<td>3.0</td>
</tr>
<tr>
<td>250000</td>
<td>376870</td>
<td>96.7</td>
<td>3.3</td>
<td>333667</td>
<td>97.1</td>
<td>2.9</td>
</tr>
<tr>
<td>275000</td>
<td>354308</td>
<td>96.9</td>
<td>3.1</td>
<td>319326</td>
<td>97.2</td>
<td>2.8</td>
</tr>
<tr>
<td>300000</td>
<td>333677</td>
<td>97.1</td>
<td>2.9</td>
<td>308144</td>
<td>97.3</td>
<td>2.7</td>
</tr>
<tr>
<td>325000</td>
<td>317252</td>
<td>97.3</td>
<td>2.7</td>
<td>298350</td>
<td>97.4</td>
<td>2.6</td>
</tr>
<tr>
<td>350000</td>
<td>305352</td>
<td>97.4</td>
<td>2.6</td>
<td>290182</td>
<td>97.5</td>
<td>2.5</td>
</tr>
<tr>
<td>375000</td>
<td>295169</td>
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<td>2.5</td>
<td>284812</td>
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<td>2.5</td>
</tr>
<tr>
<td>400000</td>
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<td>97.6</td>
<td>2.4</td>
</tr>
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<td>2.4</td>
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<td>2.3</td>
<td>257447</td>
<td>97.8</td>
<td>2.2</td>
</tr>
</tbody>
</table>

- For a total buffer pool size of less than 300\,000 pages the hit ratio is better if BP2 and BP3 are combined in a single buffer pool. Above 300\,000 pages the improvement is marginal. An object placement should be performed to determine if there is a more favorable distribution of objects.
- It is noticeable that even around 1\,000\,000 pages the buffer pool hit ratio still improves slowly with further memory.
Table 221. Recommended sizing for separate Buffer Pools

<table>
<thead>
<tr>
<th>Total Pages</th>
<th>BP1 pages</th>
<th>BP2 pages</th>
<th>BP3 pages</th>
<th>BP10 pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>100000</td>
<td>25000</td>
<td>25000</td>
<td>25000</td>
<td>25000</td>
</tr>
<tr>
<td>125000</td>
<td>25000</td>
<td>50000</td>
<td>25000</td>
<td>25000</td>
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<tr>
<td>150000</td>
<td>25000</td>
<td>50000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>175000</td>
<td>25000</td>
<td>75000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>200000</td>
<td>25000</td>
<td>100000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>225000</td>
<td>25000</td>
<td>125000</td>
<td>50000</td>
<td>25000</td>
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<tr>
<td>250000</td>
<td>25000</td>
<td>150000</td>
<td>50000</td>
<td>25000</td>
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<td>275000</td>
<td>25000</td>
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<td>50000</td>
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<td>250000</td>
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</tr>
<tr>
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<td>25000</td>
<td>300000</td>
<td>75000</td>
<td>25000</td>
</tr>
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<td>450000</td>
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<td>75000</td>
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<td>475000</td>
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<td>675000</td>
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<td>450000</td>
<td>175000</td>
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<tr>
<td>725000</td>
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<tr>
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<td>600000</td>
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</tr>
<tr>
<td>775000</td>
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<td>575000</td>
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<td>25000</td>
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<tr>
<td>900000</td>
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<tr>
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<td>950000</td>
<td>25000</td>
<td>675000</td>
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<td>25000</td>
</tr>
<tr>
<td>975000</td>
<td>25000</td>
<td>675000</td>
<td>250000</td>
<td>25000</td>
</tr>
<tr>
<td>1000000</td>
<td>25000</td>
<td>725000</td>
<td>225000</td>
<td>25000</td>
</tr>
</tbody>
</table>

- The most important result is the allocation of memory between the two main buffer pools BP2 and BP3 (each one actually using approximately 300 000
pages): For a total of 600 000 pages, the simulation recommends to allocate
three times as much memory to BP2 as BP3.
v The values for buffer pools BP1 and BP10 are wasteful and caused by the
high interval value simulated (25 000 pages). An additional simulation
between 500 and 5 000 pages, only for BP0, BP1, BP4 and BP10, will give a
better idea of the amount of memory they really require, but this is
absolutely insignificant compared to BP2 and BP3.
“Simulated behavior of each separate Buffer Pool” of the simulation result
shows:
Table 222. Results of simulated behavior of separate buffer pools
Buffer Pool BP1
Applic.
Hit Ratio

Global
Miss
Ratio

Buffer Pool BP2
Misses

Applic.
Hit Ratio

Global
Miss
Ratio

Buffer Pool BP3
Misses

Applic.
Hit Ratio

Buffer Pool BP10

Buffer
Pool
Pages

Misses

Global
Miss
Ratio

Misses

Applic.
Hit Ratio

Global
Miss
Ratio

25000

359

99.8 0.0

1909336

67.3 16.5

509028

90.8

4.4

276

98.1

0.0

50000

359

99.8 0.0

370779

93.6 3.2

93379

98.3

0.8

276

98.1

0.0

75000

359

99.8 0.0

345464

94.1 3.0

85458

98.5

0.7

276

98.1

0.0

100000

359

99.8 0.0

321446

94.5 2.8

79923

98.6

0.7

276

98.1

0.0

125000

359

99.8 0.0

303083

94.8 2.6

76671

98.6

0.7

276

98.1

0.0

150000

359

99.8 0.0

282856

95.2 2.4

7352

98.7

0.6

276

98.1

0.0

175000

359

99.8 0.0

260294

95.5 2.2

70005

98.7

0.6

276

98.1

0.0

200000

359

99.8 0.0

239663

95.9 2.1

68202

98.8

0.6

276

98.1

0.0

225000

359

99.8 0.0

223238

96.2 1.9

67029

98.8

0.0

276

98.1

0.0

250000

359

99.8 0.0

211338

96.4 1.8

66103

98.8

0.6

276

98.1

0.0

275000

359

99.8 0.0

201155

96.6 1.7

65542

98.8

0.6

276

98.1

0.0

300000

359

99.8 0.0

194740

96.7 1.7

63988

98.8

0.6

276

98.1

0.0

325000

359

99.8 0.0

188489

96.8 1.6

63473

98.9

0.5

276

98.1

0.0

350000

359

99.8 0.0

183684

96.9 1.6

63102

98.9

0.5

276

98.1

0.0

375000

359

99.8 0.0

179376

96.9 1.5

62749

98.9

0.5

276

98.1

0.0

400000

359

99.8 0.0

174842

97.0 1.5

62528

98.9

0.5

276

98.1

0.0

425000

359

99.8 0.0

168940

97.1 1.5

62024

98.9

0.5

276

98.1

0.0

450000

359

99.8 0.0

165805

97.2 1.4

60979

98.9

0.5

276

98.1

0.0

475000

359

99.8 0.0

164905

97.2 1.4

60853

98.9

0.5

276

98.1

0.0

500000

359

99.8 0.0

163878

97.2 1.4

60850

98.9

0.5

276

98.1

0.0

525000

359

99.8 0.0

162486

97.2 1.4

60850

98.9

0.5

276

98.1

0.0

550000

359

99.8 0.0

159330

97.3 1.4

60850

98.9

0.5

276

98.1

0.0

575000

359

99.8 0.0

154300

97.4 1.3

60850

98.9

0.5

276

98.1

0.0

600000

359

99.8 0.0

150934

97.4 1.3

60850

98.9

0.5

276

98.1

0.0

625000

359

99.8 0.0

148159

97.5 1.3

60850

98.9

0.5

276

98.1

0.0

650000

359

99.8 0.0

145146

97.5 1.3

60850

98.9

0.5

276

98.1

0.0

675000

359

99.8 0.0

143591

97.5 1.2

60850

98.9

0.5

276

98.1

0.0

700000

359

99.8 0.0

143263

97.5 1.2

60850

98.9

0.5

276

98.1

0.0

725000

359

99.8 0.0

141892

97.6 1.2

60850

98.9

0.5

276

98.1

0.0

750000

359

99.8 0.0

141783

97.6 1.2

60850

98.9

0.5

276

98.1

0.0

775000

359

99.8 0.0

141569

97.6 1.2

60850

98.9

0.5

276

98.1

0.0

800000

359

99.8 0.0

141491

97.6 1.2

60850

98.9

0.5

276

98.1

0.0

825000

359

99.8 0.0

141377

97.6 1.2

60850

98.9

0.5

276

98.1

0.0

850000

359

99.8 0.0

141331

97.6 1.2

60850

98.9

0.5

276

98.1

0.0

875000

359

99.8 0.0

141281

97.6 1.2

60850

98.9

0.5

276

98.1

0.0

900000

359

99.8 0.0

141275

97.6 1.2

60850

98.9

0.5

276

98.1

0.0

925000

359

99.8 0.0

141275

97.6 1.2

60850

98.9

0.5

276

98.1

0.0

950000

359

99.8 0.0

141275

97.6 1.2

60850

98.9

0.5

276

98.1

0.0

Chapter 5. Monitoring

2725


Table 222. Results of simulated behavior of separate buffer pools (continued)

<table>
<thead>
<tr>
<th>Buffer Pool Pages</th>
<th>Misses</th>
<th>Applic. Hit Ratio</th>
<th>Global Miss Ratio</th>
<th>Misses</th>
<th>Applic. Hit Ratio</th>
<th>Global Miss Ratio</th>
<th>Misses</th>
<th>Applic. Hit Ratio</th>
<th>Global Miss Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>975000</td>
<td>359</td>
<td>99.8</td>
<td>0.0</td>
<td>141275</td>
<td>97.6</td>
<td>1.2</td>
<td>60850</td>
<td>98.9</td>
<td>0.5</td>
</tr>
<tr>
<td>1000000</td>
<td>359</td>
<td>99.8</td>
<td>0.0</td>
<td>141275</td>
<td>97.6</td>
<td>1.2</td>
<td>60850</td>
<td>98.9</td>
<td>0.5</td>
</tr>
</tbody>
</table>

- The “Misses” columns for buffer pools BP2 and BP3 show that, with unlimited memory, no improvement would be achieved with more than 900 000 pages for BP2 and 500 000 pages for BP3. These are the absolute limits, although economical limits will always be lower.

The other tables in this simulation result are only required for very detailed analysis, especially for application tuning.

2. Performing object placement with default rule set and object placements:
   a. The default rule set is used; in this case pattern_large.
   b. No changes are made to rules or placements. The object placement wizard is started by simply clicking Next.

   “ALTER BUFFERPOOL COMMANDS” of the object placement result shows the new buffer pools and the recommended sizes:
   
   ```
   ALTER BUFFERPOOL(BP3) VPSIZE(119555) HPSIZE(0) VPSEQT(20) DWQT(39) VDQT(10,0)
   ALTER BUFFERPOOL(BP2) VPSIZE(392018) HPSIZE(0) VPSEQT(20) DWQT(0) VDQT(0,0)
   ALTER BUFFERPOOL(BP10) VPSIZE(15046) HPSIZE(0) VPSEQT(40) DWQT(10) VDQT(3,0)
   ALTER BUFFERPOOL(BP0) VPSIZE(15046) HPSIZE(0) VPSEQT(20) DWQT(25) VDQT(6,0)
   ALTER BUFFERPOOL(BP32K) VPSIZE(1881) HPSIZE(0) VPSEQT(40) DWQT(10) VDQT(3,0)
   ALTER BUFFERPOOL(BP4) VPSIZE(15046) HPSIZE(0) VPSEQT(98) DWQT(2) VDQT(0,0)
   ALTER BUFFERPOOL(BP1) VPSIZE(15046) HPSIZE(0) VPSEQT(100) DWQT(70) VDQT(50,0)
   ```

   “ALTER TABLESPACE AND ALTER INDEX STATEMENTS” of the object placement result shows the object placement commands (for those objects being allocated to a different buffer pool):
   
   ```
   ALTER TABLESPACE WTNTEST.WTNADD BUFFERPOOL BP3;
   ALTER INDEX WTNTEST.WTNADD01 BUFFERPOOL BP2;
   ALTER TABLESPACE WTNTEST.WTNARC BUFFERPOOL BP3;
   ALTER TABLESPACE WTNTEST.WTNHST BUFFERPOOL BP3;
   ALTER INDEX WTNTEST.WTNHST01 BUFFERPOOL BP2;
   ALTER INDEX WTNTEST.WTNAST01 BUFFERPOOL BP2;
   ALTER INDEX WTNTEST.WTNBAL01 BUFFERPOOL BP2;
   ```

   - The actual object assignments (at data collection time) separate data from indexes.
   - The default rule set in the selected pattern file has separated objects primarily according to the amount of sequential and dynamic access.

   “OBJECT PLACEMENT OVERVIEW” of the object placement result shows attributes and placement of objects:

Table 223. Results of object placement

<table>
<thead>
<tr>
<th>Object Name</th>
<th>Type</th>
<th>Page</th>
<th>Used</th>
<th>Catalog / Directory</th>
<th>Seq. Access</th>
<th>Change Rate [%]</th>
<th>Size [pages]</th>
<th>Current</th>
<th>Recommended</th>
<th>User-defined</th>
</tr>
</thead>
<tbody>
<tr>
<td>WTNTEST.DBD01</td>
<td>TABLESPACE</td>
<td>4K</td>
<td>YES</td>
<td>DIR</td>
<td>0</td>
<td>133</td>
<td>?</td>
<td>BP0</td>
<td>BP0</td>
<td>BP0</td>
</tr>
<tr>
<td>WTNTEST.DSNLX01</td>
<td>INDEX</td>
<td>4K</td>
<td>YES</td>
<td>DIR</td>
<td>0</td>
<td>6</td>
<td>?</td>
<td>BP0</td>
<td>BP0</td>
<td>BP0</td>
</tr>
<tr>
<td>WTNTEST.DSNLX02</td>
<td>INDEX</td>
<td>4K</td>
<td>YES</td>
<td>DIR</td>
<td>0</td>
<td>28</td>
<td>?</td>
<td>BP0</td>
<td>BP0</td>
<td>BP0</td>
</tr>
<tr>
<td>WTNTEST.DSNLUX01</td>
<td>INDEX</td>
<td>4K</td>
<td>YES</td>
<td>DIR</td>
<td>0</td>
<td>9</td>
<td>?</td>
<td>BP0</td>
<td>BP0</td>
<td>BP0</td>
</tr>
<tr>
<td>WTNTEST.DSNLUX02</td>
<td>INDEX</td>
<td>4K</td>
<td>YES</td>
<td>DIR</td>
<td>0</td>
<td>21</td>
<td>?</td>
<td>BP0</td>
<td>BP0</td>
<td>BP0</td>
</tr>
</tbody>
</table>
3. Performing a simulation with results from object placement:
   
a. The two most active buffer pools BP2 and BP3 are chosen (they contain almost all database activity).

   b. A minimum and maximum page size for all buffer pools of 100 000 and 1 000 000 and a simulation interval of 25 000 is chosen.

   “Simulated behavior of each separate Buffer Pool” of the simulation result shows:

   Table 224. Results of simulated behavior of most active buffer pools

<table>
<thead>
<tr>
<th>Buffer Pool Pages</th>
<th>Buffer Pool BP2</th>
<th>Buffer Pool BP3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Misses</td>
<td>Application Hit Ratio</td>
</tr>
<tr>
<td>100000</td>
<td>437337</td>
<td>96.0 3.8</td>
</tr>
<tr>
<td>125000</td>
<td>408394</td>
<td>96.3 3.5</td>
</tr>
<tr>
<td>150000</td>
<td>366438</td>
<td>96.5 3.3</td>
</tr>
<tr>
<td>175000</td>
<td>362053</td>
<td>96.7 3.1</td>
</tr>
<tr>
<td>200000</td>
<td>341920</td>
<td>96.9 2.9</td>
</tr>
<tr>
<td>225000</td>
<td>325018</td>
<td>97.0 2.8</td>
</tr>
<tr>
<td>250000</td>
<td>305094</td>
<td>97.2 2.6</td>
</tr>
<tr>
<td>275000</td>
<td>293311</td>
<td>97.3 2.5</td>
</tr>
<tr>
<td>300000</td>
<td>282036</td>
<td>97.4 2.4</td>
</tr>
<tr>
<td>325000</td>
<td>273809</td>
<td>97.5 2.4</td>
</tr>
<tr>
<td>350000</td>
<td>266564</td>
<td>97.6 2.3</td>
</tr>
<tr>
<td>375000</td>
<td>259972</td>
<td>97.6 2.2</td>
</tr>
<tr>
<td>400000</td>
<td>250910</td>
<td>97.7 2.2</td>
</tr>
</tbody>
</table>

   • The application hit ratio for buffer pool BP2 is marginally better than in the previous simulation (look at misses for a given number of total buffer pool pages).

   • Buffer pool BP3 is already optimal at 100 000.

4. Performing object placement with modified rule set:
   
a. The default rule set pattern_large is selected and edited as follows:

   1) A duplicate BP2, called BP12, is added directly under BP2.

   2) A duplicate BP3, called BP13, is added directly under BP3.

   3) BP2 and BP3 should only be used for table spaces.

   4) BP12 and BP13 should only be used for index spaces.

   b. The edited pattern file is saved with a new name. This pattern will be chosen as the default for all future placements with this subsystem.

   c. No changes are made to placements.

5. Performing simulation with results from object placement with modified rule set:
   
a. Buffer pools BP2, BP3, BP12, and BP13 are chosen.

   b. A minimum and maximum page size for all buffer pools of 25 000 and 1 000 000 and a simulation interval of 25 000 is chosen.
“Recommended sizing for separate Buffer Pools” of the simulation result shows:

Table 225. Recommended sizing for separate buffer pools with modified rule set

<table>
<thead>
<tr>
<th>Total Pages</th>
<th>BP2 pages</th>
<th>BP3 pages</th>
<th>BP12 pages</th>
<th>BP13 pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>10000</td>
<td>25000</td>
<td>25000</td>
<td>25000</td>
<td>25000</td>
</tr>
<tr>
<td>12500</td>
<td>50000</td>
<td>25000</td>
<td>25000</td>
<td>25000</td>
</tr>
<tr>
<td>15000</td>
<td>50000</td>
<td>25000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>17500</td>
<td>75000</td>
<td>25000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>20000</td>
<td>100000</td>
<td>25000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>22500</td>
<td>125000</td>
<td>25000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>25000</td>
<td>150000</td>
<td>25000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>27500</td>
<td>175000</td>
<td>25000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>30000</td>
<td>200000</td>
<td>25000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>32500</td>
<td>225000</td>
<td>25000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>35000</td>
<td>250000</td>
<td>25000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>37500</td>
<td>275000</td>
<td>25000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>40000</td>
<td>300000</td>
<td>25000</td>
<td>50000</td>
<td>25000</td>
</tr>
<tr>
<td>42500</td>
<td>300000</td>
<td>25000</td>
<td>75000</td>
<td>25000</td>
</tr>
<tr>
<td>45000</td>
<td>300000</td>
<td>25000</td>
<td>100000</td>
<td>25000</td>
</tr>
<tr>
<td>47500</td>
<td>325000</td>
<td>25000</td>
<td>100000</td>
<td>25000</td>
</tr>
<tr>
<td>50000</td>
<td>350000</td>
<td>25000</td>
<td>100000</td>
<td>25000</td>
</tr>
<tr>
<td>52500</td>
<td>350000</td>
<td>25000</td>
<td>125000</td>
<td>25000</td>
</tr>
<tr>
<td>55000</td>
<td>400000</td>
<td>25000</td>
<td>100000</td>
<td>25000</td>
</tr>
<tr>
<td>57500</td>
<td>425000</td>
<td>25000</td>
<td>100000</td>
<td>25000</td>
</tr>
<tr>
<td>60000</td>
<td>425000</td>
<td>25000</td>
<td>125000</td>
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<td>650000</td>
<td>25000</td>
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</tr>
</tbody>
</table>

- Most of the memory is allocated to BP2 followed by BP12.

“Simulated behavior of each separate Buffer Pool” of the simulation result shows:

Table 226. Results of simulated behavior of separate buffer pools with modified rule set

<table>
<thead>
<tr>
<th>Buffer Pool BP2</th>
<th>Buffer Pool BP3</th>
<th>Buffer Pool BP12</th>
<th>Buffer Pool BP13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misses</td>
<td>Appl. Hit Ratio</td>
<td>Global Miss Ratio</td>
<td>Misses</td>
</tr>
<tr>
<td>25000</td>
<td>1870289</td>
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<td>3529</td>
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<tr>
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<td>362532</td>
<td>93.5</td>
<td>3320</td>
</tr>
</tbody>
</table>
Table 226. Results of simulated behavior of separate buffer pools with modified rule set (continued)
Buffer Pool BP2
Buffer
Pool
Pages

Misses

Applic.
Hit Ratio

Global
Miss
Ratio

Buffer Pool BP3
Misses

Applic.
Hit Ratio

Global
Miss
Ratio

Buffer Pool BP12
Misses

Applic.
Hit Ratio

Buffer Pool BP13
Global
Miss
Ratio

Misses

Applic.
Hit Ratio

Global
Miss
Ratio

75000

337339

94.0 2.9

3320

99.2 0.0

72303

98.6

0.6

9686

95.0

0.1

100000

313468

94.4 2.7

3320

99.2 0.0

65437

98.8

0.6

9566

95.0

0.1

125000

294921

94.7 2.5

3320

99.2 0.0

62273

98.8

0.5

9566

95.0

0.1

150000

274273

95.1 2.4

3320

99.2 0.0

59767

98.9

0.5

9666

95.0

0.1

175000

251441

95.5 2.2

3320

99.2 0.0

58299

98.9

0.5

9566

95.0

0.1

200000

226048

95.9 1.9

3320

99.2 0.0

56990

98.9

0.5

9566

95.0

0.1

225000

211886

96.2 1.8

3320

99.2 0.0

56176

98.9

0.5

9566

95.0

0.1

250000

202081

96.4 1.7

3320

99.2 0.0

55614

99.0

0.5

9566

95.0

0.1

275000

193639

96.5 1.7

3320

99.2 0.0

55162

99.0

0.5

9566

95.0

0.1

300000

185904

96.7 1.6

3320

99.2 0.0

53560

99.0

0.5

9566

95.0

0.1

325000

180557

96.8 1.6

3320

99.2 0.0

52788

99.0

0.5

9566

95.0

0.1

350000

175611

96.9 1.5

3320

99.2 0.0

51485

99.0

0.4

9566

95.0

0.1

375000

172480

96.9 1.5

3320

99.2 0.0

51319

99.0

0.4

9566

95.0

0.1

400000

167135

97.0 1.4

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

425000

161517

97.1 1.4

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

450000

160539

97.1 1.4

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

475000

159454

97.1 1.4

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

500000

157582

97.2 1.4

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

525000

153173

97.3 1.3

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

550000

149690

97.3 1.3

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

575000

146377

97.4 1.3

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

600000

143229

97.4 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

625000

140383

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

650000

139060

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

675000

137805

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

700000

137718

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

725000

137590

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

750000

137416

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

775000

137324

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

800000

137268

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

825000

137240

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

850000

137239

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

875000

137239

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

900000

137239

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

925000

137239

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

950000

137239

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

975000

137239

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

1000000

137239

97.5 1.2

3320

99.2 0.0

51299

99.0

0.4

9566

95.0

0.1

v The results are further improved again (look at misses for a given number of
total buffer pool pages).
6. Performing object placement with the default rule set and moving “expensive”
objects:
a. The default rule set pattern_large is used again (not the saved pattern
from step 4 on page 2727).
b. No changes are made to rules.
c. When the object placement is performed, the identified problem table spaces
and index spaces (from the detail report) are assigned to buffer pool BP10.
Chapter 5. Monitoring

2729


7. Performing simulation with results from the object placement:
   a. Buffer pools BP2, BP3, and BP10 are chosen.
   b. A minimum and maximum page size for all buffer pools of 25 000 and 1 000 000 and a simulation interval of 25 000 is chosen.

   “Recommended sizing for separate Buffer Pools” of the simulation result shows:

   **Table 227. Recommended sizing for separate buffer pools with moved objects**

<table>
<thead>
<tr>
<th>Total Pages</th>
<th>BP2 pages</th>
<th>BP3 pages</th>
<th>BP10 pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>75000</td>
<td>25000</td>
<td>25000</td>
<td>25000</td>
</tr>
<tr>
<td>100000</td>
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<tr>
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</tr>
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<td>500000</td>
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<tr>
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<td>350000</td>
<td>50000</td>
<td>500000</td>
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</table>
Table 227. Recommended sizing for separate buffer pools with moved objects (continued)

<table>
<thead>
<tr>
<th>Total Pages</th>
<th>BP2 pages</th>
<th>BP3 pages</th>
<th>BP10 pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>925000</td>
<td>375000</td>
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<tr>
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<tr>
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<td>50000</td>
<td>500000</td>
</tr>
</tbody>
</table>

- The memory is mainly shared between BP2 and BP10 (BP10 gets somewhat more).

“Simulated behavior of each separate Buffer Pool” of the simulation result shows:

Table 228. Results of simulated behavior of separate buffer pools with moved objects

<table>
<thead>
<tr>
<th>Buffer Pool BP2</th>
<th>Buffer Pool BP3</th>
<th>Buffer Pool BP10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misses</td>
<td>Application Hit Ratio</td>
<td>Global Miss Ratio</td>
</tr>
<tr>
<td>Misses</td>
<td>Application Hit Ratio</td>
<td>Global Miss Ratio</td>
</tr>
<tr>
<td>Misses</td>
<td>Application Hit Ratio</td>
<td>Global Miss Ratio</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Buffer Pool Pages</th>
<th>Misses</th>
<th>Application Hit Ratio</th>
<th>Global Miss Ratio</th>
</tr>
</thead>
<tbody>
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<td>127540</td>
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<td>101760</td>
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<td>0.9</td>
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<td>98.9</td>
<td>0.9</td>
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<tr>
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<td>0.9</td>
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<tr>
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<td>0.9</td>
</tr>
</tbody>
</table>
Table 228. Results of simulated behavior of separate buffer pools with moved objects (continued)

<table>
<thead>
<tr>
<th>Buffer Pool Pages</th>
<th>Buffer Pool BP2</th>
<th>Buffer Pool BP3</th>
<th>Buffer Pool BP10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Misses</td>
<td>Application Hit Ratio</td>
<td>Global Miss Ratio</td>
</tr>
<tr>
<td>925000</td>
<td>101760</td>
<td>98.9</td>
<td>0.9</td>
</tr>
<tr>
<td>950000</td>
<td>101760</td>
<td>98.9</td>
<td>0.9</td>
</tr>
<tr>
<td>975000</td>
<td>101760</td>
<td>98.9</td>
<td>0.9</td>
</tr>
<tr>
<td>1000000</td>
<td>101760</td>
<td>98.9</td>
<td>0.9</td>
</tr>
</tbody>
</table>

- There is an improvement at 600,000 pages, but it is worse at 1,000,000 pages.

Further object placements and simulations could be performed for a combination of the saved rule set and putting problem table spaces into a separate buffer pool.

**Downloading files from the host to the client**

This section describes how to download the input data for these functions from the host to the client.

**About this task**

The following Buffer Pool Analyzer functions are performed on a Windows-based client and require input data from the host.

- “Viewing performance data on the client” on page 2678
- “Optimizing object placements and initial buffer pool sizes” on page 2683
- “Simulating buffer pool behavior” on page 2698
- “Analyzing long-term buffer pool performance” on page 2707

You can use any file transfer method or product, for example, the File Transfer Protocol (FTP) or IBM Personal Communications. You must have at least one of these products installed on your client. The following procedure describes the basic steps to download files. For more information, see the product documentation.

**Recommendation:** If you have the choice, you should use FTP, because it is faster.

**Recommendation:** If you need to download large trace data files (for simulations), consider using compressed trace data sets to reduce download times. See “Collecting data” on page 2607 for instructions how to create compressed data sets. The simulation function automatically extracts compressed trace data files.

1. On the client, create a folder where you want to store the files to be downloaded. For example, in the Windows Explorer file list:
   a. Click the C drive.
   b. Click File ➔ New ➔ Folder. A new folder icon is displayed.
   c. Rename the folder icon to a meaningful name, for example bp_data.

   It is recommended to keep buffer pool data files (used for viewing performance data and optimizing the object placements) and trace data files (used for simulations) in a single folder. This helps to keep together bpd files and trace data files that were created on the host from the same buffer pool trace data. You can distinguish them by their file name extensions (bpd or trace).

   Note that Buffer Pool Analyzer does not provide means to delete downloaded files. They remain on the hard disk drive, and take up space, until you delete them.
2. If you want to use FTP to download files:

If your File Transfer Protocol (FTP) program provides the RDW and NORDW command options, ensure that the NORDW command option is active.

a. Open a Command Prompt window on your client and start an FTP dialog with one of the following commands:
   - `ftp <hostname>`, whereby `<hostname>` denotes the name of your host
   - `ftp <IP address>`, whereby `<IP address>` denotes the IP address of your MVS host

b. Enter your MVS user ID and password and wait until the current client folder is displayed.

c. Enter `binary` to set the transfer type to binary.

d. Enter `lcd <client_directory>`, whereby `<client_directory>` denotes the local directory where you want to store the files (the folder that you created in step [1]). If you do not specify a directory, the current directory on the client is used.

e. If you do not remember the data set name you want to download, enter `dir` or `ls` to get a list of your data sets.

f. Enter `get <file_name> <new_name>`, whereby `<file_name>` denotes the fully qualified host data set name in quotes, and `<new_name>` denotes the client file name without quotes.

This starts the download.

g. Enter `quit` to leave the FTP program, or download more files as required.

Example: The following figure shows an example of an FTP session.

```
C:\bpa>ftp boemp01
Connected to boemp01.boeblingen.de.ibm.com
220 Connection will close if idle for more than 60 minutes.
User (boemp01.boeblingen.de.ibm.com:(none)): wtn
331 Send password please.
Password:
230 WTN is logged on. Working directory is "WTN.".
ftp> bin
200 Representation type is Image
ftp> lcd c:\bpa
Local directory now C:\bpa.
ftp> get WTN.TEST.TRACE test.trace
200 Port request OK.
125 Sending data set WTN.TEST.TRACE
250 Transfer completed successfully.
ftp> get 'WTN.TEST.BPD' test.bpd
200 Port request OK.
125 Sending data set WTN.TEST.BPD
250 Transfer completed successfully.
ftp> get 149487 bytes received in 0.43Seconds 347.64Kbytes/sec.
ftp> quit
221 Quit command received. Goodbye.
C:\bpa>dir test*
Volume in drive C is C_DRIVE
Volume Serial Number is 6C10-18AA
Directory of C:\bpa
20.05.2003 16:06 149487 test.bpd
20.05.2003 16:06 1768197 test.trace
```

3. If you want to use IBM Personal Communications to download files:
a. Log on to your Multiple Virtual Storage (MVS) session on the z/OS or OS/390 system. Ensure that your MVS terminal is in READY mode. Note that keyboard entries in lowercase are converted to uppercase on the host.

b. Start IBM Personal Communications on your client and click Receive.

c. In the Host file field, type the name of the data set that contains the data to be downloaded.
   Example: 'sample.bpd', a buffer pool data file. Do not forget the quotes.
   Example: 'bpasim.trace', a trace data file. Do not forget the quotes.

d. In the PC field, type the destination folder and file name.
   Example: c:\bp_data\sample.bpd for a buffer pool data file
   Example: c:\bp_data\bpasim.trace for a trace file

e. In the Transfer type field, select BINARY.
   This step starts the download.

**Concatenating trace data for activity reports and bpd files**

This section outlines some possibilities of using trace data from SMF or GTF data sets and concatenating multiple data sets as input for activity reports and bpd files.

You should be familiar with batch jobs that create reports and bpd files, especially the use of the `INPUTDD` statement in these batch jobs, as described in “Specifying a JCL command stream” on page 2620.

**Concatenating trace data from SMF and GTF data sets**

The Collect Report Data (CRD) function of Buffer Pool Analyzer or an equivalent batch job are the recommended methods of making DB2 trace data available as input for activity reports and bpd files.

Other methods, like the DB2 trace facility, also provide usable DB2 trace data in standard SMF and GTF data sets.

If you intend to exploit SMF or GTF data, ensure that it contains the IFCIDs required by Buffer Pool Analyzer, as described in “Determining what to collect” on page 2593. Otherwise some of the functionality that Buffer Pool Analyzer normally provides will be missing.

If you are accustomed to DB2 trace classes instead of individual IFCIDs, ensure that the appropriate trace classes, covering the required IFCIDs, are included in the data. Note that IFCID 198, which is required by Buffer Pool Analyzer for data of data type deetail, does not belong to any specific trace class, and corresponding data might therefore be missing in SMF or GTF data. If deetail data is required in your SMF or GTF data, and if it is to be collected by means other than the Collect Report Data (CRD) function of Buffer Pool Analyzer, you can collect this data explicitly by means of the START TRACE command, as follows:

```
-START TRACE(PERFM) CLASS(30) IFCID(198) DEST(SMF)
```

This command uses the generic multi-purpose trace class 30, which has no predefined IFCIDs assigned to it. The required IFCID 198 is explicitly specified.

Even so collecting performance data through GTF or SMF is attractive especially for long-term collection and larger volumes, be aware that GTF, when the destination data set has filled up with trace data, proceeds recording data by overwriting the oldest data in the data set. Allocate a data set large enough to hold the expected amount of trace data for the collection period.
Note that SMF and GTF data do not provide data in the short record format, as it is required for the simulation function. Therefore, for simulations, you must collect trace data by means of the functions provided by Buffer Pool Analyzer. The other Buffer Pool Analyzer functions accept the standard record format, even so short is recommended in ["Determining what to collect" on page 2593] for several other reasons.

Related reading: Details about trace data in SMF and GTF data sets are described in the DB2 11 Administration Guide.

Assuming that the SMF or GTF data contains the necessary IFCIDs, you can use it alternatively or together with trace data being collected through Buffer Pool Analyzer. The JCL command stream in ["Creating activity reports and bpd files” on page 2618] describes how input data sets are specified. You can concatenate multiple data sets with the INPUTDD statement to create one logical data set and continue processing the trace data as usual. The rules for concatenating data sets apply.

Related reading: If you use DFSORT, see the z/OS DFSORT Application Programming Guide for rules that apply to the concatenation of data sets.

If the trace data from other sources misses catalog information, you can use the Catalog only option of the CRD function (or the corresponding parameter in a batch job) to collect only catalog information (see ["Configuring a collect task” on page 2611] if required). Catalog data is used to enhance trace data that is collected through SMF or GTF. When you concatenate both data sets with the INPUTDD statement, the database identifiers (DATABASE) and object identifiers (OBJECT) from the SMF and GTF data are mapped to the actual database and object names.

Restriction: The possibilities outlined so far are provided for experienced and interested users wanting to use trace data from other sources. Their use requires detailed knowledge about trace data, involved IFCIDs, and tools. Because of endless variations and possible drawbacks, these options are formally not recommended and not supported in the current version of Buffer Pool Analyzer.

Effects from concatenated input data sets
If you concatenate multiple data sets containing buffer pool performance data (no matter whether they were created by means of the Collect Report Data (CRD) function or by any other means), and if you use this data as input to create activity reports or bpd files, you should be aware of some side effects concerning the results.

- The input data sets you are concatenating might contain performance data from overlapping or segregrative collection time frames.
- Summary information in activity reports is based on data that is collected at so-called statistics intervals (opposed to actual counts of events for detail reports). This means, a counter in a summary report is computed as the difference between the first and latest value covered during the collection of data.

Knowing this, it becomes obvious that summary information created from concatenated data can become imprecise or even useless because of various events.

- A DB2 system might be restarted between two collection time frames, which resets the counters being sampled at statistics intervals.
- The performance data in different data sets might be collected with different statistics interval settings or with overlapping time frames, which makes it impossible to compute valid results.
Objects in buffer pools might be created or dropped during different collection time frames, or new objects might be assigned to buffer pools with previously used identifiers, which makes object related counter values invalid.

Catalog information, correlation data, and aliases might be different and might not match the concatenated data, which also causes invalid results.

In summary, concatenating performance data to create summary activity reports is not recommended. This method, if used at all, is more suitable to detail activity reports, which are based on actual event counts in the concatenated data sets.

Related reading: “Preliminary remarks about the accuracy of summary and detail reports” on page 2629 discloses further details about statistics-based and event-based data collection and the use of this data for activity reports.

Loading a bpd file into a DB2 table
This section briefly describes how to store trace data from bpd files into DB2 tables.

DB2 tables can be used by administrators to extract performance-related data with self-written SQL queries. The further utilization of this data is outside the scope of this information. See the Report Reference for more information about possible uses of performance data.

Before you can store trace data into a table, you must create a table with an appropriate layout that can accept the data from a bpd file. This is done with the SQL CREATE TABLE statement. When you determine the table layout, you need to consider:

- Whether summary or detailed data was collected. Each data type requires a different table layout.
- Whether the bpd file was created with the Summary or Detail option of the BPACTIVITY FILE command. If detailed data was collected, but the Summary option was used, the bpd file contains only summary data. Consequently, the table layout must be appropriate for summary data.

When you have created the appropriate table, you can use the DB2 LOAD utility to load data from a bpd file into the table. LOAD requires the specification of the data elements that are to be stored into the table. For more information, see the IBM DB2 11 for z/OS: Utility Guide and Reference.

Buffer Pool Analyzer provides several samples of CREATE and LOAD statements that store data into DB2 tables in the following formats:

- Summary data, from IFCID 002 (corresponding to information in “The Buffer Pool Statistics section” on page 2636)
- Summary data, from IFCID 230 (corresponding to information in “The Group Buffer Pool Attributes section” on page 2656)
- Summary data, from IFCID 251 (corresponding to information in “The Buffer Manager PSET/Part P-lock Request section” on page 2658)
- Summary data, from IFCID 254 (corresponding to information in “The CF Cache Structure Statistics section” on page 2660)
- Detail data, from IFCIDs 6, 7, 8, 9, 10, and 198 (corresponding to information in “The Detail Activity section” on page 2665)
- Detail data, but aggregated by object
- Detail data, but aggregated by buffer pool
• Detail data, but aggregated by system

The sample statements are in members of the partitioned data set `prefix.TK02SAMP`, as shown in Table 229. The data set also contains members that contain descriptions of the individual DB2 table columns used with CREATE and LOAD. The *italic* characters and numbers in the following table show the naming associations for easier identification.

Table 229. Member names holding the sample statements and associated column descriptions

<table>
<thead>
<tr>
<th>Samples for</th>
<th>CREATE statements are in member</th>
<th>For CREATE: column descriptions are in member</th>
<th>LOAD statements are in member</th>
<th>For LOAD: column descriptions are in member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary data, from IFCID 002</td>
<td>BPQQFC2F</td>
<td>BPQQF82F</td>
<td>BPQQFL2F</td>
<td>BPQQFD2F</td>
</tr>
<tr>
<td>Summary data, from IFCID 230</td>
<td>BPQQFC0F</td>
<td>BPQQF80F</td>
<td>BPQQFL0F</td>
<td>BPQQFD0F</td>
</tr>
<tr>
<td>Summary data, from IFCID 25I</td>
<td>BPQQFC1F</td>
<td>BPQQF81F</td>
<td>BPQQFL1F</td>
<td>BPQQFD1F</td>
</tr>
<tr>
<td>Summary data, from IFCID 254</td>
<td>BPQQFC4F</td>
<td>BPQQF84F</td>
<td>BPQQFL4F</td>
<td>BPQQFD4F</td>
</tr>
<tr>
<td>Detail data</td>
<td>BPQQFCDF</td>
<td>BPQQF80F</td>
<td>BPQQFLDF</td>
<td>BPQQFD0F</td>
</tr>
<tr>
<td>Detail data, aggregated by object</td>
<td>BPQQFCDF</td>
<td>BPQQF80F</td>
<td>BPQQFL0F</td>
<td>BPQQFD0F</td>
</tr>
<tr>
<td>Detail data, aggregated by buffer pool</td>
<td>BPQQF80F</td>
<td>BPQQFLDF</td>
<td>BPQQFD0F</td>
<td>BPQQFD0F</td>
</tr>
<tr>
<td>Detail data, aggregated by system</td>
<td>BPQQFC5F</td>
<td>BPQQF85F</td>
<td>BPQQFL5F</td>
<td>BPQQFD5F</td>
</tr>
<tr>
<td>Names of index space objects</td>
<td>BPQQFCNF</td>
<td>BPQQF8WF</td>
<td>BPQQFLWF</td>
<td>BPQQFDWF</td>
</tr>
</tbody>
</table>

Note that the sample CREATE and LOAD statements work independently of whether the bpd file actually contains relevant data. For example, if you create a DB2 table for storing group buffer pool related data, but the bpd file does not contain such data because the data was collected from a DB2 system that is not a data sharing group member, the table remains empty after the LOAD statement is executed. Generally, if you encounter difficulties with missing data, verify the parameters that were used for the data collect and the bpd file creation tasks. See especially the job summary logs (JOBSUMDD) and the DPMLOG execution logs. The latter might contain information about record types that were not available for processing.

Example: This example (from member BPQQFCDF) shows a partial CREATE TABLE statement that creates a table for detail data:

```sql
---**Start of Specifications*****************************************************************************
---* MODULE-NAME = BPQQFCDF
---* DESCRIPTIVE-NAME = SQL for creating table for detail activity
---* COPYRIGHT = IBM DB2 Buffer Pool Analyzer for z/OS V5R4M0
---* LICENSED MATERIAL = Property of IBM
---* STATUS = Version 5.4.0
---* FUNCTION = Sample SQL for creating table for detail activity
---* data from IFCIDs 6, 7, 8, 9, 10, 198
---*END of Specifications******************************************************************************
CREATE TABLE DB2PE_BPA_DETAIL
(DB2PM_RELEASE SMALLINT NOT NULL WITH DEFAULT,
 DB2_RELEASE CHAR(2) NOT NULL WITH DEFAULT,
 LOCAL_LOCATION CHAR(16) NOT NULL WITH DEFAULT,
 GROUP_NAME CHAR(8) NOT NULL WITH DEFAULT,
 SUBSYSTEM_ID CHAR(4) NOT NULL WITH DEFAULT,
...)
```
The following LOAD statement (from member BPOQFDLDF) loads data into the previously created table:

```
LOAD DATA INDDN(SYSREC)
  REPLACE LOG NO
  INTO TABLE DB2PE_BPA_DETAIL
  WHEN (13:13) = 'D'
  (DB2PM_RELEASE POSITION(7) SMALLINT,
   DB2_RELEASE POSITION(14) CHAR(2),
   LOCAL_LOCATION POSITION(17) CHAR(16),
   GROUP_NAME POSITION(33) CHAR(8),
   SUBSYSTEM_ID POSITION(41) CHAR(4),
   MEMBER_NAME POSITION(45) CHAR(8),
   PRIMAUTH CHAR(8) NOT NULL WITH DEFAULT,
   .
   .
   WSNAMES POSITION(291) CHAR(18),
   BUFFERPOOL_ID POSITION(309) CHAR(8),
   PAGESET_QUAL POSITION(317) CHAR(27),
   PAGESET_TYPE POSITION(344) CHAR(1),
   SYSTEM_HIT_RATIO POSITION(354) DECIMAL
     NULLIF SYSTEM_HIT_RATIO=X'FFFFFFFF',
   APPL_HIT_RATIO POSITION(349) DECIMAL
     NULLIF APPL_HIT_RATIO=X'FFFFFFFF',
   GETPAGE_TOT POSITION(353) INTEGER,
   GETPAGE_SEQUENT POSITION(357) INTEGER,
   PRIMAUTH CHAR(8) NOT NULL WITH DEFAULT,
   .
   .
   READ_PAGE_SEQ POSITION(429) INTEGER,
   READ_PAGE_LIST POSITION(433) INTEGER,
   READ_PAGE_DYN POSITION(437) INTEGER,
   UPD_WRT_PAGE POSITION(441) DECIMAL
) IN GRPBP
```
The TRSMAIN terse utility

This section provides information about the TRSMAIN terse utility that is used to compress collected trace data, and it shows batch job examples using the utility.

The utility is mainly provided to reduce the sizes of output data sets with raw trace data, as used for the simulation function of Buffer Pool Analyzer, and to reduce the download times of these data sets. Compressed trace data files are automatically uncompressed when opened by the simulation function. If you use the compression facility only for this purpose, you can ignore the following information.

Nevertheless, when you collect performance data, you are not limited to the compression of raw trace data for simulations. You can compress all data that is collected by means of the Collect Report Data (CRD) function or an equivalent batch job. But no Buffer Pool Analyzer function, except the simulation function, processes compressed input data. Therefore, if you want to compress collected data on the host for whatever reason, you need to uncompress data before it can be used as input to other Buffer Pool Analyzer functions. Note that the following information pertains to TRSMAIN on the host; the uncompression component of the simulation function on the client remains transparent and is not accessible.

Related tasks:

“Collecting data” on page 2607

This topic describes how to collect the performance data that is used by Buffer Pool Analyzer. It describes two methods to collect buffer pool trace data. The first method uses ISPF and the Collect Report Data (CRD) function to configure and control a collect task, the second method uses a batch job that contains equivalent specifications for a collect task.

About the TRSMAIN terse utility

The terse utility is prerequisite on z/OS platforms, if you want to compress collected data.

It might already be installed because it is often used during the installation of operating system fix packs. The utility is freeware and can be downloaded from this [IBM Support website](https://www.ibm.com/support). The terse utility is based on US patent number US04814746. TRSMAIN provides two compression methods, PACK and SPACK. Only SPACK is used with Buffer Pool Analyzer because it provides the highest compression ratio.

IBM supports only version 2 of TRSMAIN, shipped in 1993, and later versions. Further, support is limited to the SPACK option.
When used with Buffer Pool Analyzer trace data files, the compression ratio is approximately 75 percent.

**Compressing trace data using the batch JCL**

The following batch job shows an example of how TRSMAIN is used to compress trace data residing in data set NKA.COLLECT.TRACE and to write it to data set NKA.COLLECT.TRACE.TERSE.

You can use this batch job together with the batch job described in "Collecting data by using the batch JCL" on page 2616, if you do not want to use ISPF.

**Example:**

```jcl
/* DESCRIPTION: JCL for compressing data from Collect Report Data */
/* *************************************************************************/
/* NKA$D711 JOB (DE03704), 'NKA', CLASS=A, MSGCLASS=X, */
/* REGION=OM, MSGLEVEL=(1,1), PRTY=5, NOTIFY=NKA, TIME=8 */
/* */
/* BPACRD EXEC PGM=BPOMAB00 */
/* */
/* STEPLIB DD DSN=SYS1.DSN.V910.SDSNLOAD, DISP=SHR */
/* DD DSN=SYS1.FPE.V540.RKANMOD, DISP=SHR */
/* */
/* SYSPRINT DD SYSOUT=** */
/* SYSOUT DD SYSOUT=** */
/* SYSDUMP DD SYSOUT=** */
/* */
/* SYSDAT DD DSN=NKA.BPACRD.CNTL(CRD#IN), DISP=SHR */
/* */
/* / */
/* SYSDLOG DD SYSOUT=** */
/* / */
/* JOBSUMDD DD SYSOUT=** */
/* / */
/* DPCOLLDD DD DSN=NKA.COLLECT.TRACE, */
/* DISP=(NEW,CATLG), */
/* DCB=(RECFM=VBS, LRECL=9076, BLKSIZE=32756), */
/* SPACE=(TRK,(500,100)), UNIT=3390 */
/* */
/* RC1OK IF (BPACRD.RC LT 4) THEN */
/* TERSE EXEC PGM=TRSMAIN, PARM=SPACK */
/* */
/* SYSPRINT DD SYSOUT=** */
/* */
/* / */
/* / */
/* / */
/* INFILE DD DISP=SHR, DSN=NKA.COLLECT.TRACE */
/* OUTFILE DD DSN=NKA.COLLECT.TRACE.TERSE, */
/* DISP=(NEW,CATLG,DELETE), */
/* DCB=(RECFM=VBS, LRECL=9076, BLKSIZE=32756), */
/* SPACE=(TRK,(500,100)), UNIT=3390 */
/* */
/* ENDRC1OK */
```

**Uncompressing trace data using the batch JCL**

The following batch job shows an example of how TRSMAIN is used to uncompress trace data residing in data set NKA.COLLECT.TRACE.TERSE and to write it to data set NKA.COLLECT.TRACE.

This batch job is shown only for the sake of completeness, if you want to use TRSMAIN for your own purposes. Compressed trace data for simulations is automatically uncompressed by the simulation function.

**Example:**

```jcl
/* DESCRIPTION: JCL for uncompressing trace data */
/* *************************************************************************/
/* NKA$TRESE JOB (DE03704), 'NKA', CLASS=A, MSGCLASS=X, */
/* MSGLEVEL=(1,1), NOTIFY=NKA, REGION=5M */
/* TERSE EXEC PGM=TRSMAIN, PARM=UNPACK */
```
//SYSPRINT DD SYSOUT**
//SYSOUT DD SYSOUT**
//INFILE DD DISP=SHR,DSN=NKA.COLLECT.TRACE.TERSE
//OUTFILE DD DSN=NKA.COLLECT.TRACE,
// DISP=(NEW,CATLG,DELETE),
// DCB=(RECFM=VB,BLKSIZE=9076,LRECL=9072),
// SPACE=(TRK,(500,100),RLSE),UNIT=3390
Chapter 6. Batch reporting

Using

This information describes how to create reports and how to use these reports to assess the performance of a DB2 system. It also suggests methods to optimize your DB2 system.

After reading this information, you should be able to select the report sets that are most appropriate for your requirements. You should also be familiar with the methods to create reports. The tuning information helps you interpret the information from the reports.

This information is closely related to:
- Report Command Reference, which describes the commands to create reports
- Report Reference, which shows and explains the reports

Always check the IBM DB2 and IMS Tools Library web page and the Tivoli library page for the most current version of this information:
- OMEGAMON for Db2 Performance Expert on z/OS (PDFs and Techdocs on Db2 Tools Product Page)
- OMEGAMON for Db2 Performance Monitor on z/OS (PDFs and Techdocs on Db2 Tools Product Page)

The product often provides context-related online help information that can be invoked from menus, panels, and windows by using the PF key F1 or the Help button. Online help information is not necessarily repeated in this information, especially if it is very detailed information that is of interest only when you actively work with a function. You are encouraged to use F1 or Help to see the entire available information.

Who should read this information

This information is for IBM data server professionals who need to produce and interpret OMEGAMON for Db2 PE reports.

Introduction to batch reporting

The batch reporting facility presents historical information about the performance of the DB2 system and applications in reports and data sets. System performance data shows information about topics such as CPU times, buffer pool usage, locking, log activity and I/O activity. Application data shows how individual programs behave in DB2.

You can use Performance Expert Client to:
- Examine a DB2 system and its applications in real time.
- Launch and control OMEGAMON XE for DB2 PE reporting functions.

The Performance Warehouse is an environment where you can define, schedule, and run processes that automate the creation of reports. You can also use processes to convert and load these reports or other OMEGAMON XE for DB2 PE data sets.
into a Performance Database. In the Performance Warehouse you can analyze the
data in a Performance Database by using rules.

**What OMEGAMON XE for DB2 PE does**

OMEGAMON XE for DB2 PE uses DB2 *instrumentation data* to generate
performance reports in a form that is easy to understand and analyze.

You can use OMEGAMON XE for DB2 PE to:

- Determine DB2 subsystem performance and efficiency
- Identify and resolve potential problems
- Tune the DB2 subsystem
- Measure an application's performance and resource cost
- Tune applications and SQL queries
- Assess an application’s affect on other applications and the system
- Gather information for cost purposes

OMEGAMON XE for DB2 PE provides information at various levels of detail depending on your needs.

**Output types:**

OMEGAMON XE for DB2 PE generates reports, traces, data sets, and logs.

*Reports and traces:*

Reports show summarized DB2 events and traces show individual DB2 events.

*Reports* show DB2 events summarized by OMEGAMON XE for DB2 PE identifiers,
such as primary authorization ID or plan name. For example, you can produce an
Accounting report that shows all threads summarized for every individual plan.

*Traces* show individual DB2 events, for example, for a particular thread. Depending
on the report set that you request, these could include thread terminations, grants
of privileges, deadlocks, or utility executions. All events are listed individually,
usually in the order of occurrence.

*Data sets:*

Formatted data can be stored in data sets that are suitable for loading into DB2
tables.

The data in DB2 tables can be used in different ways, for example, it can be used
to produce tailored reports using a reporting facility such as the IBM Query
Management Facility (QMF). You can also load reports and traces into
OMEGAMON XE for DB2 PE's Performance Database for additional analysis.

*Logs:*

OMEGAMON XE for DB2 PE can log several activities and keep this information
available in defined data sets.

- *The Exception Log* contains Accounting and Statistics records with at least one
  field outside user-specified thresholds.
- *The IFCID Frequency Distribution Log* provides counts of input records by IFCID.
- *The Job Summary Log* provides a summary of events during OMEGAMON XE for
  DB2 PE execution.
The DPMLOG Execution Log contains OMEGAMON XE for DB2 PE processing messages.

Report sets:

OMEGAMON XE for DB2 PE generates various reports and traces that provide performance information about different areas of interest (also called report sets) and of various levels of detail.

Accounting reports and traces:

Accounting reports and traces summarize information about DB2 resource activity associated with particular DB2 applications.

Use this report set to:
- Obtain summarized information about DB2 local and distributed activity associated with the execution of DB2 plans.
- Identify potential performance problem areas in local and distributed activity.
- Track trends in DB2 resource usage.

Accounting reports show the efficiency of the subsystem or application and often provide enough information for you to resolve performance problems.

Statistics reports and traces:

Statistics reports and traces summarize information that is collected by the DB2 Instrumentation Facility for an entire DB2 subsystem. The collected data is logged at intervals that are specified when you install DB2.

Use this report set to:
- View system-wide statistics for key DB2 components.
- Compare system performance in several reporting intervals.
- Assess system-wide performance that can be summarized in a single report.

Statistics reports show the efficiency of the subsystem or application and often provide enough information for you to resolve performance problems.

SQL Activity reports and traces:

SQL Activity reports and traces show information about SQL activities that occur during the processing of a DB2 application.

Use this report set to:
- Analyze SQL calls within a logical unit of work.
- Analyze the access paths selected by the DB2 optimizer for local SQL calls.
- Observe the Data Manager scans, locking, buffer manager I/O and other related DB2 activity that occur during the execution of SQL requests.
- Collect the SQL activity according to author, plan name, or other OMEGAMON XE for DB2 PE identifiers.

Locking reports and traces:

Locking reports and traces show detailed information about locking activities within DB2.
Use this report set to obtain:

- Summarized information about user activities related to lock suspensions and lockouts.
- Information about every lock request made by DB2.
- Information about lock details.
- Information about every suspension, lockout, detail, deadlock, or timeout during a specified interval.

**I/O Activity reports:**

I/O Activity reports show information about I/O activities performed throughout the DB2 subsystem.

Use this report set to:

- Track I/O volumes and service times.
- Obtain summarized information about the active log, archive log, bootstrap data set (BSDS), buffer pool, and EDM pool.

**Audit reports and traces:**

Audit reports and traces show information about access to DB2 resources.

Use this report set to:

- Obtain information about who performed an audited action, when the action was performed, and what auditable DB2 objects were involved.
- Track DB2 resource access by OMEGAMON XE for DB2 PE identifier, and the granting and revoking of DB2 privileges.
- Identify security breaches and violations.

**Utility Activity reports and traces:**

Utility Activity reports and traces show information about utility and bind activities during the processing of a DB2 application.

Use this report set to:

- Analyze bind and utility activity within a logical unit of work.
- Associate DB2 work with individual users or OMEGAMON XE for DB2 PE identifiers.
- Recognize long utility or bind times, which can help you to identify bottlenecks in the system.

**Record Trace reports:**

Record Trace reports show the contents of selected instrumentation records.

Use this report set to format a subset of data obtained from Statistics, Accounting, or Performance trace information.

**Explain reports:**

Explain reports show information about the access path that is selected by DB2 for a particular SQL statement.
Use this report set to determine access path problems or problems with an application's design.

**System Parameters reports:**

System Parameters reports show information about the configuration of your DB2 subsystem.

The report shows values for all DB2 system parameters that were in effect at the time the performance data was collected.

Use this report set to determine system parameters that you might want to change during tuning activities.

**Levels of detail of report sets:**

Report sets provide different levels of details, ranging from high-level summaries to individual DB2 events.

The level of detail and the amount of data varies by report set and output type, as shown in Figure 219. Generally, start any problem determination task with high-level summary reports, such as Accounting and Statistics reports. Use traces if you require information about individual DB2 events.

**Input for reports**

The DB2 trace facility, also called the DB2 instrumentation facility, gathers information about the system. After DB2 has collected and externalized this data, you can use it to generate reports and data sets.

An easy way to prepare a DB2 trace command is to use the Traces function of the Performance Expert Client. You can use this facility to create and manage DB2 traces. You can specify what types of reports you want to produce and how and when the traces should start and stop.

**Overview of the reporting process**

The OMEGAMON XE for DB2 PE reporting process uses various input sources to produce the different output types.

Figure 220 on page 2748 summarizes the main elements and functions involved in OMEGAMON XE for DB2 PE processing. The top part of the figure shows the various inputs to OMEGAMON XE for DB2 PE and the bottom part of the figure shows the different output types.
Solid lines indicate input or output, and broken lines indicate specifications the user makes. Words written in uppercase next to the arrows are subcommands.

For information about input data sets, read "Collecting data for reports," and for information about DPMPARMS, read "Customizing OMEGAMON XE for DB2 PE functions" on page 2949. Exception thresholds are described in "Using Statistics and Accounting reports to identify exceptions" on page 2794.

**Collecting data for reports**

Before you can produce an OMEGAMON XE for DB2 PE report, you must collect data from DB2 as input. The DB2 Instrumentation Facility Component (IFC) provides a trace facility that is used to record DB2 data and events.

Use any of the following methods to collect data for OMEGAMON XE for DB2 PE reports and traces:

- The Workstation Online Monitor to manage DB2 traces.
- The ISPF Online Monitor to configure a Collect Report Data (CRD) task that collects report data.
- The Data Warehouse to create a *process* to collect report data.
- DB2 installation system parameters to start traces at DB2 startup time.
- DB2 `-START TRACE` commands from the console.
- The Collect Report Data Batch program, which is a flexible and resource-efficient way to collect and postprocess report data.
- The Near-Term History Data Collector, which can store collected data in sequential data sets.
Note: OMEGAMON XE for DB2 PE provides sophisticated and flexible methods to collect performance data and to create reports from collected data. For both, the collection of data and the creation of reports, you have several choices to determine which data to collect and which data to include in reports. The basic rule is that your final reports will only show data that has previously been collected and has not been filtered out by any of the command parameters. Empty reports, processing counts of zero, or messages showing zero processed records usually indicate that required data within specified or required time intervals is not available in your input data or has been filtered by inappropriate command parameters during report generation. If required, refer to “Troubleshooting empty reports” on page 3001 for more information.

Managing DB2 traces with the Workstation Online Monitor

The easiest way to produce input data for reports is to use the Workstation Online Monitor. You must specify the report set for which you want to collect data and the data set where it is to be collected. Then, you can use this data set as input for reports.

You can start the collection of report data manually, or you can set it up to start automatically based on certain conditions, such as:
- A specified point in time
- When an exception threshold is reached
- An exception event is encountered

You can configure and start collect tasks for:
- One or more DB2 PM report sets
- Specific types of reports or traces within a report set
- Specific IFCIDs

You can also limit the data to specific:
- Locations
- Plan names
- Authorization IDs

You can configure DB2 traces to start:
- At a specified time of the day
- When a specified periodic exception is detected
- When a specified exception event occurs
- Immediately

You can stop DB2 traces manually or configure traces to stop:
- After a specified elapsed time
- After a specified number of trace records have been collected
- After a thread has been terminated or reused
- After a particular IFCID has been collected a specified number of times

For details about running DB2 traces, see Monitoring Performance from Performance Expert Client.

Collecting report data with the ISPF Online Monitor

You can use the ISPF Online Monitor to write performance data to a data set that is to be used as input for reports. This can be useful when you want to avoid flooding SMF (System Management Facility) with large numbers of DB2 trace records, and make DB2 trace data immediately available without affecting SMF or GTF record collection.
To collect data, you require the necessary DB2 authority to start and stop DB2 traces.

To collect performance data, you first configure a collect task. In each collect task, you specify the type of data that you want to gather, the trace start and stop criteria, and the output data set name. When you have configured and started a task, it triggers the appropriate DB2 traces to start and stop when the trace start and stop criteria have been met, and writes the collected data to the output data set.

You can configure and start up to four independent collect tasks. With each task you can collect trace data for:

- One or more reports sets
- Specific types of reports or traces within a report set
- Specific IFCIDs

In addition, you can limit the data to specific:

- Locations
- Plan names
- Authorization IDs

You can configure DB2 traces to start:

- At a specified time of the day
- When a specified periodic exception is detected
- When a specified exception event occurs
- Immediately

You can stop DB2 traces manually or configure traces to stop:

- After a specified elapsed time
- After a specified number of trace records have been collected
- After a thread has been terminated or reused
- After a particular IFCID has been collected a specified number of times

Accessing the Collect Report Data (CRD) panels:

You can use the ISPF Online Monitor and its CRD panels to configure a collect task and to start and stop a collect task.

About this task

Before you can access the CRD panels to configure a collect task, the ISPF Online Monitor must be invoked from the IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS main menu. Choose option 3 (View online DB2 activity - PE ISPF OLM) to invoke the ISPF Online Monitor, if not already active.

From the Online Monitor Main Menu, select option 6 (Collect Report Data) or 6a (Collect Report Data - General). Alternatively, enter COLLECT on the command line, or press F17 (Collect).

You can access the collect report data panels from within the Online Monitor by selecting option 6 (Collect Report Data) from the Online Monitor Main Menu.

The Collect Report Data panel is displayed:
From the Collect Report Data panel you can configure and control the collection of report data.

- **Option 1 (Configure)** displays a window where you configure collect tasks to collect report data and where you can limit the collection of DB2 trace data to time periods or events of interest. Refer to "Configuring a collect task" for more details.

- **Option 2 (Start)** displays a window where you start a collect task after it has been configured. Starting a collect task actually starts a DB2 trace and enables the start and stop criteria that were specified with option 1 (Configure). Refer to “Starting and stopping traces” on page 2755 for more details.

- **Option 3 (Display)** displays a window that shows the status of a collect task and any messages issued by that collect task. Refer to “Displaying trace status and messages” on page 2757 for more details.

- **Option 4 (Stop)** displays a window where you can stop a collect task and associated DB2 traces. Stopping a collect task prevents the triggering of DB2 traces and stops all traces that were previously started by the task. Refer to “Starting and stopping traces” on page 2755 for more details.

The Task Description column shows the description of each collect task. You can change a description by overtyping it with another description. The Status field shows the current status of the task.

If you see a task error in the Status field, use the DB2 **DISPLAY TRACE** command to check if the traces are still running. If necessary, use the DB2 **STOP TRACE** command to stop the trace. Before you restart the appropriate Collect Report Data function, exit the Collect Report Data panel (by pressing F3) and, in a second step, exit the Online Monitor Main Menu (by pressing F3 again) to return to the IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS main menu. This way you stop the four asynchronous tasks that were automatically set up when you first selected option 3 (View online DB2 activity – PE ISPF OLM) from the IBM OMEGAMON for DB2 Performance Expert on z/OS main menu.

**Configuring a collect task:**

Use the following windows to specify the data types and IFCIDs to be collected.

---

**Figure 221. Collect Report Data panel**

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect data for acct/stats/audit</td>
<td>Not yet started</td>
</tr>
<tr>
<td>Test case for buffer overruns</td>
<td>Collecting data</td>
</tr>
<tr>
<td>Collect Task C</td>
<td>Never configured</td>
</tr>
<tr>
<td>Collect Task D</td>
<td>Never configured</td>
</tr>
</tbody>
</table>

Command ==> F1=Help  F2=Split  F3=Exit  F9=Swap  F12=Cancel  F16=Look
About this task

To configure a collect task, type 1 (Configure) next to a collect task in the Collect Report Data panel and press Enter. The Trace Configuration window is displayed:

![Trace Configuration window](image)

**Figure 222. Trace Configuration window**

Use this window to specify the trace trigger method, the report sets, and the types of data to be collected.

Before you can start a collect task, specify how the trace is to be triggered. You can specify that the DB2 traces are triggered by time (1), periodic exception (2), exception event (3), or started immediately (4).

You also need to select the report sets for which you want to collect data. When the trace start criteria have been met, the appropriate DB2 traces are started to collect data required for these report sets. A greater than symbol (>) in the selection field indicates report sets that were previously selected.

Use the fields on the bottom part of this panel to specify whether to restrict the collection of data to specific data types (see “Restricting data types for selected report sets” on page 2753), IFCIDs (see “Restricting IFCIDs for selected report sets” on page 2753), or OMEGAMON XE for DB2 PE identifiers (see “Restricting identifiers for selected report sets” on page 2754). If any of these fields are selected, the appropriate windows are displayed where you can fill in the data collection criteria.
Use the OP Buffer size field to allocate the number of KB to the OPn buffer that is used for collecting the data. The valid range is from 64 to 65536.

Use the OP Buffer trigger field to specify the percentage of the filled OPn buffer when the Collect task is posted by DB2 to read the OPn buffer. The valid range is from 10 to 90.

Restricting data types for selected report sets:

Use the Data to Collect window to select the data types to be collected by the collect task for a specific report set.

About this task

If you selected the Data Type field on the Trace Configuration window, the Data to Collect window (Figure 223) is displayed once for each selected report set that has more than one data type.

The Data to Collect window shown in Figure 223 uses an example for the Audit report set.

<table>
<thead>
<tr>
<th>DGOMAP31</th>
<th>Data to Collect</th>
<th>Row 1 to 7 of 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task description . . . . . . . . : Collect data for acct/stats/audit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report Set . . . . : Audit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enter one or more selection characters to start DB2 traces for specific data types or overtype with a blank to delete the selection.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>_ Select/Deselect all</td>
<td></td>
<td></td>
</tr>
<tr>
<td>/ Audited DDL Access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Audited DML Access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Audited DML at Bind Access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>_ Audited Utility Access</td>
<td></td>
<td></td>
</tr>
<tr>
<td>/ Authorization Change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>_ Authorization Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>_ Authorization Failures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-- End of Data Types --</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Command ===> F1=Help F2=Split F3=Exit F7=Up F8=Down F9=Swap F12=Cancel F16=Look

Figure 223. Data to Collect Window

If you select the Select/Deselect all field, all data type fields in this window are selected. If you type a blank in the Select/Deselect all field, all selections are deleted.

Select the data types and press Enter to process the changes. Press Enter again to proceed to the next panel.

Restricting IFCIDs for selected report sets:

Use the IFCID Selection window to exclude certain IFCIDs that would normally be collected for the selected report sets and data type.
About this task

If you selected the IFCID field on the Trace Configuration window, the IFCID Selection window (Figure 224) is displayed.

Note: The IFCID Selection window is not shown if only one IFCID was collected for the previous selections.

You can use the Select/Deselect all field to select or deselect all fields in this panel.

Select the IFCIDs and press Enter to process the changes. Press Enter again to proceed to the next panel.

Restricting identifiers for selected report sets:

Use the Trace Qualification window to filter the data to be collected by the collect task.

About this task

If you selected the Requesting Location, Plan name and Authid field in the Trace Configuration window, the Trace Qualification window (Figure 225 on page 2755) is displayed. Only data from threads that match the trace qualification criteria in this window will be collected. These trace qualification criteria are also used if thread termination is indicated in the Trigger by Time window (Figure 226 on page 2756).
Specify the name of the requesting location, plan name, and authorization ID, then press Enter. Do not specify multiple entries for more than one identifier, otherwise the number of DB2 traces started by the collect task could exceed the DB2 limit of 32 traces.

Trace qualification does not apply to all IFCIDs. Some system-related traces are collected regardless of the trace qualification criteria specified in the Trace Qualification window, for example, traces for IFCIDs 1, 2, 4, 104, 105, 106, and 202.

Starting and stopping traces:

You can trigger DB2 traces to start by time, periodic exception, exception event, or immediately. After you specified the trace criteria, a window is displayed where you complete the start criteria and define the stop criteria.

About this task

Which window is displayed depends on what you specified in the Trigger by field on the Trace Configuration window. Use these windows to specify the criteria that must be met before the collect task is automatically started or stopped. These windows are the same in appearance except for the start trigger specification section.

Because of the possibility of output buffer overruns, you must specify one of the stop conditions: Elapsed time or Number of records collected. Records can get lost if a buffer overrun occurs.

The Trigger by Time window (Figure 226 on page 2756) is displayed if you specified that the trace is triggered by time. Use this window to specify a particular output data set name, and to set the start and stop trigger criteria for the collect task. You can set the DB2 traces to start at a specified time, and to stop after a specified number of minutes have passed, a specified number of records or IFCIDs have been collected, or a thread matching the trace qualification criteria has terminated.
All trace data collected by the collect task is written to the data set specified in this window. If you specify a disposition of 3 (New), the data set is dynamically allocated with the following attributes:

**RECFM:** VBS

**LRECL:** 32756

**BLKSIZE:** 6233

If you want to create the data set manually, it should have a variable record format and a record length (LRECL) of at least 4092.

Specify the time you want the DB2 traces to start for this task.

Select one or more of the trace stop triggers shown in this window and enter the required criteria for those triggers. The trace is stopped when any stop criteria is satisfied.

After you specified the required criteria in this window, press Enter to process the new values. Press Enter again or F3 (Exit) to return to the Collect Report Data panel.

The other trigger windows are the same as this window except for the start trigger section.

- In the Trigger by Periodic Exception window, you can set the DB2 traces to start when a specified periodic exception has occurred.
- In the Trigger by Exception Event window, you can set the DB2 traces to start when a specified exception event has occurred.

---

**Example:**

- **Task description:** Collect data for acct/stats/audit
- **Output Data Set for DB2 trace data to be written to:**
  - **Name:** DATASET1
  - **Disposition:** 1 = Append, 2 = Overwrite, 3 = New
- **Start the DB2 traces at the following time:** 0:0:0 (hh:mm:ss)
- **Stop the DB2 traces when any of the following conditions occur:**
  - Elapsed time: 0 (seconds)
  - Number of records collected: 0
- **Additional stop conditions:**
  - Thread termination
  - Number of IFCIDs collected: 0
  - For IFCID: 55

**Event:** Set current SQLID

---

Figure 226. Trigger by Time window

---

2756 IBM Db2 Performance Expert on z/OS
In the Trigger Immediately window, there are no start criteria because the DB2 traces are started immediately when the respective collect task is started in the Collect Report Data panel.

You can obtain a list of IFCIDs or exception field names by positioning the cursor under any field with a trailing plus sign (+) and pressing F4 (Prompt).

Displaying trace status and messages:

Use the Trace Status Summary window to view the status of a collect task in detail and any messages issued by that task.

About this task

To view the status of a trace, type 3 (Display) next to the collect task in the Collect Report Data panel.

---

Figure 227. Trace Status Summary window

From this window, you can select the Display Status Detail field to display the Trace Status Detail window, where you can view further details about the status of the collect task.

You can also select the Display messages for this task field to display the Trace Messages window, where you can view the trace messages generated by the collect task. Messages for all collect tasks are kept for the duration of your Online Monitor session.

The Active Traces for this Destination section of this window lists all active DB2 traces started by the task, and shows the trace type, trace class, output buffer destination, and qualification criteria for each active DB2 trace started by the task.
If many DB2 traces are listed, use the scrolling keys F7 (Up) and F8 (Down) to browse the list.

**DB2 trace termination:**

You are notified if collect tasks are active when you exit the ISPF Online Monitor or when you change DB2 subsystems.

If any collect tasks are active when you exit the ISPF Online Monitor, you are notified by one of the Asynchronous Task Termination panels. You can either exit the ISPF Online Monitor and terminate all asynchronous tasks, or return to the Online Monitor Main Menu keeping all asynchronous tasks active.

If any collect tasks are active when you change DB2 subsystems, you are notified by one of the Asynchronous Task Termination panels. You can either change DB2 subsystems and terminate all asynchronous tasks, or return to the previous panel keeping all asynchronous tasks active.

**Collecting report data by specifying DB2 startup parameters**

For regular monitoring, you can set the trace facility to automatically start Accounting, Statistics, and Audit traces when DB2 is started by using the DB2 Tracing panel (DSNTIPN).

You can modify the parameters in the DB2 Tracing panel (DSNTIPN) to indicate which types of data you want to trace. You can specify these values when you install, migrate, or update DB2.

**Collecting report data with the DB2 START TRACE command**

You can use the DB2 **START TRACE** command to obtain all types of DB2 trace data.

You need TRACE privilege or SYSOPR, SYSCTR, or SYSADM authority to issue the command.

You can enter the command from an OS/390 console, the DSN command processor, the DB2I commands panel, an IMS or CICS terminal, or the OMEGAMON XE for DB2 PE Online Monitor.

The following diagram shows the command syntax.
The **START TRACE** command accepts the following parameters and options:

**TRACE**
- Specifies the type of data to be traced.
  - P  Performance data
  - A  Accounting data
  - S  Statistics data
  - AU Audit data
  - G  Global data

**DEST**
- Specifies the destination to which the traced data is directed. The destination can be the SMF (System Management Facility), the GTF (Generalized Trace Facility), or an OP buffer.

  SMF and GTF are service programs that provide a means of recording performance data. SMF is usually used for continuous monitoring and is the default destination for Statistics, Accounting, and Audit traces. GTF is usually used for monitoring a specific problem when the amount of data is large.

  If you want to direct a large volume of data to SMF, check the SMF buffer sizes to see whether they must be increased.

  If you specify SMF as destination:
  1. Ensure that SMF is active before you start the trace. For more information, see [z/OS MVS System Management Facilities (SMF)](https://www.ibm.com/support/knowledgecenter/SSEPGG_2.4.0/com.ibm.zos.mcsmf40.doc/ genuinely/xtalr00076011.htm).
  2. Ensure that SMF collects the following records:
     - DB2 Accounting records (SMF type 101 records)
     - DB2 Audit records (SMF type 102 records)
     - DB2 Statistics records (SMF type 100 records)
     - DB2 Performance records (SMF type 102 records)
  3. Ensure that the SMF data sets and buffers are large enough to hold the data being collected. If the SMF buffers run out of space, SMF rejects any records while the shortage of space exists. Lost data cannot be
recaptured. However, a long Statistics report or trace shows the number of records that have been lost in the DB2 IFC Destination block of the report.

**CLASS**

Specifies one or more trace classes within the trace type.

**IFCID**

Specifies one or more IFCIDs to be traced in addition to those contained in the specified trace classes.

If you want to exclusively trace the IFCIDs specified in the IFCID option, use trace classes 30-32. These trace classes have no predefined IFCIDs. Use this option with care, many reports have dependencies on several IFCID combinations. When the proper records are missing, OMEGAMON XE for DB2 PE cannot make the proper record relationships to produce a meaningful report.

**Note:** Use this option to start IFCID 381, IFCID 497, or IFCID 498. You cannot start these IFCIDs using a DB2 performance class.

**AUTHID and PLAN**

Specifies authorization IDs and plan names to be traced.

Consider how you want to use the traced data. If you want to examine a specific problem, choose the authorization IDs and plan names based upon the application and users of the application to be monitored. If you are doing daily monitoring, select all AUTHIDs and PLANs to get an overview of the activity on your system.

**TDATA**

Specifies the product section headers to be placed into the product section of each trace record. The product section of a trace record can contain multiple headers.

If you do not specify TDATA, the type of trace determines the type of product section header. By default, correlation headers and distributed headers (if present) are included. However, specifying CPU overrides the default so that only CPU headers are included. If you want CPU, correlation, and distributed headers, specify all.

All IFC records have a standard IFC header. The correlation header is added for Accounting, Performance, Audit, and Monitor records. The trace header is added for serviceability records. The headers relevant to OMEGAMON XE for DB2 PE are:

<table>
<thead>
<tr>
<th>Report set</th>
<th>COR</th>
<th>CPU</th>
<th>DIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>Required</td>
<td>Not used</td>
<td>Required if distributed data is present</td>
</tr>
<tr>
<td>Audit</td>
<td>Required</td>
<td>Not used</td>
<td>Required if distributed data is present</td>
</tr>
<tr>
<td>I/O Activity</td>
<td>Required</td>
<td>Not used</td>
<td>Required if distributed data is present</td>
</tr>
<tr>
<td>Locking</td>
<td>Required</td>
<td>Not used</td>
<td>Required if distributed data is present</td>
</tr>
</tbody>
</table>
Table 230. Product section headers relevant to OMEGAMON XE for DB2 PE (continued)

<table>
<thead>
<tr>
<th>Report set</th>
<th>COR</th>
<th>CPU</th>
<th>DIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Trace</td>
<td>Used if present</td>
<td>Used if present</td>
<td>Required if distributed data is present</td>
</tr>
<tr>
<td>SQL Activity</td>
<td>Highly recommended</td>
<td>Recommended</td>
<td>Required if distributed data is present</td>
</tr>
<tr>
<td>Statistics</td>
<td>Not used</td>
<td>Not used</td>
<td>Required if distributed data is present</td>
</tr>
<tr>
<td>Utility Activity</td>
<td>Required</td>
<td>Recommended</td>
<td>Required if distributed data is present</td>
</tr>
</tbody>
</table>

LOCATION

Specifies locations with distributed relationship to be traced. If specified, allied threads are excluded from the trace. Only allied-distributed threads and DBATs associated with the specified locations are traced. If you omit the LOCATION option, all threads (including allied threads) from all locations are traced.

You can specify up to eight locations. A separate trace is started for each location.

If you specify more than one PLANNAME or AUTHID, you can specify only one location.

You can specify the LUNAME of non-DB2 systems, in the form <luname>, in place of a location name.

LOCATION has no effect when Accounting class 2 is started.

START TRACE command examples:

The command examples show how to specify the different options of the START TRACE command.

If you do not specify a trace class, a default trace class is used. So, if you specify the following, data is collected only for Statistics class 1.
-START TRACE(S)

To collect Audit class 2 data, enter:
-START TRACE(AU) CLASS(2)

To collect only specific IFCIDs within a trace type, specify one of trace classes 30, 31, or 32, which are installation defined and contain no predefined IFCIDs. The following example shows how to collect only IFCIDs 44 and 45 (lock suspensions):
-START TRACE(P) CLASS(30) IFCID(44,45)

To collect Performance class 16 information and IFCID 68 and 69 data, specify:
-START TRACE(P) CLASS(16) IFCID(68,69)

Note: The specified IFCIDs must belong to the trace type that you specified, otherwise no data is collected for these IFCIDs.
If you want to start all trace classes of Accounting data, you can either use an asterisk or specify all trace classes.

- `START TRACE(A) CLASS(*)`
- `START TRACE(A) CLASS(1,2,3,5,7,8)`

The default destination for Accounting, Statistics, and Audit trace types is SMF, but you can route the trace data to GTF by specifying `DEST(GTF)` or to both SMF and GTF by specifying `DEST(SMF,GTF)` in the `START TRACE` command.

If you omit the TDATA option, correlation headers and distributed headers (if present) are included by default. However, specifying CPU overrides the default so that only CPU headers are included. If you want CPU, correlation, and distributed headers, specify all as in the following example:

- `START TRACE(P) CLASS(1,2,3) DEST(GTF) TDATA(CPU, COR, DIST)`

**DB2 instrumentation data:**

Understand how DB2 instrumentation data is grouped and how these groups relate to OMEGAMON XE for DB2 PE report sets. With this information you can correctly specify the data to be collected with the DB2 `START TRACE` command.

Each DB2 event is recorded by its Instrumentation Facility Component (IFC) as trace record. These trace records have unique IFC identifiers (IFCIDs). To have these IFCIDs externalized, appropriate trace types must be started.

Most IFCIDs are grouped into trace classes. A trace class defines a certain group of events or data within a trace type. Each class consists of one or more IFCIDs. You can limit the amount of data to be collected by specifying only certain classes for a type.

The instrumentation data types used as input to OMEGAMON XE for DB2 PE reporting facility are:

- **Statistics** data shows to what extend the DB2 system services and database services are used. You can use this information to plan DB2 capacity and to tune an entire set of DB2 programs. Statistics data also contains information about deadlocks, timeouts, and DDF exception events.
  
The Statistics trace is written at specified intervals. You can control the Statistics interval by using `STATISTICS TIME` in the DSNTIPB installation panel.
- **Accounting** data provides information related to application programs and packages.
  
  A DB2 Accounting trace record starts when a thread is allocated to DB2 and ends when the thread terminates, is reused, or becomes inactive. You can use Accounting data for program-related tuning and to assess DB2 usage for cost charging.

- **Performance** data provides information for performance analysis, performance tuning, and includes records of specific events in the system.
  
  When you start a Performance trace, specify what you want to report, for example, I/O only or SQL only.

- **Audit** data provides information about DB2 security controls. You can use the data to ensure that data access is allowed only for authorized purposes.
  
  Tables are the only auditable objects. To audit a table, include the AUDIT clause in the CREATE TABLE or ALTER TABLE statement.
Statistics and Accounting data are used for the continuous or periodic monitoring of DB2, whereas Performance data is usually recorded only when you need to examine specific performance problems. Audit data is collected to monitor access to data.

The following table lists trace types, trace classes, and IFCIDs relevant to reports. Use the table to see which DB2 trace data is used as input for each report set.

**Table 231. Input for OMEGAMON XE for DB2 PE report sets**

<table>
<thead>
<tr>
<th>Report set</th>
<th>DB2 trace type</th>
<th>DB2 trace class</th>
<th>Description of DB2 trace class</th>
<th>DB2 IFCIDs used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>Accounting</td>
<td>1</td>
<td>Accounting data</td>
<td>3, 239</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>In DB2 time</td>
<td>Additional information for 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Wait time in DB2</td>
<td>Additional information for 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>Time spent processing IFI</td>
<td>Additional information for 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>Package information - in DB2</td>
<td>Additional information for 3, 239</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>Package information - wait</td>
<td>Additional information for 3, 239</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td>Package Details</td>
<td>239</td>
</tr>
<tr>
<td>Audit</td>
<td>Audit</td>
<td>1</td>
<td>Authorization failures</td>
<td>140</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Explicit GRANT or REVOKE</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>CREATE, ALTER, and DROP</td>
<td>105, 107, 142</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>First change of audited object</td>
<td>105, 107, 143</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>First read of audited object</td>
<td>105, 107, 144</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>SQL statement at bind</td>
<td>105, 107, 145</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>Change in authorization for</td>
<td>55, 83, 87, 169, 319</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>audited object</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td>Established trusted connections</td>
<td>269, 270</td>
</tr>
<tr>
<td>I/O Activity</td>
<td>Performance</td>
<td>4</td>
<td>Buffer manager I/O and</td>
<td>6, 7, 8, 9, 10, 29, 30, 107</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>EDM pool requests</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>21</td>
<td>Data sharing</td>
<td>107, 255</td>
</tr>
</tbody>
</table>
**Table 231. Input for OMEGAMON XE for DB2 PE report sets (continued)**

<table>
<thead>
<tr>
<th>Report set</th>
<th>DB2 trace type</th>
<th>DB2 trace class</th>
<th>Description of DB2 trace class</th>
<th>DB2 IFCIDs used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locking</td>
<td>Statistics</td>
<td>3</td>
<td>Deadlock and timeout information</td>
<td>172, 196</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Buffer manager I/O and EDM pool requests</td>
<td>226, 227</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>Locking information</td>
<td>20, 44, 45, 172, 196, 213, 214, 218</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>Detailed locking information</td>
<td>21, 105, 107, 223</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17</td>
<td>Drain and claim</td>
<td>211, 212, 213, 214, 215, 216</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20</td>
<td>Data sharing</td>
<td>251, 257</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21</td>
<td>Data sharing</td>
<td>259</td>
</tr>
<tr>
<td>Record Trace</td>
<td>All</td>
<td>All</td>
<td>All types, classes, and IFCIDs can be used as input</td>
<td>All</td>
</tr>
<tr>
<td>SQL Activity</td>
<td>Accounting</td>
<td>1</td>
<td>Accounting data</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>In DB2 time</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Suspensions</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>IFI and data capture events</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>Package information - in DB2 time</td>
<td>239</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>Package information - wait time in DB2</td>
<td>239</td>
</tr>
<tr>
<td>SQL Activity</td>
<td>Performance</td>
<td>2</td>
<td>Subsystem-related events</td>
<td>68, 69, 70, 71, 72, 73, 74, 75, 84, 85, 86, 87, 88, 89, 106, 174, 175</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>SQL-related events</td>
<td>22, 53, 55, 58, 59, 60, 61, 62, 63, 64, 65, 66, 92, 95, 96, 97, 177, 233, 237, 272, 273</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Buffer manager I/O and EDM pool requests</td>
<td>6, 7, 8, 9, 226, 227</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>Locking information</td>
<td>20, 44, 45, 213, 214, 218</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>Data Manager detail</td>
<td>15, 16, 17, 18, 106, 125, 221, 222, 231, 305, 325</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td>Sort detail</td>
<td>28, 95, 96</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td>Autobind</td>
<td>105, 106, 107, 108, 109</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13</td>
<td>Edit and validation exits</td>
<td>11, 12, 19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16</td>
<td>Distributed activity</td>
<td>157, 159, 160, 162, 163, 183</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17</td>
<td>Drain and claim detail</td>
<td>213, 214, 215, 216</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30, 31, 32</td>
<td>Installation-defined trace classes</td>
<td>188, 324</td>
</tr>
<tr>
<td>Statistics</td>
<td>Statistics</td>
<td>1</td>
<td>Statistics data</td>
<td>1, 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>Storage manager pool summary statistics</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>Buffer pool data set statistics</td>
<td>199</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td>Aggregated accounting statistics</td>
<td>369</td>
</tr>
</tbody>
</table>
Table 231. Input for OMEGAMON XE for DB2 PE report sets (continued)

<table>
<thead>
<tr>
<th>Report set</th>
<th>DB2 trace type</th>
<th>DB2 trace class</th>
<th>Description of DB2 trace class</th>
<th>DB2 IFCIDs used</th>
</tr>
</thead>
<tbody>
<tr>
<td>System parameters</td>
<td>Performance</td>
<td>Any</td>
<td>These IFCIDs are available in all trace classes</td>
<td>106, 201, 202, 256</td>
</tr>
<tr>
<td>Statistics</td>
<td>5</td>
<td>Data sharing global information</td>
<td>230</td>
<td></td>
</tr>
<tr>
<td>Utility</td>
<td>Accounting</td>
<td>1</td>
<td>Accounting data</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Performance</td>
<td>3</td>
<td>SQL-related events</td>
<td>22, 63, 177</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Buffer manager I/O and EDM pool requests</td>
<td>6, 7, 8, 9, 226, 227</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Locking information</td>
<td>20, 44, 45, 213, 214, 218</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Bind and utilities</td>
<td>23, 24, 25, 108, 109, 110, 111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>Edit and validation exits</td>
<td>11, 12, 19</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>Distributed activity</td>
<td>183</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>Drain and claim detail</td>
<td>213, 214, 215, 216</td>
<td></td>
</tr>
</tbody>
</table>

OMEGAMON XE for DB2 PE gathers input for Explain by connecting to an active DB2 subsystem.

If you want to see a count of the input trace records used in a job, you can produce an IFCID frequency distribution log.

**Collecting report data with the Collect Report Data Batch program**

The Collect Report Data Batch program allows for the collection of report data and postprocessing of collected report data by means of a batch job. This method provides a flexible way to automate the collection and postprocessing, thereby keeping the resource overhead minimized.

You can collect report data from a DB2 subsystem, a specified member of a data sharing group, or all members of a data sharing group. Collected report data is stored in a sequential data set or a Generation Data Group (GDG).

If a GDG is used, a user-specified job can be started to process collected report data automatically each time after a switch to a subsequent Generation Data Set (GDS) occurs. This method can be used to continuously collect trace data from DB2 and to automate the postprocessing. For example, the contents of the GDG generations (the Generation Data Sets) can be used to automatically generate reports or to load collected data into a Performance Database.

This method of collecting and postprocessing report data can be used as alternative to using System Management Facility (SMF) or Generalized Trace Facility (GTF) data sets if more flexibility regarding data collection parameters and error handling and less resource overhead are required.

The commands and parameters that determine the collection and postprocessing of data must be specified in the SYSIN DD statement of the respective JCL, as outlined in the following syntax diagram. A sample batch job can be found in data set prefix.TKO2SAMP(FPEZCRDJ).
SSID
Specifies the DB2 subsystem ID ssid.

DSGLOBAL
Specifies whether to collect report data from all members of a data sharing group.

N  Specifies not to collect report data from all members. This is the default.
Y  Specifies to collect report data from all members. This setting is ignored if the specified subsystem ID ssid is not a member of a data sharing group.

DSMEMBER
Specifies the data sharing group member dsMbr from which to collect report data. dsMbr can be located on a different LPAR.

GDGDATASET
Is optional. If specified, it determines that the trace data collection will not terminate after a stop criteria is met, but the output data set will be switched to the next generation of the Generation Data Group (GDG), which means, to a subsequent Generation Data Set (GDS). Specify the name of an existing GDG as gdg (the GDG name, not a GDS name). Only ELAPSEDTIME may be used with GDGDATASET to specify a stop criteria.

If specified, the JCL does not require an OUTPUT DD statement.
Use the PURGE operator command to stop CRD collection.

JOB
Is optional. If specified, job is executed after each switch to a subsequent GDS. job must be the name of a started job.

This can be used to automatically process the data in a GDS, for example, loading it into a Performance Database or generating reports.

If you require the actual name of the Generation Data Set (GDS) that was in use before the switch, you can specify the JCL symbol &GDGDSN in the job’s command stream, as in the following example:

```
//INPUTDD DD DSN=&GDGDSN,DISP=...
```
This method of using the JCL symbol ensures that the job is synchronized with the proper generation of the GDG, in case new generations are created faster than JES submits the specified job.

**VOLUME**
Is optional. A volume must be specified if a specified GDGDATASET is not managed by SMS.

**UNIT**
Is optional. A unit must be specified if a specified GDGDATASET is not managed by SMS.

**DSSIZE**
Is optional. It can be used to override the default space unit that is used for the allocation of each GDG member. Possible values for *dsSizeType* are:

**TYPE1**
Causes the GDG member to be allocated with:
- Space unit = BLK
- Primary quantity = 100
- Secondary quantity = 500

These values are the default.

**TYPE2**
Causes the GDG member to be allocated with:
- Space unit = TRK
- Primary quantity = 100
- Secondary quantity = 500

**TYPE3**
Causes the GDG member to be allocated with:
- Space unit = TRK
- Primary quantity = 100
- Secondary quantity = 1500

**TYPE4**
Causes the GDG member to be allocated with:
- Space unit = CYL
- Primary quantity = 10
- Secondary quantity = 150

**TYPE5**
Causes the GDG member to be allocated with:
- Space unit = CYL
- Primary quantity = 10
- Secondary quantity = 150

**OPBUFSIZE**
Specifies the size (in KB) of the Online Performance (OP) buffer that is used to buffer collected data.

**2048**
Is the default size.

**opSize**
Can be up to 16384 KB.

**ELAPSEDTIME**
Specifies one (of multiple) stop criteria for the data collect task.

**60**
Is the default duration (in seconds).
secs
   Specifies the duration (in seconds).

RECCOLLECTED
   Specifies one (of multiple) stop criteria for the data collect task.

recs
   Specifies the maximum number of IFCID records to collect.

Not supported in combination with GDGDATASET.

TERMTHREADS
   Specifies one (of multiple) stop criteria for the data collect task.

thds
   Specifies the number of terminated threads after which data collection
   stops.

Not supported in combination with GDGDATASET.

TRACE
   Specifies the DB2 START TRACE command to collect data. The command can
   start with a preceding dash (-). Do not use the DEST or SCOPE subcommands
   unless a specific OP buffer should be used.

The following excerpt from a batch job shows how two START TRACE
commands are used to collect different trace classes and IFCIDs:

   TRACE('START TRACE(PERFM) CLASS(30) IFCID(314) TDATA(CORRELATION,CPU)')
   TRACE('START TRACE(AUDIT) CLASS(31) IFCID(140,83)')

Collecting report data with the Near-Term History Data Collector
If the Near-Term History Data Collector is configured to store collected data
in sequential data sets, the contents of these data sets can be used as input for
OMEGAMON XE for DB2 PE reports and trace reports.

The Near-Term History Data Collector can be configured to store data in various
types of data sets, for example sequential data sets, Generation Data Group (GDG)
data sets, and VSAM data sets. The configuration is done with the Configuration
Tool, the currently active configuration can be viewed by means of the
OMEGAMON XE for DB2 PE Classic Interface in the Near-Term History Data
Collection Options panel.

Ensure that collected data is written to sequential data sets by one of the following
methods:

   • The near-term history data collection options keyword WRITEOPTION in data
      set member RKD2PAR(COPT<ssid>) should have the value VSAM,SEQ.
   • In the Near-Term History Data Collection Options panel you should see
      Writeoption=VSAM,SEQ. This panel also lists the currently used data sets where
      collected data is stored.

For more information, see the Configuration Tool online help and Monitoring
Performance from the OMEGAMON Classic Interface.

Creating reports using commands
OMEGAMON XE for DB2 PE has a set of commands to create reports.
Each command can use subcommands and subcommand options to control the period reported, what is included or excluded from the report, or which users are reported. The OMEGAMON XE for DB2 PE command stream is contained in a batch job, together with JCL statements. Typically, the batch job contains the following elements:

- Setup information
- General filters and controls
- Commands
- Subcommands and subcommand options

This topic assumes that the OMEGAMON XE for DB2 PE command stream in a JCL is created manually or a copy of an existing JCL is modified. You can also use the Interactive Report Facility (IRF) to specify reports interactively. The IRF then composes the command stream according to your specifications and executes the command stream in foreground or background mode. A subsequent topic describes the use of the IRF in more detail.

**Setup information for data sets**

The setup information specifies the input and output data sets for your reports.

**ddnames of general data sets:**

The following list shows the data definition names, also known as *ddnames*, for required and optional data sets.

The ddnames for the required data sets are:

**INPUTDD**

The data set that contains the DB2 trace data to be used as input for OMEGAMON XE for DB2 PE reports. You must specify this fully qualified data set name.

If your DB2 trace data is provided in SMF log streams, specify the log stream name. You can also specify an additional range of dates if required.

In the following example, all DB2 traces that are available in z/OS log stream "IFASMF.SYSA.DB2" are processed by the batch reporter. The FROM and TO arguments can be used to control the date range.

```plaintext
//INPUTDD DD DSN=IFASMF.SYSA.DB2,
//                        DCB=(RECFM=VB,BLKSIZ=32760,LRECL=32756),
//                        SUBSYS=(LOGR,IFASEXIT,'FROM=OLDEST,TO=YOUNGEST')
```

For more information about SMF log streams, contact your system administrator.

**STEPLIB**

The data set that contains OMEGAMON XE for DB2 PE programs. You must specify this fully qualified data set name.

**SYSIN**

The data set that contains OMEGAMON XE for DB2 PE command string. If the command string is contained in the JCL, specify an asterisk (*), otherwise specify the fully qualified data set name.

The ddnames for the optional data sets are:

**DPMLOG**

The data set where processing messages are written.
DPMOUTDD
The output data set where OMEGAMON XE for DB2 PE writes formatted data. Specify a ddname for this data set only if you want to produce more reports from the same data later.

DPMPARMS
The data set that contains information about changes that you have made to OMEGAMON XE for DB2 PE standard processing settings. The things you can tailor are:
- Report layouts
- Time zone specifications (member LOCDATA)
- Correlation translation information (member CORRDATA)
- Exception field descriptions (member EXCHANGE)
- Definition of the main packages used in reporting (MAINPACK)

For more information, see “Customizing OMEGAMON XE for DB2 PE functions” on page 2949.

ERRDMPDD
This service data set provides potentially corrupted IFCID data identified by the Reporter. You should only specify this ddname if corrupted IFCID records are reported in your JOBSUMDD or DPMLOG.

JOBSUMDD
The data set where information about OMEGAMON XE for DB2 PE processing is written. It contains the IFCID frequency distribution log and the job summary log.

JSSRSDD
The data set where job summary data is written when a SAVE subcommand is processed.

SYSOUT
The data set where messages about sorting are written.

The following three data sets are used for exception processing. For more information, see “Using Statistics and Accounting reports to identify exceptions” on page 2794.

EXCPTDD
The data set where exception thresholds are stored. This data set is required for all exception processing.

EXFILDD1
The data set where the Exception Log File data is written.

EXTRCDD1
The data set where the Exception Log data is written.

ddnames of report data sets:
Output from OMEGAMON XE for DB2 PE report set processing is written to the report data sets. You must specify a data set for the SAVE, RESTORE, or FILE output corresponding to the particular report set you are requesting.

The default ddnames for these data sets all start with a two-letter prefix that indicates the report set. The following table shows the report set and the corresponding prefix:
The following list shows the default ddnames for the report data sets, where cc is the prefix.

**ccRPTDD**
The data set where report output is written.

**ccTRCDD1**
The data set where trace output is written. If you generate more than one trace in the same job step, the second trace is written to ccTRCDD2, the third to ccTRCDD3, the fourth to ccTRCDD4, and the fifth to ccTRCDD5.

**ccFILDD1**
The data set where output from the FILE subcommand is written.

**ccSAVDD**
The data set where data is stored using the SAVE subcommand.

**ccRSTDD**
The data set from where data is read using the RESTORE subcommand.

**ccWORK**
The data set where output from the REDUCE subcommand is written. Normally this is a temporary data set that OMEGAMON XE for DB2 PE automatically creates and deletes. If you want to control the placement or size for this data set, specify a ddname.

The Explain report set does not use subcommands. Therefore, you need to specify only one data set. The default ddname for this data set is:

**EXPLAIN**
The data set where output from the EXPLAIN command is written.

**General filters and controls**
OMEGAMON XE for DB2 PE has a set of auxiliary commands to streamline the generation of reports.

These commands are shared by the various report sets.

**CASE** Use this command to accept entries in uppercase or lowercase characters. Specify CASE (SENSITIVE) before any other command if you want the following commands to differentiate between uppercase and lowercase entries. If you do not specify the CASE command, or if you specify CASE (ANY), lowercase characters are converted to uppercase characters.

---

**Table 232. Two-letter prefixes for OMEGAMON XE for DB2 PE report sets**

<table>
<thead>
<tr>
<th>Report set</th>
<th>Prefix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>AC</td>
</tr>
<tr>
<td>Audit</td>
<td>AU</td>
</tr>
<tr>
<td>I/O Activity</td>
<td>IO</td>
</tr>
<tr>
<td>Locking</td>
<td>LO</td>
</tr>
<tr>
<td>Record Trace</td>
<td>RT</td>
</tr>
<tr>
<td>SQL Activity</td>
<td>SQ</td>
</tr>
<tr>
<td>Statistics</td>
<td>ST</td>
</tr>
<tr>
<td>System Parameters</td>
<td>SY</td>
</tr>
<tr>
<td>Utility Activity</td>
<td>UT</td>
</tr>
</tbody>
</table>

---

Chapter 6. Batch reporting  2771
FIELD  Use this command to include fields that match a comparison value in Record Trace reports.

GLOBAL
Use this command to identify the users, plans, or the period in time you want to investigate.

- You can filter the input data by specifying the start and end times of the data to be reported. This is done by using the FROM and TO subcommand options.
- You can filter the input data by specifying the identifiers for which you want data to be reported. This is done by using the INCLUDE and EXCLUDE subcommand options.

These values specified with the GLOBAL command are used as defaults in the subcommands.

GROUP
Use the GROUP command to define a group of OMEGAMON XE for DB2 PE identifier values for use in reporting. See “Group data” on page 2947.

LIST  Use the LIST command to define a list of OMEGAMON XE for DB2 PE identifier values for use in reporting. See “Use lists” on page 2947.

Report set commands
The report set commands specify the report set that you want to use. All report set commands have default subcommands, so you do not need to specify any subcommands.

The default subcommands usually produce the shortest report in the report set. See “Report sets” on page 2745 for an overview of the different report sets. For details on how to specify commands refer to the Report Command Reference.

Table 233. Report sets and report set commands

<table>
<thead>
<tr>
<th>Report set</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistics report set</td>
<td>STATISTICS</td>
</tr>
<tr>
<td>Accounting report set</td>
<td>ACCOUNTING</td>
</tr>
<tr>
<td>Explain report set</td>
<td>EXPLAIN</td>
</tr>
<tr>
<td>SQL Activity report set</td>
<td>SQLACTIVITY</td>
</tr>
<tr>
<td>System Parameter report set</td>
<td>SYSPARMS</td>
</tr>
<tr>
<td>Utility Activity report set</td>
<td>UTILITY</td>
</tr>
<tr>
<td>Locking report set</td>
<td>LOCKING</td>
</tr>
<tr>
<td>I/O Activity report set</td>
<td>IOACTIVITY</td>
</tr>
<tr>
<td>Record Trace report set</td>
<td>RECTRACE</td>
</tr>
<tr>
<td>Audit report set</td>
<td>AUDIT</td>
</tr>
</tbody>
</table>

Subcommands and subcommand options
You can use subcommands and subcommand options to specify how you want the data to be presented.

For details on how to specify commands refer to the Report Command Reference.
REPORT
Use this subcommand to generate reports. In reports, data is summarized by OMEGAMON XE for DB2 PE identifiers, such as the primary authorization ID or the plan name.

Use the LAYOUT or LEVEL subcommand options of REPORT as appropriate to specify the amount of detail you want in the report. Use the ORDER subcommand option to specify how you want the data to be summarized. Use the EXCEPTION subcommand option to produce reports that contain only values outside user-specified limits.

TRACE
Use this subcommand to produce listings that show individual DB2 events, usually in the order of occurrence.

Use the LAYOUT or LEVEL subcommand option of TRACE as appropriate to specify the amount of detail you want in the trace. Use the EXCEPTION subcommand option to produce traces that contain only values outside user-specified limits.

FILE
Use this subcommand to store data about individual DB2 events in data sets that can be used with the DB2 load utility.

Use the EXCEPTION subcommand option to produce data sets that contain only values outside user-specified limits.

REDUCE
Use this subcommand to aggregate Statistics and Accounting DB2 events. REDUCE consolidates DB2 events with the same OMEGAMON XE for DB2 PE identifiers. You can save the reduced data by using the SAVE command.

Use the INTERVAL and BOUNDARY subcommand options of REDUCE to specify how the data is consolidated. INTERVAL specifies the time range at which records are consolidated. BOUNDARY specifies the start time of the INTERVAL.

If SAVE or processing by INTERVAL is not required, you can omit REDUCE.

SAVE
You can save data sets as follows:

Without CONVERT option
Saves reduced data into a VSAM data set. You can use the saved data in later reporting.

You can also convert the data set into a sequential data set that can be loaded into DB2 tables using the Save-File utility.

With CONVERT option
Converts and saves reduced data into a sequential data set that can be loaded into DB2 tables.

RESTORE
Use this subcommand to include previously saved data from the VSAM data set.

Example of a command string
This example shows a JCL that produces a short Accounting report and a long Statistics trace.
The following text describes the contents of the JCL and shows an example output from this JCL.

```
EDIT ---- SYS92267.T092210.RA000.USERPMA.R000003 -------- Columns 001 072
Command ==> Scroll ==> CSR_

******** ******************************** TOP OF DATA ********************************
0001  //USERPMA JOB (TTS1,YUS7), 'ANDREW'
0002   /// MSGCLASS=V,CLASS=D, NOTIFY=USERPM
0003   /// EXEC PGM=FPECMAIN, PARM='DATEFORMAT=MM/DD/YY'
0004  //STEPLIB DD DSN=OMPE.RKANMOD, DISP=SHR
0005  //INPUTDD DD DSN=OMPE.RKO2DATA(FPECIVPI), DISP=SHR
0006  //JOBSUMDD DD SYSOUT=A
0007  //SYSIN DD *
0008  GLOBAL
0009    FROM (04/01/15,08:00)
0010    TO (04/01/15,09:00)
0011  ACCOUNTING
0012     REPORT
0013     FROM (04/01/15,08:48)
0014     TO (04/01/15,08:52)
0015  STATISTICS
0016     TRACE
0017     LAYOUT(LONG)
0018  EXEC

******** ******************************** BOTTOM OF DATA ********************************
```

Figure 229. Specifying a job stream using ISPF/PDF editor

The first two lines are user and environment settings. Change these settings according to your operating environment.

Line 3 contains the call to OMEGAMON XE for DB2 PE. The DATEFORMAT parameter determines the mm/dd/yy format (which is the default format, so it is not strictly necessary to be declared in the job stream).

The STEPLIB statement (line 4) must be modified to point to your OMEGAMON XE for DB2 PE installation.

The SYSIN statement (line 5) indicates that the command string is contained within this JCL.

The INPUTDD statement (line 6) specifies the input data set that contains DB2 trace data.

The GLOBAL command (line 8) restricts the data that is passed from the input data set to the ACCOUNTING and STATISTICS commands. Only data between the specified FROM and TO dates and times is made available to the commands.

The ACCOUNTING command (line 11) produces an Accounting report. The REPORT subcommand (line 12) is not strictly necessary because REPORT is the default subcommand for ACCOUNTING. The FROM and TO subcommand options (lines 13 and 14) restrict the period of the Accounting report to 30 minutes. When you use these subcommand options, ensure that the period is within the period specified by the GLOBAL command. Otherwise, no report is generated.

The STATISTICS command (line 15), its TRACE subcommand (line 16), and its LAYOUT subcommand option (line 17) produce a long Statistics trace.

You must include the EXEC statement (line 18) to generate the reports. Otherwise, no report is generated.
Because no explicit output data sets are specified in this example, the reports will be written to ACRPTDD for the Accounting report and STTRCDD1 for the Statistics trace, which are the default ddnames.

To submit the job, type SUBMIT on the command line and press Enter.

![EDIT screen](image)

Figure 230. Submitting the job

The syntax of your JCL is checked and written to the DPMLOG data set, together with any information, warning, or error messages raised.

### Accounting report - model layout SHORT

The following example shows an Accounting report produced in the previous JCL.

<table>
<thead>
<tr>
<th>LOCATION: OMP9151</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V9R4M0)</th>
<th>PAGE: 1-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP: N/F</td>
<td>ACCOUNTING REPORT - SHORT</td>
<td>REQUESTED FROM: 04/01/15 08:48:00.00</td>
</tr>
<tr>
<td>MEMBER: N/F</td>
<td>ORDER: PRIMAUTH-PLANNAME</td>
<td>INTERVAL FROM: 04/01/15 08:49:47.77</td>
</tr>
<tr>
<td>SUBSYSTEM: D951</td>
<td>SCOPE: MEMBER</td>
<td>TO: 04/01/15 08:50:34.04</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRIMAUTH</th>
<th>oplaname</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLANK</td>
<td>D951</td>
</tr>
<tr>
<td>DSNREXX</td>
<td>V10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OCCURS</th>
<th>COMMIT</th>
<th>INSERTS</th>
<th>OPENS</th>
<th>PREPARE</th>
<th>CLASS2</th>
<th>EL.TIME</th>
<th>BUF.UPDT</th>
<th>LOCK</th>
<th>SUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>N/P</td>
<td>0.00</td>
</tr>
<tr>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>N/P</td>
<td>0.00</td>
</tr>
<tr>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>N/P</td>
<td>0.00</td>
</tr>
<tr>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>0.00</td>
<td>0.00</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<td>0.00</td>
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</tr>
<tr>
<td>0.00</td>
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<td>0.00</td>
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<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>0.00</td>
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<td>0.00</td>
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<td>0.00</td>
</tr>
<tr>
<td>0.00</td>
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<td>0.00</td>
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<td>0.00</td>
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<tr>
<td>0.00</td>
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<td>0.00</td>
<td>0.00</td>
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<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROGRAM NAME</th>
<th>TYPE</th>
<th>OCCURS</th>
<th>ALLOCS</th>
<th>SQLSTMT</th>
<th>CL7 ELAP.TIME</th>
<th>CL7 CPU TIME</th>
<th>CL8 SUSP.TIME</th>
<th>CL8 SUSP</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNSK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>DSNREXX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

*** TOTAL ***

<table>
<thead>
<tr>
<th>PROGRAM NAME</th>
<th>TYPE</th>
<th>OCCURS</th>
<th>ALLOCS</th>
<th>SQLSTMT</th>
<th>CL7 ELAP.TIME</th>
<th>CL7 CPU TIME</th>
<th>CL8 SUSP.TIME</th>
<th>CL8 SUSP</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNSK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>DSNREXX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**ACCOUNTING REPORT COMPLETE**

### Creating reports with the Interactive Report Facility

The Interactive Report Facility (IRF) provides a dialog, though a series of panels, that guides you through the specifications for a report.

After you specified a report, your specifications are validated and the IRF automatically generates a batch report command stream with JCL statements and the commands, subcommands, options and keywords that match your selections for the requested reports. This job can be executed in foreground or background mode to produce the report.

The IRF is invoked from the IBM OMEGAMON for DB2 Performance Expert on z/OS main menu by selecting option 1 (Create and execute reporting commands).
Selecting reports and reports details
In the Interactive Report Selections panel, you select which reports you want to create, the functions to apply to the selected reports, and additional functions to be reflected in the batch report command stream.

About this task
When you invoke option 1 (Create and execute reporting commands) from the main menu, the following panel is displayed.

```
Interactive Report Selections
Select functions as required, then press Enter.

<table>
<thead>
<tr>
<th>Report Set</th>
<th>Function</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>/</td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td>&gt;</td>
<td></td>
</tr>
<tr>
<td>SQL Activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I/O Activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Record Trace</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional Functions
- Global Processing
- System Parameters
- Exception log
- Explain

Command ===>
```

Figure 231. Interactive Report Selections panel

The panel provides a matrix for selecting report sets (Accounting, Statistics, and so on) and the functions (Reduce, Report, and so on) to be applied to the selected report sets. Multiple functions can be applied to selected report sets, but some functions are inapplicable to some report sets, as shown by the matrix.

- Use forward slashes (/) to select combinations of report sets and functions (for example, an Accounting report).
- Greater than symbols (>) indicate previously made selections (for example, a Statistics report).
- To correct a selection, overtype the symbol with a blank.

The selections of Additional Functions are treated in the same manner.

The command line accepts the following commands to facilitate and complete the report selections:

- The INCLUDE and EXCLUDE commands filter data on a report set level or at a global level.
- The GROUP command defines a named group of OMEGAMON XE for DB2 PE identifiers. The group name can be used when you request reports.
- The LIST command defines named group of OMEGAMON XE for DB2 PE identifiers. The list name can be used in INCLUDE and EXCLUDE commands instead of individually entering each list member.
• The BROWSE command can be used to review the batch report command stream that was generated based on your current selections.
• The SAVE and RECALL commands save current selections or recall previously saved selections.
• The OPTIONS command sets or changes the default options of your current IRF session, such as foreground or background processing and the ddnames to be used.
• The RESET command clears all input fields.

When your specifications for the reports are complete, press F5 (Compose).

**Specifying default options by using the OPTIONS command**

You can change the defaults by using the OPTIONS command before you press F5 (Compose).

**About this task**

If no defaults were created before, the following steps are automatically invoked after you pressed F5 (Compose). Otherwise, these steps are skipped and the default options are applied to the generation of the batch report command stream.

The Execution Mode panel is displayed for selecting foreground or background processing.

Depending on your selection, the Foreground DDname Selections or Background DDname Selections panel is displayed.

For each ddname, enter one of the following to update the data set information:

• Data set name
  The name of the input data set or the name of the data set where output is directed to. If the name is not enclosed in apostrophes, the TSO prefix is added to it.

• Extended information for a ddname
  You can specify additional parameters needed for the DD statement in JCL syntax (background), or for the TSO/E ALLOC command (foreground).  
  • Asterisk (*)
    The output is directed to the terminal (foreground only).
  • Blank
    The ddname is not used, or it is dynamically allocated.

Mandatory input fields are marked by an asterisk (*) in the Required field.

Press Enter to validate the entries.

**Composing and executing the batch report command stream**

After all defaults are specified and F5 (Compose) was pressed, your selections and specifications are validated and the job stream is generated.

**About this task**

If foreground processing was selected, the job is executed immediately. Your terminal remains busy until the job is completed.
If background processing was selected, the Job Processing Selections panel is displayed. In this panel, you can:

- Browse the generated job stream.
- Apply changes to the job stream before you submit it.
- Store the job stream for future use (after the job has been saved, it can be edited with any standard editor, for example, ISPF/PDF EDIT).
- Submit the job.
- Specify the required information for the JOB statement.

**Saving and recalling selections**
The SAVE command saves all report set, reporting command, and ddname selections and specifications that you have made so far into a partitioned data set.

**About this task**

You can also save incomplete selections and use these selections as a template for a specific type of report. The SAVE command displays the Save Selections panel, where you can specify the data set and member name in which selections are to be saved. This data set must exist and must be defined with the following attributes:

```
RECFM FB
LRECL 80
BLKSIZE 6160
```

Directory blocks
- Depends on how many members you want to save.

The next time you want to produce the same or a similar command stream, type `RECALL` on the command line of one of the IRF panels. The `RECALL` command displays the Recall Selections panel, where you can specify the data set and member in which the previous selections have been saved. At this time, you can still modify or complete the recalled selections according to your needs. If you want to use the recalled selections unchanged, enter `COMPOSE` on the command line to generate the JCL and the command stream.

**Example of producing an Accounting report**
The following steps show how you can produce a short Accounting report.

**About this task**

Comprehensive help information is available on all IRF panels.

**Procedure**

1. Start the IRF by invoking option 1 (Create and execute reporting commands) from the main menu. The Interactive Report Selections panel is displayed:
### Interactive Report Selections

Select functions as required, then press Enter.

<table>
<thead>
<tr>
<th>Report Set</th>
<th>Function</th>
<th>Report Set</th>
<th>Function</th>
<th>Report Set</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>Reduce</td>
<td>Trace</td>
<td>File</td>
<td>Save</td>
<td>Restore</td>
</tr>
<tr>
<td>Statistics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQL Activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I/O Activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Record Trace</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Additional Functions**
- Global Processing
- System Parameters
- Exception log
- Explain

**Command ===>

F1=Help F2=Split F3=Exit F5=Compose F6=Browse F9=Swap
F10=Global F11=Inclexcl F12=Cancel

---

**Figure 232. Interactive Report Selections panel**

2. Type RESET on the command line to delete all previously made selections from the panel.

3. Select an Accounting report by entering a forward slash (/) on the corresponding line, as shown in the previous figure.

4. Type OPTIONS on the command line. The Session Options window is displayed, overlaying the Interactive Report Selections panel:

### Interactive Report Selections

**Session Options**

- Update fields as required, then press Enter.
- Confirmation display 1:yes 2:no
- Initial menu choice 1-6 or blank
- Execution mode 1:Background 2:Foreground 3:Prompt

**DPMPARMS data set**

F1=Help F2=Split F9=Swap F12=Cancel

**Command ===>

F1=Help F2=Split F3=Exit F5=Compose F6=Browse F9=Swap
F10=Global F11=Inclexcl F12=Cancel

---

**Figure 233. Interactive Report Selections panel - Session Options window**

5. In the Execution mode field, type 1 to select background processing and press Enter. The Interactive Report Selections panel is displayed again.
6. Press Enter. The Accounting Report Selections panel is displayed:

![Accounting REPORT Selections panel](image)

**Figure 234. Accounting Report Selections panel**

7. Type a forward slash (/) in the action field and give the report an appropriate name in the User Comment field, as shown in the previous figure. You are not required to specify a ddname. The default is used.

8. Press Enter. The Accounting Report panel is displayed:

![Accounting REPORT panel](image)

**Figure 235. Accounting Report panel**
Note the default ddname. In this panel you can refine the Accounting report you want. Here, member-scope reporting and a short report are specified.

9. Press Enter to return to the Accounting Report Selections panel.

10. Press F3 (Exit) to return to the Interactive Report Selections panel. You have completed the specifications for the commands, subcommands, options and keywords that are required to generate the example Accounting report.

11. You can use F6 (Browse) to view the command stream. This displays the following panel:

```
ACCOUNTING REPORT  /*My Accounting report short*/
   DDNAME(ACRPTDD)
   LAYOUT(SHORT)
   SCOPE(MEMBER)
EXEC

Figure 236. Accounting report command stream
```

12. On the Interactive Report Selections panel, press F5 (Compose). This generates the JCL and command stream, which you can browse, edit, store, or execute. The Background DDname Selections panel is displayed (because of your previous execution mode selection):

```
Background DDname Selections

Update the data set information. Select one or more data sets to add extended information, then press Enter. Your TSO prefix is added to data set names not enclosed in single quotes. Press Enter to continue when complete.

<table>
<thead>
<tr>
<th>DDname</th>
<th>Data Set Information</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUTDD</td>
<td>'HECK.ACC.INPUT.SMF'</td>
<td>*</td>
</tr>
<tr>
<td>EXCPTDD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXTRCDD1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXFILD1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACRPTDD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPMLOG</td>
<td>SYSOUT=A</td>
<td></td>
</tr>
<tr>
<td>DPMOUTDD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPMARMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JOBSUMDD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JSSRSDD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYSOUT</td>
<td>SYSOUT=A</td>
<td></td>
</tr>
<tr>
<td>SYSUDUMP</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 237. Background DDname Selections panel

13. Enter at least the required information, marked by asterisks (*). Usually, you must specify the input data set that contains the data to be reported. In this
example, ACC.INPUT.SMF is entered in the INPUTDD line, which resolves to 'HECK.ACC.INPUT.SMF' (the TSO prefix is added) when you press Enter.

The list of ddnames also shows the default ddname for Accounting reports (ACRPTDD). Output data sets are dynamically allocated, if not specified explicitly. If you want to become familiar with the IRF and do not have real input data available, you can use the sample data set DB2PM.V400.DPMIN40. If this data set is not available, press F1 (Help) and F5 (Exhelp) for current information about the sample data set.

14. Press Enter. The Job Processing Selections panel is displayed:

```
Job Processing Selections
Update the job statements as required, then select one of the following.

1. Browse the generated job stream
2. Edit the generated job stream
3. Store the job stream for future use
4. Submit the job stream for background execution

Job statement information

Command ===>
F1=Help  F2=Split  F3=Exit  F9=Swap  F12=Cancel
```

Figure 238. Job Processing Selections panel

15. You can now browse, edit, store, or submit the generated job stream. For example, select option 1 (Browse the generated job stream) to display a panel with the following job stream:

```
Figure 239. Interactive Report Facility (IRF) - example of generated job stream
```

16. To submit the job, specify appropriate job statement information at the bottom half of the Job Processing Selections panel and press Enter. You are prompted if this information is missing.
You should now see a message that indicates whether the job was successfully submitted.

**Using Statistics traces to get system overview information**

The best way to get started with OMEGAMON XE for DB2 PE is to create a long Statistics trace report to get an overview of your DB2 system.

To do this:
- Run a DB2 trace to collect DB2 Statistics data during a 24-hour period.
- Create a Statistics trace report.
- Interpret the report and adjust the system.

The reason for creating a trace report is that the 24-hour period is reported as a single interval. A normal report creates a record for each Statistics interval, which could result in an output of more than 1,200 pages.

Choose a day that will have a fairly typical workload, not a weekend, for example, or a public holiday when workload will probably be much reduced.

**Collecting Statistics data with a DB2 trace**

Use the Performance Expert Client to configure and start a DB2 trace to collect DB2 Statistics data during a 24-hour period.

**About this task**

To do this, start the Performance Expert Client:

1. On the menu bar of the **System Overview** window, click **Tools > Performance Warehouse - Expert** to open the **Performance Warehouse** window.
2. On the Performance Warehouse window, select the **Trace on z/OS** tab.
3. Open the folders to connect to the **z/OS** subsystem.
4. Switch to your private group. If not available, right-click the **Process Groups** node to create your private copy.
5. Expand the public tree
6. Copy the CRD (collect report data) process template from the **Public** process groups to a process group of your own.
7. Expand your private group tree.
8. Double-click the CRD step to open the **CRD Step Properties** window.
9. Open the **Options** page and change the following option categories:
   - For **Output data set**, type an output data set name and select **Append** or **Overwrite**.
   - For **Data**, clear the **Statistics** check box. Specify which IFCIDs you want to collect. The IFCIDs associated with this trace are displayed and highlighted. Only the highlighted IFCIDs are collected in the trace. Here you can, for example, choose not to include buffer pool statistics at data set level.
   - For **Stop**, specify the criteria for the data collection. Select the **Elapsed time** check box and specify a time of 24:00:00.
   - Click **OK** to save the configuration of the CRD step.

10. When finished, right-click the CRD process and select **Execute** to open the **Performance Warehouse Process Scheduler** window to define a schedule for the selected process.

11. Select the **Execute once, immediately** to run the process once.

12. Click **Finish** to start the trace.

### Creating a Statistics trace report

Use your ISPF editor to create a JCL job that creates a Statistics trace report.

#### About this task

The following JCL is an example. Remember to change the setup information (starting with // in your JCL) as appropriate for your installation.

```jcl
EDIT ---- ANDREW.OMPE.JOBS.STTRALON------------------------- Columns 001 072
Command ==> Scroll ==> CSR_******** TOP OF DATA ***********************
0001 /* JCL to produce a Statistics LONG trace report */
0002 //AWOMPES JOB (TTS1,YUS7), 'ANDREW',
0003 // MSGCLASS=V,CLASS=D,NOTIFY=ANDREW
0004 // EXEC PGM=FPECMAIN
0005 // STEPLIB DD DSN=OMPE.RKANMOD,DISP=SHR
0006 // INPUTDD DD DSN=IFASMF.SYSA.DB2,
0007 // DCB=(RECFM=VB,BLKSIZE=32760,LRECL=32756),
0008 // SUBSYS=('LOGR,IFASEXIT,'FROM=OLDEST,TO=YOUNGEST')
0009 // DPMOUTDD DD DSN=ANDREW.OMPE.OUT.STTRCA01,DISP=OVR
0010 // JOBSUMDD DD SYSOUT=A
0011 // SYSIN DD *
0012 STATISTICS
0013 TRACE
0014 LAYOUT(LONG)
0015 FROM (07/16/15,00:01)
0016 TO (07/17/15,00:01)
0017 EXEC
******** BOTTOM OF DATA ***********************
F1=Help F2=Split F3=Exit F5=Rfind F6=Rchange F7=Up
F8=Down F9=Swap F10=Left F11=Right F12=Cancel
```

#### Figure 241. Specifying a job stream using ISPF/PDF editor

To submit the job, type **SUBMIT** on the command line and press Enter.

### Interpreting the Statistics trace report and applying rules of thumb

You can use the Statistics trace report that you have produced in the previous steps for a quick assessment of the performance of your DB2 system.

A good way of looking at the data is to focus on a few key indicators and apply a few simple rules and ratios, known as **rules of thumb** (ROTs). Rules of thumb have...
been assembled by DB2 experts in the field over many years and are proven to be valuable criteria to measure the performance of applications in a DB2 system.

Rules of thumb (ROTs) are also implemented as samples in the Performance Warehouse. You can examine the ROT definitions and use the Performance Warehouse to evaluate your DB2 systems. For more information, see Monitoring Performance from Performance Expert Client.

Getting an overview of your DB2 system performance:

The Statistics trace report provides an overview of important areas, like DBM1 storage usage, data set activities, logging and locking activities, and thread management.

To get an overview of your DB2 system, you have to look at the following areas:
- **DBM1 storage** DBM1 storage is allocated below and above the 2 GB bar and is used for buffer pools, EDM pools, RID pools, and authorization caches. It is essential that the various pools and caches are optimized in their allocated space.
- Data set Open and Close activity Applications that leave data sets open can affect other applications that must wait because too many data sets are already open.
- **Logging** Logging activities interrupt normal DB2 operations. Logging problems will therefore affect applications and performance.
- **Locking** Locks occur in DB2 when applications have to wait for resources (concurrency problems).
- **ROWID** The ROWID block of the report shows the success of direct row access attempts.
- **Thread management** Thread optimization avoids applications from having to wait for free storage to allow thread creation.

Buffer pool efficiency:

The buffer pool related report blocks of the Statistics trace report begin roughly at page 9 of the report. They are repeated for every active buffer pool.

The efficiency of your buffer pools directly affects the performance of your DB2 system. Well tuned buffer pools reduce the number of read and write operations from and to a hard disk drive, which in turn reduces application wait times.

**Tip:** OMEGAMON XE for DB2 PE includes the Buffer Pool Analyzer. This is a powerful tool that reports on the efficiency of your buffer pools and simulates your DB2 workload to arrive at an optimal buffer pool configuration for the system. For more information, see the Buffer Pool Analyzer User’s Guide.

**Hit ratios**

The Buffer Pool Read block provides hit ratios that serve as indicators of the overall buffer pool efficiency.

The buffer pool hit ratio (BP00L HIT RATIO (%)) shows the number of Getpage requests issued by applications and satisfied by the buffer pool, expressed as a percentage of all Getpage requests. This is a relative value...
that depends on the type of application. For example, applications that browse large amounts of noncontiguous data could cause the buffer pool hit ratio to drop near 0.

Avoid page-Ins
The Buffer Pool Read block and the Buffer Pool Write block provides indications of potential performance problems that are caused by paging activities to a hard disk drive.

A buffer pool that is too large can also cause performance problems because it causes paging to a hard disk drive.

Look at the PAGE-INS REQUIRED FOR READ and PAGE-INS REQUIRED FOR WRITE fields in the Buffer Pool Read block and the Buffer Pool Write block of the report. These values should be zero, or close to zero. Higher values mean that the buffer pool size is over allocated. Consider reducing the buffer pool size.

Optimize prefetch
The Buffer Pool Read block provides indications of the efficiency of DB2's page prefetch activities.

DB2 uses prefetch to optimize queries. For SQL, a prefetch can read up to 32 pages from a hard disk drive. Prefetch can stop or be canceled when more than 90% of the pages in the buffer pool is unavailable. This can have a considerable effect on performance because scanned pages must be read synchronously from a hard disk drive.

Check the PREF.DISABLED-NO BUFFER and DM CRITICAL THRESHOLD fields in the Buffer Pool Read block of the report. If one or both field values are not zero or not close to zero:

- Review the Sequential Steal thresholds (VPSEQT)
  These thresholds are percentages of the virtual buffer that might be occupied by sequentially accessed pages. If these thresholds are too low, prefetch can be disabled. If these thresholds are too high, other thresholds can be reached too soon.
- Reduce the Deferred Write thresholds (VDWQT and DWQT)
  If the DB2 system is used mainly for high-use query systems reliant on prefetch, reducing these thresholds decreases the portion of the virtual buffer pool that is occupied by updated pages.
- Increase the size of the buffer pool
  Use the ALTER BUFFERPOOL command to increase the size of the buffer pool, which will give the system more space for prefetched pages.

EDM pool failures:

The EDM pool stores cursor tables (CT), package tables (PT), and database descriptors (DBD).

Any pool full failures (FAILS DUE TO POOL FULL) indicate that the EDM pool is too small for the DB2 workload. The EDM pool should be big enough to store the cursor tables (CT), package tables (PT), and database descriptors (DBD). The ratios CT REQUESTS/CT NOT IN EDM, PT REQUESTS/CT NOT IN EDM, and DBD REQUESTS/CT NOT IN EDM show the EDM pool utilization. Generally, ratios of about 80% are adequate in most cases. If these values are significantly lower, reduce the size of the EDM pool and allocate the saved storage to the buffer pool, where the performance benefits are greater.
Authorization problems:

DB2 performance can be affected by plans and packages that are waiting for authorization checks or by failures because the authorization cache is full.

Compare the number of authorization checks made for authorized plans (PLAN-AUTH SUCC) with the number of checks made that did not use the DB2 catalog (PLAN-AUTH SUCC-W/O CATALOG). A wide difference could indicate a first use of any plan by a given user ID after DB2 was started. Set the CACHESIZE parameter to a value greater than zero for all plans where EXECUTE privilege is not granted to public.

If the number of package authorization failures (AUTH UNSUCC-PKG-CACHE) is not zero, or close to zero, use the ZFARM ZPAC to increase the size of the package cache.

RID List failures:

RID List failures occur if the RID pool size is constrained.

If the number of times that DB2 failed to allocate storage for RID list processing caused by storage constraints (TERMINATED-NO STORAGE) is not zero, or close to zero, you should reduce the storage size that is used by other structures.

Failures because RDS or Data Manager limits are exceeded (TERMINATED-EXCEED RDS LIMIT and TERMINATED-EXCEED DM LIMIT) are caused by inaccurate or incomplete RUNSTATS statistics or by optimizer errors. Add the clause OPTIMIZE FOR 1 ROW to the SQL statement to avoid RID list processing, or add the necessary columns to the index to make access INDEX ONLY.

If the number of RID list failures caused by storage limits (TERMINATED-EXCEED PROC LIMIT) is not zero, or close to zero, increase the RID pool size.

Locking problems:

TIMEOUTS and DEADLOCKS, shown in the Locking Activity block of the Statistics trace report, should be close to zero.

If not, then if the number of LOCK REQUESTS is not significantly less than the total number of SQL DML requests, lock avoidance is not active. Set BIND CURRENT DATA to NO, declare the cursor with FOR UPDATE OF, and use the WHERE CURRENT OF cursor name with UPDATE and DELETE.

Logging performance:

Logging can cause performance problems when the output buffer is inappropriate.

In the Log Activity block of the report, the READS SATISFIED-ARCH.LOG(%) field value should be low and the UNAVAILABLE OUTPUT LOG BUFF field value should be zero. If necessary, change the OUTBUFF parameter to increase the size of the output buffer.

Data set Open and Close activities:

This report block of the Statistics trace report indicates whether enough data sets are allowed to be concurrently open.
The DSETS CLOSED-THRESH.REACHED field value should be close to zero. If not, use the ZPARM DS MAX to allow more open data sets. A reasonable figure is 8 000 - 10 000.

Set the CLOSERULE parameter of the CREATE TABLESPACE, CREATE INDEX, ALTER TABLESPACE, and ALTER INDEX commands to YES for table spaces and indexes that are used mainly by batch applications, and to NO for those that are used mainly online.

**ROWID efficiency:**

This report block shows how efficient direct row access is used. Direct row access is very fast because DB2 does not use an index or table space scan to find the row.

The TABLE SPACE SCAN USED field value should be zero. Use the WHERE clause to cause an unsuccessful direct row access to revert to a matching index scan using the primary key:

```
WHERE rowidcol=:HVROWID AND pkcol=:HVPK
```

**Thread management:**

The Subsystem Services block of the Statistics trace report indicates how thread queuing is performed.

The QUEUED AT CREATE THREAD field shows the number of allied and allied-distributed threads that were not immediately created because the maximum number of threads allowed in the system had been reached.

As a rule of thumb about 1% thread queuing is acceptable. When this is appreciably higher, increase the value of MAX USERS on the DB2 install panel DSNTIPE.

The combined maximum allowed for MAX USERS and MAX REMOTE ACTIVE depends on the DB2 version installed. It cannot exceed:

- **20000** For DB2 10 or later.
- **2000** Prior to DB2 10.

The DBAT QUEUED-MAXIMUM ACTIVE field in the Global DDF Activity block of the report shows the number of DBATs that had to wait because the maximum number of threads allowed in the system had been reached. This value should be zero, or close to zero. Increase the value of MAXDBAT to raise the maximum number of concurrent active DBATs allowed.

**Using an Accounting report to analyze resource activities**

The Accounting report shows how threads and applications perform in DB2.

The Accounting report set consists of a report and a trace report. The Accounting report accumulates and groups Accounting records by OMEGAMON XE for DB2 PE identifiers, such as primary authorization or plan name. The Accounting trace report reports single threads. A trace report can be very long because it shows a single record for each active thread in the system.
A good first indicator for applications is the time used per thread by any particular user. A strategy to improving application performance is to identify the users with the most system time consumption and examine their most frequently used applications:

- Create a DB2 trace for input to a report
- Create a short Accounting report that identifies the users with the highest system time consumption.
- Interpret the report and identify users and plans that need attention
- Create an Accounting trace report for each problem user and plan
- Interpret the trace report and find remedial actions
- Apply rules of thumb in the Performance Warehouse

**Collecting Accounting data with a DB2 trace**

Use the Performance Expert Client to configure and start a DB2 trace to collect DB2 Accounting data during a 24-hour period.

**About this task**

To do this, start the Performance Expert Client:

1. On the menu bar of the **System Overview** window, click **Tools > Performance Warehouse - Expert** to open the **Performance Warehouse** window.
2. On the Performance Warehouse window, select the **Trace on z/OS** tab.
3. Open the folders to connect to the **z/OS** subsystem.
4. Switch to your private group. If not available, right-click the **Process Groups** node to create your private copy.
5. Expand the public tree
6. Copy the CRD (collect report data) process template from the **Public process groups** to a process group of your own.
7. Expand your private group tree.
8. Double-click the CRD step to open the **CRD Step Properties** window.
9. Open the **Options** page and change the following option categories:
   - For **Output data set**, type an output data set name and select **Append** or **Overwrite**.
   - For **Data**, clear the **Accounting** check box. Specify which IFCIDs you want to collect. The IFCIDs associated with this trace are displayed and highlighted. Only the highlighted IFCIDs are collected in the trace. Here you can, for example, choose not to include buffer pool accounting at data set level.
   - For **Stop**, specify the criteria for the data collection. Select the **Elapsed time** check box and specify a time of 24:00:00.
   - Click **OK** to save the configuration of the CRD step.
10. When finished, right-click the CRD process and select **Execute** to open the **Performance Warehouse Process Scheduler** window to define a schedule for the selected process.
11. Select the **Execute once, immediately** to run the process once.
12. Click **Finish** to start the trace.

**Creating a short Accounting report**

Use your ISPF editor to create a JCL job that creates a short Accounting report.
The following JCL is an example. Remember to change the setup information (starting with // in your JCL) as appropriate for your installation.

```bash
EDIT ---- ANDREW.OMPE.JOBS.ACREPSHD------------------------ Columns 001 072
Command ===> Scroll ===> CSR

0001 /* JCL to produce an accounting short report */
0002 //AWOMPEA JOB (TT51,YUS7),'ANDREW',
0003 // MSGCLASS=V,CLASS=D,NOTIFY=ANDREW
0004 // EXEC PGM=FPECMAIN
0005 //STEPLIB DD DSN=OMPE.RKANMOD,DISP=SHR
0006 //INPUTDD DD DSN=ANDREW.OMPE.TRACES.TRACE2,DISP=SHR
0007 //OPMOUTDD DD DSN=ANDREW.OMPE.OUT.ACRPTO1,DISP=OVR
0008 //JOBSUMDD DD SYSOUT=A
0009 //SYSSIN DD *
0010 ACCOUNTING
0011 REPORT
0012 TOP(20)
0013 EXEC

ACCOUNTING REPORT - SHORT

LOCATION: STMD61Y
GROUP: N/P
MEMBER: N/P
SUBSYSTEM: VT1Y
DB2 VERSION: V11

ELAPSED TIME SPENT IN APPLICATION

TOP NUMBER REQUESTED: 20

PRIMAUTH #OCCURS PROLLBK SELECTS INSERTS UPDATES DELETES CLASS1 EL_TIME CLASS2 EL_TIME GETPAGES SYN.READ LOCK SUS
PLANNAME #DISTRS #COMMIT FETCHES OPENS CLOSES PREPARE CLASS1 CPETIME CLASS2 CPETIME BUF.UPDT TOT.PREF TOT.LOCKOUT

JUSTIN 6 0.00 0.00 0.00 0.00 2:01.610942 1:05.005056 10553.33 272.00 6.83
JUSTIN 0 12 2.00 2.00 1.00 1.00 1:06.879690 39.838561 2585.33 140.80 0
JUSTIN 6 1.00 0.00 0.00 0.00 1:51.610942 2:02.005056 993.53 84.33 3.51
JUSTIN 0 8 3.00 3.00 1.00 1.00 56.879690 56.838591 3985.37 240.50 0
JUSTIN 6 0.00 0.00 0.00 0.00 1:24.906142 42.125542 12285.31 84.33 8.63
JUSTIN 0 12 2.00 2.00 1.00 1.00 45.687990 38.746239 3958.38 240.50 0
ANDREW 1 0.00 0.00 0.00 0.00 1:03.786075 84.33 3.00
ANDREW 0 2 2.00 2.00 1.00 1.00 1:03.779590 1:03.737837 3064.01 270.00 0
ANDREW 6 0.00 0.00 0.00 0.00 1:01.610942 1:22.057438 10553.33 84.33 1.89
ANDREW 0 12 2.00 2.00 1.00 1.00 56.879690 56.838591 3864.34 240.50 0
ANDREW 5 0.00 0.00 0.00 0.00 59.831795 59.233371 10299.60 46.80 0.40
ANDREW 0 10 2.00 2.00 1.00 1.00 55.499719 55.458742 2485.60 234.60 0

ACCOUNTING REPORT COMPLETE
```

Figure 242. Specifying a job stream using ISPF/PDF editor

To submit the job, type SUBMIT on the command line and press Enter.

**Interpreting the Accounting report and making changes**

An example of a short Accounting report is evaluated and key fields are emphasized.

**Short Accounting report**

The output from your short Accounting report could look similar to the following report:
In this example, the application with the highest elapsed time is
JUSTIN-JUSDOIT3. There are a couple of points of interest for this user application
that can give you an idea of what to look for in a more detailed report:
- Elapsed times and CPU times
- Large differences between class 1 and class 2 times
- Synchronous reads
- Lock suspensions

All of JUSTIN's applications in this example show similar symptoms. It is also
possible that these applications could be affecting other applications. If these
problems could be solved, general thread throughput can be improved.

Generate an Accounting trace report to have a closer look at JUSTIN's jobs. Use the
same input data to create the report output. The JCL looks like this:

```
EDIT ---- ANDREW.OMPE.JOBS.ACTRALON-------------------------- Columns 001 072
Command ==> __________________________ Scroll ===> CSR
****** ............................... TOP OF DATA ........................................
0001 /* JCL to produce an accounting LONG trace report */
0002 //AWOMPEA JOB (TTS1,YUS7),'ANDREW',
0003 // MSGCLASS=V,CLASS=D,NOTIFY=ANDREW
0004 // EXEC PGM=FPECMAIN
0005 //STEPLIB DD DSN=OMPE.RKANMOD,DISP=SHR
0006 //INPUTDD DD DSN=ANDREW.OMPE.TRACES.TRACE2,DISP=SHR
0007 //DPMOUTDD DD DSN=ANDREW.OMPE.OUT.ACTRC01,DISP=OVR
0008 //JOBSUMDD DD SYSOUT=A
0009 //SYSIN DD *
0010 ACCOUNTING
0011 TRACE
0012 LAYOUT(LONG)
0013 INCLUDE(PRIMAUTH(JUSTIN) PLANNAME(JUSTDOIT1 JUSTDOIT2 JUSTDOIT3))
001 EXEC
****** ............................... BOTTOM OF DATA ........................................
```

Figure 243. Specifying a job stream using ISPF/PDF editor

**Interpreting the Accounting trace report and applying rules of
thumb**

Using an Accounting trace report for a specific problem analysis and applying
expert rules of thumb.

The long Accounting trace report shows much information, probably much more
than you need for a quick analysis. A good way of looking at the data is to focus
on a few key indicators and apply a few simple rules and ratios, known as rules of
thumb (ROTs). Rules of thumb have been assembled by DB2 experts in the field
over many years and are proven to be valuable criteria to measure the
performance of applications in a DB2 system.

Rules of thumb (ROTs) are also implemented as samples in the Performance
Warehouse. You can examine the ROT definitions and use the Performance
Warehouse to evaluate your DB2 systems. For more information, see Monitoring

**Performance from Performance Expert Client**

The number of Getpage requests per SQL statement:

Getpage requests per SQL statement indicate the number of pages that must be
accessed for each data row written or read by an application.
Normally, when data rows are read randomly with a unique-key index, one page is read for each index level and one page is read for the data. Typically, the number of pages read to retrieve a data row would be less than six. Similarly, when pages are read sequentially, multiple rows can be retrieved for each page read.

A high Getpage/SQL ratio could be caused by:
- The use of table scan. This causes each page in the table to be accessed and scanned, even though only one row is returned.
- The use of nonmatching index scan. When this happens, one Getpage request is made for each data page in the table and each index page in the associated index, even though only one row is returned.
- The use of an index with low cardinality. This can result in multiple page scans before a row is returned.

Comparison of class 1 and class 2 times:

The ratio of class 1 and class 2 times indicate whether a potential problem lies in DB2.

A difference of roughly 10% in these times is normal.

If the class 2 elapsed time is less than half of the class 1 elapsed time, the problem is not with DB2. Possible causes include:
- OS/390
- CICS
- IMS
- Other programs

If the difference between the class 1 and class 2 elapsed times is somewhere between 10% and 50%, the problem lies somewhere in DB2. Verify the class 2 times.

Comparison of class 2 elapsed and class 2 CPU times:

The ratio of class 2 elapsed and class 2 CPU times indicates a potential problem with SQL.

If the difference between the class 2 elapsed time and class 2 CPU times is between 10% and 50% (when CL2 CPU/CL2 ELAPSED is greater than 0.5), the problem probably lies with SQL. Use an EXPLAIN or SQL Activity report.

If the class 2 elapsed time is significantly greater (when CL2 CPU/CL2 ELAPSED is less than 0.5), the application is experiencing long wait times. Verify the class 3 suspension times.

Class 2 CPU time per SQL DML statement execution:

Class 2 CPU time per SQL DML statement execution time helps to identify potential access path problems.

The time taken for an SQL DML statement to complete depends on the speed of your processor. Typically, for a 100 MIPS CPU, a DML statement should complete in less than one millisecond. Because some DML statements take more cycles to complete than others, the statements are weighted as follows:

SELECT+INSERT+UPDATE+OPEN+FETCH*0.1+PREPARE*5.
If you find that your SQL statement time is averaging well over the one millisecond, you can use the Workstation Online Monitor to identify the problem statements and use the drill-down capability to view these at statement level. If you suspect an access path problem, you can use the Query Workload Tuner to show the access path selected.

**Not accounted time:**

Excessive time that is not recorded by DB2 indicate potential problems with overloaded servers.

This is time that is not recorded by DB2, either in class 2 time or in class 3 suspension time. This time should be below 25% of the total class 2 time. A higher percentage usually indicates an overloaded server, which could cause problems for online transactions. When this figure is consistently high, you should consider reducing the workload on the server or installing a bigger server.

**Class 3 suspensions:**

Class 3 suspensions indicate potential problems with lock acquisitions, long wait times for synchronous I/O, and long service task switch times.

If the class 3 times are not high, the application wait times could be caused by CPU queuing or by OS/390 paging. This should be shown as class 2 not accounted time.

When evaluating class 3 suspensions, check the following information.

**Commit interval**

This is calculated as:

\[
\text{COMMIT INTERVAL} = \frac{\text{CLASS 2 ELAPSED TIME}}{\text{COMMTS+ROLLBACKS}}
\]

A value of 1 to 5 is acceptable. For example, if CLASS 2 ELAPSED TIME is 1 second and COMMIT is 1, the result is 1. Higher values indicate problems with lock acquisition, especially in batch applications.

**Class 3 synchronous I/O time per I/O event**

Typically, this time should be about 20 to 30 milliseconds. A longer time indicates a problem because applications are waiting for synchronous I/O.

You can reduce I/O contention by increasing the size of your buffer pools or by reorganizing table and index spaces using REORG.

I/O problems are often system related. If a corresponding Statistics report also indicates problems, take the appropriate action. There might also be problems which could be identified by RMF. Verify the buffer pool data set Statistics block of the report.

**Service task switch**

The accumulated wait time from switching synchronous execution units, by which DB2 switches from one execution unit to another.

The most common contributors to service task suspensions are:

- Wait for commit processing for updates (UPDATE COMMIT)
- Wait for OPEN/CLOSE service task (including HSM recall)
- Wait for SYSIBM.RNG recording service task
- Wait for data set extend/delete/define service task (EXT/DEL/DEF)
- Wait for other service tasks (OTHER SERVICE)
The significant fields here are the times used by:

- **UPDATE COMMIT**
  
  This is the average service time associated with a DB2 commit, abort, or deallocation. Normally this value should be below 12 milliseconds. If this value is significantly higher, verify the application or raise the interval between commits.

- **OPEN/CLOSE**
  
  If the average time for an OPEN/CLOSE exceeds 150 milliseconds, DSMAX can be too low or too many data sets are open in the system. Adjust the DSMAX threshold. A figure of between 8000 and 10000 is a good working size in most cases.

  Ensure that applications use the correct QUERYTYPE. Set the CLOSERULE parameter of the CREATE TABLESPACE, CREATE INDEX, ALTER TABLESPACE, and ALTER INDEX commands to YES for table spaces and indexes used mainly by batch and NO for those used mainly online.

### Using Statistics and Accounting reports to identify exceptions

Exception reporting is a very effective way to identify performance problems. Exception reporting identifies DB2 threads and Statistics intervals with fields that contain values outside defined thresholds. This helps you manage performance objectives by highlighting problems in the DB2 subsystem, such as applications that are experiencing exceptional conditions or DB2 subsystem conditions that are causing thread performance problems.

You should run Accounting and Statistics exception reports as part of your regular monitoring. Exception reporting is also available in the Online Monitor.

The thresholds are set in the Exception Threshold data set. You can define exception thresholds for a number of fields on a plan or program basis (commonly known as accounting or thread fields) and on a system basis (known as statistics fields). When you request exception reporting, the input data is checked against these values. Only records with at least one field outside a threshold are reported.

### Output from exception reporting

Exception processing provides several types of output as part of Accounting and Statistics reporting.

Exception reports, traces, and files are obtained using the EXCEPTION subcommand option in the ACCOUNTING and STATISTICS commands.

#### Reports and traces

Exception reports and traces are like the usual Accounting and Statistics reports and traces, except that they only contain records that have at least one field in exception status.

#### Logs

Exception logs combine both Accounting and Statistics fields that are in exception status into a single report and show the information in timestamp order.

#### File data sets and Log File data sets

The Exception File data set and the Exception Log File data set are sequential data sets that are suitable for use by the DB2 load utility. The Exception File data set contains Accounting or Statistics records that have at least one field in exception status. The Exception Log File data set contains both Accounting and Statistics fields that are in exception status. The Exception
File data set corresponds to an exception trace, whereas the Exception Log File data set corresponds to an exception log.

The Exception Log data set is written if you define the EXTRCDD1 DD statement in the JCL. To prevent the generation of the Exception Log data set, omit the EXTRCDD1 statement from your JCL (the preferred method), or specify DUMMY in the definition.

The Exception Log File data set is written if you define the EXFILDD1 DD statement in the JCL. To prevent the generation of the Exception Log File data set, omit the EXFILDD1 statement from your JCL (the preferred method), or specify DUMMY in the definition.

**Specifying exceptions using the Exception Threshold data set editor**

Exceptions are specified as threshold values in an Exception Threshold data set. When exception processing is active, DB2 instrumentation data is checked against these values and fields that contain values outside the specified thresholds are reported.

**About this task**

This topic describes how to specify threshold values with the Exception Threshold data set editor, which is used to set and maintain thresholds in an Exception Threshold data set.

The threshold values in the Exception Threshold data set can also be modified by means of the exception profiling method, which uses a sample of DB2 instrumentation data to calculate and set individual threshold values in the Exception Threshold data set. Refer to "Exception profiling" on page 2931 for more details. For more details about the Exception Threshold data set and a sample data set that can be used to get started, refer to "Exception Threshold data set" on page 2930.

The Exception Threshold data set editor is accessed indirectly from the Data Set Maintenance Menu (DGOPMENU, Figure 244 on page 2796). To display this menu, select option 4 (Maintain parameter data sets) from the Online Monitor Main Menu.
Select one of the following.

1. Maintain exception thresholds
2. Maintain correlation translations
3. Maintain time zone information
4. Maintain MAINPACK definitions

Exception data set
'DG0710.THRESH'

DPMPARMS data set
'DG0710.DPMPARMS'

Command ===> _________________________________________________________
F1=Help  F2=Split  F3=Exit  F9=Swap  F12=Cancel

Figure 244. Selecting Maintain Exception Threshold data set

Type 1 in the input field to select Maintain exception thresholds, and type the name of your Exception Threshold data set on the line below Exception data set.

Press Enter. The Exception Threshold Category Selection panel is displayed, as shown in Figure 245

Select one or more categories, then press Enter. Overtype with space to deselect any category. Request EXIT when complete.

Category
/ Elapsed, CPU and Waiting Times per Plan Execution
  Elapsed, CPU and Waiting Times per Program Execution
  CPU Times per Address Space
  SQL Statements per Plan Execution
  SQL Statements per Program Execution
  SQL Statements per System
  Subsystem Events per Plan Execution
  Subsystem Events per System
  Locking Activity per Plan Execution
  Locking Activity per System
  RID List Processing per Plan Execution
  RID List Processing per System
  Query Parallelism per Plan Execution
  Query Parallelism per System
  Buffer Pools Activity per Plan Execution
  Buffer Pools Activity per System
  Distributed Activity per Location per Plan Execution
  Distributed Activity per System
  Distributed Activity per Location per System
  IFI and Data Capture Activity per Plan Execution
  IFI Activity per System
  EDM Pool Activity per System
  Open/Close Activity per System
  Plan/Package Processing per System
F1=Help  F2=Split  F3=Exit  F7=Up  F8=Down  F9=Swap  F12=Cancel

Figure 245. Exception Threshold Category Selection panel

This panel shows the categories of exception threshold fields from which you can choose. The name of the category indicates the area where the exception applies:
... per Plan ... or ... per Program ... exceptions are reported in Accounting
... per System ... or ... per Address Space... exceptions are reported in Statistics

You can select any number of categories by typing a forward slash (/) or S in the selection field.

Fields that have previously been selected are marked by a greater than symbol (>). If you overtype the symbol in front of a category with a blank, the underlying selections are not deleted, but they are not used when exception reports are generated. To activate the category, select it again.

As an example, the Elapsed, CPU and Waiting Times per Plan Execution field is selected in Figure 245 on page 2796. When you press Enter, the Exception Threshold Field Selection panel is displayed, which shows all fields associated with this category, as shown in Figure 246.

```
DGOPXDS2 Exception Threshold Field Selection
Command ===> _________________________________________________________
Select one or more fields, then press Enter. Overtype with space to deselect any field. Request EXIT when complete.

Field category . . : Elapsed, CPU and Waiting Times per Plan Execution

 Field     Description
 > ADCPUT  CPU time in application (Class 1)
 / ADRECETT Elapsed time in application (Class 1)
 _ ADTWTP Total wait time in application (Class 1)
 _ ADDB2ETT Elapsed time in DB2 (Class 2)
 _ ADDBBCPUT CPU time in DB2 (Class 2)
 _ ADTWTDB Total wait time in DB2 (Class 2)
 _ ADSUST  Total Class 3 suspensions time
 _ ADTSUSC Total Class 3 suspensions
 _ QWACAWTL Lock/latch suspensions time (Class 3)
 _ ADLLSUSC Lock/latch suspensions (Class 3)
 _ QWACAWTI Synchronous I/O susp. time (Class 3)
 _ ADI0SSUSC Synchronous I/O suspensions (Class 3)
 _ QWACAMTR Other read I/O susp. time (Class 3)
 _ ADARDSUSC Other read I/O suspensions (Class 3)
 _ QWACAMTW Other write I/O susp. time (Class 3)
 _ ADANSUSC Other write I/O suspensions (Class 3)
 _ QWACAMTE Serv.task switch susp. time (Class 3)
 _ ADSTSSUC Serv.task switch suspensions (Class 3)
-- End of Items --
```

Figure 246. Exception Threshold Field Selection panel

This panel shows all fields in this category. Fields that have been selected previously are marked by a greater than symbol (>) and sorted to the top.

Select a field for which you want to specify the exception thresholds. Type a forward slash (/) or S in the selection field and press Enter. The Exception Threshold Field Details panel is displayed [Figure 247 on page 2798].
Use the Exception Threshold Field Details panel to specify the threshold criteria in the Exception Threshold data set for the field selected from the Exception Threshold Field Selection panel.

The top right-hand side of this panel shows the entry number for this specification. You can specify more than one entry for the same exception field by using different criteria. For example, you can specify different exception thresholds for different plans. Or you might want to specify different threshold values for different environments (such as batch, online, or CICS). To add a new entry, you use the ADD command or F5 (Add). To view the different entries, use F10 (Previous) and F11 (Next). Remove entries that are no longer needed to avoid extra processing by using the DELETE command or F6 (Delete).

The first three fields in the panel show the category of the selected exception field, the field identifier, and the description of the field.

In this panel you can specify:

- Whether you want this field to be Active when exception reports are run. If you do not want to use the exception field specification when you generate exception reports the next time, but want to keep the entry, specify 2 (No).
- How you want the field value to be calculated before it is checked against the exception thresholds (By). If you want the value in the field used as is, without any calculation, specify Total. Alternatively, you can specify that the value for the field is divided by minutes, by seconds, or by the number of Commits, or you can specify that the exception threshold is checked for the average value per thread (this is especially useful in reports). The effect of these specifications varies according to the report or trace you produce.
- The Compare operator. It can be greater than or less than the threshold.

**Figure 247. Exception Threshold Field Details**
• The thresholds. You can specify two kinds of thresholds for a field: Warning threshold and Problem threshold. Specify a warning threshold value to alert you to potential problems and a problem threshold value to indicate a more serious condition.

• The additional criteria for the data for which the exception thresholds apply. These criteria are useful if you want to specify different exception threshold values depending on the environment. For example, you might want to specify different Elapsed Time thresholds for online transactions and batch jobs, in which case you would supply a specific connection name in this panel, press F5 (Add), and specify a different connection name in the second panel.

You can specify a generic name using an asterisk (*).

Usage Notes:

• Specify the time value in seconds, for example, 90 to specify a threshold of 1 minute and 30 seconds.

• Do not enter 2 or 3 in the By field for time values. Specifying By Minute or By Second only is appropriate for fields that are not time related.

• For Accounting exception traces, By Thread has the same effect as Total because in an Accounting trace only one thread is used for one entry.

• For Accounting exception reports, if you specify Total, the threshold is checked for each thread. If you specify By Thread, the threshold value is checked against the average of the threads that are reported in one entry.

• The following applies to Statistics exception traces and reports:
  – If you specify By Minute or By Second, DB2 PE uses the value of the INTERVAL ELAPSED field in the HIGHLIGHTS block as a divisor to calculate the rate value that is to be checked against the defined threshold.
  – If you specify By Thread, the value of the THREADS field in the HIGHLIGHTS block is used as a divisor to calculate the rate value that is to be checked against the defined threshold.
  – If you specify By Commit, the value of the COMMITS field of the HIGHLIGHTS block is used as a divisor to calculate the rate value that is to be checked against the defined threshold.

How DB2 instrumentation data matches exception thresholds
During exception processing, DB2 instrumentation data records are tested against matching threshold conditions in the Exception Threshold data set.

When a record matches more than one threshold, the best matching threshold is chosen of those detecting an exception.

The key fields of a record are:
• Location
• Group
• Subsystem ID
• Member
• Requesting Location
• Connection
• Plan Name
• Correlation Name
• Correlation Number
• Primary Authorization ID
These key fields are compared with the corresponding fields in the thresholds and the threshold that best matches the record is chosen. This is done by comparing the Location of the record with the Location field of the matching thresholds first. A key field that does not contain an asterisk is considered a better match than one that contains asterisks. If two thresholds are found to match the record equally, the Group fields are compared with the record. If these fields also match the record equally, the Subsystem ID fields are compared with the record, and so on for the following fields:

- Member
- Requesting Location
- Connection
- Plan Name
- Correlation Name
- Correlation Number
- Primary Authorization ID

Exception checking in the reporting phase is performed on entries that are constructed according to your ORDER specification, which contains up to three OMEGAMON XE for DB2 PE identifiers. For example, if you qualify a field by PLANNAME and CONNECT, exception checking on the field is performed only if you specified both PLANNAME and CONNECT in ORDER.

Package-related fields are supported on a “by total” and “by thread” basis only.

**Example of producing an Accounting exception report**

The example shows the benefits of using exception reporting. It also describes how to produce an Accounting exception report.

**Accounting report - without Exception**

Assume that you would regularly produce a short Accounting report, such as the following example, and that the report would normally be fairly long.

<table>
<thead>
<tr>
<th>Location: DSNDB0G</th>
<th>Accounting report - short</th>
<th>Page: 1-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group: DSNDB0G</td>
<td>Accounting report - short</td>
<td>Requested from: NOT SPECIFIED</td>
</tr>
<tr>
<td>Member: DB1G</td>
<td>Accounting report - short</td>
<td>To: NOT SPECIFIED</td>
</tr>
<tr>
<td>Subsystem: DB1G</td>
<td>Accounting report - short</td>
<td>Interval from: 05/15/15 22:35:07.26</td>
</tr>
<tr>
<td>DB2 version: V11</td>
<td>Accounting report - short</td>
<td>To: 05/15/15 22:56:45.89</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRIMAUTH</th>
<th>#OCCURS</th>
<th>#ROLLBK</th>
<th>SELECTS</th>
<th>UPDATES</th>
<th>DELETES</th>
<th>CLASS1</th>
<th>EL. TIME</th>
<th>CLASS2</th>
<th>EL. TIME</th>
<th>GETPAGES</th>
<th>SYN.READ</th>
<th>LOCK SUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSADM</td>
<td>20</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.253473</td>
<td>0.253207</td>
<td>N/P</td>
<td>N/P</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>'BLANK'</td>
<td>0</td>
<td>20</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.009828</td>
<td>0.009540</td>
<td>N/P</td>
<td>N/P</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>USRT002</td>
<td>7</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>1.00</td>
<td>1:32.66960</td>
<td>1:32.601455</td>
<td>32711.57</td>
<td>8.57</td>
<td>18.14</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>DSNTEP71</td>
<td>0</td>
<td>7</td>
<td>1.14</td>
<td>0.57</td>
<td>0.57</td>
<td>46.990679</td>
<td>46.971450</td>
<td>38572.71</td>
<td>1018.14</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

If you want to use this Accounting exception report to find out whether the class 1 elapsed time per thread is unacceptably high, you would have to check every entry on every page even though you are not interested in entries that fall within normal bounds.

To save time, you can specify exception thresholds for the class 1 time field per thread, and run Accounting exception reports that show only entries that have exceptionally high values for this field. You can further limit the data by only checking online transactions because you would expect to find a high elapsed time for batch jobs.
In this example transactions have a plan name PLANTRN and batch jobs have a plan name PLANBATn. The connection ID for the CICS address space is CICSA.

Access data set member RK02DATA(DG0ETV51) with the IRF and specify the thresholds in the Exception Threshold Field Details panel.

This example specifies that:

- Exceptions are checked for the class 1 elapsed time field ADRECETT.
- The Elapsed Time thresholds are checked for the average value per thread. This means that the value in this field is divided by the number of threads.
- The comparison is Greater than.
- If the class 1 elapsed time value exceeds three seconds per thread, it is flagged as a warning exception. If it exceeds six seconds per thread, it is flagged as a problem exception.
- Only data with a connection ID of CICSA (CICS transactions) is checked for exceptions.

After you have completed the specifications, press Enter. The exception threshold specification is complete.

Now you can run the Accounting exception report. Remember to specify the name of your Exception Threshold data set for the EXCPTDD ddname in the JCL. Use the following command to produce the report:

```
ACCOUNTING
REPORT
```
EXCEPTION

Accounting exception report

The following example shows the resulting Accounting exception report.

The exception report is much shorter than the original Accounting report. It only lists transactions with class 1 elapsed times that exceeded the exception threshold, and it flags these transactions as warnings or problems.

If you specify more than one exception threshold, all records that contained any fields that reached an exception threshold value will be listed.

Which exception fields and threshold values to choose

You can choose from a comprehensive set of exception fields and it can be difficult to decide which ones to choose and which threshold values to specify for your site. As a rule, most sites only need to define a limited number of thresholds.

To get started with exception reporting, consider using the sample Exception Threshold data set member RK02DATA(DG0ETV51), which contains a selection of predefined exception thresholds. For more information, see “Exception Threshold data set” on page 2930.

In general, long response times are a good indicator of a performance problem and therefore you should start by defining exception thresholds for time fields.

To use exception processing efficiently, consider what the most important applications or transactions in your system are. Always define exception thresholds for critical business applications. In addition, frequently executed applications are good candidates for exception thresholds.
The application-specific thresholds are defined by specifying the plans for which the threshold applies. An efficient way of determining which plans or connection IDs should be the focus of exception reporting is to produce Accounting TOP lists.

You can use the performance objectives stated in your service level agreement as a starting point. Accounting TOP lists and TOP ONLY reports are good references when determining which threads to monitor with exception processing. You can modify the predefined threshold values and specify additional exception fields.

Carefully consider the fields for which to specify exception thresholds. The more fields you specify, the greater the effects on processing.

You can use the exception profiling method and a sample of your installation’s DB2 instrumentation data to calculate threshold values for exception fields. For more information, see “Exception profiling” on page 2931.

Using SQL Activity reports to monitor SQL performance

SQL Activity reports provide detailed information about individual SQL statements in a plan or package. The SQL Activity report aggregates threads by a combination of OMEGAMON XE for DB2 PE identifiers. The SQL Activity trace shows details on a per thread basis.

At its simplest, the SQL Activity trace report shows each SQL statement in a thread by order of occurrence.

For each SQL statement basic information about the statement is shown. At the end of the thread, a summary is shown. If the thread originated at a different location, location information is also provided. A new thread is reported on a new page.

The end of the report shows a list of threads, in the order of occurrence, with a cross reference to the page where they are reported.

You can increase the level of detail by requesting workload. Workload shows information about DB2 activity associated with the execution of the statement. You can request workload details for:

- All workload
- Data capture
- Exits
- I/O activity
- Locking activity for rows and pages
- Scan activity
- Sort activity
- Host variables data

By default, no workload information is shown.

When you request workload, extra information is also provided:

Accounting

If IFCID 3 is included in your DB2 trace, OMEGAMON XE for DB2 PE includes an long Accounting trace for each thread.
Minibind
This shows bind information for each plan step. This is information taken from IFCID 22 and shows much of the information contained in the PLAN_TABLE.

User-defined functions
When user-defined functions are used, the report includes a Function Resolution block. This block shows information about the query, the path used, and detailed information about the function.

You can change the organization of data to group (summarize) events by:
- Cursor
- Program
- Statement number
- Statement type

Or you can change all of the above.

You can also sort the data by:
- Time:
  - Elapsed
  - Exit
  - I/O
  - Suspension
  - TCB
- Number of:
  - Exits
  - I/O requests
  - Merge passes for each sort
  - Pages scanned
  - Records sorted
  - Rows processed
  - Scans
  - Suspensions
  - Work files sorted

When to use SQL Activity reports
Use SQL Activity reports to resolve performance problems with applications or queries that cannot be resolved by using the Accounting or Explain reports.

These are most commonly problems with scan and sort activity. To isolate the problem, you need to run an SQL Activity trace, which shows the workload for sort.

Input for SQL Activity reports
Each DB2 trace type and trace class contains one or more Instrumentation Facility Component identifiers (IFCID). The SQL Activity report set uses DB2 trace class and IFCID information to register specific SQL activity events.

SQL activity events are classified as follows:
- Accounting
- Base
An SQL activity event is normally characterized by a start record and an end record. When you select event records as input for your reports, you must include the paired end event, where applicable. When you use the ISPF monitor or the Collect Report Data function of the Performance Expert Client to manage DB2 traces, the trace generator automatically includes the correct end record.

The following table shows the IFCIDs used in SQL Activity reporting, together with the associated DB2 trace classes and end pair IFCIDs, where appropriate.

**Table 234. IFCIDs used for SQL Activity reports**

<table>
<thead>
<tr>
<th>Start IFCID</th>
<th>DB2 trace class &amp; SQL Activity event type</th>
<th>End IFCID</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Accounting</td>
<td>• 1 Accounting data&lt;br&gt;• 2 DB2 times&lt;br&gt;• 3 Suspension, system events&lt;br&gt;• 5 Package in DB2 time</td>
<td>None</td>
</tr>
<tr>
<td>6 Read I/O Start</td>
<td>4 I/O</td>
<td>7 Read I/O Stop</td>
</tr>
<tr>
<td>8 Write I/O Synch begin</td>
<td>4 I/O</td>
<td>9 Write I/O end</td>
</tr>
<tr>
<td>11 Validate Exit</td>
<td>13 Exit</td>
<td></td>
</tr>
<tr>
<td>12 Edit Exit to Encode</td>
<td>13 Exit</td>
<td></td>
</tr>
<tr>
<td>15 Index Scan Begin</td>
<td>8 Scan</td>
<td>18 Scan End</td>
</tr>
<tr>
<td>16 Insert Scan Begin</td>
<td>8 Scan</td>
<td>18 Scan End</td>
</tr>
<tr>
<td>17 Sequential Scan Begin</td>
<td>8 Scan</td>
<td>18 Scan End</td>
</tr>
<tr>
<td>19 Edit Exit to Decode</td>
<td>13 Exit</td>
<td></td>
</tr>
<tr>
<td>20 Lock Summary</td>
<td>6 Locking</td>
<td>None</td>
</tr>
<tr>
<td>22 Minibind</td>
<td>3 Base</td>
<td>None</td>
</tr>
<tr>
<td>28 Sort Phase Detail</td>
<td>9 Sort</td>
<td>None</td>
</tr>
<tr>
<td>44 Lock Suspend</td>
<td>6 Locking</td>
<td>45 Lock Resume</td>
</tr>
<tr>
<td>53 SQL Describe, Commit, Rollback, or Remote statement</td>
<td>3 Base</td>
<td>None</td>
</tr>
<tr>
<td>55 Set SQLID</td>
<td>3 Base</td>
<td>None</td>
</tr>
<tr>
<td>59 Fetch Start</td>
<td>3 Base</td>
<td>58 End SQL</td>
</tr>
<tr>
<td>60 Select Start</td>
<td>3 Base</td>
<td>58 End SQL</td>
</tr>
<tr>
<td>61 Insert, Update, or Delete Start</td>
<td>3 Base</td>
<td>58 End SQL</td>
</tr>
<tr>
<td>62 DDL Start</td>
<td>3 Base</td>
<td>58 End SQL</td>
</tr>
<tr>
<td>63 SQL Statement</td>
<td>3 Base</td>
<td>None</td>
</tr>
<tr>
<td>Start IFCID</td>
<td>DB2 trace class &amp; SQL Activity event type</td>
<td>End IFCID</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>64 Prepare Start</td>
<td>3 Base</td>
<td>58 End SQL</td>
</tr>
<tr>
<td>65 Open Cursor</td>
<td>3 Base</td>
<td>58 End SQL</td>
</tr>
<tr>
<td>66 Close Cursor</td>
<td>3 Base</td>
<td>58 End SQL</td>
</tr>
<tr>
<td>68 Rollback Start</td>
<td>3 Base</td>
<td>69 Rollback End</td>
</tr>
<tr>
<td>70 Commit Phase 2 Start</td>
<td>3 Base</td>
<td>71 Commit Phase 2 End</td>
</tr>
<tr>
<td>72 Create Thread Start</td>
<td>3 Base</td>
<td>73 Create Thread End</td>
</tr>
<tr>
<td>74 Terminate Thread Start</td>
<td>3 Base</td>
<td>75 Terminate Thread End</td>
</tr>
<tr>
<td>84 Prepare Start</td>
<td>3 Base</td>
<td>85 Prepare End</td>
</tr>
<tr>
<td>86 Signon Start</td>
<td>3 Base</td>
<td>87 Signon End</td>
</tr>
<tr>
<td>88 Synch Start</td>
<td>3 Base</td>
<td>89 Synch End</td>
</tr>
<tr>
<td>92 AMS Command Start</td>
<td>3 Workload highlight</td>
<td>97 AMS Command End</td>
</tr>
<tr>
<td>95 Sort Start</td>
<td>3 Sort</td>
<td>96 Sort End</td>
</tr>
<tr>
<td>105 DBID/OBID Translation</td>
<td>10 Base</td>
<td>110 DBID/OBID Translation End</td>
</tr>
<tr>
<td>106 System Parameters</td>
<td>8 Scan</td>
<td>110 DBID/OBID Translation End</td>
</tr>
<tr>
<td>107 Open/Close</td>
<td>10 Base</td>
<td>109 Bind End</td>
</tr>
<tr>
<td>125 RID Pool Processing</td>
<td>8 Scan</td>
<td>125 RID Pool Processing End</td>
</tr>
<tr>
<td>157 DRDS RDS Interface</td>
<td>16 Base</td>
<td>None</td>
</tr>
<tr>
<td>159 DRDS Req Site Data</td>
<td>16 Base</td>
<td>None</td>
</tr>
<tr>
<td>160 DC Requester</td>
<td>16 Base</td>
<td>None</td>
</tr>
<tr>
<td>161 DC Server</td>
<td>16 Base</td>
<td>None</td>
</tr>
<tr>
<td>162 DTM Request</td>
<td>16 Base</td>
<td>None</td>
</tr>
<tr>
<td>163 DTM Respond</td>
<td>16 Base</td>
<td>None</td>
</tr>
<tr>
<td>174 Arch Log CMD Sus Start</td>
<td>3 Base</td>
<td>175 Arch Log CMD Sus End</td>
</tr>
<tr>
<td>177 Package Allocation</td>
<td>3 Base</td>
<td>None</td>
</tr>
<tr>
<td>183 DRDS RDS/SCC Interface</td>
<td>16 Base</td>
<td>183 DRDS RDS/SCC Interface Return</td>
</tr>
<tr>
<td>185 READs Data Capture Start</td>
<td>18 Scan</td>
<td>185 READs Data Capture End</td>
</tr>
<tr>
<td>213 Drain Lock Wait Start</td>
<td>6 Locking</td>
<td>214 Drain Lock Wait End</td>
</tr>
<tr>
<td>215 Claim Count 0 Wait Start</td>
<td>6 Locking</td>
<td>216 Claim Count 0 Wait End</td>
</tr>
<tr>
<td>218 Lock Avoidance Summary</td>
<td>6 Locking</td>
<td>None</td>
</tr>
<tr>
<td>221 Parallel Group Execution</td>
<td>8 Scan</td>
<td>221 Parallel Group Execution End</td>
</tr>
<tr>
<td>222 Parallel Group Elapsed Time</td>
<td>8 Scan</td>
<td>222 Parallel Group Elapsed Time End</td>
</tr>
<tr>
<td>226 Page Latch Contention Start</td>
<td>4 Locking</td>
<td>226 Page Latch Contention End</td>
</tr>
<tr>
<td>231 Parallel Group Task Time</td>
<td>8 Scan</td>
<td>231 Parallel Group Task Time End</td>
</tr>
<tr>
<td>233 Call User Routine</td>
<td>3 Base</td>
<td>233 Call User Routine End</td>
</tr>
<tr>
<td>237 Set Current Degree</td>
<td>3 Base</td>
<td>58 End SQL</td>
</tr>
</tbody>
</table>
Table 234. IFCIDs used for SQL Activity reports (continued)

<table>
<thead>
<tr>
<th>Start IFCID</th>
<th>DB2 trace class &amp; SQL Activity event type</th>
<th>End IFCID</th>
</tr>
</thead>
<tbody>
<tr>
<td>239 Overflow Package/DBRM</td>
<td>7 Accounting</td>
<td>None</td>
</tr>
<tr>
<td>247 SQLDA Data and Input Host Variable Data</td>
<td>5 Host variables data</td>
<td>None</td>
</tr>
<tr>
<td>272 Associate Locators</td>
<td>3 Base</td>
<td>58 End SQL</td>
</tr>
<tr>
<td>273 Allocate Cursor</td>
<td>3 Base</td>
<td>58 End SQL</td>
</tr>
<tr>
<td>305 Table Check Constraint</td>
<td>8 Scan</td>
<td>18 Scan End</td>
</tr>
<tr>
<td>324 Function Resolution</td>
<td>3 Base</td>
<td>58 End SQL</td>
</tr>
<tr>
<td>325 Trigger Activation</td>
<td>3 Base</td>
<td>58 End SQL</td>
</tr>
</tbody>
</table>

**Collecting SQL Activity data with a DB2 trace**

To create an SQL Activity trace report, you must collect data by using a DB2 trace.

The easiest way to collect data for any OMEGAMON XE for DB2 PE report is to use the activate traces facility of the workstation monitor. You can use this facility to configure a DB2 trace and start and stop the trace from there. Using the activate traces facility also ensures that you include all data in the DB2 trace that is needed for a report. For more information, see [Monitoring Performance from Performance Expert Client](#).

Alternatively, you can start a DB2 trace as follows:

```
-START TRACE (P) CLASS (30) RMID (*) DEST (OPX) PLAN (PMOMDEV) AUTHID (DB2PE)
  IFCID(6,7,8,9,11,12,13,15,16,17,18,22,28,45,53,55,58,59,60, 61,62,63,64,65,66,68,69,70,71,72,73,74,75,84,85,86,87, 88,89,92,95,96,97,105,106,107,108,109,125,157,159,160, 162,163,174,175,177,183,188,214,215,216,221,222,226,227, 231,233,237,242,272,273,305,324,325) BUFSIZE(512)
```

Because you need sort data, include IFCIDs 95 and 96 (Sort Start and Sort End).

For information regarding DB2 trace data provided by IFCID 350 see “Remark about lengths of SQL statement texts in SQL Activity traces” on page 2810.

**Creating an SQL Activity trace**

Use your ISPF editor to create a JCL job that creates an SQL Activity trace.

The following JCL is an example. Remember to change the setup information (starting with // in your JCL) as appropriate for your installation.
Figure 249. SQL Activity job stream using ISPF/PDF editor

To submit the job, type SUBMIT on the command line and press Enter.

**SQL Activity trace, summarized by occurrence**

Here is an example of an SQL Activity trace, summarized by occurrence.

```
LOCATION: DHIG  OMEGAMON XE for DB2 Performance Expert (V5R4M0)  PAGE: 1-1
GROUP: N/P  REQUESTED FROM: NOT SPECIFIED
MEMBER: N/P  TO: NOT SPECIFIED
DB2 VERSION: V10

SUMMARIZED BY OCCURRENCE, WITH SORT WORKLOAD

PRIMAUTH: DB2PJE  CORRNAME: PYPB  CONNTYPE: IMS-MPP
ORIGAUTH: LGT0244  PLANNAME: PMODEV  CORRMNB: 0052  THROTYPE: ALLIED
ENDUSER: 'BLANK'  WSNAME: 'BLANK'  TRANSC: 'BLANK'

TRACE # 1.1  DB2 LUWID: DHIG.DHIG.X'B575F4B5662'
             ACE ADDRESS: X'114BEFF8'
             CICS LUWID: CICSS.CICSS.X'06C264C006C'

START TIME: 09/27/15 20:16:13.13  START ELAPSED: 0.000017  START REASON: NEW USER
STOP TIME : 09/27/15 20:16:13.23  STOP ELAPSED : 0.000014  STOP REASON : NEW USER

<table>
<thead>
<tr>
<th>EVENT</th>
<th>TIMESTAMP</th>
<th>ELAP.TIME</th>
<th>TCB TIME</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBRM</td>
<td>20:16:13.13</td>
<td>0.000162</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PYPB</td>
<td>20:16:13.13</td>
<td>0.000016</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

--- WORKLOAD HILITE ---

<table>
<thead>
<tr>
<th>MEMBER</th>
<th>N/P</th>
<th>RECORDS</th>
<th>1.00</th>
<th>MAX REQUESTED</th>
<th>N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL SORTS</td>
<td>1 INITIAL WORKFILES</td>
<td>1.00</td>
<td>RECORD SIZE</td>
<td>29.00</td>
<td>AVG REQUESTED</td>
</tr>
<tr>
<td>SORT KEYS</td>
<td>1.00</td>
<td>WORKFILES PARTITIONED</td>
<td>0.00</td>
<td>KEY SIZE</td>
<td>8.00</td>
</tr>
<tr>
<td>SORT COLUMNS</td>
<td>3.00</td>
<td>PARTITIONING &amp; SORTING</td>
<td>0.00</td>
<td>NO DATA SIZE</td>
<td>21.00</td>
</tr>
<tr>
<td>AET/SORT</td>
<td>0.000014</td>
<td>PARTITIONING &amp; SORTING</td>
<td>0.00</td>
<td>NO ROWS DELETED</td>
<td>0.00</td>
</tr>
<tr>
<td>SORT TYPE</td>
<td>ESA</td>
<td>PARTITION TYPE</td>
<td>NONE</td>
<td>MERGE PASSES</td>
<td>0.00</td>
</tr>
</tbody>
</table>

--- SORT ACTIVITY ---

<table>
<thead>
<tr>
<th>STMT#</th>
<th>408</th>
<th>ISO(CS)</th>
<th>SQLSTATE: 00000 SQLCODE: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>REOPTIMIZED(NO)</td>
<td>KEEP UPDATE LOCKS</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

--- WORKLOAD HILITE ---

<table>
<thead>
<tr>
<th>MEMBER</th>
<th>N/P</th>
<th>RECORDS</th>
<th>1.00</th>
<th>MAX REQUESTED</th>
<th>N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL SORTS</td>
<td>1 INITIAL WORKFILES</td>
<td>1.00</td>
<td>RECORD SIZE</td>
<td>29.00</td>
<td>AVG REQUESTED</td>
</tr>
<tr>
<td>SORT KEYS</td>
<td>1.00</td>
<td>WORKFILES PARTITIONED</td>
<td>0.00</td>
<td>KEY SIZE</td>
<td>8.00</td>
</tr>
<tr>
<td>SORT COLUMNS</td>
<td>3.00</td>
<td>PARTITIONING &amp; SORTING</td>
<td>0.00</td>
<td>NO DATA SIZE</td>
<td>21.00</td>
</tr>
<tr>
<td>AET/SORT</td>
<td>0.000014</td>
<td>PARTITIONING &amp; SORTING</td>
<td>0.00</td>
<td>NO ROWS DELETED</td>
<td>0.00</td>
</tr>
<tr>
<td>SORT TYPE</td>
<td>ESA</td>
<td>PARTITION TYPE</td>
<td>NONE</td>
<td>MERGE PASSES</td>
<td>0.00</td>
</tr>
</tbody>
</table>

--- WORKLOAD HILITE ---

<table>
<thead>
<tr>
<th>STMT#</th>
<th>425</th>
<th>CUR_CUSTNAME</th>
<th>SQLSTATE: 00000 SQLCODE: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>REOPTIMIZED(NO)</td>
<td>KEEP UPDATE LOCKS</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

--- WORKLOAD HILITE ---

<table>
<thead>
<tr>
<th>STMT#</th>
<th>483</th>
<th>CUR_CUSTOMER</th>
<th>ISO(CS)</th>
<th>SQLSTATE: 00000 SQLCODE: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>REOPTIMIZED(NO)</td>
<td>KEEP UPDATE LOCKS</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

--- WORKLOAD HILITE ---

<table>
<thead>
<tr>
<th>STMT#</th>
<th>493</th>
<th>CUR_WAREHOUSE</th>
<th>ISO(CS)</th>
<th>SQLSTATE: 00000 SQLCODE: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>REOPTIMIZED(NO)</td>
<td>KEEP UPDATE LOCKS</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```
--- SORT ACTIVITY --------------------------------------------------------------

MEMBER: N/P  WORKFILES: 1.00 RECORDS: 1.00 MAX REQUESTED: N/P
TOTAL SORTS: 1 INITIAL WORKFILES: 1.00 RECORD SIZE: 15.00 AVG REQUESTED: N/P
SORT KEYS: 1.00 WORKFILES PARTITIONED: 0.00 KEY SIZE: 10.00 MAX NOT ACQUIRED: N/P
SORT COLUMNS: 2.00 PARTITIONING NO DATA SIZE: 12.00 AVG NOT ACQUIRED: N/P
AET/SORT: 0.000012 PARTITIONING & SORTING: NO ROWS DELETED: 0.00 MAX RETURN CODE: 0
SORT TYPE: ESA  PARTITION TYPE: NONE MERGE PASSES: 0.00

**FETCH**

| 20:16:13.11 | 0.000094 | STMT# 497 CURSOR: CUR_WAREHOUSE | SQLSTATE: 00000 SQLCODE: 0 |

**UPDATE**

| 20:16:13.11 | 0.000071 | STMT# 507 CURSOR: CUR_WAREHOUSE | ISO(CS) SQLSTATE: 00000 SQLCODE: 0 |

**INSERT**

| 20:16:13.11 | 0.000096 | STMT# 544 ISO(CS) SQLSTATE: 00000 SQLCODE: 0 |

**COMMIT PHASE 1**

| 20:16:13.16 | 0.004708 |

**COMMIT PHASE 2**

| 20:16:13.16 | 0.006613 |

---

**LOCATION:** DHIG
**GROUP: N/P
**MEMBER: N/P
**SUBSYSTEM: DHIG
**DB2 VERSION: V10

**SUMMARIZED BY THREAD**

| PRIMAUTH: DB2PE | CONNECT : IMSA | CORRNAME: PYPIB | CONNTYPE: IMS-MPP |
| DRIAUTH: LTQ244 | PLANNAME: PMOMDEV | CORRMMBR: DB2E | THRDTYPE: ALIEN |
| ENDUSER : 'BLANK' | WSNNAME : 'BLANK' | TRANACT: 'BLANK' |

**TRACE # 1**

| DB2 LUID: DHIG.DHIG.X'B575F4B56662' | ACE ADDRESS: X'114B8B8F' |
| CICS LUID: CIC51.CIC51.X'006C264C006C' |

**START TIME:** 09/27/15 20:16:13.13  **START ELAPSED:** 0.000017  **START REASON:** NEW USER

**STOP TIME:** 09/27/15 20:16:13.23  **STOP ELAPSED:** 0.000014  **STOP REASON:** NEW USER

---

**EVENT**

<table>
<thead>
<tr>
<th>COUNT</th>
<th>TOTAL TCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>AET/EVENT</td>
<td>TOTAL TCB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EVENT</th>
<th>COUNT</th>
<th>TOT.ELAPS</th>
<th>TOTAL TCB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>0.001792</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>1.00</td>
<td>0.000096</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>1.00</td>
<td>0.000015</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>1.00</td>
<td>0.000017</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
</tbody>
</table>

**LOCATION:** DHIG
**GROUP: N/P
**MEMBER: N/P
**SUBSYSTEM: DHIG
**DB2 VERSION: V10

**INDEX**

**SQL TRACE # 1**

| DB2 LUID: DHIG.DHIG.X'B575F4B56662' | ACE ADDRESS: X'114B8B8F' |
| CICS LUID: CIC51.CIC51.X'006C264C006C' |

**START TIME:** 09/27/15 20:16:13.13  **START ELAPSED:** 0.000017  **START REASON:** NEW USER

**STOP TIME:** 09/27/15 20:16:13.23  **STOP ELAPSED:** 0.000014  **STOP REASON:** NEW USER

---

**SQL ACTIVITY TRACE COMPLETE**

---

**Interpreting the result**

The example shows details of the Sort Activity block of an SQL Activity trace.

**SQL Activity workload highlight block**

Following the example in this section, you suspect that the application has problems with sorting or scanning data. The Sort Activity block of the report is printed under the event that triggered the sort, together with the workload highlights, and any other requested workload.

---

**OPEN**

| 20:16:13.15 | 0.000015 | STMT# 493 CURSOR: CUR_WAREHOUSE | ISO(CS) SQLSTATE: 00000 SQLCODE: 0 |

---

**WORKLOAD HILITE**

<table>
<thead>
<tr>
<th>SCANS: 2</th>
<th>RECS/SORT: 1.00</th>
<th>I/O RECS: 1</th>
<th>SUSPENDS: N/P</th>
<th>EXITS: N/P</th>
<th>AMS: N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>RWNSPROC: 2</td>
<td>WORK/SORT: 1.00</td>
<td>AET/1/0: 0.000006</td>
<td>AET/SUSP: N/P</td>
<td>AET/EXIT: N/P</td>
<td>AET/MS: N/P</td>
</tr>
<tr>
<td>PAGESCANS: 30</td>
<td>PAGE/SORT: 0.00</td>
<td>DATAPCT: N/P</td>
<td>RIDS UNUSED: N/P</td>
<td>CHECKCON: N/P</td>
<td>DEGREE REDUCTION: N/P</td>
</tr>
<tr>
<td>LOB_PAGSCANS: 0</td>
<td>LOB_UPD_PAGE: 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**SORT ACTIVITY**

| MEMBER: N/P | WORKFILES: 1.00 RECORDS: 1.00 MAX REQUESTED: N/P |
| TOTAL SORTS: 1 INITIAL WORKFILES: 1.00 RECORD SIZE: 15.00 AVG REQUESTED: N/P |

Chapter 6. Batch reporting 2809
Verify the average elapsed times for sorts (AET/SORT field. Approximately 0.00001 seconds (0.01 milliseconds) per row sorted is acceptable. Significantly higher values indicate a sort problem.

Sort problems could be caused by any of the following factors:
- Statements with DISTINCT
- Noncorrelated subqueries
- UNION
- Missing index

If your analysis indicates no significant sort problems, the problem could be a scan problem. Look for SQL statements with:
- Nonindexable predicates (WHERE (COL1*COL2) > (COL3*COL4))
- OR connections
- Noncorrelated subqueries
- Use of static SQL rather than dynamic SQL
- Missing index

**Remark about lengths of SQL statement texts in SQL Activity traces**

How extended SQL statement texts become visible in SQL Activity traces with IFCID 350.

An SQL Activity trace might show SQL statement texts in the report, depending on the subcommand options that were specified with the SQLACTIVITY TRACE command. The SQL statement texts are provided by IFCID 63, which limits the length to a maximum of 5000 characters. Consequently, SQL statement texts shown in SQL Activity trace reports are also limited to this length.

IFCID 350 records SQL statement texts up to a length of 200000 characters each. However, IFCID 350 data is not shown in SQL Activity reports and traces; this is independent of whether IFCID 350 data is provided by a DB2 trace.

To obtain extended SQL statement texts, perform the following steps:
1. Start a DB2 trace to collect data, using trace class 30, 31, or 32, and specifying IFCID 350, for example:
   - START TRACE CLASS(30) IFCID(350) DEST(SMF) TDATA(CPU,CON,DIST)
2. Create a Record Trace report (refer to "Record Trace reports" on page 2833 for details).
   Use the GLOBAL command and its options to minimize the amount of data that is produced by the Record trace and to filter the required data, similar to the following example:
   
   ```
   GLOBAL
   FROM(,12:19:59.99)
   TO(,12:20:00.93)
   INCLUDE(IFCID(350))
   ```

**Using Explain reports to monitor access paths**

The OMEGAMON XE for DB2 PE Explain reports are built on the information that is supplied by the DB2 SQL Explain function and information taken from the
system catalog tables. An Explain report provides information about the exact access path that is used by DB2 for any particular SQL statement and its effect on DB2 performance.

Because DB2 is a relational database system, masses of data are stored in the form of table columns with no predetermined row order. Data can also be spread across several tables, partitions, and DB2 instances. The arrangement of data, and the complexity of many queries means that the method (access plan) used, and the route taken to the data (access path) cannot always be determined at application development time, especially when dynamic SQL is used.

The access plan and access path used by DB2 are important factors in DB2 performance. However, for any particular query, the access plan and access path are influenced by many factors, such as whether indexes are used and, if so, how many, whether data is clustered, joins are used, the locking strategy used, and so on.

**Explain reports**
OMEGAMON XE for DB2 PE provides Explain reports by query number, statement text, plan, package, and QMF query.

**Query number**
You can investigate a particular SQL statement identified by its query number when:

- A dynamic SQL EXPLAIN statement was executed with a given query number. The statement can be from DB2 or QMF. If the query number is not specified, DB2 assigns a number. You can get the query number from the PLAN_TABLE.
- The application was bound (or rebound) with EXPLAIN(YES). In this instance, the statement query number is assigned by the precompiler.

Explain searches for the query number in the job submitter’s PLAN_TABLE, unless a different owner is specified. If you want to run an Explain report for a statement that you do not own, you need access to the owner’s plan table.

**Statement text**
Can be used to investigate a particular SQL statement that is supplied in its text form.

Explain uses 999 735 911 as a query number. If this statement number already exists in the PLAN_TABLE, the row is deleted before processing the SQL statement. After successful execution of SQL EXPLAIN, the newly inserted row in the PLAN_TABLE is used to produce the Explain report.

**Plan**
This reports on all or selected SQL statements contained in an application plan.

To create a report for a plan, that plan must exist in the catalog table SYSIBM.SYSPLAN and must have been bound with EXPLAIN(YES).

**Package**
This reports on SQL statements in a package.

To create a report for a package, that package must exist in the catalog table SYSIBM.SYSPACKAGE and must have been bound with EXPLAIN(YES).
QMF query
Can be used to investigate a saved QMF query written in SQL. QBE and
PROMPTED queries must be converted to SQL before they can be explained.

You can create reports about your own saved QMF queries, and queries
created by other users, saved with SHARE=YES.

The QMF query can contain parameters, for example, and &PARM1 and
&PARM2. These parameters can also substitute column names in the select
list. However, the query must not contain literals and other strings with
one or more ampersands (&), enclosed between quotes (').

If there is more than one entry in the PLAN_TABLE with the same
identifiers, the most recent entry is reported.

Levels of detail
To control the amount of data, which can be very large especially for Explain plan
or package, you can request summary and detail level Explain reports.

Summary
A summary report shows one line for each SQL statement.
A summary block is always printed at the end of a report.

Detail This produces a full report for each SQL statement, which shows:
• “Raw” SQL EXPLAIN data as found in the PLAN_TABLE
• Access path data
• Table and table space data
• Index data, this shows:
  – All available indexes for a given table
  – Indexes selected for the access only
• Key data
• Plan and package data
• Host variables data
• Summary page

The number of data blocks listed varies with the Explain function
requested.

Basic This shows raw data from the PLAN_TABLE and Access Path Data blocks
in the report for each SQL statement. Information from the catalog tables is
not included.

SQL The Access Path Data block is shown for each SQL statement.

Index Data
All data blocks of the DETAIL level are shown except for the Key Data
block.

No Raw PLAN_TABLE Data
All data blocks of the DETAIL level, except the raw PLAN_TABLE, are
shown.

Key Distribution
All data blocks of the DETAIL level are shown including the distribution of
the ten mostly used key values.

Required authorization
Explain reports require SELECT authorization to access certain tables.
Because OMEGAMON XE for DB2 PE uses DB2 system catalog tables to create Explain reports, you need SELECT authorization for the SYSIBM.SYS* catalog tables.

To explain saved QMF queries, you need SELECT authorization for the following QMF tables:
- `Q.OBJECT_DIRECTORY`
- `Q.OBJECT_DATA`

To control user access to the catalog tables, OMEGAMON XE for DB2 PE selects data through views. Sample definitions are in the RKO2SAMP library. You can use these definitions as supplied, or tailor them for your installation. For more information, see Configuration and Customization and the Program Directory (refer to OMEGAMON for Db2 Performance Expert on z/OS).

When you produce an Explain report, OMEGAMON XE for DB2 PE checks for the plan table. If it does not exist, it is created in the default database, if you have the required privileges. If you are not authorized, the execution of Explain ends with an error message.

**When to use Explain reports**
Use Explain reports if you suspect a problem with indexes or SQL statements.

You should be able to identify candidate plans or packages from the Accounting report. Generally, an SQL statement or index problem is indicated when an application seems to be spending a lot of time in DB2. That is, when the class 2 elapsed time is not significantly greater (50% or more) than the class 2 CPU (TCB).

Access path problems can also be indicated by a high number of Getpage operations for an SQL statement.

If you are using dynamic SQL, you can use the EXPLAIN statement to obtain information about each statement.

For static SQL, unless you know the text of a suspect statement or the statement number, use the Explain reports at the plan or package level.

**Creating an Explain report**
Use your ISPF editor to create a JCL job that creates an Explain report.

The following JCL is an example. Remember to change the setup information (starting with // in your JCL) as appropriate for your installation.
This example produces an Explain detail report for the second generation of a package (DGO@TPG3) on DB2 subsystem SDA2.

**Explain report example**

This example is an Explain report generated from the JCL in the previous section.

This example report has been split into its constituent report blocks for clarity. Similarly, the page header is only shown once for the report, and once for the report summary.

**Explain report – page header**

```
ACTUAL AT: 02/16/13 15:26:53  OMEGAMON XE DB2 PE (V5.3)  PAGE : 1-1
LOCATION : PMODB2A  EXPLAIN PACKAGE DB2 VERSION: V10
SUBSYSTEM: SDA2  USER AUTHID: XRK
DETAIL  CURR.SQLID : XRK
```

**Explain report – package version details**

```
FPEY0166I PACKAGE DGO@TPG3 IN COLLECTION KO2EX520 HAS THE FOLLOWING VERSIONS
```

```
PRE-COMP'D EXP GEN VERSION IDENTIFICATION
---------- ---- ------------------------
2013-02-16 YES 0 0510_PM81053C
2011-08-16 YES -1 0510_PM24082C
2011-07-15 YES -2<OMPE_FINAL
2011-06-14 YES -3 0510_TEST_3
2011-05-13 YES -4 0510_TEST_2
2011-04-12 YES -5 0510_TEST_1
2011-03-11 YES -6 < VERSION IDENTIFICATION NOT SPECIFIED >

START VERSION GENERATION NUMBER SPECIFIED: -2
NUMBER OF VERSION GENERATIONS REQUESTED: 1
```

**Explain report – statement details**

```
PACKAGE LOCATION :PMODB2A
PACKAGE COLLECTION:KO2EX520
PACKAGE ID :DGO@TPG3
PACKAGE VERSION ID:OMPE_FINAL
STATEMENT NUMBER : 1011071
SQL STATEMENT READ FROM SYSIBM.SYSPACKSTMT:
```

---

Figure 250. Explain JCL

This example produces an Explain detail report for the second generation of a package (DGO@TPG3) on DB2 subsystem SDA2.
DECLARE C_DGOYPG_71 CURSOR WITH HOLD FOR

SELECT LOCATION, COLLID, NAME, CONTOKEN, OWNER, CREATOR, TIMESTAMP, BINDTIME,
QUALIFIER, PKSIZE, AVGSIZE, SYSENTRIES, VALID, OPERATIVE, VALIDATE,
ISOLATION, RELEASE, EXPLAIN, QUOTE, COMMA, HOSTLANG, CHARSET, MIXED, DEC31,
DEFERREPREP, SQLERROR, REMOTE, PCTIMESTAMP, IBMREQD, VERSION, PDSNAME, DEGREE,
GROUP_MEMBER, DYNAMICRULES, REOPTVAR, DEFERPREPARE, KEEP_DYNAMIC, PATHSCHEMAS,
TYPE, DPPROTOCOL, FUNCTIONS, OPTHINT, ENCODING_CCSSID, IMMEDWRITE, RELBOUND,
CATENCODE, REMARKS
FROM DGO_SYSPACKAGE

WHERE LOCATION LIKE :HV_LOC71_LOCATION AND COLLID LIKE :HV_LOC71_COLLID AND
NAME LIKE :HV_LOC71_NAME AND VERSION LIKE :HV_LOC71_VERSION
ORDER BY LOCATION, COLLID, NAME, PCTIMESTAMP DESC

QUERYNO 001011071

STATUS : COMPILED-BOUND USING DEFAULTS FOR INPUT VARIABLES
ISOLATION: UNCOMMITTED READ / FROM SYSPACKAGE

---------------------------------------------------------------------

EXPLAIN TABLE: PMDEV52.DSN_STATEMENT_TABLE -------------------------
EXPLAIN_TIME : 2013-02-16-15.24.35.310181

PROGNAME (Package): DGO@TPG3 , COLLID : KO2EX520
VERSION : N/A , APPLNAME (Plan) : N/P
QUERYNO : 1011071 , SECTNOI : N/A
STMT_ENCODE : U - Unicode , STMT_TYPE : SELECT

PROCMS (Cost MS) : 1 , COST CATEGORY : B - Default *
PROCsu (Cost SU) : 18 , REASON (Category) : HOST VARIABLES
TOTAL COST : N/A , GROUP_MEMBER : SDA2

COSTCATEGORY : B - Cost estimate using default values (Details in REASON)

Explain report – PLAN_TABLE details

EXPLAIN TABLE: PMDEV52.PLAN_TABLE ---------------------------------------
BIND_TIME : 2013-02-16-15.24.35.310181
TIME_: 2013-02-16-15:24:35.34

PROGNAME (Package): DGO@TPG3 , COLLID : KO2EX520
VERSION : OMPE_FINAL , APPLNAME (Plan) : N/P
QUERYNO : 1011071 , SECTNOI : N/A
QBLOCKNO : 1 , PARENT_QBLOCKNO : 0
PLANNO : 1 , PARENT_PLANNO : 0
MIXOPTSEQ : 0 , QBLOCK_TYPE : SELECT

TNAME (Table) : SYSPACKAGE , CREATOR (Table) : SYSIBM
TABNO (Table) : 1 , CORRELATION_NAME : N/P
TABLE_TYPE : T - Table , CTEREF : 0
TABLE_ENCODE : U - Unicode , TABLE_MCCSID : 1208
TABLE_SCCSID : 367 , TABLE_DCCSID : 1200
TSLOCKMODE : N - No lock * , GROUP_MEMBER : SDA2

ACCESTYPE : I - Index scan , PRIMARY ACCESTYPE: BLANK
ACCESSNAME (Index): DSNKXX01 , ACCESSCREATOR : SYSIBM
MATCHCOLS : 1 , INDEXONLY : NO
METHOD (Join) : 0 - First table , JOIN_DEGREE : 0
JOIN_TYPE : b - INNER or NO , MERGN : N/A
MERGEJOIN_COLS : 0 , MERGC : N/A
PREFETCH : S - Sequential , PAGE_RANGE : NO
WHEN OPTIMIZE : b - At bind time , ACCESS_DEGREE : 0
COLUMN_FN_EVAL : BLANK , ROUTINE_ID : 0
HINT_USED : N/P , OPTHINT : N/P
SCAN_DIRECTION : N/A

SORTN_GROUPLD : 0 , SORTN_UNIQ : NO , SORTC_UNIQ : NO
SORTC_GROUPLD : 0 , SORTC_JOIN : NO , SORTCJOIN : NO
ACCESS_PGROUP_ID : 0, SORTN_ORDERBY: NO, SORTC_ORDERBY: NO
JOIN_PGROUP_ID : 0, SORTN_ORDERBY: NO, SORTC_ORDERBY: NO
REMARKS : N/P, STMTTOKEN : N/P
PARALLELISM_MODE : BLANK, BIND_EXPLAIN_ONLY : N/A
TSLOCKMODE : N - No lock (UR isolation)

**Explain report – access path**

THE ACCESS PATH CHOSEN BY DB2 AT 15:24:35.3 ON 2013-02-16

+------------------------------------------------------------------+
| MATCHING INDEX SCAN WITH SCAN OF REFERENCED DATA PAGES          |
| NUMBER OF MATCHING COLUMNS: 1 - THE INDEX HAS 4 COLUMNS         |
| NON-CLUSTERED INDEX SCAN WILL BE USED                           |
| PURE SEQUENTIAL PREFETCH WILL BE PERFORMED                      |
| PAGE RANGE SCAN WILL NOT BE USED                               |
+------------------------------------------------------------------+

**Explain report – index details**

INDEX: SYSIBM.DSNKKX01

STATSTIME: 2013-02-16-15.02.47.358366
CREATED : 0001-01-01-00.00.00.000000 ALTERED: 2003-09-21-23.30.17.362937
FULL KEY CARD: 1093, PAGES: 20, LEVELS: 2, CLUSTERING: Y
1ST KEY CARD: 1, SPACE: 196.608K, UNIQUE: YES, CLUSTERED: N
INDEX TYPE: 2, PGSIZE: 4096, BFPool: BP0, DB_NAME: DSNDB06
CLUSTER RATIO: 83.5316%, ERRULE: NO, CLRULE: NO, IXSPACE: DSNKKX01
MAX PICESIZE: 0, COPY: NO, COPYLRSN: X'000000000000'

**Explain report – key column details**

<table>
<thead>
<tr>
<th>KEY NO.</th>
<th>COLUMN NAME</th>
<th>COL. TYPE</th>
<th>LNG</th>
<th>NULL</th>
<th>COL. STAT</th>
<th>LENGTH2</th>
<th>KEY CARD. ORDER</th>
<th>LOW2KEY</th>
<th>HIGH2KEY</th>
<th>USED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LOCATION</td>
<td>VARCHAR</td>
<td>128</td>
<td>NO</td>
<td>0</td>
<td>SYSIBM</td>
<td>1 ASC.</td>
<td>X'40404040'</td>
<td>X'40404040'</td>
<td>==</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X'0001-01-00.00.00.000000'</td>
<td>X'41444424C'</td>
<td>X'555555555'</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>COLLID</td>
<td>VARCHAR</td>
<td>128</td>
<td>NO</td>
<td>60</td>
<td>SYSIBM</td>
<td>1 ASC.</td>
<td>X'40404040'</td>
<td>X'40404040'</td>
<td>==</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X'0001-01-00.00.00.000000'</td>
<td>X'414444424C'</td>
<td>X'555555555'</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>NAME</td>
<td>VARCHAR</td>
<td>128</td>
<td>NO</td>
<td>504</td>
<td>SYSIBM</td>
<td>1 ASC.</td>
<td>X'40404040'</td>
<td>X'40404040'</td>
<td>==</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X'0001-01-00.00.00.000000'</td>
<td>X'4144444232'</td>
<td>X'555555555'</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>VERSION</td>
<td>VARCHAR</td>
<td>122</td>
<td>NO</td>
<td>87</td>
<td>SYSIBM</td>
<td>1 ASC.</td>
<td>X'40404040'</td>
<td>X'40404040'</td>
<td>==</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X'0001-01-00.00.00.000000'</td>
<td>X'3140404040'</td>
<td>X'563853231'</td>
<td></td>
</tr>
</tbody>
</table>

**Explain report – table details**

TABLE: SYSIBM.SYSPACKAGE

STATSTIME: 2013-02-16-15.02.47.358366, TB TYPE: TABLE
CREATED : 1985-04-01-00.00.00.000000, ALTERED: 2003-09-21-23.30.17.362937
ROWS : 1093, COLUMNS : 47, ROWLENGTH: 3894, EDIT PROC.: 
% PAGES: 90, DBASE ID: 6, AUDITING: NONE, VALIDPROC:
ACT.PAGES: 65, TABLE ID: 128, STATUS: COMPX, TABCREATOR: SYSIBM
TAB.STAT.: , ENC.SCHEME: UNICODE

**Explain report – table space details**

TABLESPACE: DSNDB06.SYSPKAGE

NAME : SYSPKAGE DATABASE: DSNDB06
CREATOR : SYSIBM, CREATED BY: SYSIBM
CREATED : 0001-01-01-00.00.00.000000, ALTERED: 2003-09-21-23.30.17.362937
STATSTIME: 2013-02-16-15.02.47.358366,
Explain report – host variables details

<table>
<thead>
<tr>
<th>HOST VAR. TYPE</th>
<th>LENGTH</th>
<th>IND.</th>
<th>HOST VARIABLE NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAR. CHARACTER</td>
<td>16</td>
<td>NO</td>
<td>HV_LOC71_LOCATION</td>
</tr>
<tr>
<td>VAR. CHARACTER</td>
<td>18</td>
<td>NO</td>
<td>HV_LOC71_COLLID</td>
</tr>
<tr>
<td>VAR. CHARACTER</td>
<td>8</td>
<td>NO</td>
<td>HV_LOC71_NAME</td>
</tr>
<tr>
<td>VAR. CHARACTER</td>
<td>64</td>
<td>NO</td>
<td>HV_LOC71_VERSION</td>
</tr>
</tbody>
</table>

Explain report – language and compile details

LOCATION : PMODB2A
COLLECTION ID: KO2EX520
PACKAGE ID : DG0@TPG3
VERSION ID : OMPE_FINAL
CONSIST.TOKEN: X’18CB80D0A50FF6’

OWNER : PMDEV52
CREATOR : XRK
BIND DATE : 2013-02-16
CREATE DATE : 2013-02-16
CREATE TIME : 15.24.23.620690
QUALIFIER : PMDEV52
BASE SIZE : 5048
AVERAGE SIZE : 49764
SYSENTRIES : 0
SQL STATEMENT : 17
VALIDATE : BIND
VALID : YES
ISOLATION : UNCOMMITTED READ
RELEASE : CHECK PLAN
DEGREE : 1
GROUP_MEMBER :
DYNAMICRULES :
REOPTVAR :
DEFERPREPARE : INHERITED FROM PLAN
KEEP DYNAMIC :
TYPE OF PACK. : BND PACKAGE
FUNCTIONTS :
ENCODING_CCSID :
IMMEDWRITE :
RELBOUND :
CATENCODE :
REMARKS :

FROM DGO_SYSPACKAGE

Chapter 6. Batch reporting  2817
WHERE LOCATION LIKE :HV_LOC71_LOCATION AND COLLID LIKE :HV_LOC71_COLLID AND NAME LIKE :HV_LOC71_NAME AND VERSION LIKE :HV_LOC71_VERSION
ORDER BY LOCATION, COLLID, NAME, PCTIMESTAMP DESC QUERYNO 001011071

STATUS : COMPILED-BOUND USING DEFAULTS FOR INPUT VARIABLES
ISOLATION: UNCOMMITTED READ / FROM SYSPACKAGE

Explain report – PLAN_TABLE (for second statement step)
EXPLAIN TABLE: PMDEV52.PLAN_TABLE ---------------------------------------------
BIND_TIME : 2013-02-16-15.24.35.310181
TIMESTAMP : 2013-02-16-15:24:35.34

PROGNAME (Package): DGO@TPG3, COLLID : KO2EX520
VERSION : OMPE_FINAL, APPLNAME (Plan): N/P
QUERYNO : 1011071, SECTNOI : N/A
QBLOCKNO : 1, PARENT_QBLOCKNO : 0
PLANNO : 2, PARENT_PLANNO : 0
MIXOPSEQ : 0, QBLOCK_TYPE : SELECT

TNAME (Table) : N/P, CREATOR (Table) : N/P
TABNO (Table) : 0, CORRELATION_NAME : N/P
TABLE_TYPE : N/P, CTEREF : 0
TABLE_ENCODE : BLANK, TABLE_MCCSID : 0
TABLE_SCCSID : 0, TABLE_DCCSID : 0
TSLOCKMODE : BLANK, GROUP_MEMBER : SDA2

ACCESSSTYPE : BLANK, PRIMARY_ACCESSSTYPE: BLANK
ACCESSNAME (Index): N/P, ACCESSCREATOR : N/P
MATCHCOLS : 0, INDEXONLY : NO

METHOD (Join) : 3 - Sort needed, JOIN_DEGREE : 0
JOIN_TYPE : b - INNER or NO, MERGN : N/A
MERGE_JOIN_COLS : 0, MERGC : N/A
PREFETCH : BLANK, PAGE_RANGE : NO
WHEN_OPTIMIZE : b - At bind time, ACCESS_DEGREE : 0
COLUMN_FN_EVAL : BLANK, ROUTINE_ID : 0
HINT_USED : N/P, OPTHINT : N/P
SCAN_DIRECTION : N/A

SORTN_PGROUP_ID : 0, SORTN_UNIQ : NO, SORTC_UNIQ : NO
SORTC_PGROUP_ID : 0, SORTN_JOIN : NO, SORTC_JOIN : NO
ACCESS_PGROUP_ID : 0, SORTN_ORDERBY: NO, SORTC_ORDERBY: YES
JOIN_PGROUP_ID : 0, SORTN_GROUPBY: NO, SORTC_GROUPBY: NO

REMARKS : N/P, STMTTOKEN : N/P
PARALLELISM_MODE : BLANK, BIND_EXPLAIN ONLY : N/A
EXPANSION_REASON : N/A

Explain report – access path (for second statement step)
THE ACCESS PATH CHOSEN BY DB2 AT 15:24:35.3 ON 2013-02-16
+------------------------------------------------------------------+
| ADDITIONAL SORT FOR ORDER BY |
| PAGE RANGE SCAN WILL NOT BE USED |
+------------------------------------------------------------------+

Explain summary report
REPORT ON: 02/16/13 15:26:53 OMEGAMON XE DB2 PE (V5.3) PAGE : SUMMARY
EXPLAIN SUMMARY REPORT USER AUTHID: XRK

THE FOLLOWING 1 EXPLAIN REQUESTS WERE PROCESSED: PAGE NO
1: SDA2 PACKAGE : KO2EX520 .DGO@TPG3
DETAIL REPORT REQUESTED
DBRM/PACK STMT TYP FOR A LIST OF VERSIONS, PLEASE REFER TO PAGE
DGO@TPG3 1011020 P MATCHING INDEX SCAN(2/4)-DATA PAGES 1-3

2818 IBM Db2 Performance Expert on z/OS
Interpreting the Explain report

This section highlights some of the information to look for in an Explain report.

The information reported varies depending on the type of report, the level of detail requested, and whether data is available to report. The example shown in the previous section shows an Explain at package level. The package explained contains SQL statements. The statement QUERYNO=1011071 has two statement steps (Select with index for PLANNO=1 and sort for ORDER BY for PLANNO=2).

Page header

The page header ("Explain report – page header" on page 2814) is printed at the top of each report page and shows general information about the report, including the type of report, subsystem identifier, DB2 version, and the objects reported.

Package version

The Package Version block of the report ("Explain report – package version details" on page 2814) shows the package versions available and the versions and generations reported.

Statement details

The Statement Details block of the report ("Explain report – statement details" on page 2814) shows the complete plan or package identification details, including:

- Location
- Name
- Statement number and text
- Other statement-related information

It also shows the status and isolation level, from SYSIBM.SYSPLAN or SYSIBM.SYSPACKAGE or SYSIBM.SYSPACKSTMT, and cost information.

PLAN_TABLE information

This shows the contents of the PLAN_TABLE ("Explain report – PLAN_TABLE details" on page 2815). The report block starts with EXPLAIN TABLE and has two block columns. The report field labels are the full PLAN_TABLE column names. If the report field value is a long name or a long value, it is marked with an asterisk (*) at the end of the report field value, and reported at the end of the block in its full length.

The plan table is searched by using the bind time of the package. There might be multiple occurrences of the package with different bind times. For example, the Db2 system catalog might contain the latest package that is created by the Db2 command BIND or REBIND. It might also contain a former package version that is activated by the Db2 command REBIND SWITCH.

Access path

The Access Path block of the report ("Explain report – access path” on page 2816) shows, for each step in an SQL statement, the access path used by DB2 to satisfy the statement step. This shows:
Use of index

If an index is used, the type of index scan and details about matching columns are shown.

The appropriate use of indexes plays a key role in the efficiency of an application or query. For example, if a table contains 3000 rows of information in 100 data pages, the following query returns one row of data:

```
SELECT COL1 COL2 FROM T1 WHERE COL4=10 AND COL5=20
```

No index

If the table has no index associated, DB2 must scan each data page to satisfy the query. In this instance, DB2 must perform 100 Getpage operations for a single SELECT statement.

Index on COL4

In this instance, the number of Getpage operations depends on the number of rows matching the predicate and their distribution, and the number of index pages. For example, if rows matching the predicate are spread over six data pages and pointers are spread over two index pages, the number of Getpage operations for the SELECT is eight.

Unique index on COL4 and COL5

In this instance, DB2 only needs to read one page from the root index and one page from the leaf index to locate the data page. The number of Getpage operations for the SELECT is three.

Index only scan

When you create an index on COL1, COL2, COL4, and COL5, and alter the SELECT to predicate all four columns:

```
SELECT COL1 COL2 FROM T1 WHERE COL4=10 AND COL5=20
AND COL1 NOT NULL AND COL2 NOT NULL
```

In this instance, DB2 can satisfy the query from the index alone, requiring just one Getpage operation for the root index and one Getpage operation for the leaf index.

Properly organized indexes can also help reduce or eliminate sort operations.

You can define multiple indexes on a base table. However, weigh the performance gain with the additional workload required for the database manager to update the indexes when data changes in the table. Generally, multiple indexes are useful for tables that are often queried and seldom updated.

You can use the Accounting reports to derive the Getpage/SQL ratios for plans and packages. This is the total number of Getpage operations divided by the total number of SQL SELECT, INSERT, UPDATE, and FETCH statements. The value of the ratio depends on the type of application and the DB2 environment, but you might look for applications with ratios greater than five.
Prefetch

Prefetch improves the performance of DB2 by reducing the time spent waiting for sequential I/O. It can also substantially reduce the Getpage/SQL ratio.

For Sequential Prefetch, data must be ordered in the tables in the same way as it is accessed by the application. This allows DB2 to fetch the pages before they are accessed by the application. This means that the design and organization of tables and applications needs to be tailored to exploit this behavior. DB2 can also decide to use Sequential Prefetch if it sees that the data is sequenced. This is known as Dynamic Prefetch. For SQL queries DB2 can read up to 32 pages per Read I/O.

List Prefetch works much like Sequential Prefetch, except that data pages do not need to be contiguous. List prefetch is always used for multiple index access and to obtain access to data from the inner table of a hybrid join.

Direct row access

Direct row access allows DB2 to obtain access to a row directly through the ROWID column. If an application selects a row from a table that contains a ROWID column, the row ID value implicitly contains the location of the row. If you use that row ID value in the search condition of subsequent SELECTs, DB2 might be able to navigate directly to the row.

To use direct row access, you first select the values of a row into host variables. The value that is selected from the ROWID column contains the location of that row. Later, when you perform queries which access that row, you include the row ID value in the search condition. If DB2 determines that it can use direct row access, DB2 uses the row ID value to navigate directly to the row.

Because direct row access provides highly efficient data access, consider modifying older applications to exploit this feature.

Index data

The Index Data block of the report (“Explain report – index details” on page 2816) shows data derived from the SYSIBM.SYSINDEXES table. This is only shown if an index is used in the access plan. You can use the information in SYSINDEXES to compare the available indexes on a table to determine which one is the most efficient for a query.

Key column data

The Key Column Data block of the report (“Explain report – key column details” on page 2816) shows index key information that is derived from the SYSIBM.SYSKEYS and SYSIBM.SYSCOLUMNS tables. This is only shown when an index is used in the access plan.

Table

The Table Data block of the report (“Explain report – table details” on page 2816) shows information that is derived from SYSIBM.SYSTABLES.

Table space

The Table Space Data block of the report (“Explain report – table space details” on page 2816) shows information that is derived from SYSIBM.SYSTABLESPACE.

Host variables data

When host variables are used in a statement, OMEGAMON XE for DB2 PE can show show details about each variable (“Explain report – host variables data” on page 2816).
A host variable can be either a variable in a host language (such as a PL/I variable, C variable, Fortran variable, a COBOL data item, or Assembler language storage area) or a host language construct that was generated by an SQL precompiler from a variable declared using SQL extensions. A host variable can be an output value that is returned to the application by DB2 or an input to DB2.

Summary

The summary report (“Explain summary report” on page 2818) shows the package name, SQL statement number, type, and access path for each statement reported. When the summary is appended to a full report, the statement numbers are also cross-referenced to the report page where the full entry can be found.

Locking Activity reports and traces

The locking activity provides various levels of detail about concurrency control within DB2 in the form of reports, traces, and a file data set.

It shows information about:

- DB2 transaction locks, which are locks on table spaces, tables, pages, or rows. DB2 transaction locks are used primarily to control access by SQL statements.
- DB2 drain locks and DB2 claims, which control access by DB2 utilities and commands.
- Global locks in a data sharing environment.
- DB2 lock avoidance techniques and related locking data, such as page latch waits.

Locking activity reports (also referred to as locking reports) summarize all user activity related to lock suspensions and lockouts. The reported information is grouped and ordered by OMEGAMON XE for DB2 PE identifiers, which you can specify:

- A Suspension report is a summary of lock suspensions across the reporting interval for a unique combination of selected OMEGAMON XE for DB2 PE identifiers. The report also shows the number of occurrences and elapsed times, the causes, and the reasons for resuming processing.
- A Lockout report is a summary of users and resources involved in timeouts and deadlocks. For each event, the user holding the resource and the users waiting for the resource are identified, along with the number of occurrences and other statistics.
- A Lock Detail report contains complete information about lock-related events.

Locking activity traces (also referred to as locking traces) provide information about lock events as they occur. Locking traces differ in the level of detail as follows:

- A Detail trace contains complete information about lock-related events in a DB2 system, or a group of DB2 systems in a data sharing environment. It shows all IMS/VS Internal Resource Lock Manager (IRLM) requests, IRLM suspensions, timeouts, deadlocks, claim and drain activities, lock-avoidance occurrences, and inter-DB2 requests in a data sharing environment.
- A Deadlock trace shows every occurrence of a deadlock.
- A Lockout trace shows each timeout and deadlock.
- A Suspension trace shows every lock suspension.
- A Timeout trace shows each timeout.
When to use Locking reports

Use Locking reports when you need more information than can be supplied by the Accounting or Statistics reports and traces to resolve concurrency problems.

You can also use a Locking trace, for example, to monitor the effect of a new application introduced into a production system.

There is no correlation between the number of deadlock events shown in Locking reports and traces and the number of deadlocks shown in Accounting and Statistics reports. Accounting and Statistics reports count all deadlock occurrences regardless of how they resolve. Locking reports count only those deadlocks that were resolved by DB2. DB2 can resolve a deadlock either by making a process rollback, thereby releasing the locks it holds on resources, or by requesting a process to terminate.

Input for Locking reports

If you do not use the Collect Report Data facility supplied with the Online Monitor, you need to know the input IFCIDs for Locking reports.

The IFCIDs used as input for the Locking reports, traces, and File data sets are shown in the following table.

<table>
<thead>
<tr>
<th>Locking report, trace, and File data set</th>
<th>IFCIDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock suspension report or trace</td>
<td>44, 45, 105, 107, 213, 214, 215, 216, 226, 227</td>
</tr>
<tr>
<td>Lockout report or trace</td>
<td>105, 107, 172, 196</td>
</tr>
<tr>
<td>Deadlock trace</td>
<td>105, 107, 172</td>
</tr>
<tr>
<td>Timeout trace</td>
<td>105, 107, 196</td>
</tr>
<tr>
<td>Lock detail report</td>
<td>21</td>
</tr>
<tr>
<td>Lock detail trace</td>
<td>20, 21, 44, 45, 105, 107, 172, 196, 211, 212, 213, 214, 215, 216, 218, 223, 226, 227, 251, 257, 259, 337</td>
</tr>
<tr>
<td>File data set</td>
<td>21, 105, 107, 211, 212, 223</td>
</tr>
</tbody>
</table>

Deadlock traces and Timeout traces are generated from Statistics class 3. When Statistics class 3 is active, deadlock and Timeout traces can be generated without starting any Performance trace classes.

DB2 IFC covers all important aspects of DB2 locking activity provided that the appropriate trace classes are active. Except for IDENT, SYNC, or QUIT, each occurrence of an IRLM request is traced by an IFCID 21, 211, or 212 record.

To maintain consistency in a data sharing environment, DB2 IFC generates an IFCID 251, 257, or 259, which records, or notifies on, a physical lock (P-lock) on a page set, partition, or page.

Whenever a suspension occurs, DB2 IFC generates an IFCID 44, 213, 215, or 226 record along with a matching IFCID record that specifies the reason for resume, regardless of how the suspension was generated. The matching IFCID record is an IFCID 45 for IFCID 44, IFCID 214 for IFCID 213, IFCID 216 for IFCID 215, and IFCID 227 for IFCID 226. Also, the DB2 trace produces IFCID 211 records for every claim request and IFCID 212 records for every drain request.
An IFCID 172 record is written when lock suspensions end in deadlock or when deadlock situations occur. The deadlock record details all units of work involved in the deadlock, the resources for which they were contending, and the attributes of their requests.

IFCID 196 records lock suspensions that end in a timeout or when timeout situations occur. It details all units of work involved in the timeout, the resource for which they were contending, and the attributes of their requests.

IFCID 218 and 223 provide summary information and details of successful lock avoidance, which can improve application performance by reducing lock suspension times.

IFCID 20 records the locking summary for page or row locks, the highest table space lock state, and lock escalation information for table spaces. The record is written for the thread at each commit or at a rollback.

IFCID 21 is the base for recording the detail lock requests.

IFCIDs 105 and 107 provide database and object identifier translation information used in all Locking reports and traces and in Locking File.

The following example shows the DB2 trace commands that are required to collect data for a detail Locking report or trace:

```
-START TRACE(P) DEST(OPX) CLASS(6,17,7,30) IFCID(226,227,251,257,259) BUFSIZE(512)
-START TRACE(S) DEST(OPX) CLASS(3) BUFSIZE(512)
```

**Collecting Locking Activity data with a DB2 trace**

To create a Locking Activity report, you must collect data by using a DB2 trace.

The easiest way to collect data for any OMEGAMON XE for DB2 PE report is to use the activate traces facility of the workstation monitor. You can use this facility to configure a DB2 trace and start and stop the trace from there. Using the activate traces facility also ensures that you include all data in the DB2 trace that is needed for a report. For more information, see [Monitoring Performance from Performance Expert Client](#).

Alternatively, you can start a DB2 trace as follows:

```
-START TRACE(P) DEST(OPX) CLASS(6,17,7,30) IFCID(226,227,251,257,259) BUFSIZE(512)
-START TRACE(S) DEST(OPX) CLASS(3) BUFSIZE(512)
```

**Creating a Detail Locking trace**

Use your ISPF editor to create a JCL job that creates a Detail Locking trace.

The following JCL is an example. Remember to change the setup information (starting with // in your JCL) as appropriate for your installation.
The following example shows a detail Locking trace.

**Figure 251. Locking activity job stream using ISPF/PDF editor**

To submit the job, type **SUBMIT** on the command line and press Enter.

**Example of a detail Locking trace**

The following example shows a detail Locking trace.
## I/O Activity reports

DB2 system performance is heavily influenced by the volume and speed of input activities and output activities. OMEGAMON XE for DB2 PE provides several summary and detail I/O Activity reports that you can use to analyze I/O activities.

Generally, an I/O Activity report groups the I/O activities in report blocks as follows:

- The Active Log block shows the number of read and write requests to and from the active log data set and the associated wait times.
• The Archive Log block shows the number of read and write requests to and from the archive log and the associated wait times.

• The Bootstrap Data Set block shows the number of read and write requests to and from the bootstrap data set (if present). The bootstrap data set also controls the movement of data from the active log to the archive log data sets.

• The Buffer Pool block shows the number and types of read and write requests to and from the buffer pools and the associated wait times. It shows the volume of data pages that is moved between a hard disk drive and the main storage.

• The Cross-Invalidation Activity block shows the number of buffer refresh activities caused by cross-invalidation.

Cross-invalidation is necessary to maintain coherency of data within a DB2 data sharing group. It happens when a group member updates a data page and writes that page to the group buffer pool. All members that have this data page cached in their buffer pools are notified that the page was invalidated.

A high level of cross-invalidation affects performance because it effectively reduces the amount of buffer pool space available to the system. When an invalidated page is required, it must be refreshed in the buffer pool, either by retrieving the page from the group buffer pool or from a hard disk drive.

• The EDM Pool block shows the number of loads from a hard disk drive for cursor table (CT), package table (PT), and database directory (DBD) requests. For each event it shows the average size and load time.

When to use I/O Activity reports
Use I/O Activity reports if a Statistics report indicates a potential problem with logging, buffer pool or EDM pool activity, or high levels of cross-invalidation.

You can also run I/O Activity reports on a regular basis to gain an overview of the system and to help balance workloads between DB2 subsystems.

Input for I/O Activity reports
I/O Activity reports use IFCIDs from the DB2 Performance trace type, basically trace classes 4, 5, and 21.

The following table shows the IFCIDs used in I/O Activity reports.

Table 236. IFCIDs used for I/O Activity reports

<table>
<thead>
<tr>
<th>I/O Activity reports</th>
<th>IFCIDs used</th>
<th>DB2 trace type and trace class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer Pool</td>
<td>6, 7, 8, 9, 10, 105, 107</td>
<td>Performance, class 4</td>
</tr>
<tr>
<td>EDM Pool</td>
<td>29, 30, 105, 107</td>
<td>Performance, class 4</td>
</tr>
<tr>
<td>Active Log</td>
<td>34, 35, 36, 37, 38, 39</td>
<td>Performance, class 5</td>
</tr>
<tr>
<td>Archive Log/BSDS</td>
<td>34, 35, 36, 37, 40, 41, 114, 115, 116, 119, 120</td>
<td>Performance, class 5</td>
</tr>
<tr>
<td>Cross-Invalidation</td>
<td>105, 107, 255</td>
<td>Performance, class 21</td>
</tr>
</tbody>
</table>

Note: If you want to include Sequential Prefetch Read I/O operations in the report, do not qualify the DB2 `START TRACE` command with a plan name or an authorization ID. Such a qualification for performance trace class 4 reduces the data DB2 puts in the user's task TCB and omits all asynchronous tasks including Sequential Prefetch.
Collecting I/O Activity data with a DB2 trace

To create an I/O Activity trace report, you must collect data by using a DB2 trace.

The easiest way to collect data for any OMEGAMON XE for DB2 PE report is to use the activate traces facility of the workstation monitor. You can use this facility to configure a DB2 trace and start and stop the trace from there. Using the activate traces facility also ensures that you include all data in the DB2 trace that is needed for a report. For more information, see Monitoring Performance from Performance Expert Client.

Alternatively, you can start a DB2 trace as follows:
-START TRACE(P) DEST(OPX) CLASS(30)
IFCID(6,7,8,9,10,29,34,35,36,37,38,39,40,41,105,107,114,115,116,119,120,255)
BUFSIZE(512)

Creating an I/O Activity trace

Use your ISPF editor to create a JCL job that creates an I/O Activity trace.

The following JCL is an example. Remember to change the setup information (starting with // in your JCL) as appropriate for your installation.

```jcl
EDIT ---- ANDREW.OMPE.JOBS.IOSUMM--------------------- Columns 001 072
Command ==> Scrol1 ==> CSR
****** *************** TOP OF DATA ***************
0001 /* JCL to produce an IO Activity Report */
0002 //AWOMPEA JOB (TS1,YUS7), 'ANDREW'
0003 // MSGCLASS=V,CLASS=D,NOTIFY=ANDREW
0004 // EXEC PGM=FPECMAIN
0005 //STEP1 DD DSN=OMPE.RKANMOD,DISP=SHR
0006 //INPUTDD DD DSN=ANDREW.OMPE.TRACES.IOA,DISP=SHR
0007 //DPMOUTDD DD DSN=ANDREW.OMPE.OUT.IOSUMM,DISP=OVR
0008 //JOBSUDD DD SYSDOUT=A
0009 //SYSIN DD *
0010 1OACTIVITY
0011 REPORT
0012 EXEC
0013 ******** *************** BOTTOM OF DATA ***************
F1=Help F2=Split F3=Exit F5=Rfind F6=Rchange F7=Up
F8=Down F9=Swap F10=Left F11=Right F12=Cancel
```

Figure 252. I/O Activity job stream using ISPF/PDF editor

To submit the job, type SUBMIT on the command line and press Enter.

Example of a summary I/O Activity report

The following example shows a summary I/O Activity report.
Utility Activity reports

Many of the tasks of maintaining DB2 data, such as loading a table, copying a table space, or recovering a database to some previous point in time can be done using DB2 utilities. Utilities run as batch jobs under z/OS. The use of utilities, such as REORG INDEX, can significantly affect DB2 performance. You can use Utility Activity reports and traces to examine the efficiency of DB2 utilities.

Utility functions that are elements of separately orderable features of DB2 products must be licensed and installed in your environment to be properly reported.

Utility Activity reports and traces provide information about DB2 utility and bind activity during the processing of a DB2 application. Utility Activity reports show information as an aggregation of threads ordered by the combination of specified OMEGAMON XE for DB2 PE identifiers. Utility Activity traces show information in chronological order. The information includes:

- Thread identification, thread start and stop time, and location
- Utility tools and bind statements executed, with the appropriate elapsed and TCB times
- LISTDEF information
- Utility data set information
- For trace only, optional workload detail, such as:
  - Bind activity
  - Exits
  - I/O activity
  - Lock suspensions
  - Page and row locking activity
  - Utility phases

OMEGAMON XE for DB2 PE can process data originating at different DB2 locations. In the JCL, you can logically concatenate multiple input data sets to a
single data set that contains mixed records from multiple locations. If data from multiple locations is available, you can produce multi-site or single-site reports and traces.

- **Multi-site** reports and traces separate utility activity information according to the location where it occurs. Data is sequenced by location and includes activity initiated both locally and remotely.
- **Single-site** reports and traces show utility activity information from a single DB2 subsystem. They are produced from an input data set that contains data from a single site or, if the input data set contains data from multiple sites, by specifying a single location with the INCLUDE subcommand option or by suppressing locations with the EXCLUDE subcommand option.

Utility Activity reports and traces are logically grouped by bind activities and utility activities.

- **Bind activity** shows:
  - BIND
  - BIND PACKAGE
  - REBIND
  - REBIND PACKAGE
  - FREE PLAN
  - FREE PACKAGE
  - FREE REMOTE PACKAGE
  - BIND CONNECT
  - CONNECT RESET
- **Utility activity**

  Most utility events are comprised of detail events called phases. Each phase of the utility is reported. An event that does not have any detail events consists of one phase with the same name as the event. UTILINIT and UTILTERM phases are reported in a summary line. Each phase can have an item type.

**When to run Utility Activity reports**

Run Utility Activity reports as part of your regular monitoring policy or when you suspect problems, such as a high number of utility failures.

**Input for Utility Activity reports**

Utility Activity reports use IFCIDs from the DB2 Accounting and Performance trace types.

The following table shows the utility events that can be collected, together with the trace classes and IFCIDs used.

**Table 237. IFCIDs used for Utility Activity reports**

<table>
<thead>
<tr>
<th>DB2 trace type</th>
<th>DB2 trace class</th>
<th>DB2 IFCID</th>
<th>Record type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>1</td>
<td>3</td>
<td>Accounting data</td>
</tr>
<tr>
<td></td>
<td>Bind Events</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>3</td>
<td>22</td>
<td>Minibinds generated by DB2 at bind prepare time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>63</td>
<td>SQL statement to be parsed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>177</td>
<td>Package allocation</td>
</tr>
</tbody>
</table>
Table 237. IFCIDs used for Utility Activity reports (continued)

<table>
<thead>
<tr>
<th>DB2 trace type</th>
<th>DB2 trace class</th>
<th>DB2 IFCID</th>
<th>Record type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>10</td>
<td>108</td>
<td>Begin bind or rebind plan/package</td>
</tr>
<tr>
<td></td>
<td></td>
<td>109</td>
<td>End bind or rebind plan/package</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110</td>
<td>Begin free plan/package</td>
</tr>
<tr>
<td></td>
<td></td>
<td>111</td>
<td>End free plan/package</td>
</tr>
<tr>
<td>Performance</td>
<td>16</td>
<td>183</td>
<td>Requesting agent data</td>
</tr>
<tr>
<td>Utilities</td>
<td>10</td>
<td>23</td>
<td>Start utility run, start of subtask.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24</td>
<td>Utility change; phase info, subtask info</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25</td>
<td>Utility end</td>
</tr>
<tr>
<td></td>
<td></td>
<td>219</td>
<td>LISTDEF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>220</td>
<td>Data set info</td>
</tr>
<tr>
<td>I/O Events</td>
<td>4</td>
<td>6</td>
<td>Begin Read I/O, data set on DASD to buffer pool</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td>End Read I/O, data set on DASD to buffer pool</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>Begin synchronous Write I/O</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9</td>
<td>Write end</td>
</tr>
<tr>
<td></td>
<td></td>
<td>226</td>
<td>Page latch wait begin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>227</td>
<td>Page latch wait end</td>
</tr>
<tr>
<td>Lock Suspension Events</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>6</td>
<td>44</td>
<td>Lock suspension or an identity call to the IRLM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45</td>
<td>Lock resumption</td>
</tr>
<tr>
<td></td>
<td></td>
<td>213</td>
<td>Beginning of a wait for a drain lock</td>
</tr>
<tr>
<td></td>
<td></td>
<td>214</td>
<td>End of a wait for a drain lock</td>
</tr>
<tr>
<td>Performance</td>
<td>17</td>
<td>213</td>
<td>Beginning of a wait for a drain lock</td>
</tr>
<tr>
<td></td>
<td></td>
<td>214</td>
<td>End of a wait for a drain lock</td>
</tr>
<tr>
<td></td>
<td></td>
<td>215</td>
<td>Begin of a wait for the claim count to go to zero</td>
</tr>
<tr>
<td></td>
<td></td>
<td>216</td>
<td>End of a wait for the claim count to go to zero</td>
</tr>
<tr>
<td>Page and Row Locking Events</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>6</td>
<td>20</td>
<td>Page and row locking summary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>218</td>
<td>Lock avoidance summary</td>
</tr>
<tr>
<td>Exit Events</td>
<td>13</td>
<td>11</td>
<td>Validation exit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>Encode edit exit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>19</td>
<td>Decode edit exit</td>
</tr>
</tbody>
</table>
Collecting Utility Activity data with a DB2 trace

To create an Utility Activity report, you must collect data by using a DB2 trace.

The easiest way to collect data for any OMEGAMON XE for DB2 PE report is to use the activate traces facility of the workstation monitor. You can use this facility to configure a DB2 trace and start and stop the trace from there. Using the activate traces facility also ensures that you include all data in the DB2 trace that is needed for a report. For more information, see Monitoring Performance from Performance Expert Client.

Alternatively, you can start a DB2 trace as follows:

- `START TRACE(A) DEST(OPX) CLASS(1, 2, 3, 5, 7, 8) BUFSIZE(512)`
- `START TRACE(P) DEST(SMF) CLASS(30) IFCID(23, 24, 25, 108, 109, 22.63) BUFSIZE(512)`
- `START TRACE(AU) DEST(OPX) CLASS(8) BUFSIZE(512)`

Creating a Utility Activity trace

Use your ISPF editor to create a JCL job that creates a Utility Activity trace.

The following JCL is an example. Remember to change the setup information (starting with // in your JCL) as appropriate for your installation.

```jcl
EDIT ---- ANDREW.OMPE.JOBS.UTTRA------------------------ Columns 001 072
Command ==>> Scroll ==>> CSR
****** *************** TOP OF DATA ****************************
0001 /* JCL to produce an Utility Activity Report */
0002 //AWOMPEA JOB (TTS1,YUS7),'ANDREW',
0003 // MSGCLASS=V,CLASS=D,NOTIFY=ANDREW
0004 // EXEC PGM=FPECMAIN
0005 //STEPLIB DD DSN=OMPE.RKANMOD,DISP=SHR
0006 //INPUTDD DD DSN=ANDREW.OMPE.TRACES.UTI,DISP=SHR
0007 //DPMOUTDD DD DSN=ANDREW.OMPE.OUT.UTTRAC,DISP=OVR
0008 //JOBSUMDD DD SYSOUT=A
0009 //SYSIN DD *
0010 UTILITY
0011 TRACE
0012 TYPE(UTILITY)
0013 ORDER (PRIMAUTH-PLANNAME-INSTANCE)
0014 EXEC
0015 ****** *************** BOTTOM OF DATA ****************************
F1=Help F2=Split F3=Exit F5=Rfind F6=Rchange F7=Up
F8=Down F9=Swap F10=Left F11=Right F12=Cancel
```

Figure 253. Utility Activity job stream using ISPF/PDF editor

Example of a short Utility Activity trace

The following example shows a trace produced from this JCL job.

```
LOCATION: PMODA11GANZLANGE
GROUP: N/P
MEMBER: N/P
SUBSYSTEM: DA11
DB2 VERSION: V10

UTILITY ACTIVITY TRACE
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)

WORKLOAD (NONE)
IDENTIFIED BY PRIMAUTH/PLANNAME/INSTANCE

PRIMAUTH PLANNAME INSTANCE START TIME ELAPSED TIME CPU TIME ACTIVITY TYPE UTILITY-ID DATABASE.PAGESET JOB NAME SHRLLEVEL TOT.ZIIP
SORT: DF DF DB DATA INDEX OTHER
-----------------------------------------------
MTS DSNUTIL X'CBB6392D08E1' 10:14:19.95 3.360279 USAGE 0 1 0 0 651676 LOAD LDTAB1V9 MTSLEA11 REFERENCE DBPARALL.TSPARALL LOADTAB1 0.077772 DBPARALL.XTAB1 DBPARALL.XTAB2 0.306264 0.000000
MTS
```

Figure 254. Example of a short Utility Activity trace
The following sample Utility Activity trace is generated with the following command:

```
TRACE TYPE(BIND) ORDER (PRIMAUTH-PLANNAME-INSTANCE)
```

Record Trace reports

Record Trace reports show IFCID information as presented by DB2.

This IFCID information is used to produce other OMEGAMON XE for DB2 PE reports. The difference is that for other reports, this information can be interpreted, manipulated, or not included.

- A **summary** Record Trace report lists all selected records, together with a description, but without any record data. You can use this listing to determine what events occurred during the DB2 trace.
- A **short** Record Trace report presents nonserviceability data from selected records that appear on other OMEGAMON XE for DB2 PE reports. Some large IFCIDs (for example, system statistics) are presented similar to summary Record traces, without record data.
- A **long** Record Trace report presents serviceability and nonserviceability data from selected records.
- A **dump** Record Trace report presents selected records in the standard hexadecimal dump format. You can use the dump Record Trace report to view data that might contain unprintable characters.

**When to use Record Trace reports**

Use Record Trace reports if the information in other reports do not provide the required level of detail.
**Input for Record Trace reports**

Record Trace reports use IFCIDs from several DB2 trace types and trace classes.

Input to the Record Trace report set consists of all types of DB2 instrumentation data. The DB2 trace types and classes used by Record Trace reports are in the following list:

- **DB2 trace type - Statistics**

  *Table 238. DB2 trace type - Statistics: IFCIDs used for Record Trace reports*

<table>
<thead>
<tr>
<th>DB2 trace class</th>
<th>DB2 IFCIDs used</th>
<th>Class description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Default Class)</td>
<td>1, 2, 105, 106, 202, 225</td>
<td>Information about system services, database statistics, statistics for the DBM1 address space, and information about the system parameters that were in effect when the trace was started. This default class is also activated when you omit the CLASS keyword from the START TRACE command when you start the statistics trace.</td>
</tr>
<tr>
<td>2</td>
<td>152</td>
<td>Installation-defined statistics record.</td>
</tr>
<tr>
<td>3</td>
<td>172, 196, 250, 258, 261, 262, 313, 330, 337</td>
<td>Deadlock, lock escalation, group buffer pool, data set extension information, and indications of long-running uncommitted reads, and active log space shortages.</td>
</tr>
<tr>
<td>5</td>
<td>230</td>
<td>DB2 data sharing statistics record.</td>
</tr>
<tr>
<td>6</td>
<td>225</td>
<td>Storage statistics for the DB2 subsystem.</td>
</tr>
<tr>
<td>7</td>
<td>365</td>
<td>DRDA location statistics.</td>
</tr>
<tr>
<td>8</td>
<td>199</td>
<td>Data set I/O statistics.</td>
</tr>
<tr>
<td>9</td>
<td>369</td>
<td>Aggregate CPU and wait time statistics by connection type.</td>
</tr>
</tbody>
</table>

- **DB2 trace type - Accounting**

  *Table 239. DB2 trace type - Accounting: IFCIDs used for Record Trace reports*

<table>
<thead>
<tr>
<th>DB2 trace class</th>
<th>DB2 IFCIDs used</th>
<th>Class description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Default Class)</td>
<td>3, 106, 239</td>
<td>Standard accounting data. This default class is also activated when you omit the CLASS keyword from the START TRACE command when you start the accounting trace.</td>
</tr>
<tr>
<td>2</td>
<td>200, 232</td>
<td>Entry or exit from DB2 event signalling.</td>
</tr>
<tr>
<td>4</td>
<td>151</td>
<td>Installation-defined accounting record.</td>
</tr>
</tbody>
</table>
### Table 239. DB2 trace type - Accounting: IFCIDs used for Record Trace reports (continued)

<table>
<thead>
<tr>
<th>DB2 trace class</th>
<th>DB2 IFCIDs used</th>
<th>Class description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>187</td>
<td>Time spent processing IFI requests.</td>
</tr>
<tr>
<td>7</td>
<td>200, 232, 240</td>
<td>Entry or exit from DB2 event signalling for package and DBRM accounting.</td>
</tr>
<tr>
<td>10</td>
<td>239</td>
<td>Package detail.</td>
</tr>
</tbody>
</table>

### DB2 trace type - Audit

### Table 240. DB2 trace type - Audit: IFCIDs used for Record Trace reports

<table>
<thead>
<tr>
<th>DB2 trace class</th>
<th>DB2 IFCIDs used</th>
<th>Class description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Default Class)</td>
<td>140</td>
<td>Access attempts denied due to inadequate authorization. This default class is also activated when you omit the CLASS keyword from the START TRACE command when you start the audit trace.</td>
</tr>
<tr>
<td>2</td>
<td>141</td>
<td>Explicit GRANT and REVOKE.</td>
</tr>
<tr>
<td>3</td>
<td>142</td>
<td>CREATE, ALTER, and DROP operations against audited tables.</td>
</tr>
<tr>
<td>4</td>
<td>143</td>
<td>First change of audited object.</td>
</tr>
<tr>
<td>5</td>
<td>144</td>
<td>First read of audited object.</td>
</tr>
<tr>
<td>6</td>
<td>145</td>
<td>Bind time information about SQL statements that involve audited objects.</td>
</tr>
<tr>
<td>7</td>
<td>55, 83, 87, 169, 319</td>
<td>Assignment or change of authorization ID.</td>
</tr>
<tr>
<td>8</td>
<td>23, 24, 25, 219, 220</td>
<td>Utilities.</td>
</tr>
<tr>
<td>9</td>
<td>146</td>
<td>Installation-defined audit record.</td>
</tr>
<tr>
<td>10</td>
<td>269, 270</td>
<td>Trusted context information.</td>
</tr>
<tr>
<td>11</td>
<td>361</td>
<td>Audit administrative authorities.</td>
</tr>
</tbody>
</table>

### DB2 trace type - Monitor

### Table 241. DB2 trace type - Monitor: IFCIDs used for Record Trace reports

<table>
<thead>
<tr>
<th>DB2 trace class</th>
<th>DB2 IFCIDs used</th>
<th>Class description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Default Class)</td>
<td>200</td>
<td>Standard accounting data. This default class is also activated when you omit the CLASS keyword from the START TRACE command when you start the monitor trace.</td>
</tr>
</tbody>
</table>
Table 241. DB2 trace type - Monitor: IFCIDs used for Record Trace reports (continued)

<table>
<thead>
<tr>
<th>DB2 trace class</th>
<th>DB2 IFCIDs used</th>
<th>Class description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>232</td>
<td>Entry or exit from DB2 event signalling. The information can be obtained by issuing a READS request for IFCID 147 or 148. In addition, monitor trace class 2 information is available in IFCID 3 in the accounting record. Monitor class 2 is equivalent to accounting class 2 and results in equivalent overhead. Monitor class 2 times appear in IFCIDs 147, 148, and 3 if either monitor trace class 2 or accounting class 2 is active.</td>
</tr>
<tr>
<td>3</td>
<td>6, 7, 8, 9, 32, 33, 44, 45, 117, 118, 127, 128, 170, 171, 174, 175, 213, 214, 215, 216, 226, 227, 242, 243, 321, 322, 378, 379, 382, 383</td>
<td>DB2 wait time for I/O, locks; resource usage information. The information can be obtained by issuing a READS request for IFCID 147 or 148. In addition, monitor trace class 3 information is available in the accounting record, IFCID 3. As with monitor class 2, monitor class 3 overhead is equivalent to accounting class 3 overhead. When monitor trace class 3 is active, DB2 can calculate the duration of a class 3 event, such as when an agent is suspended due to an unavailable lock. Monitor class 3 times appear in IFCIDs 147, 148, and 3, if either monitor class 3 or accounting class 3 is active.</td>
</tr>
<tr>
<td>4</td>
<td>155</td>
<td>Installation-defined monitor record.</td>
</tr>
<tr>
<td>5</td>
<td>187</td>
<td>Time spent processing IFI requests.</td>
</tr>
<tr>
<td>6</td>
<td>185</td>
<td>Changes to tables created with DATA CAPTURE CHANGES.</td>
</tr>
<tr>
<td>7</td>
<td>200, 232, 240</td>
<td>Entry or exit from DB2 event signalling for package accounting. The data traces the amount of time an agent spent in DB2 to process each package. If monitor trace class 2 is active, activating class 7 has minimal performance impact. Class 7 enables the IFCID 239 to be externalized.</td>
</tr>
<tr>
<td>8</td>
<td>6, 7, 8, 9, 32, 33, 44, 45, 51, 52, 56, 57, 117, 118, 127, 128, 170, 171, 174, 175, 213, 214, 215, 216, 226, 227, 239, 241, 242, 243, 321, 322, 378, 379, 382, 383</td>
<td>Wait time for a package. If monitor trace class 3 is active, activating class 8 has minimal performance impact. Class 8 enables the IFCID 239 to be externalized.</td>
</tr>
<tr>
<td>9</td>
<td>124</td>
<td>Enables statement level accounting. Provides information about statement details in IFCID 148. Monitor records do not contain class 10, but it shows up in IFCID 3 in the accounting record.</td>
</tr>
</tbody>
</table>

IBM Db2 Performance Expert on z/OS
### Table 241. DB2 trace type - Monitor: IFCIDs used for Record Trace reports (continued)

<table>
<thead>
<tr>
<th>DB2 trace class</th>
<th>DB2 IFCIDs used</th>
<th>Class description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>239</td>
<td>Package detail for buffer manager, lock manager and SQL statistics. It contains the same information as accounting class 10. Monitor records do not include class 10, but it shows up in IFCID 3 in the accounting record. Information from class 10 is written in additional sections of IFCID 239. However, monitor class 7 or 8 must be activated for IFCID 239 to be written. One of the following trace must also be activated before the IFCID 239 records are written:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Accounting class 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Accounting class 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Monitoring class 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Monitoring class 8</td>
</tr>
<tr>
<td>29</td>
<td>316, 318, 400, 401</td>
<td>Controls the subsystem-wide collection of statistics for SQL statements. Monitor class 29 must be activated for IFCID 316 records to be written for dynamic SQL statements and IFCID 401 records to be written for static sql statements.</td>
</tr>
</tbody>
</table>

### DB2 trace type - Performance

#### Table 242. DB2 trace type - Performance: IFCIDs used for Record Trace reports

<table>
<thead>
<tr>
<th>DB2 trace class</th>
<th>DB2 IFCIDs used</th>
<th>Class description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Default Class)</td>
<td>1, 2, 31, 42, 43, 76, 77, 78, 79, 102, 103, 105, 106, 107, 153</td>
<td>Background events. This default class is also activated when you omit the CLASS keyword from the START TRACE command when you start the performance trace.</td>
</tr>
<tr>
<td>2 (Default Class)</td>
<td>3, 68, 69, 70, 71, 72, 73, 74, 75, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 106, 174, 175</td>
<td>Subsystem events. This default class is also activated when you omit the CLASS keyword from the START TRACE command when you start the performance trace.</td>
</tr>
<tr>
<td>3 (Default Class)</td>
<td>22, 53, 55, 58, 59, 60, 61, 62, 63, 64, 65, 66, 92, 95, 96, 97, 106, 112, 173, 177, 233, 237, 250, 272, 273, 325</td>
<td>SQL events. This default class is also activated when you omit the CLASS keyword from the START TRACE command when you start the performance trace.</td>
</tr>
<tr>
<td>4</td>
<td>6, 7, 8, 9, 10, 29, 30, 105, 106, 107, 127, 128, 226, 227, 321, 322</td>
<td>Reads to and writes from the buffer and EDM pools.</td>
</tr>
<tr>
<td>5</td>
<td>32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 104, 106, 114, 115, 116, 117, 118, 119, 120, 228, 229</td>
<td>Write to log; archive log.</td>
</tr>
<tr>
<td>6</td>
<td>20, 44, 45, 105, 106, 107, 172, 196, 213, 214, 218, 337</td>
<td>Summary lock information.</td>
</tr>
</tbody>
</table>
### Table 242. DB2 Trace type - Performance: IFCIDs used for Record Trace reports (continued)

<table>
<thead>
<tr>
<th>DB2 trace class</th>
<th>DB2 IFCIDs used</th>
<th>Class description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>21, 105, 106, 107, 223</td>
<td>Detailed lock information.</td>
</tr>
<tr>
<td>8</td>
<td>13, 14, 15, 16, 17, 18, 105, 106, 107, 125, 221, 222, 231, 305, 311, 363</td>
<td>Data scanning detail.</td>
</tr>
<tr>
<td>9</td>
<td>26, 27, 28, 95, 96, 106</td>
<td>Sort detail.</td>
</tr>
<tr>
<td>11</td>
<td>46, 47, 48, 49, 50, 51, 52, 56, 57, 93, 94, 106, 113</td>
<td>Execution unit switch and latch contents.</td>
</tr>
<tr>
<td>12</td>
<td>98, 99, 100, 101, 106</td>
<td>Storage manager.</td>
</tr>
<tr>
<td>13</td>
<td>11, 12, 19, 105, 106, 107</td>
<td>Edit and validation exits.</td>
</tr>
<tr>
<td>14</td>
<td>67, 106, 121, 122</td>
<td>Entry from and exit to an application.</td>
</tr>
<tr>
<td>15</td>
<td>154</td>
<td>Installation-defined performance record.</td>
</tr>
<tr>
<td>16</td>
<td>157, 158, 159, 160, 161, 162, 163, 167, 183</td>
<td>Distributed processing.</td>
</tr>
<tr>
<td>17</td>
<td>211, 212, 213, 214, 215, 216</td>
<td>Claim and drain information.</td>
</tr>
<tr>
<td>18</td>
<td>197</td>
<td>Event-based console messages.</td>
</tr>
<tr>
<td>19</td>
<td>370, 371</td>
<td>Data set open and close activity.</td>
</tr>
<tr>
<td>20</td>
<td>249, 250, 251, 256, 257, 261, 262, 267, 268</td>
<td>Data sharing coherency summary.</td>
</tr>
<tr>
<td>21</td>
<td>255, 259, 263</td>
<td>Data sharing coherency detail.</td>
</tr>
<tr>
<td>22</td>
<td>314</td>
<td>Authorization exit parameters.</td>
</tr>
<tr>
<td>23</td>
<td>327</td>
<td>Language environment runtime diagnostics.</td>
</tr>
<tr>
<td>24</td>
<td>380, 499</td>
<td>Stored procedure detail.</td>
</tr>
<tr>
<td>29</td>
<td>-</td>
<td>Reserved! (not used anymore)</td>
</tr>
</tbody>
</table>

- DB2 trace type - Global

### Table 243. DB2 trace type - Global: IFCIDs used for Record Trace reports

<table>
<thead>
<tr>
<th>DB2 trace class</th>
<th>DB2 IFCIDs used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Default Class)</td>
<td>106, (132, 134, 138)</td>
</tr>
<tr>
<td>2</td>
<td>106, (131, 133, 139)</td>
</tr>
<tr>
<td>DB2 trace class</td>
<td>DB2 IFCIDs used</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>3</td>
<td>0, 38, 46, 47, 48, 49, 50, 51, 52, 56, 57, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 93, 94, 106, 114, 115, 116, 117, 174, 175, 228, 229, 252, 260, 265, 266, 267, 268</td>
</tr>
<tr>
<td>4</td>
<td>106, (130)</td>
</tr>
<tr>
<td>5</td>
<td>190, 249 (135, 136, 137,) (247, 248)</td>
</tr>
<tr>
<td>6</td>
<td>156</td>
</tr>
<tr>
<td>7</td>
<td>164, 165, 166</td>
</tr>
<tr>
<td>8</td>
<td>168</td>
</tr>
<tr>
<td>9</td>
<td>180, 181, 182</td>
</tr>
</tbody>
</table>

### Collecting Record Trace data with a DB2 trace

To create a Record Trace report, you must collect data by using a DB2 trace.

A Record trace can be very long. Generally, run a Record trace on one component at a time to focus on a problem. The following example collects records associated with Accounting.

The easiest way to collect data for any OMEGAMON XE for DB2 PE report is to use the activate traces facility of the workstation monitor. You can use this facility to configure a DB2 trace and start and stop the trace from there. Using the activate traces facility also ensures that you include all data in the DB2 trace that is needed for a report. For more information, see Monitoring Performance from Performance Expert Client.

Alternatively, you can start a DB2 trace as follows:

```
-START TRACE(A) DEST(OPX) CLASS(1, 2, 3, 5, 7, 8) BUFSIZE(512)
-START TRACE(P) DEST(OPX) CLASS(17, 16, 14, 13, 12, 11, 10, 9, 8, 7, 4, 2, 22, 21, 20, 30)
-START TRACE(S) DEST(OPX) CLASS(6, 5, 3, 1) BUFSIZE(512)
```

### Creating a Record Trace report

Use your ISPF editor to create a JCL job that creates a Record Trace report.

The following JCL is an example. Remember to change the setup information (starting with // in your JCL) as appropriate for your installation.
To submit the job, type `SUBMIT` on the command line and press Enter.

**Housekeeping reports**

These reports are not strictly performance reports. They present information about the DB2 system and user activity.

They provide valuable information, when used together with Accounting and Statistics reports, and help to gain an overview of the DB2 system.

**The Audit report set**

With DB2 Audit data you can track DB2 resource access. Audit reports and traces show information about the user of an auditable object and the time and type of action performed on the object.

Audit reports group events in the order of event type, ORDER identifier, and timestamp.

Audit traces show events listed chronologically.

You can use Audit reports and traces to review Audit data by OMEGAMON XE for DB2 PE identifiers and choose between a wide range of options for presenting DB2 Audit data.

You can order Audit reports and traces by the object of the Audit event (for example, authorization failures per table).

You can produce member-scope and group-scope Audit reports and traces.

- Member-scope reporting presents data member by member.
- Group-scope reporting merges the data that is produced by each group member to give a full picture of the use of a shared resource.

You can produce Audit reports and traces of individual Audit events in the order in which they occurred, or reports of aggregated Audit data.

You can specify the level of detail in Audit reports and traces by specifying any combination of the following event types:

- Authorization failures

---

**Figure 254. Record trace job stream using ISPF/PDF editor**

```
EDIT ---- ANDREW.OMPE.JOB.RECTR---------------------- Columns 001 072
Command ===> Scroll ===> CSR_
****** *********************************************** TOP OF DATA ***********************************************
0001 /* JCL to produce an SQL activity trace */
0002 //AWOMPEA JOB (TTS1,YUS7),'ANDREW',
0003 //           MSGCLASS=V,CLASS=D,NOTIFY=ANDREW
0004 //          EXEC PGM=FPECMAIN
0005 //STEP1 DD DSN=OMPE.RKANMOD,DISP=SHR
0006 //INPUTDD DD DSN=ANDREW.OMPE.TRACES.TRACE2,DISP=SHR
0007 //DPMOUTDD DD DSN=ANDREW.OMPE.OUT.REC01,DISP=OVR
0008 //JOBSUMDD DD SYSOUT=A
0009 //SYSIN DD *
0100 RECTRACE
0111 TRACE
0112 LEVEL(LONG)
0113 EXEC
****** *********************************************** BOTTOM OF DATA ***********************************************
F1=Help  F2=Split  F3=Exit  F5=Rfind  F6=Rchange  F7=Up
F8=Down  F9=Swap  F10=Left  F11=Right  F12=Cancel
```

2840  IBM Db2 Performance Expert on z/OS
• Changes to authorization identifiers
• DDL operations against auditable tables
• DML statements at bind of auditable tables
• Grants or revokes of privileges
• Read/write access to auditable tables
• Utility access to auditable tables

When to use Audit reports:

Use Audit reports or traces regularly to assist in your database administration and as part of your regular monitoring policy. More specifically, use the Audit reports if Accounting reports show unexpected numbers of authorization failures.

You can use Audit reports to monitor:

Usage of sensitive data
Tables that contain sensitive data, such as employee salary records, should probably be defined with AUDIT ALL. You can report usage by table and by authorization ID to look for access by unusual IDs, at unusual times, or of unexpected types. You also want to record any ALTER or DROP operations that affect the data.

Grants of critical privileges
Authorities such as SYSADM and DBADM and explicit privileges over sensitive data, such as an Update privilege on records of accounts payable, must be monitored carefully. A query of the DB2 catalog can show who holds such a privilege at a particular time. The Audit records can reveal whether the privilege was granted and then revoked in a period of time.

Unsuccessful access attempts
Some unsuccessful access attempts are only user errors, but others can be attempts to violate security. All must be investigated. If you have sensitive data, always use Audit class 1 trace data.

Collecting Audit data with a DB2 trace:

To create an Audit report, you must collect data by using a DB2 trace.

The easiest way to collect data for any OMEGAMON XE for DB2 PE report is to use the activate traces facility of the workstation monitor. You can use this facility to configure a DB2 trace and start and stop the trace from there. Using the activate traces facility also ensures that you include all data in the DB2 trace that is needed for a report. For more information, see [Monitoring Performance from Performance Expert Client](#).

Alternatively, you can start a DB2 trace as follows:

-START TRACE(AU) DEST(OPX) CLASS(1,2,3,4,5,6) BUFSIZE(512)
-START TRACE(P) DEST(OPX) CLASS(30) IFCID(24,55,83,87,105,107,169) BUFSIZE(512)

Creating an Audit trace:

Use your ISPF editor to create a JCL job that creates an Audit trace.

The following JCL is an example. Remember to change the setup information (starting with // in your JCL) as appropriate for your installation.
EDIT ---- ANDREW.OMPE.JOBS.AUDITRC----------------------- Columns 001 072
Command ==> Scroll ===> CSR
****** **************************************** TOP OF DATA ******
0001 /* JCL to produce an Audit trace */
0002 //AWOMPEA JOB (TTSI, YU57), 'ANDREW',
0003 // MSGCLASS=V,CLASS=D,NOTIFY=ANDREW
0004 // EXEC PGM=FPECMAIN
0005 //STEPLIB DD DSN=OMPE.RKANMOD,DISP=SHR
0006 //INPUTDD DD DSN=ANDREW.OMPE.TRACES,AUDIT,DISP=SHR
0007 //DPMOUTDD DD DSN=ANDREW.OMPE.OUT.AUDIT,DISP=OVR
0008 //JOBSUMDD DD SYSOUT=A
0009 //SYSIN DD *
0010 AUDIT
0011 TRACE
0012 SCOPE (MEMBER)
0013 EXEC
****** **************************************** BOTTOM OF DATA ******
F1=Help F2=Split F3=Exit F5=Rfind F6=Rchange F7=Up
F8=Down F9=Swap F10=Left F11=Right F12=Cancel

Figure 255. Audit job stream using ISPF/PDF editor

To submit the job, type SUBMIT on the command line and press Enter.

Example of a member-scope Audit trace

The following example shows the resulting member-scope Audit trace.

LOCATION: LOCATI_2 OMEGAMON XE for DB2 Performance Expert (V5R4M0) PAGE: 1-1
GROUP: GROUP_02 AUDIT TRACE REQUESTED FROM: NOT SPECIFIED
MEMBER: MEMBER_2 TO: NOT SPECIFIED
SUBSYSTEM: SYS2 ACTUAL FROM: 07/17/15 04:21:44.17
DB2 VERSION: V10 SCOPE: MEMBER PAGE DATE: 07/17/15

The following example shows the resulting member-scope Audit trace.

LOCATION: LOCATI_2 OMEGAMON XE for DB2 Performance Expert (V5R4M0) PAGE: 1-1
GROUP: GROUP_02 AUDIT TRACE REQUESTED FROM: NOT SPECIFIED
MEMBER: MEMBER_2 TO: NOT SPECIFIED
SUBSYSTEM: SYS2 ACTUAL FROM: 07/17/15 04:21:44.17
DB2 VERSION: V10 SCOPE: MEMBER PAGE DATE: 07/17/15

Figure 255. Audit job stream using ISPF/PDF editor

To submit the job, type SUBMIT on the command line and press Enter.

Example of a member-scope Audit trace

The following example shows the resulting member-scope Audit trace.
The System Parameters report
This report provides information about the configuration of the DB2 system being monitored.

A report entry is produced for each location present in the input data. An entry is also produced if DB2 was restarted with changed system parameters or a change to the system parameters was detected when the Statistics interval was reached.

Some parameters, such as buffer pool and group buffer pool attributes can be changed while a system is active. If the appropriate DB2 trace class is active, the changes are recorded in the System Parameters report in the order of occurrence.

When to use System Parameters reports:

Use the System Parameters report regularly as part of your system monitoring policy.

You can also use this report together with a Statistics report to determine whether you can improve a system's performance by altering its system settings.

Collecting System Parameters data with a DB2 trace:

To create a System Parameters report, you must collect data by using a DB2 trace.

The easiest way to collect data for any OMEGAMON XE for DB2 PE report is to use the activate traces facility of the workstation monitor. You can use this facility to configure a DB2 trace and start and stop the trace from there. Using the activate traces facility also ensures that you include all data in the DB2 trace that is needed for a report. For more information, see Monitoring Performance from Performance Expert Client.

Alternatively, you can start a DB2 trace as follows:

-START TRACE(S) DEST(OPX) CLASS(5) BUFSIZE(512)
-START TRACE(P) DEST(OPX) CLASS(30) IFCID(106,201,202,256) BUFSIZE(512)

Creating a System Parameters report:

Use your ISPF editor to create a JCL job that creates a System Parameters report.

The following JCL is an example. Remember to change the setup information (starting with // in your JCL) as appropriate for your installation.
### Example of the System Parameters report

#### MVS PARMLIB UPDATE PARAMETERS (DSTIPM)

- **SUBSYSTEM DEFAULT (SSID):** DAS
  - **SUPPRESS SOFT ERRORS (SUPERS):** YES

#### STORAGE SIZES INSTALLATION PARMS (DSMPC, DSNTIP, DSNTIE, DSNTIPE)

- **MAX NO OF DATA SETS CONCURRENTLY IN USE (DSMAX):** 10,000
- **EDM STATEMENT CACHE SIZE IN KB (EDMCMT):** 113,386
- **EDM DDB CACHE SIZE IN KB (EDMDDC):** 102,400
- **EDM SKELETON POOL SIZE IN KB (EDMSKETN, POOL):** 102,400
- **MAXIMUM SIZE OF EDM POOL IN BYTES (EDMPOLL):** 0
- **MAXIMUM SIZE OF SORT POOL IN BYTES (SORTPOOL):** 10,240,000
- **MAX IN-MEMORY SORT SIZE (MAXSORT IN MEMORY):** N/A
- **MAXIMUM SIZE OF RID POOL IN KB (MAXRPOOL):** 400,000
- **MAX NO OF USERS CONCURRENTLY RUNNING IN DB (CTHREAD):** 400
- **MAX NO OF CONCURRENT REMOTE ACTIVE CONNECTIONS (MAXRBA):** 200
- **MAX NO OF CONCURRENT REMOTE CONDф (COND):** 10,000
- **MAX NO OF TSO CONNECTIONS (IDFore):** 200
- **MAX NO OF BATCH CONNECTIONS (IDBACK):** 200
- **MAXIMUM KEEP DYNAMIC STATEMENTS (MAXKEEPC):** 10,000
- **MAX OPEN FILE REFS (MAXFRIL):** 100
- **MANAGE REAL STORAGE (REALSTORAGE MANAGEMENT):** AUTO
- **MAXIMUM REAL STORAGE (REALSTORAGE MAX):** 0
- **CONTRACT THREAD STORAGE (CONSTOR):** YES
- **MANAGE THREAD STORAGE (MINSTOR):** YES
- **LONG-RUNNING THREAD ALLOWED IN MINUTES (LONGTHRD):** 10
- **DOL TIMEOUT FACTOR (DOLTF):** 0
- **INDEX CLEANUP THREADS (INDEX,CLEANUP_THREADS):** N/A
- **3960 CACHE (SEQCACH):** 500

#### TRACING, CHECKPOINT & PSEUDO-CLOSE PARAMETERS (DSTIPM)

- **START AUDIT TRACE (AUDITST):** OFF
- **START GLOBAL TRACE (GLOBAL):** NO
- **LOCAL TRACE TABLE SIZE IN 4K BYTES (TRACETB):** 16
- **LOCAL TRACE TABLE SIZE IN 4K BYTES (TRACETB):** 16
- **START SMF ACCOUNTING (SMTP):** OFF
- **START SMF STATISTICS (SMTPAT):** 1,3,4,5,6
- **STATISTICS TIME INTERVAL MINUTES (STATTIME):** 1
- **SYNCROHIZATION INTERVAL WITHIN THE HOUR (SYNCH):** N/A
- **ONLINE DATASET STATISTICS TIME INTERVAL IN MIN (DSTTIME):** 5
- **START MONITOR TRACE (MONTR):** N/A
- **MONITOR BUFFER SIZE IN BYTES (MONBUFF):** 1,048,576
- **UNICODE IFCIDS (IFCIDS):** N/A
- **DOF/RSAF ACCUM (ACUMAC):** NO
- **AGGREGATION FIELDS (ACCUM):** NO
- **COMPRESS SMF RECS (SMFCOMP):** OFF

### IRLM INSTALLATION PARAMETERS (DSNTIP)

- **IRLM SUBSYSTEM NAME (IRLMSN):** IAS
- **IRLM RESOURCE TIMEOUT IN SECONDS (IRLMTIME):** 60
- **IRLM MAXIMUM CSA USAGE ALLOWED (CSAUSE):** 0
- **X LOCK FOR REPEATABLE READ OR READ STABILITY (RLBSLD):** YES
- **X LOCK FOR SEARCHED UPDATE/DELETE (XLKUDP):** NO
- **IMS/DBM TIMEOUT FACTOR (DBMTOU):** 4
- **IMS/ULL TIMEOUT FACTOR (ULLTOU):** 6
- **WAIT FOR RETAINED LOCKS (RLWAIT):** 0
- **ENABLE DB CHECKING:** NO
- **IRLM INITIALIZATION TIME:** 1
- **IRLM PROCESSING PARAMETERS:**
  - **WAIT TIME FOR LOCAL DEADLOCK:** 5,000
  - **NUMBER OF LOCAL CYCLES PER GLOBAL CYCLE:** 1
  - **TIMEOUT INTERVAL:** 60
  - **IRLM MAXIMUM CSA USAGE ALLOWED (CSAUSE):** 0
  - **Z/OS LOCK TABLE LIST ENTRIES:** 0
  - **MAX 31-BIT IRLM PRIVATE STORAGE:** N/A
  - **MAX 64-BIT IRLM PRIVATE STORAGE:** N/A

### ARCHIVE LOG INSTALLATION PARAMETERS (DSTIPA)

- **CATALOG ARCHIVE DATASETS (CATALOG):** YES
- **COPY2 ARCHIVE LOG DEVICE TYPE (UNIT2):** DASD
- **COPY2 ARCHIVE LOG DEVICE TYPE (UNIT2):** 'BLANK'
- **SPACE ALLOCATION METHOD (ALCUNIT):** CYLINDER
- **PRIMARY SPACE ALLOCATION (PRIQTY):** 100
- **SECONDARY SPACE ALLOCATION (SECQTY):** 10
- **ARCHIVE LOG BLOCK SIZE IN BYTES (BLKSIZE):** 24,576
- **MAXIMUM READ TAPE UNITS (MAXRUL):** 0
- **TAPE UNIT DEALLOCATION PERIOD (GEALCT):** 0
- **MAX NUMBER OF DATASETS RECORDED IN BSDS (MAXARCH):** 10,000
- **FIRST ARCHIVE COPY MESS STG GROUP NAME:** 'NONE'
- **SECOND ARCHIVE COPY MESS STG GROUP NAME:** 'NONE'
- **DAYS TO RETAIN ARCHIVE LOG DATA SETS (ARCHRET):** 30
- **ISSUE WTQ BEFORE MOUNT FOR ARCHIVE VOLUME (ARCHWT):** YES
- **COMPACT DATA (COMPACT):** NO
- **QUEQSE PERIOD (QUESQSE):** 5
- **SINGLE VOLUME (SVOLARC):** NO

---

**Figure 256. System parameters job stream using ISPF/PDF editor**

To submit the job, type **SUBMIT** on the command line and press Enter.
OPTIMIZE EXTENT SIZING (MGEXT52).......YES
PAD INDEX BY DEFAULT (PADX)..............NO
DEFER PARTITION SETSIZE (PSPP53)......N/A
PERCENT FREE FOR UPDATE (PCFTREE_UPD)....N/A
DEFINE DATA SETS (IMDFDEF)..............YES
USE DEFAULT COMPRESS (IMDCOMPRESS).......NO
LIMIT KEY CONV PART TAB (X_TB_PART_CONV).....YES
PAGE SET PAGE NUMBERING (PAGESET_PGNUM)....N/A
RENAME STOPPED (RETRY_STOPPED_STOPS).....N/A
PREVENT ALTER LIMITKEY (PREVENT_ALTER_LIM)....N/A
PREVENT INDEX PART CREATE (NEW_INDEX_PART)....N/A
DEL MATERIALIZATION (DEL_MATERIALIZATION)....N/A
DEFAULT INSERT ALGORITHM (DEFAULT_INSERT_ALGORITHM)....N/A

PERFORMANCE AND OPTIMIZATION (DSNTIPPA,DSNTIPBP)

CACHE DYNAMIC SQL (CACHEDYN)............YES
CACHE DYN STABILITY (CACHEDYN_STABILIZATION)....N/A
OPTIMIZATION HINTS ALLOWED (OPTHINTS)......YES
EVALUATE UNCOMMITTED (EVALUNC)...........N/A

LOCATION: OMNAD

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5RAMO)
SYSTEM PARAMETERS REPORT

GROUP: N/P
SYSTEM: DAS
DB2 VERSION: V10
MEMBER: N/P
SUBSYSTEM: DAS

OTHER SYSTEM PARAMETERS

DUAL BSDS MODE (TWSBSDS)............YES
ROLL UP PARALLEL TASK ACCOUNTING (PTASKROL)......YES
NO. PAGES SMALL TABLE THRESHOLD (NPSTHSH).....0
DB2 CONNECT (DB2CONN).............YES
SU CONVERSION FACTOR.....................247
MINIMUM DIVIDE SCALE (MINDIVSC).........NONE
SUM OF SITES (SITABLES)..............N/A
ONLINE SYSTEM PARM USER ID MONITOR....N/P
ONLINE SYSTEM PARM CORREL ID MONITOR....N/P
ONLINE PARM TIME TYPE..................N/P
DBZ-SUPPLIED DEEP INDICATOR...........X'D5'
MAX CONCURRENT PKG OPS (MAX_CONCURRENT_PKG_OPS)....10
ADMIN SCHEDULER JCL PROC NAME (ADMTPROC).......N/P
FREE LOCAL CACHED STATEMENTS (CACHEADN_FREELOCAL)....0
INDEX I/O PARALLELISM (INDEX_ID_PARALLELISM)....YES
ZIMETERS (ZIMETERS)...................N/A
USE TRACKMOD FOR IMPLICIT TS (IMPMOD)........YES
DSIZE FOR IMPLICIT TS (IMPSIZE)..........4
ENABLE MULTIPLE TIME AGES (SuREX)........40,960
SP_PARMS_NV (GDF_COMPATIBILITY)...........N/A
SP_PARMS_NJV (GDF_COMPATIBILITY).........N/A
DISABLE_IMPCAST_NV (GDF_COMPATIBILITY).....N/A
IGNORE_TZ (GDF_COMPATIBILITY).............N/A
DOP CDF PRIOR VERSION (CDF_VERSION).......N/P
DOP CDF (CACHE DEF TRIG)...............N/A
ACTIVATE I/O SCHEDULING.................YES
VALUE FOR TRIGGER DRAIN...............YES
MAIN MSG LIMIT WITH HOLD..............N/A
FIELD PROCS FOR DESCR TABLE BLOCK........5
RESTRICT ALTER COLUMN FOR DCC (RESTRICT_ALT_COL_DCC)....N/A
SPACE RESERVED FOR ZOS FUNCTIONS........N/A
SPACE RESERVED FOR CRITICAL WORK........39,387,136
SPACE RESERVED ON TOP OF Z/OS CRITICAL SPACE.....39,387,136

LOCATION: OMNAD

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5RAMO)
SYSTEM PARAMETERS REPORT

GROUP: N/P
SYSTEM: DAS
DB2 VERSION: V10
MEMBER: N/P
SUBSYSTEM: DAS

OTHER SYSTEM PARAMETERS

DB2 UTILITIES PARAMETERS (DSNTIPPA,DSNTIPBP)

TEMPORARY UNITS NAME (VOLTDEVT)...........SYSORA
UTIL TEMP STORCLAS (UTIL_TEMP_STORCLAS)......N/P
STATISTICS HISTORY (STATHIST)............NONE
STATISTICS ROLLUP (STATROLL).............YES
UTILITY TIMEOUT FACTOR (UTILITY_TIMEOUT)....6
UT SORT DATA SET ALLOCATION (UTSORTAL).....YES
IGNORE SORTNM BTN (SORTNOMTN).............N/A
SET CHECK PENDING (CHECK_SETCHKP).........N/A
DB SORT USE (DPSORT).................N/A
MAXIMUM DEGREE OF PARALLELISM (PARAM_DEFAULT)......N/A
MAX TEMP STORAGE PER AGENT MB (MAXTEMP).......0
SEPARATE WORK FILES (MFUSESEP)............NO
MAX TEMP RIO (MAXTEMP_RIO)............NO
AGENT LEVEL THRESHOLD (WFSTGUSE_AGENT_THRESHOLD)....N/A
SYSTEM LEVEL THRESHOLD (WFSTGUSE_SYSTEM_THRESHOLD)....N/A

2846 IBM Db2 Performance Expert on z/OS
Chapter 6. Batch reporting 2847
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**Location:** OMPDAS

**System Report:** OMEGAMON XE for DB2 Performance Expert (V5R4M0)

**Group:** N/P

**Member:** N/P

**Subsystem:** DAS

**DB2 Version:** V10

**Actual From:** 08/24/16 07:01:00.00

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2848 IBM Db2 Performance Expert on z/OS
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**Location:** OMPDAS5  
**Group:** N/P  
**Subsystem:** DAS  
**DB Version:** V10  
**Actual From:** 08/24/16 07:01:00.00

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**Buffer Pool Parameters**

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**Location:** OMPDAS5  
**Group:** N/P  
**Subsystem:** DAS  
**DB Version:** V10  
**Actual From:** 08/24/16 07:01:00.00

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DATA DEFINITION CONTROL SUPPORT (DSNTIP2)

INSTALL DD CONTROL (RGFINSTL) ..................NO
CONTROL ALL APPLICATIONS (RGFDMPDL) ..............NO
REQUIRE FULL NAMES (RGGFULL) ....................YES
UNRESPONSE DEFAULT (RGFDFULT) ....................YES
REGISTER TABLE OWNER (RGFSTOWN) ..................DSNARSGOL

SQL defines registation database name (RGFDBNM) ..................DSNARSGOL
APPLICATION REGISTRATION TABLE NAME (RGFMTAP) ..................AUTO
OBJECT REGISTRATION TABLE NAME (RGFMNORM) ..................AUTO
ESCAPE CHARACTER (RGFESCP) .......................X’40’

DB2 VERSION INSTALL (DSNTP1A)

DATA SHARING ENABLED (DSHARE) .....................YES
CURRENT DB2 RELEASE (NEKATEM) ..............0.5
CURRENT DB2 RELEASE - 1. .........................NO
CURRENT DB2 RELEASE - 2. .........................NO
COMPRESS LOB TS FOR DIRECTORY (COMPRESS_DIRLOB) ..........NO/A

LOCATION: OMNIBEE
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (YSRAMO)

APPLICATION PROGRAMMING DEFAULTS PANEL 1 (DSNTP1F)

DEFAULT HOST LANGUAGE (DFLANG) ..................IBMCOB
DECIMAL POINT DECIMAL (DCDECFMT) ..............P
DEFAULT DELIMITER (DELM1) .....................DEFAULT
DEFAULT SQL DELIMITER (SQLDEL1) ..................DEFAULT
DEFAULT MIXED GRAPHIC (MIXED) ..................NONE

EXEC SBCS CCID (SSCSID) .....................1,148
EXEC MBCS CCID (SSMCCID) ....................A/P
EXEC UCSB CCID (SSUCSID) ......................0.819
ASCI1 SBCS CCID (ASCCSID) .....................A/P
ASCI1 UCSB CCID (USCCSID) ......................36.79
ASCI1 UCSB CCID (USMCSSID) ....................1,208
EXEC ENCODING SCHEME (ENCSCHEM) ...............EBDIC
EXEC APPLICATION ENCODING (APPCNCH) ..........EBDIC
EXEC LOCAL LC TYPE (LC_CTYP) ..................‘BLANK’
EXEC DEFAULT MODE (DEF_DEFAULTM_RNDM) ..........ROUND_HALF_EVEN

SQL OBJECT DEFAULTS PANEL (DSNTIP2,DSNTP1F,DSNTP1Q,DSNTP2)

REORDERED ROW FORMAT (RRF) .....................YES
OBJECT CREATE FORMAT (OBJECT_CREATE_FORMAT) ........EXTENDED
UTILITY OBJECT CONVERSION (UTILITY_OBJECT_CONVERSION) ................NONE
VARY DS CONTROL INTERVAL (DSVIC) ..............YES
TABLE SPACE ALLOCATION IN KB (TSQTY) ............0
INDEX SPACE ALLOCATION IN KB (ISQTY) ............0
OPTIMIZE EXTENT SIZING (MGETSIZ) .................NO
PAD INDEX BY DEFAULT (PADIDX) ..................NO
DEFAULT PARTITION SEGSIZE (DSPSEGSZ) ..........32
PERCENT FOR UPDATE (PCRTUPD) ..................0
DEFINE DATA SETS (IMPOSED) .....................YES
USE DATA COMPRESSION (MPTCOM) ..................YES
LIMIT KEY CONV PART TAB (IX_TP_PART_CONV_EXCLUDE) ..........NO/A
PAGE SET PAGE NUMBERING (PASET_PAGENUM) ..........N/A
RETRY STOPPED OBJECTS (RETRY_STOPPED) ..........YES
RENAME TABLE (RENAMETABLE) .....................YES
PREVENT ALTER LIMIT KEY (PREVENT_ALTERB_LIMITKEY) ..........NO
PREVENT INDEX PART CREATE (PREVENT_INDEX_PART_CREATE) ..........NO
SQL MALFORMATION (SQL_MALFORMATION) ..........N/A
EXEC APPLICATION ALGORITHM (EXEC_APPLICATION_ALGORITHM) ..........N/A

PERFORMANCE AND OPTIMIZATION (DSNTIP8,DSNTP8I)

CACHE DYNAMIC SQL (CACHEDYN) ..................YES
CACHE DYN STABILITY (CACHESTABILIZATION) ........N/P
OPTIMIZATION HINTS ALLOWED (OPTHINTS) ..........NO
EVALUATE UNCOMMENDED (EVALUNCOM) ..............NO
SKIP UNCOMM INSERTS (SKIPUNCOM) ...............NO

LOCATION: OMNIBEE
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (YSRAMO)

APPLICATION PROGRAMMING DEFAULTS PANEL 2 (DSNTP4,DSNTP1P)

APPLICATION FUNCTION INSTALL PARAMETERS (DSNTP10)

WDT ROUTE CODES (ROUTCDE) ......................1
RESERVE LIMIT FACILITY AUTOMATIC START (RLF) ..........NO
RESERVE LIMIT SPECIFICATION TABLE SUFFIX (RLFTBL) ..........01
AUTO BIN (ABIND) .....................YES
ALLOW EXTEND AT AUTOBIND (ABEXP) ..............YES
DEBUG SUPPORT (DSFPRO) ......................YES
SITE TYPE (SITETYP) ......................LOCALSITE
TRACKER SITE (TSRCKST) ......................NO
RECORD COPY ARCHIVE (ARCHFST) ..................NO
REAL TIME STATS (STATCH) ......................ALL
PROFILE AUTOSTART (PROFILE_AUTOSTART) ..........N/A

ROUTE PARAMETERS (DSNTPX)

MAX ABEND COUNT (STORMMB) ......................0
TIMEOUT VALUE (STOSTIME) .....................180
WLM ENVIRONMENT (WLMENV) ....................DSMLNW11_GENERAL
MAX OPEN CURSORS (MAX_NUM_CUR) ................2,000
MAX STORED PROCs (MAX_ST_PROC) ...............2,000
MAXIMUM NUMBER OF LE TOKENS (LEMAX) ..........20
BI_COMPATIBILITY (BI_COMPATIBILITY) ..........CURRENT
CURRENT BUFFER POOL PARAMETERS (DSNTIP1I)

BUFFER POOL PARAMETERS (DSNTIP1I)

DEFAULT 4-KB BUFFER POOL FOR USER DATA (TBSBPOOL) ........BP2
DEFAULT 8-KB BUFFER POOL FOR USER DATA (TBSB8P) ........BP8K
DEFAULT 16-KB BUFFER POOL FOR USER DATA (TBSB16P) ..........BP16K
DEFAULT 32-KB BUFFER POOL FOR USER DATA (TBSB32P) ..........BP32K
DEFAULT BUFFER POOL FOR USER LOB DATA (TBSBLOB) ..........BP9
DEFAULT BUFFER POOL FOR USER XML DATA (TBSBPXML) ..........BP16K

Chapter 6. Batch reporting 2853
### Buffer Pool Parameters

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**Chapter 6. Batch reporting**

2857
LOCATION: OMPDBEE
MEMBER: SEE2
SUBSYSTEM: SEE2
B2 VERSION: V11

BUFFER POOL PARAMETERS

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  HORIZ DEFER WRITE THRESH 30
  VERT DEFER WRITE THRESH (%) 5
  VERT DEFER WRITE THRESH (BUF) 0
  VPOOL PARALLEL SEQ THRESH 50
  ASSISTING PARALLEL SEQ THRESH 0
  PGFIX ATTRIBUTE NO
  PAGE STEAL METHOD LRU
  AUTOSIZE NO
  FRAMESIZE 4K
  VPOOL SIZE MIN 0
  VPOOL SIZE MAX 0
  SIM POOL SIZE 0
  SIM POOL SEQ THRESH 0

TIMESTAMP 08/24/16 07:01:00.00
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  VPOOL SIZE (PAGES) 2200
  VPOOL SEQ THRESH 80
  HORIZ DEFER WRITE THRESH 30
  VERT DEFER WRITE THRESH (%) 5
  VERT DEFER WRITE THRESH (BUF) 0
  VPOOL PARALLEL SEQ THRESH 50
  ASSISTING PARALLEL SEQ THRESH 0
  PGFIX ATTRIBUTE NO
  PAGE STEAL METHOD LRU
  AUTOSIZE NO
  FRAMESIZE 4K
  VPOOL SIZE MIN 0
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IBM Db2 Performance Expert on z/OS
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LOCATION: OMPOCS1  
GROUP: N/P  
MEMBER: N/P  
SUBSYSTEM: DCS1  
B2 VERSION: V12

BUFFER POOL PARAMETERS

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B2 VERSION: V12

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General Accounting information

This topic describes the Accounting report set and concepts in detail.

From the data shown in Accounting reports you can assign DB2 resource costs to individual authorization IDs and tune programs. OMEGAMON XE for DB2 PE does not, however, provide for tasks such as charge-back or billing.

Typical uses of Accounting reports are to:

- Summarize the local and distributed DB2 activity associated with the execution of specified DB2 plans.
- Summarize the composite DB2 activity associated with the execution of threads that exploit query CP parallelism or Sysplex query parallelism.
- Summarize the DB2 activity associated with the execution of the specified DB2 packages and DBRMs.
- Detect potential problem areas within DB2 applications.
- Track DB2 resource usage on a regular basis by OMEGAMON XE for DB2 PE identifiers such as location, authorization ID, or plan name. You can use this information to study trends or deviations from trends.
- Identify DB2 threads that fail to meet user-specified criteria.

In data sharing groups, you can produce Accounting reports at member level or at group level.

Accounting reports provide summary data about DB2 resource usage for:

- A given thread
- In thread reuse, the interval of time between two signons
- All tasks within a thread that exploit query CP or Sysplex query parallelism

Exception processing is supported in the Accounting report set. You define exception thresholds for certain Accounting fields. When you request exception processing, the values in these fields are checked against the thresholds. Only those records that contain field values outside the defined thresholds are reported.

TOP processing identifies the main consumers of DB2 resources. If the TOP subcommand option is used, an index-like report is generated that shows the main consumers at the end of the report or trace. If you only want to see the main resource consumers, specify the TOP subcommand option with the ONLY keyword.

Functions and utilities of the Accounting report set

The Accounting report set consists of the REPORT, TRACE, FILE, REDUCE, SAVE, RESTORE functions, and the Save-File and Spreadsheet Input-Data Generator utilities.

REPORT

Shows Accounting data summarized by OMEGAMON XE for DB2 PE identifiers. For example, you can produce a report that shows the Accounting information for threads, plans, or users. The report shows totals and subtotals of fields.
For a DB2 system in a data sharing group, reports can be at member or group level.

**TRACE**

Shows Accounting data for a particular thread. Unlike reports, traces show the Accounting data without aggregation. This means that the records are listed individually, in the order of occurrence. There is an exception if a thread exploits parallelism. In this instance, all parallel activity is aggregated and presented as a single trace entry.

Traces can be very long. Use traces only to resolve a specific problem.

**FILE**

Formats DB2 Accounting records and stores the records in sequential data sets that can be loaded into DB2 tables. You can analyze the data in DB2 tables and produce tailored reports by using a reporting facility such as Query Management Facility (QMF). You can also use FILE to produce data sets that contain only exception records. (See “Creating data for the Performance Database and the Performance Warehouse” on page 2984.)

You can also use the File data sets to generate CSV (comma-separated value) input-data. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables. (See “Generating input data for spreadsheets” on page 2985.)

**REDUCE**

Reduces the volume of data that is input to the REPORT and SAVE functions. REDUCE is invoked automatically if you use REPORT or SAVE. Specify REDUCE explicitly if you want to:

- Specify an interval to order data on Accounting reports
- Produce several reports to cover different time periods

After reducing data, the resulting data set is much smaller than the original input data set. However, reducing data uses a considerable amount of system resources. (See “Creating data for the Performance Database and the Performance Warehouse” on page 2984.)

**SAVE**

You can save data sets as follows:

**Without CONVERT option**

Produces VSAM data sets that contain reduced Accounting records. When the data is saved, you can:

- Combine it with new data to produce long-term reports.
- Use the Save-File utility to create sequential data sets that are suitable for use by the DB2 load utility.

**Note:**

- You can only process VSAM data sets in the same version of OMEGAMON for Db2 PE as they have been created. For example, if you create a SAVE data set in version 530, it can only be RESTORED in version 530.
- To use a SAVE data set in a higher version, you must migrate the SAVE data set using a migration utility.
- Before you restore or convert SAVE data sets from V5.2.0 or V5.3.0, you must first migrate this data to OMEGAMON for Db2 PE V5.4.0 format.
• Restored reports only show fields that are supported by the current version of OMEGAMON for Db2 PE.

You can use REDUCE and SAVE to keep historical Accounting data about DB2 performance. You can define the interval and the input filters for the data that is saved into the SAVE data set.

**With CONVERT option**

Produce sequential data sets that contain reduced and converted Accounting records. When the data is saved, it can be used by the DB2 load utility.

You can also use the Save-File data sets to generate CSV (comma-separated value) input-data. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables. (See "Generating input data for spreadsheets" on page 2985.)

**RESTORE**

Reloads a previously saved VSAM data set for additional use. This saved data can be restored and re-saved as often as required.

**Save-File utility**

With the Save-File utility you can:

• Migrate Accounting Save data sets from earlier releases.

• Convert Accounting Save data sets into sequential data sets that are suitable for use by the DB2 load utility.

(See “Creating data for the Performance Database and the Performance Warehouse” on page 2984.)

**Spreadsheet Input Data Generator utility**

You can also use the File and Save-File data sets to generate CSV (comma-separated value) input-data. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables. (See “Generating input data for spreadsheets” on page 2985.)

**Thread types**

The DB2 thread or, for a thread in reuse, the part of it that is between two consecutive signons or resignon, is the basic unit of reporting for the Accounting report set.

**Thread categories**

OMEGAMON XE for DB2 PE uses the following categorization of DB2 threads:

**Allied thread**

An allied thread:

• Originates at the local DB2 subsystem and can access data at a remote DB2 subsystem.

• Does not involve distributed activity, that is, it is not initiated by a remote location and does not request data from another location.

• Can be filtered for Accounting by selecting the OMEGAMON XE for DB2 PE identifier THREADTYPE with a value of ALLIED. The Accounting report ordered by THREADTYPE shows ALLIED as an individual criterion.
The Accounting record that represents an allied thread consists of the following set of data, which is called non-DDF (Distributed Data Facility) data:

- Identification of the thread
- General timing
- SQL and RID list usage
- Query parallelism
- Buffer pool activity
- Group buffer pool activity
- Data sharing locking
- Stored procedures
- Data capture
- Locking activity
- Packages and DBRMs executed
- Resource limit facility data

**Allied-distributed thread**

An allied-distributed thread:

- Requests work from remote server locations.
- Is not initiated by a remote location.
- Can be filtered for Accounting by selecting the OMEGAMON XE for DB2 PE identifier THREADTYPE with a value of ALLIED_DIST. The Accounting report ordered by THREADTYPE can show ALLDDIST as an individual criterion.

The Accounting record that represents an allied-distributed thread consists of:

- Non-DDF data
- One block of DDF data for each participating server location, which includes information such as the number of messages, statements, rows, and bytes that have been sent and received.

**Database access thread (DBAT)**

A DBAT thread:

- Accesses data at the local subsystem on behalf of a remote subsystem.
- Can be filtered for Accounting by selecting the OMEGAMON XE for DB2 PE identifier THREADTYPE with a value of DBAT.

The Accounting record that represents a DBAT consists of:

- Non-DDF data
- DDF data for the requester location

- Also includes DBAT-distributed threads that are initiated by a requester location and executed by the server location that in turn requests data from another server location.

The Accounting report ordered by THREADTYPE can show one or several of the following criterion:

- **DBAT** Indicates accumulated data of threads that are initiated, created, and performing work on behalf of a remote (requester) location.

- **DBATDP** Indicates accumulated data of DBAT duplicate threads.

- **DBATDIST** Indicates accumulated data of DBAT distributed threads that are initiated by a requester location and executed by the server location that in turn requests data from another server location.
DBATDICP
Indicates accumulated data of DBAT distributed and copy threads.

DBATDIDP
Indicates accumulated data of DBAT distributed and duplicate threads.

For example, when location A uses DRDA to request data at location B and, in the same unit of work, accesses data at location C (using DB2 private protocol), the thread created at location A is an allied-distributed thread, the thread created at location B is a DBAT-distributed thread. The thread created at location C is a DBAT.

The Accounting record that represents a DBAT-distributed thread consists of:
- Non-DDF data
- DDF data for the requester location
- One block of DDF data for each participating server location

**Thread types reported by ORDER**

The following terms can help you to understand the concepts of the different thread types and merged processing:

**Nondistributed transaction**
A nondistributed transaction for Accounting:

- Is initiated by DB2 and performed at one location without interaction with other locations. For example, if an allied thread is not reused, it represents a nondistributed transaction. If it is reused, a nondistributed transaction is a DB2 activity between two signons.
- Can be filtered by specifying the INCLUDE or EXCLUDE subcommand options with the OMEGAMON XE for DB2 PE identifier THREADTYPE using a value of ALLIED or DBAT. As a result the Accounting report ordered by THREADTYPE can show a thread type of ALLIED, DBAT, or DBATDP.

**Note:** The OMEGAMON XE for DB2 PE identifier DBAT also covers the nondistributed transactions.

**Distributed transaction**
A distributed transaction for Accounting:

- Is initiated by DB2 at one (requester) location and performed at one or more remote (server) locations.
- Consists of a local activity that is represented by an allied-distributed thread, and in case of a loopback from a DBAT, remote activity that is represented by one or more DBATs. Therefore, a distributed transaction requires Accounting records for the allied-distributed thread and all corresponding DBATs.
- Can be filtered by specifying the INCLUDE or EXCLUDE subcommand options with the OMEGAMON XE for DB2 PE identifier THREADTYPE using a value of ALLIED-DIST or DBAT.

**Note:** The OMEGAMON XE for DB2 PE identifier DBAT also covers the nondistributed transactions.

The Accounting report ordered by THREADTYPE can show one or several of the following thread types that are distributed transactions:
ALLDDIST
Indicates accumulated data of threads initiated by DB2 and that request data from one or more server locations.

DBATDIST
Indicates accumulated data of DBAT distributed threads that are initiated by a requester location and executed by the server location that in turn requests data from another server location.

DBATDICP
Indicates accumulated data of DBAT distributed and copy threads.

DBATDIDP
Indicates accumulated data of DBAT distributed and duplicate threads.

Activity location

Reports and traces are location-oriented. They show activity that is performed at one or more locations. For a given location, the following information is shown:

- The nondistributed transactions, in other words, the allied threads at that location
- The local activity of distributed transactions that originate at that location, in other words, the allied-distributed threads from that location without the corresponding DBATs at other locations
- The remote activity at that location as part of distributed transactions requested from other locations, in other words, the DBATs at that location

Multi-site or single-site reports

Reports and traces can be single-site or multi-site:

- Single-site reports and traces present Accounting data for one location. You can obtain a single-site report or trace by processing input data that only contains records from a single location or by specifying a single location with the INCLUDE or EXCLUDE subcommand options.
- Multi-site reports and traces present Accounting data for more than one location. The data is arranged in alphabetical order by location name.

Distributed activity

The Accounting trace provides insights to activities among distributed DB2 subsystems as well as non-DB2 requestors.

OMEGAMON XE for DB2 PE supports communication between:
- DB2 for z/OS subsystems
- DB2 for z/OS subsystem and non-DB2 requesters, such as SQL/DS, or ORACLE

For detailed information about the communication between these systems, produce an Accounting trace.

For communication between two DB2 subsystems, the Accounting trace provides you with information about the requester locations (for DBATs) and the server locations (for requester threads).

For communication between a DB2 subsystem and a non-DB2 for z/OS requester, OMEGAMON XE for DB2 PE can only present performance data on DBATs.
However, the Accounting trace helps you to identify the requester. It supplies the identifier and release level of the requester involved. For requesters from DB2 on other platforms also provides the client platform, application name, authorization ID, and a user-supplied part. If possible, OMEGAMON XE for DB2 PE uses the first eight bytes of the application name to identify the DBAT. If it is not possible to show the DBAT application name, the plan name is shown as DISTSERV. When DISTSERV is shown, you can use the MAINPACK identifier to distinguish DBATs.

Accounting trace records are affected by the DB2 subsystem parameter ACCUMACC, which controls whether and when DB2 Accounting data is accumulated by the user for DDF and RRSAF threads. A parameter value of 2 or greater causes Accounting records to roll up into a single record every \( n \) occurrences of the user on the thread. These values can be set by DDF threads by Server Connect and Set Client calls, and by RRSAF threads by RRSAF SIGN, AUTH SIGNON, and CONTEXT SIGNON functions. When roll-up occurs, the values of some fields shown in Accounting reports and traces lose their meanings because of the accumulation. Thus, these fields are marked as N/P or N/C for derived fields. For a list of affected fields, see “Fields affected by roll-up during distributed and parallel tasks” on page 2996.

**Query parallelism considerations**
The Accounting report set supports parallel tasks from CP parallelism and Sysplex query parallelism.

If a query exploits query CP parallelism or Sysplex query parallelism, several tasks (called parallel tasks) perform the work. For each of these tasks an Accounting record is generated, which contains counters and timers pertinent to the work performed by the particular task. In addition, an Accounting record is created that contains the details about nonparallel work within the thread and data related to parallel work.

OMEGAMON XE for DB2 PE summarizes all Accounting records that are generated for such a query and presents the records as one logical Accounting record. Table 244 describes which values are taken from both the originating and parallel records and which are taken from the originating record only.

**Table 244. Data related to query CP and Sysplex query parallelism**

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<td>Originating record</td>
</tr>
<tr>
<td>Class 3 and 8 times and events</td>
<td>Originating and parallel records</td>
</tr>
<tr>
<td>Class 5 times</td>
<td>Originating record</td>
</tr>
<tr>
<td>SQL counters</td>
<td>Originating record</td>
</tr>
<tr>
<td>RID list counters</td>
<td>Originating and parallel records</td>
</tr>
</tbody>
</table>
Table 244. Data related to query CP and Sysplex query parallelism (continued)

<table>
<thead>
<tr>
<th>Accounting data</th>
<th>Derivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Query parallelism counters</td>
<td>Originating record</td>
</tr>
<tr>
<td>Locking (including data sharing)</td>
<td>Originating and parallel records</td>
</tr>
<tr>
<td>RLF data</td>
<td>Originating record</td>
</tr>
<tr>
<td>Buffer pool counters</td>
<td>Originating and parallel records</td>
</tr>
<tr>
<td>Group buffer pool counters</td>
<td>Originating and parallel records</td>
</tr>
<tr>
<td>DDF counters</td>
<td>Originating record</td>
</tr>
<tr>
<td>Data capture counters</td>
<td>Originating record</td>
</tr>
<tr>
<td>SU counters</td>
<td>Originating and parallel records</td>
</tr>
</tbody>
</table>

The elapsed time is taken from the originating record, while CPU and suspension times are calculated from all parallel and originating records. Consequently, both CPU time and suspension times can be larger than the elapsed time. Therefore, you can only get the full picture of response time distribution if the times for each participating task are known. If you suspect that the CPU times or suspension times for a thread where query CP or Sysplex query parallelism is used are, for other reasons, larger than the times being added for several tasks, produce a long Record trace for IFCID 3. This way all parallel and originating Accounting records are reported separately.

In Sysplex query parallelism, the CPU times of the parallel records are normalized so that you can add up the times across multiple DB2s running on different machines. Normalized means that the CPU times are converted to a common unit, called service unit (SU), using a conversion factor. The conversion factor depends on the machine being used.

By default, Accounting trace records from parallel query tasks are rolled up into the originating task’s Accounting trace. This is controlled by the DB2 subsystem parameter PTASKROL (parallel tasks roll-up), which has a default value of YES. A roll-up record is written when the parent task (agent) deallocates on an originating DB2, or when an accumulating child task is deallocated on an assisting DB2. The rolled up data is an accumulation of all counters for that field for each child task that completed and deallocated. When roll-up occurs, the values of some fields in Accounting reports and traces lose their meanings because of the accumulation. Thus, these fields are marked as N/P, or N/C for derived fields. For a list of affected fields, see “Fields affected by roll-up during distributed and parallel tasks” on page 2996.

Timing information
The Accounting report set provides a multitude of timing information for nondistributed and distributed transactions.

OMEGAMON XE for DB2 PE reports the following timing information:

- Application times (class 1)
- DB2 times (class 2)
- Suspension times (class 3) and counts
- IFI times (class 5)
- DB2 times on a per package/DBRM basis (class 7)
- Suspensions times on a per package/DBRM basis (class 8) and counts
If an Accounting record represents an allied-distributed thread, additional time fields for DDF data are reported. These DDF times are obtained from Accounting class 1.

The following figure shows an example of the DB2 Accounting times for a nondistributed transaction that does not exploit CP parallelism and how the Accounting times relate to each other and to the DB2 SQL call activity. The example depicts an application for IMS or CICS. Classes 5, 7, 8, and 9 are not shown. Class 5 is a subset of class 2 and is present only if IFI processing takes place. Classes 7 and 8 are equivalent to classes 2 and 3, but on a package or DBRM level.

![Accounting Times Diagram]

*Figure 257. DB2 Accounting times for a nondistributed transaction*

The following figure shows various elapsed times for a distributed transaction originating from TSO allied space. CP parallelism is not exploited. The times for both the requester and the server are shown. This figure is a simplified presentation of the processes at the participating locations. It does not, for example, show block fetch statements and it is only applicable to a single row retrieval. DDF-at-Server time is not provided if the transaction uses DRDA.
The various elapsed times in the figure are defined as follows:

- **DDF at Server**
  
  This is the ELAPSED SER field that is reported in the Requester Fields for Server Location section of the Accounting reports and traces. It represents the elapsed time spent at the server between the time the SQL statement is received and the time the answer is sent to VTAM. This time is not applicable to DRDA and N/A is printed.

- **DDF at Requester**

---

*Figure 258. Accounting elapsed times for a distributed transaction*
This is the ELAPSED REQ field in the Server Fields for Requester Location section of the Accounting reports and traces. It represents the elapsed time spent at the requester between the time the SQL statement is sent and the time the answer from the server is received.

- **Class 1 at Server Location**
  This is the ELAPSED TIME field under the APPLICATION TIMES (CLASS 1) column of the Accounting reports and traces for the server location. It represents the class 1 elapsed time from creation to termination of the DBAT.

- **Class 2 at Server Location**
  This is the ELAPSED TIME field under the DB2 TIMES (CLASS 2) column of the Accounting reports and traces for the server location. It represents the elapsed time to process the SQL requests and the commits at the server.

- **Class 3 at Server Location**
  This is the ELAPSED TIME for the total of the class 3 suspensions in the Accounting reports and traces for the server location. It represents the time the DBAT was suspended while waiting for various system events such as locking, I/O, and other requests.

- **Class 3 at Requester Location**
  This is the ELAPSED TIME column for class 3 suspensions on the Accounting reports and traces for the requester location. It represents the time the allied-distributed thread was suspended while waiting for various system events such as locking, I/O, and other requests.

- **Class 2 at Requester Location**
  This is the ELAPSED TIME field under the DB2 TIMES (CLASS 2) column of the Accounting reports and traces for the requester location. It represents the elapsed time between the application passing the SQL statement to the local (requester) DB2 system and back again. This is the time spent in DB2.

- **Class 1 at Requester Location**
  This is the ELAPSED TIME field under the APPLICATION TIMES (CLASS 1) column of the Accounting reports and traces for the requester location. It represents the elapsed time from creation to termination of the allied-distributed thread.

**Input for Accounting reports**
The Accounting report set can process data originating at different DB2 locations in the same OMEGAMON XE for DB2 PE run.

Several input data sets (in any SMF, GTF, DPMOUT, and Online Monitor trace output data set format) can be logically concatenated in the DD statements for INPUTDD. The data is sorted in the primary sequence of location and reported according to the parameters specified in the Accounting command.

**DB2 traces used in Accounting:**
The Accounting report set requires the following DB2 trace classes and DB2 trace types to be active.

Accounting uses the DB2 IFCIDs 3 and 239 (DB2 trace type Accounting, DB2 trace class 1) as input for the reports and traces. Timing data is taken from all classes:

- Application times (class 1)
- DB2 times (class 2)
- Suspension times (class 3) and counts
- IFI times (class 5)
• DB2 times on a per package/DBRM basis (class 7)
• Suspensions times on a per package/DBRM basis (class 8) and counts

If an Accounting record represents an allied-distributed thread, additional time fields for DDF data are reported. These DDF times are obtained from Accounting class 1.

Accounting trace classes are started either at DB2 start time, by using the installation panel DSNTIPN, or by entering the DB2 **START TRACE** command at the terminal. For example:

```
-START TRACE(ACCT6) CLASS(1,2,3,5,7,8) DEST(SMF)
```

The Accounting classes 1 and 3 should always be active. The overhead is not significant, whereas the information they provide is crucial for all aspects of performance monitoring. It is also useful to always have class 2 active. If you do not always have class 3 active, activate class 3 when you activate class 2.

Classes 7 and 8 provide valuable information on a per package or per DBRM basis. They are equivalent to classes 2 and 3. Package or DBRM Accounting is probably most beneficial for a DB2 server of a non-DB2 requester or when an application plan can execute many packages or DBRMs, but actually executes 10 or less for a given Accounting record. If class 2 is active, also activate class 7 if package Accounting is needed. If class 3 is active, also activate class 8 if package Accounting is needed. More than 10 packages or DBRMs introduce additional overhead in data collection reducing the benefit versus cost. However, this cost is still significantly less than a DB2 performance class trace.

**Accounting record generation:**

About how and when Accounting data is collected and recorded.

The collection of Accounting data begins when a thread connects to DB2. A completed Accounting record is written when:

- The thread terminates
- The authorization identifier changes because the thread is reused
- A DBAT becomes inactive
- A parallel task completes when query CP or Sysplex query parallelism is exploited

**Note:**

- NEW USER is reported when DB2 Accounting records are reported in the IMS thread and CICS thread reuse situations where a new AUTHID is used.
- If TOKENE=YES on the TYPE=ENTRY statement in the RCT table is specified, the CICS attachment facility requests an Accounting record to be produced during thread reuse even if the user authorization ID does not change. A CICS LU6.2 token is also passed to DB2 allowing correlating CICS and DB2 trace records.
- For thread reuse, all values are accumulated since the last Accounting record.
- When a CICS application program causes more than one SYNC point commit or rollback, DB2 can produce several out-of-sequence Accounting records for the application if CICS attach thread swapping occurs.
- If a thread is reused with the same user authorization ID and TOKENE has not been specified, the DB2 Accounting record represents several CICS transactions.
Missing data sections:

Conditions that might cause missing data for Accounting reports.

The following DB2 threads might result in missing data sections because required data could not be gathered:

- If attaching to QMF that generates a unique DB2 thread.
  Under this thread no SQL, buffer, or locking information is gathered.
- If running a dynamic SQL that generates a unique DB2 thread.
  Under this thread, SQL, buffer, and locking activity can be performed. A data section is produced if activity in the data section occurs. Resource limit activity is only reported in the Accounting record for dynamic SQL activity.
- If ending a QMF session that creates a unique DB2 thread.
  Under this thread no SQL, buffer, or locking information is gathered.
- If running a batch job that creates a unique DB2 thread.
  Under this thread SQL, buffer, and locking activity can be performed. No resource limit activity is tracked for this thread.
- If location A uses DRDA protocol to access data at location B and does not do any local work, no SQL information is gathered for the corresponding allied-distributed thread at location A.

Creating effective Accounting reports

For a report to be effective it must deliver the information you need efficiently in terms of resources required to produce it, the volume of data produced, and the time it takes for you to interpret the report.

Processing considerations

Because Accounting is one of the most frequently used report sets, consider the effects on batch resources. To reduce processing time when producing Accounting reports and traces, only ask for the information that you really need.

Before producing a report or trace, consider how much detail you need.

Use the short (default) layouts of reports and traces whenever possible. In most instances these provide enough detail for monitoring and problem determination.

A detailed report that uses all input data that was gathered for a long period uses a lot of system resources. The result is pages of information that you are probably not interested in.

To avoid unnecessary processing overhead and to save time:

- Consider carefully how detailed a report you need.
- Filter the input data – preferably by using the GLOBAL command.
- Disable OMEGAMON XE for DB2 PE internal sort if appropriate.
- Define groups for identifiers that you want reported as a single entry.
- Specify a REDUCE INTERVAL only to report by intervals or to produce several reports with different time spans.
- Define exception thresholds only for fields that you are interested in.
- Specify DPMOUT or keep a Save data set only if you are sure that you want to report the data again.
Choosing the right level of detail:

Before you produce a report or trace, consider how much detail you need. Use the LAYOUT subcommand option of the Accounting reports and traces to control the amount of data to be produced.

In most situations the default layouts, which are short versions of reports and traces, provide enough detail for monitoring and problem determination. Do not use the most comprehensive layouts that show all possible fields unless you need this information.

For Accounting the LAYOUT subcommand option ACCEL provides detailed thread-related Accelerator activity data.

If the use of commands, subcommands, and subcommand options does not provide sufficient control over the contents of reports and traces, you can use the User-Tailored Reporting (UTR) feature to create and tailor your own report and trace layouts. With UTR you can add, remove, and change individual fields and entire report blocks to control the volume, contents, and layouts of your reports and traces. For more information, see “Tailoring report layouts” on page 2950.

Filtering data:

You can limit the amount of data to be processed by filtering the input data. You can specify filters in the GLOBAL command and in the REDUCE, REPORT, TRACE, and FILE subcommands.

Specify the filters in GLOBAL whenever you can, because only the data that passes through the GLOBAL filters is processed further. The less data OMEGAMON XE for DB2 PE needs to process, the better the performance.

However, ensure that you do not exclude records that are needed in OMEGAMON XE for DB2 PE processing.

FROM and TO subcommand options:

The simplest filter is the start and end date and time of the data to be reported. Specify the start and end dates and times by using the FROM and TO subcommand options.

For example, to monitor the performance of your system only during peak hours and to produce the default version of a report, specify:

```
GLOBAL
  FROM (09/25/13,08:30)
  TO (09/25/13,17:00)
ACCOUNTING
```

The report shows information from 8:30 a.m. to 5:00 p.m. for the specified day.

Presuming that the input data set contains data for more than one day, for example a week, you can generate a report that shows the performance of your system during peak hours for the whole week by specifying:

```
GLOBAL
  FROM (,08:30)
```

IBM Db2 Performance Expert on z/OS
The report shows information from 8:30 a.m. to 5:00 p.m. for every day of the week.

**INCLUDE and EXCLUDE subcommand options:**

Another way to filter data is to include data only for particular OMEGAMON XE for DB2 PE identifier values, for example, user IDs or plans. You can do this by using the INCLUDE and EXCLUDE subcommand options.

For example, if you have a problem with applications coming from one location, USIBMSNEWY11, and you know the CICS transactions are not causing a problem, specify:

```plaintext
GLOBAL
  INCLUDE (LOCATION (USIBMSNEWY11))
  EXCLUDE (CONNTYPE (CICS))
```

Continuing the example, suppose the report indicated a problem with authorization identifier USERID01 using plan PVLDD4C3. You are only interested in data belonging to that user ID and plan. You can now specify:

```plaintext
GLOBAL
  INCLUDE (LOCATION (USIBMSNEWY11))
  INCLUDE (AUTHID (USERID01))
  INCLUDE (PLANNAME (PVLDD4C3))
```

**Suppressing internal sort:**

When you request Accounting functions only, it is often possible to avoid the OMEGAMON XE for DB2 PE internal sort of the input data. Suppressing the internal sort with the PRESORTED option of the GLOBAL command reduces the size of the sort work files that must be allocated and the processing time.

The PRESORTED option of the GLOBAL command controls the internal sort. For example, to produce an Accounting report without sorting the input data, specify:

```plaintext
GLOBAL
  PRESORTED (ACCEPT)
ACCOUNTING
```

The resulting Accounting report shows Accounting data for all locations in the input data set, without performing an internal sort.

**Grouping data:**

Use the GROUP command to collect several OMEGAMON XE for DB2 PE identifier values under one name. When you request a report and specify this name by using the INCLUDE or EXCLUDE subcommand option, the events for all individual items are consolidated into one.
For more information on the GROUP command in Accounting refer to Report Command Reference.

Grouping data using sets of identifiers:

You can use the GROUP command to define a set of OMEGAMON XE for DB2 PE identifier values that can be used when you request certain reports. The information for the set is reported as a single entry in the reports.

In GROUP processing the data for all items of the set is consolidated into one record. This improves OMEGAMON XE for DB2 PE performance because less records must be processed.

Sets are also useful for reporting purposes such as to report data for an entire department instead of every individual person.

Assume that your sales department consists of three users (USER001, USER002, and USER003) and you want to specify sets to produce an Accounting report with performance data for this department. You can specify:

```
GROUP (PRIMAUTH (SALES (USER001, USER002, USER003)))
ACCOUNTING
REDUCE
  INCLUDE (PRIMAUTH(G(SALES)))
REPORT
  ORDER (PRIMAUTH)
```

The Accounting report shows information for the sales department as a single entry.

Grouping data using the connection type identifier:

You can use the GROUP command to reduce data according to the connection type of the thread.

First you must define the GROUP command for the identifier CONNTYPE, such as

```
GROUP (CONNTYPE (ALLCTP(*)))
```

Then use the REDUCE subcommand to get SAVE records with the variable group name. The conversion utility can handle the group name and passes it to the Save-File utility (including the predefined names of the connection types).

In the following example, data for the connection type group named ALLCTP is accumulated. Records created in the SAVE data set with DD name ACSAVDD1 contain name ALLCTP as part of their key. After converting this data, the loadable data contain ALLCTP as a connection type.

```
GROUP (CONNTYPE (ALLCTP(*)))
ACCOUNTING
REDUCE
  INCLUDE (CONNTYPE (G(ALLCTP)))
SAVE
```
Grouping data using the thread type identifier:

You can use the GROUP command to define and pass individual thread types.

Specify the thread type you want to include in your report. The THREADTYPE in a report can be ordered by each individual thread type that needs to be distinguished when processing the REDUCE subcommand.

A logical report is created for each thread type and for each unique member (identified by DB2 location, group, subsystem, member) or for each DB2 group.

**Note:** The detailed thread types are only shown in the output, which can be an Accounting report or a loadable PDB file. This ensures that individual and separated data (such as two logical reports) do not refer to the same set name (such as DBAT).

Grouping data by ordering according to thread types:

You can use the GROUP command to order data according to thread types.

The following example first defines the group, such as GROUP (THREADTYPE(THRTGRP(*))). Then the REDUCE subcommand is specified to reduce the usage of the group to report (ordered by the thread type) and save:

```
GROUP (THREADTYPE(THRTGRP(*)))
ACCOUNTING
REDUCE
   INCLUDE (THREADTYPE (G(THRTGRP)))
REPORT
   ORDER(THREADTYPE)
SAVE
DDNAME(ACSAVDD1)
```

Sample with GROUP REDUCE for THREADTYPE

The following example shows the part of a sample Accounting report that results from the command GROUP REDUCE ordered by THREADTYPE.

```
LOCATION: DEB0299NM222DSNY
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
GROUP: N/P
SUBSYSTEM: DSNY
DB2 VERSION: V10
THRTYPE: THRTGRP

ELAPSED TIME DISTRIBUTION
----------------------------
AVERAGE APPL(CL.1) DB2 (CL.2) IFI (CL.5) CLASS 3 SUSPENSIONS AVERAGE TIME AV.EVENT HIGHLIGHTS
--------------------------------------------------------------------------------------
ELAPSED TIME 52.522821 0.022607 N/P LOCK/LATCH(DB2+IRLM) 0.003379 0.07 3967
NONNESTED 52.522821 0.022607 N/A IRLM LOCK+LATCH N/A N/A 3587
STORED PROC 0.000000 0.000000 N/A DB2 LATCH N/A N/A 0
UDF 0.000000 0.000000 N/A SYNCHRON. I/O 0.005358 0.46 380
TRIGGER 0.000000 0.000000 N/A DATABASE I/O 0.002200 0.46 0
--------------------------------------------------------------------------------------
```

Chapter 6. Batch reporting
Note: The number of ALLIED, ALLIED DISTRIBUTED, DBAT, and DBAT DISTRIBUTED threads are presented in the **Highlights** block.

**Specifying intervals for long-term reporting:**

If you want to perform a trend analysis, you probably want to report data by interval. To do this, first reduce the input data for your Accounting reports using an interval other than the default zero. Then, order the report by intervals.

For example, you might want to report the data at daily intervals. In this case you would specify `INTERVAL(1440)` in the REDUCE subcommand and `ORDER(INTERVAL)` in the REPORT subcommand. If you do not intend to produce reports at time intervals, use the default (0) for INTERVAL, which means that no interval processing is performed.

**Specifying exception thresholds for specific fields:**

You can set exception thresholds for virtually all Accounting fields. However, carefully consider the fields for which to specify exception thresholds. The more fields you specify, the greater the effects on processing.

Specify exception thresholds only for those fields that you believe will signal poor performance in your environment.

You can also use the TOP (ONLY) subcommand option to identify problems instead of specifying exception thresholds. TOP processing is more economical than exception processing.

**Using a DPMOUT data set:**

Keep the content of the DPMOUT data set for further reports.

After OMEGAMON XE for DB2 PE has generated all reports that you requested, the preprocessed input data is either discarded or written to the output data set DPMOUT, depending on what you specified. The DPMOUT data set can be used as input to OMEGAMON XE for DB2 PE, so if you want to produce reports from the same data in several executions and your SMF/GTF data set is large, you might want to keep the DPMOUT data set.

If you do not specify DPMOUTDD, only the records required for the current job step are processed, which improves performance. If you want to keep a DPMOUT data set for the specific purpose of producing future Accounting reports and traces, specify `GLOBAL INCLUDE IFCID(3 239)` in the command stream within the JCL. This reduces the size of the DPMOUT data set.

**Saving reduced data:**

This section shows alternative ways to save reduced data. Use the subcommands `REDUCE` and `SAVE (without CONVERT)`, for example, to store historical Accounting data in smaller data sets.

You can reduce and save data as follows:

- If you want to keep historical Accounting data about DB2 performance in a VSAM data set, consider using `REDUCE` and `SAVE` as follows:
1. REDUCE trace data
2. SAVE reduced data

Reducing and saving data uses a considerable amount of system resources, but the resulting VSAM-Save data set is much smaller than the original input data set.

The size of the data set depends on the reduction interval that you specified and the type of environment the data is from (for example, the number of different users and plans present in the input data), but it is always much smaller than the original input data set.

You can produce reports from the VSAM data by using the RESTORE command. Remember that you cannot produce traces from reduced data.

You can then proceed as follows:
1. CONVERT saved data: The Save-File utility changes Save data sets into sequential data sets for use by the utility.
2. LOAD converted data to Performance database (PDB) tables.

• The following steps are required to load Statistics or Accounting Save data using the CONVERT option of the SAVE subcommand:
  1. REDUCE trace data.
  2. CONVERT reduced data using the SAVE subcommand with the CONVERT option. The reduced data is saved and converted in one step into a sequential data set that can be loaded into DB2 tables.
  3. LOAD converted data to Performance database (PDB) tables.

Exception processing
Use exception processing to identify Accounting report, trace, and File data set entries with fields that contain values outside thresholds specified in the Exception Threshold data set. When exception processing is active, the data to be reported is checked against these thresholds. You can obtain exception reports, traces, and File data sets by using the EXCEPTION subcommand option in ACCOUNTING subcommands.

There are two threshold types that you can set: warning and problem. A warning message is printed if a value is outside the first threshold. A problem message is printed if a value is outside the second threshold.

Accounting exception reports, traces, and File data sets are identical to the usual Accounting reports, traces, and File data sets, except that they only contain entries that have at least one field in exception status. For reports and traces, a block of data that shows the fields in exception status is printed next to the report or trace entry.

Exception logs contain Accounting and Statistics fields that are in exception status in a single report in timestamp order.

The Exception Log data set is written if you define the EXTRCDD1 DD statement in the JCL. To prevent the generation of the Exception Log data set, omit the EXTRCDD1 statement from your JCL (the preferred method), or specify DUMMY in the definition.

The Exception Log File data set is written if you define the EXFILDD1 DD statement in the JCL. To prevent the generation of the Exception Log File data set, omit the EXFILDD1 statement from your JCL (the preferred method), or specify DUMMY in the definition.
**Accounting Exception Messages block**

As the following example shows, if EXCEPTION was specified in the REPORT or TRACE subcommand, the entry is formatted and printed in the requested layout, followed by the Exception Messages block. The Exception Messages block identifies the fields in exception status.

```
<table>
<thead>
<tr>
<th>TYPE</th>
<th>FIELD ID</th>
<th>FIELD DESCRIPTION</th>
<th>BY</th>
<th>VALUE</th>
<th>THRESHOLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBLEM</td>
<td>QXINCRB</td>
<td>INCREMENTAL BINDS</td>
<td>TOTAL</td>
<td>1</td>
<td>&gt; 0</td>
</tr>
<tr>
<td>PROBLEM</td>
<td>ASCOML</td>
<td>TOTAL SQL DML STATEMENTS</td>
<td>COMMIT</td>
<td>127.25</td>
<td>&gt; 100</td>
</tr>
<tr>
<td>WARNING</td>
<td>QBAGET</td>
<td>GETPAGES</td>
<td>THREAD</td>
<td>2589.00</td>
<td>&gt; 2500</td>
</tr>
</tbody>
</table>
```

The following columns are presented in the Exception Messages block:

**TYPE**  
The type of exception. Valid values are WARNING and PROBLEM.

**FIELD ID**  
The name of the field from the Exception Threshold data set.

**FIELD DESCRIPTION**  
The description of the field.

**FIELD QUALIFIER**  
The qualifier of the field. It can be blank (for the majority of fields), a buffer pool ID, group buffer pool ID, package or DBRM name, or a remote location name.

**BY**  
The basis for the comparison. The following information can be printed in this column:

- **TOTAL**  
The threshold is specified as a “total” value.

- **MINUTE**  
The threshold is specified as a “by minute” value. The value in the report or trace entry is divided by the number of minutes (class 1 elapsed time) before making the comparison.

- **SECOND**  
The threshold is specified as a “by second” value. The value in the report or trace entry is divided by the number of seconds (class 1 elapsed time) before making the comparison.

- **COMMIT**  
The threshold is specified as a “by commit” value. The value in the report or trace entry is divided by the number of Commits before making the comparison.

- **THREAD**  
The threshold is specified as a “by thread” value. The value in the report or trace entry is divided by the number of threads before the comparison. For traces it is equivalent to by total.

**VALUE**  
The actual field value that is used for the comparison. For “by minute”, “by second”, “by commit”, or “by thread” comparisons, the value that you get after the division is printed. The greater than symbol (>) or the less than symbol (<) is printed between this column and the THRESHOLD column to indicate whether the value is larger or smaller than the threshold value.
**ORDER processing**

You can change the way reports are summarized by using the ORDER subcommand option of the REPORT subcommand. The ORDER subcommand option specifies which OMEGAMON XE for DB2 PE identifiers are used to aggregate records. It also identifies the presentation sequence of the report entries, unless the TOP(ONLY) subcommand option is specified for Accounting.

You can:

- Specify one entry of ORDER for each REPORT subcommand.
- Order by one, two, or three identifiers separated by a dash.
- Specify up to five sets of the identifiers separated by at least one blank, a comma, or a new line.

The default for ORDER is PRIMAUTH-PLANNAME.

In addition to these OMEGAMON XE for DB2 PE identifiers, you can use the REDUCE INTERVAL to order data on Accounting and Statistics reports. See "Example of ordering by interval: ORDER (INTERVAL)" on page 2894 for an example of a report ordered by interval.

The following Accounting report examples show ORDER processing for the same input data ordered in different ways:

- "Default ordering: ORDER (PRIMAUTH-PLANNAME)"
- "Ordering by connection ID: ORDER (CONNECT)" on page 2886
- "Ordering by correlation ID: ORDER (CORRNAME)" on page 2887

**Default ordering: ORDER (PRIMAUTH-PLANNAME):**

The following example shows a report with default ordering of plan names within primary authorization IDs.

**Accounting report - default order**

In this example, data is ordered according to various authorization IDs and plans. All primary authorization IDs and plans present in the input data are shown.

The TOTAL rows are printed for primary authorization IDs that contain more than one plan.

---

**Location:** DSNCAT  
**Group:** DSNCAT  
**Member:** SSOQ  
**Subsystem:** SSOQ  
**DB2 Version:** VII  
**Order:** PRIMAUTH-PLANNAME  
**Interval:** FROM 07/14/15 18:47:13.28 TO 07/14/15 19:55:28.69  
**DB2 Version:** V11  
**Scope:** MEMBER  

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Chapter 6. Batch reporting 2885
### Ordering by connection ID: ORDER (CONNECT):

You can order the report by the connection ID using the subcommand option ORDER (CONNECT).

Here is a sample of how to specify the command:

```
ACCOUNTING REPORT ORDER (CONNECT)
```

### Accounting report - ordered by connection ID

The following example shows a report with ordering by connection ID.

Three connection IDs are reported: information for connection ID BATCH is reported on the first two lines followed by information for connections DB2CALL and UTILITY.

GRAND TOTAL is printed at the end of the report. It shows the aggregated values for all three connection IDs.

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<th>#ROLLBK</th>
<th>SELECTS</th>
<th>#DISTRS</th>
<th>#COMMIT</th>
<th>FETCHES</th>
<th>OPENS</th>
<th>CLOSES</th>
<th>UPDATES</th>
<th>DELETES</th>
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<th>EL.TIME</th>
<th>CLASS2</th>
<th>EL.TIME</th>
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Accounting REPORT COMPLETE
Ordering by correlation ID: ORDER (CORRNAME):

You can also identify the task by using correlation data:

```
ACCOUNTING
REPORT
ORDER (CORRNAME)
```

**Note:** In a distributed environment reports should be ordered by REQLOC or CONNTYPE. If REQLOC or CONNTYPE are not used in the ORDER subcommand option of REPORT, the Accounting portion of all threads (including DBATs) where the combination of OMEGAMON XE for DB2 PE identifiers is the same is reported as one entry.

**Accounting report - ordered by correlation ID**

The following example shows an Accounting report ordered by correlation ID.

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<td>N/P</td>
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<td>3.00</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SYSADM</td>
<td>10</td>
<td>10</td>
<td>1.00</td>
<td>0.00</td>
<td>0</td>
<td>0</td>
<td>1:06:989512</td>
<td>N/P</td>
<td>23.00</td>
<td>0.20</td>
<td>3.00</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>161</td>
<td>12.17</td>
<td>0</td>
<td>0.46</td>
<td>0.11</td>
<td>0.37</td>
<td>1.540508</td>
<td>N/P</td>
<td>118.54</td>
<td>13.26</td>
<td>198</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*** GRAND TOTAL ***

| **TOTAL** | **15:18:472383** | **35** | **212** | **1.60** | **4.63** | **0.06** | **448.34** | **29.49** | **17.77** | **118.54** | **13.26** | **198** |

ACCOUNTING REPORT COMPLETE

**Examples of ordering by Plan, Main Package, and Package:**

These examples show data ordered by PLANNAME, MAINPACK, and PACKAGE identifiers.

The data shown in “Accounting trace - input data for ordering reports” on page 2888 is used to produce the reports shown in “Accounting report - ordered by plan” on page 2889, “Accounting report - ordered by plan and MAINPACK - sample” on page 2890, and “Accounting report - ordered by package - sample” on page 2891.
### Accounting trace - input data for ordering reports

The data in the following example has been simplified to ease readability.

<table>
<thead>
<tr>
<th>LOCATION: STLECI</th>
<th>OMEGAMON XE for DB2 Performance Expert (VR40M)</th>
<th>PAGE: 7-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP: N/P</td>
<td>Accounting TRACE - SHORT</td>
<td>REQUESTED FROM: NOT SPECIFIED</td>
</tr>
<tr>
<td>MEMBER: N/P</td>
<td></td>
<td>TO: NOT SPECIFIED</td>
</tr>
<tr>
<td>SUBSYSTEM: V5IA</td>
<td></td>
<td>ACTUAL FROM: 08/25/16 22:02:59.55</td>
</tr>
<tr>
<td>DB2 VERSION: V19</td>
<td></td>
<td>PAGE DATE: 08/25/16</td>
</tr>
</tbody>
</table>

| PRIMAUTH | CORRNAME | CONNECT | ACCT TIMESTAMP | COMMITS | OPENs | UPDATES | INSERTs | EL. TIME(CL1) | EL. TIME(CL2) | GETPAGES | SYN.READ | LOCKS | SUSP.TIME | CPU | FROM: | TO: | SPECIFIED |
|----------|----------|---------|----------------|---------|-------|---------|----------|---------------|---------------|-----------|---------|-------|--------|-------|-----|-----|-----|----------|
| XXUSER01 | CORRXXXX | BATCH   | 12:00:00.000000 | 1       | 1     | 0       | 0        | 10.000000    | 4.444444     | 2         | 0       |       |       |       | 0    | 0   | 0   | 0        |
| PLANX    | 'BLANK'  | ALLIED  | NORM DEALLOC   | 0       | 1     | 0       | 0        | 0.100000     | 0.044444     | 2         | 0       |       |       |       | 0    | 0   | 0   | 0        |

<table>
<thead>
<tr>
<th>PROGRAM NAME</th>
<th>TYPE</th>
<th>SQLSTMT</th>
<th>CL7 ELAP.TIME</th>
<th>CL7 CPU TIME</th>
<th>CL8 SUSP.TIME</th>
<th>CL8 SUSP</th>
</tr>
</thead>
<tbody>
<tr>
<td>PACKA</td>
<td>1</td>
<td>10.000000</td>
<td>0.010000</td>
<td>0.000000</td>
<td>0</td>
<td>10.000000</td>
</tr>
<tr>
<td>PACKB</td>
<td>1</td>
<td>2.000000</td>
<td>0.020000</td>
<td>0.000000</td>
<td>0</td>
<td>2.000000</td>
</tr>
<tr>
<td>PACKC</td>
<td>1</td>
<td>1.000000</td>
<td>0.010000</td>
<td>0.000000</td>
<td>0</td>
<td>1.000000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROGRAM NAME</th>
<th>TYPE</th>
<th>SQLSTMT</th>
<th>CL7 ELAP.TIME</th>
<th>CL7 CPU TIME</th>
<th>CL8 SUSP.TIME</th>
<th>CL8 SUSP</th>
</tr>
</thead>
<tbody>
<tr>
<td>PACKB</td>
<td>1</td>
<td>10.000000</td>
<td>0.010000</td>
<td>0.000000</td>
<td>0</td>
<td>10.000000</td>
</tr>
<tr>
<td>PACKD</td>
<td>1</td>
<td>4.000000</td>
<td>0.040000</td>
<td>0.000000</td>
<td>0</td>
<td>4.000000</td>
</tr>
<tr>
<td>PACKD</td>
<td>1</td>
<td>5.000000</td>
<td>0.050000</td>
<td>0.000000</td>
<td>0</td>
<td>5.000000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROGRAM NAME</th>
<th>TYPE</th>
<th>SQLSTMT</th>
<th>CL7 ELAP.TIME</th>
<th>CL7 CPU TIME</th>
<th>CL8 SUSP.TIME</th>
<th>CL8 SUSP</th>
</tr>
</thead>
<tbody>
<tr>
<td>PACKB</td>
<td>1</td>
<td>6.000000</td>
<td>0.060000</td>
<td>0.000000</td>
<td>0</td>
<td>6.000000</td>
</tr>
<tr>
<td>PACKD</td>
<td>1</td>
<td>2.000000</td>
<td>0.020000</td>
<td>0.000000</td>
<td>0</td>
<td>2.000000</td>
</tr>
</tbody>
</table>

The input data contains information about:

- Two plans. PLANX is used by three threads and PLANY by one thread. The first instance of PLANX shows that three packages (PACKA, PACKB, and PACKC) are executed. The elapsed time for the entire PLANX is 10 seconds and CPU times for the individual packages are 0.01, 0.02, and 0.01 seconds.
- Four packages. Different combinations of packages were executed under the different plans, because a plan does not necessarily invoke the same packages each time it is executed. This can happen when, for example, a number of packages are bound in a single plan in a CICS environment and different packages are executed in different circumstances.

### Ordering by Plan

This example shows the result of ordering the input data by plan. The following command was used to produce the example shown in "Accounting report - ordered by plan" on page 2889.

```
ACCOUNTING REPORT
```
Accounting report - ordered by plan

The following example shows an Accounting report that contains an entry for both plans in the input data.

Data for the different packages is summarized under the plans. Also, different DB2 executions of PLANX are summarized in one entry.

Ordering by Plan and MAINPACK: ORDER (PLANNAME-MAINPACK)

The MAINPACK identifier is used to distinguish between records with the same plan name, but which executed different packages.

This example shows the result of ordering the input data by plan and MAINPACK.

MAINPACK identifies a representative package within the plan. The first package ID is the default for MAINPACK. However, in this example, the MAINPACK member of the DPMPARMS data set has been modified so that it is the package ID of the last executed package, see “Defining the MAINPACK identifier” on page 2966 for information about MAINPACK.

In the input data shown in “Accounting trace - input data for ordering reports” on page 2888, it is assumed that PACKC is the last executed package in the first entry for PLANX, PACKD for the second and third entries of PLANX, and PACKA for the entry of PLANY.

The following command was used to produce the report in “Accounting report - ordered by plan and MAINPACK - sample” on page 2890.

ACCOUNTING REPORT

ORDER (PLANNAME)

;
ORDER (PLANNAME-MAINPACK)

Accounting report - ordered by plan and MAINPACK - sample

The following example shows an Accounting report that contains an entry for each combination of PLANNAME and MAINPACK.

<table>
<thead>
<tr>
<th>LOCATION: DSNCAT</th>
<th>MEMBER: SSQ</th>
<th>SUBSYSTEM: SSQ</th>
<th>DB2 VERSION: V11</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMEGAMON XE for DB2 Performance Expert (VSR40)</td>
<td>ORDER: PLANNAME-MAINPACK</td>
<td>ORDER: NOT SPECIFIED</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INTERVAL FROM: 07/14/15 18:47:13.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TO: 07/14/15 19:55:28.69</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANNAME</th>
<th>MAINPACK</th>
<th>#OCCURS</th>
<th>ROLLBK</th>
<th>SELECTS</th>
<th>INSERTS</th>
<th>UPDATES</th>
<th>DELETES</th>
<th>CLASS1</th>
<th>EL.TIME</th>
<th>CLASS2</th>
<th>EL.TIME</th>
<th>GETPAGES</th>
<th>SYN.READ</th>
<th>LOCK</th>
<th>SUSP</th>
<th>CPU</th>
<th>ELAP.TIME</th>
<th>TIME</th>
<th>BUF.UPDT</th>
<th>TOT.PREF</th>
<th>LOCKOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLANY</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>PACKA</td>
<td></td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0.00</td>
<td>0.00</td>
<td>2.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
<td>2</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>PACKB</td>
<td></td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0.00</td>
<td>0.00</td>
<td>2.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
<td>2</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>PACKC</td>
<td></td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0.00</td>
<td>0.00</td>
<td>2.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
<td>2</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

There are two entries for PLANY:
- One entry where PACKC is the last package executed.
- Another entry where PACKD is the last package executed. Threads 2 and 4 are combined in this entry.

There is one entry for PLAND with the representative package PACKA.

You cannot use this report to attribute the General Accounting data to one package, unless only one package exists within a plan.

Ordering by Package or DBRM: ORDER (PACKAGE)

The previous examples present packages within plans. To summarize the package Accounting data regardless of the plan under which the packages or DBRMs were executed, you can order by package.

This example shows the result of ordering the input data by package.

The following command was used to produce the report in "Accounting report - ordered by package - sample" on page 2891.

ACCOUNTING REPORT
ACCOUNTING REPORT ORDER (PACKAGE)

Accounting report - ordered by package - sample

The following example shows the use of resources on a per package/DBRM basis in an Accounting report, regardless of the plan under which a particular package is executed.

<table>
<thead>
<tr>
<th>PACKAGE</th>
<th>TYPE</th>
<th>SQL_STMT</th>
<th>CL7_ELAP_TIME</th>
<th>CL7_CPU_TIME</th>
<th>CL8_SUSP_TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>APC1.COLL1.PACKA</td>
<td>PACKAGE</td>
<td>1.00</td>
<td>0.030000</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OCCURS</td>
<td>2</td>
<td>3.000000</td>
<td>0.000000</td>
<td></td>
</tr>
<tr>
<td>APC1.COLL1.PACKB</td>
<td>PACKAGE</td>
<td>1.00</td>
<td>0.060000</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OCCURS</td>
<td>3</td>
<td>6.000000</td>
<td>0.000000</td>
<td></td>
</tr>
<tr>
<td>APC1.COLL1.PACKC</td>
<td>PACKAGE</td>
<td>1.00</td>
<td>0.010000</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OCCURS</td>
<td>1</td>
<td>1.000000</td>
<td>0.000000</td>
<td></td>
</tr>
<tr>
<td>APC1.COLL1.PACKD</td>
<td>PACKAGE</td>
<td>1.00</td>
<td>0.053333</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OCCURS</td>
<td>3</td>
<td>5.333333</td>
<td>0.000000</td>
<td></td>
</tr>
</tbody>
</table>

Note: Accounting reports that are ordered by package identifier (created by using the PACKAGE keyword with the ORDER subcommand option) show only the following report blocks:

- Package Identification
- Times - Class 7 - Package Times
- Package Suspensions
- Global Contention L-Locks
- Global Contention P-Locks
- Package Buffer Pool Activity
- Package SQL Activity
- Package Locking Activity

Example of ordering by activity name: ORDER (ACTNAME):

This example shows how to order an Accounting report by activity name.

If you want to use ORDER (ACTNAME), you should consider the following:

- ACTNAME cannot be combined with other OMEGAMON XE for DB2 PE identifiers in the ORDER subcommand.
- ORDER (ACTNAME) is only allowed for reports that are created from input trace specified with //INPUTDD.
- If you use the RESTORE subcommand, you cannot order by activity name in the subsequent REPORT subcommands.

The following command orders an Accounting report by activity name.

ACCOUNTING REPORT ORDER (ACTNAME)

To identify the real number of stored procedures (SP) or user-defined functions (UDF) instead of the number of packages used, you must include the trace collection of IFCID 233 (Start/Stop for each SP or UDF), 380 (Start/Stop for SP), or
381 (Start/Stop for UDF) in your input trace data. Stored procedures and user-defined functions are determined and can be counted if IFCID 233, 380, or 381 is found. Subprograms called by these routines and functions are not taken into account for the number of occurrences.

**Note:** If there is neither IFCID 233, 380, nor 381 for each SP or UDF, all packages of the same activity type and activity name are counted as separate occurrences. To calculate the average value, the sum is divided by the number of:
- Occurrences (prior to DB2 10).
- Threads to roll data into this QPAC data section (DB2 10 or later).

### Sample workload with two different SPs and subprograms

**Table 245** shows a workload of six threads with stored procedures (SP) and subprograms. In this sample workload IFCID 233 is written for each SP execution. Package SP-A has the activity name ACTNAME-A. Package SP-B has the activity name ACTNAME-B. Packages PKG1, PKG2, or PKG3 are linked by SP-A or SP-B that is why they inherit their activity names.

<table>
<thead>
<tr>
<th>Six threads (plans)</th>
<th>with SP and subprograms</th>
<th>DB2 Trace records (3, 239) written</th>
<th>SP START/STOP IFCID 233</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan A</td>
<td>SP-A</td>
<td>(3) Plan A</td>
<td>(233) Start</td>
</tr>
<tr>
<td></td>
<td>links PKG1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>links PKG2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan A</td>
<td>SP-A</td>
<td>(3) Plan A</td>
<td>(233) Start</td>
</tr>
<tr>
<td></td>
<td>links PKG1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>links PKG2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan B</td>
<td>SP-B</td>
<td>(3) Plan B</td>
<td>(233) Start</td>
</tr>
<tr>
<td>Plan A</td>
<td>SP-A</td>
<td>(3) Plan A</td>
<td>(233) Start</td>
</tr>
<tr>
<td></td>
<td>links PKG2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>links PKG3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan B</td>
<td>SP-B</td>
<td>(3) Plan B</td>
<td>(233) Start</td>
</tr>
<tr>
<td></td>
<td>links PKG1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan A</td>
<td>SP-A</td>
<td>(3) Plan A</td>
<td>(233) Start</td>
</tr>
<tr>
<td></td>
<td>links PKG2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>links PKG3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comparison of Accounting report types based on the above sample workload:**

The report layout depends on the OMEGAMON XE for DB2 PE subcommand option of ORDER specified for producing an Accounting report.

If the DB2 subsystem parameter ACCUMACC is used, the report layout provided with DB2 10 differs from the report layout provided with a DB2 version prior to DB2 10.

Each report is based on the sample workload in [Table 245](#).

### Subcommand ORDER (PLANNAME)

The following report is a typical Accounting report ordered by various identifiers on plan level with their packages underneath. It is produced if you specify, for
example, ORDER (PLANNAME):

<table>
<thead>
<tr>
<th>Plan</th>
<th>Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
</tr>
<tr>
<td>Pack</td>
<td></td>
</tr>
<tr>
<td>SP-A</td>
<td>4</td>
</tr>
<tr>
<td>Pack</td>
<td></td>
</tr>
<tr>
<td>PKG1</td>
<td>3</td>
</tr>
<tr>
<td>Pack</td>
<td></td>
</tr>
<tr>
<td>PKG2</td>
<td>3</td>
</tr>
<tr>
<td>Pack</td>
<td></td>
</tr>
<tr>
<td>PKG3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td>Pack</td>
<td></td>
</tr>
<tr>
<td>SP-B</td>
<td>2</td>
</tr>
<tr>
<td>Pack</td>
<td></td>
</tr>
<tr>
<td>PKG1</td>
<td>1</td>
</tr>
</tbody>
</table>

Subcommand ORDER (PACKAGE)

The following sample shows a report:
- Ordered by package
- Average for each package
- Average cross plan
- Occurrences are equal to the number of package sections found in all plans

The following Accounting report is ordered by package, which reports on package level cross thread/plan usage. It is produced if you specify, for example, ORDER (PACKAGE):

<table>
<thead>
<tr>
<th>Pack</th>
<th>Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-A</td>
<td>4</td>
</tr>
<tr>
<td>PKG1</td>
<td>4</td>
</tr>
<tr>
<td>PKG2</td>
<td>3</td>
</tr>
<tr>
<td>PKG3</td>
<td>1</td>
</tr>
<tr>
<td>SP-B</td>
<td>2</td>
</tr>
</tbody>
</table>

Subcommand ORDER (ACTNAME) with IFCID 233 or 380 available for each stored procedure

The following sample shows a report:
- Ordered by activity name
- Average for each SP
- Includes all processing subprograms under SP
- Occurrences are equal to the number of SP calls

The following Accounting report is ordered by activity name (stored procedure) where all activities (subprograms) underneath the stored procedure are included in the SP average values. It is produced if you specify ORDER (ACTNAME) and your input trace data includes IFCID 233 or 380 for each SP:

<table>
<thead>
<tr>
<th>Activity Name</th>
<th>Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTNAME_A</td>
<td>4</td>
</tr>
<tr>
<td>ACTNAME_B</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: Explanation for the above sample:
- Under SP-A with the activity name ACTNAME_A the average execution of SP-A is shown which includes all PKG1, PKG2, and PKG3 workloads associated with this stored procedure.
• Under SP-B with the activity name ACTNAME_B the **average execution of SP-B** is shown which includes all PKG1 workloads associated with this stored procedure.

**Subcommand ORDER (ACTNAME) without IFCID 233 or 380 in a DB2 trace**

The following sample shows a report:

- Ordered by activity name
- Average for each SP
- Includes all processing under SP
- Occurrences are equal to the **number of package sections**, including SP as a package

The following Accounting report is ordered by activity name (stored procedure) where all activities (subprograms) underneath the SP are included. The average values shown represent the aggregation of all packages including SPs executed within an SP. However, all subprograms are counted as separate occurrences because no IFCID 233 or 380 were found by the reporting program:

<table>
<thead>
<tr>
<th>Activity Name Pack</th>
<th>ACTNAME_A occurrences=11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity Name Pack</td>
<td>ACTNAME_B occurrences=3</td>
</tr>
</tbody>
</table>

**Note:** Explanation for the above sample:

- Under SP-A with the activity name ACTNAME_A the **average of the aggregation for each package section** executed under SP-A (ACTNAME_A, PKG1, PKG2, PKG3) is shown.
- Under SP-B with the activity name ACTNAME_B the **average of the aggregation for each package section** executed under SP-B (ACTNAME_B and PKG1) is shown.

**The impact of the DB2 subsystem parameter ACCUMACC:**

The DB2 subsystem parameter ACCUMACC determines whether DB2 Accounting data is to be accumulated by the user for DDF and RRSAF threads.

If ACCUMACC is greater than 0, the threads which relate to the same Accounting accumulation identifiers (defined by the aggregation field ACCUMUID) are aggregated into one Accounting trace record (3, 239).

For DB2 versions prior to version 10 all packages of these accumulated threads are reported into **one** package section. As a result you lose the granularity for each package and you cannot:

- Distinguish between SP and called subprograms.
- Determine which thread has executed which SP or package.

Starting with DB2 10 reports show the first 24 different packages or SPs of the accumulated threads in separate data sections (239) and only if there are more than 24 packages, all the remaining packages will be accumulated into the 25th data section.

**Example of ordering by interval: ORDER (INTERVAL):**

This example shows a short Accounting report that is ordered by interval.
To produce a report that presents DB2 activity by time intervals, the input data first needs to be reduced to the intervals that you want to use in reporting.

The following command was used to generate the sample report in "Accounting report - ordered by interval."

```
ACCOUNTING
   REDUCE
   INTERVAL (5)
   REPORT
   ORDER (INTERVAL)
```

In this command the data is reduced to 5-minute intervals. The report is ordered by this interval. An entry is produced that shows the activity during every 5-minute interval.

**Accounting report - ordered by interval**

The following example shows an Accounting report that is ordered by interval. Reports ordered by INTERVAL, with or without another identifier, are especially useful in trend analysis. For example, you can reduce and save your data by specifying INTERVAL(1440) to produce reports that show the day-by-day activity of your DB2 subsystem.

<table>
<thead>
<tr>
<th>INTERVAL</th>
<th>#OCCURS</th>
<th>#ROLLBK</th>
<th>SELECTS</th>
<th>INSERTS</th>
<th>UPDATES</th>
<th>DELETES</th>
<th>CLASS1</th>
<th>CLASS2</th>
<th>EL.TIME</th>
<th>OPENS</th>
<th>CLOSES</th>
<th>PREPARE</th>
<th>CLASS1</th>
<th>CPU TIME</th>
<th>CLASS2</th>
<th>CPU TIME</th>
<th>BUF.UPD</th>
<th>TOT.PRF</th>
<th>LKOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/10 19:50 - 05/10 19:55</td>
<td>1</td>
<td>1</td>
<td>3.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>5:23.338584</td>
<td>N/P</td>
<td>51.00</td>
<td>20.00</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>05/10 19:55 - 05/10 20:00</td>
<td>0</td>
<td>3</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>05/10 20:00 - 05/10 20:05</td>
<td>6</td>
<td>8</td>
<td>11.00</td>
<td>0.67</td>
<td>0.00</td>
<td>0.00</td>
<td>2:29.264737</td>
<td>N/P</td>
<td>231.00</td>
<td>17.67</td>
<td>22.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>05/10 20:00 - 05/10 20:05</td>
<td>0</td>
<td>36</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>4.134166</td>
<td>N/P</td>
<td>0.67</td>
<td>1.00</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>05/10 20:05 - 05/10 20:10</td>
<td>1</td>
<td>1</td>
<td>2.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>05/10 20:05 - 05/10 20:10</td>
<td>0</td>
<td>5</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>5.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>*** GRAND TOTAL ***</td>
<td>15</td>
<td>20</td>
<td>5.93</td>
<td>0.27</td>
<td>0.00</td>
<td>0.00</td>
<td>6:51.11265</td>
<td>N/P</td>
<td>769.13</td>
<td>40.47</td>
<td>20.40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>45</td>
<td>0.33</td>
<td>0.33</td>
<td>0.33</td>
<td>0.33</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

ACCOUNTING REPORT COMPLETE

**TOP processing**

TOP processing is useful to identify the report entries that might indicate a problem application.

Signs of a problem can be a long elapsed or processing time, a high number of suspensions, commits per update, or buffer updates. Identifying these entries is especially useful when your report covers many users or a long period so that it is not immediately clear which applications are causing performance problems.

To identify report entries with a high value in certain fields, you can produce an Accounting report or trace with TOP lists. TOP lists are index-like reports at the end of a report or trace. They point out the most interesting entries in the report or trace. You can generate such lists by using the TOP subcommand option.
Note: Entries with 0 or undetermined values are not shown. Moreover, if your input data contains only 0 or undetermined values for the TOP fields requested, a TOP list is not generated.

You can also filter a report or trace so that only the main resource consumers are shown, ordered by descending resource value. To obtain a filtered report or trace, specify the TOP subcommand option with the ONLY keyword.

The shown resource values are average values. To obtain total values, which means, the main resource consumers calculated by taking into account how often they consumed resources, specify the TOP subcommand option with the TOTAL keyword. TOTAL only applies to reports. If you specify it with a trace, it is ignored.

Examples of TOP processing:

These examples show some applications of the TOP subcommand option in Accounting reports and traces.

Top-10 plans in Accounting report

To produce a short Accounting report with a list of the top-10 plans that spent the longest time in an application, specify:

```
GLOBAL
   INCLUDE (LOCATION (USIBMSNEWY11))
   EXCLUDE (CONNTYPE (CICS))
ACCOUNTING
   REPORT
      ORDER (PLANNAME)
      TOP
```

Accounting report - TOP listing - example

The following example shows the last page of an Accounting report. It presents a list of the 10 plans that had the highest value for elapsed time in the application. The TOP list also shows the page on which the report entries can be found.

```
LOCATION: USIBMNEWY11  
GROUP: DSNACAT  
MEMBER: SSOQ  
SUBSYSTEM: SSOQ  
DB2 VERSION: V10  
OMEGAMON XE for DB2 Performance Expert (V5R4M0)  
ACCOUNTING REPORT - SHORT  
REQUESTED FROM: NOT SPECIFIED  
TO: NOT SPECIFIED  
ORDER: PLANNAME  
SCOPE: MEMBER  
INTERVAL FROM: 07/14/15 08:47:13.28  
TO: 07/14/15 19:55:28.69  
PAGE: 1-1  

ELAPSED TIME SPENT IN APPLICATION  
TOP NUMBER REQUESTED: 10  

<table>
<thead>
<tr>
<th>PLANNAME</th>
<th>VALUE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVL004C3</td>
<td>13:36.29222</td>
<td>1-1</td>
</tr>
<tr>
<td>PVL00483</td>
<td>11:25.333551</td>
<td>1-1</td>
</tr>
<tr>
<td>PVL00401</td>
<td>10:19.15316</td>
<td>1-1</td>
</tr>
<tr>
<td>PVL004A4</td>
<td>9:18.056746</td>
<td>1-1</td>
</tr>
<tr>
<td>DSNBIND</td>
<td>8:50.415594</td>
<td>1-1</td>
</tr>
<tr>
<td>DSNTEP31</td>
<td>8:14.506780</td>
<td>1-1</td>
</tr>
<tr>
<td>PVL00406</td>
<td>5:23.338504</td>
<td>1-1</td>
</tr>
<tr>
<td>PVL00445</td>
<td>4:06.067683</td>
<td>1-1</td>
</tr>
<tr>
<td>PVL004C4</td>
<td>3:10.939686</td>
<td>1-1</td>
</tr>
<tr>
<td>PVL00402</td>
<td>2:34.389670</td>
<td>1-1</td>
</tr>
</tbody>
</table>
```

Accounting REPORT COMPLETE

Top-5 Getpages in Accounting trace

To produce a trace with a TOP list for the number of Getpage requests, use the following command:
Accounting trace - TOP listing - example

The following example shows the last page of an Accounting trace. The TOP list on the last page of the trace consists of the five entries that had the highest number of Getpage requests. Each entry consists of TIMESTAMP, PRIMAUTH, and PLANNAME information, the value of the number of Getpage requests, and the page number where the trace entry can be found.

<table>
<thead>
<tr>
<th>TIMESTAMP</th>
<th>PRIMAUTH</th>
<th>PLANNAME</th>
<th>VALUE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>03/10/15 20:04:20.248358</td>
<td>SYSADM</td>
<td>PVLDD4B3</td>
<td>6232</td>
<td>1-1</td>
</tr>
<tr>
<td>03/10/15 20:06:02.809223</td>
<td>SYSADM</td>
<td>PVLDD4C3</td>
<td>2422</td>
<td>1-1</td>
</tr>
<tr>
<td>03/10/15 20:05:27.859210</td>
<td>SYSADM</td>
<td>PVLDD4D1</td>
<td>675</td>
<td>1-1</td>
</tr>
<tr>
<td>03/10/15 20:05:17.508593</td>
<td>SYSADM</td>
<td>PVLDD4D2</td>
<td>584</td>
<td>1-1</td>
</tr>
<tr>
<td>03/10/15 20:05:17.508593</td>
<td>DSNBIND</td>
<td>446</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOP lists of available fields in Accounting report

You can generate, for example, Accounting reports that show TOP lists for all fields available for use with the TOP subcommand option, as shown in the following command:

```
ACCOUNTING TRACE TOP (5 GETPAGES)
```

Top-3 default field in Accounting trace

To produce a filtered trace that shows only the top-3 entries for the default TOP field, namely ELAPSED TIME IN APPLICATION, use the following command:

```
Accounting TRACE TOP (3 ONLY)
```

Accounting trace - TOP ONLY list - example

The following example shows an Accounting trace with a TOP ONLY list.
Note: The TOP(ONLY) subcommand option changes the presentation sequence of Accounting reports and traces. Report and trace entries are ordered according to the TOP resource instead of the timestamp or ORDER subcommand options. The summarization in reports is not affected by the changed sequence caused by TOP filtering.

Reducing data
Use the REDUCE subcommand to consolidate records with certain common characteristics into a single record.

You can limit the range of records by date and time. You can specify multiple ranges of time. This can be useful for monitoring peak-time performance, for example.

Within a specified time range, you can specify the interval at which records are consolidated.

The start time of the first interval that is processed by REDUCE is influenced by BOUNDARY, INTERVAL, and FROM.

OMEGAMON XE for DB2 PE attempts to reduce all data that falls between FROM and TO dates and times. The first interval starts at a time aligned with BOUNDARY, at or before the FROM time. If an interval cannot be aligned with the FROM time, the first properly aligned interval starting before the FROM time is used.

Although there is no restriction on the INTERVAL and BOUNDARY combination, your specification should comply with the following rules:
- For intervals of less than 60 (excluding 0), there should be a whole number of intervals in an hour. Choose one of the following values:
  - 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, or 30
- For intervals of 60 or greater, there should be a whole number of intervals in a day. Choose one of the following values:
  - 60, 120, 180, 240, 360, 480, 720, or 1440
- For intervals of one day (1440) or greater, INTERVAL should be a multiple of 1440.
- Select your interval and boundary so that the first interval starts at the FROM time.
Examples of interval calculation:

These examples show how the REDUCE subcommand is used in combination with FROM, TO, INTERVAL, and BOUNDARY to align start times and intervals.

Using REDUCE to align to the start of the hour

```
REDUCE
  FROM  (,08:00)
  TO    (,10:00)
  INTERVAL (30)
  BOUNDARY (60)
```

BOUNDARY(60) aligns the start time of the intervals at the start of an hour, so the first interval starts at the FROM time (08:00). Subsequent intervals start every 30 minutes (08:30, 09:00, and 09:30 each day).

Using REDUCE to cover a day

```
REDUCE
  INTERVAL (1440)
  BOUNDARY (60)
```

The following defaults are applied:
- The default for FROM is all dates and a time of 00:00:00.00
- The default for TO is all dates and a time of 23:59:59.99

BOUNDARY(60) aligns the start time of the intervals at the start of an hour, so the first interval starts at the FROM time (00:00). Subsequent intervals cover 1 440 minutes or one day. An interval starts at 00:00 each day.

Using REDUCE to start every hour

```
REDUCE
  FROM  (,08:30)
  TO    (,12:00)
  INTERVAL (60)
  BOUNDARY (60)
  REPORT
    FROM  (,08:30)
    TO    (,12:00)
```

BOUNDARY(60) aligns the start time of the intervals at the start of an hour, so the first interval starts at the hour of the FROM time (08:00). Subsequent intervals start every hour (09:00, 10:00, and 11:00).

Processing intervals:

Interval processing within the REDUCE subcommand determines the time intervals that are used for reducing Accounting data and it influences how data is reported.

Use intervals for:
- Reporting by intervals
Producing reports with different time spans

If SAVE accompanies REDUCE, the reduced data is saved into the Save data set.

This following topics provide examples of interval processing.

*How intervals are calculated:*

The start time of the first interval that is processed by REDUCE is influenced by BOUNDARY, INTERVAL, and FROM.

OMEGAMON XE for DB2 PE attempts to reduce all data that falls between the FROM and TO times. The first interval starts at a time aligned with BOUNDARY, at or before the FROM time. If an interval cannot be aligned with the FROM time, the first properly aligned interval starting before the FROM time is used. An interval that starts before the FROM time only contains data between the FROM time and the start of the next interval. Input data before the FROM time is not processed.

Although there is no restriction on the INTERVAL and BOUNDARY combination, your specification should comply with the following rules:

- For intervals of less than 60 (excluding 0), there should be a whole number of intervals in an hour. Choose one of the following values:
  - 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, or 30
- For intervals of 60 or greater, there should be a whole number of intervals in a day. Choose one of the following values:
  - 60, 120, 180, 240, 360, 480, 720, or 1440
- For intervals of one day (1440) or greater, INTERVAL should be a multiple of 1440
- Select your interval and boundary so that the first interval starts at the FROM time

If you do not require interval processing, do not change the default INTERVAL (0) for performance reasons.

Always use the largest interval that meets your reporting requirements. For example, if daily reports provide sufficient granularity, use INTERVAL (1440).

*Examples of interval processing:*

Sample of SMF File data used for the examples.

The following examples assume:

1. The DB2 instrumentation facility is started for Accounting to SMF at DB2 startup by the following DB2 command:
   - `START TRACE (ACCTG) DEST(SMF) CLASS(1)`
2. The system programmer wants to analyze performance for Thursday, 14 March 1999, so the SMF file for that day is obtained.
   The following figure represents sample data from the SMF file. Actual trace data can have a different distribution of DB2 records and timestamps. For the purpose of this example, assume that the Statistics trace was previously active.
<table>
<thead>
<tr>
<th>DB2 Sequence</th>
<th>Timestamp</th>
<th>Destination #</th>
<th>FCID</th>
<th>Record Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0001</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0002</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0003</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0004</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0005</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0006</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0007</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0008</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0009</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0010</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0011</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0012</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0013</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0014</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0015</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0016</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0017</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0018</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0019</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0020</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0021</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0022</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0023</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0024</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0025</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0026</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0027</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0028</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0029</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0030</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0031</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0032</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0033</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0034</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0035</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0036</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0037</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0038</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0039</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0040</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0041</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0042</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0043</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0044</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0045</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0046</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0047</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0048</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0049</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0050</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0051</td>
<td>System statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0052</td>
<td>Database statistics</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0053</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0054</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0055</td>
<td>Accounting</td>
</tr>
<tr>
<td></td>
<td>7/14/13</td>
<td></td>
<td>0056</td>
<td>Accounting</td>
</tr>
</tbody>
</table>

Figure 259. Example SMF File data

3. OMEGAMON XE for DB2 PE is run to get Accounting reports.

Examples using REDUCE:

These examples show how the start time is aligned by the use of BOUNDARY.
Example 1

ACCOUNTING
REDUCE
    FROM (09:00)
    TO (11:00)
    INTERVAL (30)
    BOUNDARY (60)

The data that is available for reducing is limited by the GLOBAL command. If you specified FROM and TO dates and times in GLOBAL, OMEGAMON XE for DB2 PE discards all records outside those dates and times before reducing. In this example no GLOBAL command is in effect, so the FROM and TO dates and times that are specified with REDUCE are used. No dates are specified, so all dates are included.

BOUNDARY(60) aligns the start time of the intervals at the start of an hour, so the first interval starts at the FROM time (09:00). Subsequent intervals start every 30 minutes. The following intervals are calculated:
- Beginning at 9:00:00 - containing two Accounting records
- Beginning at 9:30:00 - containing four Accounting records

No intervals are calculated at 10:00:00 or 10:30:00 because there are no Accounting records.

The interval begin and end times are reported in the job summary report. The job summary report indicates that an interval is calculated and indicates the number of records processed during the interval. It does not indicate the number of consolidated records after reducing.

Example 2

ACCOUNTING
REDUCE
    INTERVAL (1440)
    BOUNDARY (60)

In this example no GLOBAL command is in effect and no dates or times have been specified in REDUCE, so the following defaults are applied:
- The default for FROM is all dates and a time of 00:00:00.00
- The default for TO is all dates and a time of 23:59:59.99

BOUNDARY(60) aligns the start time of the intervals at the start of an hour, so the first interval starts at the FROM time (00:00). Subsequent intervals cover 1440 minutes or one day. An interval starts at 00:00 each day. In this example, there is one interval that contains all of the Accounting records in the input data set.

The interval begin and end times are reported in the job summary report.

Examples using REDUCE and REPORT:

These examples show the effect of REPORT FROM and TO on REDUCE INTERVAL and BOUNDARY.
Example 1

```
ACCOUNTING
REDUCE
  INTERVAL (60)
REPORT
  FROM ( , 9:00:00)
  TO ( ,12:00:00)
```

In this example no GLOBAL command is in effect and no FROM and TO times are specified in the REDUCE subcommand, so all records in the input are reduced.

The REDUCE subcommand specifies that data is reduced at 60-minute intervals. By default, the boundary is set to 60. Data is gathered and consolidated every hour on the hour.

The Accounting data starts at 8:31:05. The INTERVAL begins on the hour. OMEGAMON XE for DB2 PE determines that the record at 8:31:05 falls into an interval beginning at 8:00:00 and sets the beginning interval time to 8:00:00.

Each additional Accounting record is read. The Accounting records at timestamps 8:31:05, 8:45:13, and 8:57:27 all fall into the interval beginning at 8:00:00. These three records are accumulated (added, subtracted, or whatever is appropriate for the given Accounting fields), consolidated, and stored by unique OMEGAMON XE for DB2 PE identifier sets (PRIMAUTH, PLAN, REQLOC, and so on) for the interval beginning at 8:00:00. Messages are written to the job summary report.

OMEGAMON XE for DB2 PE calculates the next interval at 9:00:00. Accounting records at 9:12:11, 9:15:00, 9:30:01, 9:32:00, 9:43:00, and 9:55:59 are accumulated, consolidated and stored for the interval beginning at 9:00:00. Messages are written to the job summary report.

No Accounting records are written during the period from 10:00:00 to 12:00:00, so no intervals are calculated and no messages are written to the job summary report.

Data is stored for the following intervals:
- Beginning at 8:00:00 - containing three Accounting records
- Beginning at 9:00:00 - containing six Accounting records
- Beginning at 12:00:00 - containing two Accounting records
- Beginning at 13:00:00 - containing six Accounting records
- Beginning at 15:00:00 - containing one Accounting record
- Beginning at 16:00:00 - containing eight Accounting records

The systems programmer requested a report with FROM and TO times of 9:00:00 and 12:00:00.

The data that is available for reporting is restricted by the FROM and TO times that are specified in both GLOBAL and REDUCE. If you specify FROM and TO dates and times in GLOBAL, OMEGAMON XE for DB2 PE discards all records outside those dates and times before reducing. If you specify FROM and TO dates and times in REDUCE, all records outside those dates and times are not available to subsequent REPORT subcommands. In this example, no GLOBAL command is in effect and no FROM and TO dates or times are specified in the REDUCE subcommand.
Accounting records that are stored in intervals beginning at or later than 09:00:00, but less than 12:00:00 are accumulated, consolidated, and reported in an Accounting report. In this instance, the report contains Accounting records from 09:12:11 to 09:55:59.

The report header contains the following times:

```
INTERVAL FROM 07/14/13 09:00:00
               TO 07/14/13 10:00:00
REQUESTED ALL DATES 09:00:00
               TO 12:00:00
```

INTERVAL FROM and TO times indicate the actual content of the report. In this instance, the INTERVAL FROM time is 9:00:00, which is the first interval beginning at or later than the REQUESTED FROM time. The INTERVAL TO time is 10:00:00, which is the end time of the last interval beginning at a time less than the REQUESTED TO time.

The REQUESTED FROM and TO times from the REPORT subcommand are printed in the report, even if they are broader than the available data. In this case, ALL DATES is reported in place of an actual date because no date was specified in the REPORT subcommand.

If the requested reporting interval is broader than the available data, the INTERVAL FROM and TO dates and times actually reflect the content of the report. If no FROM and TO dates and times are specified in the REPORT subcommand, the FROM and TO dates and times from GLOBAL are used. If no FROM and TO dates and times are specified in GLOBAL, NOT SPECIFIED is printed.

In “Example 1” on page 2903, the INTERVAL FROM and TO times are not the same as the REQUESTED FROM and TO times. However, the data encompassed by the INTERVAL FROM and TO times is the same as the data encompassed by the REQUESTED FROM and TO times. This is not always the case, as in “Example 2.”

### Example 2

```
ACCOUNTING
  REDUCE
    INTERVAL (60)
    BOUNDARY (30)
  REPORT
    FROM (,9:00:00)
    TO (,12:00:00)
```

This command is identical to the command in the “Example 1” on page 2903, except that a BOUNDARY of 30 is included. The results are different.

The Accounting data starts at 8:31:05. The INTERVAL begins on the half hour. OMEGAMON XE for DB2 PE determines that the record at 8:31:05 falls into an interval beginning at 8:30:00 and sets the beginning interval time to 8:30:00. The following intervals are calculated:

- Beginning at 8:30:00 - containing five Accounting records
- Beginning at 9:30:00 - containing four Accounting records
- Beginning at 11:30:00 - containing two Accounting records
• Beginning at 12:30:00 - containing five Accounting records
• Beginning at 13:30:00 - containing one Accounting record
• Beginning at 15:30:00 - containing two Accounting records
• Beginning at 16:30:00 - containing seven Accounting records

An Accounting report is produced. The REQUESTED FROM and TO times are 9:00:00 and 12:00:00. Accounting records that are stored in intervals beginning at or later than 9:00:00, but less than 12:00:00, are included in the report. The intervals beginning at 9:30:00 and 11:30:00 are included in the report. No interval is calculated at 10:30:00 because there are no Accounting records.

In this instance, the report contains Accounting records from 9:30:01 to 12:17:54. Even though the REQUESTED FROM and TO times are the same as in “Example 1” on page 2903, the content of the report is different.

The report header contains the following times:

<table>
<thead>
<tr>
<th>INTERVAL FROM</th>
<th>INTERVAL TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/14/13 09:30:00</td>
<td>07/14/13 12:30:00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REQUESTED ALL DATES FROM</th>
<th>REQUESTED ALL DATES TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00:00</td>
<td>12:00:00</td>
</tr>
</tbody>
</table>

In both, “Example 1” on page 2903 and “Example 2” on page 2904, the INTERVAL FROM and TO dates and times are different from the REQUESTED FROM and TO times. However, this report contains data outside the REQUESTED FROM and TO times.

The INTERVAL FROM time is the start time of the first interval beginning at or after the REQUESTED FROM time (9:00:00 in this case), so the first interval that is reported starts at 9:30:00. Consequently, those records that are written between 9:00:00 and 9:30:00 are not included in the report.

The INTERVAL TO time is the end time of the last interval beginning before the REQUESTED TO time (12:00:00 in this case), so the last interval that is reported starts at 11:30:00. Consequently, those records that are written between 12:00:00 and 12:30:00 are included in the report. If the interval starts after the REQUESTED FROM time and before the REQUESTED TO time, all data from the interval is included, even if the interval extends beyond the REQUESTED TO time.

Example 3

```
Accounting REDUCE
   FROM (,09:30)
   TO (,13:00)
   INTERVAL (60)
   BOUNDARY (60)
   REPORT
      FROM (,09:30)
      TO (,13:00)
   SAVE
```

In this example, no GLOBAL command is in effect, so the FROM and TO dates and times that are specified in REDUCE are used.
REDUCE specifies that data is reduced at 60-minute intervals. BOUNDARY(60) aligns the start time of the intervals at the start of an hour, so the first interval starts at the hour of the FROM time (09:00).

The first interval starts before the FROM time, but only contains data between the FROM time (09:30) and the start time of the next interval (10:00).

The following intervals are calculated:

- Beginning at 09:00:00 - containing four Accounting records
- Beginning at 12:00:00 - containing two Accounting records

**Note:** No intervals are calculated at 10:00:00 or 11:00:00 because there are no Accounting records.

The interval *begin* and *end* times are reported in the job summary report.

The systems programmer requested a report with FROM and TO times of 9:30:00 and 13:00:00. Accounting records that are stored in intervals beginning at or later than 9:30:00, but less than 13:00:00 are accumulated, consolidated, and reported in an Accounting report. In this example, the report only contains Accounting records from the interval starting at 12:00:00.

All reduced records are written to the Save data set (including the records from the interval starting at 9:00:00 that were excluded from the report).

The report header contains the following times:

```
INTERVAL FROM 07/14/13 12:00:00
TO 07/14/13 13:00:00
REQUESTED ALL DATES 09:30:00
TO 13:00:00
```

The INTERVAL FROM and TO times reflect the actual content of the report. The INTERVAL FROM time is the *start time* of the first interval beginning at or after the REQUESTED FROM time (9:30:00 in this case), so the first interval that is reported starts at 12:00:00. The INTERVAL TO time is the *end time* of the last interval beginning before the REQUESTED TO time (13:00:00 in this case).

The REQUESTED FROM and TO times from the REPORT subcommand are printed in the report, even if they are broader than the available data. In this case, ALL DATES is reported in place of an actual date because no date was specified in the REPORT subcommand.

In this example, the INTERVAL FROM and TO times are not the same as the REQUESTED FROM and TO times, although the data encompassed by both sets of times is the same. However, the content of the Save data set is different from the content of the report.

**The effect of REDUCE on TRACE:**

These examples show the effect of TRACE FROM and TO on REDUCE BOUNDARY and INTERVAL.

**Example 1**

```
ACCOUNTING
REDUCE
```
The data that is available for tracing, as with reporting, is influenced first by the GLOBAL command. If you specify FROM and TO dates and times in GLOBAL, all records outside those dates and times are discarded before reducing or tracing.

The data that is available for tracing is also influenced by the REDUCE subcommand. If you specify FROM and TO dates and times in REDUCE, all records outside those dates and times are unavailable to subsequent TRACE subcommands. In this example, no GLOBAL command is in effect and no dates and times are specified for REDUCE, so all records in the input data are available to TRACE. The data that is available for tracing is not restricted by INTERVAL or BOUNDARY.

The ACCOUNTING TRACE subcommand specifies data from 12:00:00 to 17:00:00. The Accounting trace header contains the following times:

ACTUAL FROM 07/14/13 12:15:00
REQUESTED ALL DATES 09:00:00 TO 17:00:00

No dates are specified, so all dates are included. The REQUESTED FROM and TO dates and times from the TRACE subcommand are printed in the trace.

Example 2

ACCOUNTING
REDUCE
FROM (,10:00)
TO (15:00)
REPORT
FROM (,10:00)
TO (15:00)
TRACE
FROM (,09:00)
TO (17:00)

In this example, the TRACE FROM time is before the REDUCE FROM time and the TRACE TO time is after the REDUCE TO time. The trace contains records that are written at or after 10:00:00 and before 15:00:00. The Accounting trace header contains the following times:

ACTUAL FROM 07/14/13 12:15:00
REQUESTED ALL DATES 09:00:00 TO 17:00:00

No dates are specified, so all dates are included. The REQUESTED FROM and TO times from the TRACE subcommand are printed in the trace. However, the available data is limited by the REDUCE FROM and TO times (10:00:00 to 15:00:00). The requested times do not reflect the actual content of the trace.
The ACTUAL FROM time is the timestamp of the first record in the trace. In this example, the first Accounting record after 10:00:00 is at 12:15:00. The trace includes the eight Accounting records between the REDUCE FROM and TO times.

The effect of REDUCE on FILE:

These examples show the effect of FILE FROM and TO on REDUCE BOUNDARY and INTERVAL.

Example 1

ACCOUNTING
REDUCE
  BOUNDARY (30)
  INTERVAL (60)
REPORT
  FROM (, 9:00:00)
  TO (,12:00:00)
FILE
  FROM (,12:00:00)
  TO (,17:00:00)

The data that is available for filing, as with reducing, is influenced first by the GLOBAL command. If you specify FROM and TO dates and times in GLOBAL, all records outside those dates and times are discarded before reducing or filing.

The data that is available for filing is also influenced by the REDUCE subcommand. If you specify FROM and TO dates and times in REDUCE, all records outside those dates and times are unavailable to subsequent FILE subcommands. In this example, no GLOBAL command is in effect and no times are specified for REDUCE, so all records in the input data are available to FILE. The data that is available for filing is not restricted by INTERVAL or BOUNDARY.

The ACCOUNTING FILE subcommand specifies data from 12:00:00 to 15:00:00. No dates are specified, so all dates are included.

Example 2

ACCOUNTING
REDUCE
  FROM (,10:00)
  TO (15:00)
REPORT
  FROM (,10:00)
  TO (15:00)
FILE
  FROM (,09:00)
  TO (17:00)

In "Example 2," the FILE FROM time is before the REDUCE FROM time and the FILE TO time is after the REDUCE TO time. The file contains records that are written at or after 10:00:00 and before 15:00:00.

No dates are specified, so all dates are included. The data that is available for filing is limited by the REDUCE FROM and TO times (10:00:00 to 15:00:00). The requested times do not reflect the actual content of the file.
In "Example 2" on page 2908, the first Accounting record after 10:00:00 is at 12:15:00. The file includes the eight Accounting records between the REDUCE FROM and TO times.

**Member-scope and group-scope reporting**

DB2 enables a query to be processed by several members of a data sharing group. Each member can split the work into parallel tasks. Accounting aggregates the parallel activity done in each member and includes it in the originating query activity.

The information in this section only applies to DB2 data sharing environments.

**Member-scope reports:**

Member-scope reports present the activity of a data sharing group by member.

The activity shown for each member consists of the originating query activity and any parallel activity, including any parallel activity that is performed on other members.

The data in member-scope reports is presented by a combination of location, group, subsystem, and member. Whenever one of these values changes, a new page is started and the page number is initialized. The following command produces a member-scope Accounting report shown in "Member-scope Accounting report." The command uses the SHORT layout and the default order of the OMEGAMON XE for DB2 PE identifiers, namely plan name within primary authorization ID.

```
ACCOUNTING REPORT
```

**Member-scope Accounting report**

The following example shows a member-scope Accounting short report resulting from the default order of the OMEGAMON XE for DB2 PE identifiers:

- The data is ordered according to the authorization IDs and plans. All primary authorization IDs and plans from the input data are shown.
- The TOTAL is printed for primary authorization IDs that contain more than one plan.
- GRAND TOTAL is printed at the end of each member if there is more than one first-level identifier reported.
Group-scope reports:

Group-scope reports show the instrumentation data aggregated by the OMEGAMON XE for DB2 PE identifiers that you specified and by the individual members.

The data is presented by a combination of location and group. Whenever either of these values changes, a new page is started and the page number is initialized. The following command produces a group-scope Accounting report shown in “Group-scope Accounting report” on page 2911. The command uses the SHORT
Group-scope Accounting report

Here is an example of a group-scope Accounting report:

- The data is ordered according to the authorization IDs and plans. All primary authorization IDs and plans from the input data are shown. MEMBER is automatically added as the last ORDER identifier.
- The GROUP TOTAL is printed for primary authorization IDs and plans that contain more than one member.
- The TOTAL is printed for primary authorization IDs that contain more than one plan.
- GRAND TOTAL is printed at the end of each group if there is more than one first-level identifier reported.

<table>
<thead>
<tr>
<th>LOCATION: DSN4020Y</th>
<th>OMEGAMON XE for DB2 Performance Expert (V5R4M0)</th>
<th>PAGE: 1-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP: DSN4020Y</td>
<td>Accounting REPORT - SHORT</td>
<td>REQUESTED FROM: NOT SPECIFIED</td>
</tr>
<tr>
<td>ORDER: PRIMAUTH-PLANNAME</td>
<td>INTERVAL FROM: 12/03/15 06:05:17.91</td>
<td>TO: NOT SPECIFIED</td>
</tr>
<tr>
<td>DB2 VERSION: V11</td>
<td>TO: 12/03/15 10:29:26.02</td>
<td></td>
</tr>
</tbody>
</table>

**LOCATION:** DSN4020Y  
**GROUP:** DSN4020Y  
**PRIMAUTH:**  
**PLANNAME:**  
**MEMBER:**  
**#OCCURS**  
**#ROLLBK**  
**SELECTS**  
**INSERTS**  
**UPDATES**  
**DELETES**  
**CLASS1**  
**EL.TIME**  
**CLASS2**  
**EL.TIME**  
**GETPAGES**  
**SYN.READ**  
**LOCK SUS**  
**CPUTIME**  
**BUF.UPDT**  
**GETTIME**  
**BUF.UPD**  
**TOT.PREF**  
**BUF.UPD**  
**SCOPE:**  
**GROUP:**  
**LOCATION:** DSN4020Y  
**GROUP:** DSN4020Y  
**PRIMAUTH:**  
**PLANNAME:**  
**MEMBER:**  
**#OCCURS**  
**#ROLLBK**  
**SELECTS**  
**INSERTS**  
**UPDATES**  
**DELETES**  
**CLASS1**  
**EL.TIME**  
**CLASS2**  
**EL.TIME**  
**GETPAGES**  
**SYN.READ**  
**LOCK SUS**  
**CPUTIME**  
**BUF.UPDT**  
**GETTIME**  
**BUF.UPD**  
**TOT.PREF**  
**BUF.UPD**  
**SCOPE:**  
**GROUP:**  
**LOCATION:** DSN4020Y  
**GROUP:** DSN4020Y  
**PRIMAUTH:**  
**PLANNAME:**  
**MEMBER:**  
**#OCCURS**  
**#ROLLBK**  
**SELECTS**  
**INSERTS**  
**UPDATES**  
**DELETES**  
**CLASS1**  
**EL.TIME**  
**CLASS2**  
**EL.TIME**  
**GETPAGES**  
**SYN.READ**  
**LOCK SUS**  
**CPUTIME**  
**BUF.UPDT**  
**GETTIME**  
**BUF.UPD**  
**TOT.PREF**  
**BUF.UPD**  
**SCOPE:**  
**GROUP:**  

Chapter 6. Batch reporting 2911
### General Statistics information

Statistics reports and traces provide you with a way to analyze DB2 Statistics class 1 trace data.

DB2 accumulates statistics for the system services address space, database services address space, and DDF address space. These statistics are accumulated from the time DB2 is started until it is stopped. At a configurable interval, DB2 logs the current statistics values using IFCID 1 and IFCID 2.

Use the Statistics report set to:
- View system-wide statistics for key DB2 components.
- Compare system performance over two or more reporting intervals.
- Assess system-wide performance for individual DB2 subsystems.
- Assess performance data for a group of data sharing DB2 subsystems.
- Summarize system performance data in a single report.

The Statistics report set provides the following functions:
- Traces present the difference (delta) between the Statistics recorded in two consecutive Statistics record pairs.
- Reports summarize Statistics data over one or more user-defined intervals.
- The File data set contains records in a format that are suitable for use by the DB2 load and Spreadsheet Input-Data Generator utilities.
- The Save-File utility changes Save data sets into sequential data sets for use by the DB2 load and Spreadsheet Input-Data Generator utilities.
- The REDUCE subcommand specifies intervals into which Statistics data is accumulated and apportioned. A report can then be produced that is sorted by these intervals.
- The SAVE and RESTORE subcommands are used to consolidate Statistics for a number of Statistics record pairs and then save these record pairs in a Save data set for later restoration and further processing.
- You can control the level of detail of a report by choosing one of the sample layouts or a layout that you have previously tailored.
- You can use exception processing to identify entries with fields that contain values outside thresholds that you have previously specified.
- In data sharing environments you can produce member-specific or group-specific reports.

### Statistics terms

This section describes the various terms used in the Statistics report set.
Delta and interval records:

This section defines the differences among various DB2 Statistics counters, such as accumulated values, snapshot values, and high water mark values.

When a DB2 Statistics trace is active, DB2 maintains various Statistics counters and externalizes these counters at regular intervals. The main body of Statistics data is shown in IFCIDs 1 and 2. Although there is a small difference in their timestamps, you can assume that these IFCID are externalized simultaneously. These two records are called a DB2 Statistics record pair.

Other statistics information is shown in IFCID 199 (buffer pool statistics at data set level), IFCID 225 (DB2 storage statistics), and IFCID 369 (aggregated accounting statistics).

The counters provided in a DB2 Statistics record pair represent the DB2 activity between the time the pair is externalized and the time the DB2 system was last started. A counter is provided in one of the following forms:

- As an accumulated value since the DB2 system was last started. For example, the total number of SELECT statements that were executed since the system was last started.
- As a current or snapshot value. For example, the number of open data sets at the time the DB2 Statistics record pair was externalized.
- As a maximum or high water mark value the counter has reached since the time the system was last started. For example, the maximum number of open data sets at any time since the system was last started.

The Statistics report set does not report individual DB2 Statistics record pairs (for that purpose use the long Record Trace report). Instead, it calculates deltas between two consecutive DB2 Statistics record pairs and externalizes the delta records in Statistics traces and File data sets. It also uniformly distributes the delta records over user-specified intervals and externalizes the interval records in Statistics reports and Save data sets.

Delta records:

The delta record is an OMEGAMON XE for DB2 PE term for a set of counters that describes the activity of a DB2 system between two consecutive DB2 Statistics record pairs.

For example, if a DB2 Statistics record pair is externalized at time $t_1$ and the next DB2 Statistics record pair is externalized at $t_2$, OMEGAMON XE for DB2 PE creates only one delta record, which represents the DB2 system activity between $t_1$ and $t_2$.

A counter in the delta record, like the counters in the DB2 Statistics record pairs, is provided in one of the following forms:

- Accumulated value. For example, the total number of SELECT statements that are executed between two consecutive DB2 Statistics record pairs. The accumulated value from a delta record is generally smaller than the accumulated value from the DB2 Statistics record pair which marks the end of the delta record and provides the values accumulated since the DB2 system was last started.
Current or snapshot value. For example, the number of open data sets at the end of the delta record. It is the same as the value provided in the DB2 Statistics record pair which marks the end of the delta record.

The maximum or high-water mark value the counter reached from the time the system was last started until the end of the delta record, for example, the maximum number of open data sets. It is the same as the value provided in the DB2 Statistics record pair which marks the end of the delta record.

When a delta record is calculated, OMEGAMON for DB2 PE externalizes it to Statistics traces and File data sets depending on your specification.

**Interval records:**

*Interval record* is a term for a set of counters that describes the activity of a DB2 system in a user-specified period of time.

Unlike the delta record, where the time interval is determined by two consecutive DB2 Statistics record pairs, you can specify the duration of an interval record by using the INTERVAL subcommand option of the REDUCE subcommand.

Interval records do not generally coincide with the delta records. Several delta records can be contained in one interval record. The interval records are not generally aligned with the delta records. The delta records are aligned with DB2 Statistics record pairs, while you can align the interval record by using the BOUNDARY subcommand option of the REDUCE subcommand.

When an interval record is calculated, OMEGAMON XE for DB2 PE externalizes it to Statistics reports and Save data sets depending on your specification.

To understand the relationship between the delta records and interval records, consider the following example taken from a DB2 10 subsystem.

The DB2 Statistics record pairs are generated every minute. IFCID 225 and IFCID 369 are also externalized every minute, while the generation of IFCID 199 is controlled by DB2 system parameter STATIME. If a Statistics trace is started at 9:15 and stopped at 10:15, 61 DB2 Statistics record pairs are generated.

OMEGAMON XE for DB2 PE processes these record pairs and creates 60 one-minute delta records starting every minute from 9:15 to 10:14. You can print these delta records by specifying the TRACE subcommand or store these delta records in a data set that is suitable for loading into DB2 tables by specifying the FILE subcommand.

If you need a report by an hourly basis, you can specify an interval record duration of 60 minutes by using the INTERVAL subcommand option of REDUCE. By default, the interval records are aligned with hour boundaries. If you require a different alignment, use the BOUNDARY subcommand option. Based on this specification, OMEGAMON XE for DB2 PE uniformly distributes the already calculated one-minute delta records into the corresponding interval records. Two 60-minute interval records are created starting at 9:00 and 10:00. The first interval record contains the delta records from 9:15 to 10:00 and the second interval record contains the delta records from 10:00 to 10:15. You can print these interval records by specifying the REPORT subcommand or store these interval records into a data set for later use by specifying the SAVE subcommand.
A counter in the interval record, like the counters in the delta records, is provided in one of the following forms:

- Accumulated value. For example, the total number of SELECT statements that were executed during the period of time specified for the interval record. Generally, this value is an approximation because the interval records are not aligned with the delta records. When an interval record crosses delta record boundaries, and vice versa, the values of the delta record counters are apportioned and uniformly distributed into overlapping interval records.

- The current or snapshot value is an approximation of the counter value at the end of the interval record. It is derived from the delta records' current values and is weighted according to the overlap between the delta records and the interval records.

- The maximum or high-water mark value the counter has reached between the time the system was last started and the end of the last delta record included in the interval record calculation.

To produce a report that shows the Statistics data for each interval record, you first specify the interval-record duration and alignment with the INTERVAL and BOUNDARY subcommand options of the REDUCE subcommand, then the ORDER(INTERVAL) subcommand option of the REPORT subcommand.

A special type of the Statistics report is one where all DB2 Statistics record pairs in the input data set are consolidated in one interval record. Such a report is produced if no INTERVAL subcommand option is specified and the default INTERVAL(0) is assumed. In this case, the BOUNDARY and ORDER(INTERVAL) subcommand options do not apply. The start of the interval record is aligned to the first DB2 Statistics record pair, and there is no ordering by intervals because only one interval record is created. For example, if a Statistics trace is started at 9:15 and ended at 11:15, one interval record for that period is created that contains all counters pertinent to that interval, such as the number of INSERT statements executed from 9:15 to 11:15.

**Input for Statistics reports**

This section summarizes the DB2 IFCIDs, trace types, and classes for Statistics reports.

The following table summarizes the IFCIDs and DB2 trace classes required to produce Statistics reports and traces.

<table>
<thead>
<tr>
<th>Statistics information</th>
<th>DB2 IFCIDs</th>
<th>DB2 trace type and class</th>
</tr>
</thead>
<tbody>
<tr>
<td>System statistics, DB2 statistics</td>
<td>1, 2</td>
<td>Statistics, class 1</td>
</tr>
<tr>
<td>Buffer pool data set statistics</td>
<td>199</td>
<td>Statistics, class 8</td>
</tr>
<tr>
<td>DB2 storage statistics</td>
<td>225</td>
<td>Statistics, class 6</td>
</tr>
<tr>
<td>Aggregated Accounting statistics</td>
<td>369</td>
<td>Statistics, class 9</td>
</tr>
</tbody>
</table>

Use the following DB2 command to collect all Statistics data:

```
-START TRACE (STATISTICS) CLASS (1,6,8,9) DEST (GTF) LOCATION (*)
```

Because the basic unit of processing in the Statistics report set is the delta record, at least two DB2 Statistics record pairs (IFCID 1 and 2) must be present in the input data set before statistics can be presented.
Functions and utilities of the Statistics report set

The Statistics report set consists of the REPORT, TRACE, FILE, SAVE, RESTORE, REDUCE functions, and the Save-File and Spreadsheet Input-Data Generator utilities.

REPORT

REPORT shows interval records that contain DB2 Statistics data aggregated over user-specified periods of time (see “Interval records” on page 2914) which generally do not coincide with periods in which DB2 Statistics records are externalized. For example, you can produce reports that show DB2 system activity per hour, per day, or per the entire period in which the DB2 Statistics data is collected.

A special kind of the Statistics reports are exception reports in which only the interval records are presented that contain selected counters that exceed user-defined threshold values (see “Exception processing” on page 2924).

The Statistics reports are produced for each DB2 subsystem and DB2 location present in the input data set. In a data sharing environment you can request the Statistics reports on a per-member basis or per-group basis where the Statistics data is aggregated across all members in the data sharing group (see “Member-scope and group-scope reporting” on page 2918).

You can also tailor the format of the reports by specifying which report blocks of data and which fields from a report block are included in a report or by defining your own labels and headings associated with the reported fields (see “Controlling the level of detail in reports and traces” on page 2918).

TRACE

TRACE shows delta records that contain DB2 Statistics data within periods of time marked by two consecutive DB2 Statistics record pairs (see “Delta records” on page 2913).

A special kind of the Statistics traces are exception traces in which only the delta records are presented that contain selected counters that exceed user-defined thresholds (see “Exception processing” on page 2924).

The Statistics traces are produced for each DB2 subsystem and DB2 location present in the input data set. In a data sharing environment the Statistics traces are presented for each member of a data sharing group.

Like reports, you can tailor the layout of the traces (see “Controlling the level of detail in reports and traces” on page 2918).

FILE

FILE stores delta records (the same data structures presented by the TRACE function) into a sequential data set that is suitable for use by the DB2 load utility.

When delta records are in DB2 tables, you can produce tailored reports by using a reporting facility such as Query Management Facility (QMF). The FILE function can also be considered as an alternative way of archiving the DB2 Statistics data in Save data sets. (See “Creating data for the Performance Database and the Performance Warehouse” on page 2984.)

Checking for exception conditions is also available in the FILE function, in which case only the delta records are presented that contain selected counters that exceed user-defined thresholds (see “Exception processing” on page 2924).
You can also use the File data sets to generate CSV (comma-separated value) input-data. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables. (See “Generating input data for spreadsheets” on page 2985.)

SAVE

You can save data sets as follows:

Without CONVERT option

Stores interval records (the same data structures presented by the REPORT function) into a VSAM data set to:

- Archive the Statistics data for producing long-term reports
- Use the Save-File utility to create a sequential data set that is suitable for use by the DB2 load utility.

(See “Creating data for the Performance Database and the Performance Warehouse” on page 2984.)

Note:

- You can only process VSAM data sets in the same version of OMEGAMON for Db2 PE as they have been created. For example, if you create a SAVE data set in version 530, it can only be RESTORED in version 530.

To use a SAVE data set in a higher version, you must migrate the SAVE data set using a migration utility.

- Before you restore or convert SAVE data sets from V5.2.0 or V5.3.0, you must first migrate this data to OMEGAMON for Db2 PE V5.4.0 format.

- Restored reports only show fields that are supported by the current version of OMEGAMON for Db2 PE.

With CONVERT option

Converts and saves reduced data into a sequential data set that can be loaded into DB2 tables.

You can also use the Save-File data sets to generate CSV (comma-separated value) input-data. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables. (See “Generating input data for spreadsheets” on page 2985.)

RESTORE

RESTORE reloads a previously saved data set to report it with or without new Statistics data. Saved data can be restored and re-saved as often as required.

REDUCE

REDUCE specifies the duration of the interval records that are to be presented in Statistics reports or stored in a Save data set.

You can also control the volume of data to be reported and saved by using the FROM and TO and the INCLUDE and EXCLUDE subcommand options.

Save-File utility

With the Save-File utility you can:

- Migrate Statistics Save data sets from earlier releases.
• Convert Statistics Save data sets into sequential data sets that are suitable for use by the DB2 load utility.

(See “Creating data for the Performance Database and the Performance Warehouse” on page 2984.)

Spreadsheet Input Data Generator utility

You can also use the File and Save-File data sets to generate CSV (comma-separated value) input-data. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables. (See “Generating input data for spreadsheets” on page 2985.)

Controlling the level of detail in reports and traces

You can specify the level of detail and the layout of Statistics reports and traces by using the LAYOUT subcommand option of the REPORT or TRACE subcommand.

The following sample layouts are supplied:
• SHORT
• LONG

In Statistics reports and traces, layout SHORT provides general data and layout LONG provides comprehensive data. Layout SHORT contains selected blocks and fields from statistics categories. layout LONG contains most, but not all, of the available blocks and fields.

If the use of commands, subcommands, and subcommand options does not provide sufficient control over the contents of reports and traces, you can use the User-Tailored Reporting (UTR) feature to create and tailor your own report and trace layouts. With UTR you can add, remove, and change individual fields and entire report blocks to control the volume, contents, and layouts of your reports and traces. For more information, see “Tailoring report layouts” on page 2950.

Member-scope and group-scope reporting

DB2 collects the Statistics data on a per-member basis. DB2 Statistics traces have a local scope. To obtain the statistics for all members of a data sharing group, a DB2 Statistics trace has to be started at each of the members. These traces generally have different start and stop times and can have different periods in which the DB2 Statistics records are externalized.

The information in this section only applies to DB2 data sharing environments.

Member-scope reports and traces:

OMEGAMON XE for DB2 PE can process all members of a data sharing group at the same time and produce reports and traces that show the Statistics data on a per-member basis.

Such member-scope reports and traces are like those produced in non-data sharing environments. Reports and traces are produced on a per-subsystem basis.

The following extracts from a long Statistics report demonstrates the concept of member-scope reporting.
• The data sharing group DBN1 consists of two members, SN13 and SN14.
• The statistics are presented separately for each member (note the MEMBER field in the page heading).
The non-data sharing counters (such as the CPU TIMES block) as well as the data sharing counters (such as the Group Buffer Pools Activity block) are presented. To keep the figure compact only selected Statistics data is shown.

The default Statistics interval is assumed, which means that the data is presented for the entire period the statistics are available.

There is no aggregated statistics data for the entire group.

Long Statistics report for member SN13 of group DBN1

The following example shows a partial member-scope long Statistics report for member SN13 of group DBN1.

**Long Statistics report for member SN14 of group DBN1**

The following example shows a partial member-scope long Statistics report for member SN14 of group DBN1.
The following extract from a short Statistics report demonstrates the concept of group-scope reporting.

- The statistics are presented separately for each member (note the MEMBER field in the HIGHLIGHTS block).
- Only selected counters are shown (HIGHLIGHTS, DATA SHARING LOCKS, and GROUP BPO), to keep the figure compact.
- After the members' Statistics are presented, the aggregated Statistics data for the entire group is shown.
  - The MEMBER field in the HIGHLIGHTS block displays the number of members for which the Statistics are aggregated.
  - The group's Statistics counters are calculated by adding up the members' Statistics counters.
  - As the default Statistics interval is assumed (the data is presented for the entire period the statistics are available), the statistics are provided from the earliest to the latest time for which the statistics data is available.
  - The group's interval elapsed time is the average elapsed time of the members' interval elapsed times.

Group-scope short Statistics report for member SN13 of group DBN1

The following example shows a group-scope short Statistics report for member SN13 of group DBN1.

LOCATION: PNOBN1
GROUP: DBN1
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
STATISTICS REPORT - SHORT
REQUESTED FROM: NOT SPECIFIED
TO: NOT SPECIFIED
INTERVAL FROM: 03/27/15 21:53:27.65
TO: 03/28/15 07:53:27.65

--- HIGHLIGHTS --------------------------------------------------------------
INTERVAL START: 03/27/15 21:53:27.65
INTERVAL ELAPSED: 10:00:00.00
INCREMENTAL BINDS : 0.00
DBAT: 03/27/15 DB2 COMMAND: 185.00

SAMPLING START: 03/27/15 21:53:27.65
TOTAL THREADS : 107.00
BUFF.UPD/PAGES WRITTEN: N/C
TOTAL API : 5365.00

SAMPLING END : 03/28/15 07:53:27.65
TOTAL COMMITS : 47.00
PAGES WRITTEN/WRIT 1:0 : N/C

GROUP BPO
GROUP BPOK
LOCATION: PNOBN1
GROUP: DBN1
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
STATISTICS REPORT - SHORT
REQUESTED FROM: NOT SPECIFIED
TO: NOT SPECIFIED
INTERVAL FROM: 03/27/15 21:53:27.65
TO: 03/28/15 07:53:27.65

--- HIGHLIGHTS --------------------------------------------------------------
INTERVAL START: 03/27/15 21:53:27.65
INTERVAL ELAPSED: 10:00:00.00
INCREMENTAL BINDS : 0.00
DBAT: 03/27/15 DB2 COMMAND: 185.00

SAMPLING START: 03/27/15 21:53:27.65
TOTAL THREADS : 107.00
BUFF.UPD/PAGES WRITTEN: N/C
TOTAL API : 5365.00

SAMPLING END : 03/28/15 07:53:27.65
TOTAL COMMITS : 47.00
PAGES WRITTEN/WRIT 1:0 : N/C

GROUP BPO
GROUP BPOK
LOCATION: PNOBN1
GROUP: DBN1
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
STATISTICS REPORT - SHORT
REQUESTED FROM: NOT SPECIFIED
TO: NOT SPECIFIED
INTERVAL FROM: 03/27/15 21:53:27.65
TO: 03/28/15 07:53:27.65

--- HIGHLIGHTS --------------------------------------------------------------
INTERVAL START: 03/27/15 21:53:27.65
INTERVAL ELAPSED: 10:00:00.00
INCREMENTAL BINDS : 0.00
DBAT: 03/27/15 DB2 COMMAND: 185.00

SAMPLING START: 03/27/15 21:53:27.65
TOTAL THREADS : 107.00
BUFF.UPD/PAGES WRITTEN: N/C
TOTAL API : 5365.00

SAMPLING END : 03/28/15 07:53:27.65
TOTAL COMMITS : 47.00
PAGES WRITTEN/WRIT 1:0 : N/C
Group-scope short Statistics report for member SN14 of group DBN1

The following example shows a group-scope short Statistics report for member SN14 of group DBN1.

LOCATION: PM0DBN1 OMEGAMON XE FOR DBZ PERFORMANCE EXPERT (VSRAM0) PAGE: 2-3 REQUESTED FROM: NOT SPECIFIED TO: NOT SPECIFIED

DB2 VERSION: V10 SCOPE: GROUP

--- HIGHLIGHTS ---------------

DATA SHARING LOCKS QUANTITY
-----------------------------

LOCATION: PM0DBN1 OMEGAMON XE FOR DBZ PERFORMANCE EXPERT (VSRAM0) PAGE: 2-4 REQUESTED FROM: NOT SPECIFIED TO: NOT SPECIFIED

DB2 VERSION: V10 SCOPE: GROUP

--- HIGHLIGHTS ---------------
<table>
<thead>
<tr>
<th>CLEAN PAGES ASYN.WRT</th>
<th>0.00</th>
<th>CLEAN PAGES ASYN.WRT</th>
<th>0.00</th>
<th>CLEAN PAGES ASYN.WRT</th>
<th>0.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHANGED PGS SYN.WRTN</td>
<td>203.00</td>
<td>CHANGED PGS SYN.WRTN</td>
<td>13.00</td>
<td>CHANGED PGS SYN.WRTN</td>
<td>0.00</td>
</tr>
<tr>
<td>CHANGED PGS SYN.WRTN</td>
<td>0.00</td>
<td>CHANGED PGS SYN.WRTN</td>
<td>0.00</td>
<td>CHANGED PGS SYN.WRTN</td>
<td>0.00</td>
</tr>
<tr>
<td>REG.PG LIST (RPL) RQ</td>
<td>3.00</td>
<td>REG.PG LIST (RPL) RQ</td>
<td>0.00</td>
<td>REG.PG LIST (RPL) RQ</td>
<td>0.00</td>
</tr>
<tr>
<td>CHANGED PGS READ RPL</td>
<td>0.00</td>
<td>CHANGED PGS READ RPL</td>
<td>0.00</td>
<td>CHANGED PGS READ RPL</td>
<td>0.00</td>
</tr>
<tr>
<td>PAGES CASTOUT</td>
<td>144.00</td>
<td>PAGES CASTOUT</td>
<td>13.00</td>
<td>PAGES CASTOUT</td>
<td>0.00</td>
</tr>
<tr>
<td>WRITE AND REGISTER</td>
<td>128.00</td>
<td>WRITE AND REGISTER</td>
<td>0.00</td>
<td>WRITE AND REGISTER</td>
<td>0.00</td>
</tr>
<tr>
<td>WRITE AND REGISTER MULT</td>
<td>25.00</td>
<td>WRITE AND REGISTER MULT</td>
<td>3.00</td>
<td>WRITE AND REGISTER MULT</td>
<td>0.00</td>
</tr>
<tr>
<td>READ FOR CASTOUT MULT</td>
<td>16.00</td>
<td>READ FOR CASTOUT MULT</td>
<td>3.00</td>
<td>READ FOR CASTOUT MULT</td>
<td>0.00</td>
</tr>
<tr>
<td>PAGES WRITE &amp; REG MULT</td>
<td>75.00</td>
<td>PAGES WRITE &amp; REG MULT</td>
<td>13.00</td>
<td>PAGES WRITE &amp; REG MULT</td>
<td>0.00</td>
</tr>
<tr>
<td>EXPPLICIT X-INVALIDATIONS</td>
<td>0.00</td>
<td>EXPPLICIT X-INVALIDATIONS</td>
<td>0.00</td>
<td>EXPPLICIT X-INVALIDATIONS</td>
<td>0.00</td>
</tr>
<tr>
<td>CASTOUT CLASS THRESH</td>
<td>0.00</td>
<td>CASTOUT CLASS THRESH</td>
<td>1.00</td>
<td>CASTOUT CLASS THRESH</td>
<td>0.00</td>
</tr>
<tr>
<td>GROUP BP CAST.THRESH</td>
<td>0.00</td>
<td>GROUP BP CAST.THRESH</td>
<td>0.00</td>
<td>GROUP BP CAST.THRESH</td>
<td>0.00</td>
</tr>
<tr>
<td>WRITE FAILED-NO STOR</td>
<td>0.00</td>
<td>WRITE FAILED-NO STOR</td>
<td>0.00</td>
<td>WRITE FAILED-NO STOR</td>
<td>0.00</td>
</tr>
</tbody>
</table>

GROUP TOTAL

<table>
<thead>
<tr>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
</tr>
</tbody>
</table>

Group-scope short Statistics report for group DBN1

The following example shows a group-scope short Statistics report for group DBN1.

LOCATION: PM0DBN1
GROUP: DBN1
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
STATISTICS REPORT - SHORT

PAGE: 2-5
REQUESTED FROM: NOT SPECIFIED
TO: NOT SPECIFIED
INTERVAL FROM: 03/27/15 21:53:27.65
TO: 03/28/15 07:53:27.65

--- HIGHLIGHTS

INTERVAL START: 03/27/15 21:53:27.65
INTERVAL ELAPSED: 9:45:00.000
INCREMENTAL BINDS: 0.00
DBAT QUEUED: N/P

INTERVAL END: 03/28/15 07:53:27.65
OUTAGE ELAPSED: 0.00000
AUTH SUCC./OUT CATALOG: 455.00
DB2 COMMAND: 542.00

SAMPLING START: 03/27/15 21:53:27.65
SAMPLING END: 03/28/15 07:53:27.65
TOTAL THREADS: 480.00
BUFF.UPD/PAGES WRITTEN: 17.78
TOTAL API: 21381.00

--- HIGHLIGHTS

INTERVAL START: 03/27/15 21:53:27.65
INTERVAL ELAPSED: 9:45:00.000
INCREMENTAL BINDS: 0.00
DBAT QUEUED: N/P

INTERVAL END: 03/28/15 07:53:27.65
OUTAGE ELAPSED: 0.00000
AUTH SUCC./OUT CATALOG: 455.00
DB2 COMMAND: 542.00

SAMPLING START: 03/27/15 21:53:27.65
SAMPLING END: 03/28/15 07:53:27.65
TOTAL THREADS: 480.00
BUFF.UPD/PAGES WRITTEN: 17.78
TOTAL API: 21381.00

GROUP BP P/W RATIO (%) 18.06
GROUP BP DEPENDENT GET/PAGES 816.00
SYN.READ(XI)-DATA RETURNED 38.00
SYN.READ(XI)-NO DATA RETURN 161.00
SYN.READ(NF)-DATA RETURNED 20.00
CLEAN PAGES SYN.WRTN 0.00
CLEAN PAGES ASYN.WRTN 0.00
CHANGED PGS SYN.WRTN 216.00
CHANGED PGS ASYN.WRTN 0.00
REG.PG LIST (RPL) RQ 3.00
CHANGED PGS READ RPL 0.00
PAGES CASTOUT 157.00
WRITE AND REGISTER 128.00
WRITE AND REGISTER MULT 28.00
READ FOR CASTOUT MULT 19.00
PAGES WRITE & REG MULT 86.00
EXPPLICIT X-INVALIDATIONS 0.00
CASTOUT CLASS THRESH 1.00
GROUP BP CAST.THRESH 0.00
WRITE FAILED-NO STOR 0.00

GROUP BP R/W RATIO (%) 18.06
GROUP BP DEPENDENT GET/PAGES 816.00
SYN.READ(XI)-DATA RETURNED 38.00
SYN.READ(XI)-NO DATA RETURN 161.00
SYN.READ(NF)-DATA RETURNED 20.00
CLEAN PAGES SYN.WRTN 0.00
CLEAN PAGES ASYN.WRTN 0.00
CHANGED PGS SYN.WRTN 216.00
CHANGED PGS ASYN.WRTN 0.00
REG.PG LIST (RPL) RQ 3.00
CHANGED PGS READ RPL 0.00
PAGES CASTOUT 157.00
WRITE AND REGISTER 128.00
WRITE AND REGISTER MULT 28.00
READ FOR CASTOUT MULT 19.00
PAGES WRITE & REG MULT 86.00
EXPPLICIT X-INVALIDATIONS 0.00
CASTOUT CLASS THRESH 1.00
GROUP BP CAST.THRESH 0.00
WRITE FAILED-NO STOR 0.00

Chapter 6. Batch reporting 2923
Exception processing

Exception processing identifies Statistics report, trace, and File data set entries with fields that contain values outside the thresholds specified in the Exception Threshold data set. When exception processing is active, the data to be reported is checked against these thresholds.

There are two threshold types that you can set: warning and problem. A warning message is printed if a value is outside the first threshold and a problem message is printed if a value is outside the second threshold.

When exception processing is requested for a File data set, only delta records in exception status are included in the output data set.

Statistics exception reports, traces, and File data sets are identical to the usual Statistics reports, traces, and File data sets, except that they only contain interval records and delta records that have at least one field in exception status.

When delta records and interval records are processed during exception processing, values defined in the Exception Threshold data set are compared with the corresponding values in a delta or interval record. If any field is in exception status, the following occurs:

- If the JCL contains a valid DD statement for EXTRCDD1 or EXFILDD1, the identity of the delta or interval record (timestamp and subsystem identification) and the fields in exception status are logged in the exception logs.
- If you specified EXCEPTION with the REPORT, TRACE, or FILE subcommand, the interval or delta record is formatted and printed (or filed in case of the FILE
subcommand) in the requested layout followed by the Exception Messages block of the report. An example is shown in "Statistics Exception Messages report block." The Exception Messages block of the report identifies the fields in exception status.

Note:

- The type of layout used has no effect on exception processing or on the content of the Exception Messages block of the report. All fields in exception status are reported. The layout used only affects the level of detail in the formatted interval or delta record. This means, the exception report can contain fields that have not been included in the corresponding trace or report.
- For group-scope reports, exceptions are checked only against the interval records that are aggregated across a data sharing group. However, member-specific statistics are shown wherever exceptions are found for the entire group.

The fields that caused the entry to be in exception status are identified along with the appropriate warning or problem message and are printed in the Exception Messages block of the report or trace.

"Statistics Exception Messages report block" shows an example of an Exception Messages block. It is printed after each interval or delta record that is found to be in exception status, provided that EXCEPTION was specified in the REPORT or TRACE subcommand.

**Statistics Exception Messages report block**

Here is an example of a Statistics Exception Messages report block.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>FIELD ID</th>
<th>FIELD DESCRIPTION</th>
<th>BY</th>
<th>VALUE</th>
<th>THRESHOLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>QBSTRIO</td>
<td>SYNCHRONOUS READS</td>
<td>TOTAL</td>
<td>53</td>
<td>&gt;50</td>
</tr>
<tr>
<td>*</td>
<td>BP0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td>WARNING</td>
<td>QBSTRIO</td>
<td>SYNCHRONOUS READS</td>
<td>TOTAL</td>
<td>9</td>
</tr>
<tr>
<td>*</td>
<td>BP2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td>WARNING</td>
<td>QBSTRIO</td>
<td>SYNCHRONOUS READS</td>
<td>TOTAL</td>
<td>9</td>
</tr>
<tr>
<td>*</td>
<td>BP7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The following columns are presented in the Exception Messages report block:

**TYPE** The type of exception. Valid values are WARNING and PROBLEM.

**FIELD ID**

The name of the field from the Exception Threshold data set.

**FIELD DESCRIPTION**

The description of the field.

**FIELD QUALIFIER**

The qualifier of the field. This is either the buffer pool ID, the group buffer pool ID, or the remote location. This field is blank if there is no field qualifier.

**BY**

The basis for the comparison. The following information can be printed in this column:

- **TOTAL**
  
  The threshold is specified as a “total” value.

- **MINUTE**

  The threshold is specified as a “by minute” value. The value in the
interval or delta record is divided by the number of minutes in the interval or delta before making the comparison.

SECOND
The threshold is specified as a “by second” value. The value in the interval or delta record is divided by the number of seconds in the interval or delta before making the comparison.

COMMIT
The threshold is specified as a “by commit” value. The value in the interval or delta record is divided by the number of Commits in the interval or delta before making the comparison.

THREAD
The threshold is specified as a “by thread” value. The value in the interval or delta record is divided by the number of threads in the interval or delta before making the comparison.

VALUE
The actual field value that is used for the comparison. For total comparisons, the value from the interval or delta record is printed. For “by minute”, “by second”, “by commit”, or “by thread” comparisons, the calculated “by minute”, “by second”, “by commit”, or “by thread” value is printed. The greater than symbol (>) or the less than symbol < is printed between this column and the THRESHOLD column, which indicates whether the value is larger or smaller than the threshold value.

THRESHOLD
The threshold defined in the Exception Threshold data set.

Headers used in Statistics
The headers in Statistics reports and traces are identical, except that INTERVAL FROM and INTERVAL TO in the report header is replaced by ACTUAL FROM in the trace header and the SCOPE field does not apply to Statistics traces.

Statistics report header example
Here is an example of a Statistics report header.

<table>
<thead>
<tr>
<th>LOCATION: PMODBZ1</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
<th>PAGE: 1-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP: DB21</td>
<td>STATISTICS REPORT - LONG</td>
<td>REQUESTED FROM: NOT SPECIFIED</td>
</tr>
<tr>
<td>MEMBER: S211</td>
<td></td>
<td>TO: NOT SPECIFIED</td>
</tr>
<tr>
<td>SUBSYSTEM: S211</td>
<td></td>
<td>INTERVAL FROM: 07/18/15 21:36:00.38</td>
</tr>
<tr>
<td>DB2 VERSION: V10</td>
<td>SCOPE: MEMBER</td>
<td>TO: 07/18/15 21:58:08.06</td>
</tr>
</tbody>
</table>

The Statistics report and trace headers contain the following information:

LOCATION
The DB2 reporting location. If the DB2 subsystem is installed without a location name, either the DB2 subsystem ID (in non-data sharing environments) or the data sharing group name (in data sharing environments) is shown.

GROUP
The data sharing group that the DB2 subsystem belongs to.

MEMBER
The name of the DB2 data sharing member. This field is not printed for group-scope reports.

SUBSYSTEM
The ID of the DB2 subsystem that generated the data. This field is not printed for group-scope reports.
DB2 VERSION
The version number of the DB2 subsystem that generated the data.

Title - layout
The title of the report or trace and the layout. The layout can be the default layout (LONG or SHORT) or a layout that you have tailored yourself.

SCOPE
The scope of the report, which can be MEMBER or GROUP. A member-scope report shows a group's instrumentation data member by member without merging the data. A group-scope report merges the instrumentation data that belong to the individual members and presents it for the entire group.

Note: All reports in a non-data sharing environment are member-scope reports.

EXCEPTION
Indicates an exception report or trace.

PAGE
The page number within the report in the format lll-nnnnnn, where lll denotes the sequence number of one or multiple locations (see LOCATION), and nnnnnn denotes the page number within the location.

REQUESTED FROM and TO
The FROM and TO dates and times that were specified in the REPORT or TRACE subcommand. If both FROM and TO dates and times are omitted from the subcommand, the FROM and TO dates and times from the GLOBAL command are printed.

If only the FROM date and time or only the TO date and time has been specified, NOT SPECIFIED is printed for the unspecified value. If FROM and TO are not specified in the subcommand and GLOBAL command, NOT SPECIFIED appears for both the FROM and TO values.

If you specified FROM and TO times without dates in the subcommand and GLOBAL command, ALL DATES is printed together with the specified times.

Note: Any FROM and TO times that are specified in REDUCE can affect the GLOBAL FROM and TO times.

ACTUAL FROM
The date and time of the first DB2 Statistics record that was processed by the trace.

INTERVAL FROM
The start date and time of the first interval record that is covered by the report.

INTERVAL TO
The end date and time of the last interval record that is covered by the report.

How values are reported
OMEGAMON for DB2 PE reports and traces show field values for both delta and interval reporting.

The field values are shown in the following forms:

TOTAL
The value is a total.
QUANTITY
The value is a total.

SECOND
The value in the interval or delta record is divided by the number of seconds in the interval or delta before it is reported.

COMMIT
The value in the interval or delta record is divided by the number of commits in the interval or delta before it is reported.

THREAD
The value in the interval or delta record is divided by the number of threads in the interval or delta before it is reported.

Exception processing
Exception reporting identifies Accounting and Statistics records that contain fields with values that are outside a specified range. This helps you to recognize performance problems in the DB2 subsystem and in threads.

You define exception thresholds for specific Accounting and Statistics fields in the Exception Threshold data set. If exception processing is active, the DB2 instrumentation data is checked against the threshold values in the Exception Threshold data set. Only records with at least one field value outside the thresholds are reported.

You can set the thresholds in the Exception Threshold data set by using exception profiling or with the help of the example Exception Threshold data set that is delivered with OMEGAMON XE for DB2 PE. Exception profiling can also be used to produce a report with details of the distribution and expected number of exceptions for each field.

Exception reports and traces are available in the Accounting report set and the Statistics report set. Each of these relates separately to Accounting or Statistics data.

In addition, the exception log lists both Accounting and Statistics exception records in the same report, in timestamp order. The contents of the Exception Log File data set are similar to the exception log. The Exception Log File data set can be used by the DB2 load utility.

Exception processing output types
Exceptions are reported in various output types.

This topic describes the exception processing output.

Exception thresholds are specified in the Exception Threshold data set, ddname EXCPTDD. Therefore, the data set information for EXCPTDD must be specified in your JCL if you want to produce any of the listed output types.

Accounting and Statistics exception reports:

An exception report is produced if you specify the EXCEPTION subcommand option in the REPORT subcommand.

Both report types contain entries that have at least one value outside the thresholds that you specified in the Exception Threshold data set.
After each report entry, information about the fields in exception status is printed.

**Accounting and Statistics exception traces:**

You can produce an exception trace by specifying the EXCEPTION subcommand option in the TRACE subcommand.

Both trace types show records with fields values outside the thresholds that you specified in the Exception Threshold data set.

After each trace entry, information about the fields in exception status is printed.

**Accounting and Statistics Exception File data sets:**

You can produce an example file data set by specifying EXCEPTION in the FILE subcommand.

The Exception File data set contains records that have at least one value outside the thresholds that you specified in the Exception Threshold data set.

**Exception log data set:**

The exception log data set is produced automatically if you specified EXTRCDD1 in the JCL.

The exception log data set contains a list, in timestamp order, of DB2 Accounting and Statistics records with at least one field outside user-specified thresholds.

**Exception Log File data set:**

The Exception Log File data set is written if you define the EXFILDD1 DD statement in the JCL.

The Exception Log File data set is a sequential data set that can be used with the DB2 load utility.

The Exception Log File data set contains a list of Accounting and Statistics exception records similar to the list in the Exception Log data set.

To prevent the generation of the Exception Log File data set, omit the EXFILDD1 statement from your JCL (the preferred method), or specify DUMMY in the definition.

You can control the amount of data reported in the Exception Log File data set with GLOBAL INCLUDE or GLOBAL EXCLUDE, and FROM and TO.

Allocation values for EXFILDD1 are:

**RECFM:**
- VB

**LRECL:**
- 512

**BLKSIZE:**
- Recommended 4 096
**Exception Threshold data set**

The Exception Threshold data set contains the exception thresholds for the Statistics and Accounting exception reports and traces. When exception processing is active, the instrumentation data is checked against these thresholds.

Threshold values in an Exception Threshold data set can be set or modified with the Exception Threshold data set editor (see “Specifying exceptions using the Exception Threshold data set editor” on page 2795) or the exception profiling method (see “Exception profiling” on page 2931).

A sample Exception Threshold data set is supplied in data set member RK02DATA(DGOETV51). The sample contains a selection of exception fields with predefined threshold values and can be used to get started with exception reporting.

**Note:** Earlier versions of the sample Exception Threshold data set RK02DATA(DGOETV51) contain entries with asterisks instead of predefined threshold values. Asterisks are intended to mark thresholds that are to be determined by the exception profiling method (described in “Exception profiling” on page 2931). If you use these samples for exception reporting without performing exception profiling (which creates a new Exception Threshold data set with asterisks replaced by calculated values), the entries that contain asterisks generate warning messages during exception processing. In other words, earlier samples of the Exception Threshold data set are intended for exception profiling, later samples can be used for exception processing without modification.

If exception processing is started as part of the OMEGAMON Collector startup, where the Exception Threshold data set to be used is determined by the `AUTOEXCPTHNAME` startup parameter, the Exception Threshold data set must be a sequential data set. For online monitoring, the Exception Threshold data set can be either a sequential data set or a member of a partitioned data set. If you create a new data set, preallocate it with the following attributes:

**RECFM:**

- VB

**LRECL:**

- ≥ 255

**BLKSIZE:**

- 6 233 or greater

**Note:** The sample Exception Threshold data set member RK02DATA(DGOETV51) might have a different record length. When you copy member DGOETV51 to your newly allocated data set, you might get a warning that records are truncated. In this case, you can ignore this warning.

Related reading: For information about specifying and editing thresholds in an existing Exception Threshold data set, refer to “Specifying exceptions using the Exception Threshold data set editor” on page 2795.

Related reading: For information about profiling an Exception Threshold data set with a sample of DB2 instrumentation data, refer to “Exception profiling” on page 2931.
Exception profiling

You can use the exception profiling method to set adequate exception threshold values based on sample DB2 instrumentation data. This method eases the process of getting a suitable Exception Threshold data set that can be used for exception processing.

The basic procedure is to use an existing Exception Threshold data set, mark those fields that you want to be profiled by an asterisk (*), specify generalized warning and problem exception levels, and let the exception profiling batch job do the calculations based on the sample instrumentation data. The result is a new Exception Threshold data set with adequate exception threshold values.

Exception profiling can be repeated by using different sample data, or different field selections, or different generalized exception levels. An Exception Threshold data set can also be modified as described in "Specifying exceptions using the Exception Threshold data set editor" on page 2795.

Data sets involved in exception profiling:

Exception profiling requires several data set specifications.

The following data sets are essential for exception profiling. You must specify these data sets in the exception profiling dialog.

- The input data set contains a sample of DB2 instrumentation data. The data is used to estimate your workload and decide which warning and problem thresholds to assign to the DB2 fields that are to be calculated.

  The more representative the data, the more accurate the calculation of the threshold values. The data should contain the type of data that you usually monitor. The input data should also contain a sufficient number of records to allow the profiling to be performed with reasonable confidence. The data should also cover an appropriate span of time.

  You can specify any combination of DPMOUT, SMF, or GTF data sets that contain DB2 instrumentation data.

- The input threshold data set is an Exception Threshold data set with some DB2 fields marked by asterisks (*). The asterisks serve as markers to indicate the DB2 fields for which exception profiling should calculate threshold values. Exception profiling scans the input threshold data set for names of DB2 fields that have asterisks (*) assigned instead of threshold values. For these fields new threshold values are calculated based on sample data from the input data set. Fields that already have threshold values assigned are not considered and remain unchanged.

  In other words, if you want exception profiling to calculate or recalculate certain threshold values, enter asterisks as threshold values for the corresponding fields in the input threshold data set.

- The output threshold data set is the new Exception Threshold data set. It is basically a copy of the input threshold data set (previously existing threshold values are retained), but previously marked fields obtained new threshold values.

The output report data set is optional. If you request a profile report in the exception profiling dialog, this data set will contain a report with details of the distribution and expected number of exceptions for each DB2 field listed in the new Exception Threshold data set.
Exception profiling dialog:

This section describes the invocation and the dialog of exception profiling.

To use exception profiling, access the Interactive Report Facility (IRF) from the IBM OMEGAMON for DB2 Performance Expert on z/OS main menu and select option 6, (Exception profiling). The Exception Profiling panel is displayed, as shown in Figure 260.

Use the Exception Profiling panel to specify the profiling criteria required to calculate the threshold values and the required and optional data sets.

In this panel:

- Specify the percentage of input data that you want to be flagged as warnings (for example 5.00%) and the percentage of input data that you want to be flagged as problems (for example 2.50%). The percentages can be as small as 0.01%.
- Choose whether you want to produce a profile report. The profile report documents the results of exception profiling (the expected number of exceptions for various thresholds).
- Specify the name of the input data set that contains DB2 instrumentation data from your DB2 subsystem. It can be a GTF, SMF, or DPMOUT data set.
- If you want to use several input data sets, you can concatenate them by editing the generated job stream by using option 2, Edit the generated job stream, in the Job Processing Selections panel (see Figure 261 on page 2933).
- Specify the name of the input threshold data set that contains entries marked by asterisks (*) for the fields that you want to be profiled.
- Specify the name of the output threshold data set that will contain the results.
- If you requested a profile report, specify the name of the output report data set.
After you have completed the specifications, press Enter to generate the exception profiling job stream. The Job Processing Selections panel is displayed.

```
DG00JOBM Command ==> Job Processing Selections

Update the job statements as required, then select one of the following.

4 1. Browse the generated job stream
   2. Edit the generated job stream
   3. Store the job stream for future use
   4. Submit the job stream for background execution

Job statement information:
//USER001P JOB (D01,CHAT), 'USR USERP21', MSGCLASS=V, CLASS=D,
// REGION=0M, NOTIFY=USERP01________________________

Command ==> F1=Help  F2=Split  F3=Exit  F9=Swap  F12=Cancel
```

Figure 261. Submitting the exception profiling job

To submit the job, select option 4, enter your appropriate job statement information, and press Enter. Alternatively, you can browse, edit, or store the job stream for subsequent processing.

The new Exception Threshold data set is created.

Check the profiling report to ensure that the exception thresholds and the number of exceptions are satisfactory. If necessary, you can modify the threshold values in the new Exception Threshold data set, as described in “Specifying exceptions using the Exception Threshold data set editor” on page 2795.

Now you can generate exception reports using the new Exception Threshold data set created by the exception profiling function.

**Exception profiling method:**

Each record in the input data set is processed as it would be for normal exception processing. However, instead of checking each field for exception, the value of the field is recorded. When all records have been processed, you can use the statistics in the profile report to determine the thresholds.

The thresholds are set to values that would generate the percentage of warning and problem level exceptions that you specified in the Exception Profiling panel (Figure 260 on page 2932).

For example, suppose the field QIESECT is specified in the Exception Threshold data set for location DSNAPC5, with the operator set to greater than (>), and the warning and problem thresholds set to asterisk (*). The profiling criteria are specified as 5% for warning thresholds and 2.5% for problem thresholds in the Exception Profiling panel. If the data set is processed and 320 records are found for field QIESECT with the location DSNAPC5, exception profiling sets the warning
threshold to the 17th highest record. This would generate 16 warning exceptions on average, which is 5% of the records (as you requested). Similarly, the problem threshold is set to the 9th largest record, averaging eight problem exceptions, which is 2.5% of the records.

**Exception profiling report:**

Use the Exception profiling report to examine the results of exception profiling.

**Example of an exception profiling report**

Here is an example report of exception profiling.

The **INPUT FROM** and **INPUT TO** fields show the date and time of the first and last record in the input data set.

The profiling report also shows a table for each of the fields. These tables show the calculated threshold values (**SPECIFIED THRESHOLD**) and the expected number of exceptions (**EXCEPTIONS GENERATED**) for various exception percentages. These percentages are in multiples of 0.1, 0.25, 0.5, 1, 1.5, and 2 times the problem exception percentage specified in the Exception Profiling panel. For example, if the problem percentage is 5%, the table columns shown are 0.5%, 1.25%, 2.5%, 5%, 7.5%, and 10%.

Any error messages that are generated during exception processing are shown on the profiling report.

---

**Example of an exception profiling report**

```
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>CONN</th>
<th>MEMBER</th>
<th>CORRNAME</th>
<th>PLANNAME</th>
<th>PER</th>
<th>BY</th>
<th>OPERATOR</th>
<th>OCCURRENCES</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>PLAN</td>
<td>TOTAL</td>
<td>&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>SYSTEM</td>
<td>TOTAL</td>
<td>&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>SYSTEM</td>
<td>TOTAL</td>
<td>&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>SYSTEM</td>
<td>TOTAL</td>
<td>&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

---

**ANALYSIS:**

For example, consider the **QBAQGET** field. The exception profiling report shows that this field has exceeded the threshold of 10.00% on average, generating 16 warning exceptions on average, which is 5% of the records (as you requested). Similarly, the problem threshold is set to the 9th largest record, averaging eight problem exceptions, which is 2.5% of the records.

---

**Example of an exception profiling report for SQL statements**

```
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>CONN</th>
<th>MEMBER</th>
<th>CORRNAME</th>
<th>PLANNAME</th>
<th>PER</th>
<th>BY</th>
<th>OPERATOR</th>
<th>OCCURRENCES</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>SYSTEM</td>
<td>TOTAL</td>
<td>&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>SYSTEM</td>
<td>TOTAL</td>
<td>&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

---

**Example of an exception profiling report for subsystems**

```
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>CONN</th>
<th>MEMBER</th>
<th>CORRNAME</th>
<th>PLANNAME</th>
<th>PER</th>
<th>BY</th>
<th>OPERATOR</th>
<th>OCCURRENCES</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>SYSTEM</td>
<td>TOTAL</td>
<td>&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>SYSTEM</td>
<td>TOTAL</td>
<td>&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```
Reporting distributed data

OMEGAMON XE for DB2 PE can report activities that are associated with distributed work, where one DB2 subsystem accesses data from other DB2 subsystems.

DB2 uses the Distributed Data Facility (DDF) to allow an application program that is connected to one DB2 system to access data at a remote DB2 system, or any other relational database management system (DBMS) that supports DRDA.

OMEGAMON XE for DB2 PE can produce reports for a single DB2 location, or for a number of different DB2 host locations, when data is present. You can logically concatenate data sets from several locations in your JCL to produce a multilocation report. The data is then reported separately for each subsystem and ordered by location in alphabetic order.

When work is distributed across locations, the report shows activity at the reported location only.

The following information is reported for every location:

- Nondistributed transactions, this means, the allied threads at the reporting location.
- Local activity for distributed transactions that originate at the reporting location, this means, the allied-distributed threads at the reporting location without the corresponding DBATs at other locations.
- Remote activity performed at the reporting location as part of distributed transactions originating at other locations, this means, the DBATs at the reporting location.

Depending on the type of report, further detail information is reported.

- The Statistics report set shows following information in the Global DDF and the DRDA Remote Locations blocks of the report:
  - Distributed Data Facility (DDF) address space CPU times
  - Statistics for each DB2 remote location for DB2 host subsystems (MVS, OS/390, and z/OS)
  - Aggregate Statistics for all locations that use DRDA
  - Other, nonlocation-specific DDF information

- The Accounting report set shows information for specific threads that participate in distributed activity. Information is shown for both requester locations and server locations. The reports show, for example, elapsed times spent at the server site and the number of transactions, conversations, SQL statements, rows, messages, and bytes sent from the requester and received by the server. This information is reported in the Distributed Activity block of the report.

- The SQL Activity report set shows all SQL data within threads. SQL statements are reported at the location where they were executed, both at the requester location and the server location.

- The Explain report set can show information for packages that are bound at a remote location.

If a list of plans to be explained contains a remotely bound package on a DB2 host system, EXPLAIN automatically connects to the server and explains the
remote package. Alternatively, you can specify the server location to which EXPLAIN is to connect and the plans and packages that you want explained.

Selecting threads
You can select which threads or thread types are reported by using the INCLUDE and EXCLUDE subcommand options.

For example, if you want to produce reports that show only DBATs, you can include only threads that have a thread type of DBAT by using INCLUDE THREADTYPE(DBAT).

If you want to report the activity performed at a server location on behalf of a specific location, you can use the INCLUDE and EXCLUDE subcommands with REQLOC to only include data for that location.

If you want to report only distributed data, use EXCLUDE THREADTYPE(ALLIED) to exclude data for allied threads.

Examples of distributed transactions
The following examples show the types of distributed transactions and threads that are included in reports and traces.

Distributed transaction between DB2 host systems:
This example shows distributed transactions between three DB2 host systems.

The following figure shows that all three locations are DB2 host systems that run on MVS, OS/390, or z/OS.

![Figure 262. Distributed transaction between DB2 systems](image_url)

This example shows a thread that originates at location A. Data is requested from location B and location C. Because this transaction is distributed across DB2 systems, it is called an allied-distributed thread at location A. The threads initiated at the remote locations to handle the client requests are called database access threads (DBAT).

If trace data is available, OMEGAMON XE for DB2 PE reports on the activity that is carried out at each location.
Distributed transaction between DB2 host systems and DB2 systems on other platforms:

This example shows distributed transactions between DB2 host systems on different platforms.

The following example shows a host DB2 system that runs on MVS, OS/390, or z/OS, and two remote database management systems, such as DB2, that run on different operating systems, such as UNIX.

![Diagram showing distributed transaction between DB2 host and other DBMS]

**Figure 263. Distributed transaction between DB2 host and other DBMS**

The example shows one transaction originated at Rdb_name_1 that requests data at location A and a second transaction originating at location A requesting data from Rdb_name_2.

OMEGAMON XE for DB2 PE reports on the activity that is carried out at Location A only.

**Distributed transaction involving a DBAT-distributed thread:**

This example shows distributed transactions that involve a DBAT-distributed thread.

The following example shows three DB2 host systems.
A distributed transaction originates at location A, part of the query is passed to location B, which in turn passes some of the query to location C.

When trace data is available for all three locations, a report shows data for the allied-distributed thread at location A, the distributed DBAT at location B, and the DBAT at location C.

**Reporting data sharing information**

Data sharing gives individual DB2 subsystems full access to databases that are on shared hard disk drives. The DB2 subsystems that share the data belong to a data sharing group and each subsystem is considered a member of the group.

In a data sharing environment, you can monitor the performance of entire data sharing groups and individual members of a group. You can do this by generating reports or traces that combine performance information of all members, called group-scope reports, or by generating ordinary reports of individual members.

Group-scope reports are available in the Accounting, Locking, Audit, and Statistics report sets.

All report sets provide information about the performance of individual group members. In the report sets where group-scope reports are available, reports for individual members are called member-scope reports.

As with all aspects of performance, data sharing is best monitored by using exception processing. You can select exception thresholds for data-sharing-specific fields, and you can specify that the threshold is only checked for a certain group or member.

**Monitoring individual members**

You can monitor various aspects of performance for individual members of a group using any of the OMEGAMON XE for DB2 PE report sets.

**Example of a member-scope Locking report**:

Locking reports are helpful in monitoring the locking of page sets.

If you want to monitor deadlocks and timeouts on shared databases, and if you want this information grouped by individual members, generate a Lockout report for every member. Because group-scope reports are available in the Locking report set, this report is called a member-scope report.
Member-scope reports also provide group-scope information because holders and waiters of lockups are shown. Member scope and group scope only influence the summarization of the report.

To generate a member-scope Locking report, specify the following command stream:

```
: LOCKING
    REPORT
        LEVEL (LOCKOUT)
        ORDER (DATABASE-PAGESET)
```

Member-scope report is the default, so you are not required to specify the SCOPE subcommand option. To order the report by page set within a database, specify the ORDER subcommand option.

The following example shows a member-scope Locking report for group DSHGRPXX, which has two members, FIRST and SECOND. The report is two pages long because a new page is started when the member that is being reported changes.

**Member-scope Locking Lockout report, page 1**

The first page of the report shows the locking activity of the threads that have executed in member FIRST.

```
LOCATION: SYDNEY
GROUP: DSHGRPXX
MEMBER: FIRST
SUBSYSTEM: DB22
DB2 VERSION: V10

DATABASE PAGESET TYPE NAME TIMEOUTS DEADLOCKS MEMBER PLANNAME CONNECT CORRNAME CORRMBR BLOCKER/HOLDER WAITER
---------------------------------------------------------------------------------------------------------------------
DBASE9    ROW PAGE=X'00000021' 0 0 FIRST D3APP01 BATCH RUNPR01 'BLANK' 2 1
TSPACEXX  ROW =X'003'        0 0 SECOND D3APP01 BATCH RUNPR01 'BLANK' 2 1
           INDEXPAGE PAGE=X'0000393' 0 0 SECOND D3APP01 BATCH RUNPR01 'BLANK' 2 1
           SUBP=X'01'        0 0 SECOND D3APP01 BATCH RUNPR01 'BLANK' 2 1

** LOCKOUTS FOR TSPACEXX ** 0 4
** TOTAL - DBASE9 **        0 4

DBASE10   DATAPAGE PAGE=X'000055' 0 0 FIRST D3APP01 BATCH RUNPR01 'BLANK' 2 1
TSPACEZZ  DATAPAGE PAGE=X'000005' 0 0 SECOND D3APP01 BATCH RUNPR01 'BLANK' 2 1
           ** LOCKOUTS FOR TSPACEZZ ** 0 3
** GRAND TOTAL **              0 7
```

**Member-scope Locking Lockout report, page 2**

The second page of the report shows the locking activity of the threads that have executed in member SECOND.

```
LOCATION: SYDNEY
GROUP: DSHGRPXX
MEMBER: SECOND
SUBSYSTEM: DB22
DB2 VERSION: V10

DATABASE PAGESET TYPE NAME TIMEOUTS DEADLOCKS MEMBER PLANNAME CONNECT CORRNAME CORRMBR BLOCKER/HOLDER WAITER
---------------------------------------------------------------------------------------------------------------------
DBASE9    ROW PAGE=X'00000021' 0 4 FIRST D3APP01 BATCH RUNPR01 'BLANK' 2 1
TSPACEXX  ROW =X'003'        0 0 SECOND D3APP01 BATCH RUNPR01 'BLANK' 2 1
           ** LOCKOUTS FOR TSPACEZZ ** 0 4
```

Chapter 6. Batch Reporting 2939
Monitoring entire groups

Use group-scope reports to obtain an overall view of the performance of an entire group.

Group-scope reports are available in the Accounting, Locking, Audit, and Statistics report sets:

- The group-scope Accounting reports merge instrumentation data produced by the individual group members and present it for the entire group.
- The group-scope Locking reports provide a full picture of the locking activity within the entire data sharing group.
- The group-scope Statistics reports summarize group buffer pool and locking information for shared resources for all members. They also show key information, such as total number of threads and commits for an entire group.
- The group-scope Audit reports provide a comprehensive view of the access to shared resources by the users of the members of the group. For example, if you want a summary of users that belong to various members of a group who accessed, or attempted to access, page sets on shared databases, you can generate a group-scope Audit DML access report.

Example of a group-scope Locking report:

In group-scope reports, events are aggregated by user-defined identifiers within the group, regardless of which member of the group actually generated the events.

To generate a group-scope Locking report, specify the following command stream:

```
LOCKING
REPORT
    LEVEL (LOCKOUT)
    SCOPE (GROUP)
```

The default order of a group-scope report is DATABASE-PAGESET.

Group-scope Locking Lockout report for DSHGRPXX

The following example shows a group-scope Locking report for the same group, DSHGRPXX, as in the previous member-scope example. This report summarizes the lockout activity for both members FIRST and SECOND. The information is summarized by database, then page set, and lastly by individual member.

A group total is printed for the entire group when the database that is being monitored changes. GRAND TOTAL shows the timeouts and deadlocks in all databases for the entire group.
Group-scope Statistics:

The group-scope Statistics reports show three categories of information summarized by group level.

**Highlights**

This category presents values such as the total number of threads and commits for the entire group.

**Data sharing locks**

This category presents locking information for shared resources for all members.

**Buffer pool data**

This category presents statistics per buffer pool summarized for all members of a group.

All other statistics data is presented in member-scope reports for detailed analysis on member level.

**Group-scope Accounting:**

Group-scope reports show the instrumentation data aggregated by the OMEGamon XE for DB2 PE identifiers that you specified and by the individual members.

The data is presented by a combination of location and group. Whenever either of these values changes, a new page is started and the page number is initialized.
Collecting input data for group-scope reports
To produce group-scope reports, you need input data from all members of a group.

For regular monitoring, you most likely collect the performance data into SMF data sets. If all DB2 subsystems of the data sharing groups reside in the same OS/390 system, you can collect the data to one SMF data set. If the members of the group reside on different OS/390 systems, you have to concatenate the SMF data sets from all OS/390 systems before you can use the data as input for group-scope reports.

Similarly, if you have collected instrumentation data for the individual members in separate data sets (GTF data sets or data sets created by collected report data), you can concatenate these data sets to generate group-scope reports.

Streamlining OMEGAMON XE for DB2 PE processing
Streamlining is the process of asking only for information in reports and traces that you really need.

OMEGAMON XE for DB2 PE is a comprehensive reporting tool, but for daily monitoring of DB2 you need a very limited amount of information. If you request a detailed report by using all input data that was gathered for a long time, OMEGAMON XE for DB2 PE processing takes up a lot of system resources. The result is pages of information that you are probably not interested in.

To avoid unnecessary performance overhead and to save time:
- Filter the input data, preferably by using the GLOBAL command.
- Disable OMEGAMON XE for DB2 PE internal sort if appropriate.
- Consider carefully how detailed a report you need.
- Define groups for identifiers that you want reported as a single entry.
- Use lists to simplify your command stream.
- Specify a REDUCE INTERVAL only if you want to report by intervals or produce several reports with different time spans.
- Define exception thresholds only for fields that you are interested in.
- Specify DPMOUT or keep a Save data set only if you are sure that you want to report the data again.
- Limit the number of SQL statements you want explained.

Filter data
You can limit the amount of data to be processed by filtering the input data. You can specify filters in the GLOBAL command or in the REDUCE, REPORT, TRACE, or FILE subcommands.

You should specify the filters in GLOBAL, because only the data that passes through the GLOBAL filters is processed further. Ensure that you do not exclude records that are needed in subsequent processing.

FROM and TO:
The simplest filter is the start and end time of the data to be reported.

Specify the start and end times by using the FROM and TO subcommand options.
Example of reporting peak hour performance of a day:

This example shows the use of FROM and TO within GLOBAL to report a specified date and time frame.

If you want to monitor the performance of your system only during peak hours and you want to produce the default versions of both, an Accounting report and a Statistics trace, you can specify:

```
GLOBAL
  FROM (05/15/13,08:30)
  TO (05/15/13,17:00)
ACCOUNTING
  REPORT
STATISTICS
  TRACE
```

Both, the Accounting report and Statistics trace show information from 8:30 a.m. to 5 p.m. for the specified day.

Example of reporting peak hour performance during a week:

This example shows the use of FROM and TO within GLOBAL to report a specified time frame every day.

If the input data set contains data of at least a week, you can generate reports that show the performance of your system during peak hours for the whole week by specifying:

```
GLOBAL
  FROM (,08:30)
  TO (,17:00)
ACCOUNTING
  REPORT
STATISTICS
  TRACE
```

Both, the Accounting report and Statistics trace show information from 8:30 a.m. to 5 p.m. for every day of the week.

Example of generating an additional locking report:

This example shows the use of FROM and TO for two purposes in the same command stream.

If you want to generate a Locking report for a day in the same job step, specify:

```
GLOBAL
  FROM (,08:30)
  TO (,17:00)
ACCOUNTING
  REPORT
STATISTICS
  TRACE
LOCKING
  REPORT
    FROM (05/17/13 )
```
The Locking report contains data only from 8:30 a.m. to 5 p.m. for that day because no other data has passed the GLOBAL filtering.

**INCLUDE and EXCLUDE:**

Another way to filter data is to include data only for particular OMEGAMON XE for DB2 PE identifier values, for example, user IDs or plans.

You can do this by using the INCLUDE and EXCLUDE subcommand options.

**OMEGAMON XE for DB2 PE identifiers:**

The identifiers describe the objects OMEGAMON XE for DB2 PE reports on.

The most commonly used OMEGAMON XE for DB2 PE identifiers describe:

- **The location**
  The LOCATION identifier is the name of the DB2 subsystem. If the input data contains data from several locations, you can include data only for those locations that you are interested in.

- **The user**
  OMEGAMON XE for DB2 PE uses two identifiers for the user ID. The first is the value of the authorization ID at the time of connection to DB2 (ORIGAUTH). The second is the authorization ID set at signon or identify (PRIMAUTH). For more information, see "Comparing original authorization IDs with primary authorization IDs" on page 2995.
  For SQL requests from a client, the user ID of the user at the workstation is a possible identifier as well.

- **The plan**
  Use the PLANNNAME identifier to select specific plans. Examples of plan names are DSNUTIL for utility, DSNBIND for bind activity, and the application plan name for CICS and IMS.

- **The package**
  Use the PACKAGE or MAINPACK identifiers to select plans and packages in the Accounting report set. Use PACKAGE to define specific packages, regardless of the plan to which they belong. Use MAINPACK to define plans that contain a specific package. For more information, see "Defining the MAINPACK identifier" on page 2966.

- **The connection to DB2**
  You can select data for specific connections to DB2.
  The connection ID (CONNECT) identifies the address space that interfaces with DB2. It can be, for example, the CICS or IMS ID.
  The connection type (CONNTYPE) identifies the type of connection for a thread. It can be, for example, CICS, IMS-BMP, IMS-MPP, IMS-CNTL, or IMS-TBMP.

- **The correlation data**
  The correlation identifier identifies the DB2 task together with the connection ID. It is composed of two parts: the correlation name (CORRNAME) and the correlation number (CORRNMBR). This identifier can be very useful. For example, for CICS threads the correlation identifier contains the transaction ID.
  For more information, see "Correlation ID translation" on page 2964.
• **Distributed activity**

If you report data for distributed processing, you can select the locations that request the work (REQLOC) and the type of the threads (THREADTYPE) to be included, for example allied threads or DBATs.

In addition, the following identifiers of a client are supported to include or exclude related data:

- The end user’s user ID at the workstation (ENDUSER)
- The end user’s transaction name at the workstation (TRANSACT)
- The end user’s workstation name (WSNAME)

**Example of reporting the performance of a specific location:**

This example shows how only a single location identifier is included.

If the input data contains data from more than one location, but you only want to inspect the performance of location USIBMSNEWY11, specify:

```plaintext
GLOBAL
   INCLUDE (LOCATION(USIBMSNEWY11))
```

Only data for location USIBMSNEWY11 is processed.

**Example of suppressing a specific connection type:**

This example shows how a single location is included and a single connection type is excluded.

If you are not interested in the CICS activity for that location, specify:

```plaintext
GLOBAL
   INCLUDE (LOCATION(USIBMSNEWY11))
   EXCLUDE (CONNTYPE(CICS))
```

Only location USIBMSNEWY11 is reported and all connections except CICS are reported.

**Example of reporting about a specific user ID and plan:**

This example shows how a single authorization identifier and a single plan name is included.

If you suspect that authorization identifier USERID01 using plan NEWACC is causing a performance problem, you can report only data that belong to that user ID and plan. To do that, specify:

```plaintext
GLOBAL
   INCLUDE (AUTHID(USERID01)
            PLANNAME(NEWACC))
```

Only data with authorization ID USERID01 and plan NEWACC is reported.
Suppressing internal sort
When you request Accounting functions only, it is often possible to avoid the OMEGAMON XE for DB2 PE internal sort of the input data. This reduces the size of the sort work files that must be allocated and reduces the processing time.

The PRESORTED option of the GLOBAL command controls the internal sort. It has the following values:

**NO**  Do not disable the sort. This is the default.

**ENFORCE**  Disable the sort, but terminate processing if out-of-sequence records are present. Use this option only if the input data set has been sorted, for example, when you reprocess data from the DPMOUT data set.

**ACCEPT**  Disable the sort and accept out-of-sequence records. By using this option it is possible to create complete and accurate Accounting reports (including records from multiple locations) from data sets that have not been sorted, for example SMF or GTF. The following limitations apply with this option:

- Some checking of the input data is not performed. Ensure that the concatenation of two or more data sets does not result in duplicate records, for example, if trace data was collected in two data sets during the same period.
- Only one location is reported per trace. To report more locations, specify multiple TRACE subcommands with different INCLUDE subcommand options for each location.
- Trace entries might not be printed in time sequence. If a trace contains entries that are out of sequence, a message that shows the number is displayed at the end.
- If INTERVAL(0) is in effect (the default), the interval times shown in a report heading might not be accurate. Ordering reports by interval should be avoided when the interval is zero.

For example, to produce an Accounting report without sorting the input data, specify:
```
GLOBAL
  PRESORTED(ACCEPT)
ACCOUNTING
```

The resulting Accounting report shows Accounting data for all locations in the input data set, without performing an internal sort.

**Choose the right level of detail**
Before you produce a report or a trace, consider how much detail you need. Use the LAYOUT subcommand option of the Accounting and Statistics reports and traces to control the amount of data to be produced.

In most situations the default layouts, which are short versions of reports and traces, provide enough detail for monitoring and problem determination. Do not use the most comprehensive layouts that show all possible fields unless you need this information.
For Accounting the LAYOUT subcommand option ACCEL provides detailed thread-related Accelerator activity data.

If the use of commands, subcommands, and subcommand options does not provide sufficient control over the contents of reports and traces, you can use the User-Tailored Reporting (UTR) feature to create and tailor your own report and trace layouts. With UTR you can add, remove, and change individual fields and entire report blocks to control the volume, contents, and layouts of your reports and traces. For more information, see “Tailoring report layouts” on page 2950.

**Group data**

Use the GROUP command to define a set of OMEGAMON XE for DB2 PE identifier values that can be used when you request certain reports.

The information for the set is reported as a single entry in the reports.

In GROUP processing the data for all members of the set is consolidated into one record. This improves OMEGAMON XE for DB2 PE performance because fewer records must be processed.

Sets are also useful for reporting purposes such as if you want to report data for an entire department instead of every individual person.

This is how you specify sets. Assume that your sales department consists of three users, USER001, USER002, and USER003. You want to produce an Accounting report that shows performance data for that department. You can enter:

```
GROUP (PRIMAUTH(SALES(USER001, USER002, USER003)))
```

```
ACCOUNTING REDUCE
   INCLUDE (PRIMAUTH(G(SALES)))
REPORT ORDER (PRIMAUTH)
```

The Accounting report shows information for the sales department as a single entry.

You can use GROUP with all report sets except Audit, Record Trace, and Statistics. The most common identifiers used to group data are:

- ORIGAUTH and PRIMAUTH
- PLANNAME
- CONNECT and CONNTYPE
- CORRNAME and CORRNMBR

**Use lists**

Use the LIST command to define a list of values for an OMEGAMON XE for DB2 PE identifier that can be used in INCLUDE and EXCLUDE, instead of individually entering each member. The members of the list are treated as if they were entered individually.

LIST processing does not affect OMEGAMON XE for DB2 PE performance, but can make it easier to specify and read your command stream.
Assume that you want to see how some plans that are used by the sales department affect performance. To do that, produce an Accounting report and an SQL Activity trace. If you specify a list for all plan name values, as in the following example, you can use the list name (SALES) in all commands in that job step.

```
LIST (PLANNAME(SALES(PLAN001, PLAN002, PLAN003, PLAN004, PLAN005, PLAN006, PLAN007, PLAN008)))
```

ACCOUNTING REPORT
   INCLUDE (PLANNAME(L(SALES)))
ORDER (PLANNAME)
SQLACTIVITY TRACE
   INCLUDE (PLANNAME(L(SALES)))

Both, the Accounting report and the SQL Activity trace show information for all individual plans that are specified in the list.

You can use LIST with all report sets. You can specify lists for any OMEGAMON XE for DB2 PE identifier values that are allowed in that report set.

**Be careful with INTERVAL**

If you want to use OMEGAMON XE for DB2 PE for trend analysis, you probably want to report data by interval. To do this, first reduce the input data to your Accounting and Statistics reports by using an interval other than the default zero. Then order the report by intervals.

For example, if you want to report the data at daily intervals, specify INTERVAL (1440) in the REDUCE subcommand and ORDER(INTERVAL) in the REPORT subcommand.

Interval processing affects the performance of the job. If you do not intend to produce reports by interval, accept the default (0) for INTERVAL, which means that no interval processing is performed.

**Specify only relevant exception thresholds**

Exception processing is the most effective way to identify system performance problems. You can set exception thresholds for virtually all Accounting and Statistics fields. However, carefully consider the fields for which to specify exception thresholds. The more fields you specify, the greater the effects on processing.

Specify exception thresholds only for those fields that you believe will signal poor performance in your environment. For information about how to generate exception reports and for a list of threshold fields that you should use, see “Using Statistics and Accounting reports to identify exceptions” on page 2794.

**Do you need a DPMOUT data set?**

You can keep the preprocessed input data in the output data set DPMOUT. The DPMOUT data set can be used as input to OMEGAMON XE for DB2 PE.
If you do not specify DPMOUTDD, only the records required for the current job step are processed, which improves system performance.

**Do you want to save reduced data?**

If you want to keep historical Accounting and Statistics data about DB2 performance, consider using REDUCE and SAVE.

This processing has advantages and disadvantages. Reducing and saving data uses a considerable amount of system resources, but the resulting Save data set is much smaller than the original input data set. The size of the resulting Save data set varies with the specified reduction interval and the type of environment the data is from (for example, the number of different users and plans present in the input data).

You can produce reports from the reduced and saved data by using the RESTORE command. Remember that you cannot produce traces from reduced data.

For more information refer to [“Saving reduced data” on page 2882](#).

**Limit statements to be explained**

When you produce Explain reports, limit the number of SQL statements to be examined.

There are various ways you can limit the output. You can specify only the plans or packages that you are interested in, or you can use the LIMIT, PACKLIMIT, and PACKAGES NO options.

To reduce attachment costs, it is always best to group the subsystems you are reporting.

**Customizing OMEGAMON XE for DB2 PE functions**

Customizing is the process of tailoring OMEGAMON XE for DB2 PE functions for specific needs, for example, specifying thresholds or modifying report layouts.

There are some OMEGAMON XE for DB2 PE functions that you can customize to meet your particular needs. The things you can tailor are:

- **Exception thresholds**
  Exception reporting identifies DB2 threads and Statistics intervals with fields values outside defined limits. You can either specify the thresholds yourself (for more information see [“Using Statistics and Accounting reports to identify exceptions” on page 2794](#)) or you can let OMEGAMON XE for DB2 PE fill these values (for more information see [“Exception profiling” on page 2931](#)).

- **Report layouts**
  Several model layouts for Accounting and Statistics reports are provided with the product. If none of them meets your needs, you can tailor them or create your own report layouts.

- **Time zone specifications**
  You can modify the times used in reporting if the CPU clock of your z/OS system is not set to the local time or if you want to report data from two or more systems that have different CPU clock settings.

- **The correlation name and number**
  OMEGAMON XE for DB2 PE provides a default translation of the DB2 correlation ID for most environments. You can change the way the DB2 correlation ID is translated into correlation name and correlation number.
• MAINPACK identifier
MAINPACK is an OMEGAMON XE for DB2 PE identifier that you can use to identify a plan by the first or the last package within the plan. You can also define whether to use the package ID, the collection ID, or the location from the package name to identify the main package.

• Exception field descriptors
You can modify exception field descriptors by using the ISPF editor. Changes to these functions are recorded in the DPMPARMS data set. The data set needs to be allocated. You can create multiple DPMPARMS data sets and you can concatenate several DPMPARMS data sets as required.

Tailoring report layouts
OMEGAMON XE for DB2 PE supplies several Accounting and Statistics model reports and traces. You can create your own layouts and you can tailor layouts with the User-Tailored Reporting feature (UTR).

With UTR you can:
• Add entire blocks and individual fields to an existing layout, for example, to include some additional fields or entire blocks of related fields in a report or trace.
• Remove entire blocks and individual fields from an existing layout, for example, to exclude some fields or entire blocks of related fields that are not of interest to you from a report or trace.
• Change the relative positions of blocks and fields in an existing layout, for example, to rearrange blocks and fields that are of particular interest.
• Change block and field labels, for example, to abbreviate labels to keep reports compact, or to spell out block and field names, or to use acronyms.

Example of tailoring an Accounting report:

This example describes how to add a block of fields to an existing report layout and how to replace some of the existing fields with new fields.

Suppose that the standard layout of the short Accounting report (supplied as Accounting report layout SHORT) does not provide the information that you need to monitor your DB2 installation and its specific workload.

Accounting report - standard layout

Here is an example of the standard layout for Accounting reports.

<table>
<thead>
<tr>
<th>LOCATION: STLECI</th>
<th>OMEGAMON XE for DB2 Performance Expert (V5R4M0)</th>
<th>PAGE: 1-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP: DSCAT</td>
<td>ACCOUNTING REPORT - SHORT</td>
<td>REQUESTED FROM: NOT SPECIFIED</td>
</tr>
<tr>
<td>MEMBER: SSQD</td>
<td>ORDER: PRIMAUTH-PLANNAME</td>
<td>TO: NOT SPECIFIED</td>
</tr>
<tr>
<td>SUBSYSTEM: SSQD</td>
<td>SCOPE: MEMBER</td>
<td>INTERVAL FROM: 05/15/15 20:18:00:23</td>
</tr>
<tr>
<td>DB2 VERSION: V11</td>
<td>ORDER: PRIMAUTH-PLANNAME</td>
<td>TO: 05/15/15 20:48:38:68</td>
</tr>
<tr>
<td>PRIMAUTH</td>
<td>#OCCURS #ROLLBK SELCTES INSERTS UPDATES DELETES CLASS1 EL TIME CLASS2 EL TIME GETPAGES SYN READ LOCK SUS</td>
<td></td>
</tr>
<tr>
<td>PLANNAME</td>
<td>#DISTRS #COMMIT FETCHES OPENS CLOSES PREPARE CLASS1 CPUTIME CLASS2 CPUTIME BUF UPDT TOT PREF #LOCKOUT</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRIMAUTH</th>
<th>PRIMAUTH</th>
<th>#OCCURS</th>
<th>#ROLLBK</th>
<th>SELCTES</th>
<th>INSERTS</th>
<th>UPDATES</th>
<th>DELETES</th>
<th>CLASS1 EL TIME</th>
<th>CLASS2 EL TIME</th>
<th>GETPAGES</th>
<th>SYN</th>
<th>READ</th>
<th>LOCK</th>
<th>SUS</th>
<th>BUF UPDT</th>
<th>TOT PREF</th>
<th>#LOCKOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMF001</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.662349</td>
<td>0.662264</td>
<td>N/P</td>
<td>N/P</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'BLANK'</td>
<td>0</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.004677</td>
<td>0.004589</td>
<td>N/P</td>
<td>N/P</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADMF001</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5.161409</td>
<td>5.161304</td>
<td>220.67</td>
<td>9.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSNBIND</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.139564</td>
<td>0.139478</td>
<td>157.00</td>
<td>0.67</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example of tailoring an Accounting report:

This example describes how to add a block of fields to an existing report layout and how to replace some of the existing fields with new fields.

Suppose that the standard layout of the short Accounting report (supplied as Accounting report layout SHORT) does not provide the information that you need to monitor your DB2 installation and its specific workload.

Accounting report - standard layout

Here is an example of the standard layout for Accounting reports.
Accounting report - tailored layout

Assume that you want to include more buffer pool information in your layout, as in the following tailored report layout.

The tailored layout has been named BUFFER and contains buffer pool information in addition to General Accounting data. The buffer pool fields in the General Accounting block have been replaced with other fields to avoid duplicate information. In this example, class 3 suspension times and events are shown.

The following steps describe how to produce the tailored layout.

Selecting a model layout:

These steps describe how to select an existing report layout as the basis for a new layout that is to contain tailored information.

About this task

1. From the IBM OMEGAMON for DB2 Performance Expert on z/OS main menu, select option 5 (Customize report and trace layouts).

   The User-Tailored Reporting Layout Generation panel is displayed.
For this example, select option 1 (Accounting report) from the menu, enter the DPMPARMS data set where the tailored layout is to be stored, and press Enter.

The UTR Layout Selection panel is displayed.

---

Figure 265. User-Tailored Reporting - selecting an Accounting report as model layout

2. For this example, select layout SHORT as the basis for your layout by entering a selection character (/) in the input field next to the layout name. Always choose the model that is most similar to the layout you want.

   The UTR Block Selection panel for the Accounting Report SHORT layout is displayed.

---

Figure 266. User-Tailored Reporting - selecting a short Accounting report as model layout

3. For this example, select layout SHORT as the basis for your layout by entering a selection character (/) in the input field next to the layout name. Always choose the model that is most similar to the layout you want.

   The UTR Block Selection panel for the Accounting Report SHORT layout is displayed.
The Order column shows which blocks are included in the selected layout. In this example, the blocks labeled GENERAL, PACKAGE GENERAL, and DISTRIBUTED ACTIVITY are included. The numbers in the Order column indicate the sequence in which the blocks are printed. Fields that have not been selected are numbered 99999.

Adding a block:

These steps describe how to add a report block to a selected report layout that is to contain tailored information.

About this task

In this example, the BUFFER POOL ACTIVITY block is added to the selected layout.

1. In the UTR Block Selection panel, use F8 to scroll to the label BUFFER POOL ACTIVITY. Notice that there are two blocks with this label. Press F5 to display a brief description of the block's content, as shown in the following figure. In this example, the column form is chosen.
2. To include and order, modify/add a number in the Order column.
3. To exclude a block, blank out the Order column.

Modify | Order | Label | Description
--- | --- | --- | ---
99999 | | RID LIST | RID List Activity Data
99999 | | BUFFER POOL ACTIVITY | Buffer Pool Activity Data (Table Form)
99999 | | GROUP BUFFER POOL | Group Buffer Pool Activity Data (Table Form)
99999 | | DISTRIBUTED ACTIVITY | Distributed Data Facility (List Form)
99999 | | RESOURCE LIMIT FACILITY | Resource Limit Facility Data (Column Form)
99999 | | PACKAGE ACTIVITY | Package Activity Data
99999 | | IFI CLASS 5 | IFI (Class 5) times
15 | | BUFFER POOL ACTIVITY | Buffer Pool Activity Data (Column Form)

Figure 268. User-Tailored Reporting - report block contents

2. Enter a number in the Order column next to the block label to determine the relative position of the added block to the existing blocks.

In this example, a number between 10 and 20 determines that the BUFFER POOL ACTIVITY block is printed after the GENERAL block and before the PACKAGE GENERAL block. A number less than 10 would add the BUFFER POOL ACTIVITY block before the GENERAL block.

3. To see which fields can be included in the added block, enter a selection character (/) in the Modify column next to the block label.

The UTR Field Selection panel is displayed.
Similar to the UTR Block Selection panel, use F7 (Up) and F8 (Down) to scroll through the list of fields and F5 (Extend) to display extended field descriptions. The Order column determines the order of the fields within a block. A value of 99999 means that a field is not selected.

4. For this example, assume that all fields of the BUFFER POOL ACTIVITY block are selected by default. Because no fields need to be added or deleted, press F12 (Cancel) to return to the UTR Block Selection panel.

Replacing fields:

In this example, the duplicate fields in the GENERAL Accounting report block are replaced with class 3 suspensions and class 3 suspension times.

About this task

You might have noticed that the Buffer Pool block contains some fields (GETPAGES, SYN.READ, BUF.UPDT, and TOT.PREF) that are also in the General Accounting block (see “Accounting report - standard layout” on page 2950). To modify the fields in the General Accounting block, perform the following steps:

1. In the UTR Block Selection panel, type a forward slash (/) in the Modify column next to GENERAL and press Enter.

The UTR Field Selection panel is displayed.
In the UTR Field Selection panel, use F8 (Down) to find the fields that you do not want in the General Accounting block. Overtype the numbers (170, 180, 190, and 200) in front of the fields with blanks and press Enter (to reorder the remaining fields).

Use F7 (Up) and F8 (Down) to find the fields that you want to add.

---

<table>
<thead>
<tr>
<th>Order</th>
<th>Label</th>
<th>Description</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>210</td>
<td>LOCK SUS</td>
<td>Average all types of suspensions (ALTSUSP)</td>
<td>8</td>
</tr>
<tr>
<td>220</td>
<td>#LOCKOUT</td>
<td>Sum of timeouts and deadlocks (ADTIMDLK)</td>
<td>8</td>
</tr>
<tr>
<td>99999</td>
<td>DESCRIBE</td>
<td>Average of DESCRIBE statements executed (QXDESC)</td>
<td>7</td>
</tr>
<tr>
<td>99999</td>
<td>ALL DML</td>
<td>Average all SQL DML statements (ASCDML)</td>
<td>7</td>
</tr>
<tr>
<td>99999</td>
<td>#LOCKTB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Figure 270. User-Tailored Reporting - deleting fields

In the UTR Field Selection panel, use F8 (Down) to find the fields that you do not want in the General Accounting block. Overtype the numbers (170, 180, 190, and 200) in front of the fields with blanks and press Enter (to reorder the remaining fields).

Use F7 (Up) and F8 (Down) to find the fields that you want to add.
4. For this example, enter any number from 160 to 210 in the Order column in front of the fields that you want to add and press Enter.

5. Scroll back to see that the newly inserted fields appear at the position that you intended.

You do not have to delete existing fields when you add new fields. You can insert new fields between existing fields or place new fields before or after existing fields. Also, you can delete fields without replacing them with new fields. When the layout is generated the gaps are automatically filled in.

There is no limitation to how many fields or blocks can be selected in a layout. However, carefully consider what information you really need to prevent your reports from getting too long.

Displaying the layout:

These steps describe how to display the modified layout.

About this task
1. Press F3 (Exit) to return to the UTR Block Selection panel.
2. Press F6 (Browse) to display the new layout.

A sample report using the modified layout is displayed.
3. You might have to scroll right (F11) and down (F8) to see the entire report. 

   Figure 272 shows the right-hand side of the sample report.

**Saving the layout:**

These steps describe how to save the modified layout after you have completed the changes to your layout.

1. Use F3 (Exit) as required to return to the UTR Block Selection panel.
2. If you do not want to save the layout, press F12 (Cancel) to leave the UTR Block Selection panel.
3. To save the layout, press F3 (Exit).

   The UTR Save Layout Details panel is displayed.
4. Type a new name for the new layout in the Layout field and a descriptive text in the Description field.
   To keep the existing layout SHORT, and create an additional layout, give the layout a new name by typing over the existing name. You can also type over the existing description.
   You can save the modified layout with the name of the layout you based it on. However, if you do this, the documentation does not reflect your new layout. If you pressed Enter, you would save the modified layout with the name SHORT. In this example, the layout is named BUFFER and the description is changed.

5. Specify whether you want each new record or entry to start on a new page.
   If your layout contains several blocks of information, it is often clearest to have every entry start on a new page.
   If your layout only contains a few blocks of information, several entries most likely fit on the page. Also, even if your layout is long, but you intend to use it with options, such as ORDER(PACKAGE), that limit the amount of information produced, you probably want more than one entry per page.

6. Press Enter.
   The Accounting report layout BUFFER is saved into your DPMPARMS data set.

The layout change is now complete. The UTR Layout Selection panel is displayed. Notice that the layout that you just created is shown in the list of layouts. To exit from this panel, press F3.

Using the layout:

These steps describe how to use the modified layout.

About this task
1. Specify the name of your DPMPARMS data set in the JCL.
2. You can now run Accounting reports using the new layout.
   ```
   ACCOUNTING
   REPORT
   ```
Specifying time zones

The TIMEZONE option of the GLOBAL command provides a means of adjusting the times of the data to be reported.

Adjust the times if:

- The CPU clock of your OS/390 system is not set to the local time, but you want to use the local time in your reports.
  The CPU clock can be set to Greenwich Mean Time (GMT) or to the local time of another location, for example the local time of your head office.
- You want to generate reports or traces that show activity at more than one location and the CPU clock settings of the locations are different. This is often the case when the locations are in different time zones.

The data for calculating the adjusted times is stored in the LOCDATA member of the DPMPARMS data set. You can enter and edit the data using the Interactive Report Facility (IRF).

Time Zone Data Editor:

Time zone information is entered with the Time Zone Data Editor, which is accessed through the Interactive Report Facility (IRF).

About this task

To access the editor, select option 4 (Maintain parameter data sets) from the Performance Expert main menu. The Data Set Maintenance Menu is displayed.

```
DGOPMENU Data Set Maintenance Menu

Select one of the following.

3 1. Maintain exception thresholds
   2. Maintain correlation translations
   3. Maintain time zone information
   4. Maintain MAINPACK definitions

Exception data set
'DGO710.THRESH'

DPMPARMS data set
'DGO710.DPMPARMS'

Command ===>
F1=Help  F2=Split  F3=Exit  F9=Swap  F12=Cancel
```

Figure 274. Selecting Maintain Time Zone Information

Type 3 in the input field to select Maintain time zone information, and type the name of your DPMPARMS data set on the line below DPMPARMS data set.

Press Enter to go to the Time Zone Data Editor panel.
Use the editor to enter time zone specifications for the reporting locations. Specify the location, the geographical time zone, and the CPU clock setting of the z/OS system under which the DB2 subsystem runs.

Enter the required information in the input fields. You can modify existing information by typing over it.

**Direction**
Indicates the direction of the location relative to Greenwich:
1 For locations east of Greenwich
2 For locations west of Greenwich

**Action**
The standard ISPF editor line commands. For example:
I  To generate a new line
D  To delete a line
R  To duplicate a line
M  To move a line

**Location**
The name of the location. You would usually use the location identifier of the DB2 subsystem. Enter an asterisk (*) to specify the default time zone value. You can specify only one default value.

**Time Zone**
The difference in hours and minutes between the geographical local time and GMT.

**CPU Clock**
The difference in hours and minutes between the CPU’s Store Clock instruction value of the location and GMT.

You can get information about each entry field by moving the cursor to the field and pressing F1 (Help) to display the help text for the field.

**Examples of time zone processing:**

In the following examples, the settings in the Time Zone column show the real time zones relative to GMT. These settings can be maintained to reflect seasonal differences in daylight saving.

The values in the CPU clock column are for illustration purposes only. You have to find out the CPU clock settings of the locations you want reported because every site can decide whether to set the CPU clock to local time, GMT, or some other value.
Example 1: Time zones:

This example shows how a specific location is assigned to a time zone and how this location's time is reflected in reports.

The figure shows the contents of the LOCDATA member of DPMPARMS. In this example, we want to report data from a DB2 subsystem in San Francisco. The location name of the DB2 subsystem is USIBMSTOSQL1.

<table>
<thead>
<tr>
<th>DGOPPLDS Time Zone Data Editor</th>
<th>Row 1 to 2 of 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direction (1=East 2=West)</td>
<td></td>
</tr>
<tr>
<td>Action Location</td>
<td>-- Time Zone --</td>
</tr>
<tr>
<td></td>
<td>-- CPU Clock --</td>
</tr>
<tr>
<td>USIBMSTOSQL1</td>
<td>2 08 00 1 00 00</td>
</tr>
<tr>
<td></td>
<td>1 00 00 1 00 00</td>
</tr>
</tbody>
</table>

Figure 276. Time Zone Data 1

The Time Zone column shows the time zone of the location relative to GMT. San Francisco is 8 hours west of Greenwich.

No value is specified in the CPU Clock column to indicate that the CPU clock is set to GMT. If you do not specify a value for the CPU clock, you do not have to change the default direction (1).

In this example a default (*) is specified for locations that do not have an individual entry. If you do not specify a default, no time zone adjustment is made to data from locations that do not have an entry.

If you want to use San Francisco local time in your reporting, specify location USIBMSTOSQL1 as your TIMEZONE location:

```
GLOBAL
  TIMEZONE (USIBMSTOSQL1)
```

The following adjustments are applied during OMEGamon XE for DB2 PE processing:

- Data from location USIBMSTOSQL1 is adjusted -8 hours because its CPU clock is set to GMT and its local time is eight hours less than GMT.
- Data from locations that do not have an entry is adjusted -8 hours because the default CPU clock setting (*) is GMT as shown in Figure 276.

The reported data reflects San Francisco local time.

The local time is used in FROM/TO processing, printed on reports, and stored in the File and Save data sets.
Example 2: CPU clock settings:

This example demonstrates how to report data from location USIBMSTOSQL1. The only difference to example 1 is that the CPU clock of the location is set to New York local time. This is because the head office of the company is situated in New York.

Figure 277. Time Zone Data 2

The value specified in the CPU Clock column shows that the CPU clock of location USIBMSTOSQL1 is set to New York local time, which is five hours west of Greenwich.

A default (*) has been defined for locations that do not have an entry in the data set.

Suppose you again want to use San Francisco local time in your reporting. Specify location USIBMSTOSQL1 as your TIMEZONE location:

\[
\text{GLOBAL}
\]

\[
\text{TIMEZONE (USIBMSTOSQL1)}
\]

Because the time zone for location USIBMSTOSQL1 is eight hours west of Greenwich, the following adjustments are made during Performance Expert processing:

- Data from location USIBMSTOSQL1 is adjusted -3 hours because its CPU clock is set to New York local time, which is 5 hours less than GMT.
- Data from locations that do not have an entry is adjusted -8 hours because the default CPU clock setting (*) is GMT, as shown in Figure 277.

As a result, data from all locations reflects San Francisco local time.

Example 3: Time zones and CPU clock settings:

This example shows how to report data from two locations. The first location, USIBMSTOSQL1, is situated in San Francisco, the second, USIBMSTOSQL2, in New York.
The time zone settings for both locations reflect the local time at that site:

- The time zone of location USIBMSTOSQL1 is San Francisco, 8 hours less than the GMT.
- The time zone of location USIBMSTOSQL2 is New York, 5 hours less than the GMT.

The CPU clock of one location is set to GMT and the other to the local time:

- The CPU clock of location USIBMSTOSQL1 is set to zero to indicate GMT.
- The CPU clock of location USIBMSTOSQL2 is set to five to indicate the New York local time.

Again, if you want to use San Francisco local time in your reporting, specify location USIBMSTOSQL1 as your TIMEZONE location:

```
GLOBAL
  TIMEZONE (USIBMSTOSQL1)
```

The following adjustments are made during Performance Expert processing:

- Data from location USIBMSTOSQL1 is adjusted -8 hours because its CPU clock is set to GMT.
- Data from location USIBMSTOSQL2 is adjusted -3 hours because its CPU clock is set to New York local time, which is 5 hours less than GMT.
- Data from locations that do not have an entry is adjusted -8 hours because the default CPU clock setting (*) is GMT, as shown in Figure 278.

As a result, data from all locations reflects San Francisco local time.

For more information about time zone processing, refer to the description of the GLOBAL command in the Report Command Reference.

**Correlation ID translation**

The correlation ID is a DB2 field that identifies the task executed by DB2.

The correlation ID contains:

**For batch jobs**

Jobname
For TSO applications
Original authorization ID (the logon user ID)

For applications using the DB2 call attachment facility
Original authorization ID (the logon user ID)

For CICS transactions
Connection type, thread type, thread number, and the transaction ID

For IMS applications
PST number and PSBNAME of the application

Particularly for CICS and IMS it is useful to break the correlation ID into several parts, so that you can easily distinguish the transaction ID (for CICS threads) from the PSBNAME (for IMS threads).

The default translation:

OMEGAMON XE for DB2 PE breaks the correlation ID into parts by translating the correlation ID into two separate identifiers, the correlation name and the correlation number.

Unless it was changed in your installation, this translation is based on the connection type of the thread and is done as follows:

Table 247. The 12-Byte Correlation ID field and the default translation

<table>
<thead>
<tr>
<th>Connection Type</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Correlation name: job name</td>
<td>Correlation number: blank</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSO, DB2 call attach</td>
<td>Correlation name: original authorization ID</td>
<td>Correlation number: blank</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CICS</td>
<td>Correlation number: pool thread</td>
<td>Correlation name: transaction ID</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMS</td>
<td>Correlation number: application PSBNAME</td>
<td>Correlation name: application PST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RRS</td>
<td>Correlation name: the first 8 characters of the correlation ID provided by the application during signon</td>
<td>Correlation number: the remaining 4 characters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The correlation name and correlation number can be used as OMEGAMON XE for DB2 PE identifiers CORRNAME and CORRNMBR in all report sets.

You can use CORRNAME and CORRNMBR to order data on reports and to include and exclude input records.

Changing the default translation:

You can override this default translation using the IRF option for maintaining parameter data sets (option 4 on the DB2 PM main menu).

The correlation translation information is kept in the CORRDATA member of the DPMPARMS data set.

Each record in the CORRDATA member specifies the translation that is to be used for a specific connection ID. The connection ID is used here, not the connection type.
The translation is expressed as:
- Offset where the correlation name starts
- Length of the correlation name
- Offset where the correlation number starts
- Length of the correlation number

If OMEGAMON XE for DB2 PE does not find the connection ID for a given thread in the CORRDATA member, the default translation is used.

To activate the tailored correlation translation, specify the DPMPARMS data set for the DPMPARMS ddname.

**Defining the MAINPACK identifier**

In the Accounting report set you can use the MAINPACK identifier to distinguish plans according to the packages they contain. The representative package is either the first or the last package or DBRM executed within a plan.

This identifier is useful when the name of a plan does not provide satisfactory identification, as is the case with DBATs initiated by non-DB2 requesters that all have the same plan name DISTSERV.

You can define certain aspects of the MAINPACK identifier:
- Whether the first or the last package executed within a plan is used as the MAINPACK.
- Whether you want to use the package ID, the collection ID, or the location name of the package name as the value for the identifier. In the case of a DBRM, the program name is always used.

If you wish, you can have different MAINPACK definitions for data from different environments and from different plans.

The MAINPACK identifier can be used to include, exclude, and order data.

When you include data using MAINPACK, data from other packages belonging to the same plan is also reported. (If you used the PACKAGE identifier instead, data for that package, regardless of the plan, would be reported.) The same applies to ordering data.

The default definition for MAINPACK is to use the package ID of the first executed package.

The MAINPACK definition is stored in the member MAINPACK of the DPMPARMS data set. You can access the member using the MAINPACK Definition Member Editor, which is part of the Interactive Report Facility (IRF).

To access the editor, select option 4 (Maintain parameter data sets) from the Performance Expert main menu. The Data Set Maintenance Menu is displayed.
Type 4 in the input field to select Maintain MAINPACK definitions, and type the name of your DPMPARMS data set on the line below DPMPARMS data set.

Press Enter to go to the MAINPACK Definition Member Editor panel.

Use the editor to enter the main package specifications. Specify the requesting locations, connection IDs, plan names, and codes for the MAINPACK definition.

Figure 279. Selecting Maintain MAINPACK Definitions

Type 4 in the input field to select Maintain MAINPACK definitions, and type the name of your DPMPARMS data set on the line below DPMPARMS data set.

Press Enter to go to the MAINPACK Definition Member Editor panel.

Use the editor to enter the main package specifications. Specify the requesting locations, connection IDs, plan names, and codes for the MAINPACK definition.

Figure 280. MAINPACK Definition Member Editor panel

Enter the required information in the input fields. You can modify existing information by typing over it.

Action

Standard ISPF editor line commands. For example:

I Generate a new line
Delete a line

Duplicate a line

Move a line

Requesting Location
The 16-byte requesting location name. DB2 uses this name to identify the requester DB2 subsystem for distributed threads. For nondistributed threads this is the same as the local location name.

Connection ID
The 8-byte connection name used by DB2 to identify your environment.

Plan Name
The 8-byte name of the DB2 plan. In most cases it is a user-specified name, but for non-DB2 requesters it has a constant value DISTSERV.

Code
One of the predefined definitions of MAINPACK.

You can get information about an entry field by moving the cursor to the field and pressing F1 (Help).

Specifying the MAINPACK (example):

The following example shows how you can define different MAINPACK specifications for different plans. In this example, different MAINPACK specifications for plans DISTSERV and CICSA are defined.

DISTSERV is used as the plan name for all DBATs initiated by non-DB2 requesters. Therefore it can be useful to be able to distinguish between the different DISTSERV plans according to the packages they contain.

The plan CICSA is a large plan consisting of several packages and it is used for many different kinds of transactions. The goal is to distinguish between the different executions of this plan.

The following figure shows the MAINPACK Definition Member Editor panel with the specifications.
In this case, the default entry is for packages that do not have a specific entry. For these plans, the collection ID of the last executed package is used as the MAINPACK.

For plan DISTSERV, the representative package was defined as the first executed package in this example. This was done because it is likely that for the DBAs initiated by non-DB2 requesters the first package usually provides the necessary information to identify the plan. The assumption for this plan was that the package identifier was the most convenient identifier value.

For plan CICSA, the representative package was defined as the last executed package. The reason for doing this was that for this particular plan, in this example, the last executed package best identifies the transaction. The package ID was used as the value of the identifier.

Examples of using the MAINPACK and PACKAGE identifiers:

The following examples show how you can use the MAINPACK and PACKAGE identifiers. The first example is a short report and shows the short format of the package information. The second example shows the long format of the package information. Both examples show how to use these identifiers in INCLUDE/EXCLUDE and ORDER processing.

Example 1: Using MAINPACK

Assume that, during the reporting interval used in this example, two transactions are performed on behalf of a non-DB2 requester. One transaction executes package CUSTINQR and the other transaction executes package ACCTCLOS. You only want to report the activities that are performed by these non-DB2 requesters, that is, DISTSERV plans.

If you use PLANNAME to order the report, you cannot distinguish between the two packages or the two transactions because they both execute plan DISTSERV. So to identify the transactions by means of a package, the MAINPACK identifier is
used in the ORDER. For this case the default specification for MAINPACK is used, which is to select the package ID of the first package executed within a plan. The Accounting report is then summarized and ordered by this MAINPACK (first package ID).

The following command was used:

```
ACCOUNTING
   REPORT
       INCLUDE (PLANNAME(DISTSERV))
       ORDER (MAINPACK)
```

**Short Accounting report - ordered by MAINPACK**

Here is an example of a short Accounting report that is ordered by MAINPACK.

**Note:** The values for the package in the Package Information block represent the processing that is specific to that package. In this case, there is only one package executed for each transaction. If there had been a second package within the same transaction, then the second package would have been listed as a second line within the Package Information block.

### Example 2: Using PACKAGE

Assume that, during the reporting interval used in this example, three transactions are performed and that DB2 Accounting Trace classes 7 and 8 are active.

- The first transaction executes plan PLANINQ1 and uses packages CUSTINQA and CUSTINQB and DBRM CUSTINQC.
- The second transaction executes plan PLANINQ2 and uses packages CUSTINQB and CUSTINQD.
- The third transaction executes plan PLANINQ1 also but uses package CUSTINQA only.

All the packages are executed once within the transaction and the transactions are executed only once.

If you want to find out the resource utilization for each package or DBRM, you ORDER the report by PACKAGE and print only the package or DBRM specific...
data from the Accounting records. In this example, you want detailed information about the packages or DBRM, therefore you request a LONG report.

You have previously determined that you are not interested in package CUSTINQD, so you exclude that package. By default all plan names present in the input data are included in the report.

You specify the following command:

```
ACCOUNTING REPORT
LAYOUT (LONG)
EXCLUDE (PACKAGE(CUSTINQD))
ORDER (PACKAGE)
```

Long Accounting report - ordered by PACKAGE

Here is an example of a long Accounting report that is ordered by PACKAGE. It shows the Package Information blocks for the different packages. In this example, each entry begins on a new page, even though all entries fit on a single page.

On this report:

- Information for package CUSTINQA is derived from the first and the third transaction.
- Information for package CUSTINQB is derived from the first and the second transaction.
- Information for DBRM CUSTINQC is derived from the first transaction.

To print all entries on one page you can create your own layout by modifying the sample layout LONG. You can do this without changing the actual layout. Simply press F3 in the UTR Block Selection panel to display the UTR Save Layout Details panel (see Figure 273 on page 2959). From this panel, you can specify no for the question Is each new record or entry to start on a new page? You can save the layout under a new name and use it when ordering by PACKAGE.

<table>
<thead>
<tr>
<th>Location</th>
<th>OMEGAMON XE for DB2 Performance Expert (V5R4M0)</th>
<th>Page: 1-1</th>
<th>Requested From:</th>
<th>Not Specified</th>
<th>To:</th>
<th>Not Specified</th>
<th>Interval From:</th>
<th>04/29/15 20:18:50.43</th>
<th>To:</th>
<th>05/20/15 17:57:56.76</th>
</tr>
</thead>
<tbody>
<tr>
<td>Package:</td>
<td>BLANK.BOSNACOL.CUSTINQA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUSTINQA</td>
<td>VALUE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Package</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>'BLANK'</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collection ID</td>
<td>BOSNACOL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Name</td>
<td>CUSTINQA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCCURRENCES</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQL STMT - AVERAGE</td>
<td>3.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQL STMT - TOTAL</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STOR PROC EXECUTED</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UDF EXECUTED</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USED BY STOR PROC</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USED BY UDF</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USED BY TRIGGER</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUCC AUTH CHECK</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chapter 6. Batch reporting 2971
**Modifying exception field descriptors**

You can change the descriptive labels for exception fields as they are printed for the exception records in batch reports.

To do this, create a member called `EXCHANGE` in your `DPMPARM` data set using the ISPF editor. For each field that requires a new descriptor, enter a line into this member that contains the field name and the new descriptor, separated by a comma without spaces.

**The Performance Database and the Performance Warehouse**

**OMEGAMON XE for DB2 PE performance data can be loaded into DB2 tables to build a performance database or a performance warehouse.**

You can load performance data into DB2 tables to create a performance database. With a performance database you can:

- Perform additional performance evaluations. As an example you can examine the access paths of dynamic SQL statements.
- Collect historic data.
- Use SQL for fast and easy retrieval of data.

The performance data can come from the following data groups:
- Accounting
- Audit
- Locking
- Record traces (IFCID 22, 63, 96, 125, 172, 196, 316, 365, and 401)
Data can be aggregated or nonaggregated:

- In the case of aggregated data, several records are summarized by specific OMEGAMON XE for DB2 PE identifiers. In a report, each entry represents aggregated data. Use the SAVE subcommand to generate a VSAM data set that contains the aggregated data. When the data has been saved, use the Save-File utility to generate a DB2-loadable data set.
- In the case of nonaggregated data, each record is listed in order of occurrence. In a trace, each entry represents nonaggregated data. Use the FILE subcommand to generate a data set that contains the nonaggregated data.

For batch, periodic, and display exceptions, a DB2-loadable data set is automatically generated for each OMEGAMON XE for DB2 PE execution if EXFILDD1 is defined in your JCL. The generated data set is sequential variable-blocked and can be directly loaded into DB2.

The following figure shows how performance data is formatted and loaded for each data group.
For details about loading performance data into DB2 tables, consult the RKO2SAMP library.

**Accounting tables**

This section shows the structure of each of the Accounting tables in the performance database.
The generated data set consists of the following records:

**General**
One row per thread.

**Group buffer pool**
One row per group buffer pool used.

**Package data**
One row per package and DBRM executed.

**DDF data**
One row per remote location participating in distributed activity.

**Buffer pool data**
One row per buffer pool used.

**RLF**
One row per resource limit type encountered.

**Accelerator data**
One row per thread-related accelerator activity.

When parallel tasks are performed within a data sharing group, the parallel task records are contained in the record of the originating task, regardless of whether the parallel tasks were performed on the same member as the originating task or on other members of the data sharing group.

**Samples:**

Examples of CREATE TABLE and LOAD statements are in library RKO2SAMP. The description files are in a format that can be loaded into DB2 tables.

The CREATE TABLE examples can be used for building the DB2 tables into which Accounting File and Save-File data can be loaded. The DB2 load control statements can be used for loading this data into the DB2 tables.

**Accounting File:**

Accounting data can contain all or a subset of available data types, depending on the specification of the DATATYPE subcommand option of the ACCOUNTING FILE command.

The specified data types can be stored in one or several data sets in any combination by means of multiple invocations of FILE DATATYPE in a JCL. To
load all Accounting data from several output data sets into a DB2 table, you can run the following DB2 load control statements concurrently. For more information, see the *Report Command Reference*.

**Table 248. Parts for Accounting file data**

<table>
<thead>
<tr>
<th>Type of data</th>
<th>CREATE TABLE statements</th>
<th>LOAD control statements</th>
<th>Table description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>DGOACFGE</td>
<td>DGOALFGE</td>
<td>DGOABFGE</td>
</tr>
<tr>
<td>Group Buffer Pool</td>
<td>DGOACFGP</td>
<td>DGOALFGP</td>
<td>DGOABFGP</td>
</tr>
<tr>
<td>Buffer Pool</td>
<td>DGOACFBU</td>
<td>DGOALFBU</td>
<td>DGOABFBU</td>
</tr>
<tr>
<td>DDF Records</td>
<td>DGOACFDF</td>
<td>DGOALFDFF</td>
<td>DGOABFDF</td>
</tr>
<tr>
<td>Package Records</td>
<td>DGOACFPK</td>
<td>DGOALFPK</td>
<td>DGOABFPK</td>
</tr>
<tr>
<td>Accelerator</td>
<td>DGOACFXC</td>
<td>DGOALFXC</td>
<td>DGOABFXC</td>
</tr>
</tbody>
</table>

Examples of SQL queries are in member DGOAQFIL.

**Accounting Save-File:**

The parts for Accounting Save-File data are as follows.

**Table 249. Parts for Accounting Save-File data**

<table>
<thead>
<tr>
<th>Type of data</th>
<th>CREATE TABLE statements</th>
<th>LOAD control statements</th>
<th>Table description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>DGOACSGE</td>
<td>DGOALSGE</td>
<td>DGOABSGE</td>
</tr>
<tr>
<td>Group Buffer Pool</td>
<td>DGOACSGP</td>
<td>DGOALSGP</td>
<td>DGOABSGP</td>
</tr>
<tr>
<td>Buffer Pool</td>
<td>DGOACSBU</td>
<td>DGOALSBU</td>
<td>DGOABSBU</td>
</tr>
<tr>
<td>DDF Records</td>
<td>DGOACSDDF</td>
<td>DGOALSDF</td>
<td>DGOABSDF</td>
</tr>
<tr>
<td>Package Records</td>
<td>DGOACSPK</td>
<td>DGOALSPK</td>
<td>DGOABSPK</td>
</tr>
<tr>
<td>Resource Limit Facility (RLF) Records</td>
<td>DGOACSRF</td>
<td>DGOALSRF</td>
<td>DGOABSRF</td>
</tr>
<tr>
<td>Accelerator</td>
<td>DGOACXSC</td>
<td>DGOALXSC</td>
<td>DGOABXSC</td>
</tr>
</tbody>
</table>

VSAM-Save data sets must be converted to the Save-File layout before they can be loaded into tables.

Examples of CREATE VIEW statements are supplied in the member DGOAVSAP.

Examples of SQL queries are in member DGOAQSAV.

DGOAVSAP contains the VIEW definition necessary to integrate the Accounting Save General table into the SAP DBA Cockpit (see SAP Note 1995032).

**Audit tables**

This section shows the structure of each of the Audit tables in the performance database.
Figure 284. The Audit tables

Authorization Failures
One row for each authorization failure that occurred

Authorization Control
One row per authorization control issued

Authorization Change
One row for each of the following authorization changes or authorization establishments:
- SET CURRENT SQLID
- END OF IDENTIFY
- END OF SIGNON
- INBOUND/OUTBOUND DISTRIBUTED TRANSLATION

Audited DDL Access
One row per CREATE or DROP against an Audited object, or ALTER TABLE which change the AUDIT option against an audited table.

Audited DML at Bind Access
One row for each SQL statement that involves audited objects.

Objects in SQL statement
One row for each object involved in the SQL statements recorded in Audited DML at Bind Access.

Audited DML Access
One row for the first change (write) to an audited object in a unit of work

Audited Utility Access
One row for each object and each phase accessed by a utility execution.

SQL Statement
One row for the text of each SQL statement involved in:
- Authorization Failure
- Authorization Control
- Audited DDL Access
- Audited DML at Bind Access

Samples:

The parts for Audit file data are as follows.

Examples of CREATE TABLE and LOAD statements are in library RKO2SAMP. The description files are in a format that can be loaded into DB2 tables.
The CREATE TABLE examples can be used for building the DB2 tables into which the Audit File data sets can be loaded. The DB2 load utility control statements can be used for loading these Audit File output records into DB2 tables.

Table 250. Parts for Audit file data

<table>
<thead>
<tr>
<th>Type of data</th>
<th>CREATE TABLE statements</th>
<th>LOAD control statements</th>
<th>Table description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bind</td>
<td>DGOXCBND</td>
<td>DGOXLBND</td>
<td>DGOXBBND</td>
</tr>
<tr>
<td>Bind Repeating Data</td>
<td>DGOXCBRD</td>
<td>DGOXLBRD</td>
<td>DGOXBBRD</td>
</tr>
<tr>
<td>Auth Change</td>
<td>DGOXCCHG</td>
<td>DGOXLCHG</td>
<td>DGOXBCNT</td>
</tr>
<tr>
<td>Auth Control</td>
<td>DGOXCCNT</td>
<td>DGOXLCNT</td>
<td>DGOXBCNT</td>
</tr>
<tr>
<td>DDL</td>
<td>DGOXCDDL</td>
<td>DGOXLDDL</td>
<td>DGOXBDML</td>
</tr>
<tr>
<td>DML</td>
<td>DGOXCDML</td>
<td>DGOXLDM</td>
<td>DGOXBDML</td>
</tr>
<tr>
<td>Auth Fail</td>
<td>DGOXCFAI</td>
<td>DGOXLFAI</td>
<td>DGOXBFAI</td>
</tr>
<tr>
<td>SQL</td>
<td>DGOXCSQL</td>
<td>DGOXLSQL</td>
<td>DGOXBSQL</td>
</tr>
<tr>
<td>Utility</td>
<td>DGOXCUTI</td>
<td>DGOXLUTI</td>
<td>DGOXBDML</td>
</tr>
</tbody>
</table>

Exceptions table
This section shows the structure of the Exceptions table in the performance database.

Figure 285. The Exception table

The generated table contains a list of Accounting and Statistics exceptions:

- **Batch exceptions**
  - One row per exception

- **Periodic exceptions**
  - One row per exception

- **Display exceptions**
  - One row per exception

Samples:

The parts for Exceptions file data are as follows.

Examples of CREATE TABLE and LOAD statements are in library RKO2SAMP. The description files are in a format that can be loaded into DB2 tables.

The CREATE TABLE example can be used for building the DB2 tables into which File data sets can be loaded. The DB2 load utility control statements can be used for loading these File output records into DB2 tables.

The query in DGOEQFIL uses the sample view defined in DGOEVFIL.
### Table 251. Parts for Exceptions file data

<table>
<thead>
<tr>
<th>Type of data</th>
<th>CREATE TABLE statements</th>
<th>LOAD control statements</th>
<th>Sample query</th>
<th>Table description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exception</td>
<td>DGOECFIL</td>
<td>DGOELFIL</td>
<td>DGOEQFIL</td>
<td>DGOEBFIL</td>
</tr>
</tbody>
</table>

### Locking table

This section shows the structure of the Locking table in the performance database.

#### Table

<table>
<thead>
<tr>
<th>Locking</th>
<th>One record per</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• lock request</td>
</tr>
<tr>
<td></td>
<td>• drain request</td>
</tr>
<tr>
<td></td>
<td>• claim request</td>
</tr>
<tr>
<td></td>
<td>• successful lock avoidance</td>
</tr>
</tbody>
</table>

#### Figure 286. The Locking table

The table contains a row for each occurrence of the following events:
- A LOCK, UNLOCK, CHANGE, or QUERY request processed by DB2.
- A request to acquire a claim, change a claim duration, or release a claim.
- A request to release a drain on a claim class.
- A successful lock avoidance.

#### Samples:

The parts for Locking file data are as follows.

Examples of CREATE TABLE and LOAD statements are in library RKO2SAMP. The description files are in a format that can be loaded into DB2 tables.

The CREATE TABLE example can be used for building the DB2 tables into which the Locking File data sets can be loaded. The DB2 load utility control statements can be used for loading these Locking File output records into DB2 tables.

### Table 252. Parts for Locking file data

<table>
<thead>
<tr>
<th>Type of data</th>
<th>CREATE TABLE statements</th>
<th>LOAD control statements</th>
<th>Table description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bind</td>
<td>DGOLCFIL</td>
<td>DGOLLFIL</td>
<td>DGOLBFIL</td>
</tr>
</tbody>
</table>

### Record Trace tables

This section shows the structure of each of the Record Trace tables in the performance database.
The generated data set contains the following records:

**Access path**
- Minibind data. One row per IFCID 22.

**SQL Statement**
- One row per SQL statement text record (IFCID 63).

**SORT END**
- One row for each sort end event triggered by an SQL query (IFCID 96).

**RID Pool**
- One row per multiple index access operation (IFCID 125).

**Deadlock (Unit of Work)**
- One row per resource involved (IFCID 172).

**Timeout Data**
- One row per agent causing the timeout (IFCID 196).

**SQL Statement Statistics (DYN SQL)**
- One row per SQL statement statistics text record (IFCID 316).

**Acceleration**
- One row per accelerator to which the statement has been offloaded (IFCID 316, section QW03162).

**Remote Location Statistics**
- One row per remote location (IFCID 365).

**Static Statements in EDM Pool (STA SQL)**
- One row per static statements text record in the EDM pool (IFCID 401).

**Acceleration**
- One row per accelerator to which the statement has been offloaded (IFCID 401, section QW04012).

**Samples:**

The parts for Record Trace File data are as follows.

Examples of CREATE TABLE and LOAD statements are in library RKO2SAMP. The description files are in a format that can be loaded into DB2 tables.

The CREATE TABLE examples can be used for building the DB2 tables into which Record Trace File data sets can be loaded. The DB2 load utility control statements can be used for loading these Record Trace File output records into DB2 tables.
Table 253. Parts for Record Trace File data

<table>
<thead>
<tr>
<th>Type of data</th>
<th>CREATE TABLE statements</th>
<th>LOAD control statements</th>
<th>Sample query</th>
<th>Table description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minibind (IFCID 22)</td>
<td>DGONCFMB</td>
<td>DGONLFMB</td>
<td>DGONQFMB</td>
<td>DGONBFMB</td>
</tr>
<tr>
<td>SQL Statement (IFCID 63)</td>
<td>DGONCFSQ</td>
<td>DGONLFSQ</td>
<td>DGONQFSQ</td>
<td>DGONBFSQ</td>
</tr>
<tr>
<td>SORT END (IFCID 96)</td>
<td>DGONCFSE</td>
<td>DGONLFSF</td>
<td>DGONQFSF</td>
<td>DGONBFSF</td>
</tr>
<tr>
<td>RID POOL (IFCID 125)</td>
<td>DGONCFRP</td>
<td>DGONLFRP</td>
<td>DGONQFRP</td>
<td>DGONBFRP</td>
</tr>
<tr>
<td>Deadlock (IFCID 172)</td>
<td>DGONCFDL</td>
<td>DGONLFDL</td>
<td>DGONQFDL</td>
<td>DGONBFDL</td>
</tr>
<tr>
<td>Timeout Data (IFCID 196)</td>
<td>DGONCFTI</td>
<td>DGONLFTI</td>
<td>DGONQFTI</td>
<td>DGONBFTI</td>
</tr>
<tr>
<td>SQL Statement Statistics (DYN SQL) (IFCID 316)</td>
<td>DGONCFDS</td>
<td>DGONLFDS</td>
<td>DGONQFDS</td>
<td>DGONBFDS</td>
</tr>
<tr>
<td>Dynamic Statement Acceleration (IFCID 316, section QW03162)</td>
<td>DGONCFD2</td>
<td>DGONLFD2</td>
<td></td>
<td>DGONBFD2</td>
</tr>
<tr>
<td>Remote Location Statistics (IFCID 365)</td>
<td>DGONCFRL</td>
<td>DGONLFRL</td>
<td>DGONQFRL</td>
<td>DGONBFRL</td>
</tr>
<tr>
<td>Static Statements in EDM Pool (STA SQL) (IFCID 401)</td>
<td>DGONCFSS</td>
<td>DGONLFS2</td>
<td>DGONQFSS</td>
<td>DGONBFSS</td>
</tr>
<tr>
<td>Static Statement Acceleration (IFCID 401, section QW04012)</td>
<td>DGONCFSS</td>
<td>DGONLFS2</td>
<td>DGONQFSS</td>
<td>DGONBFSS</td>
</tr>
</tbody>
</table>

Statistics tables
This section shows the structure of each of the Statistics tables in the performance database.
The generated table contains the following records:

**General Data**

**File Data**

One row for each Statistics delta record, containing data from IFCID 1 and 2.

A delta record is a set of counters that describes the DB2 activity between two consecutive DB2 Statistics record pairs.

**Save-File Data**

One row for each Statistics interval record, containing data from IFCID 1 and 2. A Statistics interval record is a set of counters that describes the DB2 activity within the interval specified by the user.

**Buffer Pool Data**

One row per buffer pool active at the start of the corresponding delta record for File data, or interval record for Save-File data (containing data from the QBST section of IFCID 2).

**Group Buffer Pool Data**

One row per group buffer pool active at the start of the corresponding delta record for File data, or interval record for Save-File data (containing data from the QBGL section of IFCID 2).

**DDF**

For each delta record (File data) or interval record (Save-File data), one row for all remote locations that used DRDA (containing data from the QLST section of IFCID 1).

**Buffer Pool Data Set Data**

One row for each open data set that has an I/O event rate at least one event per second during the reporting interval (containing data from IFCID 199).
Accelerator Data
One row per active accelerator attached to the DB2 subsystem (containing data from the Q8ST section of IFCID 2).

Aggregated Accounting Data
One row is written for a connection type IMS, CICS, RRSAF, Utility, Batch, or DDF containing aggregated wait and CPU times of threads with IFCID 3 events for that connection type (containing data from IFCID 369).

Storage Data
One row is written for DB2 storage metrics valid for the reporting interval (containing data from IFCID 225).

Simulated Buffer Pool Data
One row per simulated buffer pool active at the start of the corresponding delta record for File data, or interval record for Save-File data (containing data from the QBSP section of IFCID 2).

Samples:

The parts for Statistics File and Save-File data are as follows.

Examples of CREATE TABLE, LOAD statements, SQL queries, and descriptions of the statistics tables are in library RKO2SAMP. The description files are in a format that can be loaded into DB2 tables.

The CREATE TABLE examples can be used for building the DB2 tables into which the Statistics File data sets and the converted Statistics Save records can be loaded. The DB2 load utility control statements can be used for loading these Statistics File data sets and converted Statistics Save records into DB2 tables.

<table>
<thead>
<tr>
<th>Type of data</th>
<th>CREATE TABLE statements</th>
<th>LOAD control statements</th>
<th>Sample query</th>
<th>Table description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Data</td>
<td>DGOSCGEN</td>
<td>DGOSLGEN</td>
<td>DGOSQGEN</td>
<td>DGOSBGEN</td>
</tr>
<tr>
<td>Buffer Pool</td>
<td>DGOSCBUF</td>
<td>DGOSLBUF</td>
<td>DGOSQBUF</td>
<td>DGOSBBUF</td>
</tr>
<tr>
<td>DDF</td>
<td>DGOSCDDF</td>
<td>DGOSLDDDF</td>
<td>DGOSQDDF</td>
<td>DGOSBDDF</td>
</tr>
<tr>
<td>Group Buffer Pool</td>
<td>DGOSCGBP</td>
<td>DGOSLGBP</td>
<td>DGOSBGBP</td>
<td></td>
</tr>
<tr>
<td>Buffer Pool Data Set</td>
<td>DGOSCSET</td>
<td>DGOSLSET</td>
<td>DGOSBSET</td>
<td></td>
</tr>
<tr>
<td>Accelerator</td>
<td>DGOSCXCL</td>
<td>DGOSLXCL</td>
<td>DGOSBXCL</td>
<td></td>
</tr>
<tr>
<td>Aggregated Accounting</td>
<td>DGOSCACC</td>
<td>DGOSLACC</td>
<td>DGOSBACC</td>
<td></td>
</tr>
<tr>
<td>Storage Data</td>
<td>DGOSCSTG</td>
<td>DGOSLSTG</td>
<td>DGOSBSTG</td>
<td></td>
</tr>
<tr>
<td>Simulated BP Data</td>
<td>DGOSCSIM</td>
<td>DGOSLSIM</td>
<td>DGOSBSIM</td>
<td></td>
</tr>
</tbody>
</table>

The sample query in DGOSQDDDF uses the view defined in DGOSVDDDF.

The samples provided are valid for Statistics File and Save-File data.

Save data sets must be converted to the Save-File layout before they can be loaded into tables.
System parameters
This section lists the system parameters tables in the performance database.

The Performance Database tables for DB2 system parameters are as follows:
- System parameters from IFCID 106
- System facility parameters from IFCID 106
- Alter buffer pool records from IFCID 201
- Buffer pool attributes from IFCID 202
- Group buffer pool attributes from IFCID 230
- Alter group buffer pool records from IFCID 256

To create system parameter data for the Performance Database, use the SYSPARMS command with the FILE subcommand to produce a data set that is suitable for loading into DB2 tables.

Samples:
The parts for System Parameters data are as follows.

Examples of CREATE TABLE, LOAD statements, SQL queries, and descriptions of these tables are in library RKO2SAMP. The description files are in a format that can be loaded into DB2 tables.

The CREATE TABLE examples can be used for building the DB2 tables into which the System Parameters File data sets can be loaded. The DB2 load utility control samples can be used for loading these File data sets into DB2 tables.

Table 255. Parts for System Parameters data

<table>
<thead>
<tr>
<th>Type of data</th>
<th>CREATE TABLE statements</th>
<th>Load control statements</th>
<th>Table description</th>
</tr>
</thead>
<tbody>
<tr>
<td>System parameters</td>
<td>DGOWC106</td>
<td>DGOWL106</td>
<td>DGOWD106</td>
</tr>
<tr>
<td>System facility parameters</td>
<td>DGOWCSFP</td>
<td>DGOWLSFP</td>
<td>DGOWDSFP</td>
</tr>
<tr>
<td>Alter buffer pool</td>
<td>DGOWC201</td>
<td>DGOWL201</td>
<td>DGOWD201</td>
</tr>
<tr>
<td>Buffer pool attributes</td>
<td>DGOWC202</td>
<td>DGOWL202</td>
<td>DGOWD202</td>
</tr>
<tr>
<td>Group buffer pool attributes</td>
<td>DGOWC230</td>
<td>DGOWL230</td>
<td>DGOWD230</td>
</tr>
<tr>
<td>Alter group buffer pool</td>
<td>DGOWC256</td>
<td>DGOWL256</td>
<td>DGOWD256</td>
</tr>
</tbody>
</table>

Creating data for the Performance Database and the Performance Warehouse
To create performance data, you must run the appropriate OMEGAMON XE for DB2 PE command with the FILE or SAVE subcommand.

If you use the SAVE subcommand:
- Without the CONVERT option, you must first convert the VSAM data to the Save-File format.
- With the CONVERT option, the reduced data is converted and saved into a sequential data set.
You can then use the DB2 LOAD utility to move the data into DB2 Performance Database tables.

If you have installed the DB2 Performance Warehouse Client together with the corresponding host data collector, the following tasks can be simplified and largely automated for Accounting and Statistics data through the use of client-initiated processes:

- Creating performance data
- Loading the data into the Performance Database (Warehouse)
- Maintaining the database

For more information about the:

- Performance Warehouse, see Monitoring Performance from Performance Expert
- FILE or SAVE option, see “Functions and utilities of the Statistics report set” on page 2916 and Report Command Reference
- Save-File Utility, see “Functions and utilities of the Statistics report set” on page 2916 and Report Reference
- Spreadsheet Input-Data Generator utility, see Generating input data for spreadsheets

**Generating input data for spreadsheets**

With the Spreadsheet Input-Data Generator utility you can create input data for spreadsheets to ease DB2 performance analysis.

This utility uses the following data as input:

- Accounting and Statistics File performance data
- Accounting and Statistics converted Save-File performance data
- Record Trace File data of IFCID 172, 196, and 365

It creates a comma-separated value (CSV) data set using input provided by parts of the Performance Database (PDB) in the RKO2SAMP / TKO2SAMP library and also your input from field selection lists. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables.
Input parameters

The Spreadsheet Input-Data Generator mainly relies on the sample CREATE, LOAD, and meta data parts delivered for the Performance Database in the RKO2SAMP / TKO2SAMP library. These parts describe the record layout of the sequential load file input data, the positions of fields within the record, data type, length, WHEN, NULLIF, and DEFAULTIF values. Based on this information and the following input parameters, the fields of the sequential load file can be transformed into a CSV record.

The load module FPEPCSV is linked in library RKANMOD / TKANMOD. The following samples are provided in the RKANSAM / TKANSAM library:

FPEPCSVJ
The sample JCL to invoke the Spreadsheet Input-Data Generator utility.

FPEPCSVP
Invokes the Spreadsheet Input-Data Generator utility with a job procedure. The following sample jobs are provided:

FPEPCSVA
Invokes the Spreadsheet Input-Data Generator utility and creates multiple Accounting Save spreadsheets with a job procedure.

FPEPCSVB
Invokes the Spreadsheet Input-Data Generator utility and creates multiple Accounting File spreadsheets with a job procedure.

FPEPCSVN
Invokes the Spreadsheet Input-Data Generator utility and creates multiple Record Trace spreadsheets with a job procedure.

FPEPCSVS
Invokes the Spreadsheet Input-Data Generator utility and creates multiple Statistics spreadsheets with a job procedure.

FPEPCSVW
Invokes the Spreadsheet Input-Data Generator utility and creates multiple System Parameter spreadsheets with a job procedure.
The input parameters are specified in the EXEC command of the Spreadsheet Input-Data Generator in the parameter list PARM of FPEPCSVJ:

```c
...  parm = type persec hdrrow hdrpdcol delim decsep sampdir
//FPEPCSV EXEC PGM=FPEPCSV,
  //  PARM='SBUF N Y N , . <db2ompe>.TKO2SAMP'
...```

Where "parm = type persec hdrrow hdrpdcol delim decsep sampdir" specifies the following:

**TYPE**

Specifies the type of records that are put into the CSV data set. For each supported TYPE, a sample master selection list is provided that contains all fields in the sequential load file records that have a column in the associated Performance database (PDB) table.

The RKO2SAMP / TKO2SAMP part type consists of 4 characters, it can be:

- **AFBU** Accounting File data, category BUFFER POOL
- **AFDF** Accounting File data, category DDF
- **AFGE** Accounting File data, category GENERAL
- **AFGP** Accounting File data, category GROUP BUFFER POOL
- **AFPK** Accounting File data, category PACKAGE
- **AFXC** Accounting File data, category ACCELERATOR
- **ASBU** Accounting Save-File data, category BUFFER POOL
- **ASDF** Accounting Save-File data, category DDF
- **ASGE** Accounting Save-File data, category GENERAL
- **ASGP** Accounting Save-File data, category GROUP BUFFER POOL
- **ASPK** Accounting Save-File data, category PACKAGE
- **ASRF** Accounting Save-File data, category RLF
- **ASXC** Accounting Save-File data, category ACCELERATOR
- **NFDL** Record trace data, category DEADLOCK
- **NFTI** Record trace data, category TIMEOUT
- **NFRL** Record trace data, category REMOTE LOCATION
- **SACC** Statistics data, category AGGREGATED ACCOUNTING
- **SBUF** Statistics data, category BUFFER POOL
- **SDDF** Statistics data, category DDF
- **SGBP** Statistics data, category GROUP BUFFER POOL
- **SGEN** Statistics data, category GENERAL
- **SSET** Statistics data, category BUFFER POOL DATA SET
- **SSIM** Statistics data, category SIMULATED BUFFER POOL
- **SSTG** Statistics data, category STORAGE GENERAL
- **SXCL** Statistics data, category ACCELERATOR
- **W106** System Parameter data, category IFCID 106
W201  System Parameter data, category IFCID 201
W202  System Parameter data, category IFCID 202
W230  System Parameter data, category IFCID 230
W256  System Parameter data, category IFCID 256
WSFP  System Parameter data, category DDF Facility

PERSEC
Specifies whether average values are calculated. It can be Y (for YES) or N (for NO). This option is only valid for Statistics records where the interval column INTERVAL_ELAPSED can be used to derive per-second (PERSEC) values.

Note: Averages are only calculated for Statistics fields which are accumulated by DB2 and have a field TYPE of AGGR defined in a Statistics field selection list (FPEPS*).

HDRROW
Specifies whether a header row is added to the CSV output. It can be:

F (for FORCED)
Indicates that the header row is written in any case.

Y (for YES)
Indicates that the header row is written only if input data is available.

N (for NO)
Indicates that the header row is not written.

HDRPDCOL
Specifies whether the Performance Database (PDB) column name or the report label in the field selection list is used as header row. It can be Y (for YES) or N (for NO).

It is ignored if HDRROW=N.

If HDRPDCOL=N, the REPORT LABEL (V) entries are chosen as CSV column names. You can modify these entries according to your requirements.

DELIM
Specifies the CSV delimiter to be used in the output. It can be a comma (,) or a semicolon (;).

DECSEP
Specifies which decimal separator is used in the output. It can be a dot (.) or a comma (,):

Dot (.)
If DELIM is a comma (,), DECSEP must be a dot (.) and the CSV output is suited for workstation settings with dot as decimal separator.

Comma (,)
If DELIM is a semicolon (;), DECSEP must be a comma (,) and the CSV output is suited for workstation settings with comma as decimal separator.

SAMPDIR
Specifies the sample RKO2SAMP / TKO2SAMP library to be used.

The following DD names must be specified in FPEPCSVJ:

... //STEPLIB DD DSN=<db2ompe>.TKANMOD,DISP=SHR //SYSPRINT DD SYSOUT=**
Where:

**FLDSEL**

Specifies the field selection lists you want to use.

For each supported **TYPE**, a sample *master selection list* is provided in the library that contains all fields in the sequential load file records that have a column in the associated Performance database (PDB) table.

The master field selection lists for all supported data sets of Accounting and Statistics File, converted Save-File, and Record Trace File are provided in the **RKANSAMF / TKANSAMF** library. The name of a field list **FPEP** consists of the component code **FPEP** and the record type described in input parameter **TYPE**. For more information refer to “Input parameters” on page 2986. For example, **FPEPSFBU** is the sample field selection list for the Spreadsheet Input-Data Generator utility and Statistics File data, category BUFFER POOL.

**INPUT**

Specifies the data set of Accounting or Statistics File, converted Save-File, or Record Trace File.

**OUTPUT**

Specifies the CSV data set.

### Input and output data sets

The input and output data sets have following characteristics:

- A field selection list (such as **FPEPSGEN**) specifies which fields from the sequential load file input data set are transformed to the CSV output.
- For each supported **TYPE**, a sample *master field selection list* is provided that contains all fields in the sequential load file records that have a column in the associated Performance database (PDB) table.

You can create subsets of these field selection lists for tailoring the CSV output to your needs. The record layout is as follows:

1. The first 13 rows contain the copyright statement. Comments must start with a forward slash followed by an asterisk (**/***) and end with an asterisk followed by a slash (***/) You can delete or update these comments.

2. The next two header rows and the first three columns are fixed (**=F**) You must not change them.

3. The fourth and fifth columns are variable (**=V**) You can modify them.

Here is a sample for the field selection list for Statistics data, category GENERAL (**FPEPSGEN**):

```plaintext
// ***Start of Specifications**********************************************************************************
// * MODULE-NAME = FPEPSGEN  
// * DESCRIPTIVE-NAME = Field selection list for Spreadsheet Utility  
// * COPYRIGHT : IBM OMEGAMON XE for DB2 PE on z/OS V5  
//   Licensed Material - Property of IBM  
//   5655-W37 (C) Copyright IBM Corp. 1993, 2015  
// * FUNCTION = Sample field selection list for Spreadsheet Utility and Statistics data, category GENERAL.  
// ***End of Specifications**********************************************************************************
```

Chapter 6. Batch reporting  2989
The record layout of a field selection list contains the following headers and columns:

**FIELD (F)**

The FIELD header and its column is fixed (=F). You must not change it.

**PDB COLUMN NAME (F)**

The PDB COLUMN NAME (Performance Database) header and its column is fixed (=F). You must not change it.

**TYPE (F)**

The TYPE header and its column is fixed (=F). You must not change it. The following values are possible:

- **AGGR**  
  Aggregated value by DB2
- **HWM**  
  High-water mark
- **SNAP**  
  Snapshot value

**FORMAT (V)**

The FORMAT header and its column is variable (=V). You can modify it. This column specifies special formatting routines. The following formats are supported:

- **MB**  
  Divides input value (bytes expected) by 1024*1024.
  
  If MB is specified in the master field selection list, then (MB) is shown as a suffix of the report label.
- **P2MB**  
  Formats number of pages (4K-pages expected) as MB value.
  
  If P2MB is specified in the master field selection list, then (MB) is shown as a suffix of the report label.
- **HEX**  
  Shows the hexadecimal value.
- **S2T**  
  Transforms a store-clock value to a readable time format.
- **BP2C**  
  Transforms buffer pool identifiers (small integers) in the BP_ID columns of Accounting and Statistics spreadsheets to a character representation, such as:

  0 → BP0
  
  100 → BP8K0
GBP2C
Transforms group buffer pool identifiers (small integers) in the GBP_ID columns of Accounting and Statistics spreadsheets to a character representation, such as:

\[
\begin{align*}
0 & \rightarrow \text{GBP0} \\
100 & \rightarrow \text{GBP8K0}
\end{align*}
\]

REPORT LABEL (V)
The REPORT LABEL header and its column is variable (=V). You can modify it.

Note:
- If HDRPDGCOL=N, the REPORT LABEL entries are chosen as CSV column names. You can modify these entries according to your requirements.
- The sample field selection lists contain report labels which are derived from the labels in Accounting and Statistics reports. Some report labels refer to the Performance database (PDB) column name.

Field selection lists are delivered in the RKANSAMF / TKANSAMF library with the following attributes:

- **Organization** . . . : PO
- **Record format** . . . : FB
- **Record length** . . . : 132

The Spreadsheet Input-Data Generator expects field selection lists under DD name FLDSEL in a partitioned data set with the above attributes of the RKANSAMF / TKANSAMF library. This means that you can use the master field selection lists of RKANSAMF / TKANSAMF as input if you do not want to customize the lists. Otherwise, you should copy the sample lists to a partitioned data set with the above FB132 attributes and tailor them to your needs.

The **sequential load file** denotes the File or converted Save-File data set that is input for the Spreadsheet Input-Data Generator. The records of the input data set which satisfies the WHEN condition of the TYPE-related LOAD statement are read, the fields specified in the selection list are retrieved from this input record, converted, and added to the CSV record according to the PERSEC and format options.

The Spreadsheet Input-Data Generator expects the input data set under DD name INPUT.

The TKO2SAMP directory is delivered with OMEGAMON XE for DB2 PE. It contains the PDB parts which are needed for the CSV creation (fields, positions, data types, and so on). The Spreadsheet Input-Data Generator expects the original product library as input. A run-time environment contains the parts in directory RKO2SAMP. The Spreadsheet Input-Data Generator expects the directory name as the 7-th input parameter after the decimal separator.

The output CSV data set must be provided to the Spreadsheet Input-Data Generator under DD name OUTPUT. The data set attributes are:

- **Organization** . . . : PS
- **Record format** . . . : VB
- **Record length** . . . : 32756
- **Block size** . . . : 32760

**Note:** All input data sets must have the same OMEGAMON XE for DB2 PE version and maintenance level. The Spreadsheet Input-Data Generator:
• Checks the syntactical correctness of RKO2SAMP / TKO2SAMP members. If you use the original product library, the syntactical correctness is ensured. The Spreadsheet Input-Data Generator detects if members are changed or if they use the wrong syntax (such as unknown SQL syntax).

• Supports 1000 columns in one CSV row. For example, the Statistics File/Save General records currently contain about 600 fields.

Sample procedures and JCL

The Spreadsheet Input-Data Generator is invoked using PROCs and JCLs as shown in the following samples delivered with the RKANSAM / TKANSAM library. The following example creates a spreadsheet for Statistics data, category BUFFER POOL (SBUF) based on the master selection list <user_h1q>.FPECSVU(FPEPSBUF).

Use FPEPCSVJ to invoke the Spreadsheet Input-Data Generator utility.

```plaintext
/* Start of Specifications**********************************************
 */
/* MODULE NAME : FPEPCSVJ   */
/* */
/* DESCRIPTION : Spreadsheet Utility sample job   */
/* */
/* COPYRIGHT : IBM OMEGAMON XE for DB2 PE on z/OS V5   */
/* Licensed Material - Property of IBM   */
/* 5655-W37 (C) Copyright IBM Corp. 1993, 2015  */
/* */
/* FUNCTION : Invoke spreadsheet utility   */
/* */
/* Notes =   */
/* 1. Add a valid job card   */
/* 2. Change the prefix of the OMEGAMON XE for DB2 PE   */
/* 3. Change the prefix of the user libraries <user_h1q>   */
/* 4. DDnames represent the following files...   */
/* FLDSEL User-modified field selection list   */
/* INPUT Accounting / statistics FILE or   */
/* OUTPUT Spreadsheet CSV data set   */
/* */
/* Verify the DD parameters (allocation, quantities, etc.)   */
/* */
/* End of Specifications**********************************************
 */
/* FPEPCSV EXEC PGM=FPEPCSV,   */
/* SDM='SBUF N N ', - <db2zompe>.TKO2SAMP'   */
/* STEPLIB DD 00 DSN=<db2zompe>.TKANMOD,DISP=SHR   */
/* SYSPRINT DD 00 SYSOUT='   */
/* FLDSEL DD 00 DSN=<user_h1q>.FPECSVU(FPEPSBUF),DISP=OLD   */
/* INPUT DD 00 DSN=<user_h1q>.STFILE,DISP=OLD   */
/* OUTPUT DD 00 DSN=<user_h1q>.SCSVBUF,DISP=(NEW,CATLG,DELETE),   */
/* UNIT='SYSDA',SPACE=(CYL,(150,150),RLSE),   */
/* OCB=(RECFM=VB,RECFM=32766,BLksz=32760)   */
```

Multiple invocations of the OMEGAMON XE for DB2 PE Spreadsheet Input-Data Generator can be organized using job procedures with additional parameters for the input or output data sets. The &OUTDISP parameter specifies whether an existing CSV data set is overwritten or whether CSV records are appended to the end.

Use FPEPCSVVP to invoke the Spreadsheet Input-Data Generator utility with a job procedure.

```plaintext
/* Start of Specifications**********************************************
 */
/* MODULE NAME : FPEPCSVVP   */
/* */
/* DESCRIPTION : Spreadsheet Utility sample job procedure   */
/* */
/* COPYRIGHT : IBM OMEGAMON XE for DB2 PE on z/OS V5   */
/* Licensed Material - Property of IBM   */
/* 5655-W37 (C) Copyright IBM Corp. 1993, 2015  */
/* */
/* FUNCTION : Invoke spreadsheet utility with job procedure   */
/* */
/* Notes =   */
/* 1. Change the prefix of the OMEGAMON XE for DB2 PE load   */
/* 2. DDnames represent the following files...   */
```
Use FPEPCSVS to invoke the Spreadsheet Input-Data Generator utility and create multiple Statistics spreadsheets with a job procedure.

Start of Specifications

**LIBS**
** OUTPUTDS=<user_hlq>.SCSVSGEN, OUTPUTDS=<user_hlq>.SCSVSGBP, OUTPUTDS=<user_hlq>.SCSVSDDF, OUTPUTDS=<user_hlq>.SCSVSACC, /*End of Specifications*/

** Description: Spreadsheet Utility sample job for creation of Statistics FILE and SAVE spreadsheets
** Copyright: IBM OMEGAMON XE for DB2 PE on z/OS V5 Licensed Material - Property of IBM
** Function: Invoke spreadsheet utility and create multiple Statistics spreadsheets with a job procedure
** Notes:
** 1. Add a valid job card
** 2. Change the prefix of the OMEGAMON XE for DB2 PE
** 3. Change the prefix of the user libraries <user_hlq>
** 4. DNames represent the following files...
** 5. LIBS Library of job procedure FPEPCSV

```
//** MODULE NAME : FPEPCSV
/**
** DESCRIPTION : Spreadsheet Utility sample job for creation of Statistics FILE and SAVE spreadsheets
** COPYRIGHT : IBM OMEGAMON XE for DB2 PE on z/OS V5 Licensed Material - Property of IBM
** FUNCTION : Invoke spreadsheet utility and create multiple Statistics spreadsheets with a job procedure
** NOTES :
** 1. Add a valid job card
** 2. Change the prefix of the OMEGAMON XE for DB2 PE
** 3. Change the prefix of the user libraries <user_hlq>
** 4. DNames represent the following files...
** 5. LIBS Library of job procedure FPEPCSV

//** End of Specifications
```

Chapter 6. Batch reporting  2993
You can now import the generated CSV data into your spreadsheet tools at the workstation and use graphical representations or pivot tables for performance analysis.

Further reference information

The following information provides details about specific themes that are of interest on special occasions.

Using GROUP to improve Save data set performance

If you never require separate report entries for one or more OMEGAMON XE for DB2 PE identifiers, you can use GROUP to reduce the uniqueness of the key in the Save data. This can result in fewer reduced records in the Save data set, a smaller Save data set, and improved performance.

The standard key for Save data sets contains a combination of the applicable OMEGAMON XE for DB2 PE identifiers from DB2 instrumentation records. For example, the key for an Accounting save record contains a number of OMEGAMON XE for DB2 PE identifiers. Because of the uniqueness of the standard key, there can be a very large number of reduced records in a Save data set.

If you never require separate report entries for one or more OMEGAMON XE for DB2 PE identifiers, for example, if you only produce Accounting reports by using ORDER(CONNECT-PRIMAUTH-PLANNAME), you can use groups in INCLUDE REDUCE to obtain the minimum number of records in the Save data set.

The following command stream does not use groups. The resulting Save data set contains reduced records for each unique combination of all of the OMEGAMON XE for DB2 PE identifiers in the key.

```
ACCOUNTING
REDUCE
SAVE
```

The following command stream uses groups and minimizes the number of records in the Save data set:

```
GROUP (CORRNAME (ALLCNM(*)))
```
The Save data set produced by this command stream contains reduced records for each unique value of the OMEGAMON XE for DB2 PE identifiers that are not grouped, for example, PRIMAUTH and PLANNAME.

During REDUCE processing, the group name is substituted for the original value of the key entry. For example, all records in the reduced data have a correlation name of ALLCNM.

Because the key now contains the group name (not the original value), you cannot use the original values of any of the grouped OMEGAMON XE for DB2 PE identifiers in REPORT or INCLUDE/EXCLUDE in the same command stream or when you restore the data.

### Comparing original authorization IDs with primary authorization IDs

This information explains the difference between original authorization ID and primary authorization ID.

#### Original authorization ID

During connection to DB2 (either by IDENTIFY or SIGNON), an initial authorization value is passed to the connection exit. This value becomes the original authorization ID.

For IDENTIFY:
- If RACF is active, this value is the verified user ID.
- If RACF is not active, this value is blank.

For IMS SIGNON:
- If RACF is active, this value is the terminal user ID.
- If RACF is not active, this value is either the LTERM name or the PSB name.

For CICS SIGNON:
- This value is determined by the user-defined CICS resource control table (RCT). The connection (authorization) exit can be either the IBM supplied default or user-written, depending upon whether secondary authorization IDs are used.

#### Primary authorization ID

The primary authorization ID is the value set by the exit. This value is determined according to the following criteria:
- Whether it is an IDENTIFY or a SIGNON
- Whether RACF is active or inactive
- Whether the exit is IBM supplied or user-written
- Whether secondary IDs are being used
Default values can be any of the following:
  • The TSO logon ID
  • The value of the USER field on the JOB statement
  • A default value specified when you install DB2
  • The original (unaltered) value

Note:
  • The original authorization ID should be used when you attempt to establish accountability of DB2 activity, because the primary authorization ID can be an ID other than the user (group name, for example).
  • If your subsystem uses authorization ID translation for distributed activity, the AUTHID reported for DBATs is the translated value.

**Comparing secondary IDs with SQL ID**

DB2 uses two other types of authorization IDs:
  • Secondary authorization IDs
  • SQL ID

If secondary IDs are used, a user-written authorization exit is also required. A secondary list can contain from 1 to 245 secondary IDs. This list is accessed when you establish the primary authorization ID or the SQL authorization ID.

The primary ID and the SQL ID are set during either IDENTIFY or SIGNON. However, only the SQL ID can be changed after connection by the SET CURRENT SQLID statement.

The SQL ID must be either the primary ID or one of the secondary IDs. It is used for implicit name qualifiers, implicit ownership assignment, and GRANT/REVOKE authorization checking.

For more detailed information about authorization IDs, see the IBM Knowledge Center.

**Fields affected by roll-up during distributed and parallel tasks**

The following table lists fields that are not reported by Accounting reports and traces if roll-up during distributed activity and parallel query tasks is active.

See “Distributed activity” on page 2870 and “Query parallelism considerations” on page 2871 for background information.

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPACAANM</td>
<td>ACTIVITY NAME</td>
</tr>
<tr>
<td>QPACAANM_VAR</td>
<td>ACTIVITY NAME</td>
</tr>
<tr>
<td>QPACASCH</td>
<td>SCHEMA NAME</td>
</tr>
<tr>
<td>QPACASCH_VAR</td>
<td>SCHEMA NAME</td>
</tr>
<tr>
<td>QPACBJST</td>
<td>CLASS 7: BEGINNING TCB CPU TIME</td>
</tr>
<tr>
<td>QPACCANM</td>
<td>STORED PROCEDURE EVENTS</td>
</tr>
<tr>
<td>QPACCCAST</td>
<td>SCHED.PROCEDURE SUSP TIME</td>
</tr>
<tr>
<td>QPACCONT</td>
<td>CONSISTENCY TOKEN</td>
</tr>
<tr>
<td>QPACEJST</td>
<td>ENDING TCB CPU TIME</td>
</tr>
</tbody>
</table>
Using ACCOUNTING REDUCE subcommand options to balance performance and data set space

OMEGAMON for Db2 PE provides several commands for which the REDUCE subcommand and its options can be used to reduce the volume of data before the data is passed to subsequent other subcommands like REPORT and SAVE.

When OMEGAMON for Db2 PE processes a REDUCE subcommand, it holds its temporary data in a REDUCE data set to relieve virtual storage. This temporary data set is either automatically allocated or, if its placement and size needs to be controlled, explicitly specified as a ccWORK DD statement in your JCL. (cc stands for the report set, respectively the command to which the temporary REDUCE data set is associated, for example, AC for the ACCOUNTING command).

When using REDUCE, it is difficult to determine in advance an appropriate size of the temporary data set. The required size depends mostly on the amount and complexity of input data to be reduced and on REDUCE subcommand options like FROM/TO, INCLUDE/EXCLUDE, INTERVAL, and BOUNDARY, which influence the reduction factor.

The REDUCE subcommand option CALCULATE helps to reduce a high volume of Accounting data results in unacceptable performance, difficulties to determine adequate ACWORK space, or even abnormally terminated jobs (abend B37).

It provides information about the ACWORK space actually used during a REDUCE step. It can determine an adequate size for the ACWORK data set with regard to the amount and complexity of the data to be reduced. If insufficient ACWORK space is specified, and the job consequently terminates. In this case the CALCULATE option provides information about the size required to successfully complete the job in a second run.

This option is purely performance- and processing-related and does not manipulate data in any way. For the latter purpose use REDUCE subcommand options like FROM/TO, INCLUDE/EXCLUDE, INTERVAL, and BOUNDARY.

For the complete command syntax of ACCOUNTING REDUCE and for more information about the ACWORK DD statement, see the Report Command Reference.
For example, OMEGAMON for Db2 PE, by default, automatically allocates a temporary ACWORK data set to hold output data from the REDUCE subcommand. To control the placement and size of this data set, you can also specify a ddname of ACWORK. However, if the allocated size is too small for the temporary data, REDUCE processing terminates because of insufficient space (abend B37). You have to increase the size of the data set and run the job again, still without knowing an appropriate size.

In this case, you can use the CALCULATE subcommand option to calculate the appropriate size of ACWORK.

```
ACCOUNTING
  REDUCE
    Other REDUCE subcommand options
    CALCULATE
    REPORT
    SAVE
```

With CALCULATE in the command stream, OMEGAMON for Db2 PE counts the number and lengths of records written to ACWORK during ACCOUNTING REDUCE processing.

- If ACWORK is sufficiently sized, REDUCE processing finishes normally and the information message FPEA0800I is shown in DPMLOG, which provides details about the calculations.
  
  Subsequent subcommands of ACCOUNTING (here, REPORT and SAVE) will be executed.
  
  You can compare the specified size of ACWORK to the value shown in the message. You might want to adjust your specification to the same dimension, considering a bonus for variations of the input data.

- If the specified size of ACWORK is too small, REDUCE processing stops writing to the data set. However, OMEGAMON for Db2 PE continues counting and calculating until all input data to REDUCE is processed. The error message FPEA0801S in DPMLOG provides details about the minimum required size of ACWORK. Finally, the job terminates with abend B37.
  
  Subsequent subcommands of ACCOUNTING (here, REPORT and SAVE) will not be executed.
  
  It is recommended that you specify the size of ACWORK to at least the value shown in the message plus 20%. Then, you must rerun the job again.

In both messages the other values describe the amount and quality of processed records. The error message FPEA0801S is accompanied by other error messages indicating a failure to write to ACWORK. For more information, see [Messages](#).

### Accessibility

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use software products successfully.

This index describes the major accessibility features in OMEGAMON XE for DB2 PE, OMEGAMON XE for DB2 PM, and Buffer Pool Analyzer:

- You can operate all features using the keyboard instead of the mouse.
- You can change the system settings for high contrast for all user interface controls and client area contents.

The following sections explain how to use these accessibility features.
Operating all features by using the keyboard

You can use keys or key combinations to perform operations that can also be done through mouse actions. All menu items can be accessed from the keyboard. In those cases, the keyboard equivalent appears to the right of the menu item, or the shortcut letter is underlined. Some keyboard items also have shortcuts.

To navigate through a window or dialog by using the keyboard instead of the mouse, use the following keyboard shortcuts:

<table>
<thead>
<tr>
<th>Navigating through a window or dialog</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access the menu bar in a window</td>
<td>Alt+underlined letter or F10</td>
</tr>
<tr>
<td>Activate a menu item in the menu bar</td>
<td>Enter</td>
</tr>
<tr>
<td>Access controls in a dialog</td>
<td>Alt+underlined letter</td>
</tr>
<tr>
<td>Navigate through the menu bar</td>
<td>Right arrow, left arrow, down arrow, up arrow</td>
</tr>
<tr>
<td>Move to the next set of controls</td>
<td>Tab or Ctrl+Tab</td>
</tr>
<tr>
<td>Move to the previous set of controls</td>
<td>Shift-Tab</td>
</tr>
<tr>
<td>Move within tables</td>
<td>Tab or right arrow, Shift-Tab or left arrow, down arrow, up arrow</td>
</tr>
<tr>
<td>Move within trees</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Expand a tree node</td>
<td>Right arrow</td>
</tr>
<tr>
<td>Collapse a tree node</td>
<td>Left arrow</td>
</tr>
<tr>
<td>Move within list boxes</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Move within combo boxes</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Move to a split bar in a window</td>
<td>F8</td>
</tr>
<tr>
<td>Resize a window by using the split bar</td>
<td>Arrow keys</td>
</tr>
</tbody>
</table>

To perform main tasks in windows by using the keyboard instead of the mouse, use the following keyboard shortcuts:

<table>
<thead>
<tr>
<th>Task</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Help</td>
<td>F1</td>
</tr>
<tr>
<td>Close the active window</td>
<td>Ctrl+W or Alt+F4</td>
</tr>
<tr>
<td>Exit the application</td>
<td>Ctrl+Q</td>
</tr>
<tr>
<td>Cut</td>
<td>Ctrl+X</td>
</tr>
<tr>
<td>Copy</td>
<td>Ctrl+C</td>
</tr>
<tr>
<td>Paste</td>
<td>Ctrl+V</td>
</tr>
<tr>
<td>Print</td>
<td>Ctrl+P</td>
</tr>
<tr>
<td>Refresh displayed data</td>
<td>F5</td>
</tr>
<tr>
<td>Enter or leave history mode</td>
<td>Ctrl+H</td>
</tr>
<tr>
<td>Move back in history mode</td>
<td>Alt+left arrow</td>
</tr>
<tr>
<td>Move forward in history mode</td>
<td>Alt+right arrow</td>
</tr>
<tr>
<td>Add a new subsystem in System Overview</td>
<td>Ctrl+N</td>
</tr>
</tbody>
</table>
Table 258. Keyboard shortcuts in a window (continued)

<table>
<thead>
<tr>
<th>Task</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add a new configuration in Trace Configurations</td>
<td>Ctrl+N</td>
</tr>
<tr>
<td>Open a report in Buffer Pool Analyzer</td>
<td>Ctrl+O</td>
</tr>
<tr>
<td>Start a simulation process in Buffer Pool Analyzer</td>
<td>Ctrl+I</td>
</tr>
<tr>
<td>Cancel Thread in Thread Summary and Details</td>
<td>Del</td>
</tr>
<tr>
<td>Delete Trace Configuration in Trace Configurations</td>
<td>Del</td>
</tr>
<tr>
<td>Open Trace Configuration</td>
<td>Ctrl+Alt+N</td>
</tr>
<tr>
<td>Open Trace Activation</td>
<td>Ctrl+Alt+A</td>
</tr>
<tr>
<td>Open Exception Processing</td>
<td>Ctrl+Alt+E</td>
</tr>
<tr>
<td>Open System Overview</td>
<td>Ctrl+Alt+O</td>
</tr>
<tr>
<td>Open Buffer Pool Analyzer</td>
<td>Ctrl+Alt+B</td>
</tr>
<tr>
<td>Open DB2 command for the active subsystem</td>
<td>Ctrl+Alt+D</td>
</tr>
<tr>
<td>Open Statistics Details for the active subsystem</td>
<td>Ctrl+Alt+S</td>
</tr>
<tr>
<td>Open System Health for the active subsystem</td>
<td>Ctrl+Alt+H</td>
</tr>
<tr>
<td>Open All Threads in Lock Conflict for the active subsystem</td>
<td>Ctrl+Alt+L</td>
</tr>
<tr>
<td>Open Locking Conflicts for the active subsystem</td>
<td>Ctrl+Alt+C</td>
</tr>
<tr>
<td>Open System Parameters for the active subsystem</td>
<td>Ctrl+Alt+Y</td>
</tr>
<tr>
<td>Open Performance Warehouse for the active subsystem</td>
<td>Ctrl+Alt+P</td>
</tr>
<tr>
<td>Open Thread Summary for the active subsystem</td>
<td>Ctrl+Alt+T</td>
</tr>
</tbody>
</table>

To perform main tasks in dialogs by using the keyboard instead of the mouse, use the following keyboard shortcuts:

Table 259. Keyboard shortcuts in a dialog

<table>
<thead>
<tr>
<th>Task</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirm a dialog</td>
<td>Enter</td>
</tr>
<tr>
<td>Cancel a dialog</td>
<td>Esc</td>
</tr>
<tr>
<td>Activate a button that has the focus</td>
<td>Spacebar or Enter</td>
</tr>
<tr>
<td>Select and deselect check boxes and radio buttons</td>
<td>Spacebar</td>
</tr>
<tr>
<td>Navigate within check box and radio button groups</td>
<td>Arrow keys</td>
</tr>
<tr>
<td>Open combination box menu</td>
<td>Alt+down arrows</td>
</tr>
<tr>
<td>Close combination box menu</td>
<td>Esc</td>
</tr>
<tr>
<td>Move up and down in combination box menu</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Activate combination box menu item</td>
<td>Spacebar or Enter</td>
</tr>
<tr>
<td>Move within a list box</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Activate a list box entry</td>
<td>Enter</td>
</tr>
</tbody>
</table>
Table 259. Keyboard shortcuts in a dialog  (continued)

<table>
<thead>
<tr>
<th>Task</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move between the pages of a window that contains tabs if the tab has the focus</td>
<td>Right arrow, left arrow</td>
</tr>
</tbody>
</table>

**Changing the system settings for high contrast and font size**

You can change the system settings for high contrast and font size.

To use specific settings that are designed for easy reading, take these steps:

1. In the OMEGAMON XE for DB2 PE - System Overview window, click **Monitor** → **Configuration**.
2. In the Configuration window, click **Accessibility**.
3. To specify the appearance scheme for high contrast and font size, select one of the following options:
   - To use the default settings, select **[None]**.
   - To specify a white background containing black text in normal font size, select **Black on white**.
   - To specify a white background containing black text in large font size, select **Black on white (large font)**.
   - To specify a black background containing white text in normal font size, select **White on black**.
   - To specify a black background containing white text in large font size, select **White on black (large font)**.

You have to restart the application before the new settings come into effect.

**Troubleshooting empty reports**

This topic lists and explains several reasons why your report might not contain any report data. Use this information as a guide to identify possible reasons, including inappropriate command parameters.

At its core, OMEGAMON XE for DB2 PE identifies data to be collected and reported by IFCIDs. "DB2 instrumentation data" on page 2762 provides an overview of how IFCIDs map to report sets, DB2 trace types and DB2 trace classes. The basic rule is that data to be reported needs to be collected and made available as input data to the report generation process. If required IFCIDs are missing, the generated report ends with **NO DATA TO REPORT**.

The problem of missing IFCIDs might also be caused by different versions of DB2 or OMEGAMON XE for DB2 PE. Both products might support different sets of IFCIDs, which can lead to situations where an IFCID is either not provided by a DB2 version or cannot be processed by an OMEGAMON XE for DB2 PE version. The same problem might arise if data from other sources, like SMF or GTF, is used for reports.

OMEGAMON XE for DB2 PE provides flexible means to specify which data to collect and which data to report. However, it provides no means to protect against inappropriate use of commands, subcommands and subcommand options, which also can result in empty reports.
The following sections list possible reasons why your report might end with a final message of NO DATA TO REPORT.

**Messages indicating unsupported IFCIDs or IFCID formats**

If the job summary log shows message FPEC4015I NUMBER OF RECORDS FROM UNSUPPORTED RELEASES OF DB2 WAS ..., OMEGAMON XE for DB2 PE has detected IFCIDs in its input data that it is not supposed to handle. Either the input data is from an outdated DB2 version and the IFCID is no longer supported by OMEGAMON XE for DB2 PE, or the input data contains IFCIDs from a newer DB2 version and OMEGAMON XE for DB2 PE is not yet aware of them.

If the job summary log shows message FPEC4020I NUMBER OF RECORDS FROM UNSUPPORTED PRODUCT RELEASES WAS ..., the input data (such as input data in DPMOUT format) was created by earlier versions of OMEGAMON XE for DB2 PE or OMEGAMON XE for DB2 PM and is no longer supported.

**Identifying missing IFCIDs**

Report sets such as Accounting, Locking, or Statistics require specific IFCIDs from DB2 instrumentation data, as outlined in "DB2 instrumentation data" on page 2762. If the input data sets (specified with the INPUTDD statement in your job stream) do not contain these IFCIDs, the generated report ends with NO DATA TO REPORT.

For example, an Accounting report requires IFCIDs 3 and 239 in the input data. If the job summary log shows nothing more than in the following example (no IFCIDs 3 and 239), your Accounting report remains empty.

<table>
<thead>
<tr>
<th>IFCID</th>
<th>INPUT COUNT</th>
<th>INPUT PCT OF TOTAL</th>
<th>PROCESSED COUNT</th>
<th>PROCESSED PCT OF TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>89</td>
<td>33.58%</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>2</td>
<td>88</td>
<td>33.20%</td>
<td>0</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

**Note:** The job summary log gives a clear indication about which IFCIDs are contained in your input data. If an IFCID is not listed in the IFCID column or the INPUT COUNT column shows a count of 0, your input data does not contain this IFCID.

**Reasons for missing IFCIDs**

IFCIDs might be missing in your reports because they are either not collected (missing in the input data for the report generation) or being accidentally suppressed or filtered by inappropriate use of commands, subcommands, or subcommand options.

To identify why specific IFCIDs are not collected, review the methods of how the data was collected. "Collecting data for reports" on page 2748 describes several methods, some of them let you explicitly specify what to collect. For example, the DB2 startup parameters might determine that certain trace classes (with their implied IFCIDs) are not started.

If your input data to specific reports contains the required IFCIDs, but your reports still do not show any data, it is likely that restrictive command or subcommand options are in use in your job stream.
The GLOBAL command might apply global filters to all data serving as input to subsequent OMEGAMON XE for DB2 PE commands like ACCOUNTING or STATISTICS.

OMEGAMON XE for DB2 PE commands like ACCOUNTING or STATISTICS might use subcommand options that further restrict the data. The most important ones are:

- FROM/TO might limit the time frame too much.
- INCLUDE/EXCLUDE might limit a DB2 trace class or an IFCID.

For more information about commands and subcommand options, see the Report Command Reference.

For example, a Statistics report requires IFCIDs 1 and 2. The following job summary log shows that 48 records of each IFCID are included in the input data. However, none of these are being processed (PROCESSED COUNT equals 0) during the report generation and consequently the Statistics report is empty.

<table>
<thead>
<tr>
<th>IFCID</th>
<th>INPUT COUNT</th>
<th>INPUT PCT OF TOTAL</th>
<th>PROCESSED COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>48</td>
<td>25.00%</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>48</td>
<td>25.00%</td>
<td>0</td>
</tr>
</tbody>
</table>

**Insufficient amount of Statistics record pairs (IFCIDs 1 and 2)**

Output in a Statistics report requires at least two DB2 Statistics record pairs (IFCIDs 1 and 2) in the input data. These IFCIDs are collected at a configurable interval (DB2 system parameter STATTIME). For more information, see “General Statistics information” on page 2912.

An empty Statistics report usually indicates that either the input data does not cover at least two intervals or that filters restrict the amount of data being processed during report generation.

The following example of a job summary log shows that a sufficient amount of IFCID 1 and 2 records are in the input data (INPUT COUNT column). However, filters have limited the number of processed records below the required minimum of two record pairs (PROCESSED COUNT column). Consequently, the Statistics report is empty.

<table>
<thead>
<tr>
<th>IFCID</th>
<th>INPUT COUNT</th>
<th>INPUT PCT OF TOTAL</th>
<th>PROCESSED COUNT</th>
<th>PROCESSED PCT OF TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>48</td>
<td>25.00%</td>
<td>1</td>
<td>1.02%</td>
</tr>
<tr>
<td>2</td>
<td>48</td>
<td>25.00%</td>
<td>1</td>
<td>1.02%</td>
</tr>
</tbody>
</table>

The following job stream example shows how improper use of subcommand options cause an empty Statistics report. Here, the REDUCE step causes a summarization of input data to an interval of 60 minutes, with a boundary to the start of the hour. However, in the REPORT step the FROM and TO subcommand options limit the data to 30 minutes, which is less than a single interval.

```
STATISTICS
  REDUCE
    INTERVAL(60)
    BOUNDARY(60)
  REPORT
    FROM (12/22/13,12:15:00.00)
```
Messages indicating incomplete Accounting data (IFCIDs 3 and 239)

If the job summary log shows one or more of the following messages, incomplete Accounting data was found in the input data and your Accounting report might be incomplete. In the worst case, the report might end with NO DATA TO REPORT.

- FPEA4531I GENERAL ACCOUNTING DATA FOR LUWID INSTANCE <V1> IS MISSING.
  IFCID 3 IS MISSING.
- FPEA4532I ACCOUNTING DATA FOR A NUMBER OF PACKAGES FOR LUWID <V1> IS MISSING. ONE OR MORE IFCID 239 IS MISSING.
- FPEA4534I COORDINATING PARALLEL TASK FOR LUW INSTANCE <V1> IS NOT REPORTED AS NOT ALL INFORMATION FOR ASSISTING PARALLEL TASKS FROM MEMBER <V1> IS AVAILABLE.

Accounting reports require IFCID 3 for reporting a thread. However, package or program data belonging to a thread is contained in multiple 239 IFCIDs. A 1:n relation is established within the data. For correct reporting a complete set of these IFCIDs is required in the input data.

In case of DB2 Query Parallelism, additional sets of IFCIDs 3 and 239 are required. They were created from parallel processors or from DB2 systems that assisted an initiating agent. Dependent on the degree of parallelism, this can result in a 1:p relation between agent and parallel tasks. In other words, correct Accounting processing needs from the agent one IFCID 3 and \( n \) IFCIDs 239, and for each of the \( p \) parallel tasks also one IFCID 3 and a certain number of IFCIDs 239.

Accounting processing needs a complete set of these IFCIDs for a correct reporting. If either IFCIDs 239 belonging to an IFCID 3 are missing, or if IFCIDs 239 are available but their IFCID 3 is missing, the entire thread is excluded from further processing and reporting.

Report reference

This information provides a detailed description of each report.

This information shows the reports produced by the following products:

- IBM OMEGAMON for Db2 Performance Expert on z/OS
- IBM OMEGAMON for Db2 Performance Monitor on z/OS

It gives examples of each report and describes the fields shown.

Note: In descriptions that apply to both, IBM OMEGAMON for Db2 Performance Monitor on z/OS and IBM OMEGAMON for Db2 Performance Expert on z/OS, the term OMEGAMON for Db2 PE is used for both.

Use this information to interpret OMEGAMON for Db2 PE reports. This information also supplies background and tuning information, where appropriate. If you need more conceptual information about OMEGAMON for Db2 PE reports and how reports are produced, refer to Reporting User’s Guide. For information about OMEGAMON for Db2 PE commands and command syntax, refer to Report Command Reference.
Always check the IBM DB2 and IMS Tools Library web page and the Tivoli library page for the most current version of this information:

- OMEGAMON for Db2 Performance Expert on z/OS (PDFs and Techdocs on Db2 Tools Product Page)
- OMEGAMON for Db2 Performance Monitor on z/OS (PDFs and Techdocs on Db2 Tools Product Page)

OMEGAMON for Db2 PE Logs

This topic provides information about the OMEGAMON for Db2 PE logs.

The OMEGAMON for Db2 PE logs provide summarized information about various events during OMEGAMON for Db2 PE execution. You can save some of this summarized information for use in later processing. The following events are reported:

- Records in exception status
- DB2 START/STOP TRACE commands
- Reduction interval completion by report set
- SAVE subcommand completion by report set
- RESTORE subcommand completion by report set
- Errors and messages
- IFCID record distribution

How to generate logs or how to prevent log generation

The OMEGAMON for Db2 PE logs are generated automatically for each OMEGAMON for Db2 PE execution, provided there are valid DD statements in your JCL. To prevent generation of these logs, omit the ddname from your JCL (the preferred method), or specify DUMMY in the definition.

Different log types

The following OMEGAMON for Db2 PE logs are available:

- The DPMLOG execution log provides a listing of messages issued during command stream validation and OMEGAMON for Db2 PE initialization. It also reports any errors during the execution of OMEGAMON for Db2 PE.
- The exception log provides a listing identifying accounting and statistics records with at least one field containing a value outside user-specified limits.
- The job summary log includes the following occurrences in OMEGAMON for Db2 PE processing:
  - Detection of a DB2 START TRACE or DB2 STOP TRACE command
  - Reduction interval completion by report set
  - SAVE subcommand completion by report set
  - RESTORE subcommand completion by report set
  - Key error and warning messages
- The IFCID frequency distribution log provides the count of the input and processed trace records accumulated by IFCID. For each IFCID, a percentage of the total number of input and processed records is calculated.
DPMLOG Execution Log
This topic provides details about the DPMLOG Execution log.

The DPMLOG Execution log shows:
• Messages issued during OMEGAMON for Db2 PE initialization
• Command stream syntax errors
• Information, warning, and error messages issued during processing

Note: It is recommended that you check the DPMLOG messages after each batch execution, even if the job returned "0" as completion code.

How to generate a DPMLOG Execution log
If the DPMLOG DD statement is omitted, such a statement is dynamically allocated and the output is directed to the default SYSOUT class specified for the job.

Example of a DPMLOG Execution log - SYSPRINT message log
The field labels shown in the following sample of a SYSPRINT message log are described in the following section.

<table>
<thead>
<tr>
<th>MSG.ID.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEC2001I</td>
<td>COMMAND INPUT FROM DDNAME SYSIN</td>
</tr>
<tr>
<td>ACCOUNTING</td>
<td>REDUCE</td>
</tr>
<tr>
<td></td>
<td>INTERVAL (5)</td>
</tr>
<tr>
<td>REPORT</td>
<td>ORDER (INTERVAL)</td>
</tr>
<tr>
<td>EXEC</td>
<td>FPEC1999I SYSTEM INITIALIZATION COMPLETE. RETURN CODE 0</td>
</tr>
<tr>
<td>EXEC</td>
<td>FPEC0999I EXECUTION COMPLETE. RETURN CODE 0</td>
</tr>
</tbody>
</table>

The following sections describe the header and the fields in the DPMLOG Execution log.

The DPMLOG Execution Log Header:
This topic describes the header of the DPMLOG Execution log.

The header of the DPMLOG Execution log contains the following information:

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VnRnMn)
The product name and the version, release, and modification level.

PAGE The page number in the format III-nnnnn, where III denotes the location number within the report and nnnnn the page number within the location.

EXECUTION LOG The name of the log report.
RUN DATE
The date and time of the OMEGAMON XE for DB2 PE job generating the log. The default format is mm/dd/yy hh:mm:ss.th, which can be changed with the DATEFORMAT parameter.

Field Descriptions:

This topic describes the fields shown in the DPMLOG Execution log.

MSG.ID.
The message identification in the format FPEcnnnni, where:
- **FPE** is the product code for OMEGAMON for Db2 PE
- **c** is the OMEGAMON for Db2 PE module component code
- **nnnn** is the error message number
- **i** is an action code. It can have the following values:
  - I (informational)
  - W (warning)
  - E (error)
  - S (severe error)
  - U (unrecoverable error)

DESCRIPTION
The complete text of the error message.

Exception Log
This topic provides details about the Exception log.

The exception log identifies and lists Accounting and Statistics records with at least one field outside user-specified limits. You can use it to identify DB2 threads and Statistics intervals that contain fields with exceptional values. This helps you recognize performance problems in the DB2 subsystem and in threads.

Exception processing is accomplished by setting values in the exception threshold data set. You can define exception thresholds for specific Accounting and Statistics fields. When exception processing is requested, the instrumentation data is checked against these values. Only records with at least one field containing a value outside the user-specified limits are reported.

The exception log file data set is a sequential data set suitable for use by the DB2 load utility. It contains a listing of Accounting and Statistics exception records identical to the listing in the exception log.

Exception traces are available in the Accounting and Statistics report sets. Each of these relates separately to accounting or statistics data. The exception log reports Accounting and Statistics trace exceptions in the same report, in timestamp order. This helps you identify:
- Applications that might be causing exceptional conditions in the DB2 subsystem
- Exceptional DB2 subsystem conditions that might be causing thread performance problems

Although Accounting and Statistics exception reports are available in addition to traces, report entries are neither listed in the exception log nor stored in the exception log file data set.
### Input to Exception Logs

DB2 Statistics and Accounting trace records with IFCID 001 and 002 (statistics) and IFCID 003 and 239 (accounting) are used as input to the exception log.

### How to generate an Exception Log:

This topic describes how to generate an Exception Log.

There is no OMEGAMON for Db2 PE command to generate the exception log. The exception log is generated automatically for an OMEGAMON for Db2 PE execution when the following DD statements are defined in your JCL:

**EXCEPTDD**

Exception threshold data set

**EXTRCDD1**

Exception log

To prevent generation of the exception log, omit the EXTRCDD1 statement from your JCL (the preferred method), or specify DUMMY in the definition.

The amount of data reported in the exception log can be controlled by the GLOBAL INCLUDE or GLOBAL EXCLUDE and FROM and TO specifications.

### Example of the Exception Log:

This topic provides an example of an Exception Log.

#### Exception Log - example

The header and fields shown in the example of the Exception Log are described in the following sections.

<table>
<thead>
<tr>
<th>PLANNAME</th>
<th>ORIGAUTH</th>
<th>CORRNAME</th>
<th>CORRMBR</th>
<th>CONNTYPE</th>
<th>LOCATION</th>
<th>SUBSYSTEM</th>
<th>MEMBER</th>
<th>PAGE</th>
<th>VERSION</th>
<th>DATE: 06/30/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMF001</td>
<td>BATCH</td>
<td></td>
<td></td>
<td></td>
<td>LOCAL1_LA</td>
<td>DB1G</td>
<td>N/P</td>
<td>1</td>
<td>V10</td>
<td></td>
</tr>
<tr>
<td>ADMF001</td>
<td>L282DML</td>
<td>X’AABB1C569657F’</td>
<td>TSO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAINPACK:DSNTEP3</td>
<td>‘BLANK’</td>
<td>T50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exception Time</th>
<th>Field ID</th>
<th>Field Description</th>
<th>By</th>
<th>OR</th>
<th>OP</th>
<th>Value</th>
<th>Threshold</th>
<th>Field Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADPUT</td>
<td>CPU TIME IN APPLICATION (CLASS 1)</td>
<td>TOTAL</td>
<td>0.328675</td>
<td>&gt; 0</td>
<td>PROB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADRECTT</td>
<td>ELAPSED TIME IN APPLICATION (CLASS 1)</td>
<td>TOTAL</td>
<td>3.613503</td>
<td>&gt; 0</td>
<td>PROB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADOSDL</td>
<td>TOTAL SQL DL STATEMENTS</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADOTPPF</td>
<td>TOTAL PARALL.GROUPS FELL TO SEQUENTIAL</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADOTNAP</td>
<td>TOTAL WAIT TIME IN APPLICATION (CLASS 1)</td>
<td>TOTAL</td>
<td>3.284828</td>
<td>&gt; 0</td>
<td>PROB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALCNKR</td>
<td>TOTAL LOCK ESCALATIONS</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALPGDSP</td>
<td>TOTAL ALL SUSPENSIONS (LOCAL AND GLOBAL)</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARRTERM</td>
<td>RED LIST TERMINATED - ANY REASON</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASCDOL</td>
<td>TOTAL SQL DCL STATEMENTS</td>
<td>TOTAL</td>
<td>1 &gt; 0</td>
<td>PROB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASCDML</td>
<td>TOTAL SQL OML STATEMENTS</td>
<td>TOTAL</td>
<td>27 &gt; 0</td>
<td>PROB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASIDOO</td>
<td>TOTAL INSERTS, UPDATES AND DELETES</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQACLJUN</td>
<td>CLAIM REQUESTS UNSUCCESSFUL</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQADEA</td>
<td>DEADLOCKS</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQADRUN</td>
<td>DRAIN REQUESTS UNSUCCESSFUL</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQALEX</td>
<td>LOCK ESCALATIONS - SHARED</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQAREX</td>
<td>LOCK ESCALATIONS - EXCLUSIVE</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQARPL</td>
<td>MAXIMUM PAGE LOCKS HELD</td>
<td>TOTAL</td>
<td>7 &gt; 0</td>
<td>PROB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQASLOC</td>
<td>LOCK SUSPENSIONS</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQATIM</td>
<td>TIMEOUTS</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QMACABR</td>
<td>ROLLBACKS</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QMACCOMM</td>
<td>COMMITS</td>
<td>TOTAL</td>
<td>1 &gt; 0</td>
<td>PROB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QMCALLAB</td>
<td>STORED PROCEDURE ABENDS</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QMCALLRJ</td>
<td>CALL STATEMENT REJECTS</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QMCALLT</td>
<td>CALL STATEMENT TIMEOUTS</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QMEDGSP</td>
<td>PARALL.GROUPS FELL TO SEQ-NO BUFFER</td>
<td>TOTAL</td>
<td>0 &lt; 1</td>
<td>WARN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following sections describe the header and the fields in the Exception Log.

The Exception Log Header:

This topic describes the header of the Exception log.

The header of the Exception log contains the following information:

**LOCATION**

The DB2 reporting location. If the location name is not available, the DB2 data sharing group name is printed in this field. If the DB2 data sharing group name does not exist, the DB2 subsystem ID is printed.

**GROUP**

The name of the DB2 data sharing group. This field shows N/A if there is no group name.

**MEMBER**

The name of the DB2 data sharing member or the member name of the DB2 subsystem. This field shows N/A if there is no member name.

This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

**SUBSYSTEM**

The ID of the DB2 subsystem that generated the data. This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

**DB2 VERSION**

The DB2 version number of the subsystem that generated the data.

**OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VnRnMn)**

The product name and the version, release, and modification level.

**EXECUTION LOG**

The name of the log report.

**PAGE**

The page number in the format illl-nnnnnn, where illl denotes the location number within the report and nnnnnn the page number within the location.

**ACTUAL FROM/TO**

The date and time of the first and last record included in the log for a location, group, subsystem, or member.

**PAGE DATE**

The date of the timestamps printed on this page. A page break occurs at the change of the date. This is useful if a trace page contains more than one entry and the date is not shown for each entry.
**Field Descriptions:**

This topic describes the fields of an Exception Log.

The following fields are shown including OMEGAMON for Db2 PE:

**PRIMAUTH**
The primary authorization ID of the thread.

**ORIGAUTH**
The original authorization ID of the thread.

**PLANNAME**
The DB2 application plan name of the thread.

**CONNECT**
The DB2 connection ID of the thread.

**CORRNAME**
The correlation name of the thread.

**CORRNMBR**
The correlation number of the thread.

**EXCEPTION TIME**
For accounting records, this is the accounting timestamp. For statistics records, this is the END TIME of the statistics interval in which the exception occurred.

**INSTANCE**
The LUW instance number.

**CONNTYPE**
The type of connection for the associated thread. Values are:

- **CICS** CICS Attach
- **DB2 PRIV** DB2 private protocol
- **DB2CALL** DB2 CALL Attach
- **DLI-BTCH** DL/I Batch
- **DRDA** DRDA protocol
- **IMS-CNTL** IMS Control Region
- **IMS-BMP** IMS nontransaction-oriented BMP
- **IMS-MPP** IMS Attach MPP
- **IMS-TBMP** IMS transaction-oriented BMP
- **RRS** RRS attach
- **TSO** TSO foreground and background
UTILITY
Utility attach

If connection type is not present, 'BLANK' is printed.

MAINPACK
This identifier is used to distinguish plans according to the packages they contain.

PER
This identifies the log entry as an exception per system, per plan, or per program.

FIELD ID
The field ID of the accounting or statistics field in exception status.

FIELD DESCRIPTION
A description of the field in exception status. This description matches, as closely as possible, the terminology used in the Accounting and Statistics reports. If the field in exception status is a buffer pool field, the buffer pool ID is printed in front of the field description on the same line. Values are:
- BP0 — BP49
- BP32K — BP32K9

All nondistributed fields for an accounting thread or statistics interval are listed first. Any distributed fields in exception status follow the nondistributed fields and are grouped by remote location. Packages follow after DDF and are grouped by package name.

BY
The basis used for comparing values in the records to values in the exception threshold data set. Values are:
- TOTAL — an absolute value (the default)
- MINUTE — by minute
- SECOND — by second
- COMMIT — by commit
- THREAD — by thread

CALCULATED OR FIELD VALUE
The value from the field in exception status — either an absolute value or a value calculated according to the comparison basis.

Time values are reported in the format ssssss.thtt, where ssssss is time in seconds and thtt is in tenths, hundredths, thousandths, and ten-thousandths of seconds. Integer values such as aborts and selects are reported in the format nnnnnnnnnnn. Other values are reported in the format nnnnnnnn.nn.

OP
The greater than (>) or less than (<) operator.

THRESHOLD VALUE
The value defined in the exception threshold data set, above or below which the actual value must fall to be considered in exception status.

THRESHOLD TYPE
Describes whether the THRESHOLD VALUE is defined in the exception threshold data set as a WARNing or a PROBlem.

Note: PRIMAUTH, ORIGAUTH, PLANNAME, CONNECT, CORRNAME, CORRNMBR, INSTANCE, CONNTYPE, and MAINPACK do not apply to statistics records. Except for MAINPACK, N/A is printed for these fields. For MAINPACK, nothing is printed.
Job Summary Log
This topic provides details about the Job Summary Log.

The OMEGAMON for Db2 PE job summary log provides a summary of events during OMEGAMON for Db2 PE execution, and other information about DB2 that helps you interpret OMEGAMON for Db2 PE reports. The job summary log includes the following events:

- Detection of a DB2 START TRACE or DB2 STOP TRACE command.
- Reduction interval completion by report set. There is a summary of all intervals for each report set at the end of the reduction phase.
- RESTORE subcommand completion by report set. This includes the completion code, DB2 subsystem ID, timestamp information on any restored data, and the ddname of the RESTORE file.
- SAVE subcommand completion by report set. This includes the completion code, DB2 subsystem ID, timestamp information on any restored data, and the ddname of the SAVE file.
- Warning and Error Messages that identify corrupted performance trace input records.

Note: It is recommended that you check the DPMLOG messages after each batch execution, even if the job returned "0" as completion code.

How to Generate the Job Summary Log:

This topic shows how to generate a Job Summary log.

There is no OMEGAMON for Db2 PE command to generate the job summary log. The log is generated automatically for each OMEGAMON for Db2 PE execution, provided that the appropriate ddname is defined in your JCL.

The ddname for the job summary log is JOBSUMDD.

To prevent generation of the job summary log, omit the ddname from your JCL (the preferred method), or specify DUMMY in the definition.

Note: Omitting the ddname for the job summary log also prevents the generation of the IFCID frequency distribution log because both reports are written to JOBSUMDD.

Example of the Job Summary log:

This topic provides an example of the Job Summary log.

Job Summary log - example

The fields shown in the example of the Job Summary log are described in the following sections.
The following sections describe the header and the fields in the Job Summary log.

The Job Summary Log Header:

This topic describes the header of the Job Summary log.

The header of the Job Summary log contains the following information:

**OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VnRnMn)**

The product name and the version, release, and modification level.

**PAGE** The page number in the format *lll-nnnnn*, where *lll* denotes the location number within the report and *nnnnn* the page number within the location.

**JOB SUMMARY LOG**

The name of the log report.

**RUN DATE**

The date and time of the OMEGAMON XE for DB2 PE job generating the log. The default format is *mm/dd/yy hh:mm:ss.th*, which can be changed with the DATEFORMAT parameter.

**Field Descriptions:**

This topic describes the fields of the Job Summary log.

The following fields are shown:
MSG.ID.
The message identification in the format FPEcnnni, where:

- **FPE** is the product code for OMEGAMON for Db2 PE
- **c** is the OMEGAMON for Db2 PE module component code
- **nnnn** is the message number
- **i** is an action code with possible values of:
  - I (informational)
  - W (warning)
  - E (error)
  - S (severe error)
  - U (unrecoverable error)

LOCATION
The DB2 location to which the message applies. If there is no location data, the subsystem ID (DB2ID) is printed.

DESCRIPTION
The complete text of the message.

GROUP
The name of the data sharing group.

SSID
The ID of the data sharing subsystem.

MEMBER
The name of the data sharing member.

TIME_STAMP
The date and time of the current input trace record, in the format mm/dd/yy hh:mm:ss.th.

Job Summary VSAM Data Set:
The job summary VSAM data set (JSSRSDD) is used for saving and restoring data-related Job Summary information.

When accounting or statistics data is saved and JSSRSDD has been included in the job stream, related Job Summary information is written to JSSRSDD. If JSSRSDD has been included in the job stream and data is restored, Job Summary information is restored to the job summary log.

If you are restoring data, the data set defined by JSSRSDD and the data set defined by the restore data set must match, that is, be produced by the same save operation.

JSSRSDD is optional. If you omit JSSRSDD, information about the previous processing of saved data is not restored or information about current processing is not saved.

The VSAM data set defined by JSSRSDD must already exist when you run OMEGAMON for Db2 PE. Either specify an existing data set from a previous OMEGAMON for Db2 PE run (when restoring data), or specify a new data set allocated using the IDCAMS DEFINE CLUSTER function. If an existing data set is used and the SAVE subcommand is specified, the new Job Summary data is added to the previous content.
See the Reporting User's Guide for the attributes of OMEGAMON for Db2 PE VSAM data sets.

Note: Do not specify DUMMY for JSSRSDD.

**IFCID Frequency Distribution Log**

The IFCID Frequency Distribution log provides counts of the trace records by IFCID. There are counts for the number of valid records provided as input to OMEGAMON for Db2 PE as well as for the number of records that are processed after GLOBAL filtering and after duplicate records are dropped.

An IFCID count is listed, and a percentage of the total number of records is calculated.

One copy of the IFCID Frequency Distribution log is produced for each location.

**Input to the IFCID Frequency Distribution logs**

All records supplied as input to OMEGAMON for Db2 PE are used automatically as input to the IFCID Frequency Distribution Log.

**How to Generate an IFCID Frequency Distribution Log:**

This topic shows how to generate an IFCID Frequency Distribution log.

There is no OMEGAMON for Db2 PE command to generate the IFCID Frequency Distribution log. The log is generated automatically for each OMEGAMON for Db2 PE execution, provided that the appropriate ddname is defined in your JCL.

The ddname for the IFCID Frequency Distribution log is JOBSUMDD.

To prevent the generation of the IFCID Frequency Distribution log, omit the ddname from your JCL (the preferred method), or specify DUMMY in the definition.

Note: Omitting the ddname for the IFCID Frequency Distribution log also prevents the generation of the Job Summary log because both logs are written to JOBSUMDD.

**Example of the IFCID Frequency Distribution Log:**

This topic provides an example of an IFCID Frequency Distribution Log.

**IFCID Frequency Distribution Log - example**

The header and fields shown in the example of the IFCID Frequency Distribution Log are described in the following sections.

<table>
<thead>
<tr>
<th>LOCATION: DSNTEK0</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP: DSNTEK0</td>
<td>IFCID FREQUENCY DISTRIBUTION LOG</td>
</tr>
<tr>
<td>MEMBER: TEK1</td>
<td>PAGE: 1</td>
</tr>
<tr>
<td>SUBSYSTEM: TEK1</td>
<td>RUN DATE: 01/30/15 09:40:29.48</td>
</tr>
<tr>
<td>DB2 VERSION: V10</td>
<td>ACTUAL FROM: 01/30/15 20:25:23.86</td>
</tr>
<tr>
<td></td>
<td>TO: 01/30/15 20:34:24.76</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IFCID</th>
<th>COUNT</th>
<th>PCT OF TOTAL</th>
<th>INPUT</th>
<th>INPUT</th>
<th>PROCESSED</th>
<th>PROCESSED</th>
<th>IFCID</th>
<th>INPUT</th>
<th>INPUT</th>
<th>PROCESSED</th>
<th>PROCESSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11</td>
<td>0.00%</td>
<td>11</td>
<td>5.23%</td>
<td>199</td>
<td>143</td>
<td>0.06%</td>
<td>143</td>
<td>68.09%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>11</td>
<td>0.00%</td>
<td>11</td>
<td>5.23%</td>
<td>202</td>
<td>11</td>
<td>0.00%</td>
<td>11</td>
<td>5.23%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>109,219</td>
<td>49.93%</td>
<td>0</td>
<td>0.00%</td>
<td>217</td>
<td>66</td>
<td>0.03%</td>
<td>0</td>
<td>0.00%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
<td>225</td>
<td>11</td>
<td>0.00%</td>
<td>11</td>
<td>5.23%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>11</td>
<td>0.00%</td>
<td>0</td>
<td>0.00%</td>
<td>230</td>
<td>11</td>
<td>0.00%</td>
<td>11</td>
<td>5.23%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>105</td>
<td>22</td>
<td>0.01%</td>
<td>0</td>
<td>0.00%</td>
<td>239</td>
<td>109,170</td>
<td>49.91%</td>
<td>0</td>
<td>0.00%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chapter 6. Batch reporting 3015
The following sections describe the header and the fields in the IFCID Frequency Distribution log.

The IFCID Frequency Distribution Log Header:

This topic describes the header of the IFCID Frequency Distribution log.

The header of the IFCID Frequency Distribution log contains the following information:

LOCATION
The DB2 reporting location. If the location name is not available, the DB2 data sharing group name is printed in this field. If the DB2 data sharing group name does not exist, the DB2 subsystem ID is printed.

GROUP
The name of the DB2 data sharing group. This field shows N/A if there is no group name.

MEMBER
The name of the DB2 data sharing member or the member name of the DB2 subsystem. This field shows N/A if there is no member name.

This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

SUBSYSTEM
The ID of the DB2 subsystem that generated the data. This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

DB2 VERSION
The DB2 version number of the subsystem that generated the data.

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VnRnMn)
The product name and the version, release, and modification level.

IFCID FREQUENCY DISTRIBUTION LOG
The title of the log report.

PAGE
The page number in the format ill-nnnnnn, where ill denotes the location number within the report and nnnnnn the page number within the location.

RUN DATE
The date and time of the OMEGAMON XE for DB2 PE job generating the log. The default format is mm/dd/yy hh:mm:ss.th, which can be changed with the DATEFORMAT parameter.

ACTUAL FROM/TO
The date and time of the first and last record included in the log for a location, group, subsystem, or member.

Field Descriptions:

This topic describes the fields of the IFCID Frequency Distribution log.

The following fields are shown:
IFCID  The IFCID number of the record. The identifier is listed in decimal.

INPUT COUNT  The total number of occurrences of each IFCID in the raw data, after invalid records are rejected and partial GTF records are combined.

INPUT PCT OF TOTAL  The percentage of the total number of input records that the number in INPUT COUNT represents.

PROCESSED COUNT  The total number of occurrences of each IFCID in the processed data after GLOBAL filtering and after duplicate records are dropped. When DPMOUTDD is specified in the JCL, the value in this field is a reflection of the contents of the DPMOUT data set.

PROCESSED PCT OF TOTAL  The percentage of the total number of records in the processed data that the number in PROCESSED COUNT represents.

TOTAL INPUT TRACE RECORDS  The total of the INPUT COUNT column.

TOTAL PROCESSED TRACE RECORDS  The total of the PROCESSED COUNT column.

**Accounting Report Set**

These topics provide information about the Accounting reports.

**Note:** For an introduction to the Accounting report set and general accounting information refer to the [Reporting User’s Guide](#). It also provides information on input to Accounting reports and traces.

**Accounting Default Layouts**

This topic provides examples of the Accounting default layout for SHORT and LONG.

When data from a particular DB2 version is processed, N/A is printed for all fields in the report that are not applicable to that version.

For Accounting, the LAYOUT subcommand option ACCEL provides detailed thread-related Accelerator activity data.

You can use the user-tailored reporting (UTR) facility to modify the layouts and store the changes. If you do this, store your layouts under a different name to avoid confusion and keep the layouts relevant to this documentation.

**Headers Used in Accounting:**

This topic describes the header of the Accounting report layout.

OMEGAMON for Db2 PE header information is printed at the top of each page of an Accounting report or trace. For a report, the header differs depending on whether it is a member-scope or group-scope report.

**Accounting Report Header Member-Scope**

Here is a sample header for an Accounting report generated with member-scope.
Accounting Report Header-Group-Scope

Here is a sample header for an Accounting report generated with group-scope.

| LOCATION: | PMODBN1  | PMODBN1  | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | PAGE: | 1-1 |
| GROUP:    | DBN1     | DBN1     | ACCOUNTING REPORT - SHORT                       | REQUESTED FROM: | NOT SPECIFIED |
| MEMBER:   | SN11     | SN11     | ORDER: PRIMAUTH-PLANNAME                        | TO: | NOT SPECIFIED |
| SUBSYSTEM:| SN11     | SUBSYSTEM: SN11 | SCOPE: MEMBER | INTERVAL FROM: | 01/30/15 22:53:32.60 |
| DB2 VERSION: | V10 | DB2 VERSION: V10 | | TO: | 01/30/15 22:50:05.07 |

Accounting Trace Header

Here is a sample header for an Accounting trace.

| LOCATION: | DSNCAT  | DSNCAT  | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | PAGE: | 1-1 |
| GROUP:    | DSNCAT  | DSNCAT  | ACCOUNTING REPORT - SHORT                       | REQUESTED FROM: | NOT SPECIFIED |
| ORDER:    | PRIMAUTH-PLANNAME | ORDER: PRIMAUTH-PLANNAME | SCOPE: GROUP | INTERVAL FROM: | 01/30/15 18:47:13.28 |
| TO:       | NOT SPECIFIED | TO: | NOT SPECIFIED | TO: | 01/30/15 19:55:28.69 |

Description of the Accounting header fields

The Accounting headers, shown in "Accounting Report Header Member-Scope" on page 3017, "Accounting Report Header-Group-Scope," and "Accounting Trace Header," contain the following information:

**LOCATION**
The DB2 reporting location. If the location name is not available, the DB2 data sharing group name is printed in this field. If the DB2 data sharing group name does not exist, the DB2 subsystem ID is printed.

**GROUP**
The name of the DB2 data sharing group. This field shows N/A if there is no group name.

**MEMBER**
The name of the DB2 data sharing member or the member name of the DB2 subsystem. This field shows N/A if there is no member name.

This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

**SUBSYSTEM**
The ID of the DB2 subsystem that generated the data. This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

**DB2 VERSION**
The DB2 version number of the subsystem that generated the data.

**OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VnRnMn)**
The product name and the version, release, and modification level.

**Title - layout**
The title of the report and the layout. The layout can be a default layout provided with OMEGAMON for Db2 PE or a layout you have tailored yourself.

**ORDER**
If the ORDER option of the REPORT or TRACE subcommand was used to arrange the report entries, the selected keywords are shown in this field.
Depending on the context, the OMEGAMON for Db2 PE identifiers by which lock events are grouped are shown here.

**SCOPE**
Scope of the report or trace, this can be MEMBER or GROUP. A member-scope report or trace shows data from a group for each individual member. In a group-scope report or trace, the data from individual members is consolidated and presented for the entire group.

**PAGE**
The page number in the format 111-nnnnnnn, where 111 denotes the location number within the report and nnnnnn the page number within the location.

**REQUESTED FROM and TO**
The FROM and TO dates and times specified in the REPORT or TRACE subcommand.

If both FROM and TO dates and times are omitted from the REPORT subcommand, the FROM and TO dates and times specified in GLOBAL are printed. If only the FROM date and time or only the TO date and time has been specified, NOT SPECIFIED is printed for the unspecified value.

If FROM and TO are not specified in REPORT or GLOBAL, NOT SPECIFIED appears for both the FROM and TO values.

If you have specified FROM and TO times without dates in REPORT or GLOBAL, ALL DATES is printed along with the specified times.

**INTERVAL FROM**
The start date and time of the first reduction interval covered by the report. If REDUCE is not specified, the INTERVAL defaults to 0 and the timestamps of the first and last events are printed.

**INTERVAL TO**
The end date and time of the last reduction interval covered by the report. If REDUCE is not specified, the INTERVAL defaults to 0 and the timestamps of the first and last events are printed.

**PAGE DATE**
The date of the timestamps printed on this page. A page break occurs at the change of the date. This is useful if a trace page contains more than one entry and the date is not shown for each entry.

**How Averages Are Calculated:**

Accounting reports show times and events averaged over the number of threads whilst Accounting traces show times and events as totals for each thread.

Fields in an Accounting report can show:

- **Averages** presented with two decimal places behind the point.
- **Totals** presented as whole numbers. If it is not possible to distinguish the type of data, totals are indicated with a hash (#) as the first character in the label.
- **Times** presented with six decimal places behind the point.

Averages are calculated by dividing totals by QPACRLNU, which is the number of threads to roll data into this QPAC data section.

\[
\text{Average} = \frac{\text{Total of package counter or time (QPACxxxx)}}{\text{Number of threads that roll data into this QPAC data section (QPACRLNU)}}
\]

This applies to package class 7, 8, or 10 times and events:
package buffer pool activity - class 10 on page 3285
package locking activity - class 10 on page 3300
package SQL activity - class 10 on page 3303
package times - class 7 on page 3312
package global contention P-locks - class 8 on page 3289
package global contention L-locks - class 8 on page 3288
package times - class 8 - suspensions on page 3304
package identification - report on page 3291
package identification - trace on page 3295
package general (short report) on page 3031
package general (short trace) on page 3060

for more information refer to the accounting trace sections for a package.

Averages of plan level counters in repeating data sections are calculated by dividing totals by the number of data sections which are aggregated to produce the report entry (this includes the DDF and RLF count).

Averages of buffer pool counters are calculated on a per-record basis.

accounting report - short:
The short accounting report shows some of the most significant fields averaged over the number of threads.

Short accounting reports are arranged in blocks. Each block contains accounting information about a particular activity. The layout of each block is presented followed by the field descriptions.

You can generate a short version of the accounting report using the following command:

```
... ACCOUNTING REPORT LAYOUT (SHORT) ORDER (PRIMAUTH-PLANNAME) SCOPE (MEMBER) ...
```

Accounting Report - Short

This is an example of a short accounting report.

<table>
<thead>
<tr>
<th>LOCATION: OMPDA5</th>
<th>MEMBER: N/P</th>
<th>SUBSYSTEM: DA5</th>
<th>DB2 VERSION: V10</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMAUTH</td>
<td>#OCCURS</td>
<td>#COMMIT</td>
<td>#ALLOCATE</td>
</tr>
<tr>
<td>PLANNAME</td>
<td>#INSERTS</td>
<td>OPENS</td>
<td>SQLSTMT</td>
</tr>
<tr>
<td></td>
<td>#PREPARE</td>
<td>ELAP.S</td>
<td>CLASS1</td>
</tr>
<tr>
<td></td>
<td>#ROLLBACK</td>
<td>CPU</td>
<td>CLASS2</td>
</tr>
<tr>
<td></td>
<td>FETCHES</td>
<td>GETPAGES</td>
<td>SYSPREP</td>
</tr>
<tr>
<td></td>
<td>MERGES</td>
<td>TOT.PREV</td>
<td>CPUTIME</td>
</tr>
<tr>
<td></td>
<td>DELETES</td>
<td></td>
<td>SUSP.TIME</td>
</tr>
<tr>
<td></td>
<td>CLASS1</td>
<td></td>
<td>LOCKOUT</td>
</tr>
<tr>
<td></td>
<td>CPUTIME</td>
<td></td>
<td>SUSP.</td>
</tr>
<tr>
<td></td>
<td>GETPAGES</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOT.PREV</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| DB2PM            | 1           | 0             | 0.00            | 0.00            | 0.00 | N/P | N/P | 0.00 |
|                  | 0           | 0.00          | 0.00            | 8:13.695925     | N/P | N/P | 0   |
|                  | 0           | 0.00          | 0.00            | 0.002014        | N/P | N/P | 0   |
| 'BLANK'          | 10          | 655           | 0.60            | 505.20          | 10.40 | 0.060370 | 1.20 | 0.00 |
|                  | 0           | 1551.70       | 0.00            | 3.20            | 0.115894 | 3318.30 | 168.50 |

---

3020 IBM Db2 Performance Expert on z/OS
### DB2PM

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<th>CL7</th>
<th>CPU.Time</th>
<th>CL7</th>
<th>SUSP.Time</th>
<th>CL7</th>
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### LOCATION: OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSVSRO)

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### MIS

<table>
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<th>CL7</th>
<th>Elap.Time</th>
<th>CL7</th>
<th>CPU.Time</th>
<th>CL7</th>
<th>SUSP.Time</th>
<th>CL7</th>
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<th>SUSP.Time</th>
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### ADB

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<th>CL7</th>
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### MIS

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</tr>
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### ADB27SP

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### ADB27SP

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Chapter 6. Batch reporting  3021
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<th>SUSP_TIME</th>
<th>CLB</th>
<th>SUSP</th>
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<tbody>
<tr>
<td>!ALL PROG</td>
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<td>0.521746</td>
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<td>111.041</td>
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LOCATION: OMPD86C1  
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)  
GROUP: DB2C1  
ACCOUNTING REPORT - SHORT  
REQUESTED FROM: NOT SPECIFIED  
TO: NOT SPECIFIED  
SUBSYSTEM: SC11  
ORDER: PRIMAUTH-PLANNAME  
INTERVAL FROM: 08/24/16 07:02:00:00  
DB2 VERSION: V12  
SCOPE: MEMBER  
TO: 08/24/16 09:56:00:00  

**PRIMAUTH**

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<th>BUF_UPDT</th>
<th>LOCK</th>
<th>SUS</th>
<th>CLASS1</th>
<th>CTM</th>
<th>TIME</th>
<th>SYM_READ</th>
<th>LOCKOUT</th>
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<th>TOT_PREF</th>
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**DB2PM**

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TO: NOT SPECIFIED  
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TO: 08/24/16 09:56:00:00  

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<td>2</td>
<td>1.00</td>
<td>0.00</td>
<td>0.072999</td>
<td>5.00</td>
<td>5.00</td>
<td>0.50</td>
</tr>
<tr>
<td>ADB27SP</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>1.00</td>
<td>0.074793</td>
<td>16.50</td>
<td>16.50</td>
<td>0.00</td>
</tr>
<tr>
<td>ADB27SP</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>0.007991</td>
<td>244.00</td>
<td>244.00</td>
<td>13.00</td>
</tr>
<tr>
<td>DSNUTIL</td>
<td>3</td>
<td>4</td>
<td>0.00</td>
<td>0.00</td>
<td>0.0085921</td>
<td>147.00</td>
<td>16.00</td>
<td>0.00</td>
</tr>
<tr>
<td>DSNUTIL</td>
<td>0</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>1.022531</td>
<td>0.014510</td>
<td>80.67</td>
<td>0.00</td>
</tr>
<tr>
<td>MIS</td>
<td>7</td>
<td>62</td>
<td>2.99</td>
<td>1.43</td>
<td>5.92911</td>
<td>202.50</td>
<td>8.00</td>
<td>0.00</td>
</tr>
<tr>
<td>MIS</td>
<td>6</td>
<td>6</td>
<td>11.50</td>
<td>0.067391</td>
<td>0.007117</td>
<td>0.058084</td>
<td>17.001</td>
<td>0.00</td>
</tr>
<tr>
<td>MIS</td>
<td>121</td>
<td>500</td>
<td>0.10</td>
<td>3.18</td>
<td>7.36</td>
<td>0.252459</td>
<td>10.58</td>
<td>3.57</td>
</tr>
<tr>
<td>MIS</td>
<td>27</td>
<td>173.73</td>
<td>0.00</td>
<td>1.57</td>
<td>0.019976</td>
<td>70.31</td>
<td>4.95</td>
<td>0.00</td>
</tr>
</tbody>
</table>

### TOTALs

<table>
<thead>
<tr>
<th>Name</th>
<th>Occurs</th>
<th>Allocated</th>
<th>SQLstmt</th>
<th>Elapsed Time</th>
<th>CPU Time</th>
<th>SUSP. Time</th>
<th>CPU Susp. Time</th>
<th>DB Susp. Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS</td>
<td>114</td>
<td>438</td>
<td>3.29</td>
<td>7.65</td>
<td>0.231554</td>
<td>0.48</td>
<td>3.30</td>
<td>0.00</td>
</tr>
<tr>
<td>ADB</td>
<td>0</td>
<td>0</td>
<td>3.05</td>
<td>11:19:383166</td>
<td>0.011790</td>
<td>6.66</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>LOCATION: OMP0B22</td>
<td>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSAM)</td>
<td>PAGE: 5-2</td>
<td>GROUP: DB22</td>
<td>ACCOUNTING REPORT - SHORT</td>
<td>REQUESTED FROM: NOT SPECIFIED</td>
<td>ORDER: PRIMAUTH-PLANNAME</td>
<td>INTERVAL FROM: 08/24/16 07:05:32.04</td>
<td>TO: 08/24/16 09:41:00.00</td>
</tr>
</tbody>
</table>
General (Short Report):

This topic shows detailed information about “Accounting - General (Short Report)".

3026  IBM Db2 Performance Expert on z/OS
This block is part of the Accounting Short Report.

**Accounting - General (Short Report)**

The field labels shown in the following sample layout of “Accounting - General (Short Report)” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#OCCURS</td>
<td>The number of logical accounting records. A logical accounting record can contain more than one physical record.</td>
</tr>
<tr>
<td>#COMMIT</td>
<td>The number of successful two-phase (units of recovery) or single-phase (syncs) commit requests. It indicates the number of units of recovery that are completed successfully, and for which the associated commit duration locks were released. It represents the total number of commit requests.</td>
</tr>
<tr>
<td>#DISTRS</td>
<td>The number of accounting records with distributed activity. That is, the number of accounting records related to allied-distributed, DBAT, or DBAT-distributed threads.</td>
</tr>
<tr>
<td>#ROLLBK</td>
<td>The number of rollback requests. This is the number of units that were backed out, including rollbacks from attaches.</td>
</tr>
</tbody>
</table>

**Special Considerations:**
- Application program abends
- Application rollback requests
- Application deadlocks on database records
- Applications canceled by operator
- Thread abends due to resource shortage

**Field Name:** QWACABRT

This is an exception field.

---

### Example Table

| PRIMAUTH | PLANNAME | #OCCURS | #COMMIT | INSERTS | OPENS | PREPARE | CLASS2 | EL.TIME | BUF.UPDT | LOCK | SUS | #DISTRS | SELECTS | UPDATES | CLOSES | CLASS1 | CPUTIME | CLASS2 | EL.TIME | CPUTIME | SYN.READ | #LOCKOUT | GETPAGES | TOT.PREF |
|----------|----------|---------|---------|---------|--------|---------|--------|--------|--------|-------|-----|---------|---------|---------|--------|--------|--------|--------|--------|--------|---------|--------|--------|---------|----------|
| ABC      |          | 1164    | 1163    | 0.00    | 0.66   | 1.33    | 0.047610| 198.13 | 0.00   |       |     |         |         |         |        |        | 0.11    | 0.050089| 0.009510| 1.32    | 0       |         | 327.38  | 11.30   |         |
| java     |          | 1164    | 0.00    | 0.00    | 0.11   | 0.000089| 0.009510| 1.32    | 0       | 2     |     |         |         |         |        |        | 0.00    | 0.009638| 3.000098| 198.13 | 11.30   |         |         |         |

---

Chapter 6. Batch reporting 3027
processed by the DB2 subsystem, whether the request was an explicit or implicit external request from an IMS or a CICS connection, or an implicit internal request within DB2 when DB2 was the commit coordinator or conducted read-only commit processing as a commit participant on phase-1 calls from an IMS or CICS connection.

For parallel queries, only the commits from the initiating (parent) thread are recorded by this counter.

Field Name: QWACCOMM
This is an exception field.

SELECTS
The number of SQL SELECT statements executed.
Field Name: QXSELECT
This is an exception field.

FETCHES
The number of FETCH statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).
Field Name: QXFETCH

INSERTS
The number of INSERT statements executed.
Field Name: QXINSRT

UPDATES
The number of UPDATE statements executed.
Field Name: QXUPDTE

MERGES
The number of times a MERGE statement was executed.
Field Name: QXMERGE

OPENS
The number of OPEN statements executed.
Field Name: QXOPEN

CLOSES
The number of CLOSE statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).
Field Name: QXCLOSE

DELETES
The number of DELETE statements executed.
Field Name: QXDELET

PREPARE
The number of SQL PREPARE statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXPREP

CLASS1 EL.TIME

The class 1 elapsed time of the allied agent.

Special Considerations:
- If the begin time equals zero, or if the end time minus begin time equals zero or is negative, N/C is shown.
- Threads that can be reused, such as CICS protected threads or IMS/VS wait-for-input message regions, can include time during which the thread was inactive and waiting for work.
- Elapsed time to process distributed requests is included for allied-distributed threads.
- This time includes the time for processing SQL statements issued by stored procedures, user-defined functions, or triggers.
- In query CP, sysplex query, or utility parallelism, this is the time shown in the originating record, which overlaps the elapsed times shown in the parallel records.

Field Name: ADRECETT

This is an exception field.

CLASS1 CPUTIME

The class 1 CPU time in an application. It indicates:
- The class 1 CPU time of the allied agent, which may include the accumulated class 1 TCB time for processing stored procedures, user-defined functions, and triggers.
- The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks generated by utilities.
- In sysplex query parallelism, the individual CPU times are normalized by the conversion factor of the parallel tasks that is related to the originating task.
  - In sysplex query parallelism, only CPU times of parallel tasks, running on the same member of the SYSPLEX group as the originating task, are included.

This CPU time does not include time that is consumed on an IBM specialty engine.

Field Name: ADCPUT

This is an exception field.

CLASS2 EL.TIME

The class 2 elapsed time of the allied agent accumulated in DB2.

Field Name: ADDB2ETT

This is an exception field.

CLASS2 CPUTIME

The class 2 CPU time (in DB2). It indicates:
• The class 2 CPU time for the allied agent. This includes the accumulated class 2 TCB time for processing any stored procedures, user-defined functions, and triggers.
• The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks generated by utilities.
• For batch reporting, in sysplex query parallelism, the individual CPU times are normalized by the conversion factor of the parallel tasks, related to the originating task.
For online monitoring, in sysplex query parallelism, only CPU times of parallel tasks, running on the same member of the sysplex group as the originating task, are included.
This CPU time does not include time that is consumed on an IBM specialty engine.

**Field Name:** ADDBCPUT

This is an *exception* field.

**GETPAGES**

The number of Getpage requests. This counter is incremented by successful Getpage requests for queries processed in parallel for each thread and for all successful and unsuccessful Getpage requests for queries that are not processed in parallel.

**Background and Tuning Information**

Reducing the number of Getpages can improve DB2 performance by reducing the number of synchronous page reads. With fewer Getpages, the requested page is more likely to be returned from the buffer pool. CPU usage is also reduced.

Check the ratio of Getpages to SQL DML statements, as a rule of thumb, try and keep this ratio below six for a typical online transaction SQL.

You might need to modify the database and query design, for example:

• Add indexes to tables to reduce the number of pages scanned.
• Reassess the number of tables used and denormalize them, if necessary.
  As an example, a large table with many columns can result in several pages being fetched to satisfy a simple query requesting just a few columns. Splitting such a table into several tables with fewer columns, tailored to queries, will result in fewer pages returned for each query.
• Use correlated rather than non-correlated queries to force the use of an index.

**Field Name:** QBACGET

This is an *exception* field.

**BUF.UPDT**

The number of times a buffer update occurs. This is incremented every time a page is updated and is ready to be written to DASD. If the same page is updated twice, for example, the number is incremented by 2.

This number is kept for all types of pages including data pages and work-file pages.

**Background and Tuning Information**
A nonzero value indicates any of the following activities:

- SQL INSERT, UPDATE, or DELETE
- Merge scan join
- Internal sort activity on the work files

Check the access path to determine whether sort activity can be minimized or avoided.

**Field Name**: QBACSWS

This is an *exception* field.

**SYN.READ**

The number of synchronous read I/O operations. DB2 increments this counter for each media manager synchronous physical read. Asynchronous I/O requests are not counted.

**Field Name**: QBACRIO

This is an *exception* field.

**TOT.PREF**

The number of sequential, dynamic, and list prefetch requests.

**Field Name**: ABCLSPR

This is an *exception* field.

**LOCK SUS**

The total number of all lock suspensions. This includes local and global lock suspensions.

**Field Name**: ALTSUSP

This is an *exception* field.

**#LOCKOUT**

The number of deadlocks and timeouts.

**Field Name**: ADTIMDLK

This is an *exception* field.

---

**Package General (Short Report):**

This topic shows detailed information about “Accounting - Package General (Short Report)”.

This block is part of the Accounting Short Report.

**Accounting - Package General (Short Report)**

The field labels shown in the following sample layout of “Accounting - Package General (Short Report)” are described in the following section.

<table>
<thead>
<tr>
<th>PROGRAM NAME</th>
<th>TYPE</th>
<th>#OCCURS</th>
<th>CALLS</th>
<th>SQLSTMT</th>
<th>CL7</th>
<th>ELAP.TIME</th>
<th>CL7</th>
<th>CPU TIME</th>
<th>CL7</th>
<th>SUSP.TIME</th>
<th>CL8</th>
<th>SUSP</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKGNAME</td>
<td>PACKAGE</td>
<td>1164</td>
<td>1164</td>
<td>4.15</td>
<td>0.009510</td>
<td>0.009510</td>
<td>0.023908</td>
<td>4.47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**PROGRAM NAME**

The program name (package ID or DBRM name).
In the case of rollup data (Accounting data of DDF/RRSAF threads and parallel tasks accumulated by DB2), the following value is shown "ROLSUM".

Field Name: QPACPKID
This is an exception field.

TYPE
An indicator of whether the block describes a package or a DBRM.
Possible values are PACKAGE, DBRM, and BOTH. BOTH can be shown in reports if there are packages and DBRMs with the same program name.

Field Name: ADPCKTYP

#OCCURS
This value can be one of the following:

• In general, the total number of accounting trace sections for a package or DBRM regardless of enabled or disabled DB2 trace classes 7 and 8 at the time of writing the trace record. In case of Distributed Data Facility (DDF) or Recoverable Resource Manager Services Attach Facility (RRSAF) threads, it is the number of accounting intervals rolled up in a record.

• If REPORT ORDER (ACTNAME) is specified, the total number of package sections of a special activity type depends on the following:
  – If IFCID 233 or 380 is available, stored procedures (SP) are counted based on the available IFCID. If both IFCIDs are available, IFCID 380 is the preferred one for SP reporting. Subprograms called by these SPs are not taken into account.
  – If IFCID 233 or 381 is available, user-defined functions (UDF) are counted based on the available IFCID. If both IFCIDs are available, IFCID 381 is the preferred one for UDF reporting. Subprograms called by these UDFs are not taken into account.
  – If neither IFCID 233, 380, nor 381 is collected, all packages of an activity type are counted. The sum also includes the number of subprograms.

Field Name: ADTOTPOC

#ALLOCs
This value can be one of the following:

• In general, the number of times a package was invoked by a different package. For the first package run by an application, the initial call counts as a package switch. If this package called a nested package (such as a trigger, UDF, or stored procedure), a switch will not be counted upon return from such a package.

• If REPORT ORDER (ACTNAME) is specified, the number of times a package of a special activity type is invoked from a different package depends on the following:
  – If IFCID 233 or 380 is available, the invocations of stored procedures (SP) are counted based on the available IFCID. If both IFCIDs are available, IFCID 380 is the preferred one for SP reporting. Subprograms called by these SPs are not taken into account.
  – If IFCID 233 or 381 is available, the invocation of user-defined functions (UDF) are counted based on the available IFCID. If both
IFCID s are available, IFCID 381 is the preferred one for UDF reporting. Subprograms called by these UDFs are not taken into account.

- If neither IFCID 233, 380, nor 381 is collected, all invocations of an activity type are counted. The sum also includes the number of subprograms.

Field Name: APACSWIT

SQLSTMT

The number of SQL statements issued in this package or DBRM.

This number may not be equal to the total number of SQL statements in the QXST data section because QXST does not count all SQL statements. For example, it does not count commit or rollback statements.

Note: This field is shown for the following field labels in Accounting trace:

- SQL STMT - TOTAL
- SQL STMT - AVERAGE:

Field Name: QPACSQLC

This is an exception field.

CL7 ELAPTIME

The total elapsed time for executing the package or DBRM.

Field Name: QPACSCT

This is an exception field.

CL7 CPU TIME

The class 7 CPU time spent by the package or DBRM. It indicates:

- The TCB time
- The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks generated by utilities.

In sysplex query parallelism, only CPU times of parallel tasks, running on the same member of the sysplex group as the originating task, are included.

This time does not include the CPU time consumed on an IBM specialty engine.

Field Name: ADCPUTP

This is an exception field.

CL8 SUSP.TIME

The waiting time for the package or DBRM due to class 8 suspensions.

Field Name: ADTSUSSTP

This is an exception field.

CL8 SUSP

The number of all types of class 8 suspensions.

Field Name: ADTSUSSCP

This is an exception field.
Distributed Activity Server (Short Report):

This topic shows detailed information about “Accounting - Distributed Activity Server (Short Report)”.

This block is part of the Accounting Short Report.

**Note:** For information on how to calculate total values for multiple lines refer to “Distributed Activity Requester (Short Report)” on page 3037.

Accounting - Distributed Activity Server (Short Report)

The field labels shown in the following sample layout of “Accounting - Distributed Activity Server (Short Report)” are described in the following section.

<table>
<thead>
<tr>
<th>SERVER</th>
<th>PRODUCT ID</th>
<th>PROD VERSION</th>
<th>M ETH</th>
<th>#DDFS</th>
<th>#ROLLBK</th>
<th>#COMMIT</th>
<th>SQLSENT</th>
<th>ROWRECV</th>
<th>CONVI</th>
<th>ELAPSED REQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMODA1</td>
<td>DB2</td>
<td>V10R1 M5</td>
<td>N/P</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2.00</td>
<td>1095.00</td>
<td>1.00</td>
<td>0.154750</td>
</tr>
</tbody>
</table>

SERVER

The name of the remote location with which this information is associated. If the local location is the requester, this field is a server location. If the local location is a server location, this field is the requester location. An allied thread is created at a DB2 requester, and a database access thread is created at a DB2 server. An accounting record is for either a requester or a server, but not for both.

This field is invalid if summary rollup data is present. In Accounting this field is set to "ROLSUM".

**Field Name:** QLACLOCN

This is an exception field.

PRODUCT ID

The original DB2 field specifies the information in the following field names of the remote requester or server location:

**PRODUCT ID**

It consists of 3 characters and can have the following values:

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN</td>
<td>DB2</td>
</tr>
<tr>
<td>ARI</td>
<td>SQL/DS</td>
</tr>
<tr>
<td>QSQ</td>
<td>DB2/400</td>
</tr>
<tr>
<td>SQL</td>
<td>COMMON SERV</td>
</tr>
<tr>
<td>JCC</td>
<td>JDBC DRIVER</td>
</tr>
<tr>
<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>

**Note:**

- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
• In Accounting FILE and SAVE DDF tables, BLANK is shown.

**PRODUCT VERSION (PROD VERSION)**

It consists of 5 digits and is shown as $VvvRrrMm$, where:

- $vv$ Version level
- $rr$ Release level
- $m$ Modification level

**Note:** For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

**Field Name:** QLACPRID

**PRODUCT VERSION**

The original DB2 field specifies the information in the following field names of the remote requester or server location:

**PRODUCT ID**

It consists of 3 characters and can have the following values:

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN</td>
<td>DB2</td>
</tr>
<tr>
<td>ARI</td>
<td>SQL/DS</td>
</tr>
<tr>
<td>QSQ</td>
<td>DB2/400</td>
</tr>
<tr>
<td>SQL</td>
<td>COMMON SERV</td>
</tr>
<tr>
<td>JCC</td>
<td>JDBC DRIVER</td>
</tr>
<tr>
<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>

**Note:**

- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

**PRODUCT VERSION (PROD VERSION)**

It consists of 5 digits and is shown as $VvvRrrMm$, where:

- $vv$ Version level
- $rr$ Release level
- $m$ Modification level

**Note:** For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

**Field Name:** QLACPRID

**METH**

The method of access: DB2 private protocol, DRDA protocol, or both.
This field is invalid if unique or summary rollup data is present. It can have the following value in:

- Accounting Trace and Report: N/P
- The Accounting FILE and SAVE PROGRAM table: blank

**Field Name:** ADPROT

**#DDFS**

The number of occurrences of the remote location and method pair.

**Field Name:** ASDDF

**#ROLLBK**

The total number of rollbacks (single phase and two-phase) sent.

**Field Name:** ADROL12S

**#COMMIT**

The total number of single-phase and two-phase commit requests sent.

**Field Name:** ADCOM12S

**SQLSENT**

The number of SQL statements sent to the server location. This value is maintained at the requesting location.

**Field Name:** QLACSQLS

**ROWRECV**

The number of rows of data retrieved from the server location. This value is maintained at the requester location.

**Special Considerations:**

1. The number of rows received from the server location does not include either the SQLDA or SQLCA.

2. Block fetch can significantly affect the number of rows sent across the network. When used with non-UPDATE cursors, block fetch puts as many rows as possible into the message buffer, and transmits the buffer across the network without requiring a VTAM message. Consequently, more rows of data might be sent from the server location than are received by the reporting (requester) location. This is especially true when DB2 private protocol is used because multiple blocks can be transmitted from the server with no intervening messages sent by the requester.

**Field Name:** QLACROWR

This is an exception field.

**CONVI**

The number of conversations (both successful and unsuccessful) initiated by the requester location to be executed at the server location. This number is maintained at the requester.

**Field Name:** QLACCNVS

This is an exception field.

**ELAPSED REQ**
The elapsed time at the requester. It includes the total of DB2 and network time.

**Field Name:** ADDSELRO

This is an *exception* field.

### Distributed Activity Requester (Short Report):

This topic shows detailed information about “Accounting - Distributed Activity Requester (Short Report)”.

This block is part of the Accounting Short Report.

**Note:** The total values for each requester (or server) are not calculated if there are multiple lines that result from different product IDs and product versions. However, you can calculate these totals as follows:

1. Field labels that start with a #-sign are totals. The sums of these fields are the values for each requester (or server).
2. The remaining numerical fields are averages for each #DDFS. Multiply the shown average values by the #DDFS value to calculate the absolute value for each requester (or server) and line.
3. Then summarize all absolute values for each requester (or server) and line, and divide the sum by the sum of all #DDFS values for each requester (or server).

You can customize the report layout using the user-tailored reporting (UTR) facility as described in the Reporting User’s Guide section about “Tailoring report layouts”.

### Accounting - Distributed Activity Requester (Short Report)

The field labels shown in the following sample layout of “Accounting - Distributed Activity Requester (Short Report)” are described in the following section.

<table>
<thead>
<tr>
<th>REQUESTER</th>
<th>PRODUCT ID</th>
<th>PROD VERSION</th>
<th>METH</th>
<th>#DDFS</th>
<th>#ROLLBK</th>
<th>#COMMIT</th>
<th>SQLRECV</th>
<th>ROWSENT</th>
<th>CONVI</th>
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</table>

### REQUESTER

The name of the remote location with which this information is associated. If the local location is the requester, this field is a server location. If the local location is a server location, this field is the requester location. An allied thread is created at a DB2 requester, and a database access thread is created at a DB2 server. An accounting record is for either a requester or a server, but not for both.

This field is invalid if summary rollup data is present. In Accounting this field is set to *ROLSUM*.

**Field Name:** QLACLOCN

This is an *exception* field.

### PRODUCT ID

The original DB2 field specifies the information in the following field names of the remote requester or server location:
PRODUCT ID

It consists of 3 characters and can have the following values:

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN</td>
<td>DB2</td>
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<tr>
<td>ARI</td>
<td>SQL/DS</td>
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<tr>
<td>QSQ</td>
<td>DB2/400</td>
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<tr>
<td>SQL</td>
<td>COMMON SERV</td>
</tr>
<tr>
<td>JCC</td>
<td>JDBC DRIVER</td>
</tr>
<tr>
<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>

Note:
- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

PRODUCT VERSION (PROD VERSION)

It consists of 5 digits and is shown as VvvRrrMm, where:

- vv Version level
- rr Release level
- m Modification level

Note: For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

Field Name: QLACPRID

PRODUCT VERSION

The original DB2 field specifies the information in the following field names of the remote requester or server location:

PRODUCT ID

It consists of 3 characters and can have the following values:

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
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<td>DB2</td>
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<td>JDBC DRIVER</td>
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<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>

Note:
If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.

In Accounting FILE and SAVE DDF tables, BLANK is shown.

PRODUCT VERSION (PROD VERSION)
It consists of 5 digits and is shown as VvvRrrMm, where:

Vv  Version level
rr  Release level
m   Modification level

Note: For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

Field Name: QLACPRID

METH
The method of access: DB2 private protocol, DRDA protocol, or both.

This field is invalid if unique or summary rollup data is present. It can have the following value in:

- Accounting Trace and Report: N/P
- The Accounting FILE and SAVE PROGRAM table: blank

Field Name: ADPROTOC

#DDFS
The number of occurrences of the remote location and method pair.

Field Name: ASDDF

#ROLLBK
The total number of rollbacks (single phase and two-phase) received.

Field Name: ADROL12R

#COMMIT
The total number of commits (single phase and two-phase) received.

Field Name: ADCOM12R

SQLRECV
The number of SQL statements received from the requester location.

Field Name: QLACSQRLR

ROWSENT
The number of rows sent from the server location to the requester location. The value includes SQLDA and is maintained at the server location.

Field Name: QLACROWS

CONVI
A count of conversations initiated by the requester.

This number is updated at the server location.

Field Name: QLACCNVNR
Accounting Trace - Short:

The short Accounting trace shows some of the most significant fields summarized by thread.

Short Accounting traces are arranged in blocks. Each block contains Accounting information about a particular activity. The layout of each block is presented followed by the field descriptions.

The following example shows a short version of the Accounting trace produced by the following command:

```
... 
ACCOUNTING TRACE LAYOUT (SHORT) 
...
```

Accounting Trace - Short:

The following example shows a short version of the Accounting trace.

```
LOCATION: OMOPDA5  OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R1MO)  PAGE: 1-1
GROUP: N/P  OMEGAMON BX FOR DB2 PERFORMANCE EXPERT (VXAMO)  REQUESTED FROM: NOT SPECIFIED
SUBSYSTEM: DAS5  ACCOUNTING TRACE - SHORT  ACTUAL FROM: 08/24/16 08:18:10.92
DB2 VERSION: V10  DATE: 08/24/16

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<th>TIMESTAMP</th>
<th>SELECTS</th>
<th>DELETES</th>
<th>MERGES</th>
<th>CPU</th>
<th>EL.</th>
<th>GETPAGES</th>
<th>TOT.</th>
<th>PREPARE</th>
<th>CPU</th>
<th>SYN.</th>
<th>LOCK</th>
<th>SUSP</th>
<th>LOCKOUTS</th>
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</tbody>
</table>

IBM Db2 Performance Expert on z/OS
```
!FPEVWRP2 PACKAGE 2 0.000913 0.000473 0.000000 0!
!FPEVWR2C PACKAGE 192 0.046516 0.043706 0.001238 0!
!GOGZDATE PACKAGE 17633 0.414151 0.359071 0.000803 2!
!GOGZPC1 PACKAGE 4081 0.047074 0.039262 0.000000 0!
!GOGZPC4 PACKAGE 1069 0.036839 0.035705 0.001971 154!
----------------------------------------------------------------------------------------
DB2PM 'BLANK' 09:41:00.009453 N/P N/P N/P 0.002014 0 0
'BKLNK' RSRAF NRM STALENESS N/P N/P N/P 0 0
'BKLNK' ALLIED 0 N/P N/P 8:13.695925 N/P 0 0
LOCATION: OMPDB1 OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSR4M0) PAGE: 2-1
GROUP: DBC1 ACCOUNTING TRAC - SHORT REQUESTED FROM: NOT SPECIFIED
MEMBER: SC11 TO: NOT SPECIFIED
SUBSYSTEM: SC11 ACTUAL FROM: 08/24/16 07:02:00.00
DB2 VERSION: V12 PAGE DATE: 08/24/16
----------------------------------------------------------------------------------------
PRIMAUTH CORRNAME ACCT TIMESTAMP SELECTS DELETES MergES CPU TIME(CL1) GETPAGES TOT.PREF
PLANNAME CONNECT TERM. CONDITION OPEN INSERTS PREPARE EL. TIME(CL2) BUF.UPD LOCK SUS
----------- ----------------- --------------- --------------- --------------- --------------- ---------------
----------------------------------------------------------------------------------------
DB2PM 'BLANK' 07:02:00.001641 0 0 0 0.006817 48 0
KO2PLAN RSRAF NRM STALENESS 20 0 24 0.083636 4 5
'BKLNK' ALLIED 24 20 4 0.056896 0.006286 1 0
----------------------------------------------------------------------------------------
프로그램 NAME TYPE SQLSTMT CL7 ELAP .TIME CL7 CPU TIME CLB SUSP .TIME CLB SUSP .
!FPEVWRP2 PACKAGE 88 0.005399 0.039315 141
----------------------------------------------------------------------------------------
DB2PM 'BLANK' 07:16:00.002621 0 0 0 0.008521 60 0
KO2PLAN RSRAF NRM STALENESS 25 0 30 0.029507 5 0
'BKLNK' ALLIED 30 25 5 0.030244 0.007807 0 0
----------------------------------------------------------------------------------------
프로그램 NAME TYPE SQLSTMT CL7 ELAP .TIME CL7 CPU TIME CLB SUSP .TIME CLB SUSP .
!FPEVWRP2 PACKAGE 110 0.011752 0.006384 0.002717 5!
----------------------------------------------------------------------------------------
DB2PM 'BLANK' 07:30:00.010339 0 0 0 0.008263 60 0
KO2PLAN RSRAF NRM STALENESS 25 0 30 0.028963 5 0
'BKLNK' ALLIED 30 25 5 0.029757 0.007562 0 0
----------------------------------------------------------------------------------------
프로그램 NAME TYPE SQLSTMT CL7 ELAP .TIME CL7 CPU TIME CLB SUSP .TIME CLB SUSP .
!FPEVWRP2 PACKAGE 110 0.011564 0.006231 0.003202 5!
----------------------------------------------------------------------------------------
DB2PM 'BLANK' 07:45:00.009455 0 0 0 0.006962 48 0
KO2PLAN RSRAF NRM STALENESS 20 0 24 0.026348 4 1
'BKLNK' ALLIED 24 20 4 0.026993 0.003416 0 0
----------------------------------------------------------------------------------------
프로그램 NAME TYPE SQLSTMT CL7 ELAP .TIME CL7 CPU TIME CLB SUSP .TIME CLB SUSP .
!FPEVWRP2 PACKAGE 88 0.009209 0.005065 0.002366 8!
----------------------------------------------------------------------------------------
DB2PM 'BLANK' 07:58:00.001003 0 0 0 0.008137 60 0
KO2PLAN RSRAF NRM STALENESS 25 0 30 0.024403 5 0
'BKLNK' ALLIED 30 25 5 0.025180 0.007400 0 0
----------------------------------------------------------------------------------------
프로그램 NAME TYPE SQLSTMT CL7 ELAP .TIME CL7 CPU TIME CLB SUSP .TIME CLB SUSP .
!FPEVWRP2 PACKAGE 88 0.037525 0.000906 0.008376 5!
----------------------------------------------------------------------------------------
MIS 'BLANK' 08:06:29.438496 0 0 0 0.002043 12 1
ADB275PC TSO NRM DEALLOC 1 0 0 0.049194 0 1
MIS ALLIED 1 2 0 0.050798 0.001513 8 0
LOCATION: OMPDB1 OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSR4M0) PAGE: 2-2
GROUP: DBC1 ACCOUNTING TRAC - SHORT REQUESTED FROM: NOT SPECIFIED
MEMBER: SC11 TO: NOT SPECIFIED
SUBSYSTEM: SC11 ACTUAL FROM: 08/24/16 07:02:00.00
DB2 VERSION: V12 PAGE DATE: 08/24/16
----------------------------------------------------------------------------------------
프로그램 NAME TYPE SQLSTMT CL7 ELAP .TIME CL7 CPU TIME CLB SUSP .TIME CLB SUSP .
!FPEVWRP2 PACKAGE 9 0.037525 0.000906 0.008376 5!
----------------------------------------------------------------------------------------
MIS 'BLANK' 08:06:34.489475 1 0 0 2.058667 81963 5880
```
IBM Db2 Performance Expert on z/OS
### Performance Data

**Location:** OMPDDBE<br>**Group:** DBEE<br>**Member:** SEZ<br>**Subsystem:** SEZ<br>**Db2 Version:** V11<br>**Page:** 4-2<br>**Requested From:** Not Specified<br>**Actual From:** 08/24/16 07:08:00.00

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<th>CL7 CPU Time</th>
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<th>CL7 SUSP. %</th>
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<th>CL7 CPU Time</th>
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<th>CL7 SUSP. %</th>
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<th>0 0 0 0.006262 48 0</th>
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**Date:** 08/24/16

**Location:** OMPDDBE<br>**Group:** DBEE<br>**Member:** SEZ<br>**Subsystem:** SEZ<br>**Db2 Version:** V11<br>**Page:** 4-3

**Requested From:** Not Specified<br>**Actual From:** 08/24/16 07:08:00.00

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IBM Db2 Performance Expert on z/OS
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Chapter 6. Batch reporting 3047
| LOCATION: OMPD02B2 | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | PAGE: 4-5 |
| GROUP: DB22 | ACCOUNTING TRACING - SHORT | REQUESTED FROM: NOT SPECIFIED |
| MEMBER: S22 | TO: NOT SPECIFIED | ACTUAL FROM: 08/24/16 07:08:06.00 |
| DB2 VERSION: V11 | PAGE DATE: 08/24/16 |

### PRIMAUTH CORRNAMEB ACCT TIMESTAMP SELECTS DELETES MERGES CPU TIME (CL1) GETPAGES TOT. PREF
PLANNAME CONNECT TERM. CONDITION OPENS INSERTS PREPARE EL. TIME (CL2) BUF. UPTOT LOCK SUS CORNAME TH. TYPE COMMITs FETCHES UPDATES EL. TIME (CL1) CPU TIME (CL2) SYN. READ LOCKOUTS

| DB2PM | 'BLANK' | 09:40:00.001965 | N/P | N/P | N/P | 0.015818 | 0 | 0 |
| DK2PLAN | RSASF | NORM STALINESS | N/P | N/P | N/P | 0.008832 | 0 | 0 |
| OMEGAMON | ALLIED | 0 | N/P | N/P | 7:45:55398 | 0.005219 | 0 | 0 |

| DB2PM | 'BLANK' | 09:51:14.254063 | 2 | 0 | 0 | 0.005867 | 50 | 0 |
| DK2PLAN | RSASF | NORM END USER | 20 | 0 | 20 | 0.15363 | 0 | 0 |
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### !PROGRAM NAME TYPE SQLSTMT CL7 ELAP. TIME CL7 CPU TIME CL8 SUSP. TIME CL8 SUSP!

| !FPEVWR2 | PACKAGE | 60 | 0.003968 | 0.002645 | 0.000051 | 0 |

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### LOCATION: OMPD02B2 | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | PAGE: 5-1 |
| GROUP: DB22 | ACCOUNTING TRACING - SHORT | REQUESTED FROM: NOT SPECIFIED |
| MEMBER: S22 | TO: NOT SPECIFIED | ACTUAL FROM: 08/24/16 07:05:32.04 |
| DB2 VERSION: V10 | PAGE DATE: 08/24/16 |

### PRIMAUTH CORRNAMEB ACCT TIMESTAMP SELECTS DELETES MERGES CPU TIME (CL1) GETPAGES TOT. PREF
PLANNAME CONNECT TERM. CONDITION OPENS INSERTS PREPARE EL. TIME (CL2) BUF. UPTOT LOCK SUS CORNAME TH. TYPE COMMITs FETCHES UPDATES EL. TIME (CL1) CPU TIME (CL2) SYN. READ LOCKOUTS

| DB2PM | 'BLANK' | 07:05:32.04572 | 0 | 0 | 0 | 0.003533 | 5 | 0 |
| DK2PLAN | RSASF | NORM END USER | 5 | 0 | 5 | 0.14251 | 0 | 0 |
| 'BLANK' | | 5 | 5 | 0 | 0.014331 | 0.002054 | 0 | 0 |

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### !PROGRAM NAME TYPE SQLSTMT CL7 ELAP. TIME CL7 CPU TIME CL8 SUSP. TIME CL8 SUSP!

| !FPEVWR2 | PACKAGE | 15 | 0.003380 | 0.002343 | 0.000801 | 10 |

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### LOCATION: OMPD02B2 | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | PAGE: 5-2 |
| GROUP: DB22 | ACCOUNTING TRACING - SHORT | REQUESTED FROM: NOT SPECIFIED |
| MEMBER: S22 | TO: NOT SPECIFIED | ACTUAL FROM: 08/24/16 07:05:32.04 |
| DB2 VERSION: V10 | PAGE DATE: 08/24/16 |

### PRIMAUTH CORRNAMEB ACCT TIMESTAMP SELECTS DELETES MERGES CPU TIME (CL1) GETPAGES TOT. PREF
PLANNAME CONNECT TERM. CONDITION OPENS INSERTS PREPARE EL. TIME (CL2) BUF. UPTOT LOCK SUS CORNAME TH. TYPE COMMITs FETCHES UPDATES EL. TIME (CL1) CPU TIME (CL2) SYN. READ LOCKOUTS

| DB2PM | 'BLANK' | 07:18:29.692599 | 0 | 0 | 0 | 0.003292 | 4 | 0 |
| DK2PLAN | RSASF | NORM END USER | 4 | 0 | 4 | 0.19136 | 0 | 0 |
| 'BLANK' | | 4 | 4 | 0 | 0.019427 | 0.003045 | 0 | 0 |

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### !PROGRAM NAME TYPE SQLSTMT CL7 ELAP. TIME CL7 CPU TIME CL8 SUSP. TIME CL8 SUSP!

| !FPEVWR2 | PACKAGE | 12 | 0.002839 | 0.001997 | 0.000662 | 0 |

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### LOCATION: OMPD02B2 | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | PAGE: 5-3 |
| GROUP: DB22 | ACCOUNTING TRACING - SHORT | REQUESTED FROM: NOT SPECIFIED |
| MEMBER: S22 | TO: NOT SPECIFIED | ACTUAL FROM: 08/24/16 07:05:32.04 |
| DB2 VERSION: V10 | PAGE DATE: 08/24/16 |

### PRIMAUTH CORRNAMEB ACCT TIMESTAMP SELECTS DELETES MERGES CPU TIME (CL1) GETPAGES TOT. PREF
PLANNAME CONNECT TERM. CONDITION OPENS INSERTS PREPARE EL. TIME (CL2) BUF. UPTOT LOCK SUS CORNAME TH. TYPE COMMITs FETCHES UPDATES EL. TIME (CL1) CPU TIME (CL2) SYN. READ LOCKOUTS

| DB2PM | 'BLANK' | 07:31:00.001016 | 0 | 0 | 0 | 0.002992 | 4 | 0 |
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### !PROGRAM NAME TYPE SQLSTMT CL7 ELAP. TIME CL7 CPU TIME CL8 SUSP. TIME CL8 SUSP!

| !FPEVWR2 | PACKAGE | 12 | 0.015225 | 0.001936 | 0.000807 | 10 |

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| MEMBER: S22 | TO: NOT SPECIFIED | ACTUAL FROM: 08/24/16 07:05:32.04 |
| DB2 VERSION: V10 | PAGE DATE: 08/24/16 |

### PRIMAUTH CORRNAMEB ACCT TIMESTAMP SELECTS DELETES MERGES CPU TIME (CL1) GETPAGES TOT. PREF
PLANNAME CONNECT TERM. CONDITION OPENS INSERTS PREPARE EL. TIME (CL2) BUF. UPTOT LOCK SUS CORNAME TH. TYPE COMMITs FETCHES UPDATES EL. TIME (CL1) CPU TIME (CL2) SYN. READ LOCKOUTS

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### !PROGRAM NAME TYPE SQLSTMT CL7 ELAP. TIME CL7 CPU TIME CL8 SUSP. TIME CL8 SUSP!

| !FPEVWR2 | PACKAGE | 12 | 0.002705 | 0.001918 | 0.000664 | 8 |

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### LOCATION: OMPD02B2 | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | PAGE: 5-5 |
| GROUP: DB22 | ACCOUNTING TRACING - SHORT | REQUESTED FROM: NOT SPECIFIED |
| MEMBER: S22 | TO: NOT SPECIFIED | ACTUAL FROM: 08/24/16 07:05:32.04 |
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PLANNAME CONNECT TERM. CONDITION OPENS INSERTS PREPARE EL. TIME (CL2) BUF. UPTOT LOCK SUS CORNAME TH. TYPE COMMITs FETCHES UPDATES EL. TIME (CL1) CPU TIME (CL2) SYN. READ LOCKOUTS

| DB2PM | 'BLANK' | 07:57:36.745026 | 0 | 0 | 0 | 0.003509 | 5 | 0 |
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### !PROGRAM NAME TYPE SQLSTMT CL7 ELAP. TIME CL7 CPU TIME CL8 SUSP. TIME CL8 SUSP!

| !FPEVWR2 | PACKAGE | 15 | 0.003394 | 0.002379 | 0.000807 | 10 |

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### LOCATION: OMPD02B2 | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | PAGE: 5-6 |
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**IBM Db2 Performance Expert on z/OS**
### Location: OMPO851

#### OMEGAMON XE for DB2 Performance Expert (V3R4M0)

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**Group:** N/P  
**Member:** N/P  
**Requested From:** Not Specified  
**To:** Not Specified  
**Subsystem:** DB51  
**Actual From:** 08/24/16 08:17:26.37  
**Page Date:** 08/24/16

#### Plan Name: DB2PM

**Location:** PLANNAME  
**CorrName:** CORRNAME  
**Plan Name:** PLANNAME  
**Prim Auth:** PRIMAUTH  
**SyncRead LockSus:** SUS  
**SyncWrite LockSus:** SUS

#### Program Name: KO2PLAN

**Location:** PROGRAM NAME  
**CorrName:** CORRNAME  
**Plan Name:** PLANNAME  
**Prim Auth:** PRIMAUTH  
**SyncRead LockSus:** SUS  
**SyncWrite LockSus:** SUS

### Version: V11

**Date:** 08/24/16

#### Plan Name: DB2PM

**Location:** PLANNAME  
**CorrName:** CORRNAME  
**Plan Name:** PLANNAME  
**Prim Auth:** PRIMAUTH  
**SyncRead LockSus:** SUS  
**SyncWrite LockSus:** SUS

#### Program Name: KO2PLAN

**Location:** PROGRAM NAME  
**CorrName:** CORRNAME  
**Plan Name:** PLANNAME  
**Prim Auth:** PRIMAUTH  
**SyncRead LockSus:** SUS  
**SyncWrite LockSus:** SUS

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#### Program Name: KO2PLAN

**Location:** PROGRAM NAME  
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**Plan Name:** PLANNAME  
**Prim Auth:** PRIMAUTH  
**SyncRead LockSus:** SUS  
**SyncWrite LockSus:** SUS

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### DB2M

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#### Program Name: KO2PLAN

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### Version 2: V11

**Date:** 08/24/16

#### Plan Name: DB2PM

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**Plan Name:** PLANNAME  
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#### Program Name: KO2PLAN

**Location:** PROGRAM NAME  
**CorrName:** CORRNAME  
**Plan Name:** PLANNAME  
**Prim Auth:** PRIMAUTH  
**SyncRead LockSus:** SUS  
**SyncWrite LockSus:** SUS

---
General (Short Trace):

This topic shows detailed information about “Accounting - General (Short Trace)”.

This block is part of the Accounting Short Trace.

Accounting - General (Short Trace)

The field labels shown in the following sample layout of “Accounting - General (Short Trace)” are described in the following section.

PRIMAUTH
The primary authorization ID from a connection or signon. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it differs from the original primary authorization ID (ORIGAUTH). Distributed authorization ID translation can also change the primary authorization ID.

Field Name: QWHCAID

PLANNNAME
The plan name. It is blank for a DB2 command thread; otherwise:

DSNESP RR
For SPUFI with repeatable read.

DSNESP C S
For SPUFI with cursor stability.

DSNUTIL
For utilities.

DSNTEP2
For DSNTEP2.

DSN B IND
For binding.

The application plan name
For IMS.

The application plan name
For CICS.

A blank plan name
For IMS and CICS commands.
DSQPLAN
For QMF.

The first 8 bytes of the application name
For DRDA connections to the common servers.

Field Name: QWHCPLAN
This is an exception field.

CORRNAME
This field shows the correlation name. It is obtained by translating the correlation ID into correlation name and number. The default translation depends on the connection type of the thread:

Batch  Job name
TSO or CAF  Original authorization ID
CICS  Transaction ID
IMS  Application PST
RRSAF
Characters 1 to 8 of the parameter correlation ID specified for SIGNON.

You can define your own correlation ID translation, which overrides the default translation.

Field Name: ADCORNME

CORRNMBR
This field shows the correlation number. It is obtained by translating the correlation ID into correlation name and number. The default translation depends on the connection type of the thread:

Batch  Blank
TSO or CAF  Blank
CICS  Pool thread
IMS  Application PSBNAME
RRSAF
Characters 9 - 12 of the parameter correlation ID specified for SIGNON.

You can define your own correlation ID translation which overrides the default translation.

Field Name: ADCORNMB

CONNECT
The connection name. Possible values are:

- For batch: BATCH
- For TSO: TSO
- For QMF: DB2CALL
- For utilities: UTILITY
- For DB2 private protocol this is the DB2 subsystem ID
• For IMS: the IMS ID
• For CICS, this is the CICS ID
• For DRDA connections from non-DB2 requesters: SERVER

**Field Name:** QWHCCN

This is an *exception* field.

**THR.TYPE**

The type of thread. This field can contain one of the following values:

**ALLIED**

The thread is not involved in any distributed activity.

**ALLDDIST**

The thread is initiated by a DB2 attach and requests data from one or more server locations.

**DBAT**

The thread is initiated, created, and performing work on behalf of a remote (requester) location. The value DBAT also includes DBAT DISTRIBUTED threads that are initiated by a requester location and executed by the server location that in turn requests data from another server location.

**Background and Tuning Information**

If the thread is involved in distributed activity, some monitored values can produce different results. For example, the class 1 elapsed time for a distributed thread is higher because the network time is also included.

**Field Name:** ADTHRTYP

**ACCT TIMESTAMP**

The store clock value of the time when the accounting record was generated.

**Field Name:** QWHSSTCK

**TERM. CONDITION**

The reason for termination, that is, for generating a DB2 accounting record.

**Field Name:** ADCNDRSN

**COMMITS**

The number of successful two-phase (units of recovery) or single-phase (synchs) commit requests. It indicates the number of units of recovery that are completed successfully, and for which the associated commit duration locks were released. It represents the total number of commit requests processed by the DB2 subsystem, whether the request was an explicit or implicit external request from an IMS or a CICS connection, or an implicit internal request within DB2 when DB2 was the commit coordinator or conducted read-only commit processing as a commit participant on phase-1 calls from an IMS or CICS connection.

For parallel queries, only the commits from the initiating (parent) thread are recorded by this counter.

**Field Name:** QWACC COMM

This is an *exception* field.

**SELECS**
The number of SQL SELECT statements executed.

**Field Name:** QXSELECT

This is an *exception* field.

**OPENS**

The number of OPEN statements executed.

**Field Name:** QXOPEN

This is an *exception* field.

**FETCHES**

The number of FETCH statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

**Field Name:** QXFETCH

**DELETES**

The number of DELETE statements executed.

**Field Name:** QXDELET

**INSERTS**

The number of INSERT statements executed.

**Field Name:** QXINSRT

**UPDATES**

The number of UPDATE statements executed.

**Field Name:** QXUPDTE

**MERGES**

The number of times a MERGE statement was executed.

**Field Name:** QXMERGE

**PREPARE**

The number of SQL PREPARE statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

**Field Name:** QXPREP

**EL. TIME(CL1)**

The class 1 elapsed time of the allied agent.

*Special Considerations:*

- If the begin time equals zero, or if the end time minus begin time equals zero or is negative, N/C is shown.
- Threads that can be reused, such as CICS protected threads or IMS/VS wait-for-input message regions, can include time during which the thread was inactive and waiting for work.
- Elapsed time to process distributed requests is included for allied-distributed threads.
- This time includes the time for processing SQL statements issued by stored procedures, user-defined functions, or triggers.
• In query CP, sysplex query, or utility parallelism, this is the time shown in the originating record, which overlaps the elapsed times shown in the parallel records.

Field Name: ADRECETT
This is an exception field.

CPU TIME(CL1)
The class 1 CPU time in an application. It indicates:
• The class 1 CPU time of the allied agent, which may include the accumulated class 1 TCB time for processing stored procedures, user-defined functions, and triggers.
• The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks generated by utilities.
• In sysplex query parallelism, the individual CPU times are normalized by the conversion factor of the parallel tasks that is related to the originating task.

In sysplex query parallelism, only CPU times of parallel tasks, running on the same member of the SYSPLEX group as the originating task, are included.

This CPU time does not include time that is consumed on an IBM specialty engine.

Field Name: ADCPUT
This is an exception field.

EL. TIME(CL2)
The class 2 elapsed time of the allied agent accumulated in DB2.

Field Name: ADDB2ETT
This is an exception field.

CPU TIME(CL2)
The class 2 CPU time (in DB2). It indicates:
• The class 2 CPU time for the allied agent. This includes the accumulated class 2 TCB time for processing any stored procedures, user-defined functions, and triggers.
• The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks generated by utilities.
• For batch reporting, in sysplex query parallelism, the individual CPU times are normalized by the conversion factor of the parallel tasks, related to the originating task.

For online monitoring, in sysplex query parallelism, only CPU times of parallel tasks, running on the same member of the sysplex group as the originating task, are included.

This CPU time does not include time that is consumed on an IBM specialty engine.

Field Name: ADDBCPUT
This is an exception field.
GETPAGES

The number of Getpage requests. This counter is incremented by successful Getpage requests for queries processed in parallel for each thread and for all successful and unsuccessful Getpage requests for queries that are not processed in parallel.

Background and Tuning Information

Reducing the number of Getpages can improve DB2 performance by reducing the number of synchronous page reads. With fewer Getpages, the requested page is more likely to be returned from the buffer pool. CPU usage is also reduced.

Check the ratio of Getpages to SQL DML statements, as a rule of thumb, try and keep this ratio below six for a typical online transaction SQL.

You might need to modify the database and query design, for example:
- Add indexes to tables to reduce the number of pages scanned.
- Reassess the number of tables used and denormalize them, if necessary.

As an example, a large table with many columns can result in several pages being fetched to satisfy a simple query requesting just a few columns. Splitting such a table into several tables with fewer columns, tailored to queries, will result in fewer pages returned for each query.
- Use correlated rather than non-correlated queries to force the use of an index.

Field Name: QBACGET

This is an exception field.

BUE.UPDT

The number of times a buffer update occurs. This is incremented every time a page is updated and is ready to be written to DASD. If the same page is updated twice, for example, the number is incremented by 2.

This number is kept for all types of pages including data pages and work-file pages.

Background and Tuning Information

A nonzero value indicates any of the following activities:
- SQL INSERT, UPDATE, or DELETE
- Merge scan join
- Internal sort activity on the work files

Check the access path to determine whether sort activity can be minimized or avoided.

Field Name: QBACSW

This is an exception field.

SYN.READ

The number of synchronous read I/O operations. DB2 increments this counter for each media manager synchronous physical read. Asynchronous I/O requests are not counted.

Field Name: QBACRIO

This is an exception field.
TOT.PREF
The number of sequential, dynamic, and list prefetch requests.

Field Name: ABCLSPR
This is an exception field.

LOCK SUS
The total number of all lock suspensions. This includes local and global lock suspensions.

Field Name: ALTSUSP
This is an exception field.

LOCKOUTS
The number of deadlocks and timeouts.

Field Name: ADTIMDLK
This is an exception field.

Package General (Short Trace):
This topic shows detailed information about “Accounting - Package General (Short Trace)”.
This block is part of the Accounting Short Trace.

Accounting - Package General (Short Trace)
The field labels shown in the following sample layout of “Accounting - Package General (Short Trace)” are described in the following section.

<table>
<thead>
<tr>
<th>PROGRAM NAME</th>
<th>TYPE</th>
<th>SQLSTMT</th>
<th>CL7 ELAP.TIME</th>
<th>CL7 CPU TIME</th>
<th>CL8 SUSP.TIME</th>
<th>CL8 SUSP</th>
<th>PKGNAME</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PACKAGE</td>
<td></td>
<td>0.184705</td>
<td>0.003055</td>
<td>0.041534</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

| PROGRAM NAME |
The program name (package ID or DBRM name).
In the case of rollup data (Accounting data of DDF/RRSAF threads and parallel tasks accumulated by DB2), the following value is shown "ROLSUM".

Field Name: QPACPKID
This is an exception field.

| TYPE |
An indicator of whether the block describes a package or a DBRM.
Possible values are PACKAGE, DBRM, and BOTH. BOTH can be shown in reports if there are packages and DBRMs with the same program name.

Field Name: ADPCKTYP

| SQLSTMT |
The number of SQL statements issued in this package or DBRM.
This number may not be equal to the total number of SQL statements in the QXST data section because QXST does not count all SQL statements. For example, it does not count commit or rollback statements.

**Note:** This field is shown for the following field labels in Accounting trace:
- SQL STMT - TOTAL
- SQL STMT - AVERAGE:

**Field Name:** QPACSQLC

This is an *exception* field.

### CL7 ELAP.TIME

The total elapsed time for executing the package or DBRM.

**Field Name:** QPACSCT

This is an *exception* field.

### CL7 CPU TIME

The class 7 CPU time spent by the package or DBRM. It indicates:
- The TCB time
- The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks generated by utilities.

In sysplex query parallelism, only CPU times of parallel tasks, running on the same member of the sysplex group as the originating task, are included.

This time does not include the CPU time consumed on an IBM specialty engine.

**Field Name:** ADCPUTP

This is an *exception* field.

### CL8 SUSP.TIME

The waiting time for the package or DBRM due to class 8 suspensions.

**Field Name:** ADTSUSTP

This is an *exception* field.

### CL8 SUSP

The number of all types of class 8 suspensions.

**Field Name:** ADTSUSCP

This is an *exception* field.

*Distributed Activity Server (Short Trace):*

This topic shows detailed information about “Accounting - Distributed Activity Server (Short Trace)”.

This block is part of the Accounting Short Trace.
Accounting - Distributed Activity Server (Short Trace)

The field labels shown in the following sample layout of “Accounting - Distributed Activity Server (Short Trace)” are described in the following section.

<table>
<thead>
<tr>
<th>SERVER</th>
<th>PRODUCT ID</th>
<th>PROD VERSION</th>
<th>METH</th>
<th>ROLBCK</th>
<th>COMMITS</th>
<th>SQLSENT</th>
<th>ROWREC</th>
<th>CONVI</th>
<th>ELAPSED REQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMODA11</td>
<td>DB2</td>
<td>V10R1</td>
<td>N/P</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1095</td>
<td>1</td>
<td>0.154750</td>
</tr>
</tbody>
</table>

SERVER

The name of the remote location with which this information is associated. If the local location is the requester, this field is a server location. If the local location is a server location, this field is the requester location. An allied thread is created at a DB2 requester, and a database access thread is created at a DB2 server. An accounting record is for either a requester or a server, but not for both.

This field is invalid if summary rollup data is present. In Accounting this field is set to *ROLSUM*.

Field Name: QLACLOCN

This is an exception field.

PRODUCT ID

The original DB2 field specifies the information in the following field names of the remote requester or server location:

PRODUCT ID

It consists of 3 characters and can have the following values:

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN</td>
<td>DB2</td>
</tr>
<tr>
<td>ARI</td>
<td>SQL/DS</td>
</tr>
<tr>
<td>QSQ</td>
<td>DB2/400</td>
</tr>
<tr>
<td>SQL</td>
<td>COMMON SERV</td>
</tr>
<tr>
<td>JCC</td>
<td>JDBC DRIVER</td>
</tr>
<tr>
<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>

Note:

- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

PRODUCT VERSION (PROD VERSION)

It consists of 5 digits and is shown as \( v_v_r_r_m \), where:

\( v_v \) Version level
\( r_r \) Release level
\( m \) Modification level
Note: For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

Field Name: QLACPRID

**PROD VERSION**

The original DB2 field specifies the information in the following field names of the remote requester or server location:

**PRODUCT ID**

It consists of 3 characters and can have the following values:

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN</td>
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</tr>
<tr>
<td>SQL</td>
<td>COMMON SERV</td>
</tr>
<tr>
<td>JCC</td>
<td>JDBC DRIVER</td>
</tr>
<tr>
<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>

Note:
- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

**PRODUCT VERSION (PROD VERSION)**

It consists of 5 digits and is shown as $vvvvRrrmm$, where:

- $vv$: Version level
- $rr$: Release level
- $mm$: Modification level

Note: For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

Field Name: QLACPRID

**METH**

The method of access: DB2 private protocol, DRDA protocol, or both.

This field is invalid if unique or summary rollup data is present. It can have the following value in:

- Accounting Trace and Report: N/P
- The Accounting FILE and SAVE PROGRAM table: blank

Field Name: ADPROTOC

**ROLLBCK**

The total number of rollbacks (single phase and two-phase) sent.

Field Name: ADROL12S
COMMTS

The total number of single-phase and two-phase commit requests sent.

Field Name: ADCOM12S

SQLSENT

The number of SQL statements sent to the server location. This value is maintained at the requesting location.

Field Name: QLACSQLS

ROWREC

The number of rows of data retrieved from the server location. This value is maintained at the requester location.

Special Considerations:
1. The number of rows received from the server location does not include either the SQLDA or SQLCA.
2. Block fetch can significantly affect the number of rows sent across the network. When used with non-UPDATE cursors, block fetch puts as many rows as possible into the message buffer, and transmits the buffer across the network without requiring a VTAM message. Consequently, more rows of data might be sent from the server location than are received by the reporting (requester) location. This is especially true when DB2 private protocol is used because multiple blocks can be transmitted from the server with no intervening messages sent by the requester.

Field Name: QLACROWR

This is an exception field.

CONVI

The number of conversations (both successful and unsuccessful) initiated by the requester location to be executed at the server location. This number is maintained at the requester.

Field Name: QLACCNV

This is an exception field.

ELAPSED REQ

The elapsed time at the requester. It includes the total of DB2 and network time.

Field Name: ADDSELRQ

This is an exception field.

Distributed Activity Requester (Short Trace):

This topic shows detailed information about “Accounting - Distributed Activity Requester (Short Trace)”.

This block is part of the Accounting Short Trace.

Accounting - Distributed Activity Requester (Short Trace)

The field labels shown in the following sample layout of “Accounting - Distributed Activity Requester (Short Trace)” are described in the following section.
REQUESTER

The name of the remote location with which this information is associated. If the local location is the requester, this field is a server location. If the local location is a server location, this field is the requester location. An allied thread is created at a DB2 requester, and a database access thread is created at a DB2 server. An accounting record is for either a requester or a server, but not for both.

This field is invalid if summary rollup data is present. In Accounting this field is set to "ROLSUM".

Field Name: QLACLOCN

This is an exception field.

PRODUCT ID

The original DB2 field specifies the information in the following field names of the remote requester or server location:

PRODUCT ID

It consists of 3 characters and can have the following values:

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
<tr>
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<td>DB2</td>
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<tr>
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</tr>
<tr>
<td>SQQ</td>
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</tr>
<tr>
<td>SQL</td>
<td>COMMON SERV</td>
</tr>
<tr>
<td>JCC</td>
<td>JDBC DRIVER</td>
</tr>
<tr>
<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>

Note:
- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

PRODUCT VERSION (PROD VERSION)

It consists of 5 digits and is shown as VvvRrrRrrm, where:

v   Version level
r   Release level
m   Modification level

Note: For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

Field Name: QLACPRID

PROD VERSION

Chapter 6. Batch reporting
The original DB2 field specifies the information in the following field names of the remote requester or server location:

**PRODUCT ID**

It consists of 3 characters and can have the following values:

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN</td>
<td>DB2</td>
</tr>
<tr>
<td>ARI</td>
<td>SQL/DS</td>
</tr>
<tr>
<td>QSQ</td>
<td>DB2/400</td>
</tr>
<tr>
<td>SQL</td>
<td>COMMON SERV</td>
</tr>
<tr>
<td>JCC</td>
<td>JDBC DRIVER</td>
</tr>
<tr>
<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>

**Note:**
- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

**PRODUCT VERSION (PROD VERSION)**

It consists of 5 digits and is shown as VvvRrrMm, where:

- **vv** Version level
- **rr** Release level
- **m** Modification level

**Note:** For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

**Field Name:** QLACPRID

**METH**

The method of access: DB2 private protocol, DRDA protocol, or both.

This field is invalid if unique or summary rollup data is present. It can have the following value in:
- Accounting Trace and Report: N/P
- The Accounting FILE and SAVE PROGRAM table: blank

**Field Name:** ADPROT

**ROLLBCK**

The total number of rollbacks (single phase and two-phase) received.

**Field Name:** ADROL12R

**COMMENTS**

The total number of commits (single phase and two-phase) received.

**Field Name:** ADCOM12R

**SQLRECV**
The number of SQL statements received from the requester location.

**Field Name:** QLACSQLR

**ROWSENT**

The number of rows sent from the server location to the requester location. The value includes SQLDA and is maintained at the server location.

**Field Name:** QLACROWS

**CONVI**

A count of conversations initiated by the requester. This number is updated at the server location.

**Field Name:** QLACCNVR

**Accounting Report - Long:**

This topic shows an example of a long version of the Accounting report.

Use the following command to produce a long version of the Accounting report:

```
ACCOUNTING REPORT - LONG
ORDER (PRIMAUTH-PLANNAME)
SCOPE (MEMBER)
```

**Accounting (Long Report)**
### Performance Report

**Location:** OMPDAS  
**Group:** N/P  
**Member:** N/P  
**Subsystem:** DA5  
**Order:** PRIMAUTH-PLANNAME  
**Interval:** 08/24/16 08:18:18.92

**Plan Name:** BLANK

#### SQL Delays

<table>
<thead>
<tr>
<th>SQL DML</th>
<th>Average</th>
<th>Total</th>
<th>SQL DCL</th>
<th>Average</th>
<th>Total</th>
<th>SQL DCL</th>
<th>Create</th>
<th>Drop</th>
<th>Alter</th>
<th>Dynamic SQL Stmt</th>
<th>Average</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELECT</td>
<td>0.00</td>
<td>0</td>
<td>LOCK</td>
<td>0</td>
<td>0</td>
<td>TABLE</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>REOPTIMIZATION</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>INSERT</td>
<td>0.00</td>
<td>0</td>
<td>GRANT</td>
<td>0</td>
<td>0</td>
<td>TENTRY</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0.00</td>
<td>0</td>
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<tr>
<td>ROWS</td>
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<td>0</td>
<td>REVOKE</td>
<td>0</td>
<td>0</td>
<td>DCL TTABLE</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>FOUND IN CACHE</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>UPDATE</td>
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<td>0</td>
<td>SET CURR.SOLID</td>
<td>0</td>
<td>0</td>
<td>AUX TABLE</td>
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<td>0</td>
<td>0</td>
<td>IMPLICIT PREPARES</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>ROWS</td>
<td>0.00</td>
<td>0</td>
<td>SET HOST VAR</td>
<td>0</td>
<td>0</td>
<td>INDEX</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>PREPARES AVOIDED</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>MERGE</td>
<td>0.00</td>
<td>0</td>
<td>SET CURR.DEGREE</td>
<td>0</td>
<td>0</td>
<td>TABLESPACE</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>CACHE_LIMIT_EXCEEDED</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>DELETE</td>
<td>0.00</td>
<td>0</td>
<td>SET RULES</td>
<td>0</td>
<td>0</td>
<td>DATABASE</td>
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<td>PREP_STMT_PURGED</td>
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<tr>
<td>ROWS</td>
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<td>SET CURR.PATH</td>
<td>0</td>
<td>0</td>
<td>STOGROUP</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>STABILIZED PREPARE</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

#### DB2 Delays

<table>
<thead>
<tr>
<th>DB2 DML</th>
<th>Average</th>
<th>Total</th>
<th>DB2 DCL</th>
<th>Average</th>
<th>Total</th>
<th>DB2 DCL</th>
<th>Create</th>
<th>Drop</th>
<th>Alter</th>
<th>Dynamic SQL Stmt</th>
<th>Average</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELECT</td>
<td>0.00</td>
<td>0</td>
<td>LOCK</td>
<td>0</td>
<td>0</td>
<td>TABLE</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>REOPTIMIZATION</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>INSERT</td>
<td>0.00</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>TENTRY</td>
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<td>0</td>
<td>NOT FOUND IN CACHE</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>ROWS</td>
<td>0.00</td>
<td>0</td>
<td>REVOKE</td>
<td>0</td>
<td>0</td>
<td>DCL TTABLE</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>FOUND IN CACHE</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>UPDATE</td>
<td>0.00</td>
<td>0</td>
<td>SET CURR.SOLID</td>
<td>0</td>
<td>0</td>
<td>AUX TABLE</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>IMPLICIT PREPARES</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>ROWS</td>
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<td>0</td>
<td>SET HOST VAR</td>
<td>0</td>
<td>0</td>
<td>INDEX</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>PREPARES AVOIDED</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>MERGE</td>
<td>0.00</td>
<td>0</td>
<td>SET CURR.DEGREE</td>
<td>0</td>
<td>0</td>
<td>TABLESPACE</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>CACHE_LIMIT_EXCEEDED</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>DELETE</td>
<td>0.00</td>
<td>0</td>
<td>SET RULES</td>
<td>0</td>
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### Measured Eligibility

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<th>Average</th>
<th>Total</th>
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| Elapsed Time | 8:13.69592 | N/P | IFI Calls Made | 0.00 | 0 |}

### Stored Procedures

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<th>UDF Average</th>
<th>Total</th>
<th>Triggers Average</th>
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<td>0.00</td>
<td>0</td>
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<tr>
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<td>0.00</td>
<td>0</td>
<td>ABENDED</td>
<td>0.00</td>
<td>0</td>
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<tr>
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<td>0.00</td>
<td>0</td>
<td>REJECTED</td>
<td>0.00</td>
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### Global Contention

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<th>Av.Event</th>
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<th>P-Locks Average Time</th>
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<td>N/P</td>
<td>P-Locks</td>
<td>N/P</td>
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<td>N/P</td>
<td>N/P</td>
<td>PageSet/Partition</td>
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<td>N/P</td>
<td>Page</td>
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<td>N/P</td>
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<tr>
<td>Other</td>
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<td>N/P</td>
<td>Other</td>
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<td>N/P</td>
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### Locking

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<th>Data Sharing Average</th>
<th>Total</th>
<th>Query Parallelism Average</th>
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<td>GLOBAL CONT RATE(s)</td>
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<tr>
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<td>FALSE CONT RATE(s)</td>
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<td>P/L-LOCKS XES(s)</td>
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<td>N/A</td>
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<td>SEQ-NO ESA SORT</td>
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**Note:** The above data represents performance metrics and timings for DB2 operations, indicating various delays and conditions that may affect the performance of SQL and DB2 DML operations.
<table>
<thead>
<tr>
<th>Time/Event</th>
<th>Class 1</th>
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<tr>
<td>CP CPU</td>
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<tr>
<td>CS CPU</td>
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<tr>
<td>LOG RECORDS</td>
<td>0%</td>
<td>100%</td>
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**Miscellaneous**

- **Max STD LOB VAL (KB)**: 0.00
- **Max STD XML VAL (KB)**: 0.00
- **Array Expansions**: N/A
- **Sparse IX BUILT**: N/A

**Average Times CL. 5**

- **Elapsed Time**: 0.000000
- **CPU Time**: 0.000000
- **DCPUTime**: 0.000000

**Location**: OMPDA5

**Omeamon XE for DB2 Performance Expert (V5R4M0)**

**Page**: 1-4

**Group**: N/P

**Member**: N/P

**Subsystem**: DA5

**Order**: PRIMAUTH-PLANNAME

**Db2 Version**: V10

**Scope**: Member

**Interval**: FROM: 08/24/16 08:18:18.92

**Duration**: TO: 08/24/16 09:41:00.00

**Location**: OMPDA5

**Omeamon XE for DB2 Performance Expert (V5R4M0)**

**Page**: 1-5

**Group**: N/P

**Member**: N/P

**Subsystem**: DA5

**Order**: PRIMAUTH-PLANNAME

**Db2 Version**: V10

**Scope**: Member

**Interval**: FROM: 08/24/16 08:18:18.92

**Duration**: TO: 08/24/16 09:41:00.00

**Location**: OMPDA5

**Omeamon XE for DB2 Performance Expert (V5R4M0)**

**Page**: 1-6

**Group**: N/P

**Member**: N/P

**Subsystem**: DA5

**Order**: PRIMAUTH-PLANNAME

**Db2 Version**: V10

**Scope**: Member

**Interval**: FROM: 08/24/16 08:18:18.92

**Duration**: TO: 08/24/16 09:41:00.00

**Location**: OMPDA5

**Omeamon XE for DB2 Performance Expert (V5R4M0)**

**Page**: 1-7

**Group**: N/P

**Member**: N/P

**Subsystem**: DA5

**Order**: PRIMAUTH-PLANNAME

**Db2 Version**: V10

**Scope**: Member

**Interval**: FROM: 08/24/16 08:18:18.92

**Duration**: TO: 08/24/16 09:41:00.00

**Location**: OMPDA5

**Omeamon XE for DB2 Performance Expert (V5R4M0)**

**Page**: 1-8

**Group**: N/P

**Member**: N/P

**Subsystem**: DA5

**Order**: PRIMAUTH-PLANNAME

**Db2 Version**: V10

**Scope**: Member

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**Duration**: TO: 08/24/16 09:41:00.00

**Location**: OMPDA5

**Omeamon XE for DB2 Performance Expert (V5R4M0)**

**Page**: 1-9

**Group**: N/P

**Member**: N/P

**Subsystem**: DA5

**Order**: PRIMAUTH-PLANNAME

**Db2 Version**: V10

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**Interval**: FROM: 08/24/16 08:18:18.92

**Duration**: TO: 08/24/16 09:41:00.00

**Location**: OMPDA5

**Omeamon XE for DB2 Performance Expert (V5R4M0)**

**Page**: 1-10

**Group**: N/P

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**Subsystem**: DA5

**Order**: PRIMAUTH-PLANNAME

**Db2 Version**: V10

**Scope**: Member

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**Duration**: TO: 08/24/16 09:41:00.00
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**Measured/Elig Times**

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**Eligible for DML**

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**Eligible for ACC**

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<p>| 3070 IBM Db2 Performance Expert on z/OS |</p>
<table>
<thead>
<tr>
<th>Location: OMPDA5</th>
<th>OMEGamon XE for DB2 Performance Expert (V5R4M0)</th>
<th>Page: 1-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group: N/P</td>
<td>Accounting report - long</td>
<td>Requested from: Not specified</td>
</tr>
<tr>
<td>Member: N/P</td>
<td></td>
<td>To: Not specified</td>
</tr>
<tr>
<td>subsystem: DAS</td>
<td>Order: PRIMAUTH-PLANNAME</td>
<td>Interval from: 08/24/16 06:18:18.92</td>
</tr>
<tr>
<td>DB2 version: V10</td>
<td>Scope: Member</td>
<td>To: 08/24/16 09:41:00.00</td>
</tr>
<tr>
<td><strong>PRIMAUTH: DB2PM</strong></td>
<td><strong>PLANNAME: DB2PM</strong></td>
<td></td>
</tr>
<tr>
<td><strong>STORED PROCEDURES</strong></td>
<td><strong>AVERAGE</strong> <strong>TOTAL</strong></td>
<td><strong>UDF</strong> <strong>AVERAGE</strong> <strong>TOTAL</strong></td>
</tr>
<tr>
<td>Call Statements</td>
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<td>Executed 0</td>
</tr>
<tr>
<td>Abended</td>
<td>0.00 0</td>
<td>Abended 0</td>
</tr>
<tr>
<td>Timed Out</td>
<td>0.00 0</td>
<td>Timed Out 0</td>
</tr>
<tr>
<td>Rejected</td>
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<td>Rejected 0</td>
</tr>
<tr>
<td><strong>GLOBAL CONTENTION</strong></td>
<td><strong>L-LOCKS</strong> <strong>AVERAGE</strong> <strong>TIME</strong> <strong>AV.EVENT</strong></td>
<td><strong>GLOBAL CONTENTION</strong></td>
</tr>
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<td>P-LOCKS 0.000000 0.00</td>
</tr>
<tr>
<td>Child (PAGE,ROW)</td>
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<td>PAGE 0.000000 0.00</td>
</tr>
<tr>
<td>Other</td>
<td>0.000000 0.00</td>
<td>Other 0.000000 0.00</td>
</tr>
<tr>
<td><strong>LOCKING</strong></td>
<td><strong>AVERAGE</strong> <strong>TOTAL</strong></td>
<td><strong>DATA SHARING</strong></td>
</tr>
<tr>
<td>Timed-Outs</td>
<td>0.00 0</td>
<td>Global Cont Rate(%)</td>
</tr>
<tr>
<td>Deadlocks</td>
<td>0.00 0</td>
<td>False Cont Rate(%)</td>
</tr>
<tr>
<td>Escal. (Shared)</td>
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<td>P/L-LOCKS XES(%)</td>
</tr>
<tr>
<td>Escal. (Exclus)</td>
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<td>Lock Req - Plocks</td>
</tr>
<tr>
<td>Max Pg/Row Locks Held</td>
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<td>Unlock Req - Plocks</td>
</tr>
<tr>
<td>Lock Request</td>
<td>699.90 6999</td>
<td>Change Req - Plocks</td>
</tr>
<tr>
<td>Unlock Request</td>
<td>90.20 902</td>
<td>Lock Req - XES</td>
</tr>
<tr>
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</tr>
<tr>
<td>Other Request</td>
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<td>Suspends - IRLM</td>
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## IBM Db2 Performance Expert on z/OS

**Location:** OMPDA5  
**Program: DB2PM  
Planname:** DB2PM

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**Member:** N/P  
**Subsystem:** DA5  
**Order:** PRIMAUTH-PLANNAME  
**Interval:** FROM: 08/24/16 TO: 08/24/16  
**Scope:** MEMO
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### Chapter 6. Batch Reporting

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TO: NOT SPECIFIED
SUBSYSTEM: DAS
ORDER: PRIMAUTH-PLANNAME
INTERVAL: FROM 08/24/16 08:18:18.92 TO 08/24/16 09:41:00.00

Chapter 6. Batch reporting
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3078 IBM Db2 Performance Expert on z/OS
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** DB2PM PLANNING: K20PLAN**

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** Db2 Performance Expert on z/OS **

| 3080 | IBM Db2 Performance Expert on z/OS |
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| SUBSISTEM | N/P | | | | |
| DB2 VERSION | V10 | | | | |

### DGZDATE

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| SUBSISTEM | N/P | | | | |
| DB2 VERSION | V10 | | | | |

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| MEMBER | N/P | | | | |
| SUBSISTEM | N/P | | | | |
| DB2 VERSION | V10 | | | | |

### DGZPC2

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| GROUP | N/P | | | | |
| MEMBER | N/P | | | | |
| SUBSISTEM | N/P | | | | |
| DB2 VERSION | V10 | | | | |

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| MEMBER | N/P | | | | |
| SUBSISTEM | N/P | | | | |
| DB2 VERSION | V10 | | | | |

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Chapter 6. Batch reporting  3081
**GLOBAL CONTENTION L-LOCKS** 0.000000 0.00 **GLOBAL CONTENTION P-LOCKS** 0.000000 0.00
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**GROUP:** N/P  **ACCOUNTING REPORT - LONG**  **REQUESTED FROM:** NOT SPECIFIED
**MEMBER:** N/P  **ORDER:** PRIMAUTH-PLANNAME  **TO:** NOT SPECIFIED
**SUBSYSTEM:** DAS5  **INTERVAL FROM:** 08/24/16 08:18:18.92
**DB2 VERSION:** V10  **SCOPE:** MEMBER  **TO:** 08/24/16 09:41:00.00

**PRIMAUTH:** DB2PM  **PLANNAME:** KO2PLAN

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**DB2 VERSION:** V10  **SCOPE:** MEMBER  **TO:** 08/24/16 09:41:00.00

**PRIMAUTH:** DB2PM  **PLANNAME:** KO2PLAN

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<table>
<thead>
<tr>
<th>Metric</th>
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<tr>
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<tr>
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</tr>
<tr>
<td><strong>ESCAL.(SHARED)</strong></td>
<td>0.00</td>
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</tr>
<tr>
<td><strong>ESCAL.(EXCLUS)</strong></td>
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</tr>
<tr>
<td><strong>MAX PG/ROW LOCKS HELD</strong></td>
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</tr>
<tr>
<td><strong>LOCK REQUEST</strong></td>
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</tr>
<tr>
<td><strong>UNLOCK REQUEST</strong></td>
<td>0.00</td>
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</tr>
<tr>
<td><strong>QUERY REQUEST</strong></td>
<td>0.00</td>
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<tr>
<td><strong>CHANGE REQUEST</strong></td>
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<tr>
<td><strong>TOTAL SUSPENSIONS</strong></td>
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<tr>
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<td><strong>OTHER SUSPENS.</strong></td>
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<tr>
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<tr>
<td><strong>OTHER SUSPENS.</strong></td>
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Chapter 6. Batch reporting 3083
**PRIMAUTH: DB2PM**

**ELAPSED TIME DISTRIBUTION**

<table>
<thead>
<tr>
<th>APPL</th>
<th>CPU</th>
<th>SUSP</th>
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| ! | ! | !

**AVERAGE (APPL(CL.1))**

<table>
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<tr>
<th>DB2 (CL.2)</th>
<th>CLASS 3 SUSPENSIONS</th>
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<tbody>
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**ELAPSED TIME**

| 44:30.2646 | 0.829088 |
| 0.000038 | 0.061482 |
| 0.000001 | 0.000000 |

**LOCATION: OMIDAS**

**FILE NAME:** OMEGamon XE for DB2 Performance Expert (v5.34.0)

**GROUP/N:P**

**ACCOUNTING REPORT - LONG**

**REQUESTED FROM:** NOT SPECIFIED

**MEMBER/N:P**

**ORDER:** PRIMAUTH-PLANNAME

**INTERVAL FROM:** 08/24/16 08:18:18.92

**DB2 VERSION:** V10

**SCOPE:** MEMBER

**TO:** 08/24/16 09:41:00.00

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**SQL DML**

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**AVERAGE TIMES CL. 5 IFI (CL.5)**

| CP CPU TIME | 0.000000 |
| DCAP.DESCRIPTOR | 0.000000 |
| LOG EXTRACT | 0.000000 |

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**AVERAGE TIMES CL. 5 IFI (CL.5)**

| CP CPU TIME | 0.000000 |
| DCAP.DESCRIPTOR | 0.000000 |
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| DCAP.DESCRIPTOR | 0.000000 |
| LOG EXTRACT | 0.000000 |

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**AVERAGE TIMES CL. 5 IFI (CL.5)**

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| DCAP.DESCRIPTOR | 0.000000 |
| LOG EXTRACT | 0.000000 |
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### Locking

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<th>Average</th>
<th>Total</th>
<th>Triggers</th>
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<td>TIMED OUT</td>
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### Global Contention

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<th>Average</th>
<th>Total</th>
<th>P-LOCKS</th>
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<th>Total</th>
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<td>PAGESET/PARTITION</td>
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<td>PAGE</td>
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<tr>
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<td>OTHER</td>
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### Locking

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<th>Average</th>
<th>Total</th>
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<td>P/L-LOCKS XES($)</td>
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<td>LOCK REQ - PLOCKS</td>
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### Drain/Claim

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<th>Average</th>
<th>Total</th>
<th>ABNORMAL TERM.</th>
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<td>0</td>
<td>NEW USER</td>
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<td>APPL. PM ABEND</td>
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<td>DEALLOCATION</td>
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<td>END OF MEMORY</td>
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<td>END OF MEMORY</td>
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### Location

LOCATION: OMPDA5
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)

<table>
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<tr>
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**Chapter 6. Batch reporting 3085**
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### TOTAL ***

**PRIMAUTH: DB2PM**

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### TOTAL BPOOL Activity

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**IBM Db2 Performance Expert on z/OS**

**MEMBER: N/P**

**SUBSYSTEM: DAS**

**DB2 VERSION: V10**

**SCOPE: MEMBER**

---

**LOCATION:** OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5RM0)

**PAGE:** 13-33

**GROUP:** N/P

**ACCOUNTING REPORT - LONG**

**REQUESTED FROM:** NOT SPECIFIED

**MEMBER:** N/P

**SUBSYSTEM:** DAS

**ORDER:** PRIMAUTH-PLANNAME

**DB2 VERSION:** V10

**SCOPE: MEMBER**

**TOTAL DB2PM**

---

**MEMBER: N/P**

**SUBSYSTEM: DAS**

**DB2 VERSION: V10**

**SCOPE: MEMBER**

---

**MEMBER: N/P**

**SUBSYSTEM: DAS**

**DB2 VERSION: V10**

**SCOPE: MEMBER**

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**MEMBER: N/P**

**SUBSYSTEM: DAS**

**DB2 VERSION: V10**

**SCOPE: MEMBER**

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**MEMBER: N/P**

**SUBSYSTEM: DAS**

**DB2 VERSION: V10**

**SCOPE: MEMBER**

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### Query Elapsed Time Distribution

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<tr>
<td>DB2</td>
<td>!------ 11%</td>
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<tr>
<td>SUSP</td>
<td>!-------------------- 88%</td>
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</tbody>
</table>

**Average Time Distribution:**
- **APPL (CL.1)**: 0.0044923
- **DB2 (CL.2)**: 0.0044714
- **CLASS 3 SUSPENSIONS**: 0.0000000
- **AVERAGE TIME**: 0.0000000
- **AV. EVENT**: 0.0000000
- **TIME/EVENT**: 0.0000000
- **HIGHLIGHTS**: 0.0000000

**Class 2 Time Distribution:**
- **APPL**: !
- **CPU**: !------ 9%
- **DB2**: !------ 11%
- **SECPU**: !
- **NOTACC**: !-- 2%
- **SUSP**: !-------------------- 88%

**Total Elapsed Time:** 0.0044923

**Total Lock/Latch (DB2+IRLM):** 0.0000000

**TOTAL CLB SUSPENS.:** 0.0280170 241.140 0.0001160

**Chapter 6. Batch reporting** 3087
IBM Db2 Performance Expert on z/OS

---

### SQL Query Performance Report

#### Performance Details
- **CPU Time:** 0.0000000000
- **Elapsed Time:** 0.000492
- **User Time:** 0.000000
- **System Time:** 0.000000
- **Wait Time:** 0.000000
- **Disk Time:** 0.000000
- **I/O Operations:** 0
- **I/O Operations/sec:** 0
- **I/O Operations/MB:** 0
- **I/O Operations/MB/sec:** 0
- **I/O Operations/MB/sec:** 0

#### SQL Statements
- **SELECT:** 0
- **INSERT:** 0
- **UPDATE:** 0
- **DELETE:** 0
- **INSERT:** 0
- **UPDATE:** 0
- **DELETE:** 0
- **UPDATE:** 0
- **DELETE:** 0
- **UPDATE:** 0
- **DELETE:** 0

#### SQL Performance Details
- **Rows Processed:** 0
- **Rows Inserted:** 0
- **Rows Updated:** 0
- **Rows Deleted:** 0
- **Rows Modified:** 0
- **Rows Scanned:** 0
- **Rows Retrieved:** 0
- **Rows Found:** 0
- **Rows scanned:** 0

#### Performance Metrics
- **CPU Usage:** 0%
- **Memory Usage:** 0%
- **Buffer Pool:** 0%
- **I/O Operations:** 0
- **I/O Operations/sec:** 0
- **I/O Operations/MB:** 0
- **I/O Operations/MB/sec:** 0
- **I/O Operations/MB/sec:** 0

#### Performance Summary
- **SQL Statements:**
  - SELECT: 0
  - INSERT: 0
  - UPDATE: 0
  - DELETE: 0

#### Performance Charts
- **SQL Performance Chart**
- **CPU Time Distribution**
- **I/O Operations Distribution**

#### Performance Recommendations
- **Optimize SELECT statements to reduce execution time.
- Monitor CPU and memory usage to identify bottlenecks.
- Review I/O operations to improve efficiency.

---

**Location:** CDMOUSAS

**Database:** OMEXONXE

**System:** z/OS

**Date:** 08/24/16 08:18:18.92

---

**SQL Statement Details**

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**Measured/Elig Times**

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**CPU and Eligible Times**

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**Performance Summary**

- **CPU Usage:** 0%
- **Memory Usage:** 0%
- **Buffer Pool:** 0%
- **I/O Operations:** 0
- **I/O Operations/sec:** 0
- **I/O Operations/MB:** 0
- **I/O Operations/MB/sec:** 0
- **I/O Operations/MB/sec:** 0

---

**Additional Performance Metrics**

- **SQL Statement Execution Time:** 0.000492 sec
- **CPU Time:** 0.000000 sec
- **User Time:** 0.000000 sec
- **System Time:** 0.000000 sec
- **Wait Time:** 0.000000 sec
- **Disk Time:** 0.000000 sec
- **I/O Operations:** 0
- **I/O Operations/sec:** 0
- **I/O Operations/MB:** 0
- **I/O Operations/MB/sec:** 0
- **I/O Operations/MB/sec:** 0

---

**Contact Information**

- **IBM Db2 Performance Expert**
- **Support:** 1-800-IBM-SERV
- **Website:** www.ibm.com/db2

---

**Notes**

- **Performance Optimization Recommendations:**
  - Review SQL statements for efficiency.
  - Monitor system resources to identify bottlenecks.
  - Consider using Db2 Advanced Analytics and Db2 Machine Learning for predictive performance analysis.
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**PRIMAUTH: MIS PLANNAME: ADB**

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**3090 IBM Db2 Performance Expert on z/OS**
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!ABZREGION | ! |
!ABZGET | ! |
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!PRNAME | 99% |
!ABZREGION | ! |
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<td>0.000000</td>
<td>0.00</td>
<td>OTHER</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
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<tr>
<td>LOCATION: OMDAS4</td>
<td>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)</td>
<td>PAGE: 1-45</td>
<td>GROUP: N/P</td>
<td>ACCOUNTING REPORT - LONG</td>
<td>REQUESTED FROM: NOT SPECIFIED</td>
<td>MEMBER: N/P</td>
<td>TO: NOT SPECIFIED</td>
<td>SUBSYSTEM: DAS</td>
<td>ORDER: PRIMAUTH-PLANNAME</td>
<td>INTERVAL FROM: 08/24/16 08:18:18.92</td>
<td>DB2 VERSION: V10</td>
<td>SCOPE: MEMBER</td>
<td>TO: 08/24/16 09:41:00.00</td>
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</table>
## IBM Db2 Performance Expert on z/OS

### ADB2CON

<table>
<thead>
<tr>
<th>AVERAGE</th>
<th>TIME</th>
<th>AV. EVENT</th>
<th>AVERAGE</th>
<th>TIME</th>
<th>AV. EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLOBAL CONTENTION L-LOCKS</td>
<td>0.000000</td>
<td>0.00</td>
<td>GLOBAL CONTENTION P-LOCKS</td>
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<tr>
<td>PARENT (OBJ,TS,TAB,PAR)</td>
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<td>PAGESET/PARTITION</td>
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</tr>
<tr>
<td>CHILD (PAGE,ROW)</td>
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<td>PAGE</td>
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<tr>
<td>OTHER</td>
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### ADB2GET

<table>
<thead>
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<th>AVERAGE</th>
<th>TIME</th>
<th>AV. EVENT</th>
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<tbody>
<tr>
<td>GLOBAL CONTENTION L-LOCKS</td>
<td>0.000000</td>
<td>0.00</td>
<td>GLOBAL CONTENTION P-LOCKS</td>
<td>0.000000</td>
<td>0.00</td>
</tr>
<tr>
<td>PARENT (OBJ,TS,TAB,PAR)</td>
<td>0.000000</td>
<td>0.00</td>
<td>PAGESET/PARTITION</td>
<td>0.000000</td>
<td>0.00</td>
</tr>
<tr>
<td>CHILD (PAGE,ROW)</td>
<td>0.000000</td>
<td>0.00</td>
<td>PAGE</td>
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<td>0.00</td>
</tr>
<tr>
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### ADBMAIN

<table>
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<tr>
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<th>TOTAL</th>
<th>AVERAGE</th>
<th>TOTAL</th>
<th>AVERAGE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELECT</td>
<td>0.00</td>
<td>0</td>
<td>SELECT</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>INSERT</td>
<td>0.00</td>
<td>0</td>
<td>INSERT</td>
<td>0.00</td>
<td>0</td>
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<tr>
<td>UPDATE</td>
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<td>UPDATE</td>
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<tr>
<td>DELETE</td>
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<td>0</td>
</tr>
<tr>
<td>DESCRIBE</td>
<td>1.11</td>
<td>20</td>
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<td>23</td>
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</tr>
<tr>
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<td>0.44</td>
<td>8</td>
<td>CLOSE</td>
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<td>LOCK TABLE</td>
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<td>LOCK TABLE</td>
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### ADBPOOL

<table>
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<tr>
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<th>AVERAGE</th>
<th>TOTAL</th>
<th>AVERAGE</th>
<th>TOTAL</th>
<th>AVERAGE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPOOL HIT RATIO (%)</td>
<td>97.21</td>
<td>N/A</td>
<td>BPOOL HIT RATIO (%)</td>
<td>N/C</td>
<td>N/A</td>
<td>BPOOL HIT RATIO (%)</td>
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<tr>
<td>GETPAGES</td>
<td>103.72</td>
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</tr>
<tr>
<td>BUFFER UPDATES</td>
<td>46.22</td>
<td>832</td>
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</tr>
<tr>
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<td>0.00</td>
<td>0</td>
<td>SYNCHRONOUS WRITE</td>
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<td>0</td>
<td>SYNCHRONOUS WRITE</td>
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<tr>
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<td>SYNCHRONOUS READ</td>
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<td>SYNCHRONOUS READ</td>
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<tr>
<td>SEQ. PREFETCH REQS</td>
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<td>0</td>
<td>SEQ. PREFETCH REQS</td>
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<td>SEQ. PREFETCH REQS</td>
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<td>0.94</td>
<td>17</td>
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<td>LIST PREFETCH REQS</td>
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<td>DYN. PREFETCH REQS</td>
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<td>41</td>
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<td>DYN. PREFETCH REQS</td>
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<td>PAGES READ ASYNCHR.</td>
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<td>PAGES READ ASYNCHR.</td>
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</tbody>
</table>

### Location: OMPDAS

**Location:** OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)

**Page:** 1-46

**Group:** N/P

**Member:** N/P

**Subsystem:** DA5

**Order:** PRIMAUTH-PLANNAME

**Interval from:** 08/24/16 08:18:18.92

**DB2 Version:** V10

**Scope:** MEMBER

**Time from:** 08/24/16 09:41:06.00

**PrimaUTH:** MIS

**PlanName:** ADB

### ADBMAIN

<table>
<thead>
<tr>
<th>AVERAGE</th>
<th>TOTAL</th>
<th>AVERAGE</th>
<th>TOTAL</th>
<th>AVERAGE</th>
<th>TOTAL</th>
<th>AVERAGE</th>
<th>TOTAL</th>
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<tbody>
<tr>
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<td>TIMEDOUTS</td>
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<tr>
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<td>0.00</td>
<td>0</td>
<td>OTHER SUSPENS.</td>
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</tr>
</tbody>
</table>

### Average Times CL 5 IFI (CL.5)

| ELAPSED TIME | 0.000000 |
| CP CPU TIME | 0.000000 |
| DCAPT/EXCL. | 0.000000 |
| LDG EXTRACT. | 0.000000 |

### Location: OMPDAS

**Location:** OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)

**Page:** 1-47

**Group:** N/P

**Member:** N/P

**Subsystem:** DA5

**Order:** PRIMAUTH-PLANNAME

**Interval from:** 08/24/16 08:18:18.92

**DB2 Version:** V10

**Scope:** MEMBER

**Time from:** 08/24/16 09:41:06.00

**PrimaUTH:** MIS

**PlanName:** ADB275PC

### Elapsed Time Distribution

<table>
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<tr>
<th>APPL</th>
<th>CPU</th>
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<tr>
<td>3%</td>
<td>11%</td>
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<table>
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</thead>
<tbody>
<tr>
<td>17%</td>
<td>7%</td>
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</table>

<table>
<thead>
<tr>
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<th>80%</th>
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</thead>
</table>

| SUSP | 82% |

3094
AVERAGE
APPL(CL.1) DB2 (CL.2)
------------ ---------- ---------ELAPSED TIME
0.055843
0.054070
NONNESTED
0.055843
0.054070
STORED PROC
0.000000
0.000000
UDF
0.000000
0.000000
TRIGGER
0.000000
0.000000
CP CPU TIME
AGENT
NONNESTED
STORED PRC
UDF
TRIGGER
PAR.TASKS

0.006521
0.006521
0.006521
0.000000
0.000000
0.000000
0.000000

0.005919
0.005919
0.005919
0.000000
0.000000
0.000000
0.000000

SE CPU TIME
NONNESTED
STORED PROC
UDF
TRIGGER

0.000000
0.000000
0.000000
0.000000
0.000000

0.000000
0.000000
0.000000
0.000000
0.000000

PAR.TASKS

0.000000

0.000000

SUSPEND TIME
AGENT
PAR.TASKS
MAX WFILE BLKS
STORED PROC
UDF

0.000000
0.044441
N/A
0.044441
N/A
0.000000
:
N/A
0.000000
N/A
0.000000
N/A

NOT ACCOUNT.
DB2 ENT/EXIT
EN/EX-STPROC
EN/EX-UDF
DCAPT.DESCR.
LOG EXTRACT.
LOCATION:
GROUP:
MEMBER:
SUBSYSTEM:
DB2 VERSION:

N/A
N/A
N/A
N/A
N/A
N/A

0.003710
27.50
0.00
0.00
N/A
N/A

OMPDA5
N/P
N/P
DA5
V10

CLASS 3 SUSPENSIONS AVERAGE TIME AV.EVENT TIME/EVENT
-------------------- ------------ -------- ---------LOCK/LATCH(DB2+IRLM)
0.000000
0.00
N/C
IRLM LOCK+LATCH
0.000000
0.00
N/C
DB2 LATCH
0.000000
0.00
N/C
SYNCHRON. I/O
0.013749
5.00
0.002750
DATABASE I/O
0.013749
5.00
0.002750
LOG WRITE I/O
0.000000
0.00
N/C
OTHER READ I/O
0.019388
3.25
0.005965
OTHER WRTE I/O
0.000000
0.00
N/C
SER.TASK SWTCH
0.011305
0.50
0.022610
UPDATE COMMIT
0.000000
0.00
N/C
OPEN/CLOSE
0.004745
0.25
0.018981
SYSLGRNG REC
0.000000
0.00
N/C
EXT/DEL/DEF
0.006559
0.25
0.026238
OTHER SERVICE
0.000000
0.00
N/C
ARC.LOG(QUIES)
0.000000
0.00
N/C
LOG READ
0.000000
0.00
N/C
DRAIN LOCK
0.000000
0.00
N/C
CLAIM RELEASE
0.000000
0.00
N/C
PAGE LATCH
0.000000
0.00
N/C
NOTIFY MSGS
0.000000
0.00
N/C
GLOBAL CONTENTION
0.000000
0.00
N/C
COMMIT PH1 WRITE I/O
0.000000
0.00
N/C
ASYNCH CF REQUESTS
0.000000
0.00
N/C
TCP/IP LOB XML
0.000000
0.00
N/C
ACCELERATOR
0.000000
0.00
N/C
AUTONOMOUS PROCEDURE
PQ SYNCHRONIZATION
LOB COMPRESSION
FAST INSERT PIPE
TOTAL CLASS 3

N/A
N/A
N/A
N/A
0.044441

N/A
N/A
N/A
N/A
8.75

HIGHLIGHTS
-------------------------#OCCURRENCES
:
4
#ALLIEDS
:
4
#ALLIEDS DISTRIB:
0
#DBATS
:
0
#DBATS DISTRIB. :
0
#NO PROGRAM DATA:
0
#NORMAL TERMINAT:
4
#DDFRRSAF ROLLUP:
0
#ROLLUP TRAN :
4
#ABNORMAL TERMIN:
0
#CP/X PARALLEL. :
0
#UTIL PARALLEL. :
0
#IO PARALLELISM :
0
#PCA RUP COUNT :
N/A
#RUP AUTONOM. PR:
N/A
#AUTONOMOUS PR :
N/A
#INCREMENT. BIND:
0
#COMMITS
:
4
#ROLLBACKS
:
0
#SVPT REQUESTS :
0
#SVPT RELEASE :
0
#SVPT ROLLBACK :
0
MAX SQL CASC LVL:
0
UPDATE/COMMIT :
0.00
SYNCH I/O AVG. : 0.002750

N/A
N/A
N/A
N/A
0.005079

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
ACCOUNTING REPORT - LONG

PAGE:
REQUESTED FROM:
TO:
INTERVAL FROM:
TO:

ORDER: PRIMAUTH-PLANNAME
SCOPE: MEMBER

1-48
NOT SPECIFIED
NOT SPECIFIED
08/24/16 08:18:18.92
08/24/16 09:41:00.00

PRIMAUTH: MIS PLANNAME: ADB27SPC
SQL DML AVERAGE
TOTAL
-------- -------- -------SELECT
0.50
2
INSERT
0.00
0
ROWS
0.00
0
UPDATE
0.00
0
ROWS
0.00
0
MERGE
0.00
0
DELETE
0.00
0
ROWS
0.00
0
DESCRIBE
DESC.TBL
PREPARE
OPEN
FETCH
ROWS
CLOSE

0.00
0.00
0.00
1.00
4.25
3.25
1.00

0
0
0
4
17
13
4

DML-ALL

6.75

27

SQL DCL
TOTAL
-------------- -------LOCK TABLE
0
GRANT
0
REVOKE
0
SET CURR.SQLID
0
SET HOST VAR.
12
SET CUR.DEGREE
0
SET RULES
0
SET CURR.PATH
0
SET CURR.PREC.
0
CONNECT TYPE 1
0
CONNECT TYPE 2
4
SET CONNECTION
0
RELEASE
0
CALL
0
ASSOC LOCATORS
0
ALLOC CURSOR
0
HOLD LOCATOR
0
FREE LOCATOR
0
DCL-ALL
16

SQL DDL
CREATE DROP ALTER
---------- ------ ------ -----TABLE
0
0
0
CRT TTABLE
0
N/A
N/A
DCL TTABLE
0
N/A
N/A
AUX TABLE
0
N/A
N/A
INDEX
0
0
0
TABLESPACE
0
0
0
DATABASE
0
0
0
STOGROUP
0
0
0
SYNONYM
0
0
N/A
VIEW
0
0
0
ALIAS
0
0
N/A
PACKAGE
N/A
0
N/A
PROCEDURE
0
0
0
FUNCTION
0
0
0
TRIGGER
0
0
N/A
DIST TYPE
0
0
N/A
SEQUENCE
0
0
0
TRUST. CTX
0
0
0
ROLE
0
0
N/A
JAR
N/A
N/A
0
MASK/PERM
0
0
0
VARIABLE
N/A
N/A
N/A
TOTAL
TRUNC TBL
RENAME TBL
RENAME IX
COMMENT ON
LABEL ON

MEASURED/ELIG TIMES APPL (CL1) DB2 (CL2)
------------------- ---------- ---------ELAPSED TIME
0.055843
0.054070
ELIGIBLE FOR ACCEL
N/A
0.000000
CP CPU TIME
ELIGIBLE FOR SECP
ELIGIBLE FOR ACCEL

0.006521
0.000000
N/A

0.005919
N/A
0.000000

SE CPU TIME

0.000000

0.000000

0
0
0
0
0
0

0

DYNAMIC SQL STMT
AVERAGE
TOTAL
-------------------- -------- -------REOPTIMIZATION
0.00
0
NOT FOUND IN CACHE
0.00
0
FOUND IN CACHE
0.00
0
IMPLICIT PREPARES
0.00
0
PREPARES AVOIDED
0.00
0
CACHE_LIMIT_EXCEEDED
0.00
0
PREP_STMT_PURGED
0.00
0
STABILIZED PREPARE
N/A
N/A
CSWL - STMTS PARSED
0.00
0
CSWL - LITS REPLACED
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CSWL - MATCHES FOUND
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0
CSWL - DUPLS CREATED
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0

RID LIST
AVERAGE
TOTAL
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6.50
26
FAIL-NO STORAGE
FAIL-LIMIT EXCEEDED

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0.00

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INTERRUPTED-NO STORAGE
INTERRUPTED-LIMIT EXC.

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0.00

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DATA CAPTURE
AVERAGE
TOTAL
----------------- -------- -------IFI CALLS MADE
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N/P
RECORDS CAPTURED
N/P
N/P
LOG RECORDS READ
N/P
N/P
ROWS RETURNED
N/P
N/P
RECORDS RETURNED
N/P
N/P
DATA DESC. RETURN
N/P
N/P
TABLES RETURNED
N/P
N/P
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Chapter 6. Batch reporting

3095


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**GROUP:** N/P **ACCOUNTING REPORT - LONG**

**MEMBER:** N/P **REQUESTED FROM:** NOT SPECIFIED

**SUBSYSTEM:** DAS **ORDER:** PRIMAUTH-PLANNAME

**DB2 VERSION:** V10 **SCOPE:** MEMBER **TO:** 08/24/16 09:41:00.00

**PRIMAUTH:** MIS **PLANNAME:** ADB27SPC

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**GLOBAL CONTENTION L-LOCKS**

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**GROUP:** N/P **ACCOUNTING REPORT - LONG**

**MEMBER:** N/P **REQUESTED FROM:** NOT SPECIFIED

**SUBSYSTEM:** DAS **ORDER:** PRIMAUTH-PLANNAME

**DB2 VERSION:** V10 **SCOPE:** MEMBER **TO:** 08/24/16 09:41:00.00

**PRIMAUTH:** MIS **PLANNAME:** ADB27SPC

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**Note:** The above table represents a summary of performance metrics and distributions, which are crucial for analyzing database performance. Each entry in the table corresponds to a specific database operation or event, with metrics such as time, events, and status codes, indicating areas that may require optimization or further investigation. This information is vital for diagnosing performance bottlenecks and improving the overall efficiency of the database system.
### Chapter 6. Batch Reporting

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Page 1-55

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Page 1-55

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**IBM Db2 Performance Expert on z/OS**
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**Accounting Report - Long**

- Requested from: Not specified
- To: Not specified

---

**Global Contention**

- L-Locks: 0.000000 0.00 P-Locks: 0.000000 0.00
- Parent (DB, TS, TABLE, PART): 0.000000 0.00
- Child (PAGE, ROW): 0.000000 0.00
- Other: 0.000000 0.00

---

**Locking**

- Average | Total | Average | Total | Query Parallelism | Average | Total |
- 0.00 | 0 | GLOBAL CONT RATE | N/C | N/A | MAXIMUM DEGREE-ESTIMATED | N/A | N/A |
- 0.00 | 0 | DEADLOCKS | N/C | N/A | MAXIMUM DEGREE-PLANNED | N/A | N/A |
- 0.00 | 0 | ESCAL (SHARED) | N/C | N/A | MAXIMUM DEGREE-EXECUTED | N/A | 16 |
- 1.40 | 4 | MAX PG/RW LOCKS HELD | N/C | N/A | 0 | 0 | PARALLEL GROUPS EXECUTED | 0.80 | 8 |
- 151.70 | 1517 | LOCK REQUESTs | N/C | N/A | 0 | 0 | RAN AS PLANNED | 0.80 | 8 |
- 76.30 | 763 | UNLOCK REQUESTs | N/C | N/A | 0 | 0 | RAN REDUCED-STORAGE | 0.00 | 0 |
- 0.40 | 4 | QUERY REQUESTs | N/C | N/A | 0 | 0 | RAN REDUCED-Negotiation | N/A | N/A |
- 4.70 | 47 | CHANGE REQUESTs | N/C | N/A | 0 | 0 | SEQ-CURSOR | 0.00 | 0 |
- 0.00 | 0 | OTHER REQUESTs | N/C | N/A | 0 | 0 | SEQ-NO EOS SORT | 0.00 | 0 |
- 0.00 | 0 | TOTAL SUSPENSIONS | N/C | N/A | 0 | 0 | SEQ-NO BUFFER | 0.00 | 0 |
- 0.00 | 0 | LOCK SUSPENSIONS | N/C | N/A | 0 | 0 | SEQ-AUTONOMOUS PROC | N/A | N/A |
- 0.00 | 0 | ILM LATCH SUSPENSIONS | N/C | N/A | 0 | 0 | SEQ-Negotiation | N/A | N/A |
- 0.00 | 0 | OTHER SUSPENSIONS | N/C | N/A | 0 | 0 | ONE DB2-COORDINATOR - NO | 0.00 | 0 |
- 0.00 | 0 | NOTIFY MSGS SENT | N/C | N/A | 0 | 0 | ONE DB2-ISOLATION LEVEL | 0.00 | 0 |
- 0.00 | 0 | MEMBER SKIPPED | N/C | N/A | 0 | 0 | MEMBER SKIPPED (%) | N/C | N/A |
- 0.00 | 0 | DISABLED BY RLF | N/C | N/A | 0 | 0 | DISABLED BY RLF | 0.00 | 0 |
- 0.00 | 0 | REFORM PARAL-CONFIG | N/C | N/A | 0 | 0 | REFORM PARAL-CONFIG | 0.00 | 0 |
- 0.00 | 0 | REFORM PARAL-NO BF | N/C | N/A | 0 | 0 | REFORM PARAL-NO BF | 0.00 | 0 |
### Chapter 6. Batch reporting

#### 3103

---

**DRAIN/CLAIM** | **AVERAGE** | **TOTAL** | **NORMAL TERM.** | **AVERAGE** | **TOTAL** | **ABNORMAL TERM.** | **TOTAL** | **IN DOUBT** | **TOTAL**
---|---|---|---|---|---|---|---|---|---
DRAIN REQUESTS | 0.20 | 2 | NEW USER | 0.00 | 0 | APPL. PROGR. ABEND | 2 | APPL. PGM ABEND | 0
DRAIN FAILED | 0.00 | 0 | DEALLOCATION | 0.80 | 8 | END OF MEMORY | 0 | END OF MEMORY | 0
CLAIM REQUESTS | 34.60 | 346 | APPL. PROGR. END | 0.00 | 0 | RESOL., IN DOUBT | 0 | END OF TASK | 0
CLAIM FAILED | 0.00 | 0 | RESIGNON | 0.00 | 0 | CANCEL FORCE | 0 | CANCEL FORCE | 0

END USER THRESH | 0.00 | 0
BLOCK STOR THR | 0.00 | 0
STALENESS THR | 0.00 | 0

---

**LOCATION:** OMPDA5  
**GROUP:** N/P  
**SUBSYSTEM:** DA5  
**DB2 VERSION:** V10  
**PRIMAUTH:** MIS

### MISCELLANEOUS

<table>
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<tr>
<th><strong>AVERAGE</strong></th>
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<tbody>
<tr>
<td>MAX STD LOB VAL (KB)</td>
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<tr>
<td>MAX STD XML VAL (KB)</td>
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<tr>
<td>ARRAY EXPANSIONS</td>
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<tr>
<td>SPARSE IX DISABLED</td>
<td>N/A</td>
</tr>
<tr>
<td>SPARSE IX BUILT WT</td>
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**BPOOL ACTIVITY**

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<td>CPU</td>
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<td>TRIGGER</td>
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**ELIG ACCEL**

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**LOCATION:** OMPDA5  
**GROUP:** N/P  
**SUBSYSTEM:** DA5  
**DB2 VERSION:** V10  
**PRIMAUTH:** MIS

### TOTAL

**BPOOL ACTIVITY**

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<tr>
<th><strong>AVERAGE</strong></th>
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</tr>
<tr>
<td>Type</td>
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**All Prog**

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<tr>
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<th>Av.Event</th>
<th>All Prog</th>
<th>Average Time</th>
<th>Av.Event</th>
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<td>Global Contention P-Locks</td>
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<td>Other</td>
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**Location:** OMPDAS

**Group:** N/P

**Member:** N/P

**Subsystem:** DAS

**Order:** PRIMAUTH-PLANNAME

**DB2 Version:** V10

**Scope:** MEMBER

**Interval:** 08/24/16 08:18:18.92

**Page:** 1-63

**Requested From:** NOT SPECIFIED

**To:** NOT SPECIFIED

---

**All Prog**

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**Bpool Hit Ratio (%)**

| GetPages | 85.73 |
| Buffer Updates | 732.62 |
| Synchronous Write | 0.00  |
| Synchronous Read | 1.27 |
| Seq. Prefetch Reqs | 0.46  |
| List Prefetch Reqs | 1.61 |
| Dyn. Prefetch Reqs | 1.58  |
| Pages Read Asynch. | 16.58 |

**All Prog**

<table>
<thead>
<tr>
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<tr>
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</tr>
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<td>Escal.(Shared)</td>
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<tr>
<td>Escal.(Exclus)</td>
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<td>Other Request</td>
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<td>Other Suspens.</td>
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**Average Times Cl. 5 Ffi (Cl.5)**

**Elapsed Time** | 0.000000 |
| Cp Clp Time | 0.000000 |
| Dcapt.Descr. | 0.000000 |
| Ldg Extract. | 0.000000 |

---

IBM Db2 Performance Expert on z/OS
### GRAND TOTAL ***

| LOCATION: OMPDA5 | OMEGAMONXE FOR DB PERFORMANCE EXPERT (V8RSMO) | PAGE: 1-64 |
| GROUP: N/P | ACCOUNTING REPORT - LONG | REQUESTED FROM: NOT SPECIFIED |
| MEMBER: N/P | TO: NOT SPECIFIED |
| SUBSYSTEM: DAS | ORDER: PRIMAUTH-PLANNAME | INTERVAL FROM: 08/24/16 08:18:18.92 |
| DB2 VERSION: V10 | SCOPE: MEMBER | TO: 08/24/16 09:41:00.00 |

| SQL DML AVERAGE TOTAL | SQL DCL TOTAL | SQL DCL CREATE DROP ALTER DYNAMIC SQL STMT AVERAGE TOTAL |
|------------------------|---------------|----------------|-------------------|-----------------|-------------------|-----------------|-----------------|
| SELECT 2204.35 94787 | LOCK TABLE 914 | TABLE 0 Z 0 REDOPTIMIZATION 0.00 | 0.00 |
| INSERT 21.72 934 | GRANT 0 | CRT TTABL 0 N/A N/A NOT FOUND IN CACHE 0.16 | 7 |
| DELETE 18.09 778 | DELET 0 | TABLESPACE 0 | 0 | CACHE_LIMIT_EXCEEDED 0.00 | 0.00 |
| UPDATE 56.19 2416 | SET CURR.ARR 3 | AUX TABLE 0 N/A N/A IMPLICIT PREPARES 0.00 | 0.00 |
| MERGE 0.00 0 | SET CURR.DEGREE 0 | TABLESPACE 0 | 0 | CACHE_LIMIT_EXCEEDED 0.00 | 0.00 |
| DESCRIBE 0.47 20 | CONNECT TYPE 1 VIEW 0 | 0 | 0 | CSW - LSTS PARSED 0.19 | 8 |
| DESC_TBL 0.00 | CONNECT TYPE 2 6 | ALIAS 0 N/A N/A CSW - MATCHES FOUND 0.02 | 1 |
| OPEN 2561.72 110154 | RELEASE 0 | PROCEDURE 0 | 0 | CSW - DUPS CREATED 0.00 | 0.00 |
| @CONNECT 0.00 0 | CONNECT 0 | ALIAS 0 N/A N/A CSW - MATCHES FOUND 0.02 | 1 |
| DML-ALL 12758.23 548604 | CALL 0 | FUNCTION 0 | 0 | CSW - DUPS CREATED 0.00 | 0.00 |
| DML-ALL 12758.23 548604 | CALL 0 | FUNCTION 0 | 0 | CSW - DUPS CREATED 0.00 | 0.00 |
| DML-ALL 12758.23 548604 | CALL 0 | FUNCTION 0 | 0 | CSW - DUPS CREATED 0.00 | 0.00 |
| DML-ALL 12758.23 548604 | CALL 0 | FUNCTION 0 | 0 | CSW - DUPS CREATED 0.00 | 0.00 |

Chapter 6. Batch reporting 3105
### DRAIN/CLAIM

<table>
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<tr>
<th>MEASURED/ELIG TIMES</th>
<th>APPL (CL1)</th>
<th>DB2 (CL2)</th>
<th>RID LIST</th>
<th>AVERAGE</th>
<th>TOTAL</th>
<th>DATA CAPTURE</th>
<th>AVERAGE</th>
<th>TOTAL</th>
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<tbody>
<tr>
<td>ELAPSED TIME</td>
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<td>0.645042</td>
<td>USED</td>
<td>1.42</td>
<td>61</td>
<td>IFI CALLS MADE</td>
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<tr>
<td>ELIGIBLE FOR ACCEL</td>
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<td>0</td>
<td>LOG RECORDS READ</td>
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<td>FAIL-LIMIT EXCEEDED</td>
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<td>ROWS RETURNED</td>
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<td>INTERRUPTED-NO STORAGE</td>
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<td>RECORDS RETURNED</td>
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### SKIPPED-INDEX KNOW

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<th>UDF</th>
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<th>TOTAL</th>
<th>TRIGGERS</th>
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### LOCATION: OMD5

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<th>ORDER: PRIMAUTH-PLANNAME</th>
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<tbody>
<tr>
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<td>TO: NOT SPECIFIED</td>
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### *** GRAND TOTAL ***

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<th>P-LOCKS</th>
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### LOCKING

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### DRAIN REQUESTS

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<th>NORMAL TERM.</th>
<th>AVERAGE</th>
<th>TOTAL</th>
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### ALL PROG

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| DESCRIBE | 0.43 | 20 |
| PREPARE  | 0.38 | 18 |
| OPEN     | 0.26 | 12 |
| FETCH    | 0.85 | 40 |
| CLOSE    | 0.26 | 12 |

| LOCK TABLE | 0.00 | 0 |
| CALL       | 0.00 | 0 |

### CPU HIT RATIO (%)

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### TIME DISTRIBUTION

| APPL | 100% |
| DB2 | 5% |
| SUSP | 1% |

### LOCATION:

- OMPDBCLI
- OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)

### PRIMAUTH: DB2PM

**PLANNAME: 'BLANK'**

### ELAPSED TIME DISTRIBUTION

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3108 IBM Db2 Performance Expert on z/OS
Chapter 6. Batch reporting
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**Group:** DBC1
**Accounting Report:** Long
**Requested From:** Not Specified
**Member:** SC1
**Order:** PRIMAUTH-PLANNAME
**Interval From:** 08/24/16 07:02:00.00
**DB2 Version:** V12
**Scope:** Member

**RMONx: IBM Db2 Performance Expert on z/OS**
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3112 IBM Db2 Performance Expert on z/OS
### OMEGAMON XE for DB2 Performance Expert (V5R4M0)

**Location:** OMPDBCI

**Page:** 2-8

**Group:** DBC1

**Requested from:** NOT SPECIFIED

**Interval:** FROM: 08/24/16 07:02:00.00 TO: 08/24/16 09:56:00.00

**Member:** SC11

**Subsystem:** V12

**Scope:** MEMBER

**Planname:** BLANK

**CPU Time:** 0.000000

**Log Extract:** 0.000000

### Average Times

**Elapsed Time:** 0.000000

**CP CPU Time:** 0.060000

**DCAP/DESCR:** 0.000000

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**Planname:** KZ2PLAN

**Elapse Time Distribution:**

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**APPL**

**CPU Time:** 0.000000

**DCAP/DESCR:** 0.000000

### Average Times

**Elapsed Time:** 10.50/6792

**CPU Time:** 0.000000

**Log Extract:** 0.000000

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<td>TO:</td>
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**Planname:** KZ2PLAN

**SQL DML**

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**Table 1107**

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**Preoptimized:** 0.00

**Not Found in Cache:** 0.13

**Found in Cache:** 38.81

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*Chapter 6: Batch reporting* 3113
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**GROUP**

- **PAGES**
- **SEQ.**
- **BUFFER**

**BPOOL**

- **BPOOL HIT RATIO (%)**
- **GETPAGES**
- **BUFFER UPDATES**
- **SYNCHRONOUS WRITE**
- **SEW DBN**
- **PREFETCH REQS**
- **DYN. PREFETCH REQS**
- **PAGES READ ASYNCHR.**

**BPOOL ACTIVITY**

- **AVERAGE**
- **TOTAL**

**BPOOL**

- **PAGE:**
- **GETPAGES:**
- **BUFFER UPDATES:**
- **SYNCHRONOUS WRITE:**
- **SEW DBN:**
- **PREFETCH REQS:**
- **DYN. PREFETCH REQS:**
- **PAGES READ ASYNCHR.:**

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**MISCELLANEOUS**

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**MISCELLANEOUS**

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**GROUP TOTAL**

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**LOCATION: OMPD8C1**

**PLANNAME: K2PPLAN**

**GPG-DEPEND GET/PAGES**

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**LOCATION: OMPD8C1**

**PLANNAME: K2PPLAN**

**DGEXCP**

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**DGEXCP**

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**LOCATION: OMPD8C1**

**PLANNAME: K2PPLAN**

**DGEXCP**

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**PLANNAME: K2PPLAN**

**DGEXCP**

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**Location:** OMP0BC1  
**Program:** FPEVWR2C  
**NBR of allocations:** 2  
**SQL stmt - average:** 6.00  
**CP CPU su:** 201.00  
**SQL stmt - total:** 12  
**Agent:** 201.00  
**Global contention:** 0.000000  
**Page latch:** 0.000000  
**Notify messages:** 0.000000  
**TCP/IP lob xml:** 0.000000  
**Total clb suspens:** 3.958403  
**TOTAL CBLS:** 23.958403  
**TOTAL CLB SUSPNS:** 4.000000  
**PAGE LATCH:** 0.000000  
**NOTIFY MESSAGES:** 0.000000  
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**FAST INSERT PIPE:** 0.000000  
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**PAGESET/PARTITION:** 0.009963  
**Page:** 2-16  

**GROUP:** OBC1  
**SC11:** ACCOUNTING REPORT - LONG  
**Member:** SC11  
**Requested from:** NOT SPECIFIED  
**Interval from:** 08/24/16 07:02:00.00  
**Scope:** MEMBER  
**Time:** 08/24/16 09:56:00.00  

---

**Chapter 6. Batch reporting**

3117
### IBM Db2 Performance Expert on z/OS

#### DGOVEXCP

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### FPEWR2C

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<td>0</td>
</tr>
<tr>
<td>FETCH</td>
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</tr>
<tr>
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### Chapter 6. Batch reporting

#### Table 3.2: Elapsed Time Distribution

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<tr>
<td>Time2</td>
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<tr>
<td>Time3</td>
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<td>Time4</td>
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</tr>
<tr>
<td>Time5</td>
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<td>Total</td>
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#### Table 3.3: Class 2 Time Distribution

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<td>Time2</td>
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</tr>
<tr>
<td>Time3</td>
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<td>Time4</td>
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</tr>
<tr>
<td>Total</td>
<td>100%</td>
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</table>

### Example 6.1

The following example illustrates the usage of the `SYSTEM` function in SQL to calculate elapsed time and CPU usage on DB2 databases. The example utilizes the `PERCENTILE` function to determine the 95th percentile of elapsed time and CPU usage.

```sql
SELECT
    PERCENTILE_CONT(0.95) WITHIN GROUP (ORDER BY elapsed_time)
    OVER () AS ninetieth_percentile,
    PERCENTILE_CONT(0.99) WITHIN GROUP (ORDER BY cpu_usage)
    OVER () AS ninety-ninth_percentile
FROM
    system_metrics
WHERE
    database_name = 'DB2_001'
GROUP BY
    instance_id
ORDER BY
    instance_id
LIMIT 1;
```
- **STORED PROC**: 0.0000 N/A AUTONOMOUS PROCEDURE 0.000000 0.00 N/C MAX WFILE BLKS : 0

### DB2 ENTR/EXIT
- **NOT ACCOUNT**: N/A 0.004175 FAST INSERT PIPE 0.000000 0.00 N/C
- **DB2 ENTR/EXIT**: 313.95 TOTAL CLASS 3 0.361293 37.24 0.009702

### LOCATION: OMPD8C1
- **TEE**: OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
- **GROUP**: DBC1
- **MEMBER**: SC11
- **SYS**: ORDER: PRIMAUTH-PLANNAME
- **INT**: INTERVAL FROM: 08/24/16 07:02:00:00
- **DB2**: TO: 08/24/16 09:56:00:00

### *** TOTAL ***

#### PRIMAUTH: DB2PM

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### MEASURED/ELIG TIMES
- **APPL (CL1)**
- **DB2 (CL2)**
- **RIB LIST**
- **AVERAGE**
- **TOTAL**
- **DATA CAPTURE**
- **AVERAGE**
- **TOTAL**

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<td>ROWS RETURNED</td>
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### LOCATION: OMPD8C1
- **OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
- **GROUP**: DBC1
- **MEMBER**: SC11
- **SYS**: ORDER: PRIMAUTH-PLANNAME
- **INT**: INTERVAL FROM: 08/24/16 07:02:00:00
- **DB2**: TO: 08/24/16 09:56:00:00

### *** TOTAL ***

#### PRIMAUTH: DB2PM

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**IBM Db2 Performance Expert on z/OS**
### Chapter 6. Batch reporting

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### Location: OMPB2C1

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)

**Page:** 2-23

**Group:** OBC

**Accounting Report:** LONG

**Requested From:** NOT SPECIFIED

**Member:** SC11

**Order:** PRIMUTH-PNAME

**Interval From:** 08/24/16 07:02:00.00

**DB Version:** V12

**Scope:** MEMBER

**To:** 08/24/16 09:16:00.00

###_MISC

**Total:** ***

**Primuth:** DB2PM

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**Location:** OMPDBC1

**Group:** DBC1

**Member:** SC11

**Subsystem:** SC11

**Accounting report - long**

**Requested from:** Not specified

**To:** Not specified

**Interval from:** 08/24/16 07:02:00.00

**Scope:** Member

**To:** 08/24/16 09:56:00.00

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**Location:** OMPDBC1

**Group:** DBC1

**Member:** SC11

**Subsystem:** SC11

**Accounting report - long**

**Requested from:** Not specified

**To:** Not specified

**Interval from:** 08/24/16 07:02:00.00

**Scope:** Member

**To:** 08/24/16 09:56:00.00

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**Total GROUP activity**

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**READ(XI)-DATA RETUR**

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**INDEX LEAF PAGES**

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**WRITE AND REGISTER**

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**Location:** OMPDBC1

**Group:** DBC1

**Member:** SC11

**Subsystem:** SC11

**Accounting report - long**

**Requested from:** Not specified

**To:** Not specified

**Interval from:** 08/24/16 07:02:00.00

**Scope:** Member

**To:** 08/24/16 09:56:00.00

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**Average**

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**READ(XI)-DATA RETUR**

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**INDEX LEAF PAGES**

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**WRITE AND REGISTER**

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3122 IBM DB2 Performance Expert on z/OS
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**LOCATION: OMPDBC1

**OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)

**GROUP: DBC1

**ACCOUNTING REPORT - LONG

**MEMBER: SC11

**SUBSYSTEM: SC11

**ORDER: PRIMAUTH-PLANNNAME

**INTERVAL FROM: 08/24/16 07:02:00.00

**DB2 VERSION: V12

**SCOPE: MEMBER

**LOCATION: OMPDBC1

**OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)

**GROUP: DBC1

**ACCOUNTING REPORT - LONG

**MEMBER: SC11

**SUBSYSTEM: SC11

**ORDER: PRIMAUTH-PLANNNAME

**INTERVAL FROM: 08/24/16 09:56:00.00

**DB2 VERSION: V12

**SCOPE: MEMBER

**PRIMAUTH: MIS PLANNNAME: 'BLANK'

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**AVG Times CL. 5 IFI (CL.5)

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<td>ELIGIBLE FOR ACCEL N/A</td>
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<th>GLOBAL CONTENTION P-LOCKS AVERAGE TIME AV.EVENT</th>
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<td>L-LOCKS</td>
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Chapter 6. Batch reporting 3127
TIMEOUTS 0.00 0 GLOBAL CONT RATE(%) 0.00 N/A MAXIMUM DEGREE-ESTIMATED 0.00 0
DEADLOCKS 0.00 0 FALSE CONT RATE(%) 0.00 N/A MAXIMUM DEGREE-PLANNED 0.00 0
ESCAL.(SHARED) 0.00 0 PV/L- Locks XES() 10.49 N/A MAXIMUM DEGREE-EXECUTED N/A 0
ESCAL.(EXCLUS) 0.00 0 LOCK REQ - LOCKS 1.00 1 MAXIMUM MEMBERS USED N/A 0
MAX PG/RW LOCKS HELD 0.00 0 UNLOCK REQ - LOCKS 0.00 0 PARALLEL GROUPS EXECUTED 0.00 0
LOCK REQUEST 628.00 628 CHANGE REQ - LOCKS 0.00 0 RAN AS PLANNED 0.00 0
UNLOCK REQUEST 40.00 40 LOCK REQ - XES 66.00 66 RAN REDUCED-STORAGE 0.00 0
QUERY REQUEST 0.00 0 UNLOCK REQ - XES 19.00 19 RAN REDUCED-NEGOTIATION 0.00 0
CHANGE REQUEST 21.00 21 CHANGE REQ - XES 0.00 0 SEQ-CURSOR 0.00 0
OTHER REQUEST 0.00 0 SUSPENDS - ILRM 0.00 0 SEQ-NO ESA SORT 0.00 0
TOTAL SUSPENSIONS 12.00 12 SUSPENDS - XES 0.00 0 SEQ-NO BUFFER 0.00 0
LOCK SUSPENSIONS 0.00 0 CONVERSIONS - XES 0.00 0 SEQ-AUTONOMOUS PROC 0.00 0
IRLM LATCH SUSPENS. 0.00 0 FALSE CONTENTIONS 0.00 0 SEQ-NEGOTIATION 0.00 0
OTHER SUSPENDS. 12.00 12 INCOMPATIBLE LOCKS 0.00 0 ONE DB2-COORDINATOR - NO 0.00 0
NOTIFY MSGS SENT 12.00 12 ONE DB2-ISOLATION LEVEL 0.00 0
ONE DB2-DCI TABLE 0.00 0 MEMBER SKIPPED (%) N/C N/A
DISABLED BY RLF 0.00 0 REFORM PARAL-CONFIG 0.00 0
REFORM PARAL-NO BUF 0.00 0

DRAIN/CLAIM AVERAGE TOTAL NORMAL TERM. AVERAGE TOTAL ABNORMAL TERM. TOTAL IN DOUBT TOTAL
------------------------------------------ -------------- -------------- -------------- -------------- -------------- -------------- -------------- --------------
DRAIN REQUESTS 0.00 0 NEW USER 0.00 0 APPL. PROGRAM ABEND 0 APPL. PGM ABEND 0
DRAIN FAILED 0.00 0 DEALLOCATION 1.00 1 END OF MEMORY 0 END OF MEMORY 0
CLAIM REQUESTS 889.00 889 APPL. PROGRAM END 0.00 0 RESOL. IN DOUBT 0 END OF TASK 0
CLAIM FAILED 0.00 0 RESIGNON 0.00 0 CANCEL FORCE 0 CANCEL FORCE 0
DBAT INACTIVE 0.00 0
TYPE INACTIVE 0.00 0
RMS COMMIT 0.00 0
END USER THRESH 0.00 0
BLOCK STORE THR 0.00 0
STALENESS THR 0.00 0

LOCATION: OMPDBC1 OMEGAMONXE FOR DB2 PERFORMANCE EXPERT (V5R4M0) PAGE: 2-35
GROUP: DBC1 ACCOUNTING REPORT - LONG
REQUESTED FROM: NOT SPECIFIED
MEMBER: SC11 TO: NOT SPECIFIED
SUBSYSTEM: SC11 ORDER: PRIMAUTH-PLANNAME
INTerval FROM: 08/24/16 07:02:00.00
DBC VERSION: V12 SCOPE: MEMBER
TO: 08/24/16 09:56:00.00

PRIMAUTH: MIS PLANNAME: ADB

ROWID AVERAGE TOTAL LOGGING AVERAGE TOTAL AVERAGE SU CLASS 1 CLASS 2
-------------------------- -------------- -------------------------- -------------- -------------- --------------
DIRECT ACCESS 0.00 0 LOG RECORDS WRITTEN 481.00 481 CP CPU 21113.00 20581.00
INDEX USED 0.00 0 TOT BYTES WRITTEN 75895.00 75895 AGENT 21113.00 20581.00
TS SCAN USED 0.00 0 LOG RECORD SIZE 157.79 N/A NONRESTORED 21113.00 20581.00
STORAGE PCT 0.00 0
UDF 0.00 0
TRIGGER 0.00 0
PAR-TASKS 0.00 0
ELIG SECP 0.00 N/A
ELIG ACCEL N/A 0.00
SE CPU 0.00 0
NONRESTORED 0.00 0
STORED PCT 0.00 0
UDF 0.00 0
TRIGGER 0.00 0
PAR-TASKS 0.00 0
ELIG ACCEL N/A 0.00

MISCELLANEOUS AVERAGE TOTAL
-------------------------- --------------
MAX STO XML VAL (KB) 0.00 0
MAX STO XML VAL (KB) 0.00 0
ARRAY EXPANSIONS 0.00 0
SPARSE IX DISABLED 0.00 0
SPARSE IX BUILT WFG 0.00 0

BPOOL BPOOL ACTIVITY AVERAGE TOTAL BPOOL2 BPOOL ACTIVITY AVERAGE TOTAL BPK BPOOL ACTIVITY AVERAGE TOTAL
------------------------------------------ -------------- -------------- -------------- -------------- -------------- -------------- -------------- --------------
BPOOL HIT RATIO (%) 70.56 N/A BPOOL HIT RATIO (%) 96.63 N/A BPOOL HIT RATIO (%) 1.29 N/A
GETPAGES 377.00 377 GETPAGES 326.00 326 GETPAGES 82236.00 82236
BUFFER UPDATES 9.00 9 BUFFER UPDATES 439.00 439 BUFFER UPDATES 0.00 0
Synchronous WRITE 0.00 0 SYNCHRONOUS WRITE 0.00 0 SYNCHRONOUS WRITE 0.00 0
Synchronous READ 53.00 53 SYNCHRONOUS READ 2.00 2 SYNCHRONOUS READ 47.00 47
SEQ. PREFETCH REQS 1.00 1 SEQ. PREFETCH REQS 0.00 0 SEQ. PREFETCH REQS 5.083.0 5.083
LIST PREFETCH REQS 12.00 12 LIST PREFETCH REQS 0.00 0 LIST PREFETCH REQS 5.0 5.0
DYN. PREFETCH REQS 11.00 11 DYN. PREFETCH REQS 11.00 11 DYN. PREFETCH REQS 13.00 13
PAGES READ ASYNCHR. 58.00 58 PAGES READ ASYNCHR. 9.00 9 PAGES READ ASYNCHR. 81110.00 81110

LOCATION: OMPDBC1 OMEGAMONXE FOR DB2 PERFORMANCE EXPERT (V5R4M0) PAGE: 2-36
GROUP: DBC1 ACCOUNTING REPORT - LONG
REQUESTED FROM: NOT SPECIFIED
MEMBER: SC11 TO: NOT SPECIFIED

3128 IBM Db2 Performance Expert on z/OS
### PRIMAUTH: MIS PLANNAME: ADB

#### TOTAL BPOOL ACTIVITY

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<th>SYNCHRONOUS WRITE</th>
<th>SYNCHRONOUS READ</th>
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#### GROUP BP32K AVERAGE TOTAL

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#### GROUP TOTAL AVERAGE TOTAL

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<th>GBP-DEPEND MAPNOTES</th>
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#### LOCATION: OMPDDBC1

**OMEGAMON XI FOR DB2 PERFORMANCE EXPERT (VSRAMO)**

**GROUP: ODBC**

**ACCOUNTING REPORT - LONG**

**REQUESTED FROM: NOT SPECIFIED**

**MEMBER: SC11**

**TO: NOT SPECIFIED**

**SUBSYSTEM: SC11**

**ORDER: PRIMAUTH-PLANNAME**

**INTERVAL FROM: 08/24/16 07:02:00.00 TO: 08/24/16 09:56:00.00**

### PRIMAUTH: MIS PLANNAME: ADB

#### ADMIN

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<th>VALUE</th>
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<td>SQL STMT - AVERAGE</td>
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</tr>
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<td>ADMINMAIN</td>
<td>NBR SQL THRESHOLDS</td>
<td>ODBC</td>
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### Chapter 6. Batch reporting

3129
### TYPE | PACKAGE | ELAP-CL7 | TIME-AVG | AVERAGE | TIME | EVENT | AVERAGE | TIME | EVENT
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</table>

### LOCATION | OMPD8C1 | UPDATE | CP CPU TIME | 0.000001 | 0.000000 | 0.00 |

### COLLECTION ID | ADBL | UPDATE | SE CPU TIME | 0.000000 | 0.000000 | 0.00 |

### PROGRAM NAME | ADB2CON | UPDATE | SENS-PL-BL | 0.000000 | 0.000000 | 0.00 |

### ACTIVITY TYPE | NONNESTED | UPDATE | AGENT | 0.000000 | 0.000000 | 0.00 |

### ACTIVITY NAME | 'BLANK' | UPDATE | TASKS | 0.000000 | 0.000000 | 0.00 |

### SCHEMA NAME | 'BLANK' | UPDATE | NOT ACCOUNTED | 0.000000 | 0.000000 | 0.00 |

### SUCC AUTH CHECK | 0 | UPDATE | AVG.DB2 ENTRY/EXIT | 0.000000 | 0.000000 | 0.00 |

### OCCURRENCES | 1 | UPDATE | DB2 ENTRY/EXIT | 0.000000 | 0.000000 | 0.00 |

### NBR OF ALLOCATIONS | 1 | UPDATE | CP CPU SU | 0.000000 | 0.000000 | 0.00 |

### SQL STMT - AVERAGE | 1.00 | UPDATE | 2.00 | Drain Lock | 0.000000 | 0.000000 | 0.00 |

### NBR RLP THREADS | 1 | UPDATE | SE CPU SU | 0.000000 | 0.000000 | 0.00 |

### LOCATION | OMPD8C1 | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO) | PAGE: 2-38 | GROUP: DBC1 | ACCOUNTING REPORT - LONG | REQUESTED FROM: NOT SPECIFIED | MEMBER: SC11 | ORDER: PRIMAUTH-PLANNAME | INTERVAL FROM: 08/24/16 07:02:00.00 | DB2 VERSION: V12 | SCOPE: MEMBER | TO: 08/24/16 09:56:00.00 |

### TYPE | VALUE | AVERAGE | TIME | EVENT | AVERAGE | TIME | EVENT | AVERAGE | TIME | EVENT |
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### AD2BMAIN | AVERAGE TIME | ADBMAIN | AVERAGE TIME | ADBMAIN | AVERAGE TIME | ADBMAIN | AVERAGE TIME | ADBMAIN | AVERAGE TIME | ADBMAIN | AVERAGE TIME | ADBMAIN |
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### PARENT (DB,TS,TAB,PART) | 0.000000 | 0.00 | PAGESET/PARTITION | 0.000000 | 0.00 |

### CHILD (PAGE,ROW) | 0.000000 | 0.00 | PAGE | 0.000000 | 0.00 |

### OTHER | 0.000000 | 0.00 | OTHER | 0.000000 | 0.00 |

### AD2BCON | AVERAGE TIME | ADBCON | AVERAGE TIME | ADBCON | AVERAGE TIME | ADBCON | AVERAGE TIME | ADBCON | AVERAGE TIME | ADBCON | AVERAGE TIME | ADBCON |
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### PARENT (DB,TS,TAB,PART) | 0.000000 | 0.00 | PAGESET/PARTITION | 0.000000 | 0.00 |

### CHILD (PAGE,ROW) | 0.000000 | 0.00 | PAGE | 0.000000 | 0.00 |

### OTHER | 0.000000 | 0.00 | OTHER | 0.000000 | 0.00 |

### AD2BGET | AVERAGE TIME | ADBGET | AVERAGE TIME | ADBGET | AVERAGE TIME | ADBGET | AVERAGE TIME | ADBGET | AVERAGE TIME | ADBGET | AVERAGE TIME | ADBGET |
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### PARENT (DB,TS,TAB,PART) | 0.000000 | 0.00 | PAGESET/PARTITION | 0.000000 | 0.00 |

### CHILD (PAGE,ROW) | 0.000000 | 0.00 | PAGE | 0.000000 | 0.00 |

### OTHER | 0.000000 | 0.00 | OTHER | 0.000000 | 0.00 |

### LOCATION | OMPD8C1 | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO) | PAGE: 2-39 | GROUP: DBC1 | ACCOUNTING REPORT - LONG | REQUESTED FROM: NOT SPECIFIED | MEMBER: SC11 | ORDER: PRIMAUTH-PLANNAME | INTERVAL FROM: 08/24/16 07:02:00.00 | DB2 VERSION: V12 | SCOPE: MEMBER | TO: 08/24/16 09:56:00.00 |

### PRIMAUTH: MIS PLANNAME: ADB | AVERAGE | TOTAL | AVERAGE | TOTAL | AVERAGE | TOTAL | AVERAGE | TOTAL |
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### INSERT | 1.00 | 1 | INSERT | 0.00 | 0 | INSERT | 0.00 | 0 |

### UPDATE | 0.00 | 0 | UPDATE | 0.00 | 0 | UPDATE | 0.00 | 0 |

### DELETE | 0.00 | 0 | DELETE | 0.00 | 0 | DELETE | 0.00 | 0 |

### DESCRIBE | 14.00 | 14 | DESCRIBE | 0.00 | 0 | DESCRIBE | 0.00 | 0 |

### PREPARE | 10.00 | 10 | PREPARE | 0.00 | 0 | PREPARE | 0.00 | 0 |
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**Location:** OMEGAMON XE for DB2 PERFORMANCE EXPERT (VSRAMO)  
**Page:** 2-40  
**Group:** DB2_1  
**Accounting Report - Long**  
**Requested From:** NOT SPECIFIED  
**Member:** SC11  
**Subsystem:** SC11  
**Order:** PRIMAUTH-PLANNAME  
**Interval From:** 08/24/16 07:02:00.00  
**DB2 Version:** V12  
**Scope:** MEMBER  
**TO:** 08/24/16 09:56:00.00  
**Type:** PRIMAUTH: MIS PLANNAME: ADB275PC  

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**CPU!**

**DB2!**

**SUSP!**
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| LOCATION | OMPDGBCI | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R1M0) | PAGE: 2-41 |
| GROUP:   | DBC1     | ACCOUNTING REPORT - LONG | |
| SUBSYSTEM: | SC11    | ORDER: PRIMAUTH-PLANNAME | |
| DB2 VERSION: | V12    | SCOPE: MEMBER | |

| PRIMAUTH: MIS | PLANNENAME: ADB275PC | |

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**LOCATION:** OMP0B1C1

**PRIMAUTH:** MIS PLANNAME: ADB275PC

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**Chapter 6. Batch reporting** 3133
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**DB2 VERSION:** V12  
**ORDER:** PRIMAUTH-PLANNAME  
**INTERVAL FROM:** 08/24/16 07:02:00:00  
**TO:** 08/24/16 09:56:00:00

**PRIMAUTH:** MIS  
**PLANNAME:** ADB27SPC

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**ADB27SP**

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**ADB27SP**

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IBM Db2 Performance Expert on z/OS

3134
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**AVERAGE TIMES CL. 5 IFI (CL.5)**

**AVERAGE TIMES DB2 (CL.2)**

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**IBM Db2 Performance Expert on z/OS**

**Location:** OMPDBCI

**Group:** DB1

**Accounting Report - Long**

**Requested From:** NOT SPECIFIED

**Subsystem:** SC11

**Order:** PRIMAUTH-PLANNAME

**Interval From:** 08/24/16 07:02:00.00

**DB2 Version:** V12

**Scope:** MEMBER

**To:** 08/24/16 09:56:00.00

**PRIMAUTH: MIS**

**PLANNAME: DSNUTIL**

---

### SQL DML Average Total

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**Location:** OMPDBCI

**Group:** DB1

**Accounting Report - Long**

**Requested From:** NOT SPECIFIED

**Subsystem:** SC11

**Order:** PRIMAUTH-PLANNAME

**Interval From:** 08/24/16 07:02:00.00

**DB2 Version:** V12

**Scope:** MEMBER

**To:** 08/24/16 09:56:00.00

**PRIMAUTH: MIS**

**PLANNAME: DSNUTIL**

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3136
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| MEMBER: SC11 | TO: NOT SPECIFIED |
| SUBSYSTEM: SC11 | ORDER: PRIMAUTH-PLANNAME | INTERVAL FROM: 08/24/16 07:02:00.00 |
| DB2 VERSION: V12 | SCOPE: MEMBER | TO: 08/24/16 09:56:00.00 |
| PRIMAUTH: MIS | PLANNAME: DSMUTIL | |

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<td>27</td>
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### Elapsed Time

<table>
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<tr>
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<tr>
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### Triggered Deadlocks

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### Skipped Index Known

1.50

### Application Threads

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### Memory Usage

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### Accounting Report

- **Location:** OMPDBC1
- **Application:** XE for DBZ Performance Expert (VS400)
- **User:** PAGE
- **Page:** 2-55
- **Group:** DBC1
- **Accounting Report:** Long
- **Requested From:** Not Specified
- **Member:** SC11
- **Subsystem:** SC11
- **Order:** PRIMAUTH-PLANNAME
- **Interval From:** 08/24/16 07:02:00.00
- **DBZ Version:** V12
- **Scope:** Member
- **To:** 08/24/16 09:56:00.00

### Total

**PRIMAUTH: M15**
### Chapter 6. Batch reporting

#### 3141

---

**ROWID** | **AVERAGE** | **TOTAL** | **LOGGING** | **AVERAGE** | **TOTAL** | **AVERAGE SU** | **CLASS 1** | **CLASS 2** |
--- | --- | --- | --- | --- | --- | --- | --- | --- |
DIRECT ACCESS | 0.00 | 0 | LOG RECORDS WRITTEN | 182.17 | 1093 | CP CPU | 26218.33 | 26065.17 |
INDEX USED | 0.00 | 0 | TOTAL BYTES WRITTEN | 184.9K | 1190204 | AGENT | 26218.33 | 26065.17 |
TS SCAN USED | 0.00 | 0 | LOG RECORD SIZE | 1014.83 | N/A | STORED PRC | 26218.33 | 26065.17 |

---

#### MISCELLANEOUS AVERAGE TOTAL
---

- MAX STO LOB VAL (KB): 0.00 | 0
- MAX STO XML VAL (KB): 0.00 | 0
- ARRAY EXPANSIONS: 0.00 | 0
- SPARSE IX DISABLED: 0.00 | 0
- SPARSE IX BUILT WF: 0.00 | 0

---

**BP0** | **BPOOL ACTIVITY** | **AVERAGE** | **TOTAL** | **BP32K** | **BPOOL ACTIVITY** | **AVERAGE** | **TOTAL** | **BP8K** | **BPOOL ACTIVITY** | **AVERAGE** | **TOTAL** |
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
GBP-DEPEND GETPAGES | 296.25 | 1185 | GETPAGES | 98.00 | 392 | GETPAGES | 41247.00 | 164988 |
BUFFER UPDATES | 106.50 | 426 | BUFFER UPDATES | 121.50 | 486 | BUFFER UPDATES | 0.00 | 0 |
SYNCHRONOUS WRITE | 0.00 | 0 | SYNCHRONOUS WRITE | 0.50 | 2 | SYNCHRONOUS WRITE | 0.00 | 0 |
SYNCHRONOUS READ | 44.25 | 177 | SYNCHRONOUS READ | 3.75 | 15 | SYNCHRONOUS READ | 23.25 | 93 |
SEQ, PREFETCH REQ | 0.25 | 1 | SEQ, PREFETCH REQ | 0.00 | 0 | SEQ, PREFETCH REQ | 2539.25 | 10157 |
LIST PREFETCH REQ | 4.25 | 17 | LIST PREFETCH REQ | 0.00 | 0 | LIST PREFETCH REQ | 1.25 | 5 |
DYN, PREFETCH REQ | 5.25 | 21 | DYN, PREFETCH REQ | 2.75 | 11 | DYN, PREFETCH REQ | 8.00 | 32 |
PAGES READ ASYNCH | 46.75 | 187 | PAGES READ ASYNCH | 2.25 | 9 | PAGES READ ASYNCH | 40554.25 | 162217 |

---

**LOCATION:** OMP08C1 | **OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)** | **PAGE:** 2-57
**GROUP:** OBC1 | **ACCOUNTING REPORT = LONG**
**MEMBER:** SC1 | **REQUESTED FROM: NOT SPECIFIED**
**SUBSYSTEM:** SC1 | **TO: NOT SPECIFIED**
**DB2 VERSION:** V12 | **ORDER: PRIMAUTH-PLANNAME**
**SCOPE:** MEMBER | **INTERVAL FROM:** 08/24/16 07:02:00.00
**TO:** 08/24/16 09:56:00.00

---

### Conclusion

This section provides detailed batch reporting metrics for different components and subsystems within the DB2 environment. Key areas include page access statistics, buffer hit ratios, and access patterns. The data is presented in a tabular format, offering insights into disk I/O, synchronous and asynchronous operations, and system performance metrics. With precise data on page requests, read and write operations, and hit ratios, system administrators can make informed decisions to optimize database performance. The inclusion of timestamps and specifying intervals allows for a comprehensive view of performance changes over a defined period. This data is invaluable for troubleshooting, capacity planning, and enhancing overall system efficiency.
<table>
<thead>
<tr>
<th>Location: OMPDG1C1</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRA MON)</th>
<th>Page: 2-58</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group: DBC1</td>
<td>ACCOUNTING REPORT - LONG</td>
<td>Requested From: NOT SPECIFIED</td>
</tr>
<tr>
<td>Member: SC11</td>
<td></td>
<td>To: NOT SPECIFIED</td>
</tr>
<tr>
<td>Subsystem: SC11</td>
<td>ORDER: PRIMAUTH-PLANNAME</td>
<td>Interval From: 08/24/16 07:02:00.00</td>
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<tr>
<td>DB2 Version: V12</td>
<td>SCOPE: MEMBER</td>
<td>To: 08/24/16 09:56:00.00</td>
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### TOTAL ***
**PRIMAUTH: MIS**

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<th>ALL Prog Times</th>
<th>ALL Prog Average Time</th>
<th>ALL Prog Average EV</th>
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<td>Nbr Rlup Threads</td>
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<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRA MON)</th>
<th>Page: 2-59</th>
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<tbody>
<tr>
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<td>ACCOUNTING REPORT - LONG</td>
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</tr>
<tr>
<td>Member: SC11</td>
<td></td>
<td>To: NOT SPECIFIED</td>
</tr>
<tr>
<td>Subsystem: SC11</td>
<td>ORDER: PRIMAUTH-PLANNAME</td>
<td>Interval From: 08/24/16 07:02:00.00</td>
</tr>
<tr>
<td>DB2 Version: V12</td>
<td>SCOPE: MEMBER</td>
<td>To: 08/24/16 09:56:00.00</td>
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### TOTAL ***
**PRIMAUTH: MIS**

<table>
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<tr>
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<th>Av.Event</th>
<th>All Prog</th>
<th>Average Time</th>
<th>Av.Event</th>
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<tbody>
<tr>
<td>Global Contention L-locks</td>
<td>0.000000</td>
<td>0.00</td>
<td>Global Contention P-locks</td>
<td>0.000465</td>
<td>0.20</td>
</tr>
<tr>
<td>Parent (offset,entity,tag,part)</td>
<td>0.000000</td>
<td>0.00</td>
<td>Page Set/Partition</td>
<td>0.000465</td>
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</tr>
<tr>
<td>Child (page,row)</td>
<td>0.000000</td>
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<td>Other</td>
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<td>0.00</td>
</tr>
<tr>
<td>Other</td>
<td>0.000000</td>
<td>0.00</td>
<td>Other</td>
<td>0.000000</td>
<td>0.00</td>
</tr>
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<table>
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<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>Update</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>Delete</td>
<td>0.00</td>
<td>0</td>
</tr>
</tbody>
</table>

| Describe | 2.80 | 14 |
| Prepare | 2.00 | 10 |
| Open | 1.40 | 7 |
Chapter 6. Batch reporting 3143
<table>
<thead>
<tr>
<th>Location: OMPOBC1</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
<th>Page: 2-62</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GROUP:</strong> DB21</td>
<td><strong>ACCOUNTING REPORT - LONG</strong></td>
<td><strong>REQUESTED FROM:</strong> NOT SPECIFIED</td>
</tr>
<tr>
<td><strong>MEMBER:</strong> SC11</td>
<td><strong>ORDER:</strong> PRIMAUTH-PLANNAME</td>
<td><strong>INTERVAL FROM:</strong> 08/24/16 07:02:00.00</td>
</tr>
<tr>
<td><strong>SUBSYSTEM:</strong> SC11</td>
<td><strong>SCOPE:</strong> V12</td>
<td><strong>TO:</strong> 08/24/16 09:56:00.00</td>
</tr>
</tbody>
</table>

### SQL DML AVERAGE TOTAL SQL DCL TOTAL SQL DLL CREATE DROP ALTER DYNAMIC SQL STMト AVERAGE TOTAL

| SELECT | 0.00 | 0 | LOCK TABLE | 0 | TABLE | 0 | 0 | 0 | REOPTIMIZATION | 0.00 | 0 |
| INSERT | 0.00 | 0 | GRANT | 0 | CRT TABL E | 0 | N/A | N/A | NOT FOUND IN CACHE | 0.00 | 0 |
| ROWS | 0.00 | 0 | REVOKE | 0 | DCL TABL E | 0 | N/A | N/A | FOUND IN CACHE | 0.00 | 0 |
| UPDATE | 0.00 | 0 | SET CURR.SQID | 0 | AUX TABL E | 0 | N/A | N/A | IMPLICIT PREPARES | 0.00 | 0 |
| ROWS | 0.00 | 0 | SET HOST VAR | 0 | INDEX | 0 | 0 | 0 | PREPARES AVOIDED | 0.00 | 0 |
| MERGE | 0.00 | 0 | SET CUR.DEGREE | 0 | TABLESPACE | 0 | 0 | 0 | CACHE LIMIT EXCEEDED | 0.00 | 0 |
| DELETE | 0.00 | 0 | SET RULES | 0 | DATABASE | 0 | 0 | 0 | PREP_STMT_PURGED | 0.00 | 0 |
| ROWS | 0.00 | 0 | SET CURR.PATH | 0 | STOGROUP | 0 | N/A | N/A | STABILIZED PREPARE | 0.00 | 0 |
| MERGE | 0.00 | 0 | SET CURR.PREC | 0 | SYNONYM | 0 | N/A | N/A | CSWL - STMTS PARSSED | 0.00 | 0 |
| DESCIBE | 0.00 | 0 | CONNECT TYPE | 1 | VIEW | 0 | 0 | 0 | CSWL - N/C | 0.00 | 0 |
| DESC.TBL | 0.00 | 0 | CONNECT TYPE | 2 | ALIAS | 0 | N/A | N/A | CSWL - MATCHES FOUND | 0.00 | 0 |
| PREPARE | 0.00 | 0 | SET CONNECTION | 0 | PACKAGE | N/A | N/A | N/A | CSWL - DUPS CREATED | 0.00 | 0 |
| OPEN | 0.00 | 0 | RELEASE | 0 | PROCEDURE | 0 | 0 | 0 | 0 | 0 | 0 |
| FETCH | 0.00 | 0 | CALL | 0 | FUNCTION | 0 | 0 | 0 | 0 | 0 | 0 |
| ROWS | 0.00 | 0 | ASSOC LOCATORS | 0 | TRIGGER | 0 | N/A | N/A | 0 | 0 | 0 |
| CLOSE | 0.00 | 0 | ALLOC CURSOR | 0 | DIST TYPE | 0 | N/A | N/A | 0 | 0 | 0 |
| DML-ALL | 0.00 | 0 | FREE LOCATOR | 0 | TRUST. CTX | 0 | 0 | 0 | 0 | 0 | 0 |
| DCL-ALL | 0.00 | 0 | DCL | 0 | ROLE | 0 | N/A | N/A | 0 | 0 | 0 |

### MEASURED/ELIG TIMES APPL (CLI) DB2 (CL2)

| Elapsed Time | 0.075969 | 0.052472 | Used | 0.00 | 0 | IFI CALLS MADE | N/P | N/P |
| Eligible for Accel | N/A | 0.000000 | | | | | | |
| CP CPU Time | 0.000632 | 0.004677 | Fail-No Storage | 0.00 | 0 | LOG RECORDS READ | N/P | N/P |
| Eligible for SCOP | N/A | 0.000000 | | | | | | |
| Eligible for ACCEL | N/A | 0.000000 | Interupted-No Storage | 0.00 | 0 | DATA DESC. RETURN | N/P | N/P |
| SC CPU Time | 0.000000 | 0.000000 | Interrupted-Limit Ex. | 0.00 | 0 | TABLES RETURNED | N/P | N/P |
| Eligible for ACCEL | N/A | 0.000000 | Overflown-No Storage | 0.00 | 0 | | | |
| SKIPPED-INDEX KNOWN | 0.00 | 0 | | | | | | |

### LOCATION: OMPOBC1 | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | Page: 2-63 |
| **GROUP:** DB21 | **ACCOUNTING REPORT - LONG** | **REQUESTED FROM:** NOT SPECIFIED |
| **MEMBER:** SC11 | **ORDER:** PRIMAUTH-PLANNAME | **INTERVAL FROM:** 08/24/16 07:02:00.00 |
| **SUBSYSTEM:** SC11 | **SCOPE:** V12 | **TO:** 08/24/16 09:56:00.00 |

### PRIMAUTH: MISI PLANNAME: DSNUTIL

| STORED PROCEDURES AVERAGE TOTAL UDF AVERAGE TOTAL TRIGGERS AVERAGE TOTAL |
|-----------------------------|----------------|----------------|----------------|----------------|----------------|
| CALLTERMENTS | 0.00 | 0 | IF | EXECUTED | 0.00 | 0 | STATEMENT TRIGGER | 0.00 | 0 |
| ABENDED | 0.00 | 0 | ABENDED | 0.00 | 0 | STATEMENT TRIGGER | 0.00 | 0 |
| TIMED OUT | 0.00 | 0 | TIMED OUT | 0.00 | 0 | SQL ERROR OCCUR | 0.00 | 0 |
| REJECTED | 0.00 | 0 | REJECTED | 0.00 | 0 | 0 | 0 | 0 |

### GLOBAL CONTENTION L-LOCKS AVERAGE TIME AV.EVENT GLOBAL CONTENTION P-LOCKS AVERAGE TIME AV.EVENT

<p>| L-LOCKS | 0.000000 | 0.00 | P-LOCKS | 0.000000 | 0.00 |
| PARENT (OB,Ts,TAB,PAR) | 0.000000 | 0.00 | PAGESET/PARTITION | 0.000000 | 0.00 |
| CHILD (PAGE,ROW) | 0.000000 | 0.00 | 0 | 0.000000 | 0.00 |</p>
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</tr>
<tr>
<td>Escal.(Shared)</td>
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</tr>
<tr>
<td>Escal.(Exclus)</td>
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<td>0</td>
</tr>
<tr>
<td>Max Pg/Row Locks Held</td>
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<td>4</td>
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<tr>
<td>Lock Request</td>
<td>70.00</td>
<td>70</td>
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<tr>
<td>Unlock Request</td>
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<tr>
<td>IRLM Latch Suspens.</td>
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<tr>
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<td>Other Requests</td>
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<td>False Cont Rate(i)</td>
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<td>P/Locks XES(i)</td>
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<tr>
<td>Lock Req - Plocks</td>
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</tr>
<tr>
<td>Unlock Req - Plocks</td>
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</tr>
<tr>
<td>Change Req - XES</td>
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<td>Max Degree-Executed</td>
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<td>Max Members Used</td>
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**Location:** OMPDBC1  
**Group:** ODBC  
**Member:** SC11  
**Subsystem:** SC11  
**Order:** PRAMOUTH-PLANNAME  
**DB2 Version:** V12  
**Scope:** Member  
**Interval From:** 08/24/16 07:02:00  
**To:** 08/24/16 09:56:00

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**Average**  
**Total**

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Chapter 6. Batch Reporting
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**Average Times CL. 5 IFI (CL.5)**

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### Grand Total

**Elapsed Time Duration**

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**Average Elapsed Time**

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**Average Times CL. 5 IFI (CL.5)**

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**Location:** OMPDBC1

**Group:** DB2

**Subsystem:** SC11

**DB2 Version:** V12

**Order:** PRIMAUTH-PLANNNAME
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Chapter 6. Batch reporting
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| **MAX STO XML VAL (KB)** | 0.00 | 0 | | | | | | |
| **ARRAY EXPANSIONS** | 0.00 | 0 | | | | | | |
| **SPARSE IX DISABLED** | 0.00 | 0 | | | | | | |
| **SPARSE IX BUILT WF** | 0.00 | 0 | | | | | | |

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### Location:

**LOCATION:** OMPODBC1

**GROUP:** DBC1

**ACCOUNTING REPORT - LONG**

**REQUESTED FROM:** NOT SPECIFIED

**TO:** NOT SPECIFIED

**ORDER:** PRIMAUTH-PLANNAME

**INTERVAL:** FROM: 08/24/16 07:02:00.00 TO: 08/24/16 09:56:00.00

### Grand Total

| **AVERAGE** | **TOTAL** | **BPOOL HIT RATIO (%)** | 16.90 | N/A | **GETPAGES** | 1500.07 | 196509 |

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IBM Db2 Performance Expert on z/OS
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**Location:** OMP0B21

**OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRA40)**

**Page:** 271

**GROUP:** UB2

**ACCOUNTING REPORT - LONG**

**REQUESTED FROM:** NOT SPECIFIED

**Member:** SC11

**ORDER:** PRIMAU0-2021

**INTERVAL:** 08/24/16 07:02:00.00

**DB2 Version:** V12

**Scope:** MEMBER

**TO:** 08/24/16 09:56:00.00

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**Average Times CL 5 IFI (CL.5)**

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**Chapter 6. Batch reporting**

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**Primauth:** DB2PM, **Planname:** 'BLANK'

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**IBM Db2 Performance Expert on z/OS**
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Chapter 6. Batch reporting 3153
### 3154 IBM Db2 Performance Expert on z/OS

**Location:** OMPODBE  
**Group:** OMPEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)

**Page:** 3-6  
**Group:** DBEE  
**Accounting Report - Long**  
**Requested From:** NOT SPECIFIED  
**Member:** SEEI  
**To:** NOT SPECIFIED

**Subsystem:** SEEI  
**Order:** PRIMAUTH-PLANNAME  
**Interval From:** 08/24/16 08:16:02.78

**DB2 Version:** V11  
**Scope:** MEMBER  
**To:** 08/24/16 09:28:00.00

**PrimaUTH:** DB2PM  
**PlanName:** 'BLANK'

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### DB2 Performance Expert on z/OS

#### Location: SEE1

**Location:** OMPODBE  
**Group:** OMPEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)

**Page:** 3-7  
**Group:** DBEE  
**Accounting Report - Long**  
**Requested From:** NOT SPECIFIED  
**Member:** SEEI  
**To:** NOT SPECIFIED

**Subsystem:** SEEI  
**Order:** PRIMAUTH-PLANNAME  
**Interval From:** 08/24/16 08:16:02.78

**DB2 Version:** V11  
**Scope:** MEMBER  
**To:** 08/24/16 09:28:00.00

**PrimaUTH:** DB2PM  
**PlanName:** 'BLANK'

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**Member:** SEEI  
**Subsystem:** SEEI  
**Order:** PRIMAUTH-PLANNAME  
**Interval:** FROM: 08/24/16 08:16:02.78  
**Scope:** MEMBER  
**Time:** TO: 08/24/16 09:26:00.00

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**IBM Db2 Performance Expert on z/OS**

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**BPOOL**

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**Location: OMPBEE**

**GROUP: DBEE**

**Accounting Report - Long**

**Member: SEE1**

**Subsystem: SEE1**

**Order: PRIMAUTH-PLANNAME**

**Interval from: 08/24/16 08:16:02.78**

**DB2 Version: V11**

**Scope: Member**

**To: 08/24/16 09:28:00.00**

**Chapter 6. Batch reporting**

3159
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| SYNCHRONOUS READ | 0.00 |

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**IBM Db2 Performance Expert on z/OS**

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</table>

**Average Times Cl. 5 IFI (Cl.5)**

**Elapsed Time** 0.000000

**CP CPU Time** 0.000000

**DCAPT.Descr.** 0.000000

**Log Extract.** 0.000000

---

**Location:** OMPDBEE

**DB2 Version:** V11

**DB2 Performance Expert (V5R4M0)**

**Page:** 3-18

---

**Elapsed Time Distribution**

<table>
<thead>
<tr>
<th>Average</th>
<th>Appl (CL.1)</th>
<th>DB2 (CL.2)</th>
<th>Class 3 Suspensions</th>
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<th>AV.EVENT</th>
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<td>LOCK/LATCH(DB2+IRLM)</td>
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<td>0.007987</td>
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<td>OPEN/CLOSE</td>
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<td>ARC, LOQ, (QUIES)</td>
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Chapter 6. Batch reporting 3161
<table>
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<th>SQL DML</th>
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<th>SQL DCL</th>
<th>TOTAL</th>
<th>SQL DDL</th>
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<th>DROP</th>
<th>ALTER</th>
<th>DYNAMIC SQL</th>
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**Materialized/Elig Times**

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<th>APPL (CLI)</th>
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<th>RLIST</th>
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<th>TOTAL</th>
<th>DATA CAPTURE</th>
<th>AVERAGE</th>
<th>TOTAL</th>
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<td>ELAPSED TIME</td>
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<td>0.127358</td>
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<td>I/F CALLS MADE</td>
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**Elapsed Time**

| CPU TIME | 0.019589 | 0.007987 | FAIL-NO STORAGE | 0.00 | 0 | LOG RECORDS READ | 0.00 | 0 |
| CPU TIME | 0.000000 | N/A | INTERRUPTED-NO STORAGE | 0.00 | 0 | DATA DISC. RETURN | 0.00 | 0 |
| CPU TIME | 0.000000 | N/A | INTERRUPTED-LIMIT EXC. | 0.00 | 0 | GLOBAL | 0.00 | 0 |

**CPU Time**

| ELIGIBLE FOR ACCEL | 0.000000 | OVERFLOWED-NO STORAGE | 0.00 | 0 | SKIPPED-INDEX KNOWN | 0.00 | 0 |

**Eligible for Acceleration**

**Global Information**

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<th>Global Information</th>
<th>P-LOCKS</th>
<th>AVERAGE TIME</th>
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**Locking Information**

**Locking Time**

**System Information**

**Performance Report**
### DB2 Performance Report

#### Row 1

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#### Row 2

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#### Row 3

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#### Row 4

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#### Row 5

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#### Row 8

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<tr>
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#### Row 13

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<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
<th>PAGE: 3-21</th>
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<td>ACCOUNTING REPORT - LONG</td>
<td>TO: NOT SPECIFIED</td>
</tr>
<tr>
<td>MEMBER: SEE1</td>
<td>ORDER: PRIMAUTH-PLANNAME</td>
<td>INTERVAL FROM: 08/24/16 09:28:00.00</td>
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<td>SUBSYSTEM: SEE1</td>
<td>SCOPE: MEMBER</td>
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<th>PAGE: 3-22</th>
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<tr>
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<td>ACCOUNTING REPORT - LONG</td>
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</tr>
<tr>
<td>MEMBER: SEE1</td>
<td>ORDER: PRIMAUTH-PLANNAME</td>
<td>INTERVAL FROM: 08/24/16 09:28:00.00</td>
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<tr>
<td>SUBSYSTEM: SEE1</td>
<td>SCOPE: MEMBER</td>
<td>TO: 08/24/16 08:16:02.78</td>
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#### Row 16

<table>
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<th>MEMBER</th>
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Chapter 6. Batch reporting 3163
### GROUP BP0

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### Location: OMPDBEE

**OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4MO)**

**Page: 3-23**

**Request: FROM: NOT SPECIFIED**

**Member: SEE1**

**Subsystem: SSEE**

**Order: PRIMAUTH-PLANNAME**

**Interval: FROM: 08/24/16 08:16:02.78**

**DB2 Version: V11**

**Scope: MEMBER**

**TO: 08/24/16 09:28:00.06**

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| PAGE (CHL,TAB,PAR) | 0.000000 | 0.00 | PAGESET(PARTITION) | 0.000000 | 0.00 |
| CHILD (Page, Row) | 0.000000 | 0.00 | PAGE | 0.000000 | 0.00 |
| OTHER | 0.000000 | 0.00 | OTHER | 0.000000 | 0.00 |

### All Prog Average Total

| SELECT | 17.14 | 120 |
| INSERT | 0.29 | 2 |
| UPDATE | 8.86 | 62 |
| DELETE | 0.29 | 2 |
| DESCRIBE | 0.00 | 0 |
| PREPARE | 1.86 | 13 |
| OPEN | 52.43 | 367 |
| FETCH | 61.00 | 427 |
| CLOSE | 52.43 | 367 |
| LOCK TABLE | 0.14 | 1 |
| CALL | 0.00 | 0 |

**Location: OMPDBEE**

**OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4MO)**

**Page: 3-24**

**Request: FROM: NOT SPECIFIED**

**Member: SEE1**

**Subsystem: SSEE**

**Order: PRIMAUTH-PLANNAME**

**Interval: FROM: 08/24/16 08:16:02.78**

**DB2 Version: V11**

**Scope: MEMBER**

**TO: 08/24/16 09:28:00.06**
### OMEGAMON Performance Expert Report (V5R4M0)

**Location:** OMPDBEE

**Group:** ODBE

**Scope:** MEMBER

**Accounting Report:** LONG

**Interval:** 08/24/16 09:28:00.00

---

#### DB2 Version: V11

**Scope:** MEMBER

**To:** 08/24/16 09:28:00.00

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#### Average Times Class 5

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- **CPU Time:** 0.00000
- **DCAPT.DESCR.:** 0.00000
- **LOG EXTRACT:** 0.00000

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#### Location: OMPDBEE

**Group:** ODBE

**Scope:** MEMBER

**Accounting Report:** LONG

**Requested from:** NOT SPECIFIED

**To:** NOT SPECIFIED

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#### Location: OMPDBEE

**Group:** ODBE

**Scope:** MEMBER

**Accounting Report:** LONG

**Requested from:** NOT SPECIFIED

**To:** NOT SPECIFIED

---

**Chapter 6. Batch Reporting:** 3165
### DB2 Performance Report

**Subsystem:** SEE1  
**Order:** PRIMAUTH-PLANNAME  
**Interval:** FROM 08/24/16 08:16:02.78 TO 08/24/16 09:28:00.00  
**Scope:** MEMBER  
**Type:** TO 08/24/16 09:28:00.00

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<td>UPDATE</td>
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<tr>
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<tr>
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<td>0</td>
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#### Other Averages

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<td>0</td>
<td>N/A</td>
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#### Contention Averages

- **Global:**  
  - Locks: Average 12593.50  
  - UDF: Average 0.00  
  - Triggers: Average 0.00  
  - P-locks: Average 0.00

- **L-locks:**  
  - Average 12593.50  
  - Average 0.00  
  - Average 0.00  
  - Average 0.00

#### Other Averages

<table>
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<tr>
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<th>Total</th>
<th>SQL DCL Averages</th>
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<tr>
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<td>0.00</td>
<td>0</td>
<td>Aux Table</td>
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<tr>
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<td>0</td>
<td>Indexes</td>
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<td>N/A</td>
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#### DB2 Performance Report

- **Elapsed Time:** 1,243,841 N/P  
  - Elapsed Used: 0.00  
  - Call Statements: 0.00  
  - Abandoned: 0.00  
  - Timed Out: 0.00  
  - Rejected: 0.00

- **Location:** OMEGAMON XE for DB2 Performance Expert (V5R4M0)

- **Group:** DB2 ACCOUNTING REPORT - LONG

- **Member:** SEE1

- **Status:** ORDER: PRIMAUTH-PLANNAME  
  - Interval: FROM 08/24/16 08:16:02.78 TO 08/24/16 09:28:00.00  
  - Scope: MEMBER  
  - Type: TO 08/24/16 09:28:00.00

---

**Notable Observations:**

- High lock contention and time elapsed, indicating potential performance issues.
- Detailed DB2 performance metrics for TPC-H and other benchmarks.
- Explanation of lock management and its impact on performance.

---

**IBM DB2 Performance Expert on z/OS**

3166
**Chapter 6. Batch reporting** 3167

<table>
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<th>OTHER SUSPENS.</th>
<th>10.50</th>
<th>21</th>
<th>INCOMPATIBLE LOCKS</th>
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<th>ONE DB2-COORDINATOR</th>
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<th>AVERAGE</th>
<th>TOTAL</th>
<th>NORMAL TERM.</th>
<th>AVERAGE</th>
<th>TOTAL</th>
<th>ABNORMAL TERM.</th>
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<th>IN DOUBT</th>
<th>TOTAL</th>
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<td>218</td>
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<td>END OF MEMORY</td>
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<td></td>
<td>END USER THRESH</td>
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<td>BLOCK STOR THR</td>
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<td>STALENESS THR</td>
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**LOCATION:** OMPDDBE  
**GROUP:** OBEE  
**ACCOUNTING REPORT - LONG**  
**REQUESTED FROM:** NOT SPECIFIED  
**MEMBER:** SEE1  
**TO:** NOT SPECIFIED  
**SUBSYSTEM:** SEE1  
**ORDER:** PRIMAUTH-PLANNAME  
**INTERVAL FROM:** 08/24/16 08:16:02.78  
**DB2 VERSION:** V11  
**SCOPE:** MEMBER  
**TD:** 08/24/16 09:28:00.00  

**PRIMAUTH:** MIS  
**PLANNAME:** DSNUTIL

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<tr>
<th>ROWID</th>
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<th>TOTAL</th>
<th>LOGGING</th>
<th>AVERAGE</th>
<th>TOTAL</th>
<th>AVERAGE SU</th>
<th>CLASS 1</th>
<th>CLASS 2</th>
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<td>0.00</td>
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**MISCELLANEOUS**  
**AVERAGE | TOTAL**  
| MAX STD LOG VAL (KB) | 0.00 | 0 | MAX STD XML VAL (KB) | 0.00 | 0 |
| ARRAY EXPANSIONS | 0.00 | 0 | SPARSE IX DISABLED | 0.00 | 0 | SPARSE IX built up | 0.00 | 0 |

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<th>BP2K</th>
<th>BPOOL ACTIVITY</th>
<th>AVERAGE</th>
<th>TOTAL</th>
<th>BP8K</th>
<th>BPOOL ACTIVITY</th>
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<td>96.94</td>
<td>N/A</td>
<td>BPOOL HIT RATIO (%)</td>
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<td>SEQ. PREFETCH REQS</td>
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**LOCATION:** OMPDDBE  
**GROUP:** OBEE  
**ACCOUNTING REPORT - LONG**  
**REQUESTED FROM:** NOT SPECIFIED  
**MEMBER:** SEE1  
**TO:** NOT SPECIFIED  
**SUBSYSTEM:** SEE1  
**ORDER:** PRIMAUTH-PLANNAME  
**INTERVAL FROM:** 08/24/16 08:16:02.78  
**DB2 VERSION:** V11  
**SCOPE:** MEMBER  
**TD:** 08/24/16 09:28:00.00  

**PRIMAUTH:** MIS  
**PLANNAME:** DSNUTIL

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<tr>
<th>TOTAL</th>
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### IBM Db2 Performance Expert on z/OS

#### Group BP0

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<tr>
<td>READ(XI)-NO DATA RT</td>
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<td>12</td>
</tr>
<tr>
<td>READ(NF)-DATA RETUR</td>
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<td>1</td>
</tr>
<tr>
<td>READ(NF)-NO DATA RT</td>
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#### Average Times Cl. 5 F1I (Cl.5)

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#### Location: OMPDDBEE

**OMEGAMON XE for Db2 Performance Expert (V5R4M0)**

**GROUP: OMPDDBEE**

**APPLICATION:**  
**REQUESTED FROM:** NOT SPECIFIED

**MEMBER:**  
**TO:** NOT SPECIFIED

**SUBSYSTEM:**  
**ORDER:** PRIMAUTH-PLANNAME

**DB2 VERSION: V11**

**SCOPE:** MEMBER

**TO:** 08/24/16 09:28:00.00

---

**Objective:**

To analyze and report on the performance of Db2 on z/OS, focusing on various metrics such as logon times, database operations, and resource usage.

#### Elapsed Time Distribution

<table>
<thead>
<tr>
<th>Application Cl.1</th>
<th>DB2 Cl.2</th>
<th>Class 3 Suspensions</th>
<th>Average Time</th>
<th>Average Event Time/Event</th>
<th>Highlights</th>
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<td>APPL</td>
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<td>CPU</td>
<td>6%</td>
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<tr>
<td>DB2</td>
<td>1</td>
<td>SECPU</td>
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<tr>
<td>SUSP</td>
<td>0</td>
<td>NOTACC</td>
<td>6%</td>
<td>#PARALLEL: 0</td>
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---

**APPL: IBM Db2 Performance Expert on z/OS**

**CPU: 6%**

**SECPU: 6%**

**NOTACC: 6%**

---

**Average Time Distribution:**

- **Elapsed Time:** 2:31.79982
- **I/O Time:** 0.127358
- **CPU Time:** 0.301849
- **User Time:** 0.294276
- **System Time:** 0.007078
- **Total User Time:** 0.294276
- **Total System Time:** 0.007078
- **Total Time:** 0.311354

---

**SUSPEND TIME:**

- **SUSPEND:** 0.01414

---

**NOT ACCOUNT:**

- **TOTAL 3:** 0.014141

---

**DB2 Performance Expert on z/OS**

---

**EXECUTION TIME:** 3:58:00.00

---

**EXECUTION TIME:** 3:58:00.00

---

**EXECUTION TIME:** 3:58:00.00
### Grand Total

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<th>TOTAL</th>
</tr>
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<tr>
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<tr>
<td>INSERT</td>
<td>0.27</td>
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<tr>
<td>UPDATE</td>
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<tr>
<td>MERGE</td>
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<td>DELETE</td>
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<td>0</td>
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<td>OPEN</td>
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<tr>
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<td>3509</td>
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<td>CLOSE</td>
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<tr>
<td>DML-ALL</td>
<td>210.18</td>
<td>4624</td>
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</table>

**DB2 Performance Expert**

**SQL Statements**

- SELECT
- INSERT
- UPDATE
- MERGE
- DELETE
- DESCRIBE
- OPEN
- FETCH
- CLOSE
- DML-ALL

**Elapsed Time**

- 3:31:7982

**Eligible for ACCL**

- N/A

**CP CPU Time**

- 0.031849

**Eligible for SEEP**

- N/A

**Eligible for ACCL**

- N/A

**CE CPU Time**

- 0.000000

**Eligible for ACCL**

- N/A

**Skipped Index Known**

- 0.00

**Location**

- OMPDBEE

**System**

- OMAGOM XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)

**Group**

- DBEE

**Member**

- SEE1

**Edition**

- PRIMAUTH-PLNAME

**DB2 Version**

- V11

**Scope**

- MEMBER

**Interval From**

- 08/24/16 09:32:00.00

**Chapter**

6
LOCK SUSPENSIONS 0.00 0 CONVERSIONS- XES 0.00 0 SEQ-AUTONOMOUS PROC 0.00 0
ILM LATCH SUSPENS. 0.00 0 FALSE CONTENTIONS 1.18 26 SEQ-NEGOTIATION 0.00 0
OTHER SUSPENS. 1.91 42 INCOMPATIBLE LOCKS 0.00 0 ONE DB2-COORDINATOR-NO 0.00 0
NOTIFY MSGS SENT 1.91 42 ONE DB2-ISOLATION LEVEL 0.00 0

**SYNCHRONOUS**

<table>
<thead>
<tr>
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<th>Value</th>
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<tr>
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<tr>
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</tr>
<tr>
<td>BUFFER UPDATES</td>
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<tr>
<td>SYNCHRONOUS WRITE</td>
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</tr>
<tr>
<td>SYNCHRONOUS READ</td>
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</tr>
<tr>
<td>SEQ. PREFERENCE REQS</td>
<td>14</td>
</tr>
<tr>
<td>DYN. PREFERENCE REQS</td>
<td>315</td>
</tr>
<tr>
<td>SECONDS</td>
<td>14.32</td>
</tr>
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</table>

**DISABLING SYNCHRONIZATION**

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<tr>
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</tr>
<tr>
<td>PAGES</td>
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<tr>
<td>BUFFER UPDATES</td>
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<td>SYNCHRONOUS WRITE</td>
<td>0.00</td>
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<tr>
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**GETPAGES**

- **BPOOL**
- **BP0**

**BPOOL**

<table>
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<td>GETPAGES</td>
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<tr>
<td>BUFFER UPDATES</td>
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<td>SEQ. PREFERENCE REQS</td>
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<td>DYN. PREFERENCE REQS</td>
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<td>SECONDS</td>
<td>14.32</td>
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**DISABLING SYNCHRONIZATION**

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<th>Value</th>
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<tr>
<td>PAGES</td>
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<tr>
<td>BUFFER UPDATES</td>
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<td>SYNCHRONOUS READ</td>
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**Miscellaneous**

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<td>MAX STO XML VAL (KB)</td>
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**Location:** OMPDBEE

**Group:** DB2

**Member:** SEEI

**Subsystem:** SEEI

**Order:** PRIMAUTH-PLANNAME

**Interval from:** 08/24/16 08:16:02.78

**Scope:** MEMBER

**TO:** 08/24/16 09:28:00.00

---

**DB2 Version:** V7

---

**Total DB2 Activity**

<table>
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<tr>
<td>BUFFER UPDATES</td>
<td>22.41</td>
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<tr>
<td>SYNCHRONOUS WRITE</td>
<td>0.14</td>
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<tr>
<td>SYNCHRONOUS READ</td>
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<tr>
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**Location:** OMPDBEE

**Group:** DB2

**Member:** SEEI

**Subsystem:** SEEI

**Order:** PRIMAUTH-PLANNAME

**Interval from:** 08/24/16 08:16:02.78

**Scope:** MEMBER

**TO:** 08/24/16 09:28:00.00

---

**DB2 Version:** V11
**LOCATION:** OPPOEE
**DESCRIPTION:** OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)
**GROUP:** OBEEM
**ACCOUNTING REPORT:** LONG
**REQUESTED FROM:** NOT SPECIFIED
**MEMBER:** SEE1
**SUBSYSTEM:** SEE1
**ORDER:** PRIMAUTH-PLANNNAME
**INTERVAL FROM:** 08/24/16 08:16:02.78
**DB2 VERSION:** V11
**SCOPE:** MEMBER
**TIME:** 08/24/16 09:28:00.00

**GRAND TOTAL**

<table>
<thead>
<tr>
<th>ALL PROG</th>
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<th>TIME</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TYPE**

- **PACKAGE**
  - ELAP-CLT TIME-AVG: 0.337481
  - LOCK/LATCH: 0.000000
  - OXC: 0.000000

**LOCATION**

- 'BLANK'
  - CP CPU TIME: 0.017141
  - IRLM LOCK/LATCH: 0.000000
  - N/C

**COLLECTION ID**

- 'BLANK'
  - PAR,TASKS: 0.000000
  - SYNCHRONOUS I/O: 0.000249

**PROGRAM NAME**

- ALL PROG
  - SE CPU TIME: 0.000000
  - OTHER READ I/O: 0.000000
  - N/C

**ACTIVITY TYPE**

- ALL TYPES
  - PAR,TASKS: 0.298461
  - SVC,SERV.TASK: 0.000692

**SCHEN NAME**

- 'BLANK'
  - NOT ACCOUNTED: 0.021873
  - ARCH,LOG(QUIESCE): 0.000000
  - N/C

**OCURRENCES**

- 55 DB2 ENTRY/EXIT: 0.3594
  - CLAIM RELEASE: 0.000000
  - N/C

**NBR OF ALLOCATIONS**

- 363
  - PAGE LATCH: 0.000000
  - N/C

**SOL STM - AVERAGE**

- 194.43
  - CP CPU: 1110.00
  - NOTIFY MESSAGES: 0.297520
  - N/C

**GLOBAL CONTENTION L-LOCKS**

- 0.000000
  - GLOBAL CONTENTION P-LOCKS: 0.000000
  - N/C

**PARENT**

- (DB,TS,TAB,PART): 0.000000
  - PAGES/PERITION: 0.000000

**CHILD**

- (PAGE,ROW): 0.000000
  - PAGE: 0.000000

**OTHER**

- 0.000000
  - N/C

**SELECT**

- 17.14
  - 120

**INSERT**

- 0.29
  - 2

**UPDATE**

- 8.86
  - 62

**DELETE**

- 0.29
  - 2

**DESCRIBE**

- 0.00
  - 0

**PREPARE**

- 1.86
  - 13

**OPEN**

- 52.43
  - 367

**FETCH**

- 61.00
  - 427

**CLOSE**

- 52.43
  - 367

**LOCK TABLE**

- 0.14
  - 1

**CALL**

- 0.00
  - 0

**LOCATION:** OPPOEE
**DESCRIPTION:** OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)
**GROUP:** OBEEM
**ACCOUNTING REPORT:** LONG
**REQUESTED FROM:** NOT SPECIFIED
**MEMBER:** SEE1
**SUBSYSTEM:** SEE1
**ORDER:** PRIMAUTH-PLANNNAME
**INTERVAL FROM:** 08/24/16 08:16:02.78
**DB2 VERSION:** V11
**SCOPE:** MEMBER
**TIME:** 08/24/16 09:28:00.00

**Chapter 6. Batch reporting**

3171
### Accounting Trace - Long:

This topic shows an example of a long version of the Accounting trace.

The following example shows an extract from a long version of the Accounting trace produced by the following command:

```
ACCOUNTING TRACE LAYOUT (LONG)
```

### Accounting (Long Trace)

The following example shows an extract from a long version of the Accounting trace.
### Identification

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Group</td>
<td>N/P</td>
</tr>
<tr>
<td>Member</td>
<td>N/P</td>
</tr>
<tr>
<td>Subsystem</td>
<td>DAS</td>
</tr>
<tr>
<td>DB2 Version</td>
<td>V10</td>
</tr>
</tbody>
</table>

#### Location: OMPDA5

**OMEGAMON XE for DB2 Performance Expert (VSRAMO)**

**Page:** 1-4

**GROUP:** N/P

**MEMBER:** N/P

**SUBSYSTEM:** DAS

**ACT TSTMP:** 08/24/16 08:18:18.92

**PLANNAME:** ADB

**LWL SCL:** 'BLANK'

**CICS NET:** N/A

**BEGIN TIME:** 08/24/16 08:17:30.65

**PROD TYP:** N/P

**LUW NET:** DEIBM1PS

**CICS LUN:** N/A

**END TIME:** 08/24/16 08:18:18.92

**PROD VER:** N/P

**LUW LUN:** IPUAZPS

**CICS INS:** N/A

**REQUESTER:** OMPDA5

**CORRNAME:** MIS

**LUN:** 013003259487

**MAINPACK:** ADB2GET

**CORRNR:** 'BLANK'

**LUW SEQ:** 4

**ENDUSER:** MIS

**PRIMAUTH:** MIS

**CONNTYPE:** TSO

**TRANSACT:** MIS

---

### Identification

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
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<tr>
<td>Group</td>
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<tr>
<td>Member</td>
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<tr>
<td>Subsystem</td>
<td>DAS</td>
</tr>
<tr>
<td>DB2 Version</td>
<td>V10</td>
</tr>
</tbody>
</table>

#### Location: OMPDA5

**OMEGAMON XE for DB2 Performance Expert (VSRAMO)**

**Page:** 1-5

**GROUP:** N/P

**MEMBER:** N/P

**SUBSYSTEM:** DAS

**ACT TSTMP:** 08/24/16 08:18:18.92

**PLANNAME:** ADB

**LWL SCL:** 'BLANK'

**CICS NET:** N/A

**BEGIN TIME:** 08/24/16 08:17:30.65

**PROD TYP:** N/P

**LUW NET:** DEIBM1PS

**CICS LUN:** N/A

**END TIME:** 08/24/16 08:18:18.92

**PROD VER:** N/P

**LUW LUN:** IPUAZPS

**CICS INS:** N/A

**REQUESTER:** OMPDA5

**CORRNAME:** MIS

**LUN:** 013003259487

**MAINPACK:** ADB2GET

**CORRNR:** 'BLANK'

**LUW SEQ:** 4

**ENDUSER:** MIS

**PRIMAUTH:** MIS

**CONNTYPE:** TSO

**TRANSACT:** MIS

---
SQL  SUCC
SCHEMA ACTIVITY
ACTIVITY
CONSISTENCY
PROGRAM
COLLECTION
ADB2GET
ORIGAUTH
REQUESTER
BEGIN
ACCT ----

DB2
PAGES DYN.
LIST SEQ.
SYNCHRONOUS BUFFER
GETPAGES BPOOL
---------------------

TYPE: SE
---------

REJECTED
TIMED OUT
REJECTED

TOTAL SU CLASS 1 CLASS 2 MISCELLANEOUS TOTAL
CP CPU 350 226 MAX STD LOB VAL (KB) 0
AGENT 359 226 MAX STD XML VAL (KB) 0
NONNESTED 359 226 ARRAY EXPANSIONS N/A
STORED PRC 0 0 SPARSE IX DISABLED N/A
UDF 0 0 SPARSE IX BUILT MP N/A
TRIGGER 0 0
PAR.TASKS 0 0

ELIG SECP 0 N/A
ELIG ACCEL N/A 0
SE CPU 0 0
NONNESTED 0 0
STORED PRC 0 0
UDF 0 0
TRIGGER 0 0
PAR.TASKS 0 0

ELIG ACCEL N/A 0

---- RESOURCE LIMIT FACILITY -----

TABLE ID: N/P  SERV.UNITS: N/P  CPU SECONDS: 0.000000  MAX CPU SEC: N/P

BPO
BPOOL ACTIVITY TOTAL BPAK BPOOL ACTIVITY TOTAL

BPOOL HIT RATIO (%) 86 BPOOL HIT RATIO (%) 100 BPOOL HIT RATIO (%) 87
GETPAGES 28 GETPAGES 2 GETPAGES 30
BUFFER UPDATES 0 BUFFER UPDATES 0 BUFFER UPDATES 0
Synchronous WRITE 0 Synchronous WRITE 0 Synchronous WRITE 0
Synchronous READ 4 Synchronous READ 0 Synchronous READ 4
SEQ. PREFETCH REQS 0 SEQ. PREFETCH REQS 0 SEQ. PREFETCH REQS 0
LIST PREFETCH REQS 0 LIST PREFETCH REQS 0 LIST PREFETCH REQS 0
DYN. PREFETCH REQS 0 DYN. PREFETCH REQS 1 DYN. PREFETCH REQS 1
PAGES READ ASYNCHR. 0 PAGES READ ASYNCHR. 0 PAGES READ ASYNCHR. 0

LOCATION: OMPDA5
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
PAGE: 1-6
GROUP: N/P
ACCOUNTING TRACE - LONG
REQUESTED FROM: NOT SPECIFIED
TD: NOT SPECIFIED
SUBSYSTEM: DA5
ACTUAL FROM: 08/24/16 08:18:18.92
DB2 VERSION: V10

---- IDENTIFICATION -----

ACCT TSTAMP: 08/24/16 08:18:18.92
PLANNAME: ADB
WLM SCL: 'BLANK'
CICS NET: N/A
BEGIN TIME: 08/24/16 08:17:30.65
PROD TYP: N/P
LUW NET: DB2MIPS
CICS LNK: N/A
END TIME: 08/24/16 08:18:18.92
PROD VER: N/P
LUW LNK: IPU24325
CICS INS: N/A
REQUESTER: OMPDA5
CORNAME: MIS
LUW INS: D13032594877
MAINFRAME : ADBGET
CORRNAME: 'BLANK'
LUW SEQ: 4
ENDUSER : MIS
PRIMAUTH : MIS
CONNTYPE: TSO
TRANSACT: MIS
ORIGAUTH : MIS
CONNECT : TSO
WSNAME : TSO

!PROGRAM NAME  CLASS 7 ELAPSED TIME CONSUMERS !
!ADBGET  | > 1 ½ !
!ADB2CON ! 1 ½ !
!ADBMAIN !----------------------------- 99% !

!PROGRAM NAME  CLASS 7 CP CPU TIME CONSUMERS !
!ADBGET  |>------ 10½ !
!ADB2CON ! > 1 ½ !
!ADBMAIN !----------------------------- 89% !

<table>
<thead>
<tr>
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<th>VALUE</th>
<th>ADB2GET</th>
<th>TIMES</th>
<th>ADB2GET</th>
<th>TIME</th>
<th>EVENTS</th>
<th>TIME/EVENT</th>
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<tbody>
<tr>
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<td>PACKAGE</td>
<td>ELAPSED TIME - CL7</td>
<td>0.000033</td>
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<tr>
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<td>CP CPU TIME</td>
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<td>AGENT</td>
<td>0.000328</td>
<td>DB2 LATCH</td>
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<td>N/C</td>
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CORNAME: MIS
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LWU SEQ: 4
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GROUP: N/P
ACCOUNTING TRACE - LONG
REQUESTED FROM: NOT SPECIFIED
MEMBER: N/P
TO: NOT SPECIFIED
SUBSYSTEM: DAS
ACTUAL FROM: 08/24/16 08:18:18.92
DB2 VERSION: V10

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### GETPAGES

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### BUFFER UPDATES

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### SYNCHRONOUS WRITE

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### SYNCHRONOUS READ

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### SEQ. PREFIX REQ.

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### LIST PREFIX REQ.

| LIST PREFIX REQ. | 0 | LIST PREFIX REQ. | 0 | LIST PREFIX REQ. | 0 |

### DYN. PREFIX REQ.

| DYN. PREFIX REQ. | 4 | DYN. PREFIX REQ. | 36 | DYN. PREFIX REQ. | 62 |

### PAGES READ ASYNCHR.

| PAGES READ ASYNCHR. | 17 | PAGES READ ASYNCHR. | 256 | PAGES READ ASYNCHR. | 22 |

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IBM Db2 Performance Expert on z/OS
**Accounting Trace - Long**

**Page: 1-16**

**Requested From: Not Specified**

**To: Not Specified**

**Actual From: 08/24/16 08:18:18.92**

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**Elapsed Time Distribution**

Class 2 Time Distribution

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**Accounting Trace - Long**

**Page: 1-17**

**Requested From: Not Specified**

**To: Not Specified**

**Actual From: 08/24/16 08:18:18.92**

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**Elapsed Time**

**N/P**

**CP CPU Time**

**N/P**

**DCAPT.Descr.**

**N/P**

**Log Extract.**

**N/P**

**Location:** OMPDA5  
**Group:** N/P  
**Member:** N/P  
**Subsystem:** DAS  
**Actual From:** 08/24/16 08:18:18.92

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**Identification**

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**WLM Scl:** 'BLANK'  
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**Accounting Trace - Long**

**Page: 1-18**

**Requested From: Not Specified**

**To: Not Specified**

**Actual From: 08/24/16 08:18:18.92**

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**N/P**

**CP CPU Time**

**N/P**

**DCAPT.Descr.**

**N/P**

**Log Extract.**

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**Actual From:** 08/24/16 08:18:18.92
IBM Db2 Performance Expert on z/OS
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### STORED PROC.

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### RESPECT LIMIT FACILITY

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### LOCATION:

OMPOA5 | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | PAGE: 1-21 |
GROUP: N/P | ACCOUNTING TRACE - LONG | REQUESTED FROM: NOT SPECIFIED |
MEMBER: N/P | TO: NOT SPECIFIED |
SUBSYSTEM: DA5 | ACTUAL FROM: 08/24/16 08:18:18.92 |
DB2 VERSION: V10 | | |

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**Chapter 6. Batch reporting** 3183
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### ADB27SP TOTAL

- SELECT: 0
- INSERT: 0
- UPDATE: 0
- DELETE: 0
- DESCRIBE: 0
- PREPARE: 0
- OPEN: 1
- FETCH: 2
- CLOSE: 1
- LOCK TABLE: 0
- CALL: 0

| LOCATION: OMQA5 | OMEXMON XE FOR DB2 PERFORMANCE EXPERT (VSAMDB) | PAGE: 1-22 |
| GROUP: N/P | ACCOUNTING TRACE - LONG | REQUESTED FROM: NOT SPECIFIED |
| MEMBER: N/P | | TO: NOT SPECIFIED |
| SUBSYSTEM: DAS | | ACTUAL FROM: 08/24/16 08:18:18.92 |
| DB2 VERSION: V10 |

--- IDENTIFICATION ---

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### ADB27SP TOTAL

- BPPOOL HIT RATIO (%) = -9
- GETPAGES = 339
- BUFFER UPDATES = 0
- SYNCHRONOUS WRITE = 0
- SYNCHRONOUS READ = 4
- SEQ. PREFETCH DEQS = 12
- LIST PREFETCH DEQS = 0
- DYN. PREFETCH DEQS = 0
- PAGES READ ASYNCHR. = 368

--- END ---
IBM Db2 Performance Expert on z/OS

LOCATION: OMPDAS
OMEGAMONXE FOR DB2 PERFORMANCE EXPERT (V5R4M0) PAGE: 1-25
GROUP: N/P
ACCOUNTING TRACETYPE - LONG
REQUESTED FROM: NOT SPECIFIED
MEMBER: N/P
TO: NOT SPECIFIED
SUBSYSTEM: DAS
ACTUAL FROM: 08/24/16 08:18:18.92
DB2 VERSION: V10

...
### Identifiers

```
ACCT,(SHAR)  0  P/L-LOCKS(%)  70  MAXIMUM DEGREE-EXECUTED  0  CLAIM REGST  28
ACCT,(EXCL)  0  P-LOCK REQ  21  MAXIMUM MEMBERS USED  N/P  CLAIM FAILED  0
MAX PG/ROW LCK HELD  1  P-UNLOCK REQ  18  PARALLEL GROUPS EXECUTED  0
LOCK REQUEST  59  P-CHANGE REQ  1  RAN AS PLANNED  0
UNLOCK REQUEST  27  LOCK - XES  56  RAN REDUCED-STORAGE  0
QUERY REQUEST  0  UNLOCK-XES  21  RAN REDUCED-NEGOTIATION  0
CHANGE REQUEST  4  CHANGE-XES  5  SEQ-CURSOR  0
OTHER REQUEST  0  SUSP - IRLM  4  SEQ-NO ESA SORT  0
TOTAL SUSPENSIONS  0  SUSP - XES  1  SEQ-NO BUFFER  0
LOCK SUSPENS  0  CONV - XES  1  SEQ-AUTONOMOUS PROC  0
IRLM LATCH SUSPENS  0  FALSE CONT  0  SEQ-NEGOTIATION  0
OTHER SUSPENS  0  INCOMP-Lock  0  ONE OBZ-COORDINATOR = NO  0
NOTE SENT  0  ONE OBZ-ISOATION LEVEL  0
ONE DB2-DCL TABLE  0
MEMB SKIPPED(%)  0
DISABLED BY RLF NO
REFORM PARAL-CONFIG  0
REFORM PARAL-NO BUT  0
```

### Location

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)

**Group**: DB2C1
**Member**: SC11

**Request from**: NOT SPECIFIED
**Actual from**: 08/24/16 07:02:00.00

### DB2 Version

V12

### Resource Limit Facility

**Type**: N/P

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**Location**: OMPB8C1

**Group**: DB2C1

**Member**: SC11

**Request from**: NOT SPECIFIED

**Actual from**: 08/24/16 07:02:00.00

**DB2 Version**: V12

---

**Identifiers**

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ACCT TSTAMP: 08/24/16 07:02:00.00  PLANNAME: KOZPLAN  WLM SCL: 'BLANK'  CICS NET: N/A
BEGIN TIME: 08/24/16 06:49:59.14  PROD TYP: N/P  LUW NET: OEIMIPS  CICS LUN: N/A
END TIME : N/P  PROD VER: N/P  LUW LUN: IPUAPC11  CICS INS: N/A
```
IBM Db2 Performance Expert on z/OS
### IBM Db2 Performance Expert on z/OS

**Acct Tstamp:** 08/16/16 07:16:00.00  
**Planname:** K02PLAN  
**WLM SCI:** BLANK  
**CICS Net:** N/A

**Begin Time:** 08/16/16 07:20:03  
**Prod Typ:** N/P  
**Luw Net:** DLIMIPS  
**Luw LUN:** N/A

---

**Time:** 0:00:00  
**Ipi Calls:** 0  
**Dir Access:** 0

---

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**Location:** OMPDbC1  
**Accounting Trace:** LONG  
**Member:** SC1  
**Subsystem:** SC1  
**Actual From:** 08/16/16 07:02:06.00

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**Location:** OMPDbC1  
**Accounting Trace:** LONG  
**Requested From:** NOT SPECIFIED  
**To:** NOT SPECIFIED

---

**Begin Time:** 08/16/16 07:02:00.03  
**Prod Typ:** N/P  
**Luw Net:** DLIMIPS  
**Luw LUN:** N/A

---

**Time:** 0:00:00  
**Abended:** 0  
**Row Trigger:** 0

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**Total Su:** 3192  
**Class 1:** 0  
**Class 2:** 0  
**Miscellaneous:** 0

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**Location:** OMPDbC1  
**Accounting Trace:** LONG  
**Requested From:** NOT SPECIFIED  
**To:** NOT SPECIFIED
Chapter 6. Batch reporting 3193

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LOCATION: OMPDBC1

OMEGAMON TX FOR DB2 PERFORMANCE EXPERT (V5R4M0) PAGE: 2-14

GROUP: DBC1
ACCOUNTING TRACE - LONG
REQUESTED FROM: NOT SPECIFIED
MEMBER: SC11
TO: NOT SPECIFIED
SUBSYSTEM: SC11
ACTUAL FROM: 08/24/16 07:02:00.00

DB2 VERSION: V12

---- IDENTIFICATION --------------------------------------------------------

ACCT TSTAMP: 08/24/16 07:16:00.00
PLANNAME: KO2PLAN
WLM SCL: 'BLANK'
CICS NET: N/A

BEGIN TIME: 08/24/16 07:01:52.03
PROD TYP: N/P
LUW NET: DEIBMIPS
CICS LUN: N/A

END TIME: N/P
PROD VER: N/P
LUW LUN: IPAAC11
CICS INS: N/A

REQUESTER: OMPDBC1

CORRNAME: 'BLANK'
LUW INS: D130513780A

MAINPACK: KO2PLAN
FCORMBR: 'BLANK'
LUW SEQ: 7
ENDUSER: DB2PM

PRIMAUTH: DB2PM
CONNTYPE: RRS
TRANSACT: 'BLANK'

ORIGAUTH: DB2PM
CONNECT: RRSAF
WNNAME: RRSAF

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LOCATION: OMPDBC1

OMEGAMON TX FOR DB2 PERFORMANCE EXPERT (V5R4M0) PAGE: 2-15

GROUP: DBC1
ACCOUNTING TRACE - LONG
REQUESTED FROM: NOT SPECIFIED
MEMBER: SC11
TO: NOT SPECIFIED
SUBSYSTEM: SC11
ACTUAL FROM: 08/24/16 07:02:00.00

DB2 VERSION: V12

---- IDENTIFICATION --------------------------------------------------------

--- END ---
**FPEVWRP2**

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| OTHER | 0.000000 | 0 | OTHER | 0.000000 | 0 |

### Duration

**Location:** OMPOBC1  
**Description:**  
**Group:** DB2  
**Member:** SC11  
**Subsystem:** SC11

---

**Identification**

- **acct Tstamp:** 08/24/16 07:16:00.00  
- **Planname:** KO2PLAN  
- **LwM Scl:** 'BLANK'  
- **Cics Net:** N/A  
- **Begin Time:** 08/24/16 07:02:20.03  
- **End Time:** N/P  
- **Requester:** OMPOBC1  
- **Mainauth:** KO2PLAN  
- **Primauth:** DB2PM  
- **Originalauth:** DB2PM

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**FPEVWRP2**

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**Miscellaneous**

- **Timeouts:** 0  
- **Deadlocks:** 0  
- **Escal. (Shared):** 0  
- **Escal. (Excl):** 0  
- **Max Pg/Rl Locks Held:** 1  
- **Lock Request:** 65  
- **Unlock Request:** 30  
- **Query Request:** 0  
- **Change Request:** 5  
- **Other Request:** 0  
- **Total Suspensions:** 0
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**DB2 Version:** V12

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**DB2 Version:** V12

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<td>CPU</td>
<td>33%</td>
</tr>
<tr>
<td>SECPU</td>
<td>26%</td>
</tr>
<tr>
<td>NOTACC</td>
<td>8%</td>
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</table>

**Distribution:** 66%

### Elapsed Time Distribution

<table>
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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>CPU</td>
<td>33%</td>
</tr>
<tr>
<td>SECPU</td>
<td>26%</td>
</tr>
<tr>
<td>NOTACC</td>
<td>8%</td>
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</table>

**Distribution:** 66%

### Times/Events

- **Application (CL.1)**
  - **DB2 (CL.2)**
  - **Class 3 Suspensions**
  - **Elapsed Time**
  - **Events**
  - **Time/Event**
  - **Highlights**

<table>
<thead>
<tr>
<th>Event</th>
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<th>Percentage</th>
<th>Type</th>
<th>Highlight</th>
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<tbody>
<tr>
<td>Lock/Latch (DB2+IRLM)</td>
<td>0.000000</td>
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<tr>
<td>IRU Lock/Latch</td>
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<td>0%</td>
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<td>Term.Condition: Normal</td>
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<td>DB Lock</td>
<td>0.000000</td>
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<td>INVOKE Reason: Staleness</td>
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<tr>
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<tr>
<td>Log Write</td>
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<td>0%</td>
<td>N/C</td>
<td>RUP AUTONOM.P: 0</td>
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<tr>
<td>Other Read</td>
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<td>N/C</td>
<td>AUTONOMOUS PR: 0</td>
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<tr>
<td>Other Write</td>
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<td>0%</td>
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<tr>
<td>Server Task</td>
<td>0.01915</td>
<td>11%</td>
<td>N/C</td>
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<tr>
<td>Update/Coll</td>
<td>0.003702</td>
<td>5%</td>
<td>N/C</td>
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<tr>
<td>Open/Close</td>
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<td>0%</td>
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### CPU Time

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<tbody>
<tr>
<td>Log/Read</td>
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<td>Store Proc</td>
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<td>MAX FILE BLKS: 0</td>
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<td>Accelerator</td>
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### Not Accounting

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<td>0.01915</td>
<td>11%</td>
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</table>

### Chapter 6. Batch Reporting

3195
### ACCT TSTAMP: 08/24/16 07:17:38.21
**PLANNAME**: KOZPLAN  **WLM SCL**: 'BLANK'  **CICS NET**: N/A
**BEGIN TIME**: 08/24/16 07:17:38.21  **PROD TYP**: N/P  **LUW NET**: DEVIMPS  **CICS LUN**: N/A
**END TIME**: 08/24/16 07:30:00.02  **PROD VER**: N/P  **LUW LUN**: IPUPAC11  **CICS INS**: N/A
**REQUESTER**: OMPBC1  **CORRNAME**: 'BLANK'  **LUW INS**: D13CB980F05E
**MAINPACK**: KOZPLAN  **CORRMBR**: 'BLANK'  **LUW SQI**: 7  **ENDUSER**: DB2PM
**PRIMAUTH**: DB2PM  **CONNTYPE**: RRS  **TRANSACT**: 'BLANK'
**ORIGAUTH**: DB2PM  **CONNTYPE**: RRSAF  **WNAME**: RRS

### SQL DML

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</table>

**LOCATION**: OMPBC1  **OMEGAMON** FOR DB2 PERFORMANCE EXPERT (V5R4M0)  **REQUESTED FROM**: NOT SPECIFIED  **TO**: NOT SPECIFIED  **SUBSYSTEM**: CL1  **DATE**: 08/24/16 07:02:06.00  **DB2 VERSION**: V12

---

### ACCT TSTAMP: 08/24/16 07:17:38.21
**PLANNAME**: KOZPLAN  **WLM SCL**: 'BLANK'  **CICS NET**: N/A
**BEGIN TIME**: 08/24/16 07:17:38.21  **PROD TYP**: N/P  **LUW NET**: DEVIMPS  **CICS LUN**: N/A
**END TIME**: 08/24/16 07:30:00.02  **PROD VER**: N/P  **LUW LUN**: IPUPAC11  **CICS INS**: N/A
**REQUESTER**: OMPBC1  **CORRNAME**: 'BLANK'  **LUW INS**: D13CB980F05E
**MAINPACK**: KOZPLAN  **CORRMBR**: 'BLANK'  **LUW SQI**: 7  **ENDUSER**: DB2PM
**PRIMAUTH**: DB2PM  **CONNTYPE**: RRS  **TRANSACT**: 'BLANK'
**ORIGAUTH**: DB2PM  **CONNTYPE**: RRSAF  **WNAME**: RRS

### SQL DML

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<tr>
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**LOCATION**: OMPBC1  **OMEGAMON** FOR DB2 PERFORMANCE EXPERT (V5R4M0)  **REQUESTED FROM**: NOT SPECIFIED  **TO**: NOT SPECIFIED  **SUBSYSTEM**: CL1  **DATE**: 08/24/16 07:02:06.00  **DB2 VERSION**: V12

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**Chapter 6. Batch Reporting**
IBM Db2 Performance Expert on z/OS

REQUESTER: OMPDBC1  CORRNAME: 'BLANK'  LWU INS: 013DCB80F53
MAINPACK: KZPL2AN  CORRNRB: 'BLANK'  LWU SQ: 7  ENDUSER: DB2PM
PRIMAUTH: DB2PM  CONNTYPE: RRS  TRANSACT: 'BLANK'
ORIGAUTH: DB2PM  CONNECT: RRSF  WNAME: RRSF

GROUP BP0  TOTAL  GROUP BP32K  TOTAL  GROUP TOTAL  TOTAL
-----------------------------------------------
GBP-DEPEND-GETPAGES  40  GBP-DEPEND-GETPAGES  20  GBP-DEPEND-GETPAGES  60
READ(XI)-DATA RT  0  READ(XI)-DATA RT  0  READ(XI)-DATA RT  0
READ(XI)-NO DATA RT  0  READ(XI)-NO DATA RT  0  READ(XI)-NO DATA RT  0
READ(NF)-DATA RT  0  READ(NF)-DATA RT  0  READ(NF)-DATA RT  0
READ(NF)-NO DATA RT  0  READ(NF)-NO DATA RT  0  READ(NF)-NO DATA RT  0
PREPENCH PAGES READ  0  PREPENCH PAGES READ  0  PREPENCH PAGES READ  0
CLEAN PAGES WRITTEN  0  CLEAN PAGES WRITTEN  0  CLEAN PAGES WRITTEN  0
UNREGISTER PAGE  0  UNREGISTER PAGE  0  UNREGISTER PAGE  0
ASYNCH GBP REQUESTS  0  ASYNCH GBP REQUESTS  0  ASYNCH GBP REQUESTS  0
EXPILICT X-INVALID  0  EXPILICT X-INVALID  0  EXPILICT X-INVALID  0
ASYNCH SEC-GBP REQ  0  ASYNCH SEC-GBP REQ  0  ASYNCH SEC-GBP REQ  0
PG P-LOCK LOCK REQ  0  PG P-LOCK LOCK REQ  0  PG P-LOCK LOCK REQ  0
SPACE MAP PAGES  0  SPACE MAP PAGES  0  SPACE MAP PAGES  0
DATA PAGES  0  DATA PAGES  0  DATA PAGES  0
INDEX LEAF PAGES  0  INDEX LEAF PAGES  0  INDEX LEAF PAGES  0
PG P-LOCK UNLOCK REQ  0  PG P-LOCK UNLOCK REQ  0  PG P-LOCK UNLOCK REQ  0
PG P-LOCK LOCK SUSP  0  PG P-LOCK LOCK SUSP  0  PG P-LOCK LOCK SUSP  0
SPACE MAP PAGES  0  SPACE MAP PAGES  0  SPACE MAP PAGES  0
DATA PAGES  0  DATA PAGES  0  DATA PAGES  0
INDEX LEAF PAGES  0  INDEX LEAF PAGES  0  INDEX LEAF PAGES  0
WRITE AND REGISTER  5  WRITE AND REGISTER  5  WRITE AND REGISTER  5
WRITE & REGISTER MULTI  0  WRITE & REGISTER MULTI  0  WRITE & REGISTER MULTI  0
CHANGED PAGES WRITTEN  5  CHANGED PAGES WRITTEN  5  CHANGED PAGES WRITTEN  5
COMPLOCKS SUSPEND  0  COMPLOCKS SUSPEND  0  COMPLOCKS SUSPEND  0

LOCATION: OMPDBC1  OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
GROUP: DBC1  ACCOUNTING TRACE - LONG
REQUESTED FROM: NOT SPECIFIED
MEMBER: SC11  TO: NOT SPECIFIED
SUBSYSTEM: SC11  ACTUAL FROM: 08/24/16 07:02:00.00
DB2 VERSION: V12

--- IDENTIFICATION

ACCT TSTMP: 08/24/16 07:30:00.01  PLANNED: KZPL2AN  WLM SCL: 'BLANK'  CICCS NET: N/A
BEGIN TIME: 08/24/16 07:17:38.21  PROD TYP: N/P  LWU NET: 010M1PS  CICCS LUN: N/A
END TIME: N/P  PROD VER: N/P  LWU LUN: IPUMC711  CICCS INS: N/A
REQUESTER: OMPDBC1  CORRNAME: 'BLANK'  LWU INS: 013DCB80F53
MAINPACK: KZPL2AN  CORRNRB: 'BLANK'  LWU SQ: 7  ENDUSER: DB2PM
PRIMAUTH: DB2PM  CONNTYPE: RRS  TRANSACT: 'BLANK'
ORIGAUTH: DB2PM  CONNECT: RRSF  WNAME: RRSF

--- FPEVWRP2

FPEVWRP2  VALUE  FPEVWRP2  TIMES  FPEVWRP2  TIME  EVENTS  TIME/EVENT
-----------------------------------------------
TYPE PACKAGE  ELAPSED TIME - CL7  0.01364  LOCK/LATCH  0.000000  0  N/C
LOCATION OMPDBC1  CPU TIME  0.006231  IRML LOCK+LATCH  0.000000  0  N/C
COLLECTION ID KZ0V5M30  AGENT  0.006231  DB2 LOCK  0.000000  0  N/C
PROGRAM NAME PFEVWRP2  PAR.TASKS  0.000000  SYNCHRONOUS 1/0  0.000000  0  N/C
CONSISTENCY TOKEN 1A20F1C107FBAS0D  SE CPU TIME  0.000000  OTHER READ 1/0  0.000000  0  N/C
ACTIVITY TYPE 'NONNED'  SPSNDEF-CLB  0.000202  OTHER WRITE 1/0  0.000000  0  N/C
ACTIVITY NAME 'BLANK'  AGENT  0.000202  SRV.TASK SWITCH  0.000000  0  N/C
SCHEMA NAME 'BLANK'  PAR.TASKS  0.000000  ARCH,LOG (QUIESC)  0.000000  0  N/C
SUCC AUTH CHECK N/P  NOT ACCOUNTED  0.000000  ARCHIVE LOG READ  0.000000  0  N/C
NBR OF ALLOCATIONS 5  DRAIN LOCK  0.000000  0  N/C
SQL STM - AVERAGE 22.00  CP CPU SU  404  CLAIM RELEASE  0.000000  0  N/C
SQL STM - TOTAL 110  AGENT  404  PAGE LATCH  0.000000  0  N/C
NBR RLUP THREADS 5  PAR.TASKS  0  NOTIFY MESSAGES  0.000000  0  N/C
SE CPU SU  0  GLOBAL CONTESTION 0.000000  0  N/C
TC/IP LOB XML 0.000000  0  N/C
DB2 ENTRY/EXIT 290  ACCELERATOR 0.000000  0  N/C
PG SYNCHRONIZATION 0.000000  0  N/C
FAST INSERT PIPE 0.000000  0  N/C
TOTAL CLB SUSPENS. 0.00302 5  0.000640

--- FPEVWRP2

FPEVWRP2  ELAPSED TIME  EVENTS  FPEVWRP2  ELAPSED TIME  EVENTS
------------------------------
GLOBAL CONTENTION L-LOCKS 0.000000  0  GLOBAL CONTENTION P-LOCKS 0.000000  0
PARENT (DB,TABLE PART) 0.000000  0  PAGE/SET/PARTITION 0.000000  0
CHILD (PAGE,RAW) 0.000000  0  PAGE 0.000000  0
OTHER 0.000000  0  OTHER 0.000000  0

--- FPEVWRP2

FPEVWRP2  TOTAL

---------------------
SELECT 0
INSERT 0
UPDATE 5
DELETE 0

---

PREPARE 30
OPEN 25
FETCH 25
CLOSE 25
LOCK TABLE 0
CALL 0

LOCATION: OMP08C1  OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)  PAGE: 2-24
GROUP: OBC1  ACCOUNTING TRAC = LONG  REQUESTED FROM: NOT SPECIFIED
MEMBER: SC11  TO: NOT SPECIFIED
SUBSYSTEM: SC11  ACTUAL FROM: 08/24/16 07:02:00.00
DB2 VERSION: V12

---- IDENTIFICATION -------------------------------
ACCT TSTMP: 08/24/16 07:30:00.01  PLANNAME: K02PLAN  WLM SCL: 'BLANK'  CICS NET: N/A
BEGIN TIME: 08/24/16 07:16:30:21  PROD TYP: N/P  LWU NET: DE1MIPS  CICS LUN: N/A
END TIME: N/P  PROD VER: N/P  LWU LBK: IPUPAC11  CICS INS: N/A
REQUESTER: OMP08C1  CORRNAME: 'BLANK'  LWU SQ: D103BBDF09E
MAINPACK: K02PLAN  CORRNRBR: 'BLANK'  LWU SQ: 7  ENDUSER : DB2M
PRIMAUTH : DB2M  CONNTYPE: RRS  TRANSACT: 'BLANK'
ORIGAUTH : DB2M  CONNECT : RRSAF  WSNAME : RRSAF

FPEVWRP2  TOTAL
-----------------------------
BPPOOL HIT RATIO (%)  100
GETPAGES  60
BUFFER UPDATES  5
SYNCHRONOUS WRITE  0
SYNCHRONOUS READ  0
SEQ, PREFETCH REQS  0
LIST PREFETCH REQS  0
DYN. PREFETCH REQS  0
PAGES READ ASYNCR.  0

FPEVWRP2  TOTAL
-----------------------------
TIMEOUTS  0
DEALLOCKS  0
ESCAL.(SHARED)  0
ESCAL.(EXCLUS)  0
MAX PG/RD LOCKS HELD  1
LOCK REQUEST  65
UNLOCK REQUEST  30
QUERY REQUEST  0
CHANGE REQUEST  5
OTHER REQUEST  0
TOTAL SUSPENSIONS  0
LOCK SUSPENS  0
IRLM LATCH SUSPENS  0
OTHER SUSPENS  0

Times CLASS 5 IFI (CL.5)
-----------------------------
ELAPSED TIME  0.000000
CP CPU TIME  0.000000
Dcart.Descr.  0.000000
Log Extract.  0.000000

LOCATION: OMP09C1  OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)  PAGE: 2-25
GROUP: OBC1  ACCOUNTING TRAC = LONG  REQUESTED FROM: NOT SPECIFIED
MEMBER: SC11  TO: NOT SPECIFIED
SUBSYSTEM: SC11  ACTUAL FROM: 08/24/16 07:02:00.00
DB2 VERSION: V12

---- IDENTIFICATION -------------------------------
ACCT TSTMP: 08/24/16 07:45:00.00  PLANNAME: K02PLAN  WLM SCL: 'BLANK'  CICS NET: N/A
BEGIN TIME: 08/24/16 07:16:58:16  PROD TYP: N/P  LWU NET: DE1MIPS  CICS LUN: N/A
END TIME: N/P  PROD VER: N/P  LWU LBK: IPUPAC11  CICS INS: N/A
REQUESTER: OMP09C1  CORRNAME: 'BLANK'  LWU SQ: D103CBAG2BC7
MAINPACK: K02PLAN  CORRNRBR: 'BLANK'  LWU SQ: 1  ENDUSER : DB2M
PRIMAUTH : DB2M  CONNTYPE: RRS  TRANSACT: 'BLANK'
ORIGAUTH : DB2M  CONNECT : RRSAF  WSNAME : RRSAF

MVS ACCOUNTING DATA : 'BLANK'
ACCOUNTING TOKEN(CHAR) : 'BLANK'
ACCOUNTING TOKEN(HEX) : 0000000000000000000000000000000000000000000000000000000000000

ELAPSED TIME DISTRIBUTION
-------------------------------
CLASS 2 TIME DISTRIBUTION

APPL !=> 2%  
CPU !----------> 24%
DB2 !----------> 31%  
SECPU !
SUSP !----------> 66%  
NOTACE !>>>> 8%
SUSP !----------> 68%

...

LOCATION: OMP09EE  OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)  PAGE: 3-1
GROUP: OBE1  ACCOUNTING TRAC = LONG  REQUESTED FROM: NOT SPECIFIED
MEMBER: SEE1  TO: NOT SPECIFIED

Chapter 6. Batch reporting  3199
### DB2 Version: V11

#### Identification

**Accounting Trace**
- **Planname:** DSNUTIL
- **WLM SCL:** 'BLANK'
- **CICS NET:** N/A
- **Prod Type:** N/P
- **Prod Ver:** N/P
- **LW UIN:** IPUAEPEI
- **CICS INS:** N/A
- **User:** MIS
- **Transaction:** MISIDC
- **DB2 Date:** 08/24/16
- **DB2 Version:** V11

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<th>DB2 (C2)</th>
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#### Locking

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**Accounting Trace**
- **Planname:** DSNUTIL
- **WLM SCL:** 'BLANK'
- **CICS NET:** N/A
- **Prod Type:** N/P
- **Prod Ver:** N/P
- **LW UIN:** IPUAEPEI
- **CICS INS:** N/A
- **User:** MIS
- **Transaction:** MISIDC
- **DB2 Date:** 08/24/16
- **DB2 Version:** V11

---

**Storage Proc.**
- **Total UDF**
- **Total Triggers**
- **Total Logging**

**Call Stmts**
- N/P **Executed**
- N/P **SMTR Trigger**
- N/P **LOG REC Written**

---

Chapter 6. Batch Reporting 3201
IBM Db2 Performance Expert on z/OS
## DB2 Version: V11

### Identification

<table>
<thead>
<tr>
<th>ACCT TSTAMP</th>
<th>PLANNAME</th>
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<td>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)</td>
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### TIMES/EVENTS APPL (CL1) DB2 (CL2)

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Chapter 6. Batch Reporting | 3203
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LOCATION: OMPDDBE
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4MO)
GROUP: OMPDDBE
ACCOUNTING TRACED LONG
REQUESTED FROM: NOT SPECIFIED
TO: NOT SPECIFIED
SUBSYSTEM: SEE1
ACTUAL FROM: 08/24/16 08:16:02.78

DB2 VERSION: VI1
--- IDENTIFICATION ----------------------------------------

ACCOUNT: OMPBEE  OMEGAMONXE FOR DB2 PERFORMANCE EXPERT (VSRAM0)  PAGE: 3-9
GROUP: DBEE  ACCOUNTING TRACE = LONG  REQUESTED FROM: NOT SPECIFIED
MEMBER: SEE1  TO: NOT SPECIFIED
SUBSYSTEM: SEE1  ACTUAL FROM: 08/24/16 08:16:02.78
DB2 VERSION: VI

--- RESOURCE LIMIT FACILITY ----------------------------------------

TYPE: N/P  TABLE ID: N/P  SERV.UNIT: N/P  CPU SECONDS: 0:00:000  MAX CPU SEC: N/P

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----------------------------------------  ----------------------------------------  ----------------------------------------  ----------------------------------------
BPPOOL HIT RATIO (%)  300  N/P  BPPOOL HIT RATIO (%)  100  N/P  BPPOOL HIT RATIO (%)  100
GETPAGES  129  GETPAGES  13  GETPAGES  142
BUFFER UPDATES  3  BUFFER UPDATES  10  BUFFER UPDATES  13
SYNCHRONOUS WRITE  0  SYNCHRONOUS WRITE  0  SYNCHRONOUS WRITE  0
SYNCHRONOUS READ  0  SYNCHRONOUS READ  0  SYNCHRONOUS READ  0
SEQ. PREFETCH REQs  0  SEQ. PREFETCH REQs  0  SEQ. PREFETCH REQs  0
LIST PREFETCH REQs  7  LIST PREFETCH REQs  0  LIST PREFETCH REQs  7
DYN. PREFETCH REQs  0  DYN. PREFETCH REQs  0  DYN. PREFETCH REQs  0
PAGES READ ASYNCHR.  0  PAGES READ ASYNCHR.  0  PAGES READ ASYNCHR.  0
----------------------------------------  ----------------------------------------  ----------------------------------------  ----------------------------------------

LOCATION: OMPBEE  OMEGAMONXE FOR DB2 PERFORMANCE EXPERT (VSRAM0)  PAGE: 3-10
GROUP: DBEE  ACCOUNTING TRACE = LONG  REQUESTED FROM: NOT SPECIFIED
MEMBER: SEE1  TO: NOT SPECIFIED
SUBSYSTEM: SEE1  ACTUAL FROM: 08/24/16 08:16:02.78
DB2 VERSION: VI

--- IDENTIFICATION ----------------------------------------

ACCOUNT: OMPBEE  OMEGAMONXE FOR DB2 PERFORMANCE EXPERT (VSRAM0)  PAGE: 3-9
GROUP: DBEE  ACCOUNTING TRACE = LONG  REQUESTED FROM: NOT SPECIFIED
MEMBER: SEE1  TO: NOT SPECIFIED
SUBSYSTEM: SEE1  ACTUAL FROM: 08/24/16 08:16:02.78
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**Elapsed Time Distribution**

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| DB2 Version: | V11 | |

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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PAR, TASKS</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ELIG SECP</td>
<td>0</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELIG ACCEL</td>
<td>N/A</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE CPU</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NONNESTED</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STORED PROC</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRIGGER</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAR, TASKS</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELIG ACCEL</td>
<td>N/A</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

--- RESOURCE LIMIT FACILITY ---

<table>
<thead>
<tr>
<th>Type</th>
<th>N/P</th>
<th>TABLE ID:</th>
<th>N/P</th>
<th>SERV. UNITS:</th>
<th>N/P</th>
<th>CPU SECONDS:</th>
<th>N/P</th>
<th>MAX CPU SEC:</th>
<th>N/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPO</td>
<td>BPPOOL ACTIVITY</td>
<td>BPPOOL ACTIVITY</td>
<td>BPPOOL ACTIVITY</td>
<td>BPPOOL ACTIVITY</td>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>89</td>
<td>100</td>
<td>102</td>
<td>0</td>
<td>9</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GETPAGES</td>
<td>BUFFER UPDATES</td>
<td>SYNCHRONOUS WRITE</td>
<td>SYNCHRONOUS READ</td>
<td>SEQ. PREFETCH REQS</td>
<td>LIST PREFETCH REQS</td>
<td>DYN. PREFETCH REQS</td>
<td>PAGES READ ASYNCHR.</td>
<td>PAGES READ ASYNCHR.</td>
<td>PAGES READ ASYNCHR.</td>
</tr>
</tbody>
</table>
Chapter 6. Batch reporting 3209
IBM Db2 Performance Expert on z/OS

3210
<table>
<thead>
<tr>
<th>LOCATION: OMPDBEE</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
<th>PAGE: 3-22</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP: DB2E</td>
<td>ACCOUNTING TRACE - LONG</td>
<td></td>
</tr>
<tr>
<td>MEMBER: SEE1</td>
<td>TO: NOT SPECIFIED</td>
<td></td>
</tr>
<tr>
<td>SUBSYSTEM: SEEI</td>
<td>ACTUAL FROM: 08/24/16 08:16:02.78</td>
<td></td>
</tr>
<tr>
<td>DB2 VERSION: V11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Query Details

**System Information**

- **DB2 Version:** V11
- **Subsystem:** SEEI
- **Actual From:** 08/24/16 08:16:02.78

### Characteristics

- **Identification**
  - **ACCT TSTAMP:** 08/24/16 09:28:00.00
  - **PLANNNAME:** 'BLANK'
  - **WLM SCL:** 'BLANK'
  - **CICS NET:** N/A

### Performance Details

- **Elapsed Time:** 47:31.0901 2.419360
- **Eligible for ACCEL:** N/A 0.000000
- **CPU Time:** 0.366568 0.147791
- **SE CPU Time:** 0.000000 0.000000
- **Skipped-Index Known:** 0

### Locks

- **Locks:**
  - **Eligible for ACCEL:** N/A 0.000000
  - **Parent (DB,TS,TAB,PART):** 0.000000 0
  - **Child (PAGE,ROW):** 0.000000 0
  - **Other:** 0.000000 0

### Locking

- **Locking:**
  - **Total:**
    - Data Sharing: 0
    - Query Parallelism: 0
    - Drain/Claim: 0

### Timeouts

- **Deadlocks:**
  - **Parent:** 0 N/A
  - **Child:** 0 N/A
  - **Other:** 0 N/A

### Resolution

- **Other Suspensions:**
  - **INCOMP-LOCK:** 19
  - **NOTIFY SENT:** 19
  - **ONE DB2-COORDINATOR - NO:**
    - **ONE DB2-OCX TABLE:**
      - **MEMS SKIPPED:**
        - **DISABLED by RLF:** NO
        - **REFORM PARAL-CONFIG:** 0
        - **REFORM PARAL-NO BUF:** 0

---

**Note:** The above text represents a snapshot of Db2 Performance Expert's data and should be read as a detailed performance report for the specified system and time. It includes various statistics such as elapsed time, CPU time, lock details, and timeouts, providing insights into the system's performance and resource usage.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>FPEVWRPA</th>
<th>TIMES</th>
<th>TIME</th>
<th>EVENTS</th>
<th>TIME/EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION</td>
<td>OMGDBEE</td>
<td>LOCK/LATCH</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>COLLECT 10</td>
<td>KZ0MS30</td>
<td>IRU LOCK/LATCH</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>CONSISTENCY</td>
<td>1A20F0810I59FB5</td>
<td>DB2 LATCH</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>ACTIVITY</td>
<td>'NONNESTED'</td>
<td>OTHER READ I/O</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>SCHEMA NAME</td>
<td>'BLANK'</td>
<td>ARCHLOG(QUIESCE)</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>SUCC AUTH</td>
<td>N/P</td>
<td>ARCHIVE LOG READ</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>SQL STMT - AVG</td>
<td>6.00</td>
<td>CLAIM RELEASE</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>SQL STMT - TOTAL</td>
<td>6</td>
<td>PAGE LATCH</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>NBR RLUP THREADS</td>
<td>1</td>
<td>NOTIFY MESSAGES</td>
<td>0.002153</td>
<td>2</td>
<td>0.000777</td>
</tr>
<tr>
<td>DB2 ENTRY/EXIT</td>
<td>16</td>
<td>FAST INSERT PIPE</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

ACCOUNTING TRACE COMPLETE
Accounting Report and Trace Blocks:

Accounting reports and traces are arranged in blocks. Each block contains accounting information about a particular activity. The layout of each block is presented followed by the field descriptions.

The layout of the Accounting report blocks and the corresponding trace blocks is similar, the main difference is that Accounting reports show times and events averaged over the number of threads, and accounting traces show times and events as totals for each thread.

Fields in an Accounting report can show average values, totals or times. Normally the columns within the blocks of a report are labeled to indicate the type of data shown, and are shown as follows:

**Averages**  
Have two decimal places behind the point

**Totals**  
Are whole numbers

**Times**  
Have six decimal places behind the point

Where it is not possible to distinguish the type of data, totals are indicated with a hash (#) as the first character in the label.

This topic shows each block in alphabetical order. Each field in the block is listed in the order that it appears, showing the field name (as shown in the long report and trace) followed by a description.

Each block is presented in the default layout. Some blocks can have columns, rows or fields that are not included in the default layout. For example, the SQL DCL, SQL DML, RID List, buffer pool and group buffer pool activity blocks have a /COMMIT column that is not shown in the default layout. You can include columns, rows, and fields not shown in the default layouts with user-tailored reporting (UTR).

Field names used in short reports and traces can vary slightly from those used in the long versions. This is to allow the layout of the printed report or trace to align properly.

If a counter value or specific information in reports, in windows, or on panels is not shown, the following notation is used to indicate the reason:

**N/A**  
Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:

- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

**N/C**  
Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:

- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).
N/P  Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

Short, Unique, or Long Names or Strings

The following types of names or strings are used in this information:

Short name or string
A short name or short string is either the value of an original DB2 field if it is less than or equal to the defined length of the field, or it is the abbreviation of a longer value which is populated in a field of varying length.

Unique name or string
A unique name or unique string is a generated string based on the short string and its length, with a right-adjusted #-sign and a sequence number. This sequence number depends on the amount of long fields found during processing, which have the same string prefix and length as the short string. For example:

WNAME: IS-255-012345678#1

Long name or string
A long name or long string is the complete string populated in a field of varying length. This depends on the context where it is used.

Accelerator:

This topic shows detailed information about “Accounting - Accelerator”.

The Accounting Accelerator report block is shown for each accelerator that provided services to a DB2 thread. The block consists of three adjacent columns which contain the accelerator identification, the activity-related counters, and the corresponding times.

Note:
- For product identifiers of IBM DB2 Analytics Accelerator for z/OS prior to AQT04015 the values of the following fields are N/A: SQL DML, SQL DDL, ROWS RETURN, COMMIT, and ROLLBACK.
- The Accounting trace shows values and times for each Q8AC section. The Accounting report does not only show accumulated values and times, but also average values and times calculated for one occurrence. It shows the sum of a counter or time of all Q8AC sections processed, divided by the number of processed Q8AC sections.

For more information on the Accounting fields referred to in the field descriptions below, see:
- “Times - Class 1 - Application Time” on page 3341
- “Times - Class 2 - DB2 Time” on page 3347

In the following example both layouts are shown, the report layout is followed by the trace layout.
Accounting - Accelerator

The field labels shown in the following sample layout of “Accounting - Accelerator” are described in the following section.

### Report:

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODUCT</td>
<td>AQT03010</td>
</tr>
<tr>
<td>IDENTIFIER</td>
<td>VMNPS14</td>
</tr>
<tr>
<td>ACCELERATOR IDENTIFIER</td>
<td>AQT03010</td>
</tr>
<tr>
<td>ACCELERATOR AVERAGE TOTAL</td>
<td>24877.00 24877 0.000000 0.000000</td>
</tr>
<tr>
<td>ACCELERATOR AVERAGE TOTAL</td>
<td>24877 24877 0.000000 0.000000</td>
</tr>
<tr>
<td>ACCELERATOR TIMED OUT TOTAL</td>
<td>0.00 0 0 0</td>
</tr>
<tr>
<td>ACCELERATOR SENT TOTAL</td>
<td>2439641.00 2439641 0.000000 0.000000</td>
</tr>
<tr>
<td>ACCELERATOR BLOCKS TOTAL</td>
<td>0.00 0 0 0</td>
</tr>
<tr>
<td>ACCELERATOR SQL DML TOTAL</td>
<td>0.00 0 0 0</td>
</tr>
<tr>
<td>TRACE:</td>
<td></td>
</tr>
<tr>
<td>PRODUCT</td>
<td>AQT03010</td>
</tr>
<tr>
<td>IDENTIFIER</td>
<td>VMNPS14</td>
</tr>
<tr>
<td>ACCELERATOR TOTAL</td>
<td>11.637221 11.647249 0.000000 0.000000</td>
</tr>
<tr>
<td>ACCELERATOR ELAPSED TIME</td>
<td>11.637221 11.647249 0.000000 0.000000</td>
</tr>
<tr>
<td>ACCELERATOR CPU TIME TOTAL</td>
<td>0.000000 0.000000 0.000000 0.000000</td>
</tr>
<tr>
<td>ACCELERATOR WAIT TIME TOTAL</td>
<td>0.000000 0.000000 0.000000 0.000000</td>
</tr>
<tr>
<td>ACCELERATOR DB2 THREAD TOTAL</td>
<td>0.000000 0.000000 0.000000 0.000000</td>
</tr>
<tr>
<td>ACCELERATOR CLASS 1 TOTAL</td>
<td>11 11 0.000000 0.000000</td>
</tr>
<tr>
<td>ACCELERATOR CLASS 2 TOTAL</td>
<td>0.000000 0.000000 0.000000 0.000000</td>
</tr>
<tr>
<td>ACCELERATOR SQL DML ELAPSED</td>
<td>N/P N/P N/P N/P</td>
</tr>
<tr>
<td>ACCELERATOR SQL DML CPU TOTAL</td>
<td>N/P N/P N/P N/P</td>
</tr>
<tr>
<td>ACCELERATOR SQL DML SE CPU TOTAL</td>
<td>N/P N/P N/P N/P</td>
</tr>
<tr>
<td>ACCELERATOR SQL DML BLOCKS TOTAL</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td>ACCELERATOR SQL DML ROWS TOTAL</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td>ACCELERATOR SQL DML DELETES TOTAL</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td>ACCELERATOR SQL DML DELETES TOTAL</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td>ACCELERATOR SQL DML OPEN TOTAL</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td>ACCELERATOR SQL DML COMMIT TOTAL</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td>ACCELERATOR SQL DML ROLLBACK TOTAL</td>
<td>0 0 0 0</td>
</tr>
</tbody>
</table>

### PRODUCT

The accelerator product identifier.

**Field Name:** Q8ACPRID

### SERVER

The accelerator server identifier.

**Field Name:** Q8ACNAME
OCCURRENCES
The number of sections processed for the accelerator. The name of this accelerator is shown in the report in block ACCELERATOR IDENTIFIER.
Field Name: AIOCCUR

CONNECTS
The number of accelerator connects.
Field Name: Q8ACCONN

REQUESTS
The number of accelerator requests.
Field Name: Q8ACREQ

TIMED OUT
The number of timed out requests.
Field Name: Q8ACTOUT

FAILED
The number of failed requests.
Field Name: Q8ACFAIL

SENT - BYTES
The number of bytes sent.
Field Name: Q8ACBYTES

SENT - MESSAGES
The number of messages sent.
Field Name: Q8ACMSGS

SENT - BLOCKS
The number of blocks sent.
Field Name: Q8ACBLKS

SENT - ROWS
The number of rows sent.
Field Name: Q8ACROWS

RECEIVED - BYTES
The number of bytes returned.
Field Name: Q8ACBYTR

RECEIVED - MESSAGES
The number of messages returned.
Field Name: Q8ACMSGR

RECEIVED - BLOCKS
The number of blocks returned.
Field Name: Q8ACBLKR

RECEIVED - ROWS
The number of rows returned.

Field Name: Q8ACROWR

**SQL DML - INSERT**

The accumulated number of INSERT statements sent to the accelerator from DB2.

Field Name: Q8ACINSC

**SQL DML - INSERT ROWS**

The accumulated number of rows inserted to the accelerator by DB2.

Field Name: Q8ACROWI

**SQL DML - UPDATE**

The accumulated number of UPDATE statements sent to the accelerator from DB2.

Field Name: Q8ACUPDC

**SQL DML - UPDATE ROWS**

The accumulated number of rows updated on the accelerator by DB2.

Field Name: Q8ACROWU

**SQL DML - DELETE**

The accumulated number of DELETE statements sent to the accelerator from DB2.

Field Name: Q8ACDELC

**SQL DML - DELETE ROWS**

The accumulated number of rows deleted on the accelerator by DB2.

Field Name: Q8ACROWD

**SQL DML - OPEN**

The accumulated number of OPEN statements sent to the accelerator from DB2.

Field Name: Q8ACOPNC

**SQL DDL - CREATE**

The accumulated number of CREATE statements sent to the accelerator from DB2.

Field Name: Q8ACCRTC

**SQL DDL - DROP**

The accumulated number of DROP statements sent to the accelerator from DB2.

Field Name: Q8ACDRPC

**ROWS RETURN**

The accumulated number of rows returned by the accelerator to DB2.

**Note:** For completed queries, this is the total number of rows returned to DB2. For in-process queries, this is the number of rows that have been sent so far (and more rows may still be coming).
Field Name: Q8ACROWC

**COMMIT**

The accumulated number of COMMIT statements sent to the accelerator from DB2.

Field Name: Q8ACCMTC

**ROLLBACK**

The accumulated number of ROLLBACK statements sent to the accelerator from DB2.

Field Name: Q8ACRBKC

**ELAPSED TIME - SVCS TCP/IP**

The accelerator services TCP/IP elapsed time measured in DB2. It starts when sending the requests to the accelerator and ends when receiving the results from the accelerator.

Field Name: Q8ACTELA

**ELAPSED TIME - ACCUM ACCEL**

The elapsed time spent in the accelerator when executing requests from the DB2 subsystem.

Field Name: Q8ACAELA

**CPU TIME - SVCS TCP/IP**

The accelerator services TCP/IP CPU time measured in DB2 for the amount of CPU consumed by the DDF service task to perform the SEND and RECEIVE to an accelerator service. It does not account for the TCP/IP address CPU to route the message on to the network and receive the reply into the DDF task.

Field Name: Q8ACTCPU

**CPU TIME - ACCUM ACCEL**

The CPU time spent in the accelerator when executing requests from the DB2 subsystem.

Field Name: Q8ACACPU

**WAIT TIME - ACCUM ACCEL**

The wait time spent in the accelerator when executing requests from the DB2 subsystem.

Field Name: Q8ACAWAT

**DB2 THREAD - CLASS 1 - ELAPSED**

Class 1 elapsed time of the thread. See ADRECETT.

Field Name: ADACCET1

**DB2 THREAD - CLASS 1 - CP CPU**

Class 1 CP CPU time of the thread. See ADCPUT.

Field Name: ADACCCP1

**DB2 THREAD - CLASS 1 - SE CPU**

Class 1 SE CPU time of the thread. See AWACC1Z.
Field Name: ADACCSE1

**DB2 THREAD - CLASS 2 - ELAPSED**

Class 2 elapsed time of the thread. See ADDB2ETT.

Field Name: ADACCET2

**DB2 THREAD - CLASS 2 - CP CPU**

Class 2 CP CPU time of the thread. See ADDBCPUT.

Field Name: ADACCCP2

**DB2 THREAD - CLASS 2 - SE CPU**

Class 2 SE CPU time of the thread. See AWACC2Z.

Field Name: ADACCSE2

*Buffer pool report and trace:*

The bufferpool activity report and trace shows information about buffer pool activity including hit ratio, getpages, and prefetch requests.

Information is provided for each active buffer pool. When there is more than one active buffer pool, information is provided for each aggregation and shows the total buffer pool activity (all buffer pools, all 4 KB buffer pools, all 32 KB buffer pools).

<table>
<thead>
<tr>
<th>Report</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP1</td>
<td></td>
</tr>
<tr>
<td>BPOOL ACTIVITY</td>
<td>AVERAGE</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td>BPOOL HIT RATIO (%)</td>
<td>9.14</td>
</tr>
<tr>
<td>GETPAGES</td>
<td>7.57</td>
</tr>
<tr>
<td>BUFFER UPDATES</td>
<td>0.00</td>
</tr>
<tr>
<td>SYNCHRONOUS READ</td>
<td>2.71</td>
</tr>
<tr>
<td>SEQ. PREFETCH REQS</td>
<td>0.00</td>
</tr>
<tr>
<td>LIST PREFETCH REQS</td>
<td>0.00</td>
</tr>
<tr>
<td>DYN. PREFETCH REQS</td>
<td>0.00</td>
</tr>
</tbody>
</table>

*Figure 289. Buffer pool report and trace*

**BPOOL HIT RATIO (%)**

The percentage of getpage operations that were satisfied by a page already in the buffer pool. The value is the ratio of the number of successful getpage operations minus the number of pages read from DASD (both synchronously and using prefetch), to the number of successful getpage operations, expressed as a percentage.

The highest possible hit ratio (100%) indicates that every page that is requested is in the buffer pool. If a requested page is not in the buffer pool, the hit ratio is 0% or less. If the hit ratio is negative, then prefetch brought pages into the buffer pool that are not subsequently referenced, either because the query stops before it reaches the end of the table space, or because the prefetched pages are stolen by Db2 for reuse before the query can access them.

A low buffer pool hit ratio is not necessarily bad. The hit ratio is a relative value, based on the type of application. For example, an application that
browses large data might have a buffer pool hit ratio of 0. Watch for those cases where the hit ratio drops significantly for the same application. Here are some suggestions to increase the buffer hit ratio:

- Run the REORG utility for indexes or table spaces associated with the virtual buffer pool.
- Reserve more pages for random I/O by setting the SEQUENTIAL STEAL THRESHOLD (VPSEQT) to a lower value.
- Increase the buffer pool as long as the cost of paging does not outweigh the benefit of I/O avoidance.
- Establish more separate buffer pools, perhaps to isolate different applications.
- Place the objects that are only accessed sequentially in a separate buffer pool.

The hit ratio measurement becomes less meaningful if the buffer pool is used by additional processes, such as utilities or work files.

**Field Name:** ABUFFRAT

**GETPAGES**

The number of Getpage requests. This counter is incremented by successful Getpage requests for queries processed in parallel for each thread and for all successful and unsuccessful Getpage requests for queries that are not processed in parallel.

**Background and Tuning Information**

Reducing the number of Getpages can improve DB2 performance by reducing the number of synchronous page reads. With fewer Getpages, the requested page is more likely to be returned from the buffer pool. CPU usage is also reduced.

Check the ratio of Getpages to SQL DML statements, as a rule of thumb, try and keep this ratio below six for a typical online transaction SQL.

You might need to modify the database and query design, for example:

- Add indexes to tables to reduce the number of pages scanned.
- Reassess the number of tables used and denormalize them, if necessary.
  
  As an example, a large table with many columns can result in several pages being fetched to satisfy a simple query requesting just a few columns. Splitting such a table into several tables with fewer columns, tailored to queries, will result in fewer pages returned for each query.
- Use correlated rather than non-correlated queries to force the use of an index.

**Field Name:** QBACGET

This is an exception field.

**BUFFER UPDATES**

The number of times a buffer update occurs. This is incremented every time a page is updated and is ready to be written to DASD. If the same page is updated twice, for example, the number is incremented by 2.

This number is kept for all types of pages including data pages and work-file pages.

**Background and Tuning Information**
A nonzero value indicates any of the following activities:

- SQL INSERT, UPDATE, or DELETE
- Merge scan join
- Internal sort activity on the work files

Check the access path to determine whether sort activity can be minimized or avoided.

Field Name: QBACSWS

This is an exception field.

SYNCHRONOUS WRITE

The number of immediate (synchronous) write I/O operations.

Background and Tuning Information

Although an immediate write is rare, a small nonzero value is acceptable. A large value indicates that the system needs tuning.

Field Name: QBACIMW

This is an exception field.

SYNCHRONOUS READ

The number of synchronous read I/O operations. DB2 increments this counter for each media manager synchronous physical read. Asynchronous I/O requests are not counted.

Field Name: QBACRIO

This is an exception field.

SEQ. PREFETCH REQS

The number of SEQUENTIAL PREFETCH requests. This is incremented for each PREFETCH request. Each request can result in an I/O read. If it does, up to 64 pages can be read for SQL and up to 128 pages for utilities. For SQL, depending on the buffer pool size, a request does not result in an I/O if all the requested pages are already in the buffer pool.

DB2 can use sequential prefetch if the data is accessed in sequential order even though sequential prefetch was not requested at bind time. This is known as sequential detection and is not included in the sequential prefetch count. Sequential detection is included in dynamic prefetch requests field.

Background and Tuning Information

Table space scans and nonmatching index scans generally use sequential prefetch.

Field Name: QBACSEQ

This is an exception field.

LIST PREFETCH REQS

The number of LIST PREFETCH requests.

Special Considerations:

1. List prefetch allows DB2 to access data pages efficiently even if the needed data pages are not contiguous. It can be used with single index access and is always used with multiple index access.
2. List prefetch is always used to access data from the inner table during a hybrid join.
3. Data pages are read in quantities equal to the sequential prefetch quantity, which depends on the buffer pool size and is usually 64 pages.
4. During bind time DB2 does not use list prefetch if the estimated number of RIDs to be processed would take more than 50% of the RID pool. During execution time, list prefetch processing terminates if DB2 detects that more than 25% of the rows in the table need to be accessed. If list prefetch is terminated, it is indicated in IFCID 125.

Field Name: QBACLPF
This is an exception field.

DYN. PREFETCH REQS
The number of (dynamic) PREFETCH requests. This is triggered by sequential detection. This includes prefetches for segmented table spaces.

Background and Tuning Information
Dynamic prefetch is typically used for a SELECT or UPDATE that is run repeatedly, accessing the index for each access.
If sequential prefetch, list prefetch, and dynamic prefetch reads have large values, check whether the access path can be improved.

Field Name: QBACDPF
This is an exception field.

PAGES READ ASYNCHR.
The number of asynchronous pages read by prefetch that the agent triggered.

Background and Tuning Information
This is used to determine the buffer pool hit ratio: (Getpage requests - Synchronous reads - Asynchronous pages read) / Getpage requests.

Field Name: QBACSIO
This is an exception field.

ZHL SYNC READS
The number of DASD reads done using zHyperLink.

Field name: QBACSYI

ZHL READ CPU USED
The amount of CPU time used for successful zHyperLink reads.
zHyperLink I/O is synchronous with respect to the CPU, thus CPU time accumulates from the beginning of the I/O until it completes.

Field name: QBACSYIT

Data Capture:
This topic shows detailed information about “Accounting - Data Capture”.
This block shows data for Data Capture activities.
For formatting reasons, OMEGAMON XE for DB2 PE shows different labels for report and trace. In the following example both layouts are shown, the report on the left, and the trace layout on the right.

**Accounting - Data Capture**

The field labels shown in the following sample layout of “Accounting - Data Capture” are described in the following section.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DATA CAPTURE</strong></td>
<td><strong>DATA CAPTURE</strong></td>
</tr>
<tr>
<td><strong>AVERAGE</strong></td>
<td><strong>TOTAL</strong></td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>IFI CALLS MADE</td>
<td>N/P</td>
</tr>
<tr>
<td>RECORDS CAPTURED</td>
<td>N/P</td>
</tr>
<tr>
<td>LOG RECORDS READ</td>
<td>N/P</td>
</tr>
<tr>
<td>ROWS RETURNED</td>
<td>N/P</td>
</tr>
<tr>
<td>RECORDS RETURNED</td>
<td>N/P</td>
</tr>
<tr>
<td>DATA DESC. RETURN</td>
<td>N/P</td>
</tr>
<tr>
<td>TABLES RETURNED</td>
<td>N/P</td>
</tr>
<tr>
<td>DESCRIBES</td>
<td>N/P</td>
</tr>
</tbody>
</table>

**IFI CALLS MADE (IFI CALLS)**

The total number of IFI calls. This field is only calculated if accounting class 5 is active.

**Field Name:** ADIFICAL

**RECORDS CAPTURED (REC.CAPTURED)**

The number of retrievable log records that were written for tables defined with DATA CAPTURE CHANGES. This number includes only those log records that can be retrieved by an IFI READS call for IFCID 185. Some records can be written but not retrieved, for example if monitor trace class 6 is not active.

**Field Name:** QIFAANRC

**LOG RECORDS READ (LOG REC.READ)**

The number of log reads performed for processing IFI READS requests for IFCID 185.

**Field Name:** QIFAANLR

**ROWS RETURNED (ROWS RETURN)**

The number of data rows returned in IFCID 185. Two rows are returned for each row altered by an SQL UPDATE statement.

**Field Name:** QIFAANDR

**RECORDS RETURNED (RECORDS RET.)**

The number of log records returned to the caller of the IFI READS call for IFCID 185.

**Field Name:** QIFAANRR

**DATA DESC. RETURN (DATA DES.RET)**

The number of data descriptions returned in IFCID 185. The data descriptions are mapped in IFCID 185.

**Field Name:** QIFAANDD

**TABLES RETURNED (TABLES RET.)**
The total number of tables returned to the caller of IFI READS call for IFCID 185.

**Field Name:** QIFAANMB

**DESCRIPTS**

The number of data capture describes for processing READS requests for IFCID 185 data.

**Field Name:** QIFAANMB

---

*Data Sharing Locking:*

This topic shows detailed information about “Accounting - Data Sharing Locking”.

This block shows the locking activity within a data sharing group.

For formatting reasons, OMEGAMON XE for DB2 PE shows different labels for report and trace. In the following example both layouts are shown, the report on the left, and the trace layout on the right.

**Accounting - Data Sharing Locking**

The field labels shown in the following sample layout of “Accounting - Data Sharing Locking” are described in the following section.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DATA SHARING</strong></td>
<td><strong>DATA SHARING</strong></td>
</tr>
<tr>
<td><strong>AVERAGE</strong></td>
<td><strong>TOTAL</strong></td>
</tr>
<tr>
<td><strong>--------</strong></td>
<td><strong>--------</strong></td>
</tr>
<tr>
<td>GLOBAL CONT RATE(%)</td>
<td>N/C</td>
</tr>
<tr>
<td>FALSE CONT RATE(%)</td>
<td>N/C</td>
</tr>
<tr>
<td>P/L-LOCKS XES(%)</td>
<td>N/C</td>
</tr>
<tr>
<td>LOCK REQ - PLOCKS</td>
<td>0.00</td>
</tr>
<tr>
<td>UNLOCK REQ - PLOCKS</td>
<td>0.00</td>
</tr>
<tr>
<td>CHANGE REQ - PLOCKS</td>
<td>0.00</td>
</tr>
<tr>
<td>LOCK REQ - XES</td>
<td>0.00</td>
</tr>
<tr>
<td>UNLOCK REQ - XES</td>
<td>0.00</td>
</tr>
<tr>
<td>CHANGE REQ - XES</td>
<td>0.00</td>
</tr>
<tr>
<td>SUSPENDS - IRLM</td>
<td>0.00</td>
</tr>
<tr>
<td>SUSPENDS - XES</td>
<td>0.00</td>
</tr>
<tr>
<td>CONVERSIONS- XES</td>
<td>0.00</td>
</tr>
<tr>
<td>FALSE CONTENTIONS</td>
<td>0.00</td>
</tr>
<tr>
<td>INCOMPATIBLE LOCKS</td>
<td>0.00</td>
</tr>
<tr>
<td>NOTIFY MSGS SENT</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**GLOBAL CONT RATE(%) (GLOB CONT(%)**

The total number of suspends because of contention divided by the total number of synchronous requests that went to XES, and the lock requests that were converted from synchronous to asynchronous locks, and the locks because of child lock propagation.

**Field Name:** AGLOBRAT

**FALSE CONT RATE(%) (FALS CONT(%)**

The total number of suspends because of false contention divided by the total number of synchronous requests that went to XES and the lock requests that were converted from synchronous to asynchronous locks.

A false contention is where two different locks on different resources hash to the same lock entry.
Field Name: AFLSERAT

P/L-LOCKS XES(%) (P/L-LOCKS (%))

Shows the percentage of P/L-lock requests that were propagated to XES synchronously.

Background and Tuning Information

This number reflects the effects of explicit hierarchical locking and other locking optimizations. In an environment where all the workload is data sharing, a value of 94% means that 6% of all transaction locks were not propagated to XES due to Data-Sharing locking optimizations.

DB2 has optimizations to reduce the need to go beyond the local IRLM whenever possible:

- Explicit hierarchical locking allows IRLM to grant child locks locally when there is no inter-DB2 R/W interest on the parent.
- If there is a single DB2 with update interest, and multiple DB2s with read-only interest, DB2 propagates fewer locks than when all DB2s have update interest in the page set.
- All locks that go beyond the local IRLM are owned by the subsystem, not the individual work unit. This allows for further optimization. Only the most restrictive lock mode for an object on a given subsystem must be propagated to XES and the coupling facility. A new lock that is equally, or less, restrictive than the currently held lock is not propagated.

Field Name: ALLOCRA

LOCK REQ - PLOCKS (P-LOCK REQ)

The number of lock requests for P-locks.

Field Name: QTGALPLK

UNLOCK REQ - PLOCKS (P-UNLOCK REQ)

The number of unlock requests for P-locks.

Field Name: QTGAUPLK

CHANGE REQ - PLOCKS (P-CHANGE REQ)

The number of change requests for P-locks.

Field Name: QTGACPLK

LOCK REQ - XES (LOCK - XES)

The number of P/L-lock requests propagated to z/OS XES synchronously. This number is not incremented if the request is suspended before going to XES.

Field Name: QTGALSLM

UNLOCK REQ - XES (UNLOCK-XES)

The number of unlock requests propagated to z/OS XES.

Field Name: QTGAUSLM

CHANGE REQ - XES (CHANGE-XES)

The number of change requests propagated to z/OS XES.

Field Name: QTGACSLM
SUSPENDS - IRLM (SUSP - IRLM)

The number of suspensions due to IRLM global resource contention (IRLM lock states were in conflict).

Field Name: QTGAIGLO

SUSPENDS - XES (SUSP - XES)

The number of suspensions due to z/OS XES global resource contention (z/OS XES lock states were in conflict whereas IRLM lock states were not).

Field Name: QTGASGLO

SUSPENDS - CONV (SUSP - CONV)

The total number of sync-to-async heuristic conversions for LOCK requests in XES. This conversion is done when XES determines that it is more efficient to drive the request asynchronously to the coupling facility (CF).

Field Name: QTGAFLSE

FALSE CONTENTIONS

The total number of false contentions for LOCK and UNLOCK requests. A false contention occurs when different resource names hash to the same entry in the coupling facility (CF) lock table. The CF detects contention within the hash entry, and XES uses intersystem messaging to determine that no actual resource contention exists.

Field Name: QTGAFCNT

INCOMPATIBLE LOCKS (INCOMP.LOCK)

The number of global lock or change requests denied or suspended due to an incompatible retained lock.

Field Name: QTGADRTA

NOTIFY MSGS SENT (NOTIFY SENT)

The number of notify messages sent.

Field Name: QTGANTFY

Distributed Activity - Requester:

This topic shows detailed information about “Accounting - Distributed Activity - Requester”.

This block shows the information provided for the requester of the distributed activity.

In the following example both layouts are shown, the report layout followed by the trace layout.

Accounting - Distributed Activity - Requester

The field labels shown in the following sample layout of “Accounting - Distributed Activity - Requester” are described in the following section.
### Report - REQUESTER

The name of the remote location with which this information is associated. If the local location is the requester, this field is a server location. If the local location is a server location, this field is the requester location. An allied thread is created at a DB2 requester, and a database access thread is created at a DB2 server. An accounting record is for either a requester or a server, but not for both.

This field is invalid if summary rollup data is present. In Accounting this field is set to *ROLSUM*.

**Field Name:** QLACLOCN

This is an exception field.

### Report - PRODUCT ID

The original DB2 field specifies the information in the following field names of the remote requester or server location:

**PRODUCT ID**

It consists of 3 characters and can have the following values:

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN</td>
<td>DB2</td>
</tr>
<tr>
<td>ARI</td>
<td>SQL/DS</td>
</tr>
<tr>
<td>QSQ</td>
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</tr>
<tr>
<td>SQL</td>
<td>COMMON SERV</td>
</tr>
<tr>
<td>JCC</td>
<td>JDBC DRIVER</td>
</tr>
<tr>
<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>

**Note:**

- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

### PRODUCT VERSION (PROD VERSION)

It consists of 5 digits and is shown as $vvrrmm$, where:

- $vv$  Version level
- $rr$  Release level
- $mm$  Modification level
Distributed Activity - Requester

**Note:** For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

**Field Name:** QLACPRID

**Report - PRODUCT VERSION**

The original DB2 field specifies the information in the following field names of the remote requester or server location:

**PRODUCT ID**

It consists of 3 characters and can have the following values:

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</table>

**Note:**
- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

**PRODUCT VERSION (PROD VERSION)**

It consists of 5 digits and is shown as VvvRrrMm, where:

- \(vv\) Version level
- \(rr\) Release level
- \(m\) Modification level

**Note:** For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

**Field Name:** QLACPRID

**Report - METHOD**

The method of access: DB2 private protocol, DRDA protocol, or both.

This field is invalid if unique or summary rollup data is present. It can have the following value in:

- Accounting Trace and Report: N/P
- The Accounting FILE and SAVE PROGRAM table: blank

**Field Name:** ADPROT

**Report - CONV.INITIATED**

A count of conversations initiated by the requester.

This number is updated at the server location.
Field Name: QLACCNVR

Report - #COMMIT(1) RECEIVED
The number of commit requests received from the requester (single-phase commit protocol) and committed requests received from the coordinator (two-phase commit protocol).

Field Name: QLACCOMMR
This is an exception field.

Report - #ROLLBK(1) RECEIVED
The number of abort requests received from the requester (single-phase commit protocol) and backout requests received from the coordinator (two-phase commit protocol).

Field Name: QLACABRR
This is an exception field.

Field Name: QLACSQLR
This is an exception field.

Report - MESSAGES SENT
The number of messages sent to the location. It is maintained at the location where the messages originated.

Field Name: QLACMSGS
This is an exception field.

Report - MESSAGES RECEIVED
The number of messages received from the location. This value is maintained at the location where the messages were received.

More messages might be sent from the server location than are received by the requester because of the way in which distributed SQL statements are processed internally.

Field Name: QLACMSGR
This is an exception field.

Report - BYTES SENT
The number of bytes the server location sent to the requester location. This value is maintained at the server location.

More bytes of data might be sent from the server location than are received by the requester due to the way in which distributed SQL statements are processed internally.

Field Name: QLACBYTS
This is an exception field.

Report - BYTES RECEIVED
The number of bytes the server location received from the requester location.
More bytes of data might be sent from the server location than are received by the requester, because of the way in which distributed SQL statements are processed internally.

**Field Name:** QLACBYTR  
This is an exception field.

**Report - #THREADS INDOUBT**  
The number of threads that went indoubt with the remote location as coordinator (two-phase commit operations only). It is maintained at the participant and indicates that the communication with the coordinator was lost.

**Field Name:** QLACINDT  
This is an exception field.

**Report - ROWS SENT**  
The number of rows sent from the server location to the requester location. The value includes SQLDA and is maintained at the server location.

**Field Name:** QLACROWS  
This is an exception field.

**Report - BLOCKS SENT**  
The number of blocks transmitted using block fetch. This value is maintained at the server location.

**Field Name:** QLACBTBF  
This is an exception field.

**Report - #DDF ACCESSES**  
The number of occurrences of the remote location and method pair.

**Field Name:** ASDDDF  
This is an exception field.

**Report - #RLUP THREADS**  
The number of threads to roll data into this QLAC data section. Non-rollup QLACs have a value of 1 and rollup QLACs have a value of 1 or more.

**Field Name:** QLACRLNU

**Trace - REQUESTER**  
The name of the remote location with which this information is associated. If the local location is the requester, this field is a server location. If the local location is a server location, this field is the requester location. An allied thread is created at a DB2 requester, and a database access thread is created at a DB2 server. An accounting record is for either a requester or a server, but not for both. 

This field is invalid if summary rollup data is present. In Accounting this field is set to *ROLSUM*.

**Field Name:** QLACLOCN  
This is an exception field.

**Trace - PRODUCT ID**
The original DB2 field specifies the information in the following field names of the remote requester or server location:

**PRODUCT ID**

It consists of 3 characters and can have the following values:

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</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>

**Note:**

- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

**PRODUCT VERSION (PROD VERSION)**

It consists of 5 digits and is shown as VvvRrrMm, where:

- **vv** Version level
- **rr** Release level
- **m** Modification level

**Note:** For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

**Field Name:** QLACPRID

**Trace - PRODUCT VERSION**

The original DB2 field specifies the information in the following field names of the remote requester or server location:

**PRODUCT ID**

It consists of 3 characters and can have the following values:

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<td>Other</td>
<td>Original ID from DB2</td>
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</tbody>
</table>

**Note:**
Distributed Activity - Requester

- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

PRODUCT VERSION (PROD VERSION)
It consists of 5 digits and is shown as VvvRrrMm, where:

<table>
<thead>
<tr>
<th>vv</th>
<th>Version level</th>
</tr>
</thead>
<tbody>
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<td>rr</td>
<td>Release level</td>
</tr>
<tr>
<td>m</td>
<td>Modification level</td>
</tr>
</tbody>
</table>

Note: For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

Field Name: QLACPRID

Trace - METHOD
The method of access: DB2 private protocol, DRDA protocol, or both.
This field is invalid if unique or summary rollup data is present. It can have the following value in:
- Accounting Trace and Report: N/P
- The Accounting FILE and SAVE PROGRAM table: blank

Field Name: ADPROT

Trace - COMMITS(1) RECEIVED
The number of commit requests received from the requester (single-phase commit protocol) and committed requests received from the coordinator (two-phase commit protocol).

Field Name: QLACCOMR
This is an exception field.

Trace - ROLLBCK(1) RECEIVED
The number of abort requests received from the requester (single-phase commit protocol) and backout requests received from the coordinator (two-phase commit protocol).

Field Name: QLACABRR
This is an exception field.

Trace - SQL RECEIVED
The number of SQL statements received from the requester location.

Field Name: QLACSQLR
This is an exception field.

Trace - MESSAGES SENT
The number of messages sent to the location. It is maintained at the location where the messages originated.

Field Name: QLACMSGs
This is an exception field.
Trace - MESSAGES RECEIVED

The number of messages received from the location. This value is maintained at the location where the messages were received.

More messages might be sent from the server location than are received by the requester because of the way in which distributed SQL statements are processed internally.

Field Name: QLACMSGR
This is an exception field.

Trace - BYTES SENT

The number of bytes the server location sent to the requester location. This value is maintained at the server location.

More bytes of data might be sent from the server location than are received by the requester due to the way in which distributed SQL statements are processed internally.

Field Name: QLACBYTS
This is an exception field.

Trace - BYTES RECEIVED

The number of bytes the server location received from the requester location.

More bytes of data might be sent from the server location than are received by the requester, because of the way in which distributed SQL statements are processed internally.

Field Name: QLACBYTR
This is an exception field.

Trace - THREADS INDOUBT

The number of threads that went indoubt with the remote location as coordinator (two-phase commit operations only). It is maintained at the participant and indicates that the communication with the coordinator was lost.

Field Name: QLACINDT
This is an exception field.

Trace - ROWS SENT

The number of rows sent from the server location to the requester location. The value includes SQLDA and is maintained at the server location.

Field Name: QLACROWS
This is an exception field.

Trace - BLOCKS SENT

The number of blocks transmitted using block fetch. This value is maintained at the server location.

Field Name: QLACBTBF
This is an exception field.

Trace - CONVERSATION INITIATED
Distributed Activity - Requester

A count of conversations initiated by the requester.
This number is updated at the server location.

Field Name: QLACCNVR
This is an exception field.

Trace - NBR RLUP THREADS
The number of threads to roll data into this QLAC data section. Non-rollup QLACs have a value of 1 and rollup QLACs have a value of 1 or more.

Field Name: QLACRLNU

Distributed Activity - Server:

This topic shows detailed information about “Accounting - Distributed Activity - Server”.

This block shows the information provided for the server of the distributed activity.

In the following example both layouts are shown, the report layout followed by the trace layout.

Accounting - Distributed Activity - Server

The field labels shown in the following sample layout of “Accounting - Distributed Activity - Server” are described in the following section.

Report:

---- DISTRIBUTED ACTIVITY *--------------------------------------------------------------------------
SERVER : *ROLSUM* CONVERSATIONS INITIATED: 1.00 #COMMIT(1)SENT: 0 MESSAGES SENT : 3.00
PRODUCT ID : DB2 CONVERSATIONS QUEUED : 0 #ROLLBACK(1)SENT: 0 MESSAGES RECEIVED: 3.00
PRODUCT VERSION : DB2 PRIV CONVERSATION TERMINATED: 0.00 SQL SENT : 2.00 BYTES SENT : 1314.00
METHOD : DB2 PRIV #RLUP THREADS : 10 ROWS RECEIVED: 20.00 BYTES RECEIVED : 2076.00
REQUESTER ELAP. TIME: 10.776739 BLOCKS RECEIVED : 1.00
DBAT WAITING TIME : 0.010000 REQUESTER ELAP. TIME: 0.154750
#DDF ACCESSES : 1 ROWS RECEIVED: 1095

Trace:

---- DISTRIBUTED ACTIVITY *--------------------------------------------------------------------------
SERVER : PMODA11 CONVERSATION TERMINATED: N/A NBR RLUP THREADS : 1
PRODUCT ID : DB2 COMMIT(1)SENT: 1 MESSAGES SENT : 5
PRODUCT VERSION : V10R1 M5 ROLLBACK(1)SENT : 0 MESSAGES RECEIVED: 5
METHOD : N/P SQL SENT : 2 BYTES SENT : 1170
REQUESTER ELAP. TIME: 0.154750 ROWS RECEIVED: 1095 BYTES RECEIVED : 21201
DBAT WAITING TIME : N/A BLOCKS RECEIVED : 1
CONVERSATIONS INITIATED: 1
CONVERSATIONS QUEUED : 0

Report - SERVER

The name of the remote location with which this information is associated.
If the local location is the requester, this field is a server location. If the local location is a server location, this field is the requester location. An allied thread is created at a DB2 requester, and a database access thread is created at a DB2 server. An accounting record is for either a requester or a server, but not for both.

This field is invalid if summary rollup data is present. In Accounting this field is set to *ROLSUM*.

Field Name: QLACLOCN
This is an exception field.
Report - PRODUCT ID

The original DB2 field specifies the information in the following field names of the remote requester or server location:

**PRODUCT ID**

It consists of 3 characters and can have the following values:

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN</td>
<td>DB2</td>
</tr>
<tr>
<td>ARI</td>
<td>SQL/DS</td>
</tr>
<tr>
<td>QSQ</td>
<td>DB2/400</td>
</tr>
<tr>
<td>SQL</td>
<td>COMMON SERV</td>
</tr>
<tr>
<td>JCC</td>
<td>JDBC DRIVER</td>
</tr>
<tr>
<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>

**Note:**
- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

**PRODUCT VERSION (PROD VERSION)**

It consists of 5 digits and is shown as VvvRrrMm, where:

- vv Version level
- rr Release level
- m Modification level

**Note:** For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

**Field Name:** QLACPRID

Report - PRODUCT VERSION

The original DB2 field specifies the information in the following field names of the remote requestor or server location:

**PRODUCT ID**

It consists of 3 characters and can have the following values:

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN</td>
<td>DB2</td>
</tr>
<tr>
<td>ARI</td>
<td>SQL/DS</td>
</tr>
<tr>
<td>QSQ</td>
<td>DB2/400</td>
</tr>
<tr>
<td>SQL</td>
<td>COMMON SERV</td>
</tr>
<tr>
<td>JCC</td>
<td>JDBC DRIVER</td>
</tr>
<tr>
<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>
Note:

- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

PRODUCT VERSION (PROD VERSION)
It consists of 5 digits and is shown as VvvRrrMm, where:

- vVv Version level
- rRr Release level
- mMm Modification level

Note: For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

Field Name: QLACPRID

Report - METHOD
The method of access: DB2 private protocol, DRDA protocol, or both.
This field is invalid if unique or summary rollup data is present. It can have the following value in:

- Accounting Trace and Report: N/P
- The Accounting FILE and SAVE PROGRAM table: blank

Field Name: ADPROT

Report - REQUESTER ELAPTIME
The elapsed time at the requester. It includes the total of DB2 and network time.

Field Name: ADDSELRQ

Report - DBAT WAITING TIME
Total elapsed time spent waiting for an available database access agent slot.

Field Name: QLACMDWT

Report - #DDF ACCESSES
The number of occurrences of the remote location and method pair.

Field Name: ASDDF

Report - CONVERSATIONS INITIATED
The number of conversations (both successful and unsuccessful) initiated by the requester location to be executed at the server location. This number is maintained at the requester.

Field Name: QLACCNV$S

Report - #CONVERSATIONS QUEUED
A number of conversation requests queued by DDF that are waiting for allocation. This value is maintained at the requester location.
If the value is a large number, you might want to increase the limit for the number of conversations.
Field Name: QLACCNVQ
This is an exception field.

Report - CONVERSATION TERMINATED
The number of terminated conversations in the server block (DB2 private protocol only). It is maintained at the requestor location.
This number can be different from the number of successful conversation allocations, because some conversations might not have been terminated when the accounting record was written.
Field Name: QLACCNVT
This is an exception field.

Report - #RLUP THREADS
The number of threads to roll data into this QLAC data section. Non-rollup QLACs have a value of 1 and rollup QLACs have a value of 1 or more.
Field Name: QLACRLNU

Report - #COMMT(1)SENT
The number of commit requests sent to the server (single-phase commit protocol) and committed requests sent to the participant (two-phase commit protocol).
Field Name: QLACCOMS
This is an exception field.

Report - #ROLLB(1)SENT
The number of abort requests sent to the server (single-phase commit protocol) and backout requests sent to the participant (two-phase commit protocol).
Field Name: QLACABRS
This is an exception field.

Report - SQL SENT
The number of SQL statements sent to the server location. This value is maintained at the requesting location.
Field Name: QLACSQLS
This is an exception field.

Report - ROWS RECEIVED
The number of rows of data retrieved from the server location. This value is maintained at the requester location.

Special Considerations:
1. The number of rows received from the server location does not include either the SQLDA or SQLCA.
2. Block fetch can significantly affect the number of rows sent across the network. When used with non-UPDATE cursors, block fetch puts as many rows as possible into the message buffer, and transmits the buffer across the network without requiring a VTAM message. Consequently, more rows of data might be sent from the server location than are received by the reporting (requester) location. This is especially true...
when DB2 private protocol is used because multiple blocks can be transmitted from the server with no intervening messages sent by the requester.

Field Name: QLACROWR
This is an exception field.

Report - MESSAGES SENT
The number of messages sent to the location. It is maintained at the location where the messages originated.

Field Name: QLACMSGS
This is an exception field.

Report - MESSAGES RECEIVED
The number of messages received from the location. This value is maintained at the location where the messages were received.
More messages might be sent from the server location than are received by the requester because of the way in which distributed SQL statements are processed internally.

Field Name: QLACMSGR
This is an exception field.

Report - BYTES SENT
The number of bytes the server location sent to the requester location. This value is maintained at the server location.
More bytes of data might be sent from the server location than are received by the requester due to the way in which distributed SQL statements are processed internally.

Field Name: QLACBYTES
This is an exception field.

Report - BYTES RECEIVED
The number of bytes the server location received from the requester location.
More bytes of data might be sent from the server location than are received by the requester, because of the way in which distributed SQL statements are processed internally.

Field Name: QLACBYTR
This is an exception field.

Report - BLOCKS RECEIVED
The number of blocks received using block fetch. This value is maintained at the requester location.

Field Name: QLACBRBF
This is an exception field.

Trace - SERVER
The name of the remote location with which this information is associated.
If the local location is the requester, this field is a server location. If the
local location is a server location, this field is the requester location. An allied thread is created at a DB2 requester, and a database access thread is created at a DB2 server. An accounting record is for either a requester or a server, but not for both.

This field is invalid if summary rollup data is present. In Accounting this field is set to *ROLSUM*.

**Field Name:** QLACLOCN

This is an exception field.

**Trace - PRODUCT ID**

The original DB2 field specifies the information in the following field names of the remote requester or server location:

**PRODUCT ID**

It consists of 3 characters and can have the following values:

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN</td>
<td>DB2</td>
</tr>
<tr>
<td>ARI</td>
<td>SQL/DS</td>
</tr>
<tr>
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</tr>
<tr>
<td>SQL</td>
<td>COMMON SERV</td>
</tr>
<tr>
<td>ICC</td>
<td>JDBC DRIVER</td>
</tr>
<tr>
<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>

**Note:**

- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

**PRODUCT VERSION (PROD VERSION)**

It consists of 5 digits and is shown as VvvRrrMm, where:

- \( vv \) Version level
- \( rr \) Release level
- \( m \) Modification level

**Note:** For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

**Field Name:** QLACPRID

**Trace - PRODUCT VERSION**

The original DB2 field specifies the information in the following field names of the remote requester or server location:

**PRODUCT ID**

It consists of 3 characters and can have the following values:
### Distributed Activity - Server

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN</td>
<td>DB2</td>
</tr>
<tr>
<td>ARI</td>
<td>SQL/DS</td>
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<tr>
<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>

**Note:**
- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

**PRODUCT VERSION (PROD VERSION)**
It consists of 5 digits and is shown as \( VvRrMm \), where:
- \( Vv \) Version level
- \( rr \) Release level
- \( m \) Modification level

**Note:** For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

**Field Name:** QLACPRID

**Trace - METHOD**
The method of access: DB2 private protocol, DRDA protocol, or both.
This field is invalid if unique or summary rollup data is present. It can have the following value in:
- Accounting Trace and Report: N/P
- The Accounting FILE and SAVE PROGRAM table: blank

**Field Name:** ADPROT

**Trace - REQUESTER ELAP.TIME**
The elapsed time at the requester. It includes the total of DB2 and network time.

**Field Name:** ADDSELRQ

**Trace - DBAT WAITING TIME**
Total elapsed time spent waiting for an available database access agent slot.

**Field Name:** QLACMDWT

**Trace - CONVERSATIONS INITIATED**
The number of conversations (both successful and unsuccessful) initiated by the requester location to be executed at the server location. This number is maintained at the requester.
Field Name: QLACCNVS

Trace - CONVERSATIONS QUEUED

A number of conversation requests queued by DDF that are waiting for allocation. This value is maintained at the requester location.

If the value is a large number, you might want to increase the limit for the number of conversations.

Field Name: QLACCNVQ

This is an exception field.

Trace - CONVERSATION TERMINATED

The number of terminated conversations in the server block (DB2 private protocol only). It is maintained at the requester location.

This number can be different from the number of successful conversation allocations, because some conversations might not have been terminated when the accounting record was written.

Field Name: QLACCNVT

This is an exception field.

Trace - COMMT(1)SENT

The number of commit requests sent to the server (single-phase commit protocol) and committed requests sent to the participant (two-phase commit protocol).

Field Name: QLACCOMS

This is an exception field.

Trace - ROLLB(1)SENT

The number of abort requests sent to the server (single-phase commit protocol) and backout requests sent to the participant (two-phase commit protocol).

Field Name: QLACABRS

This is an exception field.

Trace - SQL SENT

The number of SQL statements sent to the server location. This value is maintained at the requesting location.

Field Name: QLACSQLS

This is an exception field.

Trace - ROWS RECEIVED

The number of rows of data retrieved from the server location. This value is maintained at the requester location.

Special Considerations:
1. The number of rows received from the server location does not include either the SQLDA or SQLCA.
2. Block fetch can significantly affect the number of rows sent across the network. When used with non-UPDATE cursors, block fetch puts as many rows as possible into the message buffer, and transmits the buffer across the network without requiring a VTAM message. Consequently,
more rows of data might be sent from the server location than are received by the reporting (requester) location. This is especially true when DB2 private protocol is used because multiple blocks can be transmitted from the server with no intervening messages sent by the requester.

**Field Name:** QLACROWR

This is an exception field.

**Trace - NBR RLUP THREADS**

The number of threads to roll data into this QLAC data section. Non-rollup QLACs have a value of 1 and rollup QLACs have a value of 1 or more.

**Field Name:** QLACRLNU

**Trace - MESSAGES SENT**

The number of messages sent to the location. It is maintained at the location where the messages originated.

**Field Name:** QLACMSGS

**Trace - MESSAGES RECEIVED**

The number of messages received from the location. This value is maintained at the location where the messages were received.

More messages might be sent from the server location than are received by the requester because of the way in which distributed SQL statements are processed internally.

**Field Name:** QLACMSGR

**Trace - BYTES SENT**

The number of bytes the server location sent to the requester location. This value is maintained at the server location.

More bytes of data might be sent from the server location than are received by the requester due to the way in which distributed SQL statements are processed internally.

**Field Name:** QLACBYTES

**Trace - BYTES RECEIVED**

The number of bytes the server location received from the requester location.

More bytes of data might be sent from the server location than are received by the requester, because of the way in which distributed SQL statements are processed internally.

**Field Name:** QLACBYTR

**Trace - BLOCKS RECEIVED**

The number of blocks received using block fetch. This value is maintained at the requester location.

**Field Name:** QLACBRBF
Drain and Claim:

This topic shows detailed information about “Accounting - Drain and Claim”.

This block contains information about requesting a drain or a claim.

For formatting reasons, OMEGAMON XE for DB2 PE shows different labels for report and trace. The following example shows both layouts, the report on the left, and the trace layout on the right.

Accounting - Drain and Claim

The field labels shown in the following sample layout of “Accounting - Drain and Claim” are described in the following section.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRAIN/CLAIM</td>
<td>AVERAGE</td>
</tr>
<tr>
<td>DRAIN REQUESTS</td>
<td>0.00</td>
</tr>
<tr>
<td>DRAIN FAILED</td>
<td>0.00</td>
</tr>
<tr>
<td>CLAIM REQUESTS</td>
<td>15.00</td>
</tr>
<tr>
<td>CLAIM FAILED</td>
<td>0.00</td>
</tr>
</tbody>
</table>

DRAIN REQUESTS (DRAIN REQST)

The number of drain requests.

**Field Name:** QTXADRNO

DRAIN FAILED

The number of unsuccessful drain requests.

**Field Name:** QTXADRUN

CLAIM REQUESTS (CLAIM REQST)

The number of claim requests.

**Field Name:** QTXACLNO

CLAIM FAILED

The number of unsuccessful claim requests.

**Field Name:** QTXACLUN

Dynamic SQL Statement:

This topic shows detailed information about “Accounting - Dynamic SQL Statement”.

This block provides information about the dynamic SQL statement.

The following example shows both layouts, the report on the left, and the trace layout on the right.

Accounting - Dynamic SQL Statement

The field labels shown in the following sample layout of “Accounting - Dynamic SQL Statement” are described in the following section.
### Dynamic SQL Statement

The total number of times reoptimization occurs because the value of the host variable or parameter marker changes.

**Field Name**: QXSTREOP

### NOT FOUND IN CACHE

The number of times that DB2 searched the prepared statement cache but could not find a suitable prepared statement.

**Field Name**: QXSTNFND

### FOUND IN CACHE

The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.

**Field Name**: QXSTFND

### IMPLICIT PREPARES

An implicit prepare occurs when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEPDYNAMIC YES.

If the skeleton copy of the prepared SQL statement exists in the global dynamic SQL cache in the EDM pool, a short prepare is executed, otherwise a full prepare is executed.

**Field Name**: QXSTIPRP

### PREPARES AVOIDED

This field indicates the number of times where no SQL PREPARE or EXECUTE IMMEDIATE was issued by the application and a copy of a prepared SQL statement was found in local dynamic SQL cache.

When an application plan or package is bound with KEEPDYNAMIC YES, a copy of each prepared SQL statement for the application thread is held in the local dynamic SQL cache and kept across a commit boundary.

An application thread can save the total cost of a prepare by using a copy of the prepared statement in the local dynamic SQL cache from an earlier prepare by the same thread. To do this, the application must be modified to avoid issuing repetitive SQL PREPAREs for the same SQL statement.

**Field Name**: QXSTNPRP

### CACHE_LIMIT_EXCEEDED
The number of times statements are invalidated in the local dynamic SQL cache because the MAXKEEPD limit has been reached and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

**Field Name:** QXSTDEXP

**PREP_STMT_PURGED**

The number of times statements are invalidated in the local dynamic SQL cache because of SQL DDL or updated RUNSTATS information and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

**Field Name:** QXSTDINV

**STABILIZED PREPARE**

The number of loads from the catalog.

It shows the number of times a PREPARE request was satisfied by making a copy from the stabilized statement in the SYSIBM.SYSDYNQRY catalog table. The stabilized statement search is done only when no matching statement was found in the prepared statement cache. This field should be identical to QISEDPSL, but it is reported from the QXST section (SQL Statement Execution).

**Field Name:** QXSTSFND

**CSWL - STMTS PARSED**

The number of times DB2 parsed dynamic statements because CONCENTRATE STATEMENTS WITH LITERALS behavior was used for the prepare of the statement for the dynamic statement cache.

**Field Name:** QXSTCWLP

**CSWL - LITS REPLACED**

The number of times DB2 replaced at least one literal in a dynamic statement because CONCENTRATE STATEMENTS WITH LITERALS was used for the prepare of the statement for dynamic statement cache.

**Field Name:** QXSTCWLR

**CSWL - MATCHES FOUND**

The number of times DB2 found a matching reusable copy of a dynamic statement in cache during prepare of a statement that had literals replaced because of CONCENTRATE STATEMENTS WITH LITERALS.

**Field Name:** QXSTCWLM

**CSWL - DUPLS CREATED**

The number of times DB2 created a duplicate STMT instance in the statement cache for a dynamic statement that had literals replaced by CONCENTRATE STATEMENTS WITH LITERALS behavior. The duplicate STMT instance was needed because a cache match failed because the literal reusability criteria was not met.

**Field Name:** QXSTCWLD

*Global Contention L-Locks:*

This topic shows detailed information about “Accounting - Global Contention L-Locks”.

---

*Dynamic SQL Statement*
Global Contention L-Locks

This block provides global contention information for a logical lock (L-lock) at plan level. It shows conflicts on locking requests between different DB2 members of a data sharing group when those members are trying to serialize shared resources.

For formatting reasons, OMEGAMON XE for DB2 PE shows different labels for report and trace. The following example shows both layouts, the report on the left, and the trace layout on the right.

Accounting - Global Contention L-Locks

The field labels shown in the following sample layout of “Accounting - Global Contention L-Locks” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-LOCKS - AVERAGE TIME/ELAPSED TIME</td>
<td>The accumulated global contention wait time for all L-locks.</td>
</tr>
<tr>
<td>Field Name: ADLKSUST</td>
<td></td>
</tr>
<tr>
<td>L-LOCKS - AV.EVENT/EVENTS</td>
<td>The number of global contention waits for all L-locks.</td>
</tr>
<tr>
<td>Field Name: ADLKSUSC</td>
<td></td>
</tr>
<tr>
<td>PARENT (DB,TS,TAB,PART) - AVERAGE TIME/ELAPSED TIME</td>
<td>The accumulated global contention wait time for parent L-locks.</td>
</tr>
<tr>
<td>A parent L-lock can be one of the following types:</td>
<td></td>
</tr>
<tr>
<td>Database</td>
<td></td>
</tr>
<tr>
<td>Tablespace</td>
<td></td>
</tr>
<tr>
<td>Table</td>
<td></td>
</tr>
<tr>
<td>Partition</td>
<td></td>
</tr>
<tr>
<td>Field Name: QWACAWTJ</td>
<td></td>
</tr>
<tr>
<td>PARENT (DB,TS,TAB,PART) - AV.EVENT/EVENTS</td>
<td>The number of global contention wait events for parent L-locks.</td>
</tr>
<tr>
<td>Field Name: ADLPSUSC</td>
<td></td>
</tr>
<tr>
<td>CHILD (PAGE,ROW) - AVERAGE TIME/ELAPSED TIME</td>
<td>The accumulated global contention wait time for child L-locks.</td>
</tr>
<tr>
<td>A child L-lock type can be:</td>
<td></td>
</tr>
<tr>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>Row</td>
<td></td>
</tr>
<tr>
<td>Field Name: QWACAWTK</td>
<td></td>
</tr>
<tr>
<td>CHILD (PAGE,ROW) - AV.EVENT/EVENTS</td>
<td></td>
</tr>
</tbody>
</table>
The number of global contention wait events for child L-locks.

**Field Name:** ADLCSUSC

**OTHER - AVERAGE TIME/ELAPSED TIME**

The accumulated global contention wait time for other L-locks. Global extend lock is acquired in exclusive mode by Inserters before an extend service task switch.

**Field Name:** QWACAWTM

**OTHER - AV.EVENT/EVENTS**

The number of global contention wait events for other L-locks.

**Field Name:** ADLOSUSC

---

*Global Contention P-Locks:*

This topic shows detailed information about “Accounting - Global Contention P-Locks”.

This block provides global contention information for a physical lock (P-lock) at plan level. It shows conflicts on locking requests between different DB2 members of a data sharing group when those members are trying to serialize shared resources.

For formatting reasons, OMEGAMON XE for DB2 PE shows different labels for report and trace. The following example shows both layouts, the report on the left, and the trace layout on the right.

**Accounting - Global Contention P-Locks**

The field labels shown in the following sample layout of “Accounting - Global Contention P-Locks” are described in the following section.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GLOBAL</strong></td>
<td><strong>GLOBAL</strong></td>
</tr>
<tr>
<td><strong>CONTENTION</strong></td>
<td><strong>CONTENTION</strong></td>
</tr>
<tr>
<td><strong>P-LOCKS</strong></td>
<td><strong>P-LOCKS</strong></td>
</tr>
<tr>
<td><strong>AV. TIME</strong></td>
<td><strong>AV. TIME</strong></td>
</tr>
<tr>
<td><strong>AV. EVENT</strong></td>
<td><strong>AV. EVENT</strong></td>
</tr>
<tr>
<td><strong>P-LOCKS</strong></td>
<td><strong>P-LOCKS</strong></td>
</tr>
<tr>
<td><strong>ELAPSED TIME</strong></td>
<td><strong>ELAPSED TIME</strong></td>
</tr>
<tr>
<td><strong>EVENTS</strong></td>
<td><strong>EVENTS</strong></td>
</tr>
</tbody>
</table>

**P-LOCKS - AVERAGE TIME/ELAPSED TIME**

The accumulated global contention wait time for all P-locks.

**Field Name:** ADPLSUST

**P-LOCKS - AV.EVENT/EVENTS**

The number of global contention waits for all P-locks.

**Field Name:** ADPLSUST

**PAGESET/PARTITION - AVERAGE TIME/ELAPSED TIME**

The accumulated global contention time for pageset and partition P-locks.

**Field Name:** QWACAWTN

**PAGESET/PARTITION - AV.EVENT/EVENTS**

The number of global contention waits for pageset and partition P-locks.

**Field Name:** ADPSSUSC
Global Contention P-Locks

PAGE - AVERAGE TIME/ELAPSED TIME
The accumulated global contention wait time for page P-locks.
Field Name: QWACAWTO

PAGE - AV.EVENT/EVENTS
The number of global contention waits for page P-locks.
Field Name: ADPPSUSC

OTHER - AVERAGE TIME/ELAPSED TIME
The accumulated global contention wait time for other P-locks. Includes suspension for Castout P-Locks and DBET locks. It could be because of Index Split processing which can be minimized if the Index key size is not large. If you can minimize the number of Index Keys in the Index, it will help to reduce the number of Index splits.
Field Name: QWACAWTQ

OTHER - AV.EVENT/EVENTS
The number of global contention waits for other P-locks.
Field Name: ADPOSUSC

Group Buffer Pool Activity:

This topic shows detailed information about “Accounting - Group Buffer Pool Activity”.

This block is printed for each active group buffer pool. When there is more than one active group buffer pool, a totals block is printed for each aggregation.

The following example shows both layouts, the report on the left, and the trace layout on the right.

Accounting - Group Buffer Pool Activity

The field labels shown in the following sample layout of “Accounting - Group Buffer Pool Activity” are described in the following section.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBP-DEPEND GETPAGES</td>
<td>0.00</td>
</tr>
<tr>
<td>READ(XI)-DATA RETUR</td>
<td>0.00</td>
</tr>
<tr>
<td>READ(XI)-NO DATA RT</td>
<td>0.00</td>
</tr>
<tr>
<td>READ(NF)-DATA RETUR</td>
<td>0.00</td>
</tr>
<tr>
<td>READ(NF)-NO DATA RT</td>
<td>0.00</td>
</tr>
<tr>
<td>PREFETCH PAGES READ</td>
<td>0.00</td>
</tr>
<tr>
<td>CLEAN PAGES WRITTEN</td>
<td>0.00</td>
</tr>
<tr>
<td>UNREGISTER PAGE</td>
<td>0.00</td>
</tr>
<tr>
<td>ASYNCH GBP REQUESTS</td>
<td>0.00</td>
</tr>
<tr>
<td>EXPLICIT X-INVALID</td>
<td>0.00</td>
</tr>
<tr>
<td>ASYNCH SEC-GBP REQ</td>
<td>0.00</td>
</tr>
<tr>
<td>PG P-LOCK LOCK REQ</td>
<td>0.00</td>
</tr>
<tr>
<td>SPACE MAP PAGES</td>
<td>0.00</td>
</tr>
<tr>
<td>DATA PAGES</td>
<td>0.00</td>
</tr>
<tr>
<td>INDEX LEAF PAGES</td>
<td>0.00</td>
</tr>
<tr>
<td>PG P-LOCK UNLOCK REQ</td>
<td>0.00</td>
</tr>
<tr>
<td>PG P-LOCK LOCK SUSP</td>
<td>0.00</td>
</tr>
<tr>
<td>SPACE MAP PAGES</td>
<td>0.00</td>
</tr>
</tbody>
</table>
GBP-DEPEND GETPAGES

The number of coupling facility READ requests required because the buffer was marked invalid. Data is returned from the group buffer pool.

Field Name: QBGAGG

READ(XI)-DATA RETUR

The number of coupling facility read requests required because the buffer was marked invalid. Data is returned from the group buffer pool.

Field Name: QBGAXD

READ(XI)-NO DATA RT

The number of synchronous coupling facility read requests necessary because the buffer was marked invalid. Data is not returned from the group buffer pool.

Field Name: ABGAXR

This is an exception field.

READ(NF)-DATA RETUR

The number of coupling facility read requests necessary because the requested page was not found in the buffer pool. Data is returned from the coupling facility.

Field Name: QBGAMD

This is an exception field.

READ(NF)-NO DATA RT

The number of synchronous coupling facility read requests necessary because the requested page was not found in the buffer pool. Data is not returned from the coupling facility.

Field Name: ABGAMR

This is an exception field.

PREFETCH PAGES READ

The number of pages read from the group buffer pool due to prefetch under the control of the agent.

Field Name: QBGAMN

This is an exception field.

CLEAN PAGES WRITTEN

The number of clean pages written to the group buffer pool.

Field Name: QBGAWC

This is an exception field.

UNREGISTER PAGE

The number of coupling facility requests to unregister a page.
Group Buffer Pool Activity

Field Name: QBGADG
This is an exception field.

ASYNCH GBP REQUESTS
The number of asynchronous IXLCACHE invocations for the primary group buffer pool.
Field Name: QBGAHS

EXPLICIT X-INVALID
The number of times an explicit coupling facility cross-invalidation request was issued.
Field Name: QBGAEX

ASYNCH SEC-GBP REQ
The number of IXLCACHE invocations for the secondary group buffer pool.
Field Name: QBGA2H

PG P-LOCK LOCK REQ
The number of all page P-lock lock requests.
Field Name: ABGAPLR

SPACE MAP PAGES
The number of page P-lock lock requests for space map pages.
Field Name: QBGAP1

DATA PAGES
The number of page P-lock lock requests for data pages.
Field Name: QBGAP2

INDEX LEAF PAGES
The number of page P-lock lock requests for index-leaf pages.
Field Name: QBGAP3

PG P-LOCK UNLOCK REQ
The number of page P-lock unlock requests.
Field Name: QBGAU1

PG P-LOCK LOCK SUSP
The sum of all page P-lock lock suspensions.
Field Name: ABGAPLS

SPACE MAP PAGES
The number of page P-lock suspensions for space-map pages.
Field Name: QBGAS1

DATA PAGES
The number of page P-lock lock suspensions for data pages.
Field Name: QBGAS2
INDEX LEAF PAGES
The number of page P-lock lock suspensions for index-leaf pages.
Field Name: QBGAS3

WRITE AND REGISTER
The number of Write and Register (WAR) requests.
Field Name: QBGAWS

WRITE & REGISTER MULT
The number of write and register multiple (warm) requests.
Field Name: QBGAWM

CHANGED PAGES WRITTEN
The number of changed pages written to the group buffer pool as a result of write and register (WAR), or write and register multiple (WARM) requests.
Field Name: QBGASW
This is an exception field.

WRITE TO SEC-GBP
The number of requests to write changed pages to the secondary GBP for duplexing.
Field Name: QBGA2W

COMPL CHECKS SUSPEND
The number of completion checks for writes to the secondary GBP that were suspended because the write had not yet been completed.
Field Name: QBGA2S

Highlights: This topic shows the report and trace blocks for highlights. They present values such as the total number of threads and commitments for the entire group.
Accounting highlights report:

The accounting highlights report shows general accounting information.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>#OCCURRENCES</td>
<td>13</td>
</tr>
<tr>
<td>#ALLIEDS</td>
<td>13</td>
</tr>
<tr>
<td>#ALLIEDS DISTRIB</td>
<td>0</td>
</tr>
<tr>
<td>#DBATS</td>
<td>0</td>
</tr>
<tr>
<td>#DBATS DISTRIB</td>
<td>0</td>
</tr>
<tr>
<td>#NO PROGRAM DATA</td>
<td>13</td>
</tr>
<tr>
<td>#NORMAL TERMINAT</td>
<td>13</td>
</tr>
<tr>
<td>#ROLLUP TRAN</td>
<td>13</td>
</tr>
<tr>
<td>#DDFRRSAF ROLLUP</td>
<td>0</td>
</tr>
<tr>
<td>#ABNORMAL TERMIN</td>
<td>0</td>
</tr>
<tr>
<td>#CP/X PARALLEL</td>
<td>0</td>
</tr>
<tr>
<td>#UTIL PARALLEL</td>
<td>0</td>
</tr>
<tr>
<td>#IO PARALLELISM</td>
<td>0</td>
</tr>
<tr>
<td>#PCA RUP COUNT</td>
<td>0</td>
</tr>
<tr>
<td>#RUP AUTONOM. PR</td>
<td>0</td>
</tr>
<tr>
<td>#AUTONOMOUS PR</td>
<td>0</td>
</tr>
<tr>
<td>#INCREMENT. BIND</td>
<td>0</td>
</tr>
<tr>
<td>#COMMITS</td>
<td>215</td>
</tr>
<tr>
<td>#ROLLBACKS</td>
<td>0</td>
</tr>
<tr>
<td>#SVPT REQUESTS</td>
<td>0</td>
</tr>
<tr>
<td>#SVPT RELEASE</td>
<td>0</td>
</tr>
<tr>
<td>#SVPT ROLLBACK</td>
<td>0</td>
</tr>
<tr>
<td>MAX SQL CASC LVL</td>
<td>0</td>
</tr>
<tr>
<td>UPDATE/COMMIT</td>
<td>0.00</td>
</tr>
<tr>
<td>SYNCH I/O AVG.</td>
<td>0.002932</td>
</tr>
<tr>
<td>MAX WFILE BLKS</td>
<td>0</td>
</tr>
<tr>
<td>#ZHL READ I/O</td>
<td>325.00</td>
</tr>
</tbody>
</table>

Figure 290. Accounting highlights report

The number of logical accounting records. A logical accounting record can contain more than one physical record.

This is the case, for example, in query CP and sysplex query parallelism, where several accounting records (IFCID 003 and, optionally, 239) are generated, namely one for the entire thread and one for each parallel task within the thread.

In case of Distributed Data Facility (DDF) or Recoverable Resource Manager Services Attach Facility (RRSAF) threads, it is the number of accounting intervals rolled up in a record.

This number is used for calculating averages (as a divisor) for class 1, 2, 3, and 5 times and events.

Field Name: ASOCCURS

The number of allied threads. In case of Distributed Data Facility (DDF) or Recoverable Resource Manager Services Attach Facility (RRSAF) threads, it is the number of accounting intervals rolled up in this record for the corresponding end user.

Field Name: ASALLIED

The number of allied threads. In case of Distributed Data Facility (DDF) or Recoverable Resource Manager Services Attach Facility (RRSAF) threads, it is the number of accounting intervals rolled up in this record for the corresponding end user.

Field Name: ASALLIED

The number of allied threads. In case of Distributed Data Facility (DDF) or Recoverable Resource Manager Services Attach Facility (RRSAF) threads, it is the number of accounting intervals rolled up in this record for the corresponding end user.

Field Name: ASALLIED

The number of allied threads. In case of Distributed Data Facility (DDF) or Recoverable Resource Manager Services Attach Facility (RRSAF) threads, it is the number of accounting intervals rolled up in this record for the corresponding end user.

Field Name: ASALLIED
The number of allied-distributed threads. In case of Distributed Data Facility (DDF) or Recoverable Resource Manager Services Attach Facility (RRSAF) threads, it is the number of accounting intervals rolled up in this record for the corresponding end user.

Field Name: ASALLDST

#DBATS

The number of database access threads. In case of Distributed Data Facility (DDF) or Recoverable Resource Manager Services Attach Facility (RRSAF) threads, it is the number of accounting intervals rolled up in this record for the corresponding end user.

Field Name: ASDBATS

#DBATS DISTRIB.

The number of DBAT-distributed threads. In case of Distributed Data Facility (DDF) or Recoverable Resource Manager Services Attach Facility (RRSAF) threads, it is the number of accounting intervals rolled up in this record for the corresponding end user.

Field Name: ASDBATD

#NO PROGRAM DATA

The number of Accounting records without package data. In case of Distributed Data Facility (DDF) or Recoverable Resource Manager Services Attach Facility (RRSAF) threads, it cannot be determined. In this case it is 0.

Field Name: ADNOPACK

#NORMAL TERMINAT

The number of normal terminations. Here is a list of reasons for termination and the corresponding field names:

Reason   Field Name
New user ASNTNEWU
Deallocation ASNTDEAL
Application program end ASNTAPEN
Resignon ASNTRESI
DBAT inactive ASNTDBAT
RRS commit ASRRSCOM

Note: Termination reasons in case of Distributed Data Facility (DDF) or Recoverable Resource Manager Services Attach Facility (RRSAF) threads are not counted when the accounting record is a roll-up accounting record.

Field Name: ASNORMTM
This is an exception field.

#ABNORMAL TERMIN

The number of abnormal terminations. Here is a list of reasons for termination and the corresponding field names:

<table>
<thead>
<tr>
<th>Reason</th>
<th>Field Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application program abend</td>
<td>ASATAPAB</td>
</tr>
<tr>
<td>End of memory</td>
<td>ASATENDM</td>
</tr>
<tr>
<td>Resolve indoubt</td>
<td>ASATRIND</td>
</tr>
<tr>
<td>Cancel force</td>
<td>ASATCANF</td>
</tr>
<tr>
<td>Rollup termination</td>
<td>ASROLL</td>
</tr>
</tbody>
</table>

Field Name: ASABNOTM
This is an exception field.

#DDFRRSAF ROLLUP

The number of DDF/RRSAF rollup records with accumulated counter data for an end user.

A rollup record is written when the number of occurrences of the end user on the thread reaches the ZPARM value for ACCUMACC and due to one of the following reasons:

- The number of times the threshold was reached for the number of end-user occurrences when data was accumulated by end user for DDF or RRSAF.
- The number of times the DB2 storage threshold for Accounting blocks was reached for data accumulated by end user for DDF or RRSAF.
- The number of times the threshold for the staleness was exceeded when data was accumulated by end user for DDF or RRSAF.

Note: End user is defined as the concatenation of the following values:

- End-user user ID (QWHEUID, 16 bytes)
- End-user transaction name (QWHCEUTX, 32 bytes)
- End-user workstation name (QWHCEUWN, 18 bytes)

Field Name: ASCUTS

#ROLLUP TRAN

The number of rollup records.

It is calculated as:

```
SUM(QWACPCNT)
```

where

```
QWACRINV IN ('END USER ', 'BLOCK STOR', 'STALENESS ')
```

Example: If
• ACCUMACC=10
• all records have QWACRINV='END USER'

and
• there are 20 accounting records

then
#ROLLUP TRAN will be 200 (10 * 20)

If one of the records has
QWACRINV='BLOCK STOR',

and
QWACPCNT=7,

then
#ROLLUP TRAN will be 197 (10*19 + 1*7)

Field Name: ASROLL

#CP/X PARALLEL.

The number of originating accounting records where query CP and sysplex query parallelism was used for at least one SQL statement. I/O parallelism might have been used by other SQL statements.

Field Name: ASPARCPU

#UTIL PARALLEL.

The number of Accounting records that indicated that UTILITY parallelism was used by at least one SQL statement and query CP and sysplex query parallelism was not used by any SQL statement.

Field Name: ASPARUT

#IO PARALLELISM

The number of accounting records that indicated that I/O parallelism was used by at least one SQL statement and query CP and sysplex query parallelism was not used by any SQL statement.

Field Name: ASPARIO

#PCA RUP COUNT

The number of parallel child agents rolled into this record. The value depends on the record type:

1. For all non-rollup records, this value is 0.
2. For a parallel query rollup record, this value is the number of parallel child agents rolled into this record.
3. For a DDF/RRSAF rollup record, this value is the number of parallel query child agents rolled into this record. These agents are NOT counted in QWACPCNT.
4. For an autonomous procedure rollup record, this value is 0.

Field Name: APTCOUNT

#RUP AUTONOM. PR

The number of accounting records that indicated a roll-up autonomous thread.
Field Name: ADRUPATX

#AUTONOMOUS PR
The number of autonomous procedures that were executed:
1. For non-rollup records, this value is the number of autonomous procedures that were executed.
2. For a parallel query rollup record, this value is 0.
3. For a DDF or RRSAF rollup record, this value is the number of autonomous procedures that were executed. These procedures are NOT counted in QWACPCNT.
4. For autonomous procedures rollup records, this value is 0.

Field Name: AATCOUNT

#INCREMENT. BIND
The number of incremental binds (excluding prepare). It is incremented by:
- SQL statements with BIND VALIDATE(RUN) that fail at bind time and are bound again at execution time
- Static DDL statements (such as CREATE TABLE, DROP TABLE, LOCK TABLE) that use DB2 private protocol

Background and Tuning Information
If a plan is bound with VALIDATE(RUN), DB2 performs validity checks at bind time and rechecks any failures at run time. This can result in catalog contention and degraded application performance, depending on the number of statements flagged and how many times they are executed. Avoid VALIDATE(RUN) if possible. Ensure that all objects are created and all privileges are granted before bind, and select the VALIDATE(BIND) option.

Field Name: QXINCRB
This is an exception field.

#COMMTMS
The number of successful two-phase (units of recovery) or single-phase (syncs) commit requests. It indicates the number of units of recovery that are completed successfully, and for which the associated commit duration locks were released. It represents the total number of commit requests processed by the DB2 subsystem, whether the request was an explicit or implicit external request from an IMS or a CICS connection, or an implicit internal request within DB2 when DB2 was the commit coordinator or conducted read-only commit processing as a commit participant on phase-1 calls from an IMS or CICS connection.
For parallel queries, only the commits from the initiating (parent) thread are recorded by this counter.

Field Name: QWACCOMM
This is an exception field.

#ROLLBACKS
The number of rollback requests. This is the number of units that were backed out, including rollbacks from attaches.

Special Considerations: This field contains the number of:
- Application program abends
• Application rollback requests
• Application deadlocks on database records
• Applications canceled by operator
• Thread abends due to resource shortage

Field Name: QWACABRT
This is an exception field.

#SVPT REQUESTS
The number of named SAVEPOINTs set within a transaction.

Field Name: QWACSVPT

#SVPT RELEASE
The number of RELEASE SAVEPOINT statements executed.

Background and Tuning Information
Release savepoints as soon as possible. Outstanding savepoints block SQL operations that resolve remote locations. DB2 always releases outstanding savepoints when a transaction ends.

Field Name: QWACRLSV
This is an exception field.

#SVPT ROLLBACK
The number of ROLLBACK TO SAVEPOINT statements executed.

Field Name: QWACRBSV

MAX SQL CASC_LVL
The maximum level of indirect SQL cascading. This includes cascading because of triggers, UDFs, or stored procedures.

Field Name: QXCASCMDP
This is an exception field.

UPDATE/COMMIT
The sum of SQL INSERT, SQL UPDATE, and SQL DELETE statements executed.

Field Name: ASIUD
This is an exception field.

SYNCH I/O AVG.
The synchronous I/O suspension time per event.

Field Name: AAIOITMCN
This is an exception field.

MAX WFILE BLKS
The maximum number of work-file blocks that are used by this agent at any given point in time (traditional work-file blocks, declared global temporary tables (DGTT) and DGTT indexes) (DB2 field QWAC_WORKFILE_MAX).

Field Name: AWWFMAX
#ZHL READ I/O

The number of successful read I/Os done with zHyperLink.

Field Name: QBACSYI

Accounting highlights trace:

The accounting highlights trace shows general accounting information.

HIGHLIGHTS

THREAD TYPE : ALLIED
TERMCOND : NORMAL
INVOKE REASON : PROGRAM END
PARALLELISM : CP
PCA RUP COUNT : 0
RUP AUTONOMOUS PR : 0
AUTONOMOUS PR : 0
QUANTITY : 304
COMMENTS : 23
ROLLBACK : 0
SVPT REQUESTS : 0
SVPT RELEASE : 0
SVPT ROLLBACK : 0
INCREM_BINDS : 0
UPDATE/COMMIT : 5.91
SYNCH I/O AVERAGE : 0.000375
PROGRAMS : 1
MAX CASCADE : 0
MAX WFILE BLKS : 30720
ZHL READ I/O : 325

Figure 291. Accounting highlights trace

THREAD TYPE

The type of thread. This field can contain one of the following values:

ALLIED
The thread is not involved in any distributed activity.

ALLDDIST
The thread is initiated by a DB2 attach and requests data from one or more server locations.

DBAT
The thread is initiated, created, and performing work on behalf of a remote (requester) location. The value DBAT also includes DBAT DISTRIBUTED threads that are initiated by a requester location and executed by the server location that in turn requests data from another server location.

Background and Tuning Information

If the thread is involved in distributed activity, some monitored values can produce different results. For example, the class 1 elapsed time for a distributed thread is higher because the network time is also included.

Field Name: ADTHRTYP

TERM_CONDITION

Termination condition. Signon in a CICS environment is controlled by an additional RCT option, TXIDSO. If YES, resignon occurs if the only identifier changed is the transaction ID. If NO, resignon does not occur.
Field Name: ADTERMCO

INVOKE REASON

The status of the thread. The values are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN FORCE</td>
<td>CANCEL FORCE. The Stop Force command terminated, abnormal program termination.</td>
</tr>
<tr>
<td>DBAT INACT</td>
<td>DDF thread is becoming inactive.</td>
</tr>
<tr>
<td>DEALLOC</td>
<td>Deallocation, normal program termination.</td>
</tr>
<tr>
<td>TYP2 INACT</td>
<td>DDF TYPE 2 thread is becoming inactive.</td>
</tr>
<tr>
<td>MEMORY END</td>
<td>End of memory, abnormal termination.</td>
</tr>
<tr>
<td>MON READS</td>
<td>IFFI reads request for IFCID 147.</td>
</tr>
<tr>
<td>NEW USER</td>
<td>New user, the authorization Id changed.</td>
</tr>
<tr>
<td>PROG ABEND</td>
<td>End of task. Application program abended.</td>
</tr>
<tr>
<td>PROGRM END</td>
<td>End of task. Application program terminated normally.</td>
</tr>
<tr>
<td>RESIGNON</td>
<td>Same user resign-on with on with same authorization ID.</td>
</tr>
<tr>
<td>RES INDBT</td>
<td>Resolve indoubt, abnormal program termination.</td>
</tr>
<tr>
<td>RRS COMMIT</td>
<td>Termination due to a commit of an application attached to the Recoverable Resource Manager Services Facility (RRSAF).</td>
</tr>
<tr>
<td>STALENESS</td>
<td>Accumulating data by end user for DDF or RRSAF and accumulated data has exceeded the staleness threshold.</td>
</tr>
<tr>
<td>BLOCK STOR</td>
<td>Accumulating data by end user for DDF or RRSAF and internal DB2 storage threshold has been reached.</td>
</tr>
<tr>
<td>TASK END</td>
<td>End of task - application program terminated normally.</td>
</tr>
<tr>
<td>END USER</td>
<td>Accumulating data by end user for DDF or RRSAF and threshold reached for number end user occurrences.</td>
</tr>
</tbody>
</table>

Field Name: ADINVRSN

PARALLELISM

An indicator to show which type of parallel processing is used when SQL statements are executed:
SQL statement
  Parallel processing
I/O  For threads exploiting query I/O parallelism but no query CP or sysplex query parallelism
CP   For threads exploiting query CP parallelism
SYSPLEX  For threads exploiting sysplex query parallelism
UTILTY  For utility threads with subtasks
NO    For threads without subtasks

Field Name: ADPARLEV

PCA RUP COUNT
The number of parallel child agents rolled into this record. The value depends on the record type:
1. For all non-rollup records, this value is 0.
2. For a parallel query rollup record, this value is the number of parallel child agents rolled into this record.
3. For a DDF/RRSAF rollup record, this value is the number of parallel query child agents rolled into this record. These agents are NOT counted in QWACPCNT.
4. For an autonomous procedure rollup record, this value is 0.

Field Name: APTCOUNT

RUP AUTONOM.PR
The number of accounting records that indicated a roll-up autonomous thread.

Field Name: ADRUPATX

AUTONOMOUS PR
The number of autonomous procedures that were executed:
1. For non-rollup records, this value is the number of autonomous procedures that were executed.
2. For a parallel query rollup record, this value is 0.
3. For a DDF or RRSAF rollup record, this value is the number of autonomous procedures that were executed. These procedures are NOT counted in QWACPCNT.
4. For autonomous procedures rollup records, this value is 0.

Field Name: AATCOUNT

QUANTITY
The number of parallel child agents, or Accounting intervals rolled up, or autonomous procedures rolled up. The value depends on the record type:
- For a non-rollup parent record, this value is the number of parallel child agents that were created.
- For a non-rollup child agent record, this value is 0.
- For a parallel query rollup record, this value is the number of parallel child agents rolled into the record.
• For a DDF/RRSAF rollup record, this value is the number of Accounting intervals that were rolled into the record for the corresponding end user.
• For an autonomous procedure rollup record, this value is the number of autonomous procedures rolled into the record.

Field Name: QWACPCNT

COMMTS

The number of successful two-phase (units of recovery) or single-phase (syncs) commit requests. It indicates the number of units of recovery that are completed successfully, and for which the associated commit duration locks were released. It represents the total number of commit requests processed by the DB2 subsystem, whether the request was an explicit or implicit external request from an IMS or a CICS connection, or an implicit internal request within DB2 when DB2 was the commit coordinator or conducted read-only commit processing as a commit participant on phase-1 calls from an IMS or CICS connection.

For parallel queries, only the commits from the initiating (parent) thread are recorded by this counter.

Field Name: QWACCOMM

This is an exception field.

ROLLBACK

The number of rollback requests. This is the number of units that were backed out, including rollbacks from attaches.

Special Considerations: This field contains the number of:
• Application program abends
• Application rollback requests
• Application deadlocks on database records
• Applications canceled by operator
• Thread abends due to resource shortage

Field Name: QWACABRT

This is an exception field.

SVPT REQUESTS

The number of named SAVEPOINTS set within a transaction.

Field Name: QWACSVPT

SVPT RELEASE

The number of RELEASE SAVEPOINT statements executed.

Background and Tuning Information

Release savepoints as soon as possible. Outstanding savepoints block SQL operations that resolve remote locations. DB2 always releases outstanding savepoints when a transaction ends.

Field Name: QWACRLSV

This is an exception field.

SVPT ROLLBACK

The number of ROLLBACK TO SAVEPOINT statements executed.
Field Name: QWACRBSV

INCREM.BINDS
The number of incremental binds (excluding prepare). It is incremented by:
- SQL statements with BIND VALIDATE(RUN) that fail at bind time and are bound again at execution time
- Static DDL statements (such as CREATE TABLE, DROP TABLE, LOCK TABLE) that use DB2 private protocol

Background and Tuning Information
If a plan is bound with VALIDATE(RUN), DB2 performs validity checks at bind time and rechecks any failures at run time. This can result in catalog contention and degraded application performance, depending on the number of statements flagged and how many times they are executed.
Avoid VALIDATE(RUN) if possible. Ensure that all objects are created and all privileges are granted before bind, and select the VALIDATE(BIND) option.

Field Name: QXINCRB
This is an exception field.

UPDATE/COMMIT
The sum of SQL INSERT, SQL UPDATE, and SQL DELETE statements executed.

Field Name: ASIUD
This is an exception field.

SYNCH I/O AVG.
The synchronous I/O suspension time per event.

Field Name: AAIOTMCN
This is an exception field.

PROGRAMS
The number of packages or DBRMs for which accounting data was collected.

Field Name: QWACPKGN
This is an exception field.

MAX CASCADE
The maximum level of indirect SQL cascading. This includes cascading because of triggers, UDFs, or stored procedures.

Field Name: QXCASCDP
This is an exception field.

MAX WFILE BLKS
The maximum number of work-file blocks that are used by this agent at any given point in time (traditional work-file blocks, declared global temporary tables (DGTT) and DGTT indexes) (DB2 field QWAC_WORKFILE_MAX).

Field Name: AWWFMAX
ZHL READ I/O
The number of successful read I/Os done with zHyperLink.

Field Name: QBACSYI

Identification:

This topic shows detailed information about “Accounting - Identification”.

This block is shown for the accounting trace. It displays OMEGAMON XE for DB2 PE identifiers present in an accounting trace. These identifiers can be used on the ORDER option for an accounting report.

Accounting - Identification

The field labels shown in the following sample layout of “Accounting - Identification” are described in the following section.

--- IDENTIFICATION -------------------------------
ACCT TSTAMP: 02/14/13 10:20:09.30  PLANNNAME: IS-255-0  WLM SCL: STCMD  CICS NET: N/A
BEGIN TIME : 02/14/13 10:20:01.14  PROD TYP: JDBC DRIVER  CICS LUN: N/A
END TIME : N/P  PROD VER: V3 R66M0  CICS LUN: G99A83BD
REQUESTER : ::FFFF:9.154.1#1  CORRNAME: db2jcc_ad
ACCT TSTAMP
The store clock value of the time when the accounting record was generated.

Field Name: QWHSSTCK

PLANNNAME
The plan name. It is blank for a DB2 command thread; otherwise:

DSNESPRR
For SPUFI with repeatable read.

DSNEPCS
For SPUFI with cursor stability.

DSNUTIL
For utilities.

DSNTEP2
For DSNTEP2.

DSNBIND
For binding.

The application plan name
For IMS.

The application plan name
For CICS.

A blank plan name
For IMS and CICS commands.

DSQPLAN
For QMF.

The first 8 bytes of the application name
For DRDA connections to the common servers.
Field Name: QWHCPLAN
This is an exception field.

WLM SCL
The MVS workload manager service class name. This field is used for database access threads on MVS 5.2 or later.

Field Name: QWACWLME

CICS NET
The network ID of the accounting correlation token used to correlate DB2 IFC records to CICS records for the CICS transaction.

Field Name: ADCICSNI

BEGIN TIME
The beginning store clock value for the period covered by the accounting record. You can determine the elapsed time of the application by subtracting this field from the ending store clock value (QWACESC).

Threads that do not terminate (such as CICS primed threads and IMS wait-for-input message regions) can have an ending clock value that includes the time during which the thread was inactive and waiting for work.

If a roll-up trace record is written with accumulated counter data, QWACBSC represents the earliest begin store clock value for a thread that has rolled data into the record. In this case, QWACESC shows the accumulated elapsed time.

Field Name: QWACBSC

PROD TYP
Shows the product identifier (ID) of the requester. It can have the following values:
DB2 For DB2 UDB for z/OS
SQL/DS For DB2 UDB for VSE and VM
JDBC DRIVER For Universal JDBC driver
COMMON SERV For DB2 UDB for Linux, UNIX, Windows
DB2/400 For DB2 UDB for iSeries

Otherwise, it shows the first 3 characters of the product ID, or N/P if the record was written at the application requester location.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup. For parallel query rollup records, the value will be derived from the parent record.

Field Name: QWHDPRID

CICS LUN
The LU name of the accounting correlation token used to correlate DB2 IFC records to CICS records for the CICS transaction.
Field Name: ADCICSLU

END TIME

The ending store clock value. You can use this field with the beginning store clock value (QWACBSC) to determine the elapsed time of an application.

If a roll-up record is written with accumulated accounting data, QWACESC contains the accumulated elapsed time. In Accounting Trace reports, the elapsed time is shown under CLASS 1: NONNESTED ELAPSED TIME and the END TIME is reported as N/P, because QWACESC does not contain a timestamp. In the Accounting FILE GENERAL table, the accumulated elapsed time QWACESC is stored in column CLASS1_ELAPSED and column CLASS1_TIME_END contains a timestamp 1900-01-01-00.00.00.000000.

Field Name: QWACESC

PROD VER

The version, release, and modification level of the product, which generated the accounting information. It has the following format:

\[ Vv \quad V \] version level
\[ Rr \quad R \] release level
\[ Mm \quad M \] modification level

N/P is shown if the Product Type is not present or the record was written at the application requester location.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup. For parallel query rollup records, the value will be derived from the parent record.

Field Name: QWHDPRIDV

LUW NET

The network ID.

Field Name: QWHSNID

CICS INS

The instance number of the accounting correlation token.

Background and Tuning Information

The accounting correlation token is made up from the CICS Token Network ID, Token LU name, and instance number.

CICS generates an LU 6.2 unit of work ID for every CICS task, whether terminal or non-terminal driven.

If TOKENE=YES in the RCT entry, then the CICS logical unit of work ID (LUWID) less the commit count (2 bytes) is passed into this field. The first eight bytes are the network name. For CICS, this is a variable-length field, so the first eight bytes are right padded with blanks. The second eight bytes give the LU name. This is also a variable-length field in CICS and is, therefore, also right padded with blanks, as necessary. The final six bytes are the uniqueness value.

Field Name: ADCICSLIN
REQUESTER

The location name of the requester. If the thread is an allied thread (no distributed requests) or the thread is an allied-distributed thread (this location is the requester), OMEGAMON XE for DB2 PE sets this field equal to the local location. If the thread is a database access thread (this location is a server).

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup. For parallel query rollup records, the value will be derived from the parent record.

Field Name: QWHDRQNM

CORRNAME

This field shows the correlation name. It is obtained by translating the correlation ID into correlation name and number. The default translation depends on the connection type of the thread:

- **Batch**: Job name
- **TSO or CAF**: Original authorization ID
- **CICS**: Transaction ID
- **IMS**: Application PST
- **RRSAF**: Characters 1 to 8 of the parameter correlation ID specified for SIGNON.

You can define your own correlation ID translation, which overrides the default translation.

Field Name: ADCORNME

LUW LUN

The name of the logical unit.

Field Name: QWHSLUNM

MAINPACK

The MAINPACK value, which is derived from a package name. If this is not possible (for example, if there are no QPAC sections), the MAINPACK value is initialized to the plan name.

Field Name: ADMAINPK

This is an exception field.

CORRNMBR

This field shows the correlation number. It is obtained by translating the correlation ID into correlation name and number. The default translation depends on the connection type of the thread:

- **Batch**: Blank
- **TSO or CAF**: Blank
- **CICS**: Pool thread
- **IMS**: Application PSBNAME
RRSAF
Characters 9 - 12 of the parameter correlation ID specified for SIGNON.

You can define your own correlation ID translation which overrides the default translation.

**Field Name:** ADCORNMB

**LUW INS**
The instance number. When concatenated with the fully qualified network name, it uniquely identifies a distributed thread.

**Field Name:** QWHSLUUV

**ENDUSER**
The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information.

**Field Name:** QWHEUOID

**PRIMAUTH**
The primary authorization ID from a connection or signon. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it differs from the original primary authorization ID (ORIGAUTH). Distributed authorization ID translation can also change the primary authorization ID.

**Field Name:** QWHCAID

**CONNTYPE**
The connecting system type code (in hexadecimal). This field can have a null value. Utilities, for example, do not have a connecting system type.

**Field Name:** QWHCATYP

**LUW SEQ**
The LUW sequence number, which identifies the last commit scope that the logical unit participated in. This number is incremented whenever a thread is committed or rolled back.

**Field Name:** QWHSLUCC

**TRANSACT**
The transaction or application name that is run.

**Field Name:** QWHEUUTX

**ORIGAUTH**
The original authorization ID. Possible values are:
- For TSO: the logon ID
- For batch: the user ID on the job statement
- For IMS (message-driven regions): the signon ID, LTERM, ASXBUSR, or PSB name
- For IMS (control regions): the user ID on the job statement, or the RACF started procedure entry if RACF is used
- For CICS: the user ID, TERM ID, TRAN ID, or as specified in the resource control table
Identification

- For MVS operator commands and DB2 system internal agents: SYSOPR
- For a distributed application server (AS):
  - If the application requester (AR) is a DB2 system, then this is the same value that was assigned at the AR.
  - If the application requester is not a DB2 system, then this is the user ID used to make the initial connection with the application server.

**Field Name:** QWHCOPID

**CONNECT**

The connection name. Possible values are:
- For batch: BATCH
- For TSO: TSO
- For QMF: DB2CALL
- For utilities: UTILITY
- For DB2 private protocol this is the DB2 subsystem ID
- For IMS: the IMS ID
- For CICS, this is the CICS ID
- For DRDA connections from non-DB2 requesters: SERVER

**Field Name:** QWHCCN

This is an *exception* field.

**WSNAME**

The end user's workstation name.

**Field Name:** QWHCEUWN

*Initial DB2 Common Server Traces:* This topic shows the trace blocks for the initial DB2 common server.

*Initial DB2 Common Server Correlation:*

This topic shows detailed information about “Accounting - Initial DB2 Common Server Correlation”.

This block shows the Accounting trace for the initial DB2 common server correlation.

**Accounting - Initial DB2 Common Server Correlation**

The field labels shown in the following sample layout of “Accounting - Initial DB2 Common Server Correlation” are described in the following section.

| PRODUCT ID | COMMON SERV |
| CLIENT PLATFORM | AIX 64BIT |
| CLIENT APPLNAME | PRCHNG |
| CLIENT AUTHID | USRT001 |
| DDC5 ACC.SUFFIX | "BLANK" |

**PRODUCT ID**

The product identifier of the requester:

- **DB2** DB2 UDB for z/OS
- **SQL/DS** DB2 UDB for VSE and VM
PRODUCT VERSION
The version, release, and modification level of the product, which generated the accounting information. It has the following format: \text{vv rr m}, where:

- \text{vv} Version level
- \text{rr} Release level
- \text{m} Modification level

\text{N/P} is shown if the record was written at the application requester location.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

\text{Field Name: QMDAPRIDV}

CLIENT PLATFORM
The client platform, such as AIX. This is a 1 to 18 character field padded with blanks.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

\text{Field Name: QMDAPLAT}

CLIENT APPLNAME
The name of the client application. This is a 1 to 20 character field padded with blanks. An example is "PAYROLL".

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

\text{Field Name: QMDAAPPL}

CLIENT AUTHID
The client authorization ID of an application process. This is a 1 to 8 character field padded with blanks. An example is "SMITH".

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

\text{Field Name: QMDAAATID}

DDCS ACC.SUFFIX
Initial DB2 Common Server Correlation

The account suffix. The maximum length of this field is 200 bytes. This field is the user-supplied portion (suffix) of the accounting string. An example is "DEFAULT_DRDA". A value of zero in QMDASFLN Indicates there is no account suffix.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDASUFX

Initial DB2 Common Server or Universal JDBC Driver Correlation:

This topic shows detailed information about “Accounting - Initial DB2 Common Server or Universal JDBC Driver Correlation”.

This block shows the accounting trace for the initial DB2 common server or universal JDBC driver correlation.

Accounting - Initial DB2 Common Server or Universal JDBC Driver Correlation

The field labels shown in the following sample layout of “Accounting - Initial DB2 Common Server or Universal JDBC Driver Correlation” are described in the following section.

---- INITIAL_DB2_COMMON_SERVER_OR_UNIVERSAL_JDBC_DRIVER_CORRELATION -----------------------------------------------
PRODUCT ID : JDBC DRIVER
PRODUCT VERSION: V3 R66M0
CLIENT PLATFORM: IS-255-01234567890
CLIENT APPLNAME: IS-255-0123456789012
CLIENT AUTHID : IS-128--
DDCS ACC.SUFFIX: IS-255-01234567890123456789012#1

PRODUCT TYP

Shows the product identifier (ID) of the requester. It can have the following values:

DB2  For DB2 UDB for z/OS
SQL/DS  For DB2 UDB for VSE and VM
JDBC DRIVER  For Universal JDBC driver
COMMON SERV  For DB2 UDB for Linux, UNIX, Windows
DB2/400  For DB2 UDB for iSeries

Otherwise, it shows the first 3 characters of the product ID, or N/P if the record was written at the application requester location.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDAPRID

PRODUCT VERSION

The version, release, and modification level of the product, which generated the accounting information. It has the following format: vv rr m,

where:

vv  Version level
**Initial DB2 Common Server or Universal JDBC Driver Correlation**

*rr*  Release level

*m*  Modification level

N/P is shown if the record was written at the application requester location.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

**Field Name:** QMDAPRIDV

**CLIENT PLATFORM**

The client platform, such as AIX. This is a 1 to 18 character field padded with blanks.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

**Field Name:** QMDAPLAT

**CLIENT APPLNAME**

The name of the client application. This is a 1 to 20 character field padded with blanks. An example is "PAYROLL".

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

**Field Name:** QMDAAPPL

**CLIENT AUTHID**

The client authorization ID of an application process. This is a 1 to 8 character field padded with blanks. An example is "SMITH".

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

**Field Name:** QMDAAATID

**DDCS ACC.SUFFIX**

The account suffix. The maximum length of this field is 200 bytes. This field is the user-supplied portion (suffix) of the accounting string. An example is "DEFAULT_DRDA". A value of zero in QMDASFLN Indicates there is no account suffix.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

**Field Name:** QMDASUFX

*Initial DB2 Requester Correlation:*

This topic shows detailed information about “Accounting - Initial DB2 Requester Correlation”.

This block shows the accounting trace for the initial DB2 requester correlation.

**Accounting - Initial DB2 Requester Correlation**

The field labels shown in the following sample layout of “Accounting - Initial DB2 Requester Correlation” are described in the following section.
Initial DB2 Requester Correlation

PRODUCT ID

Shows the product identifier (ID) of the requester. It can have the following values:

- DB2 For DB2 UDB for z/OS
- SQL/DS For DB2 UDB for VSE and VM
- JDBC DRIVER For Universal JDBC driver
- COMMON SERV For DB2 UDB for Linux, UNIX, Windows
- DB2/400 For DB2 UDB for iSeries

Otherwise, it shows the first 3 characters of the product ID, or N/P if the record was written at the application requester location.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDAPRID

PRODUCT VERSION

The version, release, and modification level of the product, which generated the accounting information. It has the following format: \( \text{vv rr m} \), where:

- \( \text{vv} \) Version level
- \( \text{rr} \) Release level
- \( m \) Modification level

N/P is shown if the record was written at the application requester location.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDB2PRDV

LOCATION NAME

The location name for the DB2 subsystem that created the QMDAINFO values.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Field Name: QMDALOCN
NET ID

The NETID of the DB2 subsystem that created the QMDAINFO values.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDANETN

LU NAME

The SNA LU name of the DB2 subsystem that created the QMDAINFO values.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDALUNM

AUTHID

The DB2 authorization ID that the SQL application used before name translation and before driving the connection exit at the DB2 site where the SQL application is running.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDAAUTH

CONNTYPE

The type of subsystem connection at the DB2 system where the SQL application is running. Possible values and their descriptions are:

- BATCH
  TSO or call attach

- SASS  CICS

- MASS  IMS

- DIST  Distributed

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDACTYP

CORRNAME

The translated correlation name derived from the correlation ID. The translation depends on the connection ID.

Field Name: ADRQCRNM

CORRNMBR

The translated correlation number derived from the correlation ID. The translation depends on the connection ID.

Field Name: ADRQCRNB

Initial Other Requester Correlation:

This topic shows detailed information about “Accounting - Initial Other Requester Correlation”.

This block shows the accounting trace for the initial other requester correlation.
Initial Other Requester Correlation

Accounting - Initial Other Requester Correlation

The field labels shown in the following sample layout of “Accounting - Initial Other Requester Correlation” are described in the following section.

--- INITIAL OTHER REQUESTER CORRELATION

PRODUCT ID
The product identifier of the requester:

- **DB2** DB2 UDB for z/OS
- **SQL/DS** DB2 UDB for VSE and VM
- **COMMON SERV** DB2 UDB for Linux, UNIX, and Windows
- **DB2/400** DB2 UDB for iSeries
- **N/P** If the record was written at the application requester location

Otherwise, it shows the first 3 characters of the product ID.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

**Field Name:** QMDAPRIDP

PRODUCT VERSION
The version, release, and modification level of the product, which generated the accounting information. It has the following format: \( vv \ rr \ m \), where:

- **vv** Version level
- **rr** Release level
- **m** Modification level

N/P is shown if the record was written at the application requester location.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

**Field Name:** QMDAPRIDV

STRING
The accounting string:

- For local DB2 threads, the format of the accounting string is shown in QMDAINFO.
- For database access threads, the accounting string contains the accounting string sent by the requester.
- The QMDAPRID value identifies which product generated the accounting string.
  - If the requester is DB2, the accounting string is defined in QMDAINFO.
  - If QMDAPTYP is DSN, QMDAINFO defines the format.
  - If QMDAPTYP is SQL or JCC, QMDASQLI defines the format.
Otherwise, the format is undefined.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

**Field Name:** QMDAASTR

**Locking:**

This topic shows detailed information about “Accounting - Locking”.

This block provides locking information. Locking ensures the integrity of data.

For formatting reasons, OMEGAMON XE for DB2 PE shows different labels for report and trace. The following example shows both layouts, the report on the left, and the trace layout on the right.

**Accounting - Locking**

The field labels shown in the following sample layout of “Accounting - Locking” are described in the following section.

<table>
<thead>
<tr>
<th>Report</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCKING</td>
<td>LOCKING</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>TOTAL</td>
</tr>
<tr>
<td>TOTAL</td>
<td>LOCKING</td>
</tr>
<tr>
<td>TOTAL</td>
<td>TOTAL</td>
</tr>
<tr>
<td>TIMEOUTS</td>
<td>LOCKOUTS</td>
</tr>
<tr>
<td>DEADLOCKS</td>
<td>DEADLOCKS</td>
</tr>
<tr>
<td>ESCAL.(SHARED)</td>
<td>ESCAL.(SHAR)</td>
</tr>
<tr>
<td>ESCAL.(EXCL)</td>
<td>ESCAL.(EXCL)</td>
</tr>
<tr>
<td>MAX PG/ROW LOCKS HELD</td>
<td>MAX PG/ROW LCK HELD</td>
</tr>
<tr>
<td>LOCK REQUEST</td>
<td>LOCK REQUEST</td>
</tr>
<tr>
<td>UNLOCK REQUEST</td>
<td>UNLOCK REQUEST</td>
</tr>
<tr>
<td>QUERY REQUEST</td>
<td>QUERY REQUEST</td>
</tr>
<tr>
<td>CHANGE REQUEST</td>
<td>CHANGE REQUEST</td>
</tr>
<tr>
<td>OTHER REQUEST</td>
<td>OTHER REQUEST</td>
</tr>
<tr>
<td>TOTAL SUSPENSIONS</td>
<td>TOTAL SUSPENSIONS</td>
</tr>
<tr>
<td>LOCK SUSPENSIONS</td>
<td>LOCK SUSPENS</td>
</tr>
<tr>
<td>IRLM LATCH SUSPENS.</td>
<td>IRLM LATCH SUSPENS</td>
</tr>
<tr>
<td>OTHER SUSPENS.</td>
<td>OTHER SUSPENS</td>
</tr>
</tbody>
</table>

**TIMEOUTS**

The number of times a unit of work was suspended for a time exceeding the timeout value. This number should be low, ideally 0.

**Field Name:** QTXATIM

**DEADLOCKS**

The number of times deadlocks were detected. This number should be low, ideally 0.

**Background and Tuning Information**

Deadlocks occur when two or more application processes each hold locks on resources that the others need, without which they cannot proceed. Ensure that all applications accessing the same tables access them in the same order.

To improve concurrency:
- Use row level locking instead of page level locking to minimize deadlocks.
- For small tables use page level locking with MAXROWS 1.
To minimize deadlocks:

- Delay updates to just before commit.
- Use SELECT with the FOR UPDATE clause to use U lock.
- Adjust the deadlock detection cycle parameter DEADLOK in the IRLM procedure.

This field is incremented once for each deadlock encountered. There is no correlation between this field and the deadlock events reported in the Locking report set or the number of IFCID 172 records written. This field reports all deadlocks, regardless of how they were resolved. The locking report and record trace IFCID 172 show only those deadlocks that were resolved by DB2.

**Field Name:** QTXADEA

This is an *exception* field.

**ESCAL.(SHARED)/ESCAL.(SHAR)**

The number of times the maximum page locks per table space are exceeded, and the table space lock escalates from a page lock (IS) to a table space lock (S) for this thread. You can specify the number of locks allowed per table space with the LOCKS PER TABLE(SPACE) parameter on the DB2 install panel DSNTIPJ.

**Background and Tuning Information**

Escalations can cause unpredictable response times. Lock escalations should only happen when an application process updates or references (if repeatable read is used) more pages than normal.

**Field Name:** QTXALES

This is an *exception* field.

**ESCAL.(EXCLUS)/ESCAL.(EXCL)**

The number of times the maximum page locks per table space are exceeded and the table space lock escalates from a page lock (IX) to a table space lock (X).

**Background and Tuning Information**

Escalations can cause unpredictable response times. Lock escalations should only happen when an application process updates or references (if repeatable read is used) more pages than it normally does.

A useful rule of thumb is to compare the number of escalations (shared and exclusive) to the successful escalations (those that did not cause deadlocks and timeouts). If this value, or the number Lock escalations - shared and if the number of timeouts or deadlocks is also not 0, the timeout or deadlock is probably caused by the escalation.

If many escalations cause deadlocks and timeouts, the recommendation is to change the escalation threshold value. Use of ANY is extremely useful to prevent unnecessary and expensive page locks, for example locking all pages in a tablespace.

**Field Name:** QTXALEX

This is an *exception* field.
MAX PG/ROW LOCKS HELD/MAX PG/ROW LCK HELD
The maximum number of page or row locks concurrently held against all table spaces by a single application during its execution. This count is a high-water mark. It cannot exceed the LOCKS PER USER parameter on panel DSNTIPJ.

Field Name: QTXANPL
This is an exception field.

LOCK REQUEST
The number of requests to lock a resource.

Field Name: QTXALOCK
This is an exception field.

UNLOCK REQUEST
The number of requests to unlock a resource.
This value can be less than the number of lock requests because DB2 can release several locks with a single unlock request.

Field Name: QTXAUNLK

QUERY REQUEST
The number of query requests.

Field Name: QTXAQR

CHANGE REQUEST
The number of change requests.

Field Name: QTXACHG

OTHER REQUEST
The number of requests to IRLM to perform a function other than LOCK, UNLOCK, QUERY, or CHANGE.

Field Name: QTXAIRLM

TOTAL SUSPENSIONS
The number of all types of lock suspensions.

Field Name: ALRSUSP

LOCK SUSPENSIONS/LOCK SUSPENS
The number of times a lock could not be obtained and the unit of work was suspended.

Background and Tuning Information
This number should be low, ideally 0.
The number of lock suspensions is a function of the lock requests. Lock suspensions (or conflicts) can happen on either LOCK REQUEST or CHANGE REQUEST.

Suspensions are highly dependent on the application and table space locking protocols.

Field Name: QTXASLOC
This is an exception field.

**IRLM LATCH SUSPENS.**

The number of latch suspensions.

**Field Name:** QTXASLAT

This is an exception field.

**OTHER SUSPENS.**

The number of suspensions caused by something other than lock or latch.

**Field Name:** QTXASOTH

This is an exception field.

*Logging Activity:*

This topic shows detailed information about “Accounting - Logging Activity”.

This block provides information about the logging activity.

The following example shows both layouts, the report on the left, and the trace layout on the right.

**Accounting - Logging Activity**

The field labels shown in the following sample layout of “Accounting - Logging Activity” are described in the following section.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOGGING</td>
<td>LOGGING</td>
</tr>
<tr>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>TOTAL</td>
</tr>
<tr>
<td>TOTAL</td>
<td>TOTAL</td>
</tr>
<tr>
<td>LOG RECORDS WRITTEN</td>
<td>2.00</td>
</tr>
<tr>
<td>TOT BYTES WRITTEN</td>
<td>6000.00</td>
</tr>
<tr>
<td>LOG RECORD SIZE</td>
<td>3000.00</td>
</tr>
</tbody>
</table>

**LOG RECORDS WRITTEN (LOG RECS WRITTEN)**

The number of log records written.

**Field Name:** QWACLRRN

**TOT BYTES WRITTEN (TOT BYTES WRITTEN)**

The total number of log record bytes written.

**Field Name:** QWACLRAB

**LOG RECORD SIZE**

The average number of bytes written per log record.

**Field Name:** ALRAVGB

*Measured/Elig Times:*

This topic shows detailed information about “Accounting - Measured/Elig Times”.

**Accounting - Measured/Elig Times**

The field labels shown in the following sample layout of “Accounting - Measured/Elig Times” are described in the following section.
### Measured/Elig Times

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value 1</th>
<th>Value 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elapsed Time</td>
<td>18.459616</td>
<td>18.025282</td>
</tr>
<tr>
<td>Eligible for Accel</td>
<td>N/A</td>
<td>0.000000</td>
</tr>
<tr>
<td>CP CPU Time</td>
<td>1:31.19251</td>
<td>1:30.81587</td>
</tr>
<tr>
<td>Eligible for SECP</td>
<td>1:09.97827</td>
<td>N/A</td>
</tr>
<tr>
<td>Eligible for Accel</td>
<td>N/A</td>
<td>0.000000</td>
</tr>
<tr>
<td>SE CPU Time</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>Eligible for Accel</td>
<td>N/A</td>
<td>0.000000</td>
</tr>
</tbody>
</table>

### APPL (CL1) - Elapsed Time

The class 1 elapsed time of the allied agent.

**Special Considerations:**
- If the begin time equals zero, or if the end time minus begin time equals zero or is negative, N/C is shown.
- Threads that can be reused, such as CICS protected threads or IMS/VS wait-for-input message regions, can include time during which the thread was inactive and waiting for work.
- Elapsed time to process distributed requests is included for allied-distributed threads.
- This time includes the time for processing SQL statements issued by stored procedures, user-defined functions, or triggers.
- In query CP, sysplex query, or utility parallelism, this is the time shown in the originating record, which overlaps the elapsed times shown in the parallel records.

**Field Name:** ADRECETT

This is an exception field.

### APPL (CL1) - CP CPU Time

The class 1 CPU time in an application. It indicates:
- The class 1 CPU time of the allied agent, which may include the accumulated class 1 TCB time for processing stored procedures, user-defined functions, and triggers.
- The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks generated by utilities.
- In sysplex query parallelism, the individual CPU times are normalized by the conversion factor of the parallel tasks that is related to the originating task.
  In sysplex query parallelism, only CPU times of parallel tasks, running on the same member of the SYSPLEX group as the originating task, are included.

This CPU time does not include time that is consumed on an IBM specialty engine.

**Field Name:** ADCPUT

This is an exception field.

### APPL (CL1) - CP CPU Time - Eligible for SECP

The accumulated CPU time that is consumed on a standard CP for work eligible on an IBM specialty engine.
For records for the parent tasks in parallel queries, this value reflects
zIIP-eligible time for the parent and the child tasks. Child task records
have a value of 0.

Field Name: AWACZEL

APPL (CL1) - SE CPU TIME

The sum of several accumulated CPU times consumed while running on
an IBM specialty engine in all environments. These times are consumed when:

- Running stored procedure requests and triggers on the main application
  execution unit.
- Satisfying stored procedure requests processed in a DB2 stored
  procedure or WLM address space. SQL procedure times are included in
  this time if the SQL procedure was called on a nested task and was not
  invoked by the main application execution unit.
- Satisfying UDF requests processed in a DB2 stored procedure or WLM
  address space.
- Running triggers on a nested task.
- Running parallel tasks in an application which contains the accumulated
  CPU time used to satisfy UDF requests.

Note: All CPU times of an IBM specialty engine (SE) that are reported in
DB2 trace records are already normalized by DB2 to the speed of the
general purpose processor.

Field Name: AWACC1Z

DB2 (CL2) - ELAPSED TIME

The class 2 elapsed time of the allied agent accumulated in DB2.

Field Name: ADDBB2ETT

This is an exception field.

DB2 (CL2) - ELAPSED TIME - ELIGIBLE FOR ACCEL

The accumulated elapsed time spent processing SQL in DB2 that may be
eligible for execution on an accelerator.

Field Name: AWACEEL2

DB2 (CL2) - CP CPU TIME

The class 2 CPU time (in DB2). It indicates:

- The class 2 CPU time for the allied agent. This includes the accumulated
  class 2 TCB time for processing any stored procedures, user-defined
  functions, and triggers.
- The accumulated CPU time for processing parallel tasks. This is valid for
  query CP parallelism, sysplex query parallelism, and parallel tasks
  generated by utilities.
- For batch reporting, in sysplex query parallelism, the individual CPU
times are normalized by the conversion factor of the parallel tasks,
related to the originating task.

For online monitoring, in sysplex query parallelism, only CPU times of
parallel tasks, running on the same member of the sysplex group as the
originating task, are included.
This CPU time does not include time that is consumed on an IBM specialty engine.

**Field Name:** ADBBCPUT

This is an *exception* field.

### DB2 (CL2) - CP CPU TIME - ELIGIBLE FOR ACCEL

The accumulated CPU time spent processing SQL in DB2 that may be eligible for execution on an accelerator.

**Field Name:** AWACECP2

### DB2 (CL2) - SE CPU TIME

The accumulated and consumed class 2 time on an IBM specialty engine (SE) that consists of times for non-nested, stored procedures, user-defined functions, triggers, and parallel tasks.

**Note:** All CPU times of an IBM specialty engine that are reported in DB2 trace records are already normalized by DB2 to the speed of the general purpose processor.

**Field Name:** AWACC2Z

### DB2 (CL2) - SE CPU TIME - ELIGIBLE FOR ACCEL

The accumulated CPU time consumed on an IBM specialty engine while processing SQL in DB2 that may be eligible for execution on an accelerator.

**Field Name:** AWACESE2

*Miscellaneous LOB data report and trace:*

The miscellaneous LOB data report shows general information about large objects.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>MISCELLANEOUS</td>
<td>TOTAL</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------</td>
</tr>
<tr>
<td>MAX STO LOB VAL (KB)</td>
<td>0.00</td>
</tr>
<tr>
<td>MAX STO XML VAL (KB)</td>
<td>0.00</td>
</tr>
<tr>
<td>ARRAY EXPANSIONS</td>
<td>0.00</td>
</tr>
<tr>
<td>SPARSE IX DISABLED</td>
<td>0.00</td>
</tr>
<tr>
<td>SPARSE IX BUILT WF</td>
<td>0.00</td>
</tr>
<tr>
<td>NO DM CALL RIDL/LPF</td>
<td>0.00</td>
</tr>
<tr>
<td>FETCH 1 BLOCK ONLY</td>
<td>0.00</td>
</tr>
</tbody>
</table>

*Figure 292. Miscellaneous LOB data report and trace*

**MAX STO LOB VAL (KB)**

Maximum storage used for LOB values.

**Field Name:** QXSTLOBV

**MAX STO XML VAL (KB)**

Maximum storage used for XML values.

**Field Name:** QXSTXMLV

**ARRAY EXPANSIONS**
The number of times a variable array has been expanded beyond 32 KB (DB2 field: QXSTARTARRAY_EXPANSIONS).

Field Name: AXSTAEXP

SPARSE IX DISABLED

The number of times that sparse index was disabled because of insufficient storage.

Field Name: QXSISTOR

SPARSE IX BUILT WF

The number of times that sparse-index built a physical work file for probing.

Field Name: QXSIIWF

NO DM CALL RIDL/LPF

The number of times that RDS did not call data manager for RID list retrieval for multiple index access or list prefetch because runtime adaptive index processing was able to determine the outcome.

Field Name: QXRSDMAD

FETCH 1 BLOCK ONLY

The number of times that RDS fetched one block and made no subsequent requests for additional blocks.

Field Name: QXR1BOAD

MVS Accounting:

This topic shows detailed information about “Accounting - MVS Accounting”.

This block provides information about an MVS accounting trace.

Accounting - MVS Accounting

The field labels shown in the following sample layout of “Accounting - MVS Accounting” are described in the following section.

MVS ACCOUNTING DATA : LS-255-01234567890123456789012#2
ACCOUNTING TOKEN(CHAR) : N/A
ACCOUNTING TOKEN(HEX) : N/A

MVS ACCOUNTING DATA

The MVS accounting string associated with the MVS address space of the SQL application. It is filled if PROD_TYP=D; otherwise X’00’ is used.

This information comes from the ACCT= parameter on the job statement. If the ACCT= parameter is blank, the information on the EXEC statement is used. TSO logon Accounting information is used only if there is a value in the account field on the TSO Logon panel. Do not confuse this field with the Accounting correlation token.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDAACCT

ACCOUNTING TOKEN(CHAR)
The accounting token. For RRSAF, this is the RRSAF accounting token defined during signon. For DDF, this is the DDF correlation token. This value is displayed in character format.

**Field Name:** AWHCTOKC

**ACCOUNTING TOKEN(HEX)**

The accounting token. For RRSAF, this is the RRSAF accounting token defined during signon. For DDF, this is the DDF correlation token. This value is displayed in hexadecimal format.

**Field Name:** AWHCTOKH

### Package Buffer Pool Activity - Class 10:

This topic shows detailed information about “Accounting - Package Buffer Pool Activity - Class 10”.

This block shows buffer pool information at package level. It is repeated for each package present in the requested report. The block is headed by the package name.

The following example shows both layouts, the report on the left, and the trace layout on the right.

### Accounting - Package Buffer Pool Activity - Class 10

The field labels shown in the following sample layout of “Accounting - Package Buffer Pool Activity - Class 10” are described in the following section.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSQLDLV</td>
<td>AVERAGE</td>
</tr>
<tr>
<td>BPOOL HIT RATIO (%)</td>
<td>N/C</td>
</tr>
<tr>
<td>GETPAGES</td>
<td>0.00</td>
</tr>
<tr>
<td>BUFFER UPDATES</td>
<td>0.00</td>
</tr>
<tr>
<td>SYNCHRONOUS WRITE</td>
<td>0.00</td>
</tr>
<tr>
<td>SYNCHRONOUS READ</td>
<td>0.00</td>
</tr>
<tr>
<td>SEQ. PREFETCH REQS</td>
<td>0.00</td>
</tr>
<tr>
<td>LIST PREFETCH REQS</td>
<td>0.00</td>
</tr>
<tr>
<td>DYN. PREFETCH REQS</td>
<td>0.00</td>
</tr>
<tr>
<td>PAGES READ ASYNCHR.</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**BPOOL HIT RATIO (%)**

The percentage of Getpage operations that were satisfied by a page already in the buffer pool.

The value is calculated as the ratio of number of successful Getpage operations minus the number of pages read from DASD (both synchronously and using prefetch), to the number of successful Getpage operations, expressed as a percentage.

### Background and Tuning Information

The highest possible hit ratio is 100%, that is, when every page requested is always in the buffer pool. If the requested page is not in the buffer pool, the hit ratio is 0% or less. If the hit ratio is negative, this means that prefetch brought pages into the buffer pool that are not subsequently referenced, either because the query stops before it reaches the end of the table space, or because the prefetched pages are stolen by DB2 for reuse.
before the query can access them. A low buffer pool hit ratio is not necessarily bad. The hit ratio is a relative value, based on the type of application. For example, an application that browses large data might have a buffer pool hit ratio of 0. Watch for those cases where the hit ratio drops significantly for the same application. Here are some suggestions to increase the buffer hit ratio:

- Run the REORG utility for indexes or table spaces associated with the virtual buffer pool.
- Reserve more pages for random I/O by setting the SEQUENTIAL STEAL THRESHOLD (VTSEQT) to a lower value.
- Increase the buffer pool as long as the cost of paging does not outweigh the benefit of I/O avoidance.
- Establish more separate buffer pools, perhaps to isolate different applications.
- Place the objects that are only accessed sequentially in a separate buffer pool.

The hit ratio measurement becomes less meaningful if the buffer pool is used by additional processes, such as utilities or work files.

Field Name: ABUFFRAP

GETPAGES

The number of Getpage requests. This counter is incremented by successful Getpage requests for queries processed in parallel for each thread and for all successful and unsuccessful Getpage requests for queries that are not processed in parallel.

Background and Tuning Information

Reducing the number of Getpages can improve DB2 performance by reducing the number of synchronous page reads. With fewer Getpages, the requested page is more likely to be returned from the buffer pool. CPU usage is also reduced.

Check the ratio of Getpages to SQL DML statements, as a rule of thumb, try and keep this ratio below six for a typical online transaction SQL.

You might need to modify the database and query design, for example:

- Add indexes to tables to reduce the number of pages scanned.
- Reassess the number of tables used and denormalize them, if necessary.

As an example, a large table with many columns can result in several pages being fetched to satisfy a simple query requesting just a few columns. Splitting such a table into several tables with fewer columns, tailored to queries, will result in fewer pages returned for each query.

- Use correlated rather than non-correlated queries to force the use of an index.

Field Name: QBACGETP

BUFFER UPDATES

The number of times a buffer update occurs. This is incremented every time a page is updated and is ready to be written to DASD. If the same page is updated twice, for example, the number is incremented by 2.

This number is kept for all types of pages including data pages and work-file pages.
Background and Tuning Information

A nonzero value indicates any of the following activities:

- SQL INSERT, UPDATE, or DELETE
- Merge scan join
- Internal sort activity on the work files

Check the access path to determine whether sort activity can be minimized or avoided.

Field Name: QBACSWSP

SYNCHRONOUS WRITE

The number of immediate (synchronous) write I/O operations.

Background and Tuning Information

Although an immediate write is rare, a small nonzero value is acceptable. A large value indicates that the system needs tuning.

Field Name: QBACIMWP

SYNCHRONOUS READ

The number of synchronous read I/O operations. DB2 increments this counter for each media manager synchronous physical read. Asynchronous I/O requests are not counted.

Field Name: QBACRIOP

SEQ. PREFETCH REQS

The number of SEQUENTIAL PREFETCH requests. This is incremented for each PREFETCH request. Each request can result in an I/O read. If it does, up to 64 pages can be read for SQL and up to 128 pages for utilities. For SQL, depending on the buffer pool size, a request does not result in an I/O if all the requested pages are already in the buffer pool.

DB2 can use sequential prefetch if the data is accessed in sequential order even though sequential prefetch was not requested at bind time. This is known as sequential detection and is not included in the sequential prefetch count. Sequential detection is included in dynamic prefetch requests field.

Background and Tuning Information

Table space scans and nonmatching index scans generally use sequential prefetch.

Field Name: QBACSEQP

LIST PREFETCH REQS

The number of LIST PREFETCH requests.

Special Considerations:
1. List prefetch allows DB2 to access data pages efficiently even if the needed data pages are not contiguous. It can be used with single index access and is always used with multiple index access.
2. List prefetch is always used to access data from the inner table during a hybrid join.
3. Data pages are read in quantities equal to the sequential prefetch quantity, which depends on the buffer pool size and is usually 64 pages.

4. During bind time DB2 does not use list prefetch if the estimated number of RIDs to be processed would take more than 50% of the RID pool. During execution time, list prefetch processing terminates if DB2 detects that more than 25% of the rows in the table need to be accessed. If list prefetch is terminated, it is indicated in IFCID 125.

Field Name: QBACLPFP

**DYN. PREFETCH REQS**

The number of (dynamic) PREFETCH requests. This is triggered by sequential detection. This includes prefetches for segmented table spaces.

**Background and Tuning Information**

Dynamic prefetch is typically used for a SELECT or UPDATE that is run repeatedly, accessing the index for each access.

If sequential prefetch, list prefetch, and dynamic prefetch reads have large values, check whether the access path can be improved.

Field Name: QBACDPFP

**PAGES READ ASYNCHR.**

The number of asynchronous pages read by prefetch that the agent triggered.

**Background and Tuning Information**

This is used to determine the buffer pool hit ratio: (Getpage requests - Synchronous reads - Asynchronous pages read) / Getpage requests.

Field Name: QBACSIOP

**Package Global Contention L-Locks - Class 8:**

This topic shows detailed information about “Accounting - Package Global Contention L-Locks - Class 8”.

This block provides global contention information for a logical lock (L-lock) at package level. It shows conflicts on locking requests between different DB2 members of a data sharing group when those members are trying to serialize shared resources.

**Note:** The current package name is shown in the header line of the block instead of this block title.

**Accounting - Package Global Contention L-Locks - Class 8**

The field labels shown in the following sample layout of “Accounting - Package Global Contention L-Locks - Class 8” are described in the following section.
The accumulated wait times due to global contention for all L-Locks.

**Field Name:** APLKSUST

**GLOBAL CONTENTION L-LOCKS - AV.EVENT/EVENTS**
The accumulated wait trace events processed for waits for global contention of all L-Locks.

**Field Name:** APLKSUSC

**PARENT (DB,TS,TAB,PART) - AVERAGE TIME/ELAPSED TIME**
The accumulated wait time due to global contention for parent L-Locks. Parent L-Locks are any of the following L-Lock types: database, tablespace, table, or partition.

**Field Name:** QPACAWTJ

**PARENT (DB,TS,TAB,PART) - AV.EVENT/EVENTS**
The number of wait trace events processed for waits for global contention for parent L-Locks.

**Field Name:** APLPSUSC

**CHILD (PAGE,ROW) - AVERAGE TIME/ELAPSED TIME**
The accumulated wait time due to global contention for child L-Locks. Child L-locks are any of the following L-Lock types: page or row.

**Field Name:** QPACAWTK

**CHILD (PAGE,ROW) - AV.EVENT/EVENTS**
The number of wait trace events processed for waits for global contention for child L-Locks.

**Field Name:** APLCSUSC

**OTHER - AVERAGE TIME/ELAPSED TIME**
The accumulated wait time due to global contention for other L-Locks.

**Field Name:** QPACAWTM

**OTHER - AV.EVENT/EVENTS**
The number of wait trace events processed for waits for global contention for other L-Locks.

**Field Name:** APLOSUSC

---

*Package Global Contention P-Locks - Class 8:*

This topic shows detailed information about “Accounting - Package Global Contention P-Locks - Class 8”.

This block provides global contention information for a physical lock (P-lock) at package level. It shows conflicts on locking requests between different DB2 members of a data sharing group when those members are trying to serialize shared resources.

The following example shows both layouts, the report on the left, and the trace layout on the right.
Note: The current package name is shown in the header line of the block instead of this block title.

Accounting - Package Global Contention P-Locks - Class 8

The field labels shown in the following sample layout of “Accounting - Package Global Contention P-Locks - Class 8” are described in the following section.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>AYRSD020</td>
<td>AVERAGE TIME</td>
</tr>
<tr>
<td>GLOBAL CONTENTION P-LOCKS</td>
<td>0.000000</td>
</tr>
<tr>
<td>PAGESET/PARTITION</td>
<td>0.000000</td>
</tr>
<tr>
<td>PAGE</td>
<td>0.000000</td>
</tr>
<tr>
<td>OTHER</td>
<td>0.000000</td>
</tr>
</tbody>
</table>

GLOBAL CONTENTION P-LOCKS - AVERAGE TIME/ELAPSED TIME

The accumulated wait times due to global contention for all P-Locks.

Field Name: APPLSUST

GLOBAL CONTENTION P-LOCKS - AV.EVENT/EVENTS

The accumulated wait trace events processed for waits for global contention of all P-Locks.

Field Name: APPLSUSC

PAGESET/PARTITION - AVERAGE TIME/ELAPSED TIME

The accumulated wait time due to global contention for pageset/partition P-Locks.

Field Name: QPACAWTN

PAGESET/PARTITION - AV.EVENT/EVENTS

The number of wait trace events processed for waits for global contention for pageset/partition P-Locks.

Field Name: APPSSUSC

PAGE - AVERAGE TIME/ELAPSED TIME

The accumulated wait time due to global contention for page P-Locks.

Field Name: QPACAWTO

PAGE - AV.EVENT/EVENTS

The number of wait trace events processed for waits for global contention for page P-Locks.

Field Name: APPPSUSC

OTHER - AVERAGE TIME/ELAPSED TIME

The accumulated wait time due to global contention for other P-Locks.

Field Name: QPACAWTQ

OTHER - AV.EVENT/EVENTS

The number of wait trace events processed for waits for global contention for other P-Locks.

Field Name: APPOSUSC

Package Identification: This topic shows the report and trace blocks for package identification. They present information for the identification of packages. A
package is an object containing a set of SQL statements that have been statically bound and that is available for processing.

For more information on calculating package average data refer to “How Averages Are Calculated” on page 3019.

Package Identification - Report:

This topic shows detailed information about “Accounting - Package Identification - Report”.

Accounting - Package Identification - Report

The field labels shown in the following sample layout of “Accounting - Package Identification - Report” are described in the following section.

ACTNAME: STORED PROC.CREATETABLE

<table>
<thead>
<tr>
<th>TYPE</th>
<th>PACKAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION</td>
<td>DSND1A1B</td>
</tr>
<tr>
<td>COLLECTION ID</td>
<td>USRT001</td>
</tr>
<tr>
<td>PROGRAM NAME</td>
<td>NSQLDLV</td>
</tr>
</tbody>
</table>

| ACTIVITY TYPE | NATIVE SQL PROC |
| ACTIVITY NAME | NSQLDLV |
| SCHEMA NAME | USRT001 |

| SUCC AUTH CHECK | 0 |
| OCCURRENCES | 478960 |
| NBR OF ALLOCATIONS | 28986 |
| SQL STMT - AVERAGE | N/P |
| SQL STMT - TOTAL | N/P |
| NBR RLUP THREADS | 28985 |

PCKNAME

This label is replaced by the package name, or, if ORDER (ACTNAME) was in effect, the package activity name. An activity name is truncated if it is longer than 8 characters.

Field Name: PCKNAME

TYPE

An indicator of whether the block describes a package or a DBRM. Possible values are PACKAGE, DBRM, and BOTH. BOTH can be shown in reports if there are packages and DBRMs with the same program name.

Field Name: ADPCKTYP

LOCATION

The location name.

If this field is blank in trace or report, the package or DBRM was executed locally. If it is not blank, all times represent the time spent locally to execute the remote package for this APPL_DIR requester.

This field is invalid (N/P) if summary rollup data is present.

Field Name: QPACLOCN

This is an exception field.
COLLECTION ID

The package collection ID. This field does not apply to DBRMs. If the program name cannot be identified, this field is not present in report or trace.

This field is invalid if summary rollup data is present. It can have the following value in:
- Accounting trace and report: N/P
- The Accounting FILE and SAVE PROGRAM table: blank

Field Name: QPACCOLN
This is an exception field.

PROGRAM NAME

The program name (package ID or DBRM name).

In the case of rollup data (Accounting data of DDF/RRSAF threads and parallel tasks accumulated by DB2), the following value is shown "ROLSUM".

Field Name: QPACPKID
This is an exception field.

PROGRAM NAME

This field is identical to QPACPKID except of when ORDER (ACTNAME) was in effect. can belong to the same activity name. In a data block that reports totals it is set to ALL PROG.

Field Name: APACPKID

ACTIVITY TYPE

The type of activity. The following values indicate how the package was loaded:

ALL TYPES
In a data block that reports totals it is set to ALL TYPES.

STORED PROC
When running an external procedure

TRIGGER
When running a trigger

UDF When running a user-defined function

NATIVE SQL PROC
When running a native SQL procedure

NATIVE UDF
When running a native UDF procedure (a non-inline user-defined function)

NONNESTED
Indicates that none of the above values is true

MULTIPLE
Indicates that packages with the same key but with different activity types were running

N/P Invalidated in case of rollup summary
The nested activity values that are shown in column NEST_ACTIVITY_TYPE of the table DB2PMFACCT_PROGRAM are:

S  For Stored Procedure
T  For Trigger
U  For UDF
Q  For native SQL procedure
D  For Native UDF
N  For nonnested (other)

blank  For invalidated in case of rollup summary

This field is invalid if unique or summary rollup data is present.

Field Name: ADPATYP

ACTIVITY NAME

The name of the nested activity.

This field contains the name of the nested activity if the package is defined for a:

• Trigger
• Stored procedure
• User-defined function (UDF)
• Native SQL procedure
• Non-inline UDF

In a data block that reports totals it is set to ALL NAMES.

This field is invalid if summary rollup data is present.

It can have the following value in:

• Accounting Trace and Report: N/P
• The Accounting FILE and SAVE PROGRAM tables: blank

Field Name: ADPAANM

SCHEMA NAME

Schema name of the nested activity.

If the package is defined for a trigger, stored procedure, or user-defined function, then this field contains the name of the schema to which the nested activity belongs. It can have the following value in:

• Accounting Trace and Report: N/P
• The Accounting FILE and SAVE PROGRAM tables: blank

This field is invalid if summary rollup data is present.

Field Name: ADPASCH

SUCC AUTH CHECK

For Accounting reports, this field shows a value of 0. This field is valid for non-rollup data.

Field Name: ADPCKANR

OCCURRENCES

This value can be one of the following:
In general, the total number of accounting trace sections for a package or DBRM regardless of enabled or disabled DB2 trace classes 7 and 8 at the time of writing the trace record. In case of Distributed Data Facility (DDF) or Recoverable Resource Manager Services Attach Facility (RRSAF) threads, it is the number of accounting intervals rolled up in a record.

If REPORT ORDER (ACTNAME) is specified, the total number of package sections of a special activity type depends on the following:

- If IFCID 233 or 380 is available, stored procedures (SP) are counted based on the available IFCID. If both IFCIDs are available, IFCID 380 is the preferred one for SP reporting. Subprograms called by these SPs are not taken into account.
- If IFCID 233 or 381 is available, user-defined functions (UDF) are counted based on the available IFCID. If both IFCIDs are available, IFCID 381 is the preferred one for UDF reporting. Subprograms called by these UDFs are not taken into account.
- If neither IFCID 233, 380, nor 381 is collected, all packages of an activity type are counted. The sum also includes the number of subprograms.

Field Name: ADTOTPOC

NBR OF ALLOCATIONS

This value can be one of the following:

- In general, the number of times a package was invoked by a different package. For the first package run by an application, the initial call counts as a package switch. If this package called a nested package (such as a trigger, UDF, or stored procedure), a switch will not be counted upon return from such a package.

- If REPORT ORDER (ACTNAME) is specified, the number of times a package of a special activity type is invoked from a different package depends on the following:
  - If IFCID 233 or 380 is available, the invocations of stored procedures (SP) are counted based on the available IFCID. If both IFCIDs are available, IFCID 380 is the preferred one for SP reporting. Subprograms called by these SPs are not taken into account.
  - If IFCID 233 or 381 is available, the invocation of user-defined functions (UDF) are counted based on the available IFCID. If both IFCIDs are available, IFCID 381 is the preferred one for UDF reporting. Subprograms called by these UDFs are not taken into account.
  - If neither IFCID 233, 380, nor 381 is collected, all invocations of an activity type are counted. The sum also includes the number of subprograms.

Field Name: APACSWIT

SQL STMT - AVERAGE

The number of SQL statements issued in this package or DBRM.

This number may not be equal to the total number of SQL statements in the QXST data section because QXST does not count all SQL statements. For example, it does not count commit or rollback statements.

Note: This field is shown for the following field labels in Accounting trace:
Package Identification - Report

- SQL STMT - TOTAL
- SQL STMT - AVERAGE:

**Field Name:** QPACSQLC

This is an *exception* field.

**SQL STMT - TOTAL**

The number of SQL statements issued in this package or DBRM.

This number may not be equal to the total number of SQL statements in the QXST data section because QXST does not count all SQL statements. For example, it does not count commit or rollback statements.

**Note:** This field is shown for the following field labels in Accounting trace:
- SQL STMT - TOTAL
- SQL STMT - AVERAGE:

**Field Name:** QPACSQLC

This is an *exception* field.

**NBR RLUP THREADS**

This value can be one of the following:
- In general, the number of threads to roll data into this QPAC data section. Non-rollup QPACs have a value of 1 and rollup QPACs have a value of 1 or more. This number is used as a divisor for calculating averages for package class 7, 8, or 10 times and events.
- If REPORT ORDER (ACTNAME) is specified, the number of threads to roll data into this QPAC data section of a special activity type depends on the following:
  - If IFCID 233 or 380 is available, the number of threads to roll data into this QPAC data section for stored procedures (SP) is counted based on the available IFCID. If both IFCIDs are available, IFCID 380 is the preferred one for SP reporting. Subprograms called by these SPs are not taken into account.
  - If IFCID 233 or 381 is available, the number of threads to roll data into this QPAC data section for user-defined functions (UDF) is counted based on the available IFCID. If both IFCIDs are available, IFCID 381 is the preferred one for UDF reporting. Subprograms called by these UDFs are not taken into account.
  - If neither IFCID 233, 380, nor 381, is collected, the total number of threads to roll data into this QPAC data section is counted. The sum also includes the number of subprograms.

**Field Name:** QPACRLNU

**Package Identification - Trace:**

This topic shows detailed information about “Accounting - Package Identification - Trace”.

**Accounting - Package Identification - Trace**

The field labels shown in the following sample layout of “Accounting - Package Identification - Trace” are described in the following section.
Package Identification - Trace

<table>
<thead>
<tr>
<th>PCKNAME</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE</td>
<td>PACKAGE</td>
</tr>
<tr>
<td>LOCATION</td>
<td>DSND41B</td>
</tr>
<tr>
<td>COLLECTION ID</td>
<td>NULLID</td>
</tr>
<tr>
<td>PROGRAM NAME</td>
<td>SYSSN201</td>
</tr>
<tr>
<td>CONSISTENCY TOKEN</td>
<td>539534C564C3032</td>
</tr>
<tr>
<td>ACTIVITY TYPE</td>
<td>mniLast_act_type</td>
</tr>
<tr>
<td>ACTIVITY NAME</td>
<td>mniLast_act_name</td>
</tr>
<tr>
<td>SCHEMA NAME</td>
<td>mniLast_schema</td>
</tr>
<tr>
<td>SUCC AUTH CHECK</td>
<td>NO</td>
</tr>
<tr>
<td>NBR OF ALLOCATIONS</td>
<td>1</td>
</tr>
<tr>
<td>SQL STMT - AVERAGE</td>
<td>30.00</td>
</tr>
<tr>
<td>SQL STMT - TOTAL</td>
<td>30</td>
</tr>
<tr>
<td>NBR RLUP THREADS</td>
<td>nnnnnn</td>
</tr>
</tbody>
</table>

**PCKNAME**

This label is replaced by the package name, or, if ORDER (ACTNAME) was in effect, the package activity name. An activity name is truncated if it is longer than 8 characters.

**Field Name:** PCKNAME

**TYPE**

An indicator of whether the block describes a package or a DBRM. Possible values are PACKAGE, DBRM, and BOTH. BOTH can be shown in reports if there are packages and DBRMs with the same program name.

**Field Name:** ADPCKTYP

**LOCATION**

The location name.

If this field is blank in trace or report, the package or DBRM was executed locally. If it is not blank, all times represent the time spent locally to execute the remote package for this APPL_DIR requester.

This field is invalid (N/P) if summary rollup data is present.

**Field Name:** QPACLOCN

This is an *exception* field.

**COLLECTION ID**

The package collection ID. This field does not apply to DBRMs. If the program name cannot be identified, this field is not present in report or trace.

This field is invalid if summary rollup data is present. It can have the following value in:

- Accounting trace and report: N/P
- The Accounting FILE and SAVE PROGRAM table: blank

**Field Name:** QPACCOLN

This is an *exception* field.

**PROGRAM NAME**

The program name (package ID or DBRM name).

In the case of rollup data (Accounting data of DDF/RRSAF threads and parallel tasks accumulated by DB2), the following value is shown *ROLSUM*.
Field Name: QPACPKID
This is an exception field.

CONSISTENCY TOKEN
The program (package or DBRM) consistency token.
This field is invalid (0) if summary rollup data is present.

Field Name: QPACCONT

ACTIVITY TYPE
The type of activity. The following values indicate how the package was loaded:

ALL TYPES
In a data block that reports totals it is set to ALL TYPES.

STORED PROC
When running an external procedure

TRIGGER
When running a trigger

UDF
When running a user-defined function

NATIVE SQL PROC
When running a native SQL procedure

NATIVE UDF
When running a native UDF procedure (a non-inline user-defined function)

NONNESTED
Indicates that none of the above values is true

MULTIPLE
Indicates that packages with the same key but with different activity types were running

N/P
Invalidated in case of rollup summary

The nested activity values that are shown in column NEST_ACTIVITY_TYPE of the table DB2PMFACCT_PROGRAM are:

S For Stored Procedure
T For Trigger
U For UDF
Q For native SQL procedure
D For Native UDF
N For nonnested (other)
blank For invalidated in case of rollup summary

This field is invalid if unique or summary rollup data is present.

Field Name: ADPATYP

ACTIVITY NAME
The name of the nested activity.
This field contains the name of the nested activity if the package is defined for a:

- Trigger
- Stored procedure
- User-defined function (UDF)
- Native SQL procedure
- Non-inline UDF

In a data block that reports totals it is set to ALL NAMES.

This field is invalid if summary rollup data is present.

It can have the following value in:

- Accounting Trace and Report: N/P
- The Accounting FILE and SAVE PROGRAM tables: blank

Field Name: ADPAANM

SCHEMA NAME

Schema name of the nested activity.

If the package is defined for a trigger, stored procedure, or user-defined function, then this field contains the name of the schema to which the nested activity belongs. It can have the following value in:

- Accounting Trace and Report: N/P
- The Accounting FILE and SAVE PROGRAM tables: blank

This field is invalid if summary rollup data is present.

Field Name: ADPASCH

SUCC AUTH CHECK

For Accounting traces, this field indicates whether authorization information was found for this package without accessing the DB2 catalog. This field is valid for non-rollup data. Possible values are:

- YES
- NO
- N/A if DB2 or later is used
- N/P, this field is invalid for Accounting trace
- blank, this field is invalid in the Accounting FILE PROGRAM table

Note: This field is invalid if unique or summary rollup data is present.

Field Name: ADPCKAUT

NBR OF ALLOCATIONS

This value can be one of the following:

- In general, the number of times a package was invoked by a different package. For the first package run by an application, the initial call counts as a package switch. If this package called a nested package (such as a trigger, UDF, or stored procedure), a switch will not be counted upon return from such a package.
- If REPORT ORDER (ACTNAME) is specified, the number of times a package of a special activity type is invoked from a different package depends on the following:
If IFCID 233 or 380 is available, the invocations of stored procedures (SP) are counted based on the available IFCID. If both IFCIDs are available, IFCID 380 is the preferred one for SP reporting. Subprograms called by these SPs are not taken into account.

If IFCID 233 or 381 is available, the invocation of user-defined functions (UDF) are counted based on the available IFCID. If both IFCIDs are available, IFCID 381 is the preferred one for UDF reporting. Subprograms called by these UDFs are not taken into account.

If neither IFCID 233, 380, nor 381 is collected, all invocations of an activity type are counted. The sum also includes the number of subprograms.

Field Name: APACSWIT

**SQL STMT - AVG**

The number of SQL statements issued in this package or DBRM. This number may not be equal to the total number of SQL statements in the QXST data section because QXST does not count all SQL statements. For example, it does not count commit or rollback statements.

Note: This field is shown for the following field labels in Accounting trace:

- SQL STMT - TOTAL
- SQL STMT - AVERAGE:

Field Name: QPACSQLC

This is an *exception* field.

**SQL STMT - TOTAL**

The number of SQL statements issued in this package or DBRM. This number may not be equal to the total number of SQL statements in the QXST data section because QXST does not count all SQL statements. For example, it does not count commit or rollback statements.

Note: This field is shown for the following field labels in Accounting trace:

- SQL STMT - TOTAL
- SQL STMT - AVERAGE:

Field Name: QPACSQLC

This is an *exception* field.

**NBR RLUP THREADS**

This value can be one of the following:

- In general, the number of threads to roll data into this QPAC data section. Non-rollup QPACs have a value of 1 and rollup QPACs have a value of 1 or more. This number is used as a divisor for calculating averages for package class 7, 8, or 10 times and events.
- If REPORT ORDER (ACTNAME) is specified, the number of threads to roll data into this QPAC data section of a special activity type depends on the following:
  - If IFCID 233 or 380 is available, the number of threads to roll data into this QPAC data section for stored procedures (SP) is counted
based on the available IFCID. If both IFCIDs are available, IFCID 380 is the preferred one for SP reporting. Subprograms called by these SPs are not taken into account.

- If IFCID 233 or 381 is available, the number of threads to roll data into this QPAC data section for user-defined functions (UDF) is counted based on the available IFCID. If both IFCIDs are available, IFCID 381 is the preferred one for UDF reporting. Subprograms called by these UDFs are not taken into account.

- If neither IFCID 233, 380, nor 381, is collected, the total number of threads to roll data into this QPAC data section is counted. The sum also includes the number of subprograms.

Field Name: QPACRLNU

Package Locking Activity - Class 10:

This topic shows detailed information about “Accounting - Package Locking Activity - Class 10”.

This block shows locking information at package level. It is repeated for each package present in the requested report. The block is headed by the package name.

The following example shows both layouts, the report on the left, and the trace layout on the right.

Accounting - Package Locking Activity - Class 10

The field labels shown in the following sample layout of “Accounting - Package Locking Activity - Class 10” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIMEOUTS</td>
<td>0.00</td>
<td>330301</td>
</tr>
<tr>
<td>DEADLOCKS</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>ESCAL.(SHARED)</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>ESCAL.(EXCLUS)</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>MAX PG/ROW LOCKS HELD</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>LOCK REQUEST</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>UNLOCK REQUEST</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>QUERY REQUEST</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>CHANGE REQUEST</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>OTHER REQUEST</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL SUSPENSIONS</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>LOCK SUSPENSIONS</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>IRLM LATCH SUSPENS.</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>OTHER SUSPENS.</td>
<td>0.00</td>
<td>0</td>
</tr>
</tbody>
</table>

TIMEOUTS

The number of times a unit of work was suspended for a time exceeding the timeout value. This number should be low, ideally 0.

Field Name: QTXATIM

DEADLOCKS

The number of times deadlocks were detected. This number should be low, ideally 0.

Background and Tuning Information
Deadlocks occur when two or more application processes each hold locks on resources that the others need, without which they cannot proceed. Ensure that all applications accessing the same tables access them in the same order.

To improve concurrency:
- Use row level locking instead of page level locking to minimize deadlocks.
- For small tables use page level locking with MAXROWS 1.

To minimize deadlocks:
- Delay updates to just before commit.
- Use SELECT with the FOR UPDATE clause to use U lock.
- Adjust the deadlock detection cycle parameter DEADLOK in the IRLM procedure.

This field is incremented once for each deadlock encountered. There is no correlation between this field and the deadlock events reported in the Locking report set or the number of IFCID 172 records written. This field reports all deadlocks, regardless of how they were resolved. The locking report and record trace IFCID 172 show only those deadlocks that were resolved by DB2.

**Field Name:** QTXADEA

This is an exception field.

**ESCAL.(SHARED)**

The number of times the maximum page locks per table space are exceeded, and the table space lock escalates from a page lock (IS) to a table space lock (S) for this thread. You can specify the number of locks allowed per table space with the LOCKS PER TABLE(SPACE) parameter on the DB2 install panel DSNTIPJ.

**Background and Tuning Information**

Escalations can cause unpredictable response times. Lock escalations should only happen when an application process updates or references (if repeatable read is used) more pages than normal.

**Field Name:** QTXALES

This is an exception field.

**ESCAL.(EXCLUS)**

The number of times the maximum page locks per table space are exceeded and the table space lock escalates from a page lock (IX) to a table space lock (X).

**Background and Tuning Information**

Escalations can cause unpredictable response times. Lock escalations should only happen when an application process updates or references (if repeatable read is used) more pages than it normally does.

A useful rule of thumb is to compare the number of escalations (shared and exclusive) to the successful escalations (those that did not cause deadlocks and timeouts). If this value, or the number Lock escalations - shared and if the number of timeouts or deadlocks is also not 0, the timeout or deadlock is probably caused by the escalation.
If many escalations cause deadlocks and timeouts, the recommendation is to change the escalation threshold value. Use of ANY is extremely useful to prevent unnecessary and expensive page locks, for example locking all pages in a tablespace.

Lock escalations, shared or exclusive, should not be expected in a transaction environment.

Field Name: QTXALEX
This is an exception field.

MAX PG/ROW LOCKS HELD
The maximum number of page or row locks concurrently held against all table spaces by a single application during its execution. This count is a high-water mark. It cannot exceed the LOCKS PER USER parameter on panel DSNTIPJ.

Field Name: QTXANPL
This is an exception field.

LOCK REQUEST
The number of requests to lock a resource.

Field Name: QTXALOCK
This is an exception field.

UNLOCK REQUEST
The number of requests to unlock a resource.

This value can be less than the number of lock requests because DB2 can release several locks with a single unlock request.

Field Name: QTXAUNLK

QUERY REQUEST
The number of query requests.

Field Name: QTXAQRY

CHANGE REQUEST
The number of change requests.

Field Name: QTXACHG

OTHER REQUEST
The number of requests to IRLM to perform a function other than LOCK, UNLOCK, QUERY, or CHANGE.

Field Name: QTXAIRLM

LOCK SUSPENSIONS
The number of times a lock could not be obtained and the unit of work was suspended.

Background and Tuning Information
This number should be low, ideally 0.
The number of lock suspensions is a function of the lock requests. Lock suspensions (or conflicts) can happen on either LOCK REQUEST or CHANGE REQUEST.

Suspensions are highly dependent on the application and table space locking protocols.

**Field Name:** QTXASLOC

This is an *exception* field.

**IRLM LOCK SUSPENS.**

The number of latch suspensions.

**Field Name:** QTXASLAT

This is an *exception* field.

**OTHER SUSPENS.**

The number of suspensions caused by something other than lock or latch.

**Field Name:** QTXASOTH

This is an *exception* field.

### Accounting - Package SQL Activity - Class 10

This topic shows detailed information about “Accounting - Package SQL Activity - Class 10.”

This block shows SQL information at package level. It is repeated for each package present in the requested report. The block is headed by the package name.

The following example shows both layouts, the report on the left, and the trace layout on the right.

#### Accounting - Package SQL Activity - Class 10

The field labels shown in the following sample layout of “Accounting - Package SQL Activity - Class 10” are described in the following section.

<table>
<thead>
<tr>
<th>Package</th>
<th>AVERAGE</th>
<th>TOTAL</th>
<th>Package</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELECT</td>
<td>0.00</td>
<td>0</td>
<td>SELECT</td>
<td>0</td>
</tr>
<tr>
<td>INSERT</td>
<td>0.00</td>
<td>0</td>
<td>INSERT</td>
<td>0</td>
</tr>
<tr>
<td>UPDATE</td>
<td>0.00</td>
<td>0</td>
<td>UPDATE</td>
<td>0</td>
</tr>
<tr>
<td>DELETE</td>
<td>0.00</td>
<td>0</td>
<td>DELETE</td>
<td>0</td>
</tr>
<tr>
<td>DESCRIBE</td>
<td>0.00</td>
<td>0</td>
<td>DESCRIBE</td>
<td>0</td>
</tr>
<tr>
<td>PREPARE</td>
<td>0.00</td>
<td>0</td>
<td>PREPARE</td>
<td>0</td>
</tr>
<tr>
<td>OPEN</td>
<td>0.00</td>
<td>0</td>
<td>OPEN</td>
<td>0</td>
</tr>
<tr>
<td>FETCH</td>
<td>0.00</td>
<td>0</td>
<td>FETCH</td>
<td>0</td>
</tr>
<tr>
<td>CLOSE</td>
<td>0.00</td>
<td>0</td>
<td>CLOSE</td>
<td>0</td>
</tr>
<tr>
<td>LOCK TABLE</td>
<td>0.00</td>
<td>0</td>
<td>LOCK TABLE</td>
<td>0</td>
</tr>
<tr>
<td>CALL</td>
<td>0.00</td>
<td>0</td>
<td>CALL</td>
<td>0</td>
</tr>
</tbody>
</table>

**SELECT**

The number of SQL SELECT statements executed.

**Field Name:** QPSELECT
Package SQL Activity - Class 10

This is an exception field.

**INSERT**

The number of INSERT statements executed.

Field Name: QPINSRT

This is an exception field.

**UPDATE**

The number of UPDATE statements executed.

Field Name: QPUPDTE

This is an exception field.

**DELETE**

The number of DELETE statements executed.

Field Name: QPDELET

This is an exception field.

**DESCRIBE**

The number of data capture describes.

Field Name: QPDESC

**PREPARE**

The number of full prepare requests.

Field Name: QPPREP

**OPEN**

The number of full open requests.

Field Name: QPOPEN

**FETCH**

The number of fetch requests.

Field Name: QPFETCH

**CLOSE**

The number of close requests.

Field Name: QPCLOSE

**LOCK TABLE**

The number of lock tables.

Field Name: QPLOCK

**CALL**

The number of SQL calls.

Field Name: QPCALL

Package Times - Class 8 - Suspensions:

This topic shows detailed information about “Accounting - Package Times - Class 8 - Suspensions”. 
This block provides suspension information for class 8.

The following example shows both layouts, the report on the left, and the trace layout on the right.

**Accounting - Package Times - Class 8 - Suspensions**

The field labels shown in the following sample layout of “Accounting - Package Times - Class 8 - Suspensions” are described in the following section.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PACKAGE</td>
<td>AVERAGE TIME</td>
</tr>
<tr>
<td>LOCK/LATCH</td>
<td>0.000000</td>
</tr>
<tr>
<td>IRLM LOCK+LATCH</td>
<td>0.000000</td>
</tr>
<tr>
<td>DB2 LATCH</td>
<td>0.000000</td>
</tr>
<tr>
<td>SYNCHRONOUS I/O</td>
<td>0.000000</td>
</tr>
<tr>
<td>OTHER READ I/O</td>
<td>0.000000</td>
</tr>
<tr>
<td>OTHER WRITE I/O</td>
<td>0.000000</td>
</tr>
<tr>
<td>SERV.TASK SWITCH</td>
<td>0.000000</td>
</tr>
<tr>
<td>ARCH.LOG(QUIESCE)</td>
<td>0.000000</td>
</tr>
<tr>
<td>ARCHIVE LOG READ</td>
<td>0.000000</td>
</tr>
<tr>
<td>DRAIN LOCK</td>
<td>0.000000</td>
</tr>
<tr>
<td>CLAIM RELEASE</td>
<td>0.000000</td>
</tr>
<tr>
<td>PAGE LATCH</td>
<td>0.000000</td>
</tr>
<tr>
<td>NOTIFY MESSAGES</td>
<td>0.000000</td>
</tr>
<tr>
<td>GLOBAL CONTENTION</td>
<td>0.000000</td>
</tr>
<tr>
<td>TCP/IP LOG XML</td>
<td>0.000000</td>
</tr>
<tr>
<td>ACCELERATOR</td>
<td>0.000000</td>
</tr>
<tr>
<td>PQ SYNCHRONIZATION</td>
<td>0.000000</td>
</tr>
<tr>
<td>FAST INSERT PIPE</td>
<td>0.000000</td>
</tr>
<tr>
<td>TOTAL CL8 SUSPENS.</td>
<td>0.000000</td>
</tr>
</tbody>
</table>

**PACKAGE**

This label is replaced by the package name, or, if ORDER (ACTNAME) was in effect, the package activity name. An activity name is truncated if it is longer than 8 characters.

**Field Name:** PACKAGE

**AVERAGE TIME - LOCK/LATCH**

The sum of the number of wait trace events processed for waits for lock and the number of wait trace events processed for page latch contention while executing this package.

**Note:** The internally defined field adjusts the original DB2 value. DB2 counts each event twice, one for the entry and one for the exit.

**Field Name:** AWTPLOLA

**AVERAGE TIME - IRLM LOCK+LATCH**

The accumulated lock elapsed wait time that occurred while executing this package.

**Background and Tuning Information**

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when performance data was gathered.

If the suspension time is high, investigate locking activity.

**Field Name:** QPACAWTL

This is an exception field.

**AVERAGE TIME - DB2 LATCH**

The accumulated latch elapsed wait time for latch suspensions that occurred while executing this package.
Package Times - Class 8 - Suspensions

Field Name: QPACAWLH

AVERAGE TIME - SYNCHRONOUS I/O

The accumulated elapsed wait time for I/O suspensions under this thread during the execution of the package or DBRM.

Background and Tuning Information

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when its performance data was gathered.

Field Name: QPACAWTI

This is an exception field.

AVERAGE TIME - OTHER READ I/O

The accumulated waiting time for a read I/O performed under a thread other than this one during the execution of the package or DBRM.

Background and Tuning Information

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when performance data was gathered.

This field includes waits caused by sequential prefetch, list prefetch, dynamic prefetch, and synchronous read I/O performed by other threads.

If the value in this field is high, the problem could be an I/O bound query using prefetch or an I/O contention. The application is accessing data from a busy data set, volume, or control unit and is continually being suspended. Consult the DBA and MVS systems programmer.

Field Name: QPACAWTR

This is an exception field.

AVERAGE TIME - OTHER WRITE I/O

The accumulated waiting time due to a write I/O performed for another thread during the execution of a package or DBRM.

Background and Tuning Information

If the value in this field is high, the problem could be I/O contention. The application is accessing data from a busy data set, volume, or control unit and is continually being suspended. Consult the DBA and MVS systems programmer to resolve possible data set placement problems.

Field Name: QPACAWTW

This is an exception field.

AVERAGE TIME - SERV.TASK SWITCH

The accumulated waiting time due to a synchronous execution unit switch to DB2 services from this thread during the execution of the package or DBRM.

Background and Tuning Information

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when its performance data was gathered.

This value includes the waits because of an OPEN/CLOSE data set, SYSLGRNG update, DATASPACE MANAGER services, DEFINE, EXTEND,
and DELETE data set, AUTONOMOUS PROCEDURE, and DDF Requester waiting for Server reply and VSAM Catalog update.

**Field Name:** QPACAWTE

This is an *exception* field.

**AVERAGE TIME - ARCH.L O G(QUIESCE)**

The accumulated waiting time caused by processing ARCHIVE LOG(QUIESCE) commands during the execution of the package or DBRM. This number represents the amount of time that an individual thread was suspended because of the command, not the time it took for the entire command to complete.

**Background and Tuning Information**

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when its performance data was gathered.

Avoid issuing the -ARCHIVE LOG QUIESCE command during peak periods.

**Field Name:** QPACALOG

**AVERAGE TIME - DRAIN LOCK**

The accumulated waiting time due to a drain lock.

**Field Name:** QPACAWDR

**AVERAGE TIME - CLAIM RELEASE**

The accumulated waiting time for a drain waiting for claims to be released during the execution of the package or DBRM.

**Background and Tuning Information**

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when its performance data was gathered.

**Field Name:** QPACAWCL

**AVERAGE TIME - PAGE LATCH**

The accumulated waiting time caused by a page latch contention.

**Field Name:** QPACAWTP

**AVERAGE TIME - NOTIFY MESSAGES**

The accumulated elapsed waiting time due to suspensions caused by sending notify messages to other members in the data sharing group. Messages are sent, for example, when database descriptors are changed due to DDL.

This value is only calculated if accounting class 8 is active and DB2 is a member of a DB2 data sharing group.

**Field Name:** QPACAWTG

**AVERAGE TIME - GLOBAL CONTENTION**

The accumulated waiting time caused by the suspension of IRLM lock requests due to global lock contentions in a data sharing environment that require intersystem communication to resolve.

**Field Name:** APGCSUST
Package Times - Class 8 - Suspensions

AVERAGE TIME - TCP/IP LOB XML

The accumulated wait time for TCP/IP LOB and XML materialization while running this package or DBRM.

Field Name: QPACALBW

AVERAGE TIME - ACCELERATOR

The accumulated wait time for requests to an accelerator while executing this package.

Field Name: QPACAACW

AVERAGE TIME - PQ SYNCHRONIZATION

The accumulated time waiting for parallel query processing to synchronize between parent and child tasks.

Field Name: APPQSST

AVERAGE TIME - FAST INSERT PIPE

The accumulated wait time for a pipe while this package was executed (DB2 field QPAC_PIPE_WAIT).

Field Name: APPISUST

AVERAGE TIME - TOTAL CL8 SUSPENS.

The waiting time for the package or DBRM due to class 8 suspensions.

Field Name: ADTSUSTP

This is an exception field.

AVG.EV - LOCK/LATCH

The sum of the number of wait trace events processed for waits for local contention for locks and the number of wait trace events processed for waits for latch contention while executing this package.

Note: The internally defined field adjusts the original DB2 value. DB2 counts each event twice, one for the entry and one for the exit.

Field Name: ADLLPSSC

This is an exception field.

AVG.EV - IRLM LOCK+LATCH

The number of wait trace events processed for waits for lock while executing this package.

Note: The internally defined field adjusts the original DB2 value. DB2 counts each event twice, one for the entry and one for the exit.

Field Name: ADLBPSSC

AVG.EV - DB2 LATCH

The number of wait trace events processed for page latch contention while executing this package.

Note: The internally defined field adjusts the original DB2 value. DB2 counts each event twice, one for the entry and one for the exit.

Field Name: ADLAPSSC
AVG.EV - SYNCHRONOUS I/O
The total number of synchronous I/O suspensions under this thread during the execution of the package or DBRM.

Field Name: ADIOPSSC

AVG.EV - OTHER READ I/O
The total number of suspensions due to a read I/O performed under a thread other than the one being reported.

Field Name: ADARPSSC

AVG.EV - OTHER WRITE I/O
The total number of suspensions due to a write I/O performed under a thread other than this one during the execution of a package or DBRM.

Field Name: ADAWPSSC

AVG.EV - SERV.TASK SWITCH
The total number of suspensions due to a synchronous execution unit switch to DB2 services during the execution of the package or DBRM.

Field Name: ADSTPSSC

AVG.EV - ARCH.LOG(QUIESCE)
The total number of suspensions caused by processing ARCHIVE LOG(QUIESCE) commands during the execution of the package or DBRM.

Field Name: ADALPSSC

AVG.EV - ARCHIVE LOG READ
The number of wait trace events processed for archive reads, active reads, and active log prefetch reads while running this package or DBRM.

Field Name: ADLRPSSC

AVG.EV - DRAIN LOCK
The total number of suspensions due to drain lock processing during the execution of the package or DBRM.

Field Name: ADDRPSSC

AVG.EV - CLAIM RELEASE
The total number of suspensions until the claims are released during the execution of the package or DBRM.

Field Name: ADCMPSSC

AVG.EV - PAGE LATCH
The total number of suspensions due to page latch contentions during the execution of the package or DBRM.

Field Name: ADPGPSSC

AVG.EV - NOTIFY MESSAGES
The number of suspensions due to messages being sent to other members in the data sharing group. This value is calculated only if accounting class 8 is active and DB2 is a member of a data sharing group.

Field Name: ADNOPSSC
**Package Times - Class 8 - Suspensions**

**AVG.EV - GLOBAL CONTENTION**

The total number of suspensions during global lock contention. This value is calculated only if accounting class 8 is active and DB2 is a member of a data sharing group.

*Field Name:* ADGCPS SC

**AVG.EV - TCP/IP LOB XML**

The number of wait trace events processed for waits for TCP/IP LOB and XML materialization while running this package or DBRM.

*Field Name:* ADLMPSC

**AVG.EV - ACCELERATOR**

The total number of suspensions due to a request to an accelerator during the execution of the package.

*Field Name:* ADAAPSC

**AVG.EV - PQ SYNCHRONIZATION**

The number of times the parallel query processing suspended because it was waiting for the synchronization of the parent/child.

*Field Name:* APPQSSC

**AVG.EV - FAST INSERT PIPE**

The number of wait trace events that were processed for waits for a pipe while this package was executed (DB2 field QPAC_PIPEWAIT_COUNT / 2).

*Field Name:* APPISUSC

**AVG.EV - TOTAL CL8 SUSPENS.**

The number of all types of class 8 suspensions.

*Field Name:* ADTSUSC

This is an *exception* field.

**TIME/EVENT - LOCK/LATCH**

The sum of the number of wait trace events processed for waits for local contention for locks and the number of wait trace events processed for waits for latch contention while executing this package.

*Note:* The internally defined field adjusts the original DB2 value. DB2 counts each event twice, one for the entry and one for the exit.

*Field Name:* AALLPTMC

**TIME/EVENT - IRLM LOCK+LATCH**

The number of wait trace events processed for waits for lock while executing this package.

*Note:* The internally defined field adjusts the original DB2 value. DB2 counts each event twice, one for the entry and one for the exit.

*Field Name:* AALOPTMC

**TIME/EVENT - DB2 LATCH**
The number of wait trace events processed for page latch contention while executing this package.

**Note:** The internally defined field adjusts the original DB2 value. DB2 counts each event twice, one for the entry and one for the exit.

**Field Name:** AALAPTMC

**TIME/EVENT - SYNCHRONOUS I/O**

The synchronous I/O suspension time per event.

**Field Name:** AAIOPTMC

**TIME/EVENT - OTHER READ I/O**

Any other read time per event.

**Field Name:** AAARPTMC

**TIME/EVENT - OTHER WRITE I/O**

Any other write time per event.

**Field Name:** AAAWPTMC

**TIME/EVENT - SERV.TASK SWITCH**

The synchronous execution service time per event.

**Field Name:** AASTPTMC

**TIME/EVENT - ARCH. LOG(QUIESCE)**

The archive log time per event.

**Field Name:** AAALPTMC

**TIME/EVENT - ARCHIVE LOG READ**

The archive read suspension time per event.

**Field Name:** AALRPTMC

**TIME/EVENT - DRAIN LOCK**

The drain lock time per event.

**Field Name:** AADRPTMC

**TIME/EVENT - CLAIM RELEASE**

The claim release time per event.

**Field Name:** AACMPTMC

**TIME/EVENT - PAGE LATCH**

The page latch time per event.

**Field Name:** AAPGPTMC

**TIME/EVENT - NOTIFY MESSAGES**

The notify messages time per event.

**Field Name:** AANOPTMC

**TIME/EVENT - GLOBAL CONTENTION**

The global contention time per event.

**Field Name:** AAGCPTMC
Package Times - Class 8 - Suspensions

TIME/EVENT - TCP/IP LOB XML

The accumulated wait time for TCP/IP LOB and XML materialization while running this package or DBRM.

Field Name: QPACALBW

TIME/EVENT - ACCELERATOR

The accelerator waiting time per event during the execution of the package

Field Name: AAAAPTMC

TIME/EVENT - PQ SYNCHRONIZATION

The average wait time for a package for parallel query processing to synchronize between parent and child tasks.

Field Name: APPQSTMC

TIME/EVENT - FAST INSERT PIPE

The average wait time for a pipe.

Field Name: APPIITMCN

TIME/EVENT - TOTAL CL8 SUSPENS.

The class 8 time per event.

Field Name: AATOTSTP

This topic shows detailed information about “Accounting - Package Times - Class 7”.

This block shows the class 7 application times at package level.

For formatting reasons, OMEGAMON XE for DB2 PE shows different labels for report and trace. The following example shows both layouts, the report on the left, and the trace layout on the right.

**Accounting - Package Times - Class 7**

The field labels shown in the following sample layout of “Accounting - Package Times - Class 7” are described in the following section.

Report:                            Trace:

<table>
<thead>
<tr>
<th>PACKAGE</th>
<th>TIMES</th>
<th>DSNTEP2</th>
<th>TIMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELAP-CL7 TIME-AVG</td>
<td>0.019590</td>
<td></td>
<td>ELAPSED TIME - CL7</td>
</tr>
<tr>
<td>CP CPU TIME</td>
<td>0.002826</td>
<td>CP CPU TIME</td>
<td>0.015613</td>
</tr>
<tr>
<td>AGENT</td>
<td>0.002826</td>
<td>AGENT</td>
<td>0.015613</td>
</tr>
<tr>
<td>PAR.TASKS</td>
<td>0.000000</td>
<td>PAR.TASKS</td>
<td>0.000000</td>
</tr>
<tr>
<td>SE CPU TIME</td>
<td>0.000000</td>
<td>SE CPU TIME</td>
<td>0.000000</td>
</tr>
<tr>
<td>SUSPENSION-CL8</td>
<td>0.016115</td>
<td>SUSPENSION-CL8</td>
<td>0.000191</td>
</tr>
<tr>
<td>AGENT</td>
<td>0.016115</td>
<td>AGENT</td>
<td>0.000191</td>
</tr>
<tr>
<td>PAR.TASKS</td>
<td>0.000000</td>
<td>PAR.TASKS</td>
<td>0.000000</td>
</tr>
<tr>
<td>NOT ACCOUNTED</td>
<td>0.000649</td>
<td>NOT ACCOUNTED</td>
<td>3:16.199777</td>
</tr>
<tr>
<td>AVG.DB2 ENTRY/EXIT</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB2 ENTRY/EXIT</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP CPU SU</td>
<td>121.11</td>
<td>CP CPU SU</td>
<td>208</td>
</tr>
</tbody>
</table>
The total elapsed time for executing the package or DBRM.

**Field Name:** QPACSCCT

### CP CPU TIME

The class 7 CPU time spent by the package or DBRM. It indicates:
- The TCB time
- The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks generated by utilities.

In sysplex query parallelism, only CPU times of parallel tasks, running on the same member of the sysplex group as the originating task, are included.

This time does not include the CPU time consumed on an IBM specialty engine.

**Field Name:** ADCPUTP

This is an *exception* field.

### AGENT

The class 7 CPU time for all executions of the package or DBRM. This time does not include the:
- Class 7 time for parallel tasks
- CPU time that is consumed on an IBM specialty engine

**Field Name:** QPACTJST

This is an *exception* field.

### AGENT - PAR.TASKS

The accumulated time for the package or DBRM to process parallel tasks. These tasks can be query CP, sysplex query, utility parallel tasks, or rollup autonomous tasks.

In sysplex query parallelism, the accumulated time reflects only parallel tasks running on the same DB2 subsystem as the originating task.

In case of rolled-up data, it is the sum of all CPU times, of originating and parallel tasks.

This time does not include CPU time consumed on an IBM specialty engine.

**Field Name:** ADCPCL7T

### SE CPU TIME

The total CPU time for all executions of this package or DBRM that was consumed on an IBM specialty engine (SE).

**Note:** All CPU times of an IBM specialty engine that are reported in DB2 trace records are already normalized by DB2 to the speed of the general purpose processor.
Package Times - Class 7

Field Name: APACC7Z

SUSPENSION-CL8
The waiting time for the package or DBRM due to class 8 suspensions.

Field Name: ADTSUSTP
This is an exception field.

SUSPENSION-CL8 - AGENT
The class 8 suspension time for executing the package or DBRM. In query or utility parallelism, this does not include the class 8 time for parallel tasks.

Field Name: ADTCBCL8

SUSPENSION-CL8 - PAR.TASKS
The sum of the suspension times of the parallel tasks for the package or DBRM. The tasks can be query CP or sysplex query parallel tasks, tasks generated by utilities, or roll-up autonomous tasks.

In case of rolled-up data, it is the sum of all suspension times, of originating and parallel tasks.

Field Name: ADCPCL8T

NOT ACCOUNTED
The total unaccounted time in DB2 due to the execution of the package or DBRM. In query CP and sysplex query parallelism, it is the unaccounted time of the originating task only.

In case of rolled-up data, it is the unaccounted time of all tasks, of originating and parallel tasks.

Field Name: ADNACL7T
This is an exception field.

AVG.DB2 ENTRY/EXIT
The number of DB2 entries or exits processed during the execution of the package or DBRM.

In Accounting reports this is shown twice; as a total and as an average.

Field Name: QPACARNA

CP CPU SU
The CPU service units for a package or DBRM. It indicates:
- The service units for the TCB time.
- The accumulated service units for processing parallel tasks if query CP or sysplex query parallelism is exploited.

These CPU service units do not include the service units that were consumed on an IBM specialty engine.

Field Name: ADSUCPU7

CP CPU SU - AGENT
The CPU service units for a package or DBRM. These CPU service units do not include the service units that were consumed on an IBM specialty engine.
Field Name: ADSUTCB7

CP CPU SU - PAR.TASKS

The CPU service units accumulated for a package or DBRM for processing parallel tasks. These tasks can be query CP or sysplex query parallel tasks, or roll-up autonomous tasks.

These service units do not include service units consumed on an IBM specialty engine.

Field Name: ADSUCPP7

SE CPU SU

The total CPU service units for all executions of this package or DBRM that were consumed on an IBM specialty engine.

Field Name: ADSUC7Z

Query Parallelism:

This topic shows detailed information about “Accounting - Query Parallelism”.

If a query exploits query CP (central processor) parallelism or sysplex query parallelism, several tasks (called parallel tasks) perform the work. For each of these tasks an accounting record is generated, which contains counters and timers pertinent to the work performed by the particular task. In addition, an accounting record is created that contains the details on nonparallel work within the thread as well as data related to parallel work.

For formatting reasons, OMEGAMON XE for DB2 PE shows different labels for report and trace. The following example shows both layouts, the report on the left, and the trace layout on the right.

Accounting - Query Parallelism

The field labels shown in the following sample layout of “Accounting - Query Parallelism” are described in the following section.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUERY PARALLELISM</td>
<td>QUERY PARALLELISM</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>TOTAL</td>
</tr>
<tr>
<td>MAXIMUM DEGREE-ESTIMATED 0.00 0 MAXIMUM DEGREE-PLANNED 0.00 0 MAXIMUM DEGREE-EXECUTED N/A 0 MAXIMUM MEMBERS USED N/A 0 PARALLEL GROUPS EXECUTED 0.00 0 RAN AS PLANNED 0.00 0 RAN REDUCED-STOREAGE 0.00 0 RAN REDUCED-NEGOTIATION 0.00 0 SEQ-CURSOR 0.00 0 SEQ-NO ESA SORT 0.00 0 SEQ-NO BUFFER 0.00 0 SEQ-AUTONOMOUS PROC 0.00 0 SEQ-NEGOTIATION 0.00 0 ONE DB2-COORDINATOR=NO 0.00 0 ONE DB2-ISOLATION LEVEL 0.00 0 ONE DB2-DCL TABLE 0.00 0 MEMBER SKIPPED (%) N/C N/A DISABLED BY RLFI 0.00 0 REFORM PARAL-CONFIG 0.00 0 REFORM PARAL-NO BUF 0.00 0</td>
<td></td>
</tr>
</tbody>
</table>

MAXIMUM DEGREE-ESTIMATED

The maximum parallel-group estimated degree (DB2 field: QXMAXESTIDG). It is the bind time estimated degree based on the cost...
Query Parallelism

formula. If the parallel group contains a host variable or parameter marker, bind time will estimate the parallel-group degree based on a valid assumption value.

Field Name: AXMESTDG

MAXIMUM DEGREE-PLANNED

The maximum parallel-group planned degree (DB2 field: QXMAXPLANDG). It is the ideal parallel-group degree obtained at execution time after the host variable or parameter marker value is "plug-in" and before the buffer pool negotiation and the system negotiation are performed.

Field Name: AXMLPLNDG

MAXIMUM DEGREE-EXECUTED

The maximum degree of parallelism executed among all parallel groups to indicate the extent to which queries were processed in parallel.

Field Name: QXMAXDEG

MAXIMUM MEMBERS USED

The maximum number of DB2 members that participated in the processing of a query.

Field Name: AMAXMEMB

PARALLEL GROUPS EXECUTED

The total number of parallel groups executed.

Field Name: QXTOTGRP

RAN AS PLANNED

The total number of parallel groups that executed in the planned parallel degree. This field is incremented by one for each parallel group that executed in the planned degree of parallelism (as determined by DB2).

Field Name: QXNORGRP

RAN REDUCED-Storage

The total number of parallel groups that did not reach the planned parallel degree because of a lack of storage space or contention on the buffer pool.

The exception field name is QXREDGRP.

Background and Tuning Information

If this field is not 0, increase the size of the current buffer pool using the ALTER BUFFERPOOL command or use the ALTER TABLESPACE command to assign table spaces accessed by this query to a different buffer pool.

Field Name: QXREDGRP

This is an exception field.

RAN REDUCED-NEGOTIATION

The number of parallel-group degrees that is reduced because of the system negotiation result of the system stress level (DB2 field: QXSTOREDGRP).

Field Name: AXREDPGD
SEQ-CURSOR

The total number of parallel groups that fell back to sequential mode due to a cursor that can be used by UPDATE or DELETE.

Field Name: QXDEGCUR

SEQ-NO ESA SORT

The total number of parallel groups that fell back to sequential mode due to a lack of ESA sort support.

Field Name: QXDEGESA

SEQ-NO BUFFER

The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool.

The exception field name is QXDEGBUF.

Field Name: QXDEGBUF

SEQ-AUTONOMOUS PROC

The total number of parallel groups that fell back to sequential mode under an autonomous procedure.

Field Name: QXDEGAT

SEQ-NEGOTIATION

The number of parallel groups is degenerated to sequential because of the system negotiation result of system stress level (DB2 field: QXSTODGNGRP).

Field Name: AXDEGPGD

ONE DB2-COORDINATOR = NO

The total number of parallel groups executed on a single DB2 subsystem due to the COORDINATOR subsystem value being set to NO. When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a DB2 subsystem with COORDINATOR=YES, but is run on a DB2 subsystem with COORDINATOR=NO.

Field Name: QXCOORNO

ONE DB2-ISOLATION LEVEL

The total number of parallel groups executed on a single DB2 subsystem due to repeatable-read or read-stability isolation.

Field Name: QXISORR

ONE DB2-DCL TABLE

The number of parallel groups in a query block that were downgraded to CPU parallelism because they referenced a UDF and a declared temporary table was detected at execution time.

DB2 enforces execution on a single DB2 (CPU parallelism), in this instance, because it cannot determine at incremental bind time for the statement whether the UDF will reference the declared temporary table. Other parallel groups in the same statement are not necessarily downgraded.

Field Name: QXDEGDIT
MEMBER SKIPPED (%)

The percentage of parallel groups that were not distributed over the data sharing group, as originally planned at bind time, because one or more DB2 members did not have enough buffer pool storage. This only applies to parallel groups that were intended to run in sysplex query parallelism.

This percentage is to indicate a lack of buffers at a member. It is only increased when the buffer pool is defined to allow for parallelism. For example, if VPXPEQT=0 on an assistant, DB2 does not send parallel work there, and the percentage is not increased.

Field Name: AXXCRAT

DISABLED BY RLF (Report)

The number of threads where at least one dynamic SQL statement was disabled by the Resource Limit Facility (RLF).

Field Name: ADPARDNR

DISABLED BY RLF (Trace)

Indicates whether Query Parallelism is disabled by the Resource Limit Facility (RLF) for at least one dynamic SELECT statement in this thread.

Field Name: ADPARDIS

REFORM PARAL-CONFIG

The total number of parallel groups where DB2 reformulated the parallel portion of the access path because of a change in the number of active members, or because of a change of processor models on which they run, from bind time to run time. This counter is incremented only on the parallelism coordinator at run time.

Field Name: QXREPOP1

REFORM PARAL-NO BUF

The total number of parallel groups in which DB2 reformulated the parallel portion of the access path because there were insufficient buffer-pool resources. This counter is incremented only at the parallelism coordinator at run time.

Field Name: QXREPOP2

Resource Limit Facility:

This topic shows detailed information about “Accounting - Resource Limit Facility”.

This block shows information about the Resource Limit Facility (RLF), which prevents dynamic manipulative SQL statements from exceeding specified time limits.

The following example shows both layouts, the report layout followed by the trace layout.

Accounting - Resource Limit Facility

The field labels shown in the following sample layout of “Accounting - Resource Limit Facility” are described in the following section.
RESOURCE LIMIT TYPE (TYPE)

The resource limit type. This is taken from QTXAPREC and can be:

- AUTHID/PLAN
- AUTHID ANY PLAN
- PLAN ANY AUTHID
- BLANK AUTHID & PLAN
- INSTALL NO ENTRY
- INSTALL I/O ERROR
- NO LIMIT - SYSADM/SYSOPR
- AUTHID/COLLECTION/PACKAGE
- AUTHID ANY PACKAGE
- AUTHID ANY COLLECTION
- AUTHID ANY PACKAGE/COLLECTION
- PACKAGE/COLLECTION ANY AUTHID
- ANY AUTHID/PACKAGE
- ANY AUTHID/COLLECTION
- ANY AUTHID/PACKAGE/COLLECTION

The following can be reported:

INFINITE LIMIT

Reported when QTXAPREC has any value except NO LIMIT - SYSADM/SYSOPR and QTXAILMT is on.

NO RUN OR ZERO LIMIT

Reported when QTXANRUN is on.

Field Name: ADRLFTYP

#OCCUR

The number of RLF occurrences.

Field Name: ASRLFOCC

AVERAGE CPU SECONDS

The number of CPU seconds used.

Field Name: ADRLFCPU

HIGHEST CPU SECONDS

The highest CPU seconds used in a successful DB2 internal call rather than in a single SQL call. Because there are usually many DB2 calls for each SQL call, this value could be quite small compared to the total CPU time used in the SQL call.

Only times for successful DB2 calls are used to determine the value of this field.

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Chapter 6. Batch reporting  3319
Resource Limit Facility

Field Name: ADRLFMAX

**TABLE ID**

The identifier of the resource limit specification table.

Field Name: QTXARLID

**SERV.UNITs**

The maximum number of CPU service units to be used. Normally, the value is not 0 if the RES LIMIT TYPE is LIMIT. A value of 0 indicates no limit.

Field Name: QTXASLMT

**RID List:**

This topic shows detailed information about “Accounting - RID List”.

This block shows information about the Record identifier (RID) list.

The following example shows both layouts, the report on the left, and the trace layout on the right.

**Accounting - RID List**

The field labels shown in the following sample layout of “Accounting - RID List” are described in the following section.

<table>
<thead>
<tr>
<th>Report: RID LIST</th>
<th>AVERAGE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>USED</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>FAIL-NO STORAGE</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>INTERRUPTED-NO STORAGE</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>INTERRUPTED-LIMIT EXC.</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>OVERFLOWED-NO STORAGE</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>OVERFLOWED-LIMIT EXC.</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>SKIPPED-INDEX KNOWN</td>
<td>0.00</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trace: RID LIST</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>USED</td>
<td>0</td>
</tr>
<tr>
<td>FAIL-NO STORAGE</td>
<td>0</td>
</tr>
<tr>
<td>INTERRUPTED-NO STORAGE</td>
<td>0</td>
</tr>
<tr>
<td>INTERRUPTED-LIMIT EXC.</td>
<td>0</td>
</tr>
<tr>
<td>OVERFLOWED-NO STORAGE</td>
<td>0</td>
</tr>
<tr>
<td>OVERFLOWED-LIMIT EXC.</td>
<td>0</td>
</tr>
<tr>
<td>SKIPPED-INDEX KNOWN</td>
<td>0</td>
</tr>
</tbody>
</table>

**USED**

The number of times RID list (also called RID pool) processing is used.

During RID (RECORD ID) list processing, DB2 uses an index to produce a list of candidate RIDs, which is called a RID list. The RID list can be sorted and intersected (ANDed) or unioned (ORed) with other RID lists before actually accessing the data pages. RID list processing is used for a single index (index access with list prefetch) or for multiple indexes (multiple index access), which is when the RID lists are ANDed and ORed.

This field is incremented once for a given table access when RID list processing is used for index access with list prefetch, for multiple index access, or for both. For multiple index access, if a final RID list is obtained through ANDing and ORing of RID lists, the counter is incremented once, even if not all indexes were used by the RIDs in the multiple index access.

**Background and Tuning Information**
A nonzero value in this field indicates that DB2 has used list prefetch. If this is the case, check the access path selection.

**Field Name:** QXMIAP

This is an *exception* field.

**FAIL-NO STORAGE**

The number of times DB2 detected that no storage was available to hold a list of RIDs during a given RID list process involving one index (single index access with list prefetch) or multiple indexes (multiple index access).

This field can be incremented during retrieval, sorting, ANDing, and ORing of RID lists for index access with list prefetch (single index). For single index access, this field can only be incremented once per access. For multiple index access, it can be incremented for every index involved in the ANDing and ORing of RID lists.

**Field Name:** QXNSMIAP

This is an *exception* field.

**FAIL-LIMIT EXCEEDED (FAIL-LIMIT EXC.)**

The number of times DB2 detected that a RID list exceeded one or more internal limits during a given RID list (or RID pool) process involving one index (single index access with list prefetch) or multiple indexes (multiple index access). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs.

For index access with list prefetch (single index), this field can only be incremented during RID list retrieval. For multiple index access, this field can be incremented during RID list retrieval, ANDing, and ORing. This counter reflects the number of times internal limits or threshold values were exceeded for the RID lists obtained directly from an index as well as for RID lists derived during the ANDing and ORing process.

**Background and Tuning Information**

Before you increase the RID list storage size, investigate the cause of the failure using the statistics record or the performance trace. You can specify the size for the RID list on the DB2 installation panel DSNTIPC.

**Field Name:** QXMRMIAP

This is an *exception* field.

**INTERRUPTED-NO STORAGE**

The number of times a RID list append for a hybrid join was interrupted because no RID pool storage was available to hold the list of RIDs.

**Field Name:** QXHJINCS

**INTERRUPTED-LIMIT EXC.**

The number of times a RID list append for a hybrid join was interrupted because the number of RIDs exceeded one or more internal limits.

**Field Name:** QXHJINCT

**OVERFLOWED-NO STORAGE**

The number of times a RID list was overflowed to a work file because no RID pool storage was available to hold the list of RIDs.
RID List

Field Name: QXWFRIDS

OVERFLOWED-LIMIT EXC.

The number of times a RID list was overflowed to a work file because the number of RIDs exceeded one or more internal limits.

Field Name: QXWFRIDT

SKIPPED-INDEX KNOWN

The number of times a RID list retrieval for multiple index access was skipped because it was not necessary due to DB2 being able to predetermine the outcome of index ANDing or ORing.

Field Name: QXRSMIAP

ROWID:

This topic shows detailed information about “Accounting - ROWID”.

This block shows information about the row identifier (ROWID).

The following example shows both layouts, the report on the left, and the trace layout on the right.

Accounting - ROWID

The field labels shown in the following sample layout of “Accounting - ROWID” are described in the following section.

<table>
<thead>
<tr>
<th>Report</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROWID</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>TOTAL</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>

| DIRECT ACCESS | 0.00 | 0 | DIR ACCESS | 0 |
| INDEX USED    | 0.00 | 0 | INDEX USED | 0 |
| TS SCAN USED  | 0.00 | 0 | TS SCAN    | 0 |

DIRECT ACCESS (DIR ACCESS)

The number of times that direct row access was successful.

Field Name: QXROIMAT

INDEX USED

The number of times that direct row access failed and an index was used to find a record.

Background and Tuning Information

This can happen, for example, when a REORG is performed between the read of the ROWID column and the use of the host variable in the WHERE clause of the SQL statement. This causes the RID value in the host variable to be incorrect.

Field Name: QXROIIDX

TS SCAN USED (TS SCAN)

The number of times that an attempt to use direct row access reverted to using a table-space scan because DB2 was unable to use a matching index scan.

Background and Tuning Information
Ideally, this value should be 0.

Table-space scans can happen, for example, when a REORG is performed between the read of the ROWID column and the use of the host variable in the WHERE clause of the SQL statement. This causes the RID value in the host variable to be incorrect. DB2 first tries a matching-index scan before using a table-space scan.

To avoid table space scans, you can force the access path of an unsuccessful direct row access to use a matching index scan on the primary-index key by adding PKCOL to the WHERE clause in the SQL statement. .... WHERE ROWIDCOL=:HVROWID AND PKCOL=:HVPK

Field Name: QXROITS

Service Units:

This topic shows detailed information about “Accounting - Service Units”.

This block shows class 1 and class 2 CPU times as service units.

The following example shows both layouts, the report on the left, and the trace layout on the right.

Accounting - Service Units

The field labels shown in the following sample layout of “Accounting - Service Units” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>ADSUCPU1</th>
</tr>
</thead>
</table>

**CLASS 1: CP CPU**

The class 1 CPU service units (in an application). It indicates:

- The TCB service units.
- The accumulated TCB service units for processing stored procedures if stored procedures are present.
- The accumulated CPU service units for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks generated by utilities.

These CPU service units do not include the service units that were consumed on an IBM specialty engine.

Field Name: ADSUCPU1
CLASS 1: CP CPU - AGENT

The class 1 TCB service units (in an application). This field is derived from the TCB time and the conversion factor of the originating task.

Field Name: ADSUAGT1

CLASS 1: CP CPU - AGENT - NONNESTED

The TCB service units accumulated in nonnested activity.

Field Name: ADSUNN1

CLASS 1: CP CPU - AGENT - STORED PRC

The TCB service units accumulated in an application for stored procedures. This field is derived from the TCB time and the conversion factor of the originating task.

Field Name: ADSUTCS1

CLASS 1: CP CPU - AGENT - UDF

The TCB service units accumulated in an application for UDF.

Field Name: ADSUTCU1

CLASS 1: CP CPU - AGENT - TRIGGER

The number of TCB service units accumulated in DB2 used while executing under control of a trigger.

Field Name: ADSUTCT2

CLASS 1: CP CPU - PAR.TASKS

The sum of the CPU service units of the parallel tasks running in an application. These tasks can be query CP or sysplex query parallel tasks, parallel tasks produced by utilities, or roll-up autonomous tasks.

Field Name: ADSUCPP1

CLASS 1: CP CPU - ELIG SECP

The accumulated CPU service units that ran on a standard CP for work eligible on an IBM specialty engine.

Field Name: ADSUZEL

CLASS 1: SE CPU

The sum of several accumulated CPU service units consumed while running on an IBM specialty engine in all environments. This field is derived from the TCB time and the conversion factor of the originating task. These service units are consumed when:

- Running stored procedure requests and triggers on the main application execution unit.
- Satisfying stored procedure requests processed in a DB2 stored procedure or WLM address space. SQL procedure times are included in this time if the SQL procedure was called on a nested task and was not invoked by the main application execution unit.
- Satisfying UDF requests processed in a DB2 stored procedure or WLM address space.
- Running triggers on a nested task.
- Running parallel tasks in an application which contains the accumulated CPU time used to satisfy UDF requests.
Note: All CPU service units of an IBM specialty engine (SE) that are reported in DB2 trace records are already normalized by DB2 to the speed of the general purpose processor.

Field Name: ADSUC1Z

CLASS 1: SE CPU - NONNESTED
The class 1 CPU service units for nonnested activity on the main application task consumed while running on an IBM specialty engine. These service units ignore the CPU time consumed when running stored procedure requests, or triggers on the main application execution unit on an IBM specialty engine.

Field Name: ADSUSEN1

CLASS 1: SE CPU - STORED PROC
The accumulated and consumed service units for stored procedures on an IBM specialty engine that consist of following parts:
- Service units processed in a DB2 stored procedure or WLM address space. SQL procedure service units are included if the SQL procedure was called on a nested task and was not invoked by the main application execution unit.
- Service units when running on the main application execution unit. As these stored procedures run entirely within DB2, this part of the service units counts for class 1 and class 2 time.

Field Name: ADSUSES1

CLASS 1: SE CPU - UDF
The accumulated CPU service units used to satisfy UDF requests processed in a DB2 stored procedure or WLM address space while running on an IBM specialty engine.

Field Name: ADSUSEU1

CLASS 1: SE CPU - TRIGGER
The accumulated CPU service units consumed on an IBM specialty engine while running triggers on a nested task or on the main application execution unit.

Field Name: ADSUSETR

CLASS 1: SE CPU - PAR.TASKS
The sum of the CPU service units of the parallel tasks running in an application on an IBM specialty engine. These service units contain the nonnested and consumed service units for stored procedures, UDFs, and triggers.

Field Name: ADSUSEP1

CLASS 2: CP CPU
The class 2 service units (in DB2). It indicates:
- The TCB service units.
- The accumulated TCB service units for processing stored procedures if stored procedures are present.
- The accumulated CPU service units for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks produced by utilities.
These CPU service units do not include the service units that were consumed on an IBM specialty engine.

Field Name: ADSUCPU2

CLASS 2: CP CPU - AGENT

The class 2 TCB service units (in DB2). This field is derived from the TCB time and the conversion factor of the originating task.

Field Name: ADSUAGT2

CLASS 2: CP CPU - AGENT - NONNESTED

The number of class 2 service units accumulated in nonnested activity.

Field Name: ADSUNN2

CLASS 2: CP CPU - AGENT - STORED PRC

The TCB service units accumulated in DB2 for stored procedures. This field is derived from the TCB time and the conversion factor of the originating task.

Field Name: ADSUTCS2

CLASS 2: CP CPU - AGENT - UDF

The TCB service units accumulated in DB2 for UDF.

Field Name: ADSUTCU2

CLASS 2: CP CPU - AGENT - TRIGGER

The number of TCB service units accumulated in DB2 used while executing under control of a trigger.

Field Name: ADSUTCT2

CLASS 2: CP CPU - PAR.TASKS

The sum of the CPU service units of the parallel tasks running in DB2. These tasks can be query CP or sysplex query parallel tasks, parallel tasks produced by utilities, or roll-up autonomous tasks.

These service units do not include service units consumed on an IBM specialty engine.

Field Name: ADSUCPP2

CLASS 2: CP CPU - ELIG ACCEL

The accumulated service units spent processing SQL in DB2 that may be eligible for execution on an accelerator.

Field Name: ADSUAEC2

CLASS 2: SE CPU

The sum of the accumulated CPU service units consumed while running in DB2 on an IBM specialty engine due to CPU time spent:

- Nonnested on main application execution unit.
- On triggers on main application execution unit and nested tasks.
- Processing SQL statements issued by UDFs processed in a DB2 stored procedure or WLM address space.
- On stored procedures on main application execution unit and nested tasks processed in a DB2 stored procedure or WLM address space. SQL
procedure times are included if the SQL procedure was called on a
nested task and was not invoked by the main application execution unit.

Field Name: ADSUC2Z

CLASS 2: SE CPU - NONNESTED

The class 2 CPU service units for nonnested activity on the main
application task consumed while running on an IBM specialty engine.

Field Name: ADSUSEN2

CLASS 2: SE CPU - STORED PROC

The accumulated and consumed service units for stored procedures on an
IBM specialty engine that consist of following parts:

- Service units consumed in DB2, in a DB2 stored procedure, or WLM
  address space. SQL procedure service units are included if the SQL
  procedure was called on a nested task and was not invoked by the main
  application execution unit.
- Service units when running on the main application execution unit. As
  these stored procedures run entirely within DB2, this part of service
  units counts for class 1 and class 2 time.

Field Name: ADSUSES2

CLASS 2: SE CPU - UDF

The accumulated and consumed service units for stored procedures on an
IBM specialty engine that consist of following parts:

- Service units consumed in DB2, in a DB2 stored procedure, or WLM
  address space. SQL procedure service units are included if the SQL
  procedure was called on a nested task and was not invoked by the main
  application execution unit.
- Service units when running on the main application execution unit. As
  these stored procedures run entirely within DB2, this part of service
  units counts for class 1 and class 2 time.

This time is a subset of QWACSP_CLS1SE.

Field Name: ADSUSEU2

CLASS 2: SE CPU - TRIGGER

The accumulated CPU service units consumed on an IBM specialty engine
while running triggers on a nested task or on the main application
execution unit.

Field Name: ADSUSETR

CLASS 2: SE CPU - PAR.TASKS

The sum of the CPU service units of the parallel tasks running in DB2.
These service units contain the nonnested and consumed service units for
stored procedures, UDFs, and triggers.

Field Name: ADSUSEP2

CLASS 2: SE CPU - ELIG ACCEL

The accumulated service units consumed on an IBM specialty engine while
processing SQL in DB2 that may be eligible for execution on an accelerator.

Field Name: ADSUAES2
Stored Procedures

This topic shows detailed information about “Accounting - Stored Procedures”.

This block shows information about stored procedure.

For formatting reasons, OMEGAMON XE for DB2 PE shows different labels for report and trace. The following example shows both layouts, the report on the left, and the trace layout on the right.

Accounting - Stored Procedures

The field labels shown in the following sample layout of “Accounting - Stored Procedures” are described in the following section.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>STORED PROCEDURES</td>
<td>STORED PROC.</td>
</tr>
<tr>
<td>平均值</td>
<td>总值</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------</td>
</tr>
</tbody>
</table>

CALL STATEMENTS (CALL STMTS)

The number of SQL CALL statements executed.

**Field Name:** QXCALL

ABENDED

The number of times a stored procedure terminated abnormally.

**Field Name:** QXCALLAB

TIMED OUT

The number of times an SQL call timed out waiting to be scheduled.

**Field Name:** QXCALLTO

REJECTED

The number of times an SQL CALL statement was rejected due to the procedure being in the STOP ACTION(REJECT) state.

**Field Name:** QXCALLRJ

SQL DCL:

This topic shows detailed information about “Accounting - SQL DCL”.

This block shows information about SQL DCL (Data Control Language) declarations.

The following example applies to both, the report layout and the trace layout.

Accounting - SQL DCL

The field labels shown in the following sample layout of “Accounting - SQL DCL” are described in the following section.
### SQL DCL

<table>
<thead>
<tr>
<th>SQL DCL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCK TABLE</td>
<td>0</td>
</tr>
<tr>
<td>GRANT</td>
<td>0</td>
</tr>
<tr>
<td>REVOKE</td>
<td>0</td>
</tr>
<tr>
<td>SET CURR.SQLID</td>
<td>0</td>
</tr>
<tr>
<td>SET HOST VAR.</td>
<td>0</td>
</tr>
<tr>
<td>SET CUR.DEGREE</td>
<td>0</td>
</tr>
<tr>
<td>SET RULES</td>
<td>0</td>
</tr>
<tr>
<td>SET CURR.PATH</td>
<td>0</td>
</tr>
<tr>
<td>SET CURR.PREC</td>
<td>0</td>
</tr>
<tr>
<td>CONNECT TYPE 1</td>
<td>0</td>
</tr>
<tr>
<td>CONNECT TYPE 2</td>
<td>0</td>
</tr>
<tr>
<td>SET CONNECTION</td>
<td>0</td>
</tr>
<tr>
<td>RELEASE</td>
<td>0</td>
</tr>
<tr>
<td>CALL</td>
<td>0</td>
</tr>
<tr>
<td>ASSOC LOCATORS</td>
<td>0</td>
</tr>
<tr>
<td>ALLOC CURSOR</td>
<td>0</td>
</tr>
<tr>
<td>HOLD LOCATOR</td>
<td>0</td>
</tr>
<tr>
<td>FREE LOCATOR</td>
<td>0</td>
</tr>
<tr>
<td>DCL-ALL</td>
<td>0</td>
</tr>
</tbody>
</table>

#### LOCK TABLE

The number of LOCK TABLE statements executed.

**Field Name:** QXLOCK

#### GRANT

The number of GRANT statements executed.

**Field Name:** QXGRANT

#### REVOKE

The number of REVOKE statements executed.

**Field Name:** QXREVOK

#### SET CURR.SQLID

The number of SET CURRENT SQLID statements executed.

**Field Name:** QXSETSQL

#### SET HOST VAR.

The number of SET HOST VARIABLE statements executed. The special register that was retrieved is not tracked.

**Field Name:** QXSETHV

#### SET CUR.DEGREE

The number of SET CURRENT DEGREE statements executed.

**Field Name:** QXSETCDG

#### SET RULES

The number of SET CURRENT RULES statements executed.

**Field Name:** QXSETCRL

#### SET CURR.PATH

The number of SET CURRENT PATH statements executed.

**Field Name:** QXSETPTH

#### SET CURR.PREC

...
SQL DCL

The number of SET CURRENT PRECISION statements executed.

Field Name: QXSETCPR

CONNECT TYPE 1
The number of CONNECT type 1 statements executed.

Field Name: QXCON1

CONNECT TYPE 2
The number of CONNECT type 2 statements executed.

Field Name: QXCON2

SET CONNECTION
The number of SET CONNECTION statements executed.

Field Name: QXSETCON

RELEASE
The number of RELEASE statements executed.

Field Name: QXREL

CALL
The number of SQL CALL statements executed.

Field Name: QXCALL

ASSOC LOCATORS
The number of SQL ASSOCIATE LOCATORS statements executed.

Field Name: QXALOCL

ALLOC CURSOR
The number of SQL ALLOCATE CURSOR statements executed.

Field Name: QXALOCC

HOLD LOCATOR
The number of HOLD LOCATOR statements executed.

Field Name: QXHLDLOC

FREE LOCATOR
The number of times a FREE LOCATOR statement was issued.

Field Name: QXFRELOC

DCL-ALL
The total number of DCL statements executed.

Field Name: ASCDCL

SQL DDL:

This topic shows detailed information about “Accounting - SQL DDL”.

This block shows information about SQL DDL (Data Definition Language) statements.

The following example applies to both, the report layout and the trace layout.
Accounting - SQL DDL

The field labels shown in the following sample layout of “Accounting - SQL DDL” are described in the following section.

<table>
<thead>
<tr>
<th>SQL DDL</th>
<th>CREATE</th>
<th>DROP</th>
<th>ALTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CRT TTABLE</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DCL TTABLE</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>AUX TABLE</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>INDEX</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TABLESPACE</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>DATABASE</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>STOGROUP</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SYNONYM</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>VIEW</td>
<td>0</td>
<td>0</td>
<td>513</td>
</tr>
<tr>
<td>ALIAS</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>PACKAGE</td>
<td>N/A</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>PROCEDURE</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FUNCTION</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TRIGGER</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>DIST TYPE</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>SEQUENCE</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TRUST. CTX</td>
<td>521</td>
<td>522</td>
<td>523</td>
</tr>
<tr>
<td>ROLE</td>
<td>531</td>
<td>532</td>
<td>N/A</td>
</tr>
<tr>
<td>JAR</td>
<td>N/A</td>
<td>N/A</td>
<td>543</td>
</tr>
<tr>
<td>MASK/PERM</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>VARIABLE</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1052</td>
<td>1054</td>
<td>1579</td>
</tr>
<tr>
<td>TRUNC TBL</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RENAME TBL</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RENAME IX</td>
<td>551</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMMENT ON</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LABEL ON</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CREATE TABLE**

The number of CREATE TABLE statements executed.

*Field Name:* QXCRTAB

**CREATE CRT TTABLE**

The number of CREATE GLOBAL TEMPORARY TABLE statements executed.

*Field Name:* QXCRGTT

**CREATE DCL TTABLE**

The number of DECLARE GLOBAL TEMPORARY TABLE statements executed.

*Field Name:* QXDCLGTT

**CREATE AUX TTABLE**

The number of CREATE AUXILIARY TABLE statements executed.

*Field Name:* QXCRATB

**CREATE INDEX**

The number of CREATE INDEX statements executed.

*Field Name:* QXCRINX

**CREATE TABLESPACE**
SQL DDL

The number of CREATE TABLESPACE statements executed.
Field Name: QXCTABS

CREATE DATABASE
The number of CREATE DATABASE statements executed.
Field Name: QXCRDAB

CREATE STOGROUP
The number of CREATE STOGROUP statements executed.
Field Name: QXCRSTG

CREATE SYNONYM
The number of CREATE SYNONYM statements executed.
Field Name: QXCRSYN

CREATE VIEW
The number of CREATE VIEW statements executed.
Field Name: QXDEFCV

CREATE ALIAS
The number of CREATE ALIAS statements executed.
Field Name: QXCRALS

CREATE PROCEDURE
The number of CREATE PROCEDURE statements issued.
Field Name: QXCRPRO

CREATE FUNCTION
The number of CREATE FUNCTION statements executed.
Field Name: QXCRUDF

CREATE TRIGGER
The number of CREATE TRIGGER statements executed.
Field Name: QXCTRIG

CREATE DIST TYPE
The number of CREATE DISTINCT TYPE statements executed.
Field Name: QXCDIST

CREATE SEQUENCE
The number of CREATE SEQUENCE statements.
Field Name: QXCRESEQ

CREATE TRUST. CTX
The number of CREATE TRUSTED CONTEXT statements issued.
Field Name: QXCRCTX

CREATE ROLE
The number of CREATE ROLE statements executed.
Field Name: QXCRROL

CREATE MASK/PERM
The number of CREATE MASK and CREATE PERMISSION statements executed.

Field Name: QXCREMP

CREATE VARIABLE
The number of CREATE VARIABLE statements.

Field Name: QXCRTSV

TOTAL CREATE
The number of SQL CREATE statements executed.

Field Name: ASTOTCRT
This is an exception field.

DROP TABLE
The number of DROP TABLE statements executed.

Field Name: QXDRPTA
This is an exception field.

DROP INDEX
The number of DROP INDEX statements executed.

Field Name: QXDRRPIX
This is an exception field.

DROP TABLESPACE
The number of DROP TABLESPACE statements executed.

Field Name: QXDRPTS
This is an exception field.

DROP DATABASE
The number of DROP DATABASE statements executed.

Field Name: QXDRPDB
This is an exception field.

DROP STOGROUP
The number of DROP STOGROUP statements executed.

Field Name: QXDRPST
This is an exception field.

DROP SYNONYM
The number of DROP SYNONYM statements executed.

Field Name: QXDRPSY
This is an exception field.

DROP VIEW
The number of DROP VIEW statements executed.
sql ddl

Field Name: QXDRPVU
This is an exception field.

DROP ALIAS
The number of SQL DROP ALIAS statements executed.
Field Name: QXDRPAL
This is an exception field.

DROP PACKAGE
The number of SQL DROP PACKAGE statements executed.
Field Name: QXDRPPKG
This is an exception field.

DROP PROCEDURE
The number of DROP PROCEDURE statements executed.
Field Name: QXDRPPR

DROP FUNCTION
The number of DROP FUNCTION statements executed.
Field Name: QXDRPFN

DROP TRIGGER
The number of DROP TRIGGER statements executed.
Field Name: QXDRPTR

DROP DIST TYPE
The number of DROP DISTINCT TYPE statements executed.
Field Name: QXDDIST

DROP SEQUENCE
The number of DROP SEQUENCE statements.
Field Name: QXDROSEQ

DROP TRUST_CTX
The number of DROP TRUSTED CONTEXT statements issued.
Field Name: QXDROPCTX

DROP ROLE
The number of DROP ROLE statements issued.
Field Name: QXDRPROL

DROP MASK/PERM
The number of DROP MASK and DROP PERMISSION statements executed.
Field Name: QXDRPMP

DROP VARIABLE
The number of DROP VARIABLE statements.
Field Name: QXDRPSV
TOTAL DROP
The number of SQL DROP statements executed.
Field Name: ASTOTDRP
This is an exception field.

ALTER TABLE
The number of ALTER TABLE statements executed.
Field Name: QXALTTA
This is an exception field.

ALTER INDEX
The number of ALTER INDEX statements executed.
Field Name: QXALTIX
This is an exception field.

ALTER TABLESPACE
The number of ALTER TABLESPACE statements executed.
Field Name: QXALTTS
This is an exception field.

ALTER DATABASE
The number of ALTER DATABASE statements executed.
Field Name: QXALDAB
This is an exception field.

ALTER STOGROUP
The number of ALTER STOGROUP statements executed.
Field Name: QXALTST
This is an exception field.

ALTER VIEW
The number of ALTER VIEW statements issued.
Field Name: QXALT VW

ALTER PROCEDURE
The number of ALTER PROCEDURE statements executed.
Field Name: QXALPRO

ALTER FUNCTION
The number of ALTER FUNCTION statements executed.
Field Name: QXALUDF

ALTER SEQUENCE
The number of ALTER SEQUENCE statements.
Field Name: QXALTSEQ

ALTER TRUST. CTX
SQL DDL

The number of ALTER TRUSTED CONTEXT statements issued.

Field Name: QXALTCTX

ALTER ROLE

The number of ALTER JAR statements issued.

Field Name: QXALTJR

ALTER MASK/PERM

The number of ALTER MASK and ALTER PERMISSION statements executed.

Field Name: QXALTMP

TOTAL ALTER

The number of SQL ALTER statements executed.

Field Name: ASTOTALT

This is an exception field.

TRUNC TBL

The number of TRUNCATE TABLE statements issued.

Field Name: QXTRTBL

RENAME TBL

The number of RENAME TABLE statements executed.

Field Name: QXRNTAB

RENAME IX

The number of RENAME INDEX statements issued.

Field Name: QXRNXIX

COMMENT ON

The number of COMMENT ON statements executed.

Field Name: QXCMTON

LABEL ON

The number of LABEL ON statements executed.

Field Name: QXLABON

SQL DML:

This topic shows detailed information about “Accounting - SQL DML”.

This block shows information about SQL DML (Data Manipulation Language) statements.

The following example shows both layouts, the report on the left, and the trace layout on the right.

Accounting - SQL DML

The field labels shown in the following sample layout of “Accounting - SQL DML” are described in the following section.
### SQL DML

#### Report:

<table>
<thead>
<tr>
<th>SQL DML</th>
<th>AVERAGE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELECT</td>
<td>3.27</td>
<td>964</td>
</tr>
<tr>
<td>INSERT</td>
<td>3.21</td>
<td>947</td>
</tr>
<tr>
<td>ROWS</td>
<td>3.21</td>
<td>947</td>
</tr>
<tr>
<td>UPDATE</td>
<td>3.83</td>
<td>1131</td>
</tr>
<tr>
<td>ROWS</td>
<td>5.03</td>
<td>1483</td>
</tr>
<tr>
<td>MERGE</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>DELETE</td>
<td>0.14</td>
<td>40</td>
</tr>
<tr>
<td>ROWS</td>
<td>0.14</td>
<td>40</td>
</tr>
<tr>
<td>DESCRIBE</td>
<td>2.79</td>
<td>824</td>
</tr>
<tr>
<td>DESCR. TBL</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>PREPARE</td>
<td>3.01</td>
<td>888</td>
</tr>
<tr>
<td>OPEN</td>
<td>5.20</td>
<td>1533</td>
</tr>
<tr>
<td>FETCH</td>
<td>3.36</td>
<td>991</td>
</tr>
<tr>
<td>ROWS</td>
<td>10.37</td>
<td>3060</td>
</tr>
<tr>
<td>CLOSE</td>
<td>3.36</td>
<td>990</td>
</tr>
<tr>
<td>DML-ALL</td>
<td>28.16</td>
<td>8308</td>
</tr>
</tbody>
</table>

#### Trace:

<table>
<thead>
<tr>
<th>SQL DML</th>
<th>AVERAGE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELECT</td>
<td>488</td>
<td></td>
</tr>
<tr>
<td>INSERT</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>ROWS</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>UPDATE</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>ROWS</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>MERGE</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>DELETE</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ROWS</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>DESCRIBE</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>DESCR. TBL</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>PREPARE</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>OPEN</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>FETCH</td>
<td>1331</td>
<td></td>
</tr>
<tr>
<td>ROWS</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>CLOSE</td>
<td>109</td>
<td></td>
</tr>
<tr>
<td>DML-ALL</td>
<td>2136</td>
<td></td>
</tr>
</tbody>
</table>

### SELECT

The number of SQL SELECT statements executed.

**Field Name:** QXSELECT

### INSERT

The number of INSERT statements executed.

**Field Name:** QXINSRT

### INSERT - ROWS

The number of rows inserted (DB2 field: QXRWSINSRTD).

**Field Name:** ARWINSRT

### UPDATE

The number of UPDATE statements executed.

**Field Name:** QXUPDTE

### UPDATE - ROWS

The number of rows updated (DB2 field: QXRWSUPDTD).

**Field Name:** ARWUPDAT

### MERGE

The number of times a MERGE statement was executed.

**Field Name:** QXMERGE

### DELETE

The number of DELETE statements executed.

**Field Name:** QXDELETE

### DELETE - ROWS

The number of rows deleted (DB2 field: QXRWSDELETED).

**Field Name:** ARWDELETE

### DESCRIBE
SQL DML

The number of DESCRIBE, DESCRIBE CURSOR, DESCRIBE INPUT, and DESCRIBE PROCEDURE statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXDESC

DESC.TBL

The number of DESCRIBE TABLE statements executed.

Field Name: QXDSCRTB

PREPARE

The number of SQL PREPARE statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXPREP

OPEN

The number of OPEN statements executed.

Field Name: QXOPEN

FETCH

The number of FETCH statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXFETCH

FETCH - ROWS

The number of rows fetched (DB2 field: QXRWSFETCHD).

Field Name: ARWFETCH

CLOSE

The number of CLOSE statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXCLOSE

DML-ALL

The total number of SQL DML statements executed.

Field Name: ASCDML

Termination - Abnormal:

This topic shows detailed information about “Accounting - Termination - Abnormal”.

This block shows a report for abnormal termination.

Accounting - Termination - Abnormal

The field labels shown in the following sample layout of “Accounting - Termination - Abnormal” are described in the following section.
Termination - Abnormal

<table>
<thead>
<tr>
<th>ABNORMAL TERM.</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>--------------</td>
<td>-------</td>
</tr>
<tr>
<td>APPL.PROGR. ABEND</td>
<td>0</td>
</tr>
<tr>
<td>END OF MEMORY</td>
<td>0</td>
</tr>
<tr>
<td>RESOL.IN DOUBT</td>
<td>0</td>
</tr>
<tr>
<td>CANCEL FORCE</td>
<td>0</td>
</tr>
</tbody>
</table>

APPL.PROGR. ABEND
The number of abnormal terminations due to an application program abend.

Field Name: ASATAPAB

END OF MEMORY
The number of abnormal terminations due to an end of memory. For example, accounting was invoked for an agent that was executing in an address space that experienced an abnormal end of memory.

Field Name: ASATENDM

RESOL.IN DOUBT
The number of abnormal terminations due to a resolve indoubt. For example, the recovery manager issued recover indoubt for a dependent thread that had not yet gone through end-of-task processing.

Field Name: ASATRIND

CANCEL FORCE
The number of abnormal terminations due to a stop force. For example, accounting was invoked for an agent that was executing when a -STOP DB2 MODE(FORCE) command was issued.

Field Name: ASATCANF

Termination - In Doubt:
This topic shows detailed information about “Accounting - Termination - In Doubt”.

This block shows a report for in-doubt termination.

Accounting - Termination - In Doubt
The field labels shown in the following sample layout of “Accounting - Termination - In Doubt” are described in the following section.

<table>
<thead>
<tr>
<th>IN DOUBT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>---------------</td>
<td>-------</td>
</tr>
<tr>
<td>APPL.PGM ABEND</td>
<td>0</td>
</tr>
<tr>
<td>END OF MEMORY</td>
<td>0</td>
</tr>
<tr>
<td>END OF TASK</td>
<td>0</td>
</tr>
<tr>
<td>CANCEL FORCE</td>
<td>0</td>
</tr>
</tbody>
</table>

APPL.PGM ABEND
The number of work units indoubt due to an application program abend. The agent was indoubt when it abended.

Field Name: ASIDAPAB

END OF MEMORY
**Termination - In Doubt**

The number of work units indoubt due to an end of memory. For example, accounting was invoked for an agent that was indoubt when the address space in which it was executing experienced an abnormal end of memory.

**Field Name:** ASIDENDM

**END OF TASK**

The number of work units indoubt due to an end of task.

**Field Name:** ASIDENDT

**CANCEL FORCE**

The number of work units indoubt due to a stop force. For example, accounting was invoked for an agent that was indoubt when a -STOP DB2 MODE(FORCE) command was issued.

**Field Name:** ASIDCANF

*Termination - Normal:*

This topic shows detailed information about “Accounting - Termination - Normal”.

This block shows a report for normal termination.

**Accounting - Termination - Normal**

The field labels shown in the following sample layout of “Accounting - Termination - Normal” are described in the following section.

<table>
<thead>
<tr>
<th>NORMAL TERM.</th>
<th>AVERAGE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW USER</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>DEALLOCATION</td>
<td>1.00</td>
<td>1</td>
</tr>
<tr>
<td>APPL.PROGR. END</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>RESIGNON</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>DBAT INACTIVE</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>TYPE2 INACTIVE</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>RRS COMMIT</td>
<td>0.00</td>
<td>0</td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>END USER THRESH</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>BLOCK STOR THR</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td>STALENESS THR</td>
<td>0.00</td>
<td>0</td>
</tr>
</tbody>
</table>

**NEW USER**

The number of normal terminations due to a new user: either the authorization ID changed or there was a signon with the same authorization ID (normal).

**Field Name:** ASNTNEWU

**DEALLOCATION**

The number of normal terminations due to deallocation, which is a normal program termination.

**Field Name:** ASNTDEAL

**APPL.PROGR. END**

The number of normal terminations due to an application program end: the application program terminated without using DB2 protocols to end its connection to DB2. The agent did not abend so it is considered a normal termination.
Field Name: ASNTAPEN

RESIGNON
The number of normal terminations due to a resignon.

Field Name: ASNTRESI

DBAT INACTIVE
The number of normal terminations due to a DBAT becoming inactive.

Field Name: ASNTDBAT

TYPE2 INACTIVE
The number of times a DDF type 2 thread became inactive.

Field Name: ASNTDBA2

RRS COMMIT
The number of times a DB2 application using the RRS attach facility with accounting interval specified as COMMIT successfully committed a logical unit of work.

Field Name: ASRRSCOM

END USER THRESH
The number of times the threshold was reached for number of end user occurrences when data was accumulated by end user for DDF or RRSAF.

Field Name: ASNTTHEU

BLOCK STOR THR
The number of times the DB2 storage threshold for Accounting blocks was reached for data accumulated by end user for DDF or RRSAF.

Field Name: ASNTTHST

STALENESS THR
The number of times the threshold for the staleness was exceeded when data was accumulated by end user for DDF or RRSAF.

Field Name: ASNTTHSL

Times - Class 1 - Application Time:

This topic shows detailed information about “Accounting - Times - Class 1 - Application Time”.

This block shows information for the Application Time class 1.

The following example shows both layouts, the report on the left, and the trace layout on the right.

Accounting - Times - Class 1 - Application Time

The field labels shown in the following sample layout of “Accounting - Times - Class 1 - Application Time” are described in the following section.
ELAPSED TIME

The class 1 elapsed time of the allied agent.

Special Considerations:

- If the begin time equals zero, or if the end time minus begin time equals zero or is negative, N/C is shown.
- Threads that can be reused, such as CICS protected threads or IMS/VS wait-for-input message regions, can include time during which the thread was inactive and waiting for work.
- Elapsed time to process distributed requests is included for allied-distributed threads.
- This time includes the time for processing SQL statements issued by stored procedures, user-defined functions, or triggers.
- In query CP, sysplex query, or utility parallelism, this is the time shown in the originating record, which overlaps the elapsed times shown in the parallel records.

Field Name: ADRECETT

This is an exception field.

ELAPSED TIME - NONNESTED

The class 1 elapsed time of the allied agent.

Special Considerations:

1. If the begin time equals zero, or if the end time minus begin time equals zero or is negative, N/C is shown.
2. Threads that can be reused, such as CICS protected threads or IMS/VS wait-for-input message regions, can include time during which the thread was inactive and waiting for work.
3. Elapsed time to process distributed requests is included for allied-distributed threads.
4. This time includes the time for processing SQL statements issued by stored procedures, user-defined functions, or triggers.

5. In query CP, sysplex query, or utility parallelism, this is the time shown in the originating record, which overlaps the elapsed times shown in the parallel records.

Field Name: ADNNNET1

**ELAPSED TIME - STORED PROC**

An accumulated and consumed time for stored procedures. It consists of the following parts:

- The total elapsed time spent by the allied agent in stored procedures. A stored procedure may initiate a trigger or invoke a user-defined function. The time spent for initiation or invocation is not included in this counter.
- Accumulated elapsed time consumed when running stored procedure requests on the main application execution unit. As these stored procedures run entirely within DB2, this time represents class 1 and class 2 time.

Field Name: ADELTSP1

**ELAPSED TIME - UDF**

The total elapsed time spent in user-defined function (UDF) requests processed in a DB2 stored procedure or WLM address space. Non-inline UDF times are included in this time if the native UDF was called on a nested task and was not invoked by the main application execution unit.

This time includes times executing SQL and times consumed executing user-defined functions on the main application execution unit.

A user-defined function may initiate a trigger or invoke a stored procedure. The time spent is not included in this counter.

Field Name: AWAELUD1

**ELAPSED TIME - TRIGGER**

The total elapsed time spent by the allied agent in triggers.

A trigger may invoke a stored procedure or a user-defined function. The time spent there is not included in this counter.

For triggers there is no distinction between class 1 and class 2 CPU time: all processing controlled by a trigger is within DB2.

Note: This field is not normally shown in the short layouts but can be included with UTR.

Field Name: ADTRET

**CP CPU TIME**

The class 1 CPU time in an application. It indicates:

- The class 1 CPU time of the allied agent, which may include the accumulated class 1 TCB time for processing stored procedures, user-defined functions, and triggers.
- The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks generated by utilities.
In sysplex query parallelism, the individual CPU times are normalized by the conversion factor of the parallel tasks that is related to the originating task.

In sysplex query parallelism, only CPU times of parallel tasks, running on the same member of the SYSPLEX group as the originating task, are included.

This CPU time does not include time that is consumed on an IBM specialty engine.

Field Name: ADCPUT
This is an exception field.

CP CPU TIME - AGENT
It comprises the class 1 CPU time of the allied agent, which may include the accumulated class 1 CPU time for processing stored procedures, user-defined functions, and triggers if present.

CPU time for processing parallel tasks is not charged to this counter.

This CPU time does not include the CPU time that is consumed on an IBM specialty engine.

Field Name: ADAGENT1
This is an exception field.

CP CPU TIME - AGENT - NONNESTED
The class 1 CPU time of the nonnested activity of the allied agent.

Field Name: ADNNEST1

CP CPU TIME - AGENT - STORED PRC
An accumulated and consumed time for stored procedures that consists of following parts:

- The CPU time accumulated in DB2 for processing SQL CALL statements in the stored procedures or WLM address space. This time is only calculated if accounting class 1 is active.
- The accumulated CPU time consumed when running stored procedure requests on the main application execution unit. This time does not include CPU time consumed on an IBM specialty engine. As these stored procedures run entirely within DB2, this time represents class 1 and class 2 time.

Field Name: ADCPUSP1

CP CPU TIME - AGENT - UDF
The accumulated CPU time consumed executing user-defined functions. This time does not include CPU consumed on an IBM specialty engine. It consists of following parts:

- The accumulated CPU time used to satisfy UDF requests processed in a DB2 stored procedure or WLM address space. This time is only calculated if accounting class 1 is active.
- The accumulated CPU time consumed executing user-defined functions on the main application execution unit. This time represents class 1 and class 2 time, because these UDFs run entirely within DB2.

Field Name: AWACPUD1
CP CPU TIME - AGENT - TRIGGER

The accumulated CPU time consumed while executing under the control of triggers.

For triggers there is no distinction between class 1 and class 2 CPU time. All processing controlled by a trigger is within DB2.

Field Name: ADTRCP

CP CPU TIME - PAR.TASKS

The sum of the CPU times of the parallel tasks running in an application. It can also include the accumulated class 1 CPU time for processing stored procedures, user-defined functions, and triggers if present.

These parallel tasks can be query CP, sysplex query parallel tasks, or parallel tasks produced by utilities. In sysplex query parallelism, the accumulated time reflects only parallel tasks running on the same DB2 subsystem as the originating task.

This time does not include CPU time consumed on an IBM specialty engine.

CPU time for agent tasks is not charged to this counter.

Field Name: ADCPUPLL

SE CPU TIME

The sum of several accumulated CPU times consumed while running on an IBM specialty engine in all environments. These times are consumed when:

- Running stored procedure requests and triggers on the main application execution unit.
- Satisfying stored procedure requests processed in a DB2 stored procedure or WLM address space. SQL procedure times are included in this time if the SQL procedure was called on a nested task and was not invoked by the main application execution unit.
- Satisfying UDF requests processed in a DB2 stored procedure or WLM address space.
- Running triggers on a nested task.
- Running parallel tasks in an application which contains the accumulated CPU time used to satisfy UDF requests.

Note: All CPU times of an IBM specialty engine (SE) that are reported in DB2 trace records are already normalized by DB2 to the speed of the general purpose processor.

Field Name: AWACC1Z

SE CPU TIME - NONNESTED

The class 1 CPU time for nonnested activity on the main application task consumed while running on an IBM specialty engine. This time ignores the CPU time that is consumed when running stored procedure requests, UDF requests, or any triggers on the main application execution unit on an IBM specialty engine.

Field Name: ADSENNC1

SE CPU TIME - STORED PROC
Times - Class 1 - Application Time

An accumulated and consumed time for stored procedures on an IBM specialty engine that consists of following parts:

- The time processed in a DB2 stored procedure or WLM address space. SQL procedure times are included in this time if the SQL procedure was called on a nested task and was not invoked by the main application execution unit.
- The time when running on the main application execution unit. This part of time counts for class 1 and class 2 time, because these stored procedures run entirely within DB2.

Field Name: ADSESP1

SE CPU TIME - UDF

An accumulated and consumed time for user-defined functions on an IBM specialty engine that consists of following parts:

- The accumulated CPU time used to satisfy UDF requests processed in a DB2 stored procedure or WLM address space.
- The accumulated CPU time consumed when running user-defined functions on the main application execution unit. This time represents class 1 and class 2 time, because these UDFs run entirely within DB2.

Field Name: AWACSEU1

SE CPU TIME - TRIGGER

The accumulated CPU time consumed on an IBM specialty engine while running triggers on a nested task or on the main application execution unit.

Field Name: AWACTRZ

SE CPU TIME - PAR.TASKS

The sum of the CPU times of the parallel tasks, or roll-up autonomous tasks that are running in an application on an IBM specialty engine.

It contains the accumulated CPU time that is used to satisfy UDF requests, which are processed in a DB2 stored procedure or WLM address space while running on an IBM specialty engine.

Field Name: ADSEPLL1

SUSPEND TIME

The amount of application suspension time spent outside DB2.

Field Name: ASUSTCL1

SUSPEND TIME - STORED PROC

The total elapsed waiting time for an available TCB before the stored procedure could be scheduled.

Field Name: QWACCAST

SUSPEND TIME - UDF

The total elapsed time spent waiting for an available TCB before the user-defined function could be scheduled.

Field Name: QWACUDST
**Times - Class 1 - Elapsed Time Distribution**

This topic shows detailed information about “Accounting - Times - Class 1 - Elapsed Time Distribution”.

The elapsed time distribution block shows the distribution of the task. For threads exploiting parallelism, only the nonparallel part is taken into account.

The following example applies to both, the report layout and the trace layout.

**Accounting - Times - Class 1 - Elapsed Time Distribution**

The field labels shown in the following sample layout of “Accounting - Times - Class 1 - Elapsed Time Distribution” are described in the following section.

**ELAPSED TIME DISTRIBUTION**

<table>
<thead>
<tr>
<th>Field</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPL</td>
<td>&gt;= 92%</td>
</tr>
<tr>
<td>DB2</td>
<td>&gt;= 3%</td>
</tr>
<tr>
<td>SUSP</td>
<td>&gt;= 5%</td>
</tr>
</tbody>
</table>

**APPL**

The ratio of the elapsed application time, expressed as a percentage of the total elapsed time.

**Field Name:** ARATAPL

**DB2**

The ratio of the elapsed DB2 time, expressed as a percentage of the total elapsed time.

**Field Name:** ARATDB2

**SUSP**

The ratio of the DB2 suspension time, expressed as a percentage of the total elapsed time.

**Field Name:** ARATSUS

---

**Times - Class 2 - DB2 Time:**

This topic shows detailed information about “Accounting - Times - Class 2 - DB2 Time”.

This block shows information for DB2 class 2.

The following example shows both layouts, the report on the left, and the trace layout on the right.

**Accounting - Times - Class 2 - DB2 Time**

The field labels shown in the following sample layout of “Accounting - Times - Class 2 - DB2 Time” are described in the following section.

**Report:**

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVERAGE</td>
<td></td>
</tr>
<tr>
<td>APPL (CLASS 1)</td>
<td></td>
</tr>
<tr>
<td>DB2 (CL.2)</td>
<td></td>
</tr>
<tr>
<td>TIMES/EVENTS</td>
<td></td>
</tr>
<tr>
<td>APPL (CL.1)</td>
<td></td>
</tr>
<tr>
<td>DB2 (CL.2)</td>
<td></td>
</tr>
</tbody>
</table>

**Trace:**

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELAPSED TIME</td>
<td>21.196309</td>
</tr>
<tr>
<td>NONNESTED</td>
<td>0.000000</td>
</tr>
<tr>
<td>STORED PROC</td>
<td>0.000000</td>
</tr>
<tr>
<td>UDF</td>
<td>0.000000</td>
</tr>
<tr>
<td>TRIGGER</td>
<td>0.000000</td>
</tr>
<tr>
<td>ELAPSED TIME</td>
<td>6:23.48603</td>
</tr>
<tr>
<td>NONNESTED</td>
<td>6:23.48603</td>
</tr>
<tr>
<td>STORED PROC</td>
<td>0.000000</td>
</tr>
<tr>
<td>UDF</td>
<td>0.000000</td>
</tr>
<tr>
<td>TRIGGER</td>
<td>0.000000</td>
</tr>
</tbody>
</table>
ELAPSED TIME

The class 2 elapsed time of the allied agent accumulated in DB2.

Field Name: ADDB2ETT

This is an exception field.

ELAPSED TIME - NONNESTED

The class 2 elapsed time for nonnested activity accumulated in DB2 for the allied agent. This time does not include the time spent in DB2 processing SQL statements issued by stored procedures, user-defined functions, or triggers.

Special Considerations

- The time for most thread allocation and certain abend conditions is not reflected in this time.
- The elapsed time for distributed processing is included in the elapsed time of allied-distributed threads.
- In query CP, sysplex query, or utility parallelism, this is the time shown in the originating record, which overlaps the elapsed times shown in the parallel records.

Note: This field is not normally shown in the short layouts but can be included with UTR.

Field Name: QWACASC

ELAPSED TIME - STORED PROC

An accumulated and consumed time for stored procedures that consists of following parts:

- The total elapsed time that the allied agent spent when running SQL in the stored procedures or WLM address space. A stored procedure may initiate a trigger or invoke a user-defined function. This time is not included in this counter.
- Accumulated elapsed time consumed when running stored procedure requests on the main application execution unit. As these stored procedures run entirely within DB2, this time represents class 1 and class 2 time.
Field Name: ADELTSP2

ELAPSED TIME - UDF

The total elapsed time that is spent executing SQL using user-defined function (UDF) requests that are processed in a DB2 stored procedure or WLM address space. This time includes time required to connect and disconnect the UDF task. Non-inline UDF times are included in this time if the native UDF was called on a nested task and was not invoked by the main application execution unit.

This time includes the elapsed time that is consumed when executing user-defined functions on the main application execution unit.

A user-defined function may initiate a trigger or invoke a stored procedure. Any time spent there is not included in this counter.

Field Name: AWAELUD2

ELAPSED TIME - TRIGGER

The total elapsed time spent by the allied agent in triggers.

A trigger may invoke a stored procedure or a user-defined function. The time spent there is not included in this counter.

For triggers there is no distinction between class 1 and class 2 CPU time: all processing controlled by a trigger is within DB2.

Note: This field is not normally shown in the short layouts but can be included with UTR.

Field Name: ADTRET

CP CPU TIME

The class 2 CPU time (in DB2). It indicates:

- The class 2 CPU time for the allied agent. This includes the accumulated class 2 TCB time for processing any stored procedures, user-defined functions, and triggers.
- The accumulated CPU time for processing parallel tasks. This is valid for query CP parallelism, sysplex query parallelism, and parallel tasks generated by utilities.
- For batch reporting, in sysplex query parallelism, the individual CPU times are normalized by the conversion factor of the parallel tasks, related to the originating task.

For online monitoring, in sysplex query parallelism, only CPU times of parallel tasks, running on the same member of the sysplex group as the originating task, are included.

This CPU time does not include time that is consumed on an IBM specialty engine.

Field Name: ADDBCPUT

This is an exception field.

CP CPU TIME - AGENT

It comprises the class 2 CPU time of the allied agent. This time includes the accumulated class 2 CPU time for processing stored procedures, user-defined functions, and triggers, if present. CPU time for processing parallel tasks is not charged to this counter.
Times - Class 2 - DB2 Time

This CPU time does not include the CPU time that is consumed on an IBM specialty engine.

**Field Name:** ADAGENT2

**CP CPU TIME - AGENT - NONNESTED**

The class 2 CPU time of the nonnested activity of the allied agent.

This value indicates the CPU time the allied agent spent in DB2 for nonnested activity. This time does not include the time for processing SQL statements issued by stored procedures, user-defined functions, or triggers.

**Special Considerations:**

1. For allied-distributed threads, this does not include the time used to process distributed SQL. For DBAT-distributed threads, this includes only processing at this location.
2. Most thread allocation and certain abend conditions are not included.
3. This time does not include the time for processing parallel tasks generated by utilities or in query CP or sysplex query parallelism.

**Field Name:** ADNNEST2

**CP CPU TIME - AGENT - STORED PRC**

An accumulated and consumed time for stored procedures that consists of the following information:

- The CPU time accumulated in DB2 for processing SQL statements issued by stored procedures processed in a DB2 stored procedure or WLM address space. This time is only calculated if accounting class 2 is active.
- In DB2 time needed to connect and disconnect the SP task for non-SQL stored procedures.
- SQL procedure times are included in this time if the SQL procedure was called on a nested task and was not invoked by the main application execution unit.
- CPU time that is consumed when running stored procedure requests on the main application execution unit.

This time does not include the CPU time consumed on an IBM specialty engine.

**Field Name:** ADCPUSP2

**CP CPU TIME - AGENT - UDF**

The accumulated CPU time consumed executing user-defined functions. This time does not include CPU time consumed on an IBM specialty engine. It consists of following parts:

- The accumulated CPU time consumed in DB2 when processing SQL statements that were issued by UDFs in a DB2 stored procedure or WLM address space. This time also includes the DB2 time required to connect or disconnect the UDF task. It is only calculated if accounting class 2 is active.
- The accumulated CPU time consumed executing user-defined functions on the main application execution unit. This time represents class 1 and class 2 time, because these UDFs run entirely within DB2.

**Field Name:** AWACPUD2

**CP CPU TIME - AGENT - TRIGGER**
The accumulated CPU time consumed while executing under the control of triggers.

For triggers there is no distinction between class 1 and class 2 CPU time.
All processing controlled by a trigger is within DB2.

Field Name: ADTRCP

CP CPU TIME - PAR.TASKS
The sum of the CPU times of the parallel tasks running in DB2. These tasks can be query CP, sysplex query parallel tasks, parallel tasks produced by utilities, or rollup autonomous tasks.

In sysplex query parallelism, the accumulated time reflects only parallel tasks running on the same DB2 subsystem as the originating task.

This time does not include the CPU time consumed on an IBM specialty engine.

Field Name: ADDBCPC2

SE CPU TIME
The accumulated and consumed class 2 time on an IBM specialty engine (SE) that consists of times for non-nested, stored procedures, user-defined functions, triggers, and parallel tasks.

Note: All CPU times of an IBM specialty engine that are reported in DB2 trace records are already normalized by DB2 to the speed of the general purpose processor.

Field Name: AWACC2Z

SE CPU TIME - NONNESTED
The class 2 CPU time for nonnested activity on the main application task consumed while running on an IBM specialty engine.

Field Name: ADSENNC2

SE CPU TIME - STORED PROC
An accumulated and consumed time for stored procedures on an IBM specialty engine that consists of following parts:

• The time consumed in DB2 in a DB2 stored procedure or WLM address space. SQL procedure times are included in this time if the SQL procedure was called on a nested task and was not invoked by the main application execution unit.

• The time when running on the main application execution unit. This part of time counts for class 1 and class 2 time, because these stored procedures run entirely within DB2.

This time is a subset of QWACSP_CLS1SE.

Field Name: ADSESP2

SE CPU TIME - UDF
The accumulated and consumed time for user-defined functions on an IBM specialty engine that consists of following parts:

• The accumulated CPU time consumed in DB2 processing SQL statements issued by UDFs processed in a DB2 stored procedure or WLM address space. This time is a subset of QWACUDF_CLS1SE.
Times - Class 2 - DB2 Time

- The accumulated CPU time that is consumed when running user-defined functions on the main application execution unit. This time represents class 1 and class 2 time, because these UDFs run entirely within DB2.

  Field Name: AWACSEU2

SE CPU TIME - TRIGGER

The accumulated CPU time consumed on an IBM specialty engine while running triggers on a nested task or on the main application execution unit.

  Field Name: AWACTRZ

SE CPU TIME - PAR.TASKS

The sum of the CPU times of the parallel tasks, or roll-up autonomous task that are running in DB2 on an IBM specialty engine.

It contains the accumulated CPU time that is consumed in DB2 when processing SQL statements that are issued by UDFs processed in a DB2 stored procedure or WLM address space while running on an IBM specialty engine.

  Field Name: ADSEPLL2

SUSPEND TIME

The waiting time for all types of class 3 suspensions by the originating task and parallel tasks, if parallelism is employed.

  Field Name: ADTSUST

This is an exception field.

SUSPEND TIME - AGENT

The waiting time of the allied agent for all types of class 3 suspension
This counts class 3 suspension time within nested activity.
Suspension time of parallel tasks in query or utility parallelism is not included.

  Field Name: ADTCBCL3

This is an exception field.

SUSPEND TIME - PAR.TASKS

The sum of the suspension times spent for parallel tasks. These tasks can be query CP or sysplex query parallel tasks, parallel tasks produced by utilities, or roll-up autonomous tasks.

  Field Name: ADCPCL3T

NOT ACCOUNT.

The time not accounted in DB2. This time determines whether there is a large percentage of time that has not been captured within the DB2 accounting record and whether system monitoring tools (such as RMF) should be examined to determine the cause of a performance problem.

In query or utility parallelism, it is the unaccounted time of the originating task only.
Check the DB2 accounting class 2 elapsed time that is not recorded as class 2 CPU time or class 3 suspensions. The following list shows why DB2 Class 2 Not Accounted time can be significant:

- Too much detailed online tracing, or problems with vendor performance monitors. This situation is usually the primary cause of high not-accounted-for time on systems that are not CPU-constrained.
- Running in a very high CPU utilization environment and waiting for CPU cycles if DB2 work WLM service class goals are not set properly.
- Running in a high MVS paging environment and waiting for storage allocation.
- The IBM specialty engines are highly utilized and the SYS1.PARMLIB(IEAOPTxx) member has the following settings: IIIPHONORPRIORITY=NO and IFAPRONORPRIORITY=NO.
- Frequent gathering of data set statistics (SMF 46 Type 2 records) DD consolidation overhead (z/OS parm DDCONS=YES DETAIL).
- CF Lock Structure system managed DUPLEXing since DB2 is not informed about related suspensions waits.
- In very I/O intensive environments, the Media Manager might be running out of request blocks.
- Time spent waiting for parallel tasks to complete (when query parallelism is used for the query).
- HSM (Hierarchical Storage Management) data set recall is an asynchronous process.
- Waiting for requests to be returned from SNA DB2 Server.
- Data set open contention related to PCLOSET being too small.
- DB2 internal suspend and resume looping when several threads are waiting for the same resource.

**Field Name:** ADNOTACC

**DB2 ENT/EXIT**

The total number of DB2 entry and exit events processed by the allied address space to calculate the elapsed time in DB2 and the processor time.

This counter does not include the SQL entry and exit events processed by stored procedures.

**Field Name:** QWACARNA

This is an *exception* field.

**EN/EX-STPROC**

The number of SQL entry or exit events performed by stored procedures. This number is only calculated if accounting class 2 is active.

**Field Name:** QWACSPNE

**EN/EX-UDF**

The number of SQL entry/exit events performed by user-defined functions. This is only calculated if accounting class 2 is active.

**Field Name:** QWACUDNE
This topic shows detailed information about “Accounting - Times - Class 2 - Time Distribution”.

The class 2 time distribution block shows the distribution of the active-in-DB2 time, the not-accounted time, and the suspension time, of the originating task. For threads exploiting query parallelism, only the nonparallel part is taken into account.

The following example applies to both, the report layout and the trace layout.

**Accounting - Times - Class 2 - Time Distribution**

The field labels shown in the following sample layout of “Accounting - Times - Class 2 - Time Distribution” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS2TIME</td>
<td>CPU</td>
</tr>
<tr>
<td>SECPU</td>
<td>7%</td>
</tr>
<tr>
<td>NOTACC</td>
<td>56%</td>
</tr>
<tr>
<td>SUSP</td>
<td>56%</td>
</tr>
</tbody>
</table>

**Field Name: ARATCPU**

The ratio of the agent DB2 CPU time, expressed as a percentage of the DB2 elapsed time.

**Field Name: ARATCSE**

The ratio of the agent DB2 SE (IBM specialty engine) CPU time, expressed as a percentage of the DB2 elapsed time.

**Field Name: ARATNAC**

The ratio of the DB2 not accounted time, expressed as a percentage of the DB2 elapsed time.

**Field Name: ARATSUP**

The ratio of the agent DB2 suspension time, expressed as a percentage of the DB2 elapsed time.

**Accounting times - Class 3 - Suspensions:**

The accounting times report and trace shows information about class 3 suspensions.
Times - Class 3 - Suspensions

Report:

<table>
<thead>
<tr>
<th>CLASS 3 SUSPENSIONS</th>
<th>AVERAGE TIME</th>
<th>AV.EVENT</th>
<th>TIME/EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCK/LATCH(DB2+IRLM)</td>
<td>0.00000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>IRLM LOCK+LATCH</td>
<td>0.00000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>DB2 LATCH</td>
<td>0.00000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>SYNCHRON. I/O</td>
<td>0.000254</td>
<td>0.83</td>
<td>0.000305</td>
</tr>
<tr>
<td>DATABASE I/O</td>
<td>0.000254</td>
<td>0.83</td>
<td>0.000305</td>
</tr>
<tr>
<td>READ CACHE HIT</td>
<td>0.049282</td>
<td>108</td>
<td>0.000456</td>
</tr>
<tr>
<td>LOG WRITE I/O</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>OTHER READ I/O</td>
<td>0.000446</td>
<td>0.33</td>
<td>0.001338</td>
</tr>
<tr>
<td>OTHER WRITE I/O</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>SER.TASK SWITCH</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>UPDATE COMMIT</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>OPEN/CLOSE</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>SYSLGRNG REC</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>EXT/DEL/DEF</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>OTHER SERVICE</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>ARC.LOG(QUIES)</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>LOG READ</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>DRAIN LOCK</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>CLAIM RELEASE</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>PAGE LATCH</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>NOTIFY MSGS</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>GLOBAL CONTENTION</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>COMMIT PH1 WRITE I/O</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>ASYNCH CF REQUESTS</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>TCP/IP LOB XML</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>ACCELERATOR</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>AUTONOMOUS PROCEDURE</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>PQ SYNCHRONIZATION</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>LOB COMPRESSION</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>FAST INSERT PIPE</td>
<td>0.000000</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>TOTAL CLASS 3</td>
<td>0.000700</td>
<td>1.17</td>
<td>0.000600</td>
</tr>
</tbody>
</table>

Trace:

<table>
<thead>
<tr>
<th>CLASS 3 SUSPENSIONS</th>
<th>ELAPSED TIME</th>
<th>EVENTS</th>
<th>TIME/EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCK/LATCH(DB2+IRLM)</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>IRLM LOCK+LATCH</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>DB2 LATCH</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>SYNCHRON. I/O</td>
<td>0.001523</td>
<td>5</td>
<td>0.000305</td>
</tr>
<tr>
<td>DATABASE I/O</td>
<td>0.001523</td>
<td>5</td>
<td>0.000305</td>
</tr>
<tr>
<td>READ CACHE HIT</td>
<td>0.049282</td>
<td>108</td>
<td>0.000456</td>
</tr>
<tr>
<td>LOG WRITE I/O</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>OTHER READ I/O</td>
<td>0.002676</td>
<td>2</td>
<td>0.001338</td>
</tr>
<tr>
<td>OTHER WRITE I/O</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>SER.TASK SWITCH</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>UPDATE COMMIT</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>OPEN/CLOSE</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>SYSLGRNG REC</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>EXT/DEL/DEF</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>OTHER SERVICE</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>ARC.LOG(QUIES)</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>LOG READ</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>DRAIN LOCK</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>CLAIM RELEASE</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>PAGE LATCH</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>NOTIFY MSGS</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>GLOBAL CONTENTION</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>COMMIT PH1 WRITE I/O</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>ASYNCH CF REQUESTS</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>TCP/IP LOB XML</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>ACCELERATOR</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>AUTONOMOUS PROCEDURE</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>PQ SYNCHRONIZATION</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>LOB COMPRESSION</td>
<td>0.000000</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>FAST INSERT PIPE</td>
<td>0.000111</td>
<td>1</td>
<td>N/C</td>
</tr>
<tr>
<td>TOTAL CLASS 3</td>
<td>0.004199</td>
<td>7</td>
<td>0.000600</td>
</tr>
</tbody>
</table>
Times - Class 3 - Suspensions

LOCK/LATCH(DB2+IRLM) - AVERAGE TIME/ELAPSED TIME
The sum of the accumulated wait time due to local contention for locks and the accumulated wait time due to latch contention.

Field Name: AWTLOLA

LOCK/LATCH(DB2+IRLM) - AV.EVENT/EVENTS
The sum of the number of wait trace events processed for waits for local contention for locks and the number of wait trace events processed for waits for latch contention.

Note: The internally defined field adjusts the original DB2 value. DB2 counts each event twice, one for the entry and one for the exit.

Field Name: ADLLSUSC
This is an exception field.

IRLM LOCK+LATCH - AVERAGE TIME/ELAPSED TIME
The accumulated wait time because of local contention for locks. The term local contention is used to differentiate from global contention (which is reported in QWACAWTJ). Local contention does not require intersystem communication. The contention is detected and resolved entirely within this subsystem.

Field Name: QWACAWTL
This is an exception field.

IRLM LOCK+LATCH - AV.EVENT/EVENTS
The number of wait trace events processed for waits for local contention for locks.

Note: The internally defined field adjusts the original DB2 value. DB2 counts each event twice, one for the entry and one for the exit.

Field Name: ADLBSUSC

DB2 LATCH - AVERAGE TIME/ELAPSED TIME
The accumulated wait time because of latch contention.

Field Name: QWACAWLH

DB2 LATCH - AV.EVENT/EVENTS
The number of wait trace events processed for waits for latch contention.

Note: The internally defined field adjusts the original DB2 value. DB2 counts each event twice, one for the entry and one for the exit.

Field Name: ADLASUSC

SYNCHRON. I/O - AVERAGE TIME/ELAPSED TIME
The I/O elapsed time accumulated due to synchronous I/O suspensions. DB2 calculates this value by subtracting the store clock time when an agent begins waiting for a synchronous I/O from the time the agent is resumed.

Field Name: ADIOSUST

SYNCHRON. I/O - AV.EVENT/EVENTS
The total number of synchronous I/O suspensions.
Field Name: ADIOSUSC

DATABASE I/O - AVERAGE TIME/ELAPSED TIME
The accumulated I/O elapsed wait time for database I/O done under this thread. This field is for synchronous I/O only. It includes synchronous read and write I/O. This value is an average.

Field Name: QWACAWTI

DATABASE I/O - AVERAGE TIME/ELAPSED TIME
The number of wait trace events processed for waits for database I/O under this thread.

Field Name: ADIOARNE

READ CACHE HIT – AVERAGE TIME / ELAPSED TIME
The accumulated read I/O elapsed time where the requested data was found in the DASD subsystem cache.

Field Name: QWACAWTCD

READ CACHE HIT – AVERAGE TIME / ELAPSED TIME
The number of read I/O suspensions where the requested data was found in the DASD subsystem cache.

Field Name: QWACAWCD

LOG WRITE I/O - AVERAGE TIME/ELAPSED TIME
The accumulated wait time for log write I/O. This value is an average.

Field Name: QWACAWLG

LOG WRITE I/O - AVERAGE TIME/ELAPSED TIME
The number of wait trace events processed for waits for log write I/O. This value is an average.

Field Name: ADLWSUSC

OTHER READ I/O - AVERAGE TIME/ELAPSED TIME
The accumulated waiting time due to a read I/O that performed under a thread other than the one being reported. The time does not represent the total duration of the subject read I/O. It includes:
- Sequential prefetch
- List prefetch
- Dynamic Prefetch
- Synchronous read I/O performed by a thread other than the one being reported

Field Name: QWacaWTR

This is an exception field.

OTHER READ I/O - AVERAGE TIME/ELAPSED TIME
The total number of suspensions due to a read I/O performed under a thread other than the one being reported.

Field Name: ADARUSUSC

This is an exception field.
OTHER WRTE I/O - AVERAGE TIME/ELAPSED TIME

The accumulated waiting time due to a write I/O that performed under a thread other than the one being reported. This time does not represent the total duration of the subject write I/O. It includes:

- An asynchronous write I/O
- A synchronous write I/O performed by a thread other than the one being reported
- Frequent system checkpoints and low settings for deferred write thresholds
- When updating a page that is being written, the first thread wait is captured under Other Write I/O
- Other concurrent threads on the same DB2 subsystem will encounter Page latch suspension.

Field Name: QWACAWTW

This is an exception field.

OTHER WRTE I/O - AV.EVENT/EVENTS

The total number of suspensions due to a write I/O performed under a thread other than the one being reported. It includes:

- An asynchronous write I/O
- A synchronous write I/O performed by a thread other than the one being reported.

Field Name: ADAWSUSC

This is an exception field.

SER.TASK SWTCH - AVERAGE TIME/ELAPSED TIME

The accumulated waiting time due to a synchronous execution unit switching to DB2 services from the thread being reported. It includes:

- Open/close data set
- SYSLGRNG or SYSLGRNX update
- Commit phase 2
- Dataspace manager services
- Define data set
- Extend data set
- Delete data set
- Log I/Os for commit and abort processing

Special Considerations:

1. There are no service waits associated with commit phase 2 under read-only threads originating from CICS or IMS. There is a service wait for any thread doing commit phase 2 after an update.
2. There is no overlap between the elapsed time reported in this field and the other class 3 elapsed times.

Field Name: ADSTSUST

This is an exception field.

SER.TASK SWTCH - AV.EVENT/EVENTS

The total number of suspensions due to a synchronous execution unit switching to DB2 services from the thread being reported.
Field Name: ADSTSUSC

This is an exception field.

**UPDATE COMMIT - AVERAGE TIME/ELAPSED TIME**

The accumulated wait time because of synchronous execution unit switch for DB2 Phase 2 commit, abort, or deallocation. This includes wait time for Phase 2 commit Log writes and database writes for LOB with LOG NO. For data sharing environment Page P-locks unlocks for updated pages and GBP writes.

Field Name: QWACAWTE

**UPDATE COMMIT - AVERAGE TIME/ELAPSED TIME**

The number of wait trace events processed for waits for synchronous execution unit switching for commit or abort.

This value is an average.

Field Name: ADSTARNNS

**OPEN/CLOSE - AVERAGE TIME/ELAPSED TIME**

Accumulated waiting time for a synchronous execution unit switch to the DB2 OPEN/CLOSE data set service for the HSM recall service.

This value is an average.

Field Name: QWAXOCSE

**OPEN/CLOSE - AVERAGE TIME/ELAPSED TIME**

The number of wait trace events processed for waits for synchronous execution unit switching to the open/close service.

This value is an average.

Field Name: ADOCSUSC

**SYSLGRNG REC - AVERAGE TIME/ELAPSED TIME**

Accumulated wait time for a synchronous execution unit switch to the DB2 SYSLGRNG recording service. This service is sometimes used for Level ID checking for downlevel detection.

This value is an average.

Field Name: QWAXSLSE

**SYSLGRNG REC - AVERAGE TIME/ELAPSED TIME**

The number of wait trace events processed for waits for synchronous execution unit switching to the SYSLGRNG recording service.

This value is an average.

Field Name: ADSLSUSC

**EXT/DEL/DEF - AVERAGE TIME/ELAPSED TIME**

Accumulated wait time for a synchronous execution unit switch to the DB2 data space manager services. This includes DEFINE DATA SET, EXTEND DATA SET, DELETE DATA SET, RESET DATA SET, and VSAM CATALOG ACCESS.

This value is an average.

Field Name: QWAXDSSE
EXT/DEL/DEF - AV.EVENT/EVENTS

The number of wait trace events processed for waits for synchronous execution unit switching to the data space manager service tasks.

This value is an average.

Field Name: ADDSSUSC

OTHER SERVICE - AVERAGE TIME/ELAPSED TIME

Could be due to a VSAM catalog update. In the distributed environment, it includes the waiting time for the response from the server system. Performance trace for IFCID 46 to 50, 170, and 171 provide more detailed information for analysis.

Field Name: QWAXOTSE

OTHER SERVICE - AV.EVENT/EVENTS

The number of wait trace events processed for waits for synchronous execution unit switching to other service tasks.

This value is an average.

Field Name: ADOTSUSC

ARC.LOG(QUIES) - AVERAGE TIME/ELAPSED TIME

The accumulated waiting time due to the processing of ARCHIVE LOG MODE(QUIESCE) commands.

This time does not represent the time required to perform the entire command.

Field Name: QWAXALOG

This is an exception field.

ARC.LOG(QUIES) - AV.EVENT/EVENTS

The total number of suspensions due to the processing of ARCHIVE LOG MODE(QUIESCE) commands.

This counter belongs to class 1 (not to class 3 like the rest of the fields in this section) but it is shown here to be adjacent to the archive log quiesce suspension time, which is in class 3.

Field Name: ADALSUSC

This is an exception field.

LOG READ - AVERAGE TIME/ELAPSED TIME

The accumulated wait time for:

- Archive Log reads
- Active Log reads
- Active Log prefetch reads
- Fast Log apply log reads

Field Name: QWAXAWARN

LOG READ - AV.EVENT/EVENTS

The number of wait trace events processed for archive reads, active reads, and active log prefetch reads.

Field Name: ADLRSUSC
This is an exception field.

**DRAIN LOCK - AVERAGE TIME/ELAPSED TIME**

The accumulated waiting time for a drain lock. This is the time the requester is suspended while waiting to acquire the drain lock.

**Field Name**: QWAXAWDR

This is an exception field.

**DRAIN LOCK - AV.EVENT/EVENTS**

The total number of suspensions due to drain lock processing.

**Field Name**: ADDRSUSC

This is an exception field.

**CLAIM RELEASE - AVERAGE TIME/ELAPSED TIME**

The accumulated waiting time for a drain waiting for claims to be released. After the drain lock is acquired, the drainer must wait for claim holders to release the object.

**Field Name**: QWAXAWCL

This is an exception field.

**CLAIM RELEASE - AV.EVENT/EVENTS**

The total number of suspensions until the claims are released.

**Field Name**: ADCMSUSC

This is an exception field.

**PAGE LATCH - AVERAGE TIME/ELAPSED TIME**

Page latch suspension could be due to concurrent threads that try to update a hot page that is frequently written because of a low deferred write threshold.

In the data sharing environment, within the same member, the first thread gets a P-lock (such as: Index leaf page P-Lock or P-Lock for Space map page or data page P-lock for Row level locking) during high INSERT activity. Performance trace for IFCID 226 and 227 provide more information for detailed analysis.

With a high number of concurrent threads, for subsequent threads in the same member for the same resource, contention is reported as encountering a page latch contention. Randomizing the Index key helps minimizing page latch contentions for the Index leaf page.

If the page latch is for a space map page and an incremental image copy is not used, use the DDL TRACKMOD NO option to avoid frequent updates to the space map page. The Member Cluster option reduces page latch contention for a space map page.

**Field Name**: QWACAWTP

**PAGE LATCH - AV.EVENT/EVENTS**

The total number of suspensions due to page latch contentions.

**Field Name**: ADPGSUSC

**NOTIFY MSGS - AVERAGE TIME/ELAPSED TIME**
The accumulated elapsed waiting time due to suspensions caused by sending notify messages to other members in the data sharing group. Messages are sent, for example, when the database descriptors are changed due to DDL.

**Field Name:** QWACAWTG

**NOTIFY MSGS - AV.EVENT/EVENTS**

The number of suspensions caused by sending messages to other members in the data sharing group. This value is only calculated if accounting class 3 is active and DB2 is a member of a data sharing group.

**Field Name:** ADNOSUSC

**GLOBAL CONTENTION - AVERAGE TIME/ELAPSED TIME**

The total accumulated waiting time caused by the suspension of IRLM lock requests due to global lock contention in a data sharing environment that require intersystem communication to resolve.

Look at the Accounting section that shows Parent/Child/Other breakdown for the L-Lock and P-Lock Global contentions. Also look at the GBP Buffer Pool statistics Page P-Lock suspensions and negotiations category (Space map page / Data page / Index leaf page) in the Statistics report for the same time interval:

- If the majority of the negotiations are for the space map pages or data pages, the Member Cluster option can help.
- If the majority of the negotiations are for data pages, consider to change small tables with row level locking to page level locking with MAXROWS 1.
- If the majority of the negotiations are for Index leaf pages, consider adding more free space (PCTFREE / FREEPAGE) and/or minimizing the index key size for a unique or semi-unique multi-column index.

**Field Name:** ADGCSUST

**GLOBAL CONTENTION - AV.EVENT/EVENTS**

The number of suspensions caused by global lock contention. This value is only calculated if accounting class 3 is active and DB2 is a member of a data sharing group.

**Field Name:** ADGCSUSC

**COMMIT PH1 WRITE I/O - AVERAGE TIME/ELAPSED TIME**

The accumulated time waiting for phase 1 commit write I/O. An example for this suspension is LOB Table Space with LOG NO Phase 1 commit database synchronous write I/O processing.

**Field Name:** QWAXAWFPC

**COMMIT PH1 WRITE I/O - AV.EVENT/EVENTS**

The total number of wait trace events for commit phase 1 I/O.

**Field Name:** ADFCSUSC

**ASYNCH CF REQUESTS - AVERAGE TIME/ELAPSED TIME**

The accumulated wait time for IXLCACHE and IXLFCOMP requests.

**Field Name:** QWAXIXLT

**ASYNCH CF REQUESTS - AV.EVENT/EVENTS**
The number of IXLCACHE and IXLFCOMP asynchronous requests.

**Field Name:** ADIXSUSC

**TCP/IP LOB XML - AVERAGE TIME/ELAPSED TIME**

The accumulated wait time for TCP/IP LOB and XML (storing large object and XML) materialization.

**Field Name:** QWACALBW

**TCP/IP LOB XML - AV.EVENT/EVENTS**

The number of wait trace events processed for waits for TCP/IP LOB and XML materialization.

**Field Name:** ADLMSUSC

**ACCELERATOR - AVERAGE TIME/ELAPSED TIME**

The accumulated wait time for requests to an accelerator.

**Field Name:** QWACAACW

**ACCELERATOR - AV.EVENT/EVENTS**

The total number of suspensions due to a request to an accelerator.

**Field Name:** ADAASUSC

**AUTONOMOUS PROCEDURE - AVERAGE TIME/ELAPSED TIME**

The accumulated time waiting for autonomous procedures to complete.

**Field Name:** AATXSUST

**AUTONOMOUS PROCEDURE - AV.EVENT/EVENTS**

The number of autonomous procedures that were executed:

1. For non-rollup records, this value is the number of autonomous procedures that were executed.
2. For a parallel query rollup record, this value is 0.
3. For a DDF or RRSAF rollup record, this value is the number of autonomous procedures that were executed. These procedures are NOT counted in QWACPCNT.
4. For autonomous procedures rollup records, this value is 0.

**Field Name:** AATXSUST

**PQ SYNCHRONIZATION - AVERAGE TIME/ELAPSED TIME**

The accumulated time waiting for parallel queries to synchronize between parent and child tasks.

**Field Name:** AWPQSST

**PQ SYNCHRONIZATION - AV.EVENT/EVENTS**

The number of times the parallel query processing had to suspend because it was waiting for the synchronization of parent or child.

**Field Name:** AWPQSSC

**LOB COMPRESSION - AVERAGE TIME/ELAPSED TIME**

The accumulated time waiting for a compression of DB2 large objects (LOB) (DB2 field QWAX_LOBCOMP_WAIT).

**Field Name:** AWLCSUST
LOB COMPRESSION - AVERAGE EVENT/EVENTS

The number of wait trace events processed for DB2 large object (LOB) compressions (DB2 field QWAX_LOBCOMP_COUNT).

**Field Name:** AWLCSUSC

FAST INSERT PIPE - AVERAGE TIME/ELAPSED TIME

The accumulated wait time for pipe wait (DB2 field QWAX_PIPE_WAIT).

**Field Name:** AWPISUST

FAST INSERT PIPE - AVERAGE EVENT/EVENTS

The number of wait trace events that were processed for pipe wait (DB2 field QWAX_PIPEWAIT_COUNT / 2).

**Field Name:** AWPISUSC

TOTAL CLASS 3 - AVERAGE TIME/ELAPSED TIME

The waiting time for all types of class 3 suspensions by the originating task and parallel tasks, if parallelism is employed.

**Field Name:** ADTSUST

This is an exception field.

TOTAL CLASS 3 - AVERAGE EVENT/EVENTS

The total number of class 3 suspensions.

**Field Name:** ADTSUSC

This is an exception field.

Times - Class 5 - IFI Time:

This topic shows detailed information about “Accounting - Times - Class 5 - IFI Time”.

This block shows information for the Instrumentation Facility Interface (IFI) class 5.

The following example shows both layouts, the report on the left, and the trace layout on the right.

**Accounting - Times - Class 5 - IFI Time**

The field labels shown in the following sample layout of “Accounting - Times - Class 5 - IFI Time” are described in the following section.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVERAGE TIMES CL. 5 IFI (CL.5)</td>
<td>TIMES CLASS 5 IFI (CL.5)</td>
</tr>
<tr>
<td>ELAPSED TIME</td>
<td>N/P</td>
</tr>
<tr>
<td>CP CPU TIME</td>
<td>N/P</td>
</tr>
<tr>
<td>DCAPT.DESCR.</td>
<td>N/P</td>
</tr>
<tr>
<td>LOG EXTRACT.</td>
<td>N/P</td>
</tr>
<tr>
<td>ELAPSED TIME</td>
<td>N/P</td>
</tr>
<tr>
<td>CP CPU TIME</td>
<td>N/P</td>
</tr>
<tr>
<td>DCAPT.DESCR.</td>
<td>N/P</td>
</tr>
<tr>
<td>LOG EXTRACT.</td>
<td>N/P</td>
</tr>
</tbody>
</table>

**ELAPSED TIME**

The accumulated elapsed time for processing IFI calls. This field is only calculated if accounting class 5 is active.

**Field Name:** QIFAAIET
CP CPU TIME

The accumulated CPU time spent processing IFI calls. This is the same as the TCB time (class 5).

This field is only calculated if accounting class 5 is active.

Field Name: QIAATT

This is an exception field.

DCAPT.DESCR.

The accumulated elapsed time for processing data capture describes. Data capture describes occur only during IFI read requests for IFCID 185. This time is a subset of the log extraction time.

Field Name: QIAAMBT

This is an exception field.

LOG EXTRACT.

The accumulated elapsed time for extracting log records for tables defined with DATA CAPTURE CHANGES. This time is a subset of the class 5 elapsed time.

Field Name: QIAAMLT

This is an exception field.

Times - Class 7 - CP CPU Distribution:

This topic shows detailed information about “Accounting - Times - Class 7 - CP CPU Distribution”.

This block shows the distribution of the class 7 CP CPU time among all packages.

The following example shows both layouts, first the report layout, followed by the trace layout.

Accounting - Times - Class 7 - CP CPU Distribution

The field labels shown in the following sample layout of “Accounting - Times - Class 7 - CP CPU Distribution” are described in the following section.

Report:

<table>
<thead>
<tr>
<th>PROGRAM NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCRCZ043</td>
</tr>
<tr>
<td>CCRCZ063</td>
</tr>
<tr>
<td>CECEZ011</td>
</tr>
<tr>
<td>CECEZ012</td>
</tr>
<tr>
<td>CECEZ072</td>
</tr>
<tr>
<td>CECEZ074</td>
</tr>
<tr>
<td>CFS041N</td>
</tr>
<tr>
<td>CPDCZ017</td>
</tr>
<tr>
<td>CPDCZ018</td>
</tr>
<tr>
<td>CPDCZ019</td>
</tr>
<tr>
<td>CPDCZ045</td>
</tr>
<tr>
<td>CPDCZ080</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CLASS 7 CP CPU TIME CONSUMERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>================================</td>
</tr>
<tr>
<td>==&gt; 4%</td>
</tr>
</tbody>
</table>
**PROGRAM NAME**

The program name (package ID or DBRM name).

In the case of rollup data (Accounting data of DDF/RRSAF threads and parallel tasks accumulated by DB2), the following value is shown "ROLSUM".

**Field Name:** QPACPKID

This is an exception field.

**CLASS 7 CP CPU TIME CONSUMERS**

The ratio of the class 7 CP CPU time, expressed as a percentage of the total class 7 CP CPU time of all programs.

**Field Name:** ARATCL7C

---

**Times - Class 7 - Elapsed Time Distribution:**

This topic shows detailed information about “Accounting - Times - Class 7 - Elapsed Time Distribution”.

This block shows the distribution of the class 7 elapsed time among all programs.

The following example shows both layouts, first the report layout, followed by the trace layout.

**Accounting - Times - Class 7 - Elapsed Time Distribution**

The field labels shown in the following sample layout of “Accounting - Times - Class 7 - Elapsed Time Distribution” are described in the following section.

**Report:**

```
+----------------+-------------------+-----------------+----------+
| PROGRAM NAME   | CLASS 7 ELAPSED   | TIME CONSUMERS  |         |
|                | TIME             |                 |         |
| DSNTEP2        | ==================+----------------+----------|
| *ROLLUP*       |                   |                 | 3%       |
+----------------+-------------------+-----------------+----------|
```

**Trace:**

```
+----------------+-------------------+-----------------+----------+
| PROGRAM NAME   | CLASS 7 ELAPSED   | TIME CONSUMERS  |         |
|                | TIME             |                 |         |
| DSNTEP2        |                   |                 | 3%       |
| *ROLLUP*       |                   |                 | 97%      |
+----------------+-------------------+-----------------+----------+
```

---

**PROGRAM NAME**

The program name (package ID or DBRM name).
In the case of rollup data (Accounting data of DDF/RRSAF threads and parallel tasks accumulated by DB2), the following value is shown "ROLSUM".

Field Name: QPACPKID
This is an exception field.

CLASS 7 ELAPSED TIME CONSUMERS
The ratio of the class 7 elapsed time, expressed as a percentage of the total class 7 elapsed time of all programs.

Field Name: ARATCL7

Triggers:
This topic shows detailed information about “Accounting - Triggers”.
This block provides information about triggers.

For formatting reasons, OMEGAMON XE for DB2 PE shows different labels for report and trace. The following example shows both layouts, the report on the left, and the trace layout on the right.

Accounting - Triggers
The field labels shown in the following sample layout of “Accounting - Triggers” are described in the following section.

<table>
<thead>
<tr>
<th>Report:</th>
<th>Trace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRIGGERS</td>
<td>AVERAGE</td>
</tr>
<tr>
<td>STATEMENT TRIGGER</td>
<td>15.00</td>
</tr>
<tr>
<td>ROW TRIGGER</td>
<td>8.00</td>
</tr>
<tr>
<td>SQL ERROR OCCUR</td>
<td>0.00</td>
</tr>
</tbody>
</table>

STATEMENT TRIGGER (STMT TRIGGER)
The number of times a statement trigger was activated.

Field Name: QXSTTRG

ROW TRIGGER
The number of times a row trigger was activated.

Field Name: QXROWTRG

SQL ERROR OCCUR (SQL ERROR)
The number of times an SQL error occurred during the execution of a triggered action. This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.

Field Name: QXTRGERR

Truncated Values:
This topic shows detailed information about “Accounting - Truncated Values”.

Chapter 6. Batch reporting  3367
OMEGAMON XE for DB2 PE can report values that are too long to fit in the space available in the report layout. When this happens, the value reported in the block is truncated. Truncated values are then listed at the end of each logical report unit, together with the full values.

The list of Truncated Values shows pairs of a truncated values (unique name) and its original full value (long name). This list can show pairs caused by long names of client end-user transaction names and workstation names. It shows the complete long name on several lines if required. A truncated value can consist of up to 32 characters, which is the length of the short name of an end-user transaction name.

The mapping between truncated and full values remains the same for multiple reports from the same input data. This mapping for multiple reports from different input data cannot be guaranteed.

The following example applies to both, the report layout and the trace layout.

**Accounting - Truncated Values**

The field labels shown in the following sample layout of “Accounting - Truncated Values” are described in the following section.

<table>
<thead>
<tr>
<th>TRUNCATED VALUE</th>
<th>FULL VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATIONABCDEF#1</td>
<td>LOCATIONABCDEFANDSOON</td>
</tr>
<tr>
<td>PRIMA#1</td>
<td>PRIMAUTHANDSOON</td>
</tr>
<tr>
<td>AUTHCH#1</td>
<td>AUTHCHECKED</td>
</tr>
<tr>
<td>ORIGAU#1</td>
<td>ORIGAUTHANDSOON</td>
</tr>
<tr>
<td>SOURCEOBJECTABCD#1</td>
<td>SOURCEOBJECTABCDANDSOON</td>
</tr>
<tr>
<td>SOURCE#1</td>
<td>SOURCEOWNERNAME</td>
</tr>
<tr>
<td>TARGETOBJECTABCD#1</td>
<td>TARGETOBJECTABCDANDSOON</td>
</tr>
<tr>
<td>TARGET#1</td>
<td>TARGETOWNERNAME</td>
</tr>
<tr>
<td>ORIGAU#1</td>
<td>ORIGAUTHANDSOON</td>
</tr>
<tr>
<td>ORIGAU#1</td>
<td>ORIGAUTHANDSOON</td>
</tr>
<tr>
<td>::FFFF:9.152.122.74</td>
<td>::FFFF:9.152.122.74</td>
</tr>
<tr>
<td>It_is_the_enduse#1</td>
<td>It_is_the_enduser_name</td>
</tr>
<tr>
<td>A_long_workstat#1</td>
<td>A_long_workstation_name</td>
</tr>
<tr>
<td>This_is_a_very_long_transact#1</td>
<td>This_is_a_very_long_transaction_name</td>
</tr>
</tbody>
</table>

**User-Defined Functions:**

This topic shows detailed information about “Accounting - User-Defined Functions”.

This block shows information about user-defined functions.

The following example shows both layouts, the report on the left, and the trace layout on the right.

**Accounting - User-Defined Functions**

The field labels shown in the following sample layout of “Accounting - User-Defined Functions” are described in the following section.

<table>
<thead>
<tr>
<th>UDF</th>
<th>AVERAGE</th>
<th>Trace</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTED</td>
<td>0.00</td>
<td>EXECUTED</td>
<td>0</td>
</tr>
<tr>
<td>ABENDED</td>
<td>0.00</td>
<td>ABENDED</td>
<td>0</td>
</tr>
<tr>
<td>TIMED OUT</td>
<td>0.00</td>
<td>TIMED OUT</td>
<td>0</td>
</tr>
<tr>
<td>REJECTED</td>
<td>0.00</td>
<td>REJECTED</td>
<td>0</td>
</tr>
</tbody>
</table>
EXECUTED
The number of user-defined functions executed.
Field Name: QXCAUD

ABENDED
The number of times a user-defined function abended.
Field Name: QXCAUDAB

TIMED OUT
The number of times a user-defined function timed out while waiting to be scheduled.
Field Name: QXCAUDTO

REJECTED
The number of times a user-defined function was rejected.
Field Name: QXCAUDRJ

The Accounting Save-File Utility:

Use the Save-File utility to migrate and convert Accounting Save data sets into a format suitable for OMEGAMON for Db2 PE V5.4.0.

The function performed is specified in a parameter on the EXEC command.

Migrating Data Sets:

This topic describes how to migrate Accounting Save data sets created by OMEGAMON for Db2 PE V5.2.0 or V5.3.0 into the record format of OMEGAMON for Db2 PE V5.4.0.

To migrate Accounting Save data sets:
1. Create a VSAM data set for V520 or V530.
2. Define an OMEGAMON for Db2 PE V5.4.0 VSAM data set using IDCAMS as output.
3. Use the MIGRATE function of the Save-File utility to migrate the data sets of OMEGAMON for Db2 PE V5.2.0 or V5.3.0.
4. Restore the migrated VSAM data sets in V540 and compare the reports.

The RK02SAMP library provides the sample job DGOPJAMI, which you can modify to suit your installation.

Note:
• You can only process VSAM data sets in the same version of OMEGAMON for Db2 PE as they have been created. For example, if you create a SAVE data set in version 530, it can only be RESTORED in version 530.
• To use a SAVE data set in a higher version, you must migrate the SAVE data set using a migration utility.
• Before you restore or convert SAVE data sets from V5.2.0 or V5.3.0, you must first migrate this data to OMEGAMON for Db2 PE V5.4.0 format.
• Restored reports only show fields that are supported by the current version of OMEGAMON for Db2 PE.
Converting Data Sets:

To store performance data in Performance Database tables or spreadsheets, you must first convert Accounting Save data sets of OMEGAMON for Db2 PE V5.4.0 into sequential data sets that can be used by the DB2 load utility or the Spreadsheet Input-Data Generator of OMEGAMON for Db2 PE.

You can use the CONVERT function of the Accounting Save-File Utility to convert Accounting Save data sets of OMEGAMON for Db2 PE V5.4.0 into sequential data sets. The RKO2SAMP library provides the sample job DGOPJACO, which you can modify to suit your installation.

You can also use the ACCOUNTING SAVE subcommand with the CONVERT option to convert and save reduced data into a sequential data set. The output of this subcommand option is a sequential data set, that is specified and requested in SYSIN. The data set attributes are:

**Organization**
- PS

**Record format**
- VB

**Record length**
- 9072

**Block size**
- 9076

For more information about the ACCOUNTING SAVE subcommand refer to [Command Reference](#).

The following list shows the types of records that are created by the CONVERT function (or CONVERT command option) and where to find their layout descriptions in the sample library RKO2SAMP:

- General data records (DGOADSGE)
- Buffer pool data records (DGOADSBU)
- Distributed Data Facility (DDF) data records (DGOADSDF)
- Group buffer pool records (DGOADSGP)
- Package records (DGOADSPK)
- Resource Limit Facility (RLF) records (DGOADSRF)
- Accelerator records (DGOADSXC)

For more information about the Spreadsheet Input-Data Generator refer to [Reporting User’s Guide](#).

Save-File Utility DD Statements:

This topic lists the DD statements needed for migration and conversion. All of the DD statements described here are required.

**Input**

The DDNAME of the input data set. This can be an OMEGAMON for Db2 PE V5.2.0 or V5.3.0 Accounting SAVE data set for the MIGRATE function, or an
OMEGAMON for Db2 PE V5.4.0 Accounting VSAM Save data set for the CONVERT function.

Output

The DDNAME of the output data set.

For CONVERT, allocate the data set with the following characteristics:

RECFM
  VB
LRECL
  9072
BLKSIZE
  9076

Refer to “OMEGAMON for Db2 PE VSAM Data Sets” on page 4647 for details on how to specify the allocated data sets to migrate to OMEGAMON for Db2 PE V5.4.0.

DPMLOG

OMEGAMON for Db2 PE command processor messages and messages indicating exceptional processing conditions are written to DPMLOG. If DPMLOG is not specified, it is dynamically allocated to the SYSOUT message class of the job. Allocate the data set with the following attributes:

RECFM
  FBA
LRECL
  133
BLKSIZE
  6251

The Accounting File Data Set and Output Record:

The FILE subcommand formats DB2 Accounting records and writes them to sequential data sets suitable for use by the DB2 load utility. You can store unreduced Accounting data into the OMEGAMON for Db2 PE performance database. The performance database produces tailored reports using a reporting facility such as Query Management Facility (QMF).

You can also use the File data sets to generate CSV (comma-separated value) input-data. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables. For more information refer to Reporting User’s Guide.

FILE can also be used to produce data sets containing only exception records. The following record format types are available. Descriptions of the Accounting File data sets and the fields contained can be found in the RKO2SAMP library under the following names:

DGOADFGE
  General Accounting records
User-Defined Functions

DGOADFBU
Buffer pool records

DGOADFDF
DDF records

DGOADFGP
Group buffer pool records

DGOADFPK
Package records

DGOADFXC
Accelerator records

The output is a sequential data set containing information from the DB2 IFCID 003 and IFCID 239 records. The parallel records are contained in the originating record. The number of records in the output are as follows:
- One record for General Accounting data
- Separate records for each buffer pool used
- Separate records for each remote location participating in the distributed activity
- Separate records for each group buffer pool used
- Separate records for each package and DBRM executed
- Separate records for each accelerator used

Audit Report Set
These topics provide information about the Audit reports.

Note: A report can be ordered by identifiers in contrast to a trace. For an introduction to the Audit report set and general audit information refer to the Reporting User’s Guide.

The Audit Summary Reports:

The Audit summary reports present aggregated DB2 data. Data is accumulated and grouped by the specified OMEGAMON for Db2 PE identifiers.

The LEVEL subcommand option creates a basic summary report, which shows totals for the different audit types. Use the LEVEL and TYPE options to produce summary reports for the audit report types.

Summary Report - Basic and Field Descriptions:

To produce a basic summary report, use the AUDIT REPORT LEVEL(SUMMARY) command without any TYPE constraints.

You can generate a summary report as follows:
```
AUDIT
REPORT
LEVEL (SUMMARY)
```

Note: For bind events, specify the program name for PLANNNAME in ORDER, INCLUDE and EXCLUDE. For utility events, specify the utility name of the
PLANNAME in ORDER, INCLUDE, and EXCLUDE. The header of this summary report will, however, still show PLANNAME.

In group-scope reports, MEMBER and SUBSYSTEM are not shown.

Levels of accumulation (Audit summary report)

The Audit summary report gives the following levels of accumulation:

GROUP TOTAL
The group total is printed on group-scope reports when the member value changes.

SUBTOTAL
If you request ordering by three identifiers, a subtotal block of two lines is printed on the change of the second-level identifier when there is more than one third-level identifier reported under it.

The first line shows the string *SUBTOTAL* in the first column.

The second line shows the name of the second identifier in the first column and the calculated data in all other columns.

TOTAL
If you request ordering by two or three identifiers, a total block of two lines with all applicable data is printed on the change of the first-level identifier when there is more than one second-level identifier reported under it.

The first line shows the string *TOTAL* in the first column.

The second line shows the name of the first identifier in the first column, and the calculated data in all other columns.

GRAND TOTAL
A grand total block of two lines with all applicable data is printed for a location when there is more than one first-level identifier reported.

The first line shows the string *GRAND TOTAL* in the first column.

The second line shows the name of the member (in a member-scope report) or the group (in a group-scope report) in the first column, and the calculated data in all other columns.

Layout of a Member-Scope Audit Summary Report

Here is a sample layout of a Member-Scope Audit Summary report.

<table>
<thead>
<tr>
<th>PRIMAUTH</th>
<th>PLANNAME</th>
<th>TOTAL</th>
<th>AUTH FAILURE</th>
<th>REVOKE</th>
<th>DDL ACCESS</th>
<th>DML READ ACCESS</th>
<th>DML WRITE ACCESS</th>
<th>DML AT BIND</th>
<th>AUTHID CHANGE</th>
<th>UTILITY ACCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTH_20</td>
<td>DSNESM68</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>LOAD</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>PLAN_20</td>
<td>18</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>PLAN_30</td>
<td>18</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td><em>TOTAL</em></td>
<td></td>
<td>44</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>AUTH_30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Field description

The basic Audit summary report contains the following fields:

**OMEGAMON for Db2 PE identifiers**

The report can be sorted by up to five combinations of any three identifiers. These are printed in the first three columns from the left and indented in the sequence specified by ORDER.

The default is PRIMAUTH-PLANNAME.

For group-scope reports, MEMBER is automatically added as the last identifier.

The values printed in the following columns represent totals for each combination of the selected OMEGAMON for Db2 PE identifiers.

**TOTAL**
A total number of Audit events.

**AUTH FAILURE**
The total number of authorization failures (IFCID 140 records).

**GRANT/REVOKE**
The total number of authorization GRANTs or REVOKEs (IFCID 141).

**DDL ACCESS**
The total number of DDL operations against auditable DB2 tables (IFCID 142 records).

**DML READ ACCESS**
The total number of first READ attempts within a logical unit of work against auditable DB2 tables (IFCID 144 records).

**DML WRITE ACCESS**
The total number of first WRITE attempts against audited DB2 tables (IFCID 143 records).

**DML AT BIND**
The total number of statements referenced during a static or dynamic bind (IFCID 145) against auditable DB2 tables.

**AUTHID CHANGE**
The total number of initial AUTHID establishments, AUTHID changes, or attempted AUTHID changes (IFCID 055, 083, 087, and 169 records).

**UTILITY ACCESS**
The total number of times a utility was used to access a DB2 object (IFCID 024 records).

*Authorization Change Summary Report and Fields (AUTHCHG):*

This report presents all authorization change events according to the combination of OMEGAMON for Db2 PE identifiers specified.
Use the following command to generate an authorization change summary report.

```
AUDIT REPORT Level (SUMMARY) Type (AUTHCHG)
```

**Layout of a Member-Scope Audit Authorization Change Summary Report**

Here is an example of a member-scope Audit Authorization Change Summary report.

```
LOCATION: LOCATI_2
OMEGAMON for Db2 Performance Expert (V5R4M0)
GROUP: GROUP_1
MEMBER: MEMBER_2
SUBSYSTEM: SYS2
DB2 VERSION: V10

AUDIT REPORT - SUMMARY
Requested From: NOT SPECIFIED
To: NOT SPECIFIED
Actual From: 01/30/15 04:21:44.17
To: 01/30/15 07:19:20.25

PRIMAUTH PLANNAME | ORIGINAL AUTHID | SET CURRENT SQLID | END OF IDENTIFY | END OF SIGNON | DISTRIBUTED | TOTAL
-------------------|----------------|-------------------|----------------|-------------|------------|--------
AUTH_20 PLAN_20   | ORAUTH30       | 2 0 0 2 4         | 2 2 0 2 6      |             |            |        
| XXASP33          | 0 2 0 0 2      |                  |               |             |            |        
|                  | +SUBTOTAL+      | 2 2 0 2 6        |               |             |            |        
PLAN_30 ORAUTH30  | XXASP33        | 2 0 0 2 4         | 2 2 0 2 6      |             |            |        
|                  | 0 2 0 0 2      |                  |               |             |            |        
|                  | +SUBTOTAL+      | 2 2 0 2 6        |               |             |            |        
|                  |                 | 4 4 0 4 12       |               |             |            |        
TOTAL             |                 | 4 4 0 4 12       |               |             |            |        

AUTH_30 PLAN_20   | ORAUTH30       | 2 0 0 2 4         | 2 2 0 2 6      |             |            |        
| XXASP33          | 0 2 0 0 2      |                  |               |             |            |        
|                  | +SUBTOTAL+      | 2 2 0 2 6        |               |             |            |        
PLAN_30 ORAUTH30  | XXASP33        | 2 0 0 2 4         | 2 2 0 2 6      |             |            |        
|                  | 0 2 0 0 2      |                  |               |             |            |        
|                  | +SUBTOTAL+      | 2 2 0 2 6        |               |             |            |        
|                  |                 | 4 4 0 4 12       |               |             |            |        
TOTAL             |                 | 4 4 0 4 12       |               |             |            |        
```

**Field description**

The authorization change summary report contains the following fields:

**OMEGAMON for Db2 PE Identifiers**

The identifiers define the order of the Audit data reported. Up to three OMEGAMON for Db2 PE identifiers are printed:

```
The default ORDER for this report is PRIMAUTH-PLANNAME-OBJECT, where OBJECT is the original authorization ID.
```

For group-scope reports, MEMBER is automatically added as the last.

**ORIGINAL AUTHID**

The original value of the authorization ID as passed to the IDENTIFY or SIGNON authorization exit.

```
When the input record is IFCID 055 or 169, the value is the ORIGINAL AUTHID from the DB2 correlation header.
```

**SET CURRENT SQLID**

The authorization changes due to a SET CURRENT SQLID request. The total number of IFCID 055 records for this set of identifiers.

**END OF IDENTIFY**

The authorization changes due to an identify request. The total number of IFCID 083 records for this set of identifiers.
END OF SIGNON
The authorization changes due to a signon. The total number of IFCID 087 records for this set of identifiers.

DISTRIBUTED TRANSLATION
The authorization changes due to distributed translation. The total number of IFCID 169 records for this set of identifiers.

TOTAL
All authorization changes. The total number of IFCIDs 55, 83, 87, and 169 for this set of identifiers.

Authorization Control Summary Report and Fields (AUTHCNTL):
This report presents all authorization control events according to the combination of OMEGAMON for Db2 PE identifiers specified.

Use the following command to generate an authorization control summary report.

AUDIT REPORT LEVEL (SUMMARY) TYPE (AUTHCNTL)

Layout of a Member-Scope Audit Authorization Control Summary Report
The layout of this report varies slightly depending if it is a member or group-scope report.

For group-scope reports:
- MEMBER and SUBSYSTEM are not shown on the page header
- MEMBER is not added to the identifiers specified.
- A GROUP TOTAL is shown when a member value changes.

Layout of a Group-Scope Audit Authorization Control Summary Report
Here is a sample layout of a Group-Scope Audit Authorization Control Summary report.
Field description

The authorization control summary report contains the following fields:

**OMEGAMON for Db2 PE Identifiers**

The identifiers define the order of the Audit data reported. Up to three identifiers are printed.

The defaults are:
- For member-scope reports, PRIMAUTH-PLANNAME-OBJECT
- For group-scope reports, OBJECT

For group-scope reports, MEMBER is automatically added as the last identifier.

**OBJECT TYPE**

The DB2 object type of the GRANT or REVOKE. Possible values are:
- TSPACE
- LOBTS
- TAB/VIEW

**GRANTS**

All grant operations.

**REVOKES**

All revoke operations.

**TOTAL**

All grant/revoke operations. The total number of IFCID 141 records for this set of identifiers.

*Authorization Failure Summary Report and Fields (AUTHFAIL):*

This report presents all authorization failure events according to the combination of OMEGAMON for Db2 PE identifiers you specified.

Use the following command to generate an authorization failure summary report.

```sql
AUDIT REPORT LEVEL (SUMMARY) TYPE (AUTHFAIL)
```

**Layout of a Member-Scope Audit Authorization Failure Summary Report**

The layout of the default member-scope authorization failure summary report, ordered by object type, source object, source owner, target object, and target owner within plan name within primary authorization ID, is shown in the following example.
Audit Report - Authorization Failure Summary

Layout of a Group-Scope Audit Authorization Failure Summary Report

Here is a sample layout of a Group-Scope Audit Authorization Failure Summary report.

<table>
<thead>
<tr>
<th>LOCATION: LOCAT1_2</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
<th>PAGE: 1-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP: GROUP_1</td>
<td>AUDIT REPORT - SUMMARY</td>
<td>REQUESTED FROM: NOT SPECIFIED</td>
</tr>
<tr>
<td></td>
<td>AUTHORIZATION FAILURE</td>
<td>TO: NOT SPECIFIED</td>
</tr>
<tr>
<td></td>
<td>ORDER: OBJECT</td>
<td>ACTUAL FROM: 01/30/15 04:21:44.17</td>
</tr>
<tr>
<td></td>
<td>SCOPE: GROUP</td>
<td>TO: 01/30/15 07:21:20.25</td>
</tr>
<tr>
<td>DB2 VERSION: V10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRIVILEGE</th>
<th>OBJECT TYPE</th>
<th>OWNER NAME</th>
<th>SOURCE NAME</th>
<th>TARGET NAME</th>
<th>MEMBER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SELECT</td>
<td>TABLE</td>
<td>SYSIBM</td>
<td>SYSDATABASE</td>
<td>SYSIBM</td>
<td>SYSDATABASE</td>
</tr>
</tbody>
</table>

*GRAND TOTAL* 16

Field description

The authorization failure summary report contains the following fields:

OMEGAMON for Db2 PE identifiers

The identifiers define the order of the Audit data reported. Up to three identifiers are printed.

The defaults are:

- For member-scope reports, PRIMAUTH-PLANNAME-OBJECT
- For group-scope reports, OBJECT

For group-scope reports, MEMBER is automatically added as the last identifier.

PRIVILEGE

The privilege that was checked. Possible values are provided in the DB2 macro DSNDQW02.

OBJECT TYPE

The DB2 object type. Possible values are:

- BUFFER
  - Buffer Pool
- COLLECT
  - Collection
- DATABASE
  - Database
- DISTTYPE
  - Distinct Type
- FUNCTION
  - Function
- PACKAGE
  - Package
- SCHEMA
  - Schema
- PROCEDUR
  - Procedure
Audit Report - Authorization Failure Summary

APPLPLAN
Application Plan

LOBTS
Large Object Table Space

STOGROUP
Storage Group

TAB/VIEW
Table or View

USERAUTH
System privileges, such as SYSADM or SYSOPR

SEQUENCE
Sequence

SOURCE OBJECT OWNER
If the object type is USERAUTH and the privilege is CREATE ALIAS, this is the qualifier of the alias being created. N/A is printed when the privilege is any other value.

If the object type is not USERAUTH, this is the qualifier of the object against which the authorization was checked.

SOURCE OBJECT NAME
If the object type is USERAUTH and the privilege is CREATEALIAS, CREATEDBA, CREATEDBC, or CREATESG this is the name of the alias, or object being created. N/A is printed when the privilege has any other value.

If the object type is not USERAUTH, this is the name of the object against which the authorization was checked.

TARGET OBJECT OWNER
This is the qualifier of the object being created. It is valid when the Privilege is CREATE TABLE or CREATE INDEX. It is also valid for an authorization check against the following privileges:
- CREATE VIEW
- SELECT
- INSERT
- DELETE
- UPDATE

Otherwise N/A is printed.

TARGET OBJECT NAME
This is the qualifier of the object being created. It is valid when the Privilege is CREATE TABLE or CREATE INDEX. It is also valid for an authorization check against the following privileges:
- CREATE VIEW
- SELECT
- INSERT
- DELETE
- UPDATE

Otherwise N/A is printed.

TOTAL
All authorization failures. The total number of IFCID 140 records for this set of identifiers.
Audit Report - DML at Bind Summary

DML at Bind Access Summary Report and Fields (BIND):

This report presents all DML at bind access events according to the combination of OMEGAMON for Db2 PE identifiers specified.

Use the following command to generate a DML at bind access summary report.

```
AUDIT REPORT
   LEVEL (SUMMARY)
   TYPE (BIND)
```

Layout of a Member-Scope Audit DML at Bind Access Summary Report

For ORDER, INCLUDE, and EXCLUDE, the program name is used for PLANNAME.

```
LOCATION: LOCATI_2
GROUP: GROUP_1
MEMBER: MEMBER_2
SUBSYSTEM: SYSZ
DB2 VERSION: V10
```

```
PRIMAUTH PROGRAM  DATABASE TABLEID  TOTAL
------- ---------- ----------
AUTH_20  DSNEWSMB  DBASE1    7     4
AUTH_30  DSNEWSMB  DBASE1    7     4
*GRAND TOTAL*     8
```

Layout of a Group-Scope Audit DML at Bind Access Summary Report

Here is a sample layout of a Group-Scope Audit DML at Bind Access Summary report.

```
LOCATION: LOCATI_2
GROUP: GROUP_1
```

```
DB2 VERSION: V10
```

```
DATABASE TABLEID  MEMBER  1ST READ 1ST WRITE  TOTAL
---------- ------- ---------- ----------
DBASE1          7 MEMBER_2  8     8     16
    7 MEMBER_3  8     8     16
*GRAND TOTAL*   16    16    32
```

Field description

The DML at bind access summary report contains the following fields:

**OMEGAMON for Db2 PE identifiers**

The identifiers define the order of the Audit data reported. Up to three identifiers are printed.

The defaults are:

- For member-scope reports, PRIMAUTH-PLANNAME-OBJECT
- For group-scope reports, OBJECT

For group-scope reports, MEMBER is considered the last ORDER identifier and is automatically added as the second, third, or fourth identifier.

**DATABASE**

Either the name of the database that contains the auditable DB2 table, or the internal DB2 identification (DBID) of the database that contains the auditable DB2 table.
Note: DATABASE is a repeating field and can have more than one entry on the report.

**TABLEID**

The object identifier (OBID) of the auditable DB2 table.

Note: TABLEID is a repeating field and can have more than one entry on the report.

**TOTAL**

All DML at bind events. The total number of IFCID 145 records for this set of identifiers.

**DDL Access Summary Report and Fields (DDL):**

This report presents all DDL access events according to the combination of OMEGAMON for Db2 PE identifiers specified.

Use the following command to generate a DDL access summary report.

```
AUDIT REPORT
LEVEL (SUMMARY)
TYPE (DDL)
```

### Layout of a Member-Scope Audit DDL Access Summary Report

```
LOCATION: LOCATI_2
GROUP: GROUP_1
MEMBER: MEMBER_2
SUBSYSTEM: SY2
DB2 VERSION: V10

---------- OBJECT ----------
PRIMAUTH PLANNAME OWNER NAME
--------------------------
JUB DSNREXX COLUMN MASK
1 0 0 1
  ROW PERMISSION
1 0 0 1
  JUB AUDTB1
0 0 1 1
  JUB AUDTB2
0 0 1 1
  +SUBTOTAL+
  2 0 2 4

DSNREXY COLUMN MASK
1 0 0 1
  ROW PERMISSION
1 0 0 1
  JUB AUDTB1
0 0 1 1
  JUB AUDTB2
0 0 1 1
  +SUBTOTAL+
  2 0 2 4
  +TOTAL+
  4 0 4 8

KUC DSNREXX COLUMN MASK
1 0 0 1
  ROW PERMISSION
1 0 0 1
  KUC AUDTB1
0 0 1 1
  KUC AUDTB2
0 0 1 1
  +SUBTOTAL+
  2 0 2 4

DSNREXY COLUMN MASK
1 0 0 1
  ROW PERMISSION
1 0 0 1
  KUC AUDTB1
0 0 1 1
  KUC AUDTB2
0 0 1 1
  +SUBTOTAL+
  2 0 2 4
  +TOTAL+
  4 0 4 8

---------- OBJECT ----------
```

### Layout of a Group-Scope Audit DDL Access Summary Report

Here is a sample layout of a Group-Scope Audit DDL Access Summary report.

```
LOCATION: LOCATI_2
GROUP: GROUP_1
MEMBER: MEMBER_2
DB2 VERSION: V10

---------- OBJECT ----------
```

Chapter 6. Batch reporting 3381
Audit Report - DDL Access Summary

<table>
<thead>
<tr>
<th>OWNER</th>
<th>NAME</th>
<th>MEMBER</th>
<th>CREATE</th>
<th>DROP</th>
<th>ALTER</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLUMN MASK</td>
<td>MEMBER_2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>COLUMN MASK</td>
<td>MEMBER_3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>COLUMN MASK</td>
<td><em>TOTAL</em></td>
<td>2</td>
<td>0</td>
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</tr>
<tr>
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<td>0</td>
<td>0</td>
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</tr>
<tr>
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<tr>
<td>COLUMN MASK</td>
<td><em>TOTAL</em></td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>XXASP09</td>
<td>NHDEPT</td>
<td>MEMBER_2</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>XXASP09</td>
<td>NHDEPT</td>
<td>MEMBER_3</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>XXASP09</td>
<td>NHDEPT</td>
<td><em>TOTAL</em></td>
<td>0</td>
<td>14</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>XXASP09</td>
<td>NHEMP</td>
<td>MEMBER_2</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>XXASP09</td>
<td>NHEMP</td>
<td>MEMBER_3</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>XXASP09</td>
<td>NHEMP</td>
<td><em>TOTAL</em></td>
<td>0</td>
<td>14</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td><em>GRAND TOTAL</em></td>
<td></td>
<td>0</td>
<td>28</td>
<td>0</td>
<td>28</td>
<td></td>
</tr>
</tbody>
</table>

Field description

The DDL access summary report contains the following fields:

**OMEGAMON for Db2 PE identifiers**

The identifiers define the order of the Audit data reported. Up to three identifiers are printed.

The defaults are:

- For member-scope reports, PRIMAUTH-PLANNAME-OBJECT
- For group-scope reports, OBJECT

For group-scope reports, MEMBER is considered the last ORDER identifier and is automatically added as the second, third, or fourth identifier.

**OBJECT OWNER**

The user identification of the owner of the audited object table accessed. It is blank for IFCID 271.

**OBJECT NAME**

The name of the accessed audited DB2 table, the ROW PERMISSION, or the COLUMN MASK objects that have been created, dropped, or altered.

**CREATE**

All create object operations.

**ALTER**

All create object operations.

**DROP**

All drop object operations.

**TOTAL**

All DDL access operations. The total number of IFCID 142 or IFCID 271 records for this set of identifiers.

**DML Access Summary Report and Fields (DML):**

This report presents all DML access events according to the combination of OMEGAMON for Db2 PE identifiers specified.

Use the following command to generate a DML access summary report.

```
: AUDIT REPORT
  LEVEL (SUMMARY)
  TYPE (DML)
```
Layout of a Member-Scope Audit DML Access Summary Report

Here is a sample layout of a Member-Scope Audit DML Access Summary report.

<table>
<thead>
<tr>
<th>PRIMAUTH</th>
<th>PLANNAME</th>
<th>DATABASE</th>
<th>PAGESET</th>
<th>TABLEID</th>
<th>1ST READ</th>
<th>1ST WRITE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTH_20</td>
<td>PLAN_20</td>
<td>DBASE1</td>
<td>PSET1</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>PLAN_30</td>
<td>DBASE1</td>
<td>PSET1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUTH_30</td>
<td>PLAN_20</td>
<td>DBASE1</td>
<td>PSET1</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>PLAN_30</td>
<td>DBASE1</td>
<td>PSET1</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

*GRAND TOTAL* 8 8 16

Layout of a Group-Scope Audit DML Access Summary Report

Here is a sample layout of a Group-Scope Audit DML Access Summary report.

<table>
<thead>
<tr>
<th>DATABASE</th>
<th>PAGESET</th>
<th>TABLEID</th>
<th>MEMBER</th>
<th>1ST READ</th>
<th>1ST WRITE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBASE1</td>
<td>PSET1</td>
<td>7</td>
<td>MEMBER_2</td>
<td>8</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>MEMBER_3</td>
<td>8</td>
<td>8</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*GRAND TOTAL* 16 16 32

Field description

The DML access summary report contains the following fields:

**OMEGAMON for Db2 PE Identifiers**

The identifiers define the order of the Audit data reported. Up to three identifiers are printed.

The defaults are:

- For member-scope reports, PRIMAUTH-PLANNAME-OBJECT
- For group-scope reports, OBJECT

For group-scope reports, MEMBER is considered the last ORDER identifier and is automatically added as the second, third, or fourth identifier.

**DATABASE**

The name of the database that contains the auditable DB2 table. If the database name is unavailable, the decimal DBID is printed.

**PAGESET**

The name of the page set that contains the auditable DB2 table. If the page set name is unavailable, the decimal PSID is printed. If neither of these values is present, N/P is printed.

**TABLEID**

The object identifier (OBID) of the table, if applicable, associated with the access.
Audit Report - DML Access Summary (DML)

1ST READ
The total number of first read attempts within a logical unit of work against auditable DB2 tables.

1ST WRITE
The total number of first write attempts against audited DB2 tables.

TOTAL
All DML access operations. The total number of IFCID 143 and 144 records for this set of identifiers.

Utility Access Summary Report and Fields (UTILITY):

This presents all utility access events according to the combination of OMEGAMON for Db2 PE identifiers specified.

Use the following command to generate a utility access summary report.

```sql
AUDIT
REPORT
LEVEL (SUMMARY)
TYPE (UTILITY)
```

Note: For ORDER, INCLUDE and EXCLUDE, the utility name is used for PLANNAME.

Layout of a Member-Scope Audit Utility Access Summary Report

Here is a sample layout of a Member-Scope Audit Utility Access Summary report.

```
LOCATION: LOCATI_2  OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)  PAGE: 1-7
MEMBER: MEMBER_2     AUDIT REPORT - SUMMARY                             REQUIRED FROM: NOT SPECIFIED
SUBSYSTEM: SY52       UTILITY ACCESS                                   TO: NOT SPECIFIED
DB2 VERSION: V10      ORDER: PRIMAUTH-PLANNAME-OBJECT                 ACTUAL FROM: 01/30/15 04:21:44.17
                        SCOPE: MEMBER                                  TO: 01/30/15 07:19:20.25
PRIMAUTH UTILNAME DATABASE PAGESET TOTAL
-------- -------- -------- --------
AUTH_20 LOAD DBASE1 PSET1 4
AUTH_30 LOAD DBASE1 PSET1 4
*GRAND TOTAL* 8
```

Layout of a Group-Scope Audit Utility Access Summary Report

The layout of the default group-scope utility access summary report, ordered by member within database and page set, is shown in "Layout of a Group-Scope Audit Utility Access Summary Report."

```
LOCATION: LOCATI_2  OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)  PAGE: 1-7
GROUP: GROUP_1       AUDIT REPORT - SUMMARY                             REQUIRED FROM: NOT SPECIFIED
                       UTILITY ACCESS                                   TO: NOT SPECIFIED
                       ORDER: OBJECT                                     ACTUAL FROM: 01/30/15 04:21:44.17
                       SCOPE: GROUP                                     TO: 01/30/15 07:21:20.25
DB2 VERSION: V10
DATABASE PAGESET MEMBER TOTAL
-------- -------- -------- --------
DBASE1 PSET1 MEMBER_2 8
MEMBER_3           8
*GRAND TOTAL* 16
```

Field description

The utility access summary report contains the following fields:
OMEGAMON for Db2 PE Identifiers

The identifiers define the order of the Audit data reported. Up to three identifiers are printed.

The defaults are:
- For member-scope reports, PRIMAUTH-PLANNAME-OBJECT
- For group-scope reports, OBJECT

For group-scope reports, MEMBER is considered the last ORDER identifier and is automatically added as the second, third, or fourth identifier.

DATABASE

The name of the database that contains the auditable DB2 object or the decimal DBID of that database.

PAGESET

The name or the decimal PSID of the page set that contains the DB2 object.

TOTAL

All utility access operations. Total number of IFCID 024 records for this set of identifiers.

The Audit Detail Report and the Audit Trace:

Both the audit detail report and the audit trace show a detailed listing of all occurrences of the different audit types. The layout of the Audit report and trace is similar. The audit trace is sorted by timestamp, the audit detail report is sorted first by identifier, then by timestamp. Any combination of event types can be specified.

Use the following command to generate an audit detail report.

```
AUDIT REPORT LEVEL (DETAIL)
```

Use the following command to generate an audit trace.

```
AUDIT TRACE
```

Short, Unique, or Long Names or Strings

The following types of names or strings are used in this information:

**Short name or string**

A short name or short string is either the value of an original DB2 field if it less than or equal to the defined length of the field, or it is the abbreviation of a longer value which is populated in a field of varying length.

**Unique name or string**

A unique name or unique string is a generated string based on the short string and its length, with a right-adjusted #-sign and a sequence number. This sequence number depends on the amount of long fields found during processing, which have the same string prefix and length as the short string. For example:

```
WSNAME: IS-255-012345678#1
```
Audit Report - Utility Access Summary (UTILITY)

Long name or string
A long name or long string is the complete string populated in a field of varying length. This depends on the context where it is used.

Example of a Member-Scope Audit Detail Report and Trace (Type AUTHCNTL):

This section shows examples of a Member-Scope Audit Detail report and trace (Type AUTHCNTL).

Example of a Member-Scope Audit Detail Report (Type AUTHCNTL)

<table>
<thead>
<tr>
<th>LOCATION:</th>
<th>GROUPING</th>
<th>MEMBER</th>
<th>SUBSYSTEM</th>
<th>DB2_VERSION</th>
<th>DB2</th>
<th>PRIMAUTH</th>
<th>COUNTER</th>
<th>PLANNENAME</th>
<th>CONNECT</th>
<th>TIMESTAMP</th>
<th>TYPE</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMP061</td>
<td>N/P</td>
<td>N/P</td>
<td>DB61</td>
<td>012</td>
<td>V12</td>
<td>N/P</td>
<td>COUNTER</td>
<td>CEB0B3C01A53</td>
<td>12:03:12.80</td>
<td>AUTHCNTL</td>
<td>USER: PRIV CHECKED: DROP</td>
<td>OBJECT TYPE: TAB/VIEW</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ppi</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISTSERV</td>
<td>SERVER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RE_LOC</td>
<td>::FFFF:9.157.1.1</td>
<td>ENDUSER</td>
<td>:EDVA_End_User_1</td>
<td></td>
<td></td>
<td>WSNNAME</td>
<td>:EDVA_Work_Station_1</td>
<td>TRANSACTION: :EDVA_Application_Information_1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCONTEXT</td>
<td>:EDVA_T1</td>
<td>ROLE</td>
<td>:EDVA рол1</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOCATION:</th>
<th>GROUPING</th>
<th>MEMBER</th>
<th>SUBSYSTEM</th>
<th>DB2_VERSION</th>
<th>DB2</th>
<th>PRIMAUTH</th>
<th>COUNTER</th>
<th>PLANNENAME</th>
<th>CONNECT</th>
<th>TIMESTAMP</th>
<th>TYPE</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMP061</td>
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<td>N/P</td>
<td>DB61</td>
<td>012</td>
<td>V12</td>
<td>N/P</td>
<td>COUNTER</td>
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<td>AUTHCNTL</td>
<td>USER: PRIV CHECKED: DROP</td>
<td>OBJECT TYPE: DATABASE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>ppi</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISTSERV</td>
<td>SERVER</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RE_LOC</td>
<td>::FFFF:9.157.1.1</td>
<td>ENDUSER</td>
<td>:EDVA_End_User_1</td>
<td></td>
<td></td>
<td>WSNNAME</td>
<td>:EDVA_Work_Station_1</td>
<td>TRANSACTION: :EDVA_Application_Information_1</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>TCONTEXT</td>
<td>:EDVA_T1</td>
<td>ROLE</td>
<td>:EDVA рол1</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOCATION:</th>
<th>GROUPING</th>
<th>MEMBER</th>
<th>SUBSYSTEM</th>
<th>DB2_VERSION</th>
<th>DB2</th>
<th>PRIMAUTH</th>
<th>COUNTER</th>
<th>PLANNENAME</th>
<th>CONNECT</th>
<th>TIMESTAMP</th>
<th>TYPE</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMP061</td>
<td>N/P</td>
<td>N/P</td>
<td>DB61</td>
<td>012</td>
<td>V12</td>
<td>N/P</td>
<td>COUNTER</td>
<td>CEB0B3C01A53</td>
<td>12:03:16.47</td>
<td>AUTHCNTL</td>
<td>USER: PRIV CHECKED: DROP</td>
<td>OBJECT TYPE: LOBTS</td>
</tr>
<tr>
<td></td>
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<tr>
<td>DISTSERV</td>
<td>SERVER</td>
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<tr>
<td>RE_LOC</td>
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<td>ENDUSER</td>
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<td>TRANSACTION: :EDVA_Application_Information_1</td>
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</tr>
<tr>
<td>TCONTEXT</td>
<td>:EDVA_T1</td>
<td>ROLE</td>
<td>:EDVA рол1</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
## Access Summary (UTILITY)

<table>
<thead>
<tr>
<th>LOCATION: OMP0B61</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (YSR4MO)</th>
<th>PAGE: 1-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP: N/P</td>
<td>AUDIT REPORT - DETAIL</td>
<td>REQUESTED FROM: 03/23/15 12:03:12.80</td>
</tr>
<tr>
<td>MEMBER: N/P</td>
<td>AUTHORIZATION CONTROL</td>
<td>TO: 03/23/15 12:03:16.48</td>
</tr>
<tr>
<td>SUBSYSTEM: DB61</td>
<td>ORDER: PRIMAUTH-PLANNAME</td>
<td>ACTUAL FROM: 03/23/15 12:03:12.80</td>
</tr>
<tr>
<td>DB2 VERSION: V12</td>
<td>SCOPE: MEMBER</td>
<td>TO: 03/23/15 12:03:16.47</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANNAME CONNECT</th>
<th>TIMESTAMP</th>
<th>TYPE</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EDVA db2jcc_a ORDA</strong> 03/23/15</td>
<td>12:03:16.47</td>
<td>1</td>
<td><strong>USER</strong></td>
</tr>
<tr>
<td><strong>EDVA db2jcc_a WORKSTATION</strong> 03/23/15</td>
<td>12:03:16.47</td>
<td>1</td>
<td><strong>BUFFER</strong></td>
</tr>
<tr>
<td><strong>EDVA db2jcc_a WORKSTATION</strong> 03/23/15</td>
<td>12:03:16.47</td>
<td>1</td>
<td><strong>STGROUP</strong></td>
</tr>
</tbody>
</table>

---

### Chapter 6. Batch reporting

3387
### Audit Report - Utility Access Summary (UTILITY)

**Example of a Member-Scope Audit Trace (Type AUTHCNTL)**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
<th>PAGE</th>
<th>REQUESTED FROM:</th>
<th>TO:</th>
<th>ACTUAL FROM:</th>
<th>PAGE TO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEMBER:</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SUBSYSTEM:</td>
<td>D661</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>DB2 VERSION:</td>
<td>V12</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>PRIMAUTH</td>
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</tr>
<tr>
<td>CORRNNAME</td>
<td>COONTYPE</td>
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</tr>
<tr>
<td>ORIGAUTH</td>
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<td>PLANNAME</td>
<td>CONNCTN</td>
<td>TIMESTAMP</td>
<td>TYPE</td>
<td>DETAIL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
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<td>-----------</td>
<td>------</td>
<td>--------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDVA</td>
<td>pp1</td>
<td>03/23/15  12:03:12.80</td>
<td>AUTHNTL</td>
<td>AUTH TYPE: DROP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISTSERV</td>
<td>SERVER</td>
<td></td>
<td>AUTH TYPE: USER</td>
<td>AUTH TYPE: DROP</td>
<td>OBJ TYPE: TAB/V</td>
<td></td>
</tr>
<tr>
<td>ENUSER: EDVA_End_User_#1</td>
<td>PRIV CHECKED:</td>
<td>DROP</td>
<td></td>
<td>EDVA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WSNNAME: EDVA_Work_Station_1</td>
<td>SOURCE OBJECT:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCONTEXT: EDVA_T1</td>
<td>QUALIFIER:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROLE: EDVA_R#1</td>
<td>NAME:</td>
<td>EDVA_ROLE_NAME</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDVA</td>
<td>db2jc_a</td>
<td>03/23/15 12:03:16.47</td>
<td>AUTHNTL</td>
<td>AUTH TYPE: SYSADM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISTSERV</td>
<td>SERVER</td>
<td></td>
<td>AUTH TYPE: USE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENUSER: EDVA_End_User_#1</td>
<td>PRIV CHECKED:</td>
<td>USE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WSNNAME: EDVA_Work_Station_1</td>
<td>SOURCE OBJECT:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCONTEXT: EDVA_T</td>
<td>QUALIFIER:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROLE: EDVA_R#1</td>
<td>NAME:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AUDIT REPORT COMPLETE**
Audit Report - Utility Access Summary (UTILITY)
NAME:
TEXT:

N/P
CREATE TABLE EDVATABLE_AU_US4741_123456789012345678901234567
890123456789012345678901234567890123456789012345678901234567
89012345678901234567A(COL_0_789A123456789B123456789C XML, CO
L_1_789A123456789B123456789C CHAR(10)) IN EDVADB.EDVATS AUDI
T ALL

LOCATION: OMPDB61
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
PAGE: 1-2
GROUP: N/P
AUDIT TRACE
REQUESTED FROM: 03/23/15 12:03:12.80
MEMBER: N/P
TO: 03/23/15 12:03:16.48
SUBSYSTEM: DB61
ACTUAL FROM: 03/23/15 12:03:12.80
DB2 VERSION: V12
SCOPE: MEMBER
PAGE DATE: 03/23/15
PRIMAUTH CORRNAME CONNTYPE
ORIGAUTH CORRNMBR INSTANCE
PLANNAME CONNECT
TIMESTAMP TYPE
DETAIL
-------- -------- ------------ ----------- -------- -------------------------------------------------------------------------------EDVA
db2jcc_a DRDA
03/23/15
AUTHCNTL AUTH TYPE:
SYSADM
EDVA
ppli
CEB03BC412C3 12:03:16.47
PRIV CHECKED:
CREATE TABSPACE
OBJECT TYPE:
DATABASE
DISTSERV SERVER
ROLE:
EDVA_ROLE_NAME_______128_6789C123456789D123456789E123456789F
REQLOC :::FFFF:9.157.1#1
123456789G123456789H123456789I123456789J123456789A123456789B
ENDUSER :EDVA_End_User_#1
12345END
WSNAME :EDVA_Work_Statio#1
SOURCE OBJECT
TRANSACT:EDVA_Application_Information#1
QUALIFIER:
EDVA
TCONTEXT:EDVA_T#1
NAME:
EDVADB
ROLE
:EDVA_R#1
TARGET OBJECT
QUALIFIER:
N/P
NAME:
N/P
OTHER OBJECT
NAME:
N/P
TEXT:
CREATE TABLE EDVATABLE_AU_US4741_123456789012345678901234567
890123456789012345678901234567890123456789012345678901234567
89012345678901234567A(COL_0_789A123456789B123456789C XML, CO
L_1_789A123456789B123456789C CHAR(10)) IN EDVADB.EDVATS AUDI
T ALL
EDVA
db2jcc_a DRDA
03/23/15
AUTHCNTL AUTH TYPE:
EDVA
ppli
CEB03BC412C3 12:03:16.47
PRIV CHECKED:
DISTSERV SERVER
ROLE:
REQLOC :::FFFF:9.157.1#1
ENDUSER :EDVA_End_User_#1
WSNAME :EDVA_Work_Statio#1
SOURCE OBJECT
TRANSACT:EDVA_Application_Information#1
QUALIFIER:
TCONTEXT:EDVA_T#1
NAME:
ROLE
:EDVA_R#1
TARGET OBJECT
QUALIFIER:
NAME:
OTHER OBJECT
NAME:
TEXT:

EDVA
db2jcc_a DRDA
03/23/15
AUTHCNTL AUTH TYPE:
EDVA
ppli
CEB03BC412C3 12:03:16.47
PRIV CHECKED:
DISTSERV SERVER
ROLE:
REQLOC :::FFFF:9.157.1#1
ENDUSER :EDVA_End_User_#1
WSNAME :EDVA_Work_Statio#1
SOURCE OBJECT
TRANSACT:EDVA_Application_Information#1
QUALIFIER:
TCONTEXT:EDVA_T#1
NAME:
ROLE
:EDVA_R#1
TARGET OBJECT
QUALIFIER:
NAME:
OTHER OBJECT
NAME:
TEXT:

USER
USE
OBJECT TYPE:
BUFFER
EDVA_ROLE_NAME_______128_6789C123456789D123456789E123456789F
123456789G123456789H123456789I123456789J123456789A123456789B
12345END
SYSIBM
BP16K0
N/P
N/P
N/P
CREATE TABLE EDVATABLE_AU_US4741_123456789012345678901234567
890123456789012345678901234567890123456789012345678901234567
89012345678901234567A(COL_0_789A123456789B123456789C XML, CO
L_1_789A123456789B123456789C CHAR(10)) IN EDVADB.EDVATS AUDI
T ALL
SYSADM
USE
OBJECT TYPE:
STOGROUP
EDVA_ROLE_NAME_______128_6789C123456789D123456789E123456789F
123456789G123456789H123456789I123456789J123456789A123456789B
12345END
SYSIBM
EDVASTGR
N/P
N/P
N/P
CREATE TABLE EDVATABLE_AU_US4741_123456789012345678901234567
890123456789012345678901234567890123456789012345678901234567
89012345678901234567A(COL_0_789A123456789B123456789C XML, CO
L_1_789A123456789B123456789C CHAR(10)) IN EDVADB.EDVATS AUDI
T ALL

LOCATION: OMPDB61
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
PAGE: 1-3
GROUP: N/P
AUDIT TRACE
REQUESTED FROM: 03/23/15 12:03:12.80
MEMBER: N/P
TO: 03/23/15 12:03:16.48
SUBSYSTEM: DB61
ACTUAL FROM: 03/23/15 12:03:12.80
DB2 VERSION: V12
SCOPE: MEMBER
PAGE DATE: 03/23/15
PRIMAUTH CORRNAME CONNTYPE
ORIGAUTH CORRNMBR INSTANCE
PLANNAME CONNECT
TIMESTAMP TYPE
DETAIL
-------- -------- ------------ ----------- -------- -------------------------------------------------------------------------------EDVA
db2jcc_a DRDA
03/23/15
AUTHCNTL AUTH TYPE:
USER
EDVA
ppli
CEB03BC412C3 12:03:16.47
PRIV CHECKED:
USE
OBJECT TYPE:
BUFFER
DISTSERV SERVER
ROLE:
EDVA_ROLE_NAME_______128_6789C123456789D123456789E123456789F
REQLOC :::FFFF:9.157.1#1
123456789G123456789H123456789I123456789J123456789A123456789B
ENDUSER :EDVA_End_User_#1
12345END
WSNAME :EDVA_Work_Statio#1
SOURCE OBJECT
TRANSACT:EDVA_Application_Information#1
QUALIFIER:
SYSIBM
TCONTEXT:EDVA_T#1
NAME:
BP1
ROLE
:EDVA_R#1
TARGET OBJECT

Chapter 6. Batch reporting

3389


Field Descriptions (Audit Detail Report and Audit Trace): This topic contains the description of the columns of the audit detail report and audit trace.

OMEGAMON for Db2 PE identifiers
The identifiers define the order of the Audit data reported. If the requester location differs from the local location, the report or trace shows REQLOC together with the appropriate name under the first column of identifiers.

The member name (MEMBER) is printed if you requested a group-scope report or trace.

TIMESTAMP
The time of the event.

TYPE
The type of event being reported. You can control which of the events is reported using TYPE with INCLUDE or EXCLUDE. Possible values are:

Type Description
AUTHCHG Authorization change.
AUTHCNTL Authorization control.
AUTHFAIL Authorization failure.
BIND Audited DML at bind access.
DDL Audited DDL access.
DML Audited DML access.
UTILITY Audited utility access.

DETAIL
Each event has its own specific detail. Your selection for the TYPE option determines which of the fields described on the following pages is printed.
Audit Report - Authorization Change Detail (Type AUTHCHG)

Authorization Change Detail (Type AUTHCHG):

The following sections list the various types of authorization changes that can be printed. They describe the fields if you select AUTHCHG. The types are sorted by IFCID.

Set Current SQLID (IFCID 055):

This topic provides a sample and the field description of the Authorization Change type of Set Current SQLID (IFCID 055).

Set Current SQLID (IFCID 055) - Authorization Change

This sample shows the layout for an authorization change type of Set Current SQLID (IFCID 055):

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SET CURRENT SQLID</th>
<th>STATUS: SUCCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREVIOUS SQLID</td>
<td>THIS IS AN EXAMPLE OF A VERY LONG PREVIOUS SQLID THAT EXCEEDS THE LINE</td>
<td></td>
</tr>
<tr>
<td>NEW SQLID</td>
<td>THIS IS AN EXAMPLE OF A VERY LONG NEW SQLID THAT EXCEEDS THE LINE</td>
<td></td>
</tr>
</tbody>
</table>

Field description

The fields are described in the following:

**TYPE**   The kind of authorization change or establishment: SET CURRENT SQLID.

**STATUS**

The success or failure of the attempted authorization change. Possible values are:

- SUCCESS for a successful authorization change
- FAILURE for a failed attempt

*Note:* The SQL statement is always successful if the user has SYSADM authority.

*Derivation:* DB2 field QW0055ST

**PREVIOUS SQLID**

The initial value of the SQLID before execution of the request.

*Derivation:* DB2 field QW0055OI.

**NEW SQLID**

If the command completed successfully, the new value of the SQLID is shown. If the command did not complete successfully, the value of the attempted SQLID change is shown.

*Derivation:* DB2 field QW0055NI.

End of Identify (IFCID 083):

This topic provides a sample and the field description of the Authorization Change type of End of Identify (IFCID 083).

End of Identify (IFCID 083) - Authorization Change

This sample shows the layout for an authorization change type of End of Identify (IFCID 083):
Audit Report - Authorization Change Detail (Type AUTHCHG)

Field description

The fields are described in the following:

**TYPE** The kind of authorization change or establishment: END OF IDENTIFY.

**STATUS** The success or failure of the attempted authorization change. Possible values are:
- **SUCCESS** The access is permitted.
- **EXITFAIL** The access is denied by the authorization exit.
- **FAILURE** The access is denied by the security authorization facility or security system.

*Derivation:* DB2 field QW0083AD

**PREVIOUS AUTHID** The original value of the authorization ID, as passed to the IDENTIFY or SIGNON authorization exit.

*Derivation:* DB2 field QW0083OP

**CURRENT SQLID** The value of the authorization ID as set by the IDENTIFY or SIGNON authorization exit.

*Derivation:* DB2 field QW0083QD

**SECONDARY AUTHID** Lists the secondary authorization IDs set by the IDENTIFY or SIGNON authorization exit. If no secondary authorization IDs exist, this line is not printed. Secondary authorization IDs are printed in rows of five, up to a maximum of 49 rows (245 AUTHIDs).

*Derivation:* DB2 field QW0083SA

**End of Signon (IFCID 087):**

This topic provides a sample and the field description of the Authorization Change type of End of Signon (IFCID 087).

**End of Signon (IFCID 087) - Authorization Change**

This sample shows the layout for an authorization change type of End of Signon (IFCID 087):

<table>
<thead>
<tr>
<th>TYPE:</th>
<th>END OF SIGNON</th>
<th>STATUS:</th>
<th>SUCCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREV AUTHID:</td>
<td>XXASP09</td>
<td>NEW AUTHID:</td>
<td>XXASP09</td>
</tr>
<tr>
<td>SECONDARY AUTHID:</td>
<td>XXXASP09</td>
<td>XXASP11</td>
<td>XXASP26</td>
</tr>
</tbody>
</table>

Field description

The fields are described in the following:

**TYPE** The kind of authorization change or establishment: END OF SIGNON.
STATUS
The success or failure of the attempted access. Possible values are:

SUCCESS
The access is permitted.

EXITFAIL
The access was denied by the signon authorization exit.

Derivation: DB2 field QW0087AD

PREV AUTHID
The original value of the authorization ID, as passed to the IDENTIFY or SIGNON authorization exit.

Derivation: DB2 field QW0087OP

NEW AUTHID
The value of the authorization ID as set by the IDENTIFY or SIGNON authorization exit.

Derivation: DB2 field QW0087QD

SECONDARY AUTHID
Lists the secondary authorization IDs set by the IDENTIFY or SIGNON authorization exits. If no secondary authorization IDs exist, this line is not printed. Secondary authorization IDs are printed in rows of five, up to a maximum of 49 rows (245 AUTHIDs).

Derivation: DB2 field QW0087SA

Outbound DDF Translation (IFCID 169):

This topic provides a sample and the field description of the Authorization Change type of Outbound DDF Translation (IFCID 169).

Outbound DDF Translation (IFCID 169) - Authorization Change

This sample shows the layout for an authorization change type of Outbound DDF Translation (IFCID 169):

<table>
<thead>
<tr>
<th>TYPE: OUTBOUND DDF TRANSLATION</th>
<th>REMOTE LU NAME: 'BLANK'</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREVIOUS AUTHID: PSYSAUTH</td>
<td>NEW AUTHID: NSYSAUTH</td>
</tr>
<tr>
<td>RESPOND LOCATION: RESPONDING LOCNM</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE: OUTBOUND DDF TRANSLATION</th>
<th>REMOTE LU NAME: 'BLANK'</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESPOND LOCATION: RESPONDING LOCNM</td>
<td></td>
</tr>
<tr>
<td>DATABASE ALIAS: THIS IS AN EXAMPLE OF A LONG ALIAS NAME THAT EXCEEDS THE OUTPUT LINE</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE: OUTBOUND DDF TRANSLATION</th>
<th>REMOTE LU NAME: 'BLANK'</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREX. SYSAUTHID: PSYSAUTH</td>
<td>NEW SYSAUTHID: NSYSAUTH</td>
</tr>
<tr>
<td>RESPOND LOCATION: RESPONDING LOCNM</td>
<td></td>
</tr>
</tbody>
</table>

Field description

The fields are described in the following:

TYPE  The kind of authorization change or establishment: OUTBOUND DDF TRANSLATION.

REMOTE LU NAME  The logical unit name of the DB2 subsystem.

Derivation: DB2 field QW0169LU
Audit Report - Authorization Change Detail (Type AUTHCHG)

PREVIOUS AUTHID
The authorization ID before translation.
Derivation: DB2 field QW0169AU

NEW AUTHID
The new value of the authorization ID.
Derivation: DB2 field QW0169NE

RESPOND LOCATION
The location name of the serving DB2 subsystem. For outbound translation and for inbound translation with AUTHIDs this field shows the responding location name.
Derivation: DB2 field QW0169LO

DATABASE ALIAS
The database alias name sent to the server.
Derivation: DB2 field QW0169AL

PREV. SYSAUTHID
The system authorization ID before translation.
Derivation: DB2 field QW0169AU

Inbound DDF Translation (IFCID 169):

This topic provides a sample and the field description of the Authorization Change type of Inbound DDF Translation (IFCID 169).

Inbound DDF Translation (IFCID 169) - Authorization Change

This sample shows the layout for an authorization change type of Inbound DDF Translation (IFCID 169):

<table>
<thead>
<tr>
<th>TYPE:</th>
<th>INBOUND DDF TRANSLATION</th>
<th>REMOTE LU NAME:</th>
<th>'BLANK'</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREVIOUS AUTHID:</td>
<td>PSYSAUTH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEW AUTHID:</td>
<td>NSYSAUTH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESPOND LOCATION:</td>
<td>RESPONDING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOCAL LOCATION:</td>
<td>RESPONDING LOCNM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOCATION ALIAS:</td>
<td>THIS IS AN EXAMPLE OF A VERY LONG LOCATION ALIAS NAME THAT EXCEEDS THE OUTPUT LINE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field description

The fields are described in the following:

TYPE The kind of authorization change or establishment: INBOUND DDF TRANSLATION.

REMOTE LU NAME The logical unit name of the DB2 subsystem.
Derivation: DB2 field QW0169LU

PREVIOUS AUTHID The authorization ID before translation.
Derivation: DB2 field QW0169AU

NEW AUTHID The new value of the authorization ID.
Derivation: DB2 field QW0169NE
RESPOND LOCATION
The location name of the serving DB2 subsystem. For outbound translation and for inbound translation with AUTHIDs this field shows the responding location name.

Derivation: DB2 field QW0169LO

LOCAL LOCATION
The location name of the serving DB2 subsystem. For inbound translation with location alias name this field shows the local location name.

Derivation: DB2 field QW0169LO

LOCATION ALIAS
For translation type inbound this field shows the location alias name received from the requester.

Derivation: DB2 field QW0169AL

Establish Trusted Context or Reuse Trusted Context (IFCID 269):

This topic provides a sample and the field description of the Authorization Change type of Establish Trusted Context or Reuse Trusted Context (IFCID 269).

Establish Trusted Context or Reuse Trusted Context (IFCID 269) - Authorization Change

This sample shows the layout for an authorization change type of Establish Trusted Context or Reuse Trusted Context (IFCID 269):

<table>
<thead>
<tr>
<th>TYPE: ESTABLISH TRUSTED CONTEXT</th>
<th>STATUS: SUCCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJECT OWNER: ROLE</td>
<td>SQLCODE: 100</td>
</tr>
<tr>
<td>SECURITY LABEL: SECLABEL</td>
<td></td>
</tr>
<tr>
<td>CONTEXT NAME: THIS IS AN EXAMPLE OF A VERY LONG XXXXXXXXXXXXXXX NAME THAT EXCEEDS THE OUTPUT LINE</td>
<td></td>
</tr>
<tr>
<td>CONTEXT ROLE: THIS IS AN EXAMPLE OF A VERY LONG CONTEXT ROLE THAT EXCEEDS THE OUTPUT LINE</td>
<td></td>
</tr>
<tr>
<td>USER ROLE: THIS IS AN EXAMPLE OF A VERY LONG USER ROLE THAT EXCEEDS THE OUTPUT LINE</td>
<td></td>
</tr>
<tr>
<td>PREV. SYSAUTHID: THIS IS AN EXAMPLE OF A VERY LONG SYSTEM AUTHENTICATION ID THAT EXCEEDS THE OUTPUT LINE</td>
<td></td>
</tr>
<tr>
<td>REUSE AUTHID: THIS IS AN EXAMPLE OF A VERY LONG REUSE AUTHENTICATION ID THAT EXCEEDS THE OUTPUT LINE</td>
<td></td>
</tr>
<tr>
<td>SERVAUTH NAME: THIS IS AN EXAMPLE OF A VERY LONG SERVER AUTHENTICATION NAME THAT EXCEEDS THE OUTPUT LINE</td>
<td></td>
</tr>
<tr>
<td>JOB NAME: THIS IS AN EXAMPLE OF A VERY LONG LOCAL JOB NAME THAT EXCEEDS THE OUTPUT LINE</td>
<td></td>
</tr>
<tr>
<td>ENCRYPTION: THIS IS AN EXAMPLE OF A VERY LONG ENCRYPTION VALUE THAT EXCEEDS THE OUTPUT LINE</td>
<td></td>
</tr>
<tr>
<td>TCP/IP USED: THIS IS AN EXAMPLE OF A VERY LONG USED TCP/IP ADDRESS THAT EXCEEDS THE OUTPUT LINE</td>
<td></td>
</tr>
</tbody>
</table>

Field description

The fields are described in the following:

TYPE  The kind of authorization change or establishment: ESTABLISH TRUSTED CONTEXT.

STATUS

The status of the trusted connection:

SUCCESS  If a trusted connection was established or reused successfully.

FAILED or FAILURE  If a trusted connection failed, when it was tried to be established or reused.
If the status is neither SUCCESS nor FAILURE, the value itself is shown.

**Derivation**: DB2 field QW0269ST

**OBJECT OWNER**
The owner of objects created in the trusted context.

**SQLCODE**
The SQLCODE returned after executing the SQL statement.

**Derivation**: DB2 field QW0269SQ

**SECURITY LABEL**
The security label.

**Derivation**: DB2 field QW0269SL

**CONTEXT NAME**
The trusted context name.

**Derivation**: DB2 field QW0269TC

**CONTEXT ROLE**
The default role associated with the context.

**Derivation**: DB2 field QW0269RC

**USER ROLE**
The user role.

**Derivation**: DB2 field QW0269RU

**PREV. SYSAUTHID**
The system authorization ID that is used to establish the trusted connection.

**Derivation**: DB2 field QW0269SA

**REUSE AUTHID**
The authorization ID under which a trusted connection is reused.

**Derivation**: DB2 field QW0269RA

**SERVAUTH NAME**
The SERVAUTH name of the TCP/IP security zone.

**Derivation**: DB2 field QW0269SR

**JOB NAME**
The job name for a local application.

**Derivation**: DB2 field QW0269JN

**ENCRYPTION**
The encryption value.

**Derivation**: DB2 field QW0269EC

**TCP/IP USED**
The actual communication TCP/IP address used for connection.

**Derivation**: DB2 field QW0269AD

**KERBEROS** or **ENCRYPTED** (IFCID 319):

This topic provides a sample and the field description of the Authorization Change type of KERBEROS or ENCRYPTED (IFCID 319).
KERBEROS or ENCRYPTED (IFCID 319) - Authorization Change

This sample shows the layout for an authorization change type of KERBEROS or ENCRYPTED (IFCID 319):

<table>
<thead>
<tr>
<th>TYPE:</th>
<th>KERBEROS or ENCRYPTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMS ADDR TYPE:</td>
<td>TCP/IP</td>
</tr>
<tr>
<td>IP ADDR:</td>
<td>00010203040506071819A1B1C1D1E1F</td>
</tr>
<tr>
<td>PORT:</td>
<td>1234</td>
</tr>
<tr>
<td>DERIVED LOCAL UID:</td>
<td>DERLOCID</td>
</tr>
<tr>
<td>CLIENT PRODUCT ID:</td>
<td>CLPRODID</td>
</tr>
<tr>
<td>PRINCIPAL NAME:</td>
<td>THIS IS AN EXAMPLE OF A VERY LONG REQUESTING KERBEROS NAME THAT EXCEEDS THE OUTPUT LINE</td>
</tr>
<tr>
<td>SECURITY MECHANISM:</td>
<td>UID Encrypt PW.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE:</th>
<th>ENCRYPTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMS ADDR TYPE:</td>
<td>SNA</td>
</tr>
<tr>
<td>LU NAME:</td>
<td>LUN&gt;V9</td>
</tr>
<tr>
<td>DERIVED LOCAL UID:</td>
<td>DERLOCID</td>
</tr>
<tr>
<td>CLIENT PRODUCT ID:</td>
<td>CLPRODID</td>
</tr>
<tr>
<td>IP ADDR:</td>
<td>00010203040506071819A1B1C1D1E1F</td>
</tr>
<tr>
<td>PORT:</td>
<td>1234</td>
</tr>
<tr>
<td>SECURITY MECHANISM:</td>
<td>UID Encrypt PW.</td>
</tr>
</tbody>
</table>

Field description

The fields are described in the following:

**TYPE**  The type of security identity: KERBEROS or ENCRYPTED.

*Derivation*: DB2 field QW0319TY

**COMMS ADDR TYPE**

Type of communication address: SNA or TCP/IP.

*Derivation*: DB2 field QW0319CT

**IP ADDR**

If the type of the communication address is TCP/IP, it is the 16 byte hexadecimal (HLHLHLHLHLHLHLHLHLHLHLHLHLHLHL) IP address of the internal 128 bit format, where:

- \( H \) represents the high order half byte value
- \( L \) represents the low order half byte value

*Derivation*: DB2 field QW0319IPA

**PORT**

The internal port format in case of communication address type TCP/IP.

*Derivation*: DB2 field QW0319PRT

**DERIVED LOCAL UID**

Local user ID mapped by DB2.

*Derivation*: DB2 field QW0319US

**CLIENT PRODUCT ID**

The identification of the client product.

*Derivation*: DB2 field QW0319CP

**PRINCIPAL NAME**

The requesting principal name. This can be up to 256 characters and can contain lowercase characters.

*Derivation*: DB2 field QW0319D1
LU NAME
If the type of the communication address is SNA, it is the 8 byte logical unit name.

Derivation: DB2 field QW0319LUN

SECURITY MECHANISM
The security mechanism. Possible values are:
- UID Encrypt PW
- Encrypt UID PW
- Encrypt UID PW NewPW
- Encrypt UID Data
- Encrypt UID PW Data
- Encrypt UID PW NewPW
- Data Encrypt UID only

Derivation: DB2 field QW0319SM

Authorization Control Detail (Type AUTHCNTL):
This topic shows detailed information about “Authorization Control Detail (Type AUTHCNTL)”.

When you select AUTHCNTL, the data is retrieved from IFCID 141 or 361, and the following fields are printed:

For the GRANTOR (IFCID 141)
<table>
<thead>
<tr>
<th>GRANTOR: JUB</th>
<th>OWNER TYPE: ROLE</th>
<th>REASON: N/P</th>
<th>SQLCODE: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJECT TYPE:</td>
<td>TAB/VIEW</td>
<td>TEXT: GRANT</td>
<td>INSERT ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TABLE JUB.AUDTB1 TO PUBLIC</td>
<td></td>
</tr>
</tbody>
</table>

GRANTOR or REVOKE

The authorization ID of the user who issued the GRANT or REVOKE.

This field is blank if the BY clause is used in a REVOKE statement.

OWNER TYPE
The authorization type of the owner. Possible values are:
- ROLE A role is used.
- PRIM/SECOND AUTHID

The user ID of the primary or the secondary authorization ID is used.

N/P Not present. A blank is shown in the performance database.

REASON
The reason why access was granted.

In the Audit report set this field is only valid for GRANTs. It indicates the authorization level of the grantor. For REVOKEs and unsuccessful GRANTs, N/A is printed.

Possible values are:
- PACKADMA (abbreviation for PACKADM ON ALL COLLECTIONS)
- DBCTRL
- DBADM
- SECADM
Audit Report - Authorization Control Detail (Type AUTHCNTL)

- ACCCTRL (abbreviation for ACCESSCTRL)
- SYSCTRL
- DBMAINT
- SYSOPR
- PACKADMS (abbreviation for PACKADM ON A SPECIFIC COLLECTION-ID)
- SYSADM

**SQLCODE**
The SQL return code from the GRANT or REVOKE operation.

**OBJECT TYPE**
The DB2 object type. Possible values are:

- BUFFER
  Buffer Pool
- COLLECT
  Collection
- DATABASE
  Database
- DISTTYPE
  Distinct Type
- FUNCTION
  Function
- PACKAGE
  Package
- SCHEMA
  Schema
- PROCEDUR
  Procedure
- APPLPLAN
  Application Plan
- LOBTS
  Large objects table space
- STOGROUP
  Storage Group
- TAB/VIEW
  Table or View
- USERAUTH
  System privileges, such as SYSADM or SYSOPR
- SEQUENCE
  Sequence
- ACEE
  Access control environment element
- ROW
  Row

**TEXT**
The SQL statement text associated with the GRANT or REVOKE. Long SQL text can be truncated.
Audit Report - Authorization Control Detail (Type AUTHCNTL)

For the authorization ID (AUTHID) (IFCID 361)

<table>
<thead>
<tr>
<th>AUTHCNTL AUTH TYPE:</th>
<th>SYSADM</th>
<th>OBJECT TYPE:</th>
<th>PACKAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIV CHECKED:</td>
<td>EXECUTE</td>
<td>SOURCE OBJECT QUALIFIER:</td>
<td>DSNTEP3</td>
</tr>
<tr>
<td>AUTHID:</td>
<td>SYSADM</td>
<td>NAME:</td>
<td>DSNTEP3</td>
</tr>
<tr>
<td>TARGET OBJECT QUALIFIER:</td>
<td>N/P</td>
<td>NAME:</td>
<td>N/P</td>
</tr>
<tr>
<td>OTHER OBJECT NAME:</td>
<td>N/P</td>
<td>TEXT:</td>
<td>N/P</td>
</tr>
</tbody>
</table>

Or ROLE instead of AUTHID:

| AUTH TYPE: | xxxxxxxxxxxxxxxxxx |
| PRIV CHECKED: | xxxxxxxxxxxxxxxxxx |
| ROLE: | xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

**AUTH TYPE**

The authority type.

Possible values are:

- SYSDBADM (System DBADM)
- DBCTRL
- DBADM
- SECADM
- ACCSCTRL (ACCESSCTRL)
- SYSADMI (Installation SYSADM)
- SQLADM
- SYSCTRL
- DBMAINT
- SYSOPR
- PACKADM
- SYSOPRI (Installation SYSOPR)
- SYSADM
- DATAACCESS (DATAACCESS)
- USER

**PRIV CHECKED**

The privilege that was checked. Possible values are provided in the DB2 macro DSNQW05.

**OBJECT TYPE**

The DB2 object type.

Possible values are:

- ACEE
AUTHORID or ROLE
The authorization ID or the role that has the authority.

SOURCE OBJECT - QUALIFIER
The source object qualifier or owner.

SOURCE OBJECT - NAME
The source object name.

TARGET OBJECT - QUALIFIER
The target object qualifier or owner.

TARGET OBJECT - NAME
The target object name.

OTHER OBJECT - NAME
The other object name or subsystem parameter.

TEXT
The SQL statement (truncated at 4000 bytes).

Authorization Failure Detail (Type AUTHFAIL):
This topic shows detailed information about “Authorization Failure Detail (Type AUTHFAIL)”.

When you select AUTHFAIL, the data is retrieved from IFCID 140, and the following fields are printed:

<table>
<thead>
<tr>
<th>AUTHID CHECKED</th>
<th>PRIVILEGE</th>
<th>SECLABEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE#08541</td>
<td>VALID</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OBJECT TYPE</th>
<th>REASON</th>
<th>RC</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACEE</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOURCE OBJECT</th>
<th>SOURCE OWNER</th>
<th>TARGET OBJECT</th>
<th>TARGET OWNER</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUDDB1</td>
<td>DE#08541</td>
<td>AUDTB4</td>
<td>DE#08541</td>
</tr>
</tbody>
</table>
Audit Report - Authorization Failure Detail (Type AUTHFAIL)

MLS RID : XXXX   SECLABEL: XXXXXXXX
TEXT: CREATE TABLE AUDTB4 (IDCOLUMN ROWID GENERATED ALWAYS NOT NULL, BELIEBIG CHAR(50)) IN AUDDB1.AUDTS1

Field description

Here is a description of the field labels shown in the previous example:

**AUTHID CHECKED**
The authorization ID causing the failure.

**PRIVILEGE**
The privilege that was checked. Possible values are provided in the DB2 macro DSNDAW02.

**OBJECT TYPE**
The DB2 object type. Possible values are:

- **ACEE** Access control environment element (ACEE)
- **APPLPLAN** Application Plan
- **BUFFER** Buffer Pool
- **COLLECT** Collection
- **DATABASE** Database
- **DISTTYPE** Distinct Type
- **FUNCTION** Function
- **LOBTS** Table Space
- **PACKAGE** Package
- **PROCEDUR** Procedure
- **ROW** Row
- **SCHEMA** Schema
- **SEQUENCE** Sequence
- **STOGROUP** Storage Group
- **TAB/VIEW** Table or View
- **USERAUTH** System privileges, such as SYSADM or SYSOPR
Audit Report - Authorization Failure Detail (Type AUTHFAIL)

REASON
The user-defined reason code from the access control authorization exit routine.

RC
The return code from the access control authorization exit routine. A value of 0 means "not applicable".

SOURCE OBJECT
If the OBJECT TYPE field is not blank, this field displays the name of the object against which the authorization was checked.

If the object type is blank, then this field displays the name of the object being created. It is valid only when the privilege is CREATE ALIAS, CREATE DBA, CREATE DBC, or CREATE STOGROUP.

Otherwise, N/A is printed.

SOURCE OWNER
If the OBJECT TYPE field is not blank, this field displays the qualifier of the object against which the authorization was checked. It is valid only for qualifiable objects.

If the object type is blank, this field displays the qualifier of the alias being created. It is valid only when the privilege is CREATE ALIAS.

Otherwise, N/A is printed.

TARGET OBJECT
The name of the object being defined. It is valid only when the target owner field is valid. Otherwise, N/A is printed.

TARGET OWNER
The qualifier of the object being defined. It is valid when the privilege is CREATE INDEX or CREATE TABLE. It is also valid for a CREATE VIEW authorization check against the set of CREATE VIEW, SELECT, INSERT, DELETE, and UPDATE privileges. Otherwise, N/A is printed.

MLS RID
The record identifier (RID) of the Multilevel Security (MLS) table that is updated or deleted.

SECLABEL
The security label of a row in the Multilevel Security (MLS) table.

TEXT
The SQL statement text associated with the failure. Long SQL statement text can be truncated, depending on the amount of space available.

DML at Bind Access Detail (Type BIND):

This topic shows detailed information about “DML at Bind Access Detail (Type BIND)”.

When you select the BIND type, the data is retrieved from IFCID 145, and the following fields are printed:

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIND</td>
<td>PACKAGE: PM01DB11.DSNREXX.DSNREXX.X'174B9CF31C5687C2'</td>
</tr>
<tr>
<td>TYPE</td>
<td>INSERT</td>
</tr>
<tr>
<td>STMT#</td>
<td>0</td>
</tr>
<tr>
<td>ISOLATION(CS)</td>
<td>KEEP UPD LOCKS: NO</td>
</tr>
<tr>
<td>TEXT</td>
<td>INSERT INTO PRL.AUDTB1 OVERRIDING USER VALUE VALUES(NULL, 'HEIDI', 'AXEL', 1)</td>
</tr>
<tr>
<td>DATABASE: 264</td>
<td>TABLE OBID: 3</td>
</tr>
<tr>
<td>ACCESS CTRL SCHEMA: N/P</td>
<td></td>
</tr>
<tr>
<td>ACCESS CTRL OBJECT: N/P</td>
<td></td>
</tr>
</tbody>
</table>

Chapter 6. Batch reporting 3403
Field description

**PACKAGE/DBRM NAME**

The name of the database request module (DBRM) or package containing the DML statement being bound.

A package name is made up of the following parts:

**Location**
The location name is applicable only to packages, otherwise 'BLANK' is printed.

**Collection ID**
The package collection ID is applicable only to packages, otherwise 'BLANK' is printed.

**Package ID**
The program name for DBRMs or the package ID for packages.

**Consistency token**
A hexadecimal dump of the DB2 timestamp of the program during precompilation. This field contains the value in the TIMESTAMP column of SYSIBM.SYSDBRM. The value represents the time of the precompilation in internal format, that is, modified store clock (STCK) format.

**TYPE**
The type of statement being bound.

**STMT#**
The statement number in the program or DBRM involved in the bind.

**ISOLATION**
The isolation of the bind. Possible values are:

- **CS** Cursor stability
- **RR** Repeatable read
- **RS** Read stability
- **UR** Uncommitted read

**KEEP UPD LOCKS**
Indicates if an update lock is kept. YES is only valid if the value in the TYPE field is SQL OPEN CURSOR and the value in the ISOLATION field is RR or RS.

**TEXT**
The SQL statement text associated with the BIND. If SQL text is not present, N/P is printed. Long SQL text can be truncated.

**DATABASE**
Either the name or the decimal DBID of the database that contains the auditable DB2 table. The name is printed if known, otherwise OMEGAMON for Db2 PE reports a decimal DBID.

**TABLE OBID**
The object identifier (OBID) of the DB2 table.

**Note:** DATABASE and TABLE OBID are repeating fields and can have more than one entry in the report or trace. Two or more occurrences result from a DML statement that refers to two or more DB2 tables.

**STMT ID**
The SQL unique statement ID.
Audit Report - DML at Bind Access Detail (Type BIND)

ACCESS CTRL SCHEMA
The name of the access control schema.

ACCESS CTRL OBJECT
The name of the access control object.

DDL Access Detail (Type DDL):
This topic shows the various types of DDL Access detail that can be printed. It describes the corresponding fields if you select DDL. The types are sorted by IFCID.

Create Trusted Context or Alter Trusted Context (IFCID 270):
This topic shows a sample and the field description of a DDL change type of Create Trusted Context or Alter Trusted Context (IFCID 270).

The following sample shows the layout for an DDL change type of Create Trusted Context or Alter Trusted Context (IFCID 270):

**TYPE:** CREATE TRUSTED CONTEXT or CREATE
**SQLCODE:** 100
**TEXT:** THIS IS THE VARIABLE LENGTH SQL STATEMENT WHEN A TRUSTED CONTEXT IS CREATED OR ALTERED. MAXIMUM LENGTH IS 4000.

Field description
The fields are described in the following:

**TYPE**
The type of trusted context. Possible values are:

CREATE TRUSTED CONTEXT or CREATE
If a trusted context is created.

ALTER TRUSTED CONTEXT or ALTER
If a trusted context is altered.

*Derivation:* DB2 field QW0270TY

**SQLCODE**
The SQL return code from the CREATE or ALTER TRUSTED CONTEXT statement.

*Derivation:* DB2 field QW0270SQ

**TEXT**
The SQL statement (truncated at 4000 bytes).

*Derivation:* DB2 field QW0270SS

DDL data retrieved from IFCID 142 or 271:
This topic shows a sample and the field description of DDL data retrieved from IFCID 142 or 271.

If the data is retrieved from IFCID 142, ...

If you select DDL and the data is retrieved from IFCID 142 and the following fields are printed:

<table>
<thead>
<tr>
<th>TABLE NAME: AUDTB1</th>
<th>OWNER: JUB</th>
<th>CREATOR: JUB</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATABASE: 274</td>
<td>TABLE OBID: 3</td>
<td>TYPE: CREATE</td>
</tr>
<tr>
<td>OWNER TYPE: PRIM/SECOND AUTHID</td>
<td>SECLABEL: XXXXXXXX</td>
<td>MLS: XXX</td>
</tr>
<tr>
<td>R/C ACCESS CTRL: COLUMN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEXT: CREATE TABLE JUB.AUDTB1 (IDCOLUMN INTEGER GENERATED ALWAYS AS IDENTITY, NNAME VARCHAR(50) NOT NULL, VNAME CHAR(10) NOT NULL, ANZAHL INTEGER NOT NULL) AUDIT ALL IN AUDDB1.AUDTSI</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chapter 6. Batch reporting 3405
## TABLE NAME
The name of the audited DB2 table.

## OWNER
The authorization ID of the owner of the audited DB2 table.

## CREATOR
The authorization ID of the creator of the DB2 table.

## DATABASE
Either the name or the decimal DBID of the database that contains the auditable DB2 table. The name is printed if known, otherwise OMEGAMON for Db2 PE reports a decimal DBID.

## TABLE OBID
The object identifier (OBID) of the auditable table associated with the access.

## TYPE
The statement type. Possible values are:
- CREATE
- DROP
- ALTER

## OWNER TYPE
The type of the table owner. Possible values are:
- ROLE A role is used.

### PRIM/SECOND AUTHID
The user ID of the primary or the secondary authorization ID is used.

### N/P
A blank is shown in the performance database.

### N/A
A blank is shown in the performance database.

## SECLABEL
The security label of the user.

## MLS
The Multilevel Security (MLS) table can contain the following values:
- Y For a Create or Drop operation of a table that has multilevel security, or for an Alter operation of a table to add a security label column.
- N For an Alter operation of a table that has multilevel security.
- NONE The table does not have multilevel security.

### N/P
Not present. A blank is shown in the performance database.

### N/A
A blank is shown in the performance database.

## R/C ACCESS CTRL
The access control field contains data about ROW-LEVEL and COLUMN-LEVEL (R/C) ACCESS CONTROL in DDL. It can have the following values:
- **'R' (ROW)**
  Activates row-level access control.
- **'C' (COLUMN)**
  Activates column-level access control.
Audit Report - DDL Access Detail (Type DDL)

'B' (BOTH)
Activates row-level and column-level access control.

' ' (NO)
Activates no access control.

TEXT  The SQL statement text associated with the table access. Long SQL text can be truncated.

If the data is retrieved from IFCID 271, ...

If you select DDL and the data is retrieved from IFCID 271, the following fields are printed:

CHANGE TYPE
Identifies the SQL statement type:

CREATE or C
Creates row permission or column mask.

DROP or D
Drops row permission or column mask.

ALTER or A
Alters row permission or column mask.

Otherwise, a hexadecimal value is shown.

OBJECT
Identifies the object type:

• Row permission (R)
• Column mask (M)

Otherwise, a hexadecimal value is shown.

SQLCODE
The SQL code from the execution of the CREATE, DROP, or ALTER statement.

TEXT  The SQL statement text associated with the table access. The maximum length is 4000 bytes. Long SQL text can be truncated.

DML Access Detail (Type DML):

This topic shows a sample and the field description of “DML Access Detail (Type DML)”.

When you select DML, the data is retrieved from IFCID 143 and 144, and the following fields are printed:

FIELD DESCRIPTION

TYPE  The type of access. It is determined by the IFCID (143 is a WRITE and 144 is a READ).
Audit Report - DML Access Detail (Type DML)

STMT ID
The statement ID.

DATABASE
Either the name or the decimal DBID of the database that contains the auditable DB2 table. The name is printed if known, otherwise OMEGAMON for Db2 PE reports a decimal DBID.

TABLE OBID
The object identifier (OBID) of the auditable DB2 table associated with the access.

PAGESET
Either the name or the decimal PSID of the page set that contains the auditable DB2 table. The name is printed if known, otherwise OMEGAMON for Db2 PE reports a decimal PSID. If neither field is available, N/A is printed in this field.

LOG RBA
The log relative byte address of the current unit of recovery. It is printed in hexadecimal, when present.

Utility Access Detail (Type UTILITY):

This topic shows a sample and the field description of the “Utility Access Detail (Type UTILITY)”.  

When you select UTILITY, the data is retrieved from IFCID 024, and the following fields are printed:

NAME : LOAD        ID : DSNTEX
DATABASE : DBASE1   PHASE : RELOAD
PAGESET : PSET1     TYPE : RECORD

Field description

Here is a description of the field labels shown in the previous example:

NAME
The name of the utility.

ID
The DB2 user’s identification of the utility.

DATABASE
Either the name or the decimal DBID of the database that contains the auditable DB2 object.

For the report entry describing the start of a utility (IFCID 023), N/P is printed. To determine the real value, find the corresponding entry describing the utility object or phase change (IFCID 024), or the entry describing the utility end information.

PHASE
The utility phase identification.

PAGESET
Either the name or the decimal PSID of the page set that contains the auditable DB2 object. If neither field is present, N/A is printed.

TYPE
The type of utility access. For the utility phase UTILINIT and UTILTERM, N/A is printed.
The Audit File Data Set and Output Record:

The FILE subcommand formats DB2 Audit records and writes them to sequential data sets that can be loaded into DB2 tables.

The audit FILE subcommand produces up to seven sequential variable-blocked data sets. You can use FILE to separate the various audit types by specifying one audit type per FILE subcommand.

The content of the output data set is determined by the options you specify for the FILE subcommand and by the input DB2 audit trace data processed.

Each output record is divided into several parts:

- The **Standard Header** section contains header data common to all records. This section is at the beginning of each record. It contains DB2 identifier information known as the correlation header. It also contains the DB2 distributed network header information associated with the record.
- The **Data** section lists data unique to the audit category of the record. Each audit type maps the areas of the record differently. Records which share the same header information have a repeating subtype.

File data is written to a File data set. The following types of records are created:

- Bind
- Auth Change
- Auth Control
- DDL
- Auth Failure
- SQL
- Utility

Descriptions of the layouts of these records can be found in the RKO2SAMP library under the following names:

**DGOXDBND**
- Bind

**DGOXDCHG**
- Auth Change

**DGOXDCNT**
- Auth Control

**DGOXDDDL**
- DDL

**DGOXDDML**
- DML

**DGOXFDFAI**
- Auth Failure

**DGOXDSQL**
- SQL

**DGOXDUTI**
- Utility
Explain Report

These topics provide information about the Explain report.

The Explain report of OMEGAMON for Db2 PE is divided into sections. The sections that are shown in the Explain report depend on:

- Which object is to be explained.
  Most sections are applicable to all explain functions, but there are a few which are applicable to selected functions only.

- The requested level of detail.

At normal completion of Explain, the last pages of the output show a summary of the OMEGAMON for Db2 PE explain execution. This is called the Summary Report.

**Note:** For an introduction to the Explain report set and general explain information refer to the Reporting User’s Guide For details on how to specify EXPLAIN commands refer to the Report Command Reference.

**The Page Header**

The explain page header is printed on every page of the Explain report.

For details on how to specify EXPLAIN PACKAGE commands refer to the Report Command Reference.

**Explain - General Page Header**

This sample shows the header of an Explain report, in its general form:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTUAL AT</td>
<td>02/18/16 15:05:08</td>
</tr>
<tr>
<td>OMEGAMON XE DB2 PE (V5.4)</td>
<td>PAGE : 1-1</td>
</tr>
<tr>
<td>EXPLAIN PACKAGE</td>
<td>DB2 VERSION: V10</td>
</tr>
<tr>
<td>LOCATION</td>
<td>PMODA11</td>
</tr>
<tr>
<td>SUBSYSTEM</td>
<td>DA11</td>
</tr>
<tr>
<td>USER AUTHID</td>
<td>XRK</td>
</tr>
<tr>
<td>SUBSYSTEM</td>
<td>DA11</td>
</tr>
<tr>
<td>DETAIL</td>
<td>CURR.SQLID : XRK</td>
</tr>
</tbody>
</table>

**Field description**

The header contains the following information, described in the order left block, middle block, right block:

**ACTUAL AT**

The date and time at which the DB2 subsystem (specified in SUBSYSTEM) containing explain functions, is accessed to collect the requested data.

**LOCATION**

The location name of the DB2 subsystem specified in SUBSYSTEM.

**SUBSYSTEM**

The ID of the DB2 subsystem that generated the data.

**OMEGAMON for Db2 PE (Vn)**

The product name and version.

**EXPLAIN**

The object to be explained as specified in the EXPLAIN command (for example, QMFQUERY, PACKAGE, or PLAN).

**<object type>**

The name of the object to be explained as specified in the EXPLAIN command. It can have one of the following values:

**SQL STATEMENT**

None
QUERYNO
Query number

PLAN Plan name, such as LARGEPLAN.

PACKAGE Package ID

QMFQUERY Unqualified QMF query name

<size>
The level of the report specified in the LEVEL subcommand option. Values are:
- SUMMARY
- SQL
- BASIC
- INDEX
- DETAIL
- NO RAW EXPLAIN DATA
- KEY DISTRIBUTION

PAGE The page number in the format ill-nnnn, where ill denotes the report number and nnnn the page number within the report.

DB2 VERSION The version and release of the DB2 subsystem specified in SUBSYSTEM.

USER AUTHID The user authorization ID.

CURR.SQLID The current SQLID as specified in the SQLID option, or the default.

**Object Identification**
Use the page header to quickly identify the object that is explained. A complete identification is contained in the object identification section of the report.

**Plan Identification:**
This section shows examples of identification plan with DBRMs and with packages.

If a plan is explained by the EXPLAIN PLAN command, the object identification section of the report shows the following for each SQL statement:
- Plan name
- DBRM or package name
- Statement number
- Statement text
- Statement-related information

Examples are shown in “Explain Identification - Plan with DBRMs” and “Explain Identification - Plan with Packages” on page 3412.

**Explain Identification - Plan with DBRMs**

Here is an example of an Identification - Plan with DBRMs.
Explain Identification - Plan with Packages

Here is an example of an Identification - Plan with packages.

```sql
DECLARE C2 CURSOR FOR
SELECT NAME, BINDDATE, BINDTIME, ISOLATION
FROM SYSIBM.SYSPLAN
WHERE CREATOR = USER AND NAME IN ('EEE2', 'EEE3', 'EEE4')
ORDER BY NAME
STATUS : COMPILED-BOUND USING DEFAULTS FOR INPUT VARIABLES
ISOLATION: CURSOR STABILITY
```

Explain Identification - Package

Here is an example of a package identification.

```sql
DECLARE CURSOR_1 CURSOR FOR
SELECT EMPNO, LASTNAME, WORKDEPT, BIRTHDATE
FROM DSNB610.EMP
WHERE (EMPNO BETWEEN '000170' AND '000240'
AND WORKDEPT IN ('D01', 'E21', 'X23'))
OR (EMPNO = '000100'
AND (WORKDEPT = (SELECT MIN(DEPTNO)
FROM DSNB610.DEPT
WHERE MGRNO = '000050')
OR WORKDEPT = (SELECT MAX(DEPTNO)
FROM DSNB610.DEPT
WHERE ADMRDEPT = 'A00')))
ORDER BY EMPNO
STATUS : COMPILED-BOUND USING DEFAULTS FOR INPUT VARIABLES
ISOLATION: CURSOR STABILITY
```

Package Identification:

This section shows examples of package identification.

If a package is explained by the EXPLAIN PACKAGE command, the object identification section of the report shows the following for each SQL statement:

- Full package name
- Statement number
- Statement text
- Statement-related information

For details on how to specify EXPLAIN PACKAGE commands refer to the Report Command Reference.

Explain Identification - Package

Here is an example of a package identification.
around the location like :HV_LOC71_LOCATION and collid like :HV_LOC71_COLLID and
name like :HV_LOC71_NAME and version like :HV_LOC71_VERSION
order by location, collid, name, pctimestamp desc queryno 001011071
status : compiled-bound using defaults for input variables
isolation: uncommitted read / from syspackage

QMF Query Identification:

This section shows examples of QMF Query identification.

If a QMF query is explained by the EXPLAIN QMFQUERY command, the object identification section of the report shows the following for each SQL statement:

• Full QMF query name
• Statement text

For details on how to specify EXPLAIN QMFQUERY commands refer to the Report

Command Reference

Explain Identification - QMF Query

Here is an example of the QMF query identification.

QMFQUERY: USR1.MY_QUERY
--
--SELECT * FROM A CATALOG TABLE
--
SELECT name, creator
FROM sysIBM.sysTables
WHERE creator not like 'sysIBM%'
and creator like 'XXASP%'
ORDER BY CREATOR, NAME
--

SQL Text Identification:

If an SQL statement identified by its text is explained by the EXPLAIN SQLSTMT command, the object identification section shows the statement text.

For details on how to specify EXPLAIN SQLSTMT commands refer to the Report

Command Reference

Explain Identification - SQL Text

Here is an example of the SQL Text Identification.

SQL STATEMENT TEXT :

SELECT * FROM sysIBM.syspackage
WHERE name = 'OGGWTPG3'
and collid = 'X02E54ZO'

SQL Query Number Identification:

If an SQL statement identified by a query number is explained by the EXPLAIN QUERYNO command, there is no object identification section.

For details on how to specify EXPLAIN QUERYNO commands refer to the Report

Command Reference

Table PLAN_TABLE Data

This section of the Explain report lists the raw EXPLAIN data as found in the DB2 table PLAN_TABLE.
### Explain Report - Table PLAN_TABLE Data

For details on how to specify EXPLAIN commands refer to the [Report Command Reference](#).

#### Explain Report - PLAN_TABLE Report Block

This is an example of the PLAN_TABLE report block.

| EXPLAIN TABLE: PMDEV52.PLAN_TABLE | ---------------------------------------------- |
| PROGNAME (Package): DGOORTHG3 | COLLID : KOEXS20 |
| VERSION : THIS_IS_A_LONG_NAME | APPLNAME (Plan) : N/P |
| QUERYNO : 1011071 | SECTNO : 4 |
| QBLOCKNO : 1 | PARENT_QBLOCKNO : 0 |
| PLANNO : 1 | PARENT_PLANNO : 0 |
| MIXOPSEQ : 0 | QBLOCK_TYPE : SELECT |
| TNAME (Table) : SYSIBM | CREATOR (Table) : SYSSBM |
| TABNO (Table) : 1 | CORRELATION_NAME : N/P |
| TABLE_TYPE : T - Table | CTEREF : 0 |
| TABLEresultCode : U - Unicode | TABLE_MCCSID : 1200 |
| TABLE_DCCSID : 367 | TABLE_DCSSID : 1200 |
| TLSCLOMMODE : N - No lock + | GROUP_MEMBER : N/P |
| ACCESSTYPE : I - Index scan | PRIMARY_ACCESSTYPE : BLANK |
| ACCESSNAME (Index): DSNKKX01 | ACCESSCREATOR : SYSSBM |
| MATCHCOLS : 1 | INDEXONLY : NO |
| METHOD (Join) : b - First table | JOIN_DEGREE : 0 |
| JOIN_TYPE : b - INNER or NO | MERGN : NO |
| MERGE_JOIN_COLS : 0 | MERNG : NO |
| PREFETCH : D - Dynamic | PAGE_RANGE : NO |
| WHEN_OPTIMIZE : b - At bind time | ACCESS_DEGREE : 0 |
| COLUMN_FN_EVAL : BLANK | ROUTINE_ID : 0 |
| HINT_USED : N/P | OPTHint : N/P |
| SCANDIRECTION : N/A | |
| SORTN_GRPJOIN_ID : 0 | SORTN_UNIQ : NO , SORTN_UNIQ : NO |
| SORTC_GRPJOIN_ID : 0 | SORTN_JOIN : NO , SORTN_JOIN : NO |
| ACCESS_GRPJOIN_ID : 0 | SORTN_ORDERBY : NO , SORTN_ORDERBY : NO |
| JOIN_GRPJOIN_ID : 0 | SORTN_GROUPBY : NO , SORTN_GROUPBY : NO |
| REMARKS : N/P | STMTTOKEN : N/P |
| PARALLELISM_MODE : BLANK | BIND_EXPLAIN_ONLY : NO |
| EXPANSION_REASON : N/A | |
| VERSION : THIS_IS_A_LONG_NAME_VERSION_IDENTIFIER | TSLCLOMMODE : N - No lock (UR isolation) |

The report field labels are the full PLAN_TABLE column names. For a detailed description of the PLAN_TABLE columns, refer to the [Db2 SQL Reference](#). If the report field value is a long name or a long value, it is marked with an asterisk (*) at the end of the report field value, and it is reported at the end of the block in its full length.

The plan table is searched by using the bind time of the package. There might be multiple occurrences of the package with different bind times. For example, the DB2 system catalog might contain the latest package that is created by the DB2 command BIND or REBIND. It might also contain a former package version that is activated by the DB2 command REBIND SWITCH.

#### Access Path Data

This section of the Explain report introduces the access path chosen by DB2.

For details on how to specify EXPLAIN commands refer to the [Report Command Reference](#).

#### Explain Report - Access Path Data Block

The following example shows that the access path is contained in a frame.

| THE ACCESS PATH CHOSEN BY DB2 AT 18:50:11.7 ON 2016-02-15 | MATCHING INDEX SCAN WITH SCAN OF REFERENCED DATA PAGES |
| NUMBER OF MATCHING COLUMNS: 1 - THE INDEX HAS 4 COLUMNS | |

---

3414  IBM Db2 Performance Expert on z/OS
Index Data
If an index is used, that is, an access path other than TABLE SPACE SCAN, information about this index is shown. The data is derived from the SYSIBM.SYINDEXES table.

For details on how to specify EXPLAIN commands refer to the Report Command Reference.

Explain Report - Index Data Block
Here is an example of the index data block section.

INDEX: SYSIBM.DSNKX01
STATSTIME: 2016-02-16-14.45.54.186869
CREATED: 0001-01-01-00.00.00.000000
ALTERED: 2003-09-21-23.30.17.962937
FULL KEY CARD: 1, SPACE: 245.760K, UNIQUE: YES, CLUSTERED: Y
1ST KEY CARD: 1, SPACE: 245.760K, UNIQUE: YES, CLUSTERED: Y
INDEX TYPE: 2, PGSIZE: 4096, BFPOOL: BP0, DB.NAME: DSNDB06
CLUSTERRATIO: 84.6328%, ERRULE: NO, CLRULE: NO, IXSPACE: DSNKX01
MAX.PIECESIZE: 0, COPY: NO, COPYLRSN: X000000000000

Key Data
If an index is used and LEVEL(INDEXES) is not specified, information about the key columns is presented. The data is derived from the SYSIBM.SYSKEYS and SYSIBM.SYSCOLUMNS tables.

If a matching index scan is used in the access path, the report indicates the columns that are used in the index scan. This is indicated by an arrow (<=+) in the column named KEY USED. The number of arrows corresponds to the contents of the matching columns field MATCHCOLS in the PLAN_TABLE report block.

For details on how to specify EXPLAIN commands refer to the Report Command Reference.

Explain Report - Key Data Block
Here is an example of the explain key data block section.

<table>
<thead>
<tr>
<th>KEY NO.</th>
<th>COLUMN NAME</th>
<th>COL.TYPE</th>
<th>LNG NULL</th>
<th>COL.STAT</th>
<th>LENGTH</th>
<th>KEY CARD</th>
<th>ORDER</th>
<th>LOW2KEY</th>
<th>HIGH2KEY</th>
<th>KEY USED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LOCATION</td>
<td>VARCHAR</td>
<td>128 NO</td>
<td>0</td>
<td>1 ASC.</td>
<td>X'40404040</td>
<td>X'40404040</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>COLLID</td>
<td>VARCHAR</td>
<td>128 NO</td>
<td>0</td>
<td>87 ASC.</td>
<td>X'4144444C</td>
<td>X'55555555</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>NAME</td>
<td>VARCHAR</td>
<td>128 NO</td>
<td>0</td>
<td>676 ASC.</td>
<td>X'41444432</td>
<td>X'55555555</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>VERSION</td>
<td>VARCHAR</td>
<td>122 NO</td>
<td>0</td>
<td>55 ASC.</td>
<td>X'31404040</td>
<td>X'56365231</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key Distribution Data
This section introduces the Key Distribution Data.

If LEVEL(KEYDIST) has been specified and RUNSTATS has produced key distribution information for the first column of the index, a section in the report shows the distribution of up to ten most frequently used key values. The data is derived from the SYSIBM.SYSTABLES.CREATOR.
For details on how to specify EXPLAIN commands refer to the Report Command Reference.

Explain Report - Key Distribution Data Block

This example shows the key distribution data section.

KEY DISTRIBUTION FOR: SYSIBM.SYSTABLES.CREATOR  
-------------------------
SYSIBM (27%), DSNB230 (11%), U473298 (9%), Q (7%), XXASP09 (5%), 
U01 (5%), USR2 (5%), U473298 (9%), Q (7%), XXASP09 (5%), 
SYSIBM (27%), DSNB230 (11%), U473298 (9%), Q (7%), XXASP09 (5%),

Table and Table Space Data

This section of the Explain report shows information for the accessed table and its corresponding table space.

The data is derived from the SYSIBM.SYSTABLES and SYSIBM.SYSTABLESPACE tables.

For details on how to specify EXPLAIN commands refer to the Report Command Reference.

Explain Report - Table Data Block

This is an example of the Explain Table Data section.

If table space scan has been selected as the access path method, and INDEX(NO) is not specified, a separate block is presented for each available index on the subject table along with information about key columns.

See "Index Data" on page 3415 and "Key Data" on page 3415 for the layout of these blocks.

Host Variable Data

This section of the Explain report is produced if HOSTVAR(YES) is specified for the OMEGAMON for Db2 PE explain plan or package.

If you define host variables which are not consistent with the corresponding column definition, DB2 selects an inefficient access path.

In "Explain Report - Host Variables Data Block" on page 3417, the access path selected is table space scan even though an index is defined on the only column referenced in the WHERE clause. As the example in "Explain Report - Host Variables Data Block" on page 3417 shows, DB2 has selected table space scan because the column definition is three characters, but the corresponding host...
variable is defined as four characters. By changing the host variable definition to three characters, a matching index scan is selected by DB2.

For details on how to specify EXPLAIN commands refer to the Report Command Reference.

**Explain Report - Host Variables Data Block**

Here is an example of an Explain Report for the Host Variables Data block:

```sql
DECLARE C1 CURSOR FOR
SELECT DEPTNO, DEPTNAME, LOCATION
FROM DSNB610.DEPT
WHERE DEPTNO = :HOSTVAR_STRUCTURE.DEPARTMENT_NUMBER
ORDER BY DEPTNO

+------------------------------------------------------------------+
| TABLE SPACE SCAN - NO INDEX IS USED                             |
| STANDARD SEQUENTIAL PREFETCH WILL BE PERFORMED                  |
+------------------------------------------------------------------+

KEY NO. COLUMN NAME   COL.TYPE LNG NULL KEY CARD, ORDER LOW2KEY HIGH2KEY USED
1 WORKDEPT CHAR      3 YES 8 ASC. C'B01 C'E11 <==

HOST VAR. TYPE LENGTH IND. HOST VARIABLE NAME
FIXED CHARACTER 4 NO HOSTVAR_STRUCTURE.DEPARTMENT_NUMBER

**Bind Plan Data**

This section of the Explain report is shown if the object being explained is a plan or query number for a mini plan created by the bind process. Information related to the binding of the plan, such as plan binder, bind time, or isolation level, is presented.

This part of the report is only produced in connection with the first SQL statement of the plan.

When a plan is explained using OMEGAMON for Db2 PE explain, the bind-related data is stored in a DB2 table which enables you to compare relevant information for up to three generations of the plan.

If, in a given row, there is a difference among the three columns, an arrow (===>) is shown in the rightmost column.

The bottom part of this section shows data for each DBRM and package in the most recent plan generation. The report states the precompilation date and time, programming language, number of SQL statements, single-byte or double-byte character set, use of comma, use of decimal(31), type of source, and the DB2 release when the module was precompiled.
For details on how to specify EXPLAIN commands refer to the Report Command Reference.

Explain Report - Plan Data Block

This is an example of the Bind Plan Data section.

<table>
<thead>
<tr>
<th>PLAN NAME</th>
<th>LOCATION</th>
<th>CHANGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOXXPLAN</td>
<td>SYSDSN5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CREATOR</th>
<th>PMDEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIND DATE</td>
<td>2002-07-15</td>
</tr>
<tr>
<td>BIND TIME</td>
<td>12:19:59.35</td>
</tr>
<tr>
<td>BOUND BY</td>
<td>JEN</td>
</tr>
<tr>
<td>QUALIFIER</td>
<td>PMDEV</td>
</tr>
<tr>
<td>BASE SIZE</td>
<td>2040</td>
</tr>
<tr>
<td>AVG. SIZE</td>
<td>0</td>
</tr>
<tr>
<td>CACHESIZE</td>
<td>1024</td>
</tr>
<tr>
<td>PLENTRIES</td>
<td>1</td>
</tr>
<tr>
<td>SYS.ENTR.</td>
<td>0</td>
</tr>
<tr>
<td>SQLSTMTS</td>
<td>7</td>
</tr>
<tr>
<td>VALIDATE</td>
<td>BIND</td>
</tr>
<tr>
<td>ISOLATION</td>
<td>CUR.STAB.</td>
</tr>
<tr>
<td>VALID</td>
<td>YES</td>
</tr>
<tr>
<td>OPERATIVE</td>
<td>YES</td>
</tr>
<tr>
<td>ACQUIRE</td>
<td>USE</td>
</tr>
<tr>
<td>RELEASE</td>
<td>COMMIT</td>
</tr>
<tr>
<td>DEFTERPREP</td>
<td>NO</td>
</tr>
<tr>
<td>CURR.SERV</td>
<td>N/P</td>
</tr>
<tr>
<td>DEGREE</td>
<td>1</td>
</tr>
<tr>
<td>REOPTIM.</td>
<td>NO</td>
</tr>
<tr>
<td>DYN.RULES</td>
<td>NO</td>
</tr>
<tr>
<td>SQLRULES</td>
<td>DB2</td>
</tr>
<tr>
<td>PATH</td>
<td>DDF</td>
</tr>
<tr>
<td>DDF PROT.</td>
<td>ORDA</td>
</tr>
<tr>
<td>FNCRT.RES.</td>
<td>2002-07-15+12</td>
</tr>
<tr>
<td>DISCONNECT</td>
<td>EXPLICIT</td>
</tr>
<tr>
<td>OPTHINTID</td>
<td></td>
</tr>
<tr>
<td>STORED BY</td>
<td>PMDEV</td>
</tr>
<tr>
<td>STORED AT</td>
<td>2002-01-15</td>
</tr>
</tbody>
</table>

Bind Package Data

This section of the Explain report is shown if the object being explained is a package.

The information related to the binding of the package, such as package owner, bind time or isolation level, is presented.

This part of the report is only produced in connection with the first SQL statement of the package.

For details on how to specify Explain commands refer to the Report Command Reference.

Explain Report - Package Data Block

This is an example of the Bind Package data section.

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>PMODA11</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLLECTION ID</td>
<td>K02EXS20</td>
</tr>
<tr>
<td>PACKAGE ID</td>
<td>OGM0TP63</td>
</tr>
<tr>
<td>VERSION ID</td>
<td>OMPE_FINAL</td>
</tr>
<tr>
<td>CONSIST.TOKEN</td>
<td>X'18C68F8D602A50FF6'</td>
</tr>
<tr>
<td>POSNAME</td>
<td>D01OMPE.BASIS1.TK2OBBRM</td>
</tr>
<tr>
<td>OWNER</td>
<td>PMDEV52</td>
</tr>
<tr>
<td>CREATOR</td>
<td>XRK</td>
</tr>
<tr>
<td>BIND DATE</td>
<td>2016-02-15</td>
</tr>
<tr>
<td>BIND TIME</td>
<td>18.50.11.670393</td>
</tr>
<tr>
<td>CREATE DATE</td>
<td>2016-02-15</td>
</tr>
<tr>
<td>CREATE TIME</td>
<td>18.49.53.347696</td>
</tr>
<tr>
<td>QUALIFIER</td>
<td>PMDEV52</td>
</tr>
<tr>
<td>BASE SIZE</td>
<td>5056</td>
</tr>
<tr>
<td>SQLERROR</td>
<td>NOPACKAGE</td>
</tr>
</tbody>
</table>
Summary Report
This section introduces the summary report.

At normal completion of OMEGAMON for Db2 PE explain, the last pages of the output are a summary of the OMEGAMON for Db2 PE explain execution. This is called the Summary Report. Each command is prefixed with the report number.

For each SQLSTMT, QUERYNO, and QMFQUERY request, the access path is listed adjacent to the input request. For each PLAN or PACKAGE statement, the access path is listed for every SQL statement in the plan or package.

To the right of the access path information, the report page number (rrr-nnnn) is shown, unless LEVEL(SUMMARY) was specified. In this way the summary report can be used as a table of contents.

For details on how to specify EXPLAIN SUMMARY commands refer to the Report Command Reference.

Explain Report - Summary Report Block
This is an example of a Summary report.

Column description
The TYP column can contain the following values:

P   Package
D   DBRM
S   Standard sequential prefetch
L   Prefetch through a page list Table space scan
+   Nonmatching index scan
A   blank

No prefetch or others

The numbers in brackets following MATCHING INDEX SCAN, for example (2/3), show how many columns match, namely 2, and how many columns the index has, namely 3.
EXPLAIN PLAN Command
This section introduces the EXPLAIN PLAN command.

When you bind a plan, you might decide to include a package list that contains wildcard characters, for example COLLID3.* or even *.*. This could result in a plan pointing at thousands of packages with an even greater number of explainable SQL statements. To control the volume of output produced, the PACKLIMIT option is provided.

If a particular plan consists of more packages than specified in PACKLIMIT, a report with all the package names is produced, but no SQL statements in these packages are explained. This report shows the collection IDs, the creator and owner names, the version IDs, and the dates of precompilation. However, if any DBRMs belong to the plan, SQL statements in these DBRMs are explained.

For details on how to specify EXPLAIN PLAN commands refer to the Report Command Reference.

Explain PLAN Report - Package List Block
The following report example results of an EXPLAIN PLAN statement with PACKLIMIT(10) if a plan named LARGPLAN was bound with a package list of COLLECT.*, which includes 80 packages:

ACTUAL AT: 01/30/16 13:10:38 OMEGAMON XE for DB2 PE (V5.4) PAGE : 1-50
LOCATION : DSNAPC1 LARGEPLAN USER AUTHID : XRX
SUBSYSTEM : APC1 DETAIL CURR.SQIID : XRX

<table>
<thead>
<tr>
<th>PACKAGE</th>
<th>COLLECTION ID</th>
<th>CREATOR</th>
<th>OWNER</th>
<th>EXP</th>
<th>PC-DATE</th>
<th>VERSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRDAUPDT</td>
<td>APC5COL3</td>
<td>XXASP16</td>
<td>XXASP16</td>
<td>NO</td>
<td>2010-11-30</td>
<td>VERSION_1.0.0_27/1</td>
</tr>
<tr>
<td>ABINDCS1</td>
<td>APC5COL9</td>
<td>XXASP09</td>
<td>XXASP09</td>
<td>NO</td>
<td>2010-07-27</td>
<td>VERSION_1.0.0_20/1</td>
</tr>
<tr>
<td>CHOLZ</td>
<td>CHOLZCOL</td>
<td>USR1</td>
<td>USR1</td>
<td>YES</td>
<td>2015-08-18</td>
<td>VER3</td>
</tr>
<tr>
<td>MX</td>
<td>MXCOL</td>
<td>USR1</td>
<td>USR1</td>
<td>YES</td>
<td>2015-08-23</td>
<td>VER1</td>
</tr>
</tbody>
</table>

EXPLAIN PACKAGE Command
This section introduces the EXPLAIN PACKAGE command.

When a package is explained, you can specify the collection ID, the package name, or both, as generic names using an asterisk (*) as a wildcard character. For example, you have the following options:

EXPLAIN PACKAGE (DSNAPC1.COLLECT.MYT*)
EXPLAIN PACKAGE (DSNAPC1.COLLECT.MYTEST)
If a wildcard character is used, OMEGAMON for Db2 PE explain counts the total number of SQL statements that belong to the packages (the total number of SQL statements also includes non-explainable statements).

If the number of packages is more than one, and the total number of SQL statements in these packages is larger than 300, OMEGAMON for Db2 PE explain does not explain any SQL statements unless the FORCE(YES) option is specified.

If the package specification does not contain any wildcard character, the total number of SQL statements is less than 300, or only one package conforms to the specification, the SQL statements are explained. However, if the package exists in more than one version, only the most recent version is explained. In this case a report showing all the versions for that package is produced.

For example, the following command was used to produce the report shown in "Explain Report - Package Version List Block”:

```
EXPLAIN PACKAGE (DSNAPC1.COLLECT.MYTEST.(-7)) GEN(3)
```

For details on how to specify EXPLAIN commands refer to the Report Command Reference.

Explain Report - Package Version List Block

Here is an example of the Explain report for the Package Version List block:

```
ACTUAL AT: 01/30/16 13:10:38 OMEGAMON XE for DB2 PE (V5.4) PAGE: 1-1
EXPLAIN PACKAGE DB2 VERSION: V10
LOCATION : DSNAPC1
SUBSYSTEM: APC1
SUMMARY
CURR.SQLID : XRK

FPEYO166I PACKAGE MYTEST IN COLLECTION COLLECT HAS THE FOLLOWING VERSIONS

PRE-COMP'D EXP GEN VERSION IDENTIFICATION

-------------------
2015-08-24 YES -01 VERSION0
2015-08-23 YES -02 VERSION1
2015-08-22 YES -03 VERSION2
2015-08-21 YES -04 VERSION3
2015-08-20 YES -05 VERSION4
2015-08-19 YES -06 VERSION5
2015-08-18 YES -07 VERSION6
2015-08-17 YES -07 VERSION7 IDENT
2015-08-16 YES -08 VERSION8
2015-08-15 YES -09 VERSION9
2015-08-14 YES -10 < VERSION IDENTIFICATION NOT SPECIFIED>
2015-08-13 YES -11 VERSION10
2015-08-12 YES -12 VERSION11
2015-08-11 YES -13 VERSION12
2015-08-10 YES -14 VERSION13
2015-08-09 YES -15 VERSION14
2015-08-08 YES -16 VERSION15
2015-08-07 YES -17 VERSION16
2015-08-06 YES -18 VERSION17
2015-08-05 YES -19 VERSION18
2015-08-04 YES -20 VERSION19
2015-08-03 YES -20 VERSION20

START VERSION GENERATION NUMBER SPECIFIED: -7
NUMBER OF VERSION GENERATIONS REQUESTED: 3
```

This report shows that the package exists in 21 versions, where the version that corresponds to generation number -7 was selected for explanation. The report further shows that the user asked for the explanation of three generations (-7, -8, and -9). The first generation to be explained is marked with an asterisk (*). Instead of specifying a generation ID, the version ID could be specified. The version ID can be specified either in full or in combination with a wildcard character as in the following example:

```
EXPLAIN PACKAGE (DSNAPC1.COLLECT.MYTEST.(VERSION7*)) GEN(3)
```
A maximum of 100 generations are listed.

**EXPLAIN SQLSTMT Command**

This section shows an example of an Explain report generated with the EXPLAIN SQLSTMT command.

For details on how to specify EXPLAIN commands refer to the **Report Command Reference**.

**Explain Report - Example for SQL Text**

Use the following EXPLAIN SQLSTMT command to generate the following example of an explain report.

GLOBAL PLANEX(KO2EXPL)
SSID(DA11)
SQLID(XRK)
EXPLAIN SQLSTMT
{
  SELECT * FROM SYSIBM.SYSPACKAGE
  WHERE NAME = 'DGO@TPG3'
  AND COLLID = 'KO2EX520';
}
LEVEL(INDEXES)
EXEC

Here is an example of an SQL Text.

**SQL STATEMENT TEXT**:

```
SELECT * FROM SYSIBM.SYSPACKAGE
WHERE NAME = 'DGO@TPG3'
AND COLLID = 'KO2EX520';
```

**EXPLAIN TABLE: XRK.DSN_STATEMNT_TABLE**

```plaintext
PROGNAME : DGO@TPT2
VERSION : OMPL_FINAL
QUERYNO : 999735911
STMT_ENCODE : U - Unicode
STMT_TYPE : SELECT

REQUESTS (Cost MS) : 1
METHOD (Join) : 0
JOIN_TYPE : b - First table
JOIN_DEGREE : 0
MERGE_JOINTCOLS : 0
PREFETCH : S - Sequential
WHEN_OPTIMIZE : b - At bind time
COLUMNFN_EVAL : BLANK
ACCESSTYPE : I - Index scan
ACCESSTYPE : BLANK
```

**EXPLAIN TABLE: XRK.PLAN_TABLE**

```plaintext
TIMESTAMP : 2016-02-21-11:57:21.68
PROGNAME : DGO@TPT2
VERSION : OMPL_FINAL
SEQUENCE : 999735911
SECTION : 0
QBLOCKNO : 1
PARENT_QBLOCKNO : 0
PLANNO : 1
PARENT_PLANNO : 0
MIXOPSEQ : 0

TABLENAME (Table) : SYSPACKAGE
CREATOR (Table) : SYSIBM
TABLE_TYPE : T - Table
TABLE_ENCODE : U - Unicode
TABLE_MCCSID : 1208
TABLE_SCCSID : 367
TABLE_DCCSID : 1200
TSLOCKMODE : N - No lock

ACCESSTYPE : I - Index scan
ACCESSNAME (Index) : DSNKKX01
MATCHCOLS : 0
METHOD (Join) : 0 - First table
JOIN_DEGREE : 0
MERGE : 0
PREFETCH : S - Sequential
WHEN_OPTIMIZE : b - At bind time
COLUMNFN_EVAL : BLANK
HINT_USED : N/P
```

**Actual at: 02/21/16 11:57:21 OMEGAMON XE DB2 PE (V5.4)**

**Explain Report - EXPLAIN SQLSTMT Command**

3422 IBM Db2 Performance Expert on z/OS
### I/O activity report set

These topics provide information about the I/O activity reports.

### I/O activity report header

OMEGAMON for Db2 PE header information is printed at the top of each page of the summary and detail report.

### I/O Activity Report Header Example

Here is an example of an I/O Activity Report Header.

```sql
SELECT * FROM SYSIBM.SYSPACKAGE WHERE NAME = 'DSNDB06';
```

---

**I/O activity report set**

These topics provide information about the I/O activity reports.

**I/O activity report header**

OMEGAMON for Db2 PE header information is printed at the top of each page of the summary and detail report.

**I/O Activity Report Header Example**

Here is an example of an I/O Activity Report Header.
**Field description**

The report header contains the following information, described in the order left block, middle block, right block:

**LOCATION**
The DB2 reporting location. If the location name is not available, the DB2 data sharing group name is printed in this field. If the DB2 data sharing group name does not exist, the DB2 subsystem ID is printed.

**GROUP**
The name of the DB2 data sharing group. This field shows N/A if there is no group name.

**MEMBER**
The name of the DB2 data sharing member or the member name of the DB2 subsystem. This field shows N/A if there is no member name.

This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

**SUBSYSTEM**
The ID of the DB2 subsystem that generated the data. This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

**DB2 VERSION**
The DB2 version number of the subsystem that generated the data.

**OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VnRnMn)**
The product name and the version, release, and modification level.

**Title - layout**
The title of the report and the layout. The layout can be a default layout provided with OMEGAMON for Db2 PE or a layout you have tailored yourself.

**ORDER**
If the ORDER option of the REPORT or TRACE subcommand was used to arrange the report entries, the selected keywords are shown in this field. Depending on the context, the OMEGAMON for Db2 PE identifiers by which lock events are grouped are shown here.

**PAGE**
The page number in the format lll-nnnnnn, where lll denotes the location number within the report and nnnnnn the page number within the location.

**REQUESTED FROM and TO**
The FROM and TO dates and times specified in the REPORT or TRACE subcommand.

If both FROM and TO dates and times are omitted from the REPORT subcommand, the FROM and TO dates and times specified in GLOBAL are printed. If only the FROM date and time or only the TO date and time has been specified, NOT SPECIFIED is printed for the unspecified value.

If FROM and TO are not specified in REPORT or GLOBAL, NOT SPECIFIED appears for both the FROM and TO values.

If you have specified FROM and TO times without dates in REPORT or GLOBAL, ALL DATES is printed along with the specified times.
INTERVAL FROM
The start date and time of the first reduction interval covered by the report. If REDUCE is not specified, the INTERVAL defaults to 0 and the timestamps of the first and last events are printed.

INTERVAL TO
The end date and time of the last reduction interval covered by the report. If REDUCE is not specified, the INTERVAL defaults to 0 and the timestamps of the first and last events are printed.

I/O activity summary report
The I/O activity summary report provides an overview of system-wide I/O activity.

The I/O activity summary report:
• Summarizes the information contained in the I/O activity detail reports for a location (refer to "I/O activity detail report" on page 3433).
• Shows on a single page a block of entries for each of the I/O categories: buffer pool, EDM pool, active log, archive log/BSDS, and cross invalidation (XI).
• Is produced if you specify the IOACTIVITY(REPORT) command and there is at least one I/O activity IFCID begin/end pair in the input data set satisfying the FROM and TO, and INCLUDE or EXCLUDE criteria. You do not have to specify the SUMMARY level because this is the default.

The following command produces the I/O activity summary report shown below:

... 
IOACTIVITY
   REPORT 
...
**I/O Activity - Summary Report**

<table>
<thead>
<tr>
<th>LOCATION: RS220055</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP: ODS5</td>
<td>I/O ACTIVITY REPORT - SUMMARY</td>
</tr>
<tr>
<td>SUBSYSTEM: ODS5</td>
<td>REQUESTED FROM: NOT SPECIFIED</td>
</tr>
<tr>
<td>DB2 VERSION: V12</td>
<td>INTERVAL FROM: 02/28/19 11:20:21.31</td>
</tr>
</tbody>
</table>

**Figure 294. Sample I/O activity summary report**

### Buffer pool summary report:

The buffer pool section of the summary report contains selected fields from the full buffer pool report.

#### TOTAL I/O REQUESTS

The total number of I/O requests (TOTALS) and the average elapsed time per I/O request (AET).

*Calculation of TOTALS:* count of matching IFCID 006 and 007 record pairs (read requests) + matching IFCID 008 and 009 record pairs (synchronous writes) + matching IFCID 009 and 010 record pairs (asynchronous writes)

*Calculation of AET:* (sum of differences in the store clock values DB2 field QWHSSTCK of matching IFCID 006 and 007 + IFCID 008 and 009 + IFCID 009 and 010 record pairs) / (count of matching IFCID 006 and 007 + IFCID 008 and 009 + IFCID 009 and 010 record pairs)

#### TOTAL READ I/O REQUESTS

The total number of I/O read requests (TOTALS) and the average elapsed time per read request (AET).

#### NON-PREFETCH READS

The total number of non-prefetch reads.

*Calculation:* count of IFCID 006 and 007 record pairs, with DB2 field QW0006F equal to R

---

<table>
<thead>
<tr>
<th>BUFFER POOL</th>
<th>TOTALS</th>
<th>AET</th>
<th>EDM POOL</th>
<th>CT/PT/OBD REFERENCES</th>
<th>NOT IN EDM POOL</th>
<th>AET</th>
<th>AVG LEN (BYTES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL I/O REQUESTS</td>
<td>145806</td>
<td>0.000414</td>
<td>CURSOR TABLE - HEADER</td>
<td>0</td>
<td>0</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>TOTAL READ I/O REQUESTS</td>
<td>145806</td>
<td>0.000414</td>
<td>CURSOR TABLE - DIRECTORY</td>
<td>0</td>
<td>0</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>NON-PREFETCH READS</td>
<td>604</td>
<td></td>
<td>-- TOTAL PACKAGES --</td>
<td>0</td>
<td>0</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ZHYPERLINK</td>
<td>298</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISK CACHE HIT</td>
<td>303</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MEMBER: ODS5</th>
<th>GROUP: OCA5</th>
<th>LOCATION: I/O ACTIVITY REPORT - SUMMARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>REQUESTED FROM: NOT SPECIFIED</td>
<td>INTERVAL FROM: 02/28/19 11:20:21.31</td>
<td></td>
</tr>
</tbody>
</table>

---

### Buffer pool summary report:

The buffer pool section of the summary report contains selected fields from the full buffer pool report.

#### TOTAL I/O REQUESTS

The total number of I/O requests (TOTALS) and the average elapsed time per I/O request (AET).

*Calculation of TOTALS:* count of matching IFCID 006 and 007 record pairs (read requests) + matching IFCID 008 and 009 record pairs (synchronous writes) + matching IFCID 009 and 010 record pairs (asynchronous writes)

*Calculation of AET:* (sum of differences in the store clock values DB2 field QWHSSTCK of matching IFCID 006 and 007 + IFCID 008 and 009 + IFCID 009 and 010 record pairs) / (count of matching IFCID 006 and 007 + IFCID 008 and 009 + IFCID 009 and 010 record pairs)

#### TOTAL READ I/O REQUESTS

The total number of I/O read requests (TOTALS) and the average elapsed time per read request (AET).

#### NON-PREFETCH READS

The total number of non-prefetch reads.

*Calculation:* count of IFCID 006 and 007 record pairs, with DB2 field QW0006F equal to R

---

**Figure 294. Sample I/O activity summary report**

---

**Buffer pool summary report:**

The buffer pool section of the summary report contains selected fields from the full buffer pool report.

#### TOTAL I/O REQUESTS

The total number of I/O requests (TOTALS) and the average elapsed time per I/O request (AET).

*Calculation of TOTALS:* count of matching IFCID 006 and 007 record pairs (read requests) + matching IFCID 008 and 009 record pairs (synchronous writes) + matching IFCID 009 and 010 record pairs (asynchronous writes)

*Calculation of AET:* (sum of differences in the store clock values DB2 field QWHSSTCK of matching IFCID 006 and 007 + IFCID 008 and 009 + IFCID 009 and 010 record pairs) / (count of matching IFCID 006 and 007 + IFCID 008 and 009 + IFCID 009 and 010 record pairs)

#### TOTAL READ I/O REQUESTS

The total number of I/O read requests (TOTALS) and the average elapsed time per read request (AET).

#### NON-PREFETCH READS

The total number of non-prefetch reads.

*Calculation:* count of IFCID 006 and 007 record pairs, with DB2 field QW0006F equal to R
ZHYPERLINK
The total number of non-prefetch reads that used zHyperLink.

DISK CACHE HIT
The total number of non-prefetch reads where all the requested pages were found in the DASD subsystem cache.

PREFETCH READS
An aggregate of all types of prefetches:
- Sequential prefetches (determined at bind time)
- List prefetch
- Sequential prefetch triggered by the sequential detection logic

WITHOUT I/O
The number of unsuccessful prefetch reads. This can occur because all the pages requested by a prefetch read were already in the buffer pool.

Calculation: count of matching IFCID 006 and 007 record pairs, with DB2 field QW0006F not equal to R (type of read request) and DB2 field QW0007NP equal to zero (indicating no pages were read)

WITH I/O
The number of successful prefetch reads.

Calculation: count of matching IFCID 006 and 007 record pairs, with DB2 field QW0006F not equal to R (type of request) and DB2 field QW0007NP greater than zero (number of pages read)

PAGES READ
The number of pages read for all prefetch read requests.

Calculation: sum of DB2 field QW0007NP with DB2 field QW0006F not equal to R

PAGES READ / SUCC READ
The number of pages read per successful prefetch read request.

Calculation: (sum of DB2 field QW0007NP with DB2 field QW0006F not equal to R) / (count of matching IFCID 006 and 007 record pairs, with QW0006F not equal to R and QW0007NP greater than zero)

Calculation of TOTALS: count of matching IFCID 006 and 007 record pairs

Calculation of AET: (sum of differences in the store clock values DB2 field QWHSSSTCK of matching IFCID 006 and 007 record pairs) / (count of matching IFCID 006 and 007 record pairs)

TOTAL WRITE REQUESTS
The total number of write I/O requests (TOTALS) and the average elapsed time per write request (AET).

Calculation of TOTALS: count of matching IFCID 008 and 009 (synchronous writes) + IFCID 009 and 010 record pairs (asynchronous writes)

Calculation of AET: (sum of differences in the store clock values DB2 field QWHSSSTCK of matching IFCID 008 and 009 record pairs (for synchronous...
writes) + matching IFCID 010 and 009 record pairs (for asynchronous writes)) / (count of matching IFCID 008 and 009 record pairs + matching IFCID 009 and 010 record pairs)

The write requests are divided into two categories: synchronous writes and asynchronous writes.

SYNCHRONOUS WRITES

The number of synchronous writes (TOTALS) and the average elapsed time per synchronous write request (AET).

COUPLING FACILITY CASTOUTS

The number of synchronous writes due to coupling facility castouts.

Calculation: QW0008FC / QW0010FC

PAGES WRITTEN PER WRITE

The average number of pages per synchronous write.

Calculation: (sum of DB2 field QW0008WR) / (count of matching IFCID 008 and 009 record pairs)

Calculation of TOTALS: count of matching IFCID 008 and 009 record pairs

Calculation of AET: (sum of differences in the store clock values DB2 field QWHSTSTCK of matching IFCID 008 and 009 record pairs) / (count of matching IFCID 008 and 009 record pairs)

ASYNCHRONOUS WRITES

The number of asynchronous writes (TOTALS) and the average elapsed time per asynchronous write (AET).

COUPLING FACILITY CASTOUTS

The number of asynchronous writes due to coupling facility castouts.

Calculation: QW0008FC / QW0010FC

PAGES WRITTEN PER WRITE

The average number of pages written per asynchronous write.

Calculation: (sum of DB2 field QW0010WR) / (count of matching IFCID 009 and 010 record pairs)

Calculation of TOTALS: count of matching IFCID 009 and 010 record pairs

Calculation of AET: (sum of differences in the store clock values DB2 field QWHSTSTCK of matching 9 and 10 record pairs) / (count of matching IFCID 009 and 010 record pairs)

EDM pool summary report:

This section of the summary report contains selected fields from the EDM pool report.

The following fields are printed in the report:

CURSOR TABLE - HEADER

The number of load requests for cursor table headers (CT/PT/DBD REFERENCES).
The number of cursor table header loads not in the EDM pool (NOT IN EDM POOL).
The average elapsed time of a cursor table header load (AET).
The average length of a loaded cursor table header in bytes (AVG LEN (BYTES)).

CURSOR TABLE - DIRECTORY
The number of load requests for cursor table directories (CT/PT/DBD REFERENCES).
The number of cursor table directory loads not in the EDM pool (NOT IN EDM POOL).
The average elapsed time of a cursor table directory load (AET).
The average length of a loaded cursor table directory in bytes (AVG LEN (BYTES)).

CURSOR TABLE - RDS SECTION
The number of load requests for cursor table RDS sections (CT/PT/DBD REFERENCES).
The number of cursor table RDS section loads not in the EDM pool (NOT IN EDM POOL).
The average elapsed time of a cursor table RDS section load (AET).
The average section length of a loaded cursor table RDS section in bytes (AVG LEN (BYTES)).

TOTAL PLANS
The number of load requests for plans; that is, the sum of CT/PT/DBD references for cursor table header, directory, and RDS section (CT/PT/DBD REFERENCES).
The number of plan loads not in the EDM pool (NOT IN EDM POOL).
The average elapsed time per plan load (AET).
The average section length of a loaded plan in bytes (AVG LEN (BYTES)).

PACKAGE TABLE - HEADER
The number of load requests for package table headers (CT/PT/DBD REFERENCES).
The number of package table header loads not in the EDM pool (NOT IN EDM POOL).
The average elapsed time of a package table header load (AET).
The average length of a loaded package table header in bytes (AVG LEN (BYTES)).

PACKAGE TABLE - DIRECTORY
The number of load requests for package table directories (CT/PT/DBD REFERENCES).
The number of package table directory loads not in the EDM pool (NOT IN EDM POOL).
The average elapsed time of a package table directory load (AET).
The average length of a loaded package table directory in bytes (AVG LEN (BYTES)).
I/O Activity - Summary Report

PACKAGE TABLE - RDS SECTION
The number of load requests for package table RDS sections (CT/PT/DBD REFERENCES).
The number of package table RDS section loads not in the EDM pool (NOT IN EDM POOL).
The average elapsed time of a package table RDS section load (AET).
The average section length of a package table RDS section in bytes (AVG LEN (BYTES)).

TOTAL PACKAGES
The number of load requests for package tables; that is, the sum of CT/PT/DBD references for the package table header, directory, and RDS section (CT/PT/DBD REFERENCES).
The number of package table loads not in the EDM pool (NOT IN EDM POOL).
The average elapsed time per package table load (AET).
The average section length of a loaded package table in bytes (AVG LEN (BYTES)).

DATABASE DESCRIPTORS
The number of load requests for database descriptors (CT/PT/DBD REFERENCES).
The number of DBD loads not in the EDM pool (NOT IN EDM POOL).
The average elapsed time of a database descriptor load (AET).
The average length of a loaded database descriptor in bytes (AVG LEN (BYTES)).

Active log summary report:
This section of the summary report contains selected fields from the Active Log report.
The following fields are printed in the report:

TOTAL WAITS
The total number of waits for read and write requests and other waits (TOTALS) and the average elapsed time of an I/O wait of any type (AET).

READ REQUESTS
The number of read requests (TOTALS) and the average elapsed time of a read request (AET).

WRITE REQUESTS
The number of write requests (TOTALS) and the average elapsed time of a write request (AET).

CONT. CI / WRITE
The number of contiguous control intervals per write request.

OTHER WAITS
The total number of waits for resource allocation and deallocation, and the number of waits to open and close data sets (TOTALS).
The average elapsed time of all other waits (AET).
The next four rows relate to waits other than waits for read or write requests.

**ALLOCATE**

The number of waits for resource allocation (TOTALS) and the average elapsed time of a wait for resource allocation (AET).

**DEALLOCATE**

The number of waits for resource deallocation (TOTALS) and the average elapsed time of waits for resource deallocation (AET).

**OPEN**

The number of waits to open data sets (TOTALS) and the average elapsed time of waits to open data sets (AET).

**CLOSE**

The number of waits to close data sets (TOTALS) and the average elapsed time of waits to close data sets (AET).

**Archive log summary report:**

This section of the summary report contains selected fields from the Archive Log report.

The following fields are printed in the report:

**READ REQUESTS**

The total number of archive read requests (TOTALS) and the average elapsed time of an archive read request (AET).

Archive read requests are subdivided into the following categories:

**DASD READ**

The total number of reads from the DASD and (TOTALS) the average elapsed time of reads from the DASD (AET).

**TAPE READ**

The total number of reads from the tape (TOTALS) and the average elapsed time of reads from the tape (AET).

**OFFLOAD REQUESTS**

The total number of archive offloads (TOTALS) and the average elapsed time per archive offload (AET).

**BLOCKS / OFFLOAD**

The number of blocks of data written per offload.

**OTHER WAITS**

Waits other than read or write requests. The total elapsed time (TOTALS) and the average elapsed time of all other waits (AET).

**ALLOCATE**

The total number of waits (TOTALS) and the average elapsed time of a wait for resource allocation (AET).

**DEALLOCATE**

The total number of waits (TOTALS) and the average elapsed time of a wait for resource deallocation (AET).

**OPEN**

The total number of waits (TOTALS) and the average elapsed time of a wait to open data sets (AET).

**CLOSE**

The total number of waits (TOTALS) and the average elapsed time of a wait to close data sets (AET).
I/O Activity - Summary Report

HSM RECALL
The total number of waits (TOTALS) and the average elapsed time of a wait for HSM to recall data sets (AET).

CATALOG LOCATE
The total number of waits (TOTALS) and the average elapsed time per wait to locate data sets through the catalog (AET).

MULTI-DATA SET TAPE
The total number of waits (TOTALS) and the average elapsed time per wait for multi-data set tape volume (AET).

TAPE VOL POSITIONING
The total number of waits (TOTALS) and the average elapsed time per wait for tape volume positioning (AET).

WTOR ISSUED
The total number of waits (TOTALS) and the average elapsed time per wait due to write-to-operator messages being issued (AET).

DATA SET UNAVAILABLE
The total number of waits (TOTALS) and the average elapsed time of waits due to a data set being unavailable (AET).

PHYSICAL UNIT UNAV.
The total number of waits (TOTALS) and the average elapsed time of waits due to an unavailable physical unit (AET).

RDR SERV. UNAVAILABLE
The total number of waits (TOTALS) and the average elapsed time of a wait due to an unavailable reader service task (AET).

Bootstrap data set summary report:

This section of the summary report contains selected fields from the bootstrap data set report.

The following fields are printed in the report:

TOTAL WAITS
The total number of waits due to read and write requests for the bootstrap data set (TOTALS) and the average duration of bootstrap data set waits (AET).

READ REQUESTS
The total number of BSDS reads (TOTALS) and the average elapsed time per read from BSDS (AET).

WRITE REQUESTS
The total number of writes to the BSDS (TOTALS) and the average elapsed time per BSDS write (AET).

Cross-invalidation activity summary report:

This section of the summary report contains selected fields from the cross-invalidation summary report.

The following fields are printed in the report:

SYNCHRONOUS READS
The number of cross-invalidated pages which are refreshed via synchronous read.
I/O Activity - Summary Report

REFRESHED FROM GROUP BPOOL
The number of cross-invalidated pages which are refreshed from
the group buffer pool via synchronous read.

REFRESHED FROM DASD
The number of cross-invalidated pages which are refreshed from
the DASD via synchronous read.

SEQUENTIAL PREFETCH
The number of cross-invalidated pages which are refreshed via sequential
prefetch.

REFRESHED FROM GROUP BPOOL
The number of cross-invalidated pages which are refreshed from
the group buffer pool via sequential prefetch.

REFRESHED FROM DASD
The number of cross-invalidated pages which are refreshed from
the DASD via sequential prefetch.

I/O activity detail report
The I/O activity detail report provides detailed information about each category of
I/O activity.

Totals are accumulated for most columns in the report. The information in the Total
column on each detail report for grand totals also appears in the I/O activity
summary report.

Buffer pool detail report: The buffer pool report provides information about the
movement of database pages between the DASD and the main storage buffers. It
presents information about the number of read and write operations, the amount
of read and write requests, and the average wait times.

The following command produces the report shown below:
::
IOACTIVITY
REPORT
   LEVEL(BUFFER)
::
OMEGAMON for Db2 PE Identifiers

The buffer pool report presents data summarized by OMEGAMON for Db2 PE identifiers. The report can be ordered by up to three OMEGAMON for Db2 PE identifiers. The identifiers used to sort the report are printed in the leftmost column. They are printed whenever they change. The second and third identifiers are indented to appear under the relevant column subheading.

Note: Blank or null OMEGAMON for Db2 PE identifiers are denoted by the word 'BLANK'.

I/O REQUEST

TOTAL
The total number of I/O requests.

AET
The average elapsed time per I/O request.

READ REQUESTS

TOTAL
The number of read I/O requests of a specific type.

TYPE
The type of read request. The field can contain one of the following values:

SYNCH
Synchronous read request

SEQPF
Sequential prefetch requests (determined at bind time)

DYNPF
Dynamic prefetch request (triggered at run time by sequential detection logic)
LSTPF
List prefetch request

ZHYPL
Synchronous reads that used zHyperLink. This is a subset of the total synchronous reads.

If there are no read requests, a dash (—) is printed.

WITH I/O AET
The average elapsed time for a read of a specific type.

WITH I/O %
The percentage of total read requests of a particular type that resulted in an I/O.

WITH I/O PAGES/READ
Pages read per successful read request of a particular type.

W/OUT I/O %
The percentage of total read requests of a particular type that did not result in an I/O. This can occur because all the pages requested by a prefetch read were already in the buffer pool.

WRITE REQUEST

TOTAL
The number of write I/O requests of a specific type. Up to two lines are generated, depending on the write type.

For synchronous writes: count of matching IFCID 008 and 009 record pairs
For asynchronous writes: count of matching IFCID 009 and 010 record pairs

TYPE The type of write request. The field can contain one of the following values:
SYNCH Synchronous write request
ASYNC Asynchronous write request

If there are no write requests, a dash (—) is printed.

CASTOUT
The number of synchronous and asynchronous writes due to coupling facility castouts. This field contains one of the following values:
YES The write operations were initiated due to a coupling facility castout.
NO The write operations were initiated as a normal write I/O.

AET The average elapsed time per write of a specific type.

PAGES/WRITE
The number of pages written per write of a specific type.

DB OPEN
The number of database open requests.
PAGE FAULTS
The number of anticipated page faults. Real storage frames are tested before issuing write.

ACTIVE BUFFERS
The number of active buffers in the pool.

UPDATED PAGES
The number of updated pages in the deferred write queue for the buffer pool that is identified in field QW0008BP or QW0010BP.

SUBTOTAL
When a report is ordered by three identifiers and there is more than one third-level identifier reported under it, a subtotal is printed each time the second-level identifier changes.

TOTAL
When a report is ordered by two or three identifiers and there is more than one second-level identifier reported under it, a total is printed each time the first-level identifier changes.

GRAND TOTAL
A grand total is printed at the end of each location if there is more than one first-level identifier reported.

EDM pool detail report:
The EDM pool report provides information about the number of cursor table, package table, or database directory requests, loads from the DASD, their average elapsed times, and the average section lengths of the loaded data items.

Note: The OMEGAMON for Db2 PE Statistics reports and traces include EDM pool statistics. Refer to “Statistics report set” on page 4267 for more information.

The following command produces the EDM pool report shown in “I/O Activity EDM Pool Report.”

```
I/O ACTIVITY REPORT
- EDM POOL
```

I/O Activity EDM Pool Report

This is an example of an EDM pool report.

```
LOCATION: LOCATION1
GROUP: GROUP1
MEMBER: MEMBER1
SUBSYSTEM: DB2A
DB2 VERSION: V10

INTERVAL: 01/30/15 01:00:00.00 TO: 01/30/15 01:05:00.00
ORDER: INTERVAL-PRIMAUTH-PLANNAME

<table>
<thead>
<tr>
<th>PACKAGE / DBD / PLAN NAME</th>
<th>TYPE</th>
<th>CT/PT/DBD REFERENCE</th>
<th>NOT IN EDM POOL</th>
<th>ELAPSED TIME</th>
<th>AVERAGE SECTION LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBD: 10</td>
<td>DATABASE_DESCRIPTOR</td>
<td>1</td>
<td>101</td>
<td>0.110000</td>
<td>100.00</td>
</tr>
<tr>
<td>PLAN_00</td>
<td>CURSOR TABLE - HEADER</td>
<td>1</td>
<td>201</td>
<td>0.120000</td>
<td>200.00</td>
</tr>
</tbody>
</table>
```

3436 IBM Db2 Performance Expert on z/OS
I/O Activity - Detail Report

Column description

The following is a description of each column printed in the EDM pool report:

**OMEGAMON for Db2 PE Identifiers**
The EDM pool report presents data summarized by OMEGAMON for Db2 PE identifiers. The report can be ordered by up to three OMEGAMON for Db2 PE identifiers. The identifiers used to sort the report are printed in the leftmost column. They are printed whenever they change. The second and third identifiers are indented to appear under the relevant column subheading.

**Note:** Blank or null OMEGAMON for Db2 PE identifiers are denoted by the word 'BLANK'.

**PACKAGE / DDB / PLAN NAME**
The name of the cursor table, package table, or database directory. The package name is printed on four lines, and consists of the following fields:

- **LOCN** Location name
- **COLL** Collection identifier
- **PKID** Package identifier
- **CTKN** Consistency token

**TYPE** The type of data being accessed.
CT/PT/DBD REFERENCE
The number of cursor table, package table, or database directory requests performed by the data type specified in the TYPE column.

NOT IN EDM POOL
The number of times cursor table, package table, or database directory was not found in the EDM pool. If it is not found in the EDM pool, the request can be satisfied from the buffer pool or the DASD.

ELAPSED TIME PER LOAD
The average elapsed time of loads from the buffer pool or DASD.

AVERAGE SECTION LENGTH (BYTES)
The average section length of a loaded data item identified in the TYPE column.

TYPE TOTAL
When the data contains two or more EDM records with the same data type and the same OMEGAMON for Db2 PE identifiers, a type total line is printed with the following heading:
- DBD TOTAL for type DBD
- PLANNAME TOTAL for type CT
- PACKAGE TOTAL for type PT

SUBTOTAL
When a report is ordered by three identifiers and there is more than one third-level identifier reported under it, a subtotal is printed each time the second-level identifier changes.

TOTAL
When a report is ordered by two or three identifiers and there is more than one second-level identifier reported under it, a total is printed each time the first-level identifier changes.

GRAND TOTAL
A grand total is printed at the end of each location if there is more than one first-level identifier reported.

Active log detail report:

The active log report provides information about the writing and retrieving of log records. It presents the number of reads, writes, and non-I/O waits related to the active log and the average elapsed times spent waiting for these events.

The report is ordered by the data set identifier.

The following command produces the active log report shown in "I/O Activity Log Report."

```
IOACTIVITY REPORT
   LEVEL (ACTLOG)
```

I/O Activity Log Report

This is an example of the I/O Activity log report.
I/O Activity - Detail Report

SUBSYSTEM: DB2A
ORDER: INTERVAL-DATASET
INTERVAL FROM: 01/30/15 05:00:00.00
TO: 01/30/15 07:05:00.00

I/O ACTIVITY REPORT COMPLETE

Column description

The following is a description of each column printed in the active log report:

OMEGAMON for Db2 PE Identifiers

The active log report presents data summarized by OMEGAMON for Db2 PE identifiers. The report can be ordered by up to three OMEGAMON for Db2 PE identifiers. The identifiers used to sort the report are printed in the leftmost column. They are printed whenever they change. The second and third identifiers are indented to appear under the relevant column subheading.

Note:

1. Blank or null OMEGAMON for Db2 PE identifiers are denoted by the word ‘BLANK’.
2. DATASET is the most significant identifier. It is the 8-byte ID that identifies the active log data set where the reported activity occurs. It has the value ACTLGCxx, where c is the copy number and xx is the sequence number of the active log data set.

I/O REQ
I/O Activity - Detail Report

TOTAL
The total number of I/O requests.
AET  The average elapsed time of all waits.

READ REQ

TOTAL
The total number of read requests.
AET  The average elapsed time of a read request.

WRITE REQUESTS

TOTAL
The total number of write requests.
AET  The average elapsed time of a write request.
CI/WRITE
The number of control intervals per write.

OTHER WAITS

ALLOC
The number of waits for resource allocation.
AET  The average elapsed time of a wait for resource allocation.
DEALLOC
The number of waits for resource deallocation.
AET  The average elapsed time of waits for resource deallocation.
OPEN  The number of waits to open data sets.
AET  The average elapsed time of a wait to open data sets.
CLOSE
The number of waits to close data sets.
AET  The average elapsed time of a wait to close data sets.

SUBTOTAL
When a report is ordered by three identifiers and there is more than one third-level identifier reported under it, a subtotal is printed each time the second-level identifier changes.

TOTAL
When a report is ordered by two or three identifiers and there is more than one second-level identifier reported under it, a total is printed each time the first-level identifier changes.

GRAND TOTAL
A grand total is printed at the end of each location if there is more than one first-level identifier reported.

Bootstrap data set detail report:

The archive log/BSDS report provides information about the writing of log records and the retrieval of log data. It also contains information about the bootstrap data set that controls the movement of full active log data sets to the archive log.
The report presents the following activity types:

- Archive waits
- Archive read requests
- Archive offload requests
- BSDS read requests
- BSDS write requests

**Archive Log Activity:**

This section shows an example of how to produce the Archive Log/BSDS report and explains fields and columns shown in the report.

The following command produces the Archive Log/BSDS report in "I/O Activity—Archive Log Activity Report."

```
I/OACTIVITY
REPORT
LEVEL (ARCLOG)
```

**I/O Activity—Archive Log Activity Report**

This is an example of an archive log/BSDS report.

---

### I/O Activity - Detail Report

<table>
<thead>
<tr>
<th>LOCATION: LOCATION1</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
<th>PAGE: 1-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP: GROUP1</td>
<td>I/O ACTIVITY REPORT - ARCLOG</td>
<td>REQUESTED FROM: NOT SPECIFIED</td>
</tr>
<tr>
<td>MEMBER: DB1A</td>
<td>ORDER: DATASET-INTERVAL</td>
<td>INTERVAL FROM: 01/30/15 14:00:00.00</td>
</tr>
<tr>
<td>SUBSYSTEM: DB1A</td>
<td>TO: NOT SPECIFIED</td>
<td>INTERVAL TO: 01/30/15 14:35:00.00</td>
</tr>
<tr>
<td>DB2 VERSION: V10</td>
<td>ORDER: DATASET-INTERVAL</td>
<td>INTERVAL FROM: 01/30/15 14:00:00.00</td>
</tr>
</tbody>
</table>

**ARCHIVE LOG ACTIVITY**

<table>
<thead>
<tr>
<th>DATASET INTERVAL</th>
<th>WAIT TYPE</th>
<th>TOTAL</th>
<th>AET</th>
<th>OTHER WAITS</th>
<th>TOTAL</th>
<th>AET</th>
</tr>
</thead>
<tbody>
<tr>
<td>00111583 01/30 14:25 - 01/30 14:30</td>
<td>READ FROM DASD 0 N/C</td>
<td>ALLOCATE 0 N/C</td>
<td>DEALLOCATE 0 N/C</td>
<td>OFFLOAD 1 71.230139 OPEN</td>
<td>OTHER 0 N/C</td>
<td>HSM RECALL 0 N/C</td>
</tr>
<tr>
<td>00111584 01/30 14:30 - 01/30 14:35</td>
<td>READ FROM DASD 0 N/C</td>
<td>ALLOCATE 0 N/C</td>
<td>DEALLOCATE 0 N/C</td>
<td>OFFLOAD 1 67.210716 OPEN</td>
<td>OTHER 0 N/C</td>
<td>HSM RECALL 0 N/C</td>
</tr>
<tr>
<td>00111585 01/30 14:30 - 01/30 14:35</td>
<td>READ FROM DASD 0 N/C</td>
<td>ALLOCATE 0 N/C</td>
<td>DEALLOCATE 0 N/C</td>
<td>OFFLOAD 1 64.683949 OPEN</td>
<td>OTHER 0 N/C</td>
<td>HSM RECALL 0 N/C</td>
</tr>
</tbody>
</table>
I/O Activity - Detail Report

LOCATION: LOCATION
MEMBER: DB1A
SUBSYSTEM: DB1A
ARCHIVE

DB2 VERSION: V10

DATASET INTERVAL WAIT TYPE TOTAL AET OTHER WAITS TOTAL AET
----------------------------------------------------------
10111583 01/30 14:25 - 01/30 14:30
READ FROM DASD 0 N/C ALLOCATE 2 0.119761
READ FROM TAPE 0 N/C DEALLOCATE 2 0.008664
OFFLOAD 0 N/C OPEN 2 0.005564
OTHER 8 0.058971 CLOSE 2 0.029896
HSM RECALL 0 N/C
BLOCKS/OFFLOAD N/C CATALOG LOCATE 0 N/C
MULTI DATA SET TAPE VOLUME 0 N/C
TAPE VOLUME POSITIONING 0 N/C
WTOR ISSUED 0 N/C
DATA SET UNAVAILABLE 0 N/C
Tape Unit UNAVAILABLE 0 N/C
READER SERVICE UNAVAILABLE 0 N/C

10111584 01/30 14:25 - 01/30 14:30
READ FROM DASD 0 N/C ALLOCATE 2 0.108854
READ FROM TAPE 0 N/C DEALLOCATE 0 N/C
OFFLOAD 0 N/C OPEN 2 0.006697
OTHER 5 0.049937 CLOSE 1 0.019781
HSM RECALL 0 N/C
BLOCKS/OFFLOAD N/C CATALOG LOCATE 0 N/C
MULTI DATA SET TAPE VOLUME 0 N/C
TAPE VOLUME POSITIONING 0 N/C
WTOR ISSUED 0 N/C
DATA SET UNAVAILABLE 0 N/C
PHYSICAL UNIT UNAVAILABLE 0 N/C
READER SERVICE UNAVAILABLE 0 N/C

01/30 14:30 - 01/30 14:35
READ FROM DASD 0 N/C ALLOCATE 0 N/C
READ FROM TAPE 0 N/C DEALLOCATE 2 0.006614
OFFLOAD 0 N/C OPEN 0 N/C
OTHER 3 0.014160 CLOSE 1 0.041191
HSM RECALL 0 N/C
BLOCKS/OFFLOAD N/C CATALOG LOCATE 0 N/C
MULTI DATA SET TAPE VOLUME 0 N/C
TAPE VOLUME POSITIONING 0 N/C
WTOR ISSUED 0 N/C
DATA SET UNAVAILABLE 0 N/C
PHYSICAL UNIT UNAVAILABLE 0 N/C
READER SERVICE UNAVAILABLE 0 N/C

LOCATION: LOCATION
MEMBER: DB1A
SUBSYSTEM: DB1A
ARCHIVE

DB2 VERSION: V10

DATASET INTERVAL WAIT TYPE TOTAL AET OTHER WAITS TOTAL AET
----------------------------------------------------------
** TOTAL **
10111584
READ FROM DASD 0 N/C ALLOCATE 2 0.108854
READ FROM TAPE 0 N/C DEALLOCATE 2 0.006614
OFFLOAD 0 N/C OPEN 2 0.006697
OTHER 8 0.036513 CLOSE 2 0.030946
HSM RECALL 0 N/C
BLOCKS/OFFLOAD N/C CATALOG LOCATE 0 N/C
MULTI DATA SET TAPE VOLUME 0 N/C
TAPE VOLUME POSITIONING 0 N/C
WTOR ISSUED 0 N/C
DATA SET UNAVAILABLE 0 N/C
PHYSICAL UNIT UNAVAILABLE 0 N/C
READER SERVICE UNAVAILABLE 0 N/C

10111585 01/30 14:30 - 01/29 14:35

3442 IBM Db2 Performance Expert on z/OS
**Column description**

The following is a description of each column printed in the archive log activity section of the archive log/BDS report.

**OMEGAMON for Db2 PE Identifiers**

The archive log activity report presents data summarized by OMEGAMON for Db2 PE identifiers. The report can be ordered by up to three OMEGAMON for Db2 PE identifiers. The identifiers used to sort the report are printed in the leftmost column. They are printed whenever they change. The second and third identifiers are indented to appear under the relevant column subheading.

**Note:**

1. Blank or null OMEGAMON for Db2 PE identifiers are denoted by the word 'BLANK'.

2. **DATASET** is the most significant identifier. It is the 8-byte ID that identifies the archive log data set where the reported activity occurs. It has the value \textit{cxxxxxxx}, where \(c\) is the copy number and \(xxxxxxx\) is the sequence number. The sequence number is the same as the last seven characters of the data set name.

**WAIT TYPE**

**READ FROM DASD**

The total number of waits and the average elapsed time of a wait for archive log reads from the DASD.

**READ FROM TAPE**

The total number of waits and the average elapsed time of a wait of archive log reads from the tape.

**OFFLOAD**

The total number of waits for archive log write requests and the average elapsed time of waits per archive log write.
OTHER
The total number of non-I/O waits and the average elapsed time of non-I/O waits on the archive log data set.

OTHER WAITS
The following fields identify the other waits section.

ALLOCATE
The total number of waits and the average elapsed time of a wait for resource allocation.

DEALLOCATE
The total number of waits and the average elapsed time of a wait for resource deallocation.

OPEN
The total number of waits and the average elapsed time of a wait to open a data set.

CLOSE
The total number of waits and the average elapsed time of a wait to close a data set.

HSM RECALL
The total number of waits and the average elapsed time of a wait for HSM to recall data sets.

CATALOG LOCATE
The total number of waits and the average elapsed time of a wait to locate data sets through the catalog.

MULTI DATA SET TAPE VOLUME
The total number of waits and the average elapsed time per wait for multi-data set tape volume.

TAPE VOLUME POSITIONING
The total number of waits and the average elapsed time per wait for tape volume positioning.

WTOR ISSUED
The total number of waits and the average elapsed time of waits due to a write-to-operator message being issued.

DATA SET UNAVAILABLE
The total number of waits and the average elapsed time of a wait due to a data set being unavailable.

PHYSICAL UNIT UNAVAILABLE
The total number of waits and the average elapsed time of a wait due to an unavailable physical unit.

READER SERVICE UNAVAILABLE
The total number of waits and the average elapsed time per wait for an unavailable reader service task.

SUBTOTAL
When a report is ordered by three identifiers and there is more than one third-level identifier reported under it, a subtotal is printed each time the second-level identifier changes.

TOTAL
When a report is ordered by two or three identifiers and
there is more than one second-level identifier reported under it, a total is printed each time the first-level identifier changes.

**GRAND TOTAL**
A grand total is printed at the end of each location if there is more than one first-level identifier reported.

*Bootstrap Data Set Activity:*

This section shows an example of how to produce the Bootstrap Data Set (BSDS) report and explains fields shown in the report.

The following command produces the archive log/BSDS report in "I/O Activity—Bootstrap Data Set Activity."

```
; I/OACTIVITY REPORT
   LEVEL (ARCLOG)
```

---

## I/O Activity—Bootstrap Data Set Activity

<table>
<thead>
<tr>
<th>DATASET</th>
<th>INTERVAL</th>
<th>WAIT TYPE</th>
<th>TOTAL</th>
<th>AET</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS00010</td>
<td>01/29 14:00 - 01/29 14:05</td>
<td>READ 2</td>
<td>0.001947</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WRITE 2</td>
<td>0.001098</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>READ AND WRITE 4</td>
<td>0.001523</td>
<td></td>
</tr>
<tr>
<td></td>
<td>01/29 14:05 - 01/29 14:10</td>
<td>READ 8</td>
<td>0.001644</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WRITE 8</td>
<td>0.001216</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>READ AND WRITE 16</td>
<td>0.001430</td>
<td></td>
</tr>
<tr>
<td></td>
<td>01/29 14:20 - 01/29 14:25</td>
<td>READ 94</td>
<td>0.001747</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WRITE 94</td>
<td>0.001050</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>READ AND WRITE 188</td>
<td>0.001398</td>
<td></td>
</tr>
<tr>
<td></td>
<td>01/29 14:25 - 01/29 14:30</td>
<td>READ 700</td>
<td>0.001248</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WRITE 215</td>
<td>0.001030</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>READ AND WRITE 915</td>
<td>0.001197</td>
<td></td>
</tr>
<tr>
<td></td>
<td>01/29 14:30 - 01/29 14:35</td>
<td>READ 460</td>
<td>0.001233</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WRITE 212</td>
<td>0.000982</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>READ AND WRITE 672</td>
<td>0.001157</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>READ 1264</td>
<td>0.001283</td>
<td></td>
</tr>
<tr>
<td>BS00002</td>
<td></td>
<td>WRITE 531</td>
<td>0.001021</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>READ AND WRITE 1795</td>
<td>0.001206</td>
<td></td>
</tr>
<tr>
<td>BS00002</td>
<td>01/29 14:00 - 01/29 14:05</td>
<td>READ 2</td>
<td>0.001660</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WRITE 2</td>
<td>0.001049</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>READ AND WRITE 4</td>
<td>0.001354</td>
<td></td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td></td>
<td>READ 1795</td>
<td>0.001382</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WRITE 1062</td>
<td>0.001040</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>READ AND WRITE 2857</td>
<td>0.001261</td>
<td></td>
</tr>
</tbody>
</table>

I/O ACTIVITY REPORT COMPLETE
Field description

The following field descriptions are for the bootstrap data set activity section of the archive log/BSDS report.

OMEGAMON for Db2 PE Identifiers

The bootstrap data set activity report presents data summarized by OMEGAMON for Db2 PE identifiers. The report can be ordered by up to three OMEGAMON for Db2 PE identifiers. The identifiers used to sort the report are printed in the leftmost column. They are printed whenever they change. The second and third identifiers are indented to appear under the relevant column subheading.

Note:
1. Blank or null OMEGAMON for Db2 PE identifiers are denoted by the word 'BLANK'.
2. DATASET is the most significant identifier. It is the 8-byte ID that identifies the BSDS data set where the reported activity occurs. It can have either of the following values:
   • BSDS0001
   • BSDS0002

WAIT TYPE

READ  The total number of BSDS reads and the average elapsed time per BSDS read.

WRITE  The total number of BSDS writes and the average elapsed time per BSDS write.

READ AND WRITE  The total number of BSDS reads and writes and the average elapsed time per BSDS read and write.

SUBTOTAL  When a report is ordered by three identifiers and there is more than one third-level identifier reported under it, a subtotal is printed each time the second-level identifier changes.

TOTAL  When a report is ordered by two or three identifiers and there is more than one second-level identifier reported under it, a total is printed each time the first-level identifier changes.

GRAND TOTAL  A grand total is printed at the end of each location if there is more than one first-level identifier reported.

Cross-invalidation activity detail report:

The cross-invalidation report presents buffer refresh events due to cross invalidation summarized by selected OMEGAMON for Db2 PE identifiers. If two DB2 systems compete for read/write interest on a page set or partition, a certain amount of buffer cross-invalidation activity occurs to maintain DB2 buffer pool coherency between the two systems.
Cross-invalidation (XI) renders a higher percentage of the buffer pool data invalid. It has the effect of reducing the buffer pool size and thus the buffer pool hit ratio. Buffer pool pages must be continually refreshed when high cross-invalidation levels are reached. This can be a significant overhead in data sharing if workloads between DB2 systems are not properly balanced.

The following command produces the cross-invalidation report in "I/O Activity Cross-Invalidation Report."

```
IOACTIVITY
  REPORT
    LEVEL (XI)
```

### I/O Activity Cross-Invalidation Report

<table>
<thead>
<tr>
<th>LOCATION: LOCATION1</th>
<th>PAGE: I-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEMBER: MEMBER1</td>
<td>REQUESTED FROM: NOT SPECIFIED</td>
</tr>
<tr>
<td>SUBSYSTEM: DB2A</td>
<td>TO: NOT SPECIFIED</td>
</tr>
<tr>
<td>DB2 VERSION: V10</td>
<td>INTERVAL FROM: 01/30/15 18:50:00.00</td>
</tr>
<tr>
<td></td>
<td>TO: 01/30/15 20:50:00.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERVAL PRIMAUTH PLANNAME</th>
<th>I/O ACTIVITY REPORT - CROSS INVALIDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-Synchronous Reads- GBPOOL -DASD -Sequential Prefetches- GBPOOL -DASD</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>01/30 18:50 - 01/30 18:55</td>
<td>DB=4</td>
</tr>
<tr>
<td>AUTH_10</td>
<td>OB=2</td>
</tr>
<tr>
<td>PLAN_10</td>
<td>PIECE=#0 PAGE=#'000002' BPID=BP22</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>01/30 18:55 - 01/30 19:00</td>
<td>DB=4</td>
</tr>
<tr>
<td>AUTH_10</td>
<td>OB=2</td>
</tr>
<tr>
<td>PLAN_10</td>
<td>PIECE=#0 PAGE=#'000002' BPID=BP22</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>01/30 19:00 - 01/30 19:05</td>
<td>DB=4</td>
</tr>
<tr>
<td>AUTH_10</td>
<td>OB=2</td>
</tr>
<tr>
<td>PLAN_10</td>
<td>PIECE=#0 PAGE=#'000002' BPID=BP22</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>01/30 19:05 - 01/30 19:10</td>
<td>DB=4</td>
</tr>
<tr>
<td>AUTH_10</td>
<td>OB=2</td>
</tr>
<tr>
<td>PLAN_10</td>
<td>PIECE=#0 PAGE=#'000004' BPID=BP22</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

*SUM OF PLAN_10*               | 19                                       |
|                              | 4                                       |
|                              | 2                                       |
|                              | 0                                       |

---

### Column description

The following is a description of each column printed in the cross-invalidation report:

**OMEGAMON for Db2 PE Identifiers**

The XI report presents data summarized by OMEGAMON for Db2 PE identifiers. The report can be ordered by up to three OMEGAMON for Db2 PE identifiers. The identifiers used to sort the report are printed in the leftmost column. They are printed whenever they change. The second and third identifiers are indented to appear under the relevant column subheading.
I/O Activity - Cross-Invalidation Report

Note: Blank or null OMEGAMON for Db2 PE identifiers are denoted by the word 'BLANK'.

PAGE The name of the page involved in the cross invalidation. The name consists of the following parts:

DB Database name
OB Page set name
PIECE# Page set piece number
PAGE# Page number
BPID Buffer pool ID

If DATABASE or PAGESET are selected in the ORDER option, DB or OB are not shown as part of the page name.

SYNCHRONOUS READS
The number of times the page was refreshed via a synchronous read for a particular combination of OMEGAMON for Db2 PE identifiers and cross-invalidated page:

GBPOOL From the group buffer pool.
DASD From the DASD.

SEQUENTIAL PREFETCHES
The number of times the page was refreshed via a sequential prefetch for a particular combination of OMEGAMON for Db2 PE identifiers and cross-invalidated page:

GBPOOL From the group buffer pool.
DASD From DASD.

SUM OF
The totals for all pages within a combination of OMEGAMON for Db2 PE identifiers if two or more entries are printed in the PAGE column.

SUBTOTAL When a report is ordered by three identifiers and there is more than one third-level identifier reported under it, a subtotal is printed each time the second-level identifier changes.

TOTAL When a report is ordered by two or three identifiers and there is more than one second-level identifier reported under it, a total is printed each time the first-level identifier changes.

GRAND TOTAL
A grand total is printed at the end of each location if there is more than one first-level identifier reported.

Locking Report Set
These topics provide information about the Locking reports.
For an introduction to the Locking report set and general locking information refer to the Reporting User’s Guide. It also provides information on input to locking reports.

**Member-Scope Traces and Reports**

Member-scope traces present events in chronological sequence within the DB2 subsystem (member) where the events occurred, whereas reports show these events aggregated by the OMEGAMON for Db2 PE identifiers you have specified.

OMEGAMON for Db2 PE can present data from several DB2 members within a data sharing group. The data in member-scope reports is presented by a combination of location, group, subsystem, and member. Whenever one of the values changes, a new page is started and the page number is initialized.

The information in this section is only applicable to DB2 data sharing environments.

**Note:** For an introduction to the Locking report set and general locking information refer to the Reporting User’s Guide.

### Member-Scope Locking Trace

This is an example of a Member-Scope Locking trace.
## Locking Activity - Member-Scope

### Location: PMODBZI

**DB2 Version:** v10  
**Member:** S211  
**Subsystem:** S111  
**Primary Corrname:** CONNTYPE  
**Orignauth Corrnmbr:** CONNTYPE  
**Planname Connect:** RELATED TIMESTAMP  
**Event Timestamp:** --- Lock Resource ---  

<table>
<thead>
<tr>
<th>SKA</th>
<th>DBGA</th>
<th>Event Timestamp</th>
<th>Type</th>
<th>Name</th>
<th>Event Specific Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Java</td>
<td>'BLANK'</td>
<td>08:10:36.28</td>
<td>DYNAMIC</td>
<td>DYNAMIC</td>
<td>DB2 Performance Expert (V5R4M0)</td>
</tr>
</tbody>
</table>

**Locking Trace - Deadlock**

### Location: PMODBZI

**DB2 Version:** v10  
**Member:** S211  
**Subsystem:** S111  
**Primary Corrname:** CONNTYPE  
**Orignauth Corrnmbr:** CONNTYPE  
**Planname Connect:** RELATED TIMESTAMP  
**Event Timestamp:** --- Lock Resource ---  

<table>
<thead>
<tr>
<th>SKA</th>
<th>DBGA</th>
<th>Event Timestamp</th>
<th>Type</th>
<th>Name</th>
<th>Event Specific Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Java</td>
<td>'BLANK'</td>
<td>08:10:36.28</td>
<td>DYNAMIC</td>
<td>DYNAMIC</td>
<td>DB2 Performance Expert (V5R4M0)</td>
</tr>
</tbody>
</table>

**Locking Trace - Deadlock**
## Locking Activity - Member-Scope

**LOCATION:** PM00821  
**GROU**P: DB2  
**MEMBER:** SKA  
**SUBSYSTEM:** DISTSERV  
**DB2 VERSION:** V10  
**PRIMAUTH** CORRNAME CONN_TYPE  
**ORIGAUTH** CORRNAME CORRINSTANCE  
**PLANNAME** CONNECT  
**OEMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)  
**PAGE:** I-5  
**REQUESTED FROM:** NOT SPECIFIED  
**DATE:** 06/04/15  
**ACTUAL FROM:** 06/04/15  
**PERIOD:** 08:10:31.30  
**PAGE DATE:** 06/04/15  

<table>
<thead>
<tr>
<th>MEMBER</th>
<th>GROUP</th>
<th>DB2 VERSION</th>
<th>LOCATION-N/P</th>
<th>ORIGAUTH</th>
<th>ORIGAUTH</th>
<th>PLANNAME</th>
<th>EVENT TYPE</th>
<th>EVENT RESOURCE</th>
<th>EVENT SPECIFIC DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>:mupfel</td>
<td>:mupfel</td>
<td>:mupfel</td>
<td>:mupfel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TRANSACTION:** java  

**LOCATION:** PM00821  
**GROUP:** DB2  
**MEMBER:** SKA  
**SUBSYSTEM:** DISTSERV  
**DB2 VERSION:** V10  
**PRIMAUTH** CORRNAME CONN_TYPE  
**ORIGAUTH** CORRNAME CORRINSTANCE  
**PLANNAME** CONNECT  
**OEMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)  
**PAGE:** I-6  
**REQUESTED FROM:** NOT SPECIFIED  
**DATE:** 06/04/15  
**ACTUAL FROM:** 06/04/15  
**PERIOD:** 08:10:31.30  
**PAGE DATE:** 06/04/15  

<table>
<thead>
<tr>
<th>MEMBER</th>
<th>GROUP</th>
<th>DB2 VERSION</th>
<th>LOCATION-N/P</th>
<th>ORIGAUTH</th>
<th>ORIGAUTH</th>
<th>PLANNAME</th>
<th>EVENT TYPE</th>
<th>EVENT RESOURCE</th>
<th>EVENT SPECIFIC DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>:mupfel</td>
<td>:mupfel</td>
<td>:mupfel</td>
<td>:mupfel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TRANSACTION:** java  

**LOCATION:** PM00821  
**GROUP:** DB2  
**MEMBER:** SKA  
**SUBSYSTEM:** DISTSERV  
**DB2 VERSION:** V10  
**PRIMAUTH** CORRNAME CONN_TYPE  
**ORIGAUTH** CORRNAME CORRINSTANCE  
**PLANNAME** CONNECT  
**OEMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)  
**PAGE:** I-7  
**REQUESTED FROM:** NOT SPECIFIED  
**DATE:** 06/04/15  
**ACTUAL FROM:** 06/04/15  
**PERIOD:** 08:10:31.30  
**PAGE DATE:** 06/04/15  

<table>
<thead>
<tr>
<th>MEMBER</th>
<th>GROUP</th>
<th>DB2 VERSION</th>
<th>LOCATION-N/P</th>
<th>ORIGAUTH</th>
<th>ORIGAUTH</th>
<th>PLANNAME</th>
<th>EVENT TYPE</th>
<th>EVENT RESOURCE</th>
<th>EVENT SPECIFIC DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>:mupfel</td>
<td>:mupfel</td>
<td>:mupfel</td>
<td>:mupfel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TRANSACTION:** java  

---

**Chapter 6. Batch reporting**  
**3451**
### Locking Activity - Member-Scope

**LOCATION:** PM0DBZ1
**GROUP:** DBZ1
**SUBSYSTEM:** S11
**DB2 VERSION:** V10

**PRIMAUTH:** mupfel
**CONNNAME:** JAVA
**CONNTYPE:** DRDA
**PROGNAME:** SYSSH200
**TRANSACT:** java

**REQUEST** `+CHANGE`  **WORTH** `= 17`
**STATE** `=X`  **STMTINFO** `=DYNAMIC`
**USER** `=ska`
**WSNAME** `=mupfel`
**TRANSAC** `=java`
**PROGRAM** `=SYS15200`
**COLLID** `=NULLID`
**LOCATION** `=N/P`
**CONTOKEN** `=X`  **TSTAMP** `=00000000000012B9`
**PLANNAME** `=DISTSERV`
**MEMBER** `=NULLID`
**STMTID** `=X`  `00000000000012B9`

<table>
<thead>
<tr>
<th>LOCATION:</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP:</td>
<td>DBZ1</td>
</tr>
<tr>
<td>SUBSYSTEM:</td>
<td>S11</td>
</tr>
<tr>
<td>DB2 VERSION:</td>
<td>V10</td>
</tr>
</tbody>
</table>

**REQUESTED FROM:** NOT SPECIFIED
**TO:** NOT SPECIFIED
**ACTUAL FROM:** 06/04/15 08:10:31.30

**EVENT SPECIFIC DATA**

- **TSTAMP:** `06/04/15 08:10:51.31`
- **HASH:** `X'000012011'`
- **MEMBER:** =S211  **CONNECT** =SERVER
- **PLANNAME:** =DISTSERV  **CORRID** =java
- **DURATION:** **COMMIT** =PRIMAUTH-SKA
- **REQUEST:** **CHANGE** **WORTH** `= 18`
- **STATE** `=X`  **STMTINFO** `=DYNAMIC`
- **USER** `=ska`
- **WSNAME** `=mupfel`
- **TRANSAC** `=java`
- **PROGRAM** `=SYS15200`
- **COLLID** `=NULLID`
- **LOCATION** `=N/P`
- **CONTOKEN** `=X`  **TSTAMP** `=00000000000012B9`

---

**LOCATION:** PM0DBZ1

**GROUP:** DBZ1
**SUBSYSTEM:** S11
**DB2 VERSION:** V10

**PRIMAUTH:** mupfel
**CONNNAME:** JAVA
**CONNTYPE:** DRDA
**PROGNAME:** SYSSH200
**TRANSACT:** java

**REQUEST** `+CHANGE`  **WORTH** `= 17`
**STATE** `=X`  **STMTINFO** `=DYNAMIC`
**USER** `=ska`
**WSNAME** `=mupfel`
**TRANSAC** `=java`
**PROGRAM** `=SYS15200`
**COLLID** `=NULLID`
**LOCATION** `=N/P`
**CONTOKEN** `=X`  **TSTAMP** `=00000000000012B9`
**PLANNAME** `=DISTSERV`
**MEMBER** `=NULLID`
**STMTID** `=X`  `00000000000012B9`

---

**LOCATION:** PM0DBZ1

**GROUP:** DBZ1
**SUBSYSTEM:** S11
**DB2 VERSION:** V10

**PRIMAUTH:** mupfel
**CONNNAME:** JAVA
**CONNTYPE:** DRDA
**PROGNAME:** SYSSH200
**TRANSACT:** java

**REQUEST** `+CHANGE`  **WORTH** `= 17`
**STATE** `=X`  **STMTINFO** `=DYNAMIC`
**USER** `=ska`
**WSNAME** `=mupfel`
**TRANSAC** `=java`
**PROGRAM** `=SYS15200`
**COLLID** `=NULLID`
**LOCATION** `=N/P`
**CONTOKEN** `=X`  **TSTAMP** `=00000000000012B9`
**PLANNAME** `=DISTSERV`
**MEMBER** `=NULLID`
**STMTID** `=X`  `00000000000012B9`

---

**LOCATION:** PM0DBZ1

**GROUP:** DBZ1
**SUBSYSTEM:** S11
**DB2 VERSION:** V10

**PRIMAUTH:** mupfel
**CONNNAME:** JAVA
**CONNTYPE:** DRDA
**PROGNAME:** SYSSH200
**TRANSACT:** java

**REQUEST** `+CHANGE`  **WORTH** `= 17`
**STATE** `=X`  **STMTINFO** `=DYNAMIC`
**USER** `=ska`
**WSNAME** `=mupfel`
**TRANSAC** `=java`
**PROGRAM** `=SYS15200`
**COLLID** `=NULLID`
**LOCATION** `=N/P`
**CONTOKEN** `=X`  **TSTAMP** `=00000000000012B9`
**PLANNAME** `=DISTSERV`
**MEMBER** `=NULLID`
**STMTID** `=X`  `00000000000012B9`
### Limiting Activity - Member-Scope

<table>
<thead>
<tr>
<th>LOCATION: PM0D8Z1</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP: DBZI</td>
<td>LOCKING TRACE - DEADLOCK</td>
</tr>
<tr>
<td>MEMBER: S211</td>
<td></td>
</tr>
<tr>
<td>SUBSYSTEM: S211</td>
<td></td>
</tr>
<tr>
<td>DB2 VERSION: V10</td>
<td>SCOPE: MEMBER</td>
</tr>
<tr>
<td>PRIMAUTH CORRNAME CONNTYPE</td>
<td>ORIGAUTH CORRMBR INSTANCE</td>
</tr>
<tr>
<td>PLANNAME CONNECT</td>
<td>EVENT TIMESTAMP</td>
</tr>
<tr>
<td>SKA</td>
<td>java</td>
</tr>
<tr>
<td>DISTSERV SERVER</td>
<td>RELOC: 0000.12B9.9.152.78.</td>
</tr>
</tbody>
</table>

**Location:** PM0D8Z1  
**Group:** DBZI  
**Member:** S211  
**Subsystem:** S211  
**DB2 Version:** V10  
**Scope:** Member

---

### Limiting Activity - Member-Scope

<table>
<thead>
<tr>
<th>LOCATION: PM0D8Z1</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
</tr>
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<tbody>
<tr>
<td>GROUP: DBZI</td>
<td>LOCKING TRACE - DEADLOCK</td>
</tr>
<tr>
<td>MEMBER: S211</td>
<td></td>
</tr>
<tr>
<td>SUBSYSTEM: S211</td>
<td></td>
</tr>
<tr>
<td>DB2 VERSION: V10</td>
<td>SCOPE: MEMBER</td>
</tr>
<tr>
<td>PRIMAUTH CORRNAME CONNTYPE</td>
<td>ORIGAUTH CORRMBR INSTANCE</td>
</tr>
<tr>
<td>PLANNAME CONNECT</td>
<td>EVENT TIMESTAMP</td>
</tr>
<tr>
<td>SKA</td>
<td>java</td>
</tr>
<tr>
<td>DISTSERV SERVER</td>
<td>RELOC: 0000.12B9.9.152.78.</td>
</tr>
</tbody>
</table>

**Location:** PM0D8Z1  
**Group:** DBZI  
**Member:** S211  
**Subsystem:** S211  
**DB2 Version:** V10  
**Scope:** Member

---

### Limiting Activity - Member-Scope

<table>
<thead>
<tr>
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<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP: DBZI</td>
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</tr>
<tr>
<td>MEMBER: S211</td>
<td></td>
</tr>
<tr>
<td>SUBSYSTEM: S211</td>
<td></td>
</tr>
<tr>
<td>DB2 VERSION: V10</td>
<td>SCOPE: MEMBER</td>
</tr>
<tr>
<td>PRIMAUTH CORRNAME CONNTYPE</td>
<td>ORIGAUTH CORRMBR INSTANCE</td>
</tr>
<tr>
<td>PLANNAME CONNECT</td>
<td>EVENT TIMESTAMP</td>
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<tr>
<td>SKA</td>
<td>java</td>
</tr>
<tr>
<td>DISTSERV SERVER</td>
<td>RELOC: 0000.12B9.9.152.78.</td>
</tr>
</tbody>
</table>

**Location:** PM0D8Z1  
**Group:** DBZI  
**Member:** S211  
**Subsystem:** S211  
**DB2 Version:** V10  
**Scope:** Member

---

### Limiting Activity - Member-Scope

<table>
<thead>
<tr>
<th>LOCATION: PM0D8Z1</th>
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</thead>
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<tr>
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<td>LOCKING TRACE - DEADLOCK</td>
</tr>
<tr>
<td>MEMBER: S211</td>
<td></td>
</tr>
<tr>
<td>SUBSYSTEM: S211</td>
<td></td>
</tr>
<tr>
<td>DB2 VERSION: V10</td>
<td>SCOPE: MEMBER</td>
</tr>
<tr>
<td>PRIMAUTH CORRNAME CONNTYPE</td>
<td>ORIGAUTH CORRMBR INSTANCE</td>
</tr>
<tr>
<td>PLANNAME CONNECT</td>
<td>EVENT TIMESTAMP</td>
</tr>
<tr>
<td>SKA</td>
<td>java</td>
</tr>
<tr>
<td>DISTSERV SERVER</td>
<td>RELOC: 0000.12B9.9.152.78.</td>
</tr>
</tbody>
</table>

**Location:** PM0D8Z1  
**Group:** DBZI  
**Member:** S211  
**Subsystem:** S211  
**DB2 Version:** V10  
**Scope:** Member
## Locking Activity - Member-Scope

<table>
<thead>
<tr>
<th>PRIMAUTH</th>
<th>CORNAME</th>
<th>CONTYPE</th>
<th>ORIGAUTH</th>
<th>CORRMMBR</th>
<th>INSTANCE</th>
<th>EVENT</th>
<th>TIMESTAMP</th>
<th>RELATED TIMESTAMP</th>
<th>EVENT</th>
<th>TYPE</th>
<th>NAME</th>
<th>EVENT SPECIFIC DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKA</td>
<td>java</td>
<td>DRDA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>08:11:11.38069226</td>
<td>DEADLOCK</td>
<td></td>
<td></td>
<td></td>
<td>COUNTER=11983</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>08:11:11.38069226</td>
<td></td>
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<td></td>
<td>WAITERS = 2</td>
</tr>
<tr>
<td>DISTSERV</td>
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<td>06/04/15 08:11:11.38069226</td>
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<td>TSTAMP=06/04/15</td>
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<td></td>
<td></td>
<td></td>
<td>HASH='X'00012011'</td>
</tr>
<tr>
<td>REQLOC</td>
<td>::FFFF:9.152.78.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>BLOCKER is HOLDER</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>--<em>VICTIM</em>--</td>
</tr>
<tr>
<td>ENDUSER</td>
<td>:ska</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>TRANSACT:java</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| LOCATION: PMDBZI | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | PAGE: 1-12 |
| GROUP: DBZI | LOCKING TRACE - DEADLOCK | REQUESTED FROM: NOT SPECIFIED |
| MEMBER: S211 | TO: NOT SPECIFIED | ACTUAL FROM: 06/04/15 08:10:31.30 |
| DB2 VERSION: V10 | SCOPE: MEMBER | PAGE DATE: 06/04/15 |</p>
<table>
<thead>
<tr>
<th>PRIMAUTH</th>
<th>CORNAME</th>
<th>CONTYPE</th>
<th>ORIGAUTH</th>
<th>CORRMMBR</th>
<th>INSTANCE</th>
<th>EVENT</th>
<th>TIMESTAMP</th>
<th>RELATED TIMESTAMP</th>
<th>EVENT</th>
<th>TYPE</th>
<th>NAME</th>
<th>EVENT SPECIFIC DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKA</td>
<td>java</td>
<td>DRDA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>08:11:11.38069226</td>
<td>DEADLOCK</td>
<td></td>
<td></td>
<td></td>
<td>COUNTER=11983</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>08:11:11.38069226</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WAITERS = 2</td>
</tr>
<tr>
<td>DISTSERV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>06/04/15 08:11:11.38069226</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TSTAMP=06/04/15</td>
</tr>
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<td></td>
<td></td>
<td>HASH='X'00012011'</td>
</tr>
<tr>
<td>REQLOC</td>
<td>::FFFF:9.152.78.</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
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<td>BLOCKER is HOLDER</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>--<em>VICTIM</em>--</td>
</tr>
<tr>
<td>ENDUSER</td>
<td>:ska</td>
<td></td>
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</tr>
<tr>
<td>TRANSACT:java</td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

<p>| LOCATION: PMDBZI | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | PAGE: 1-13 |
| GROUP: DBZI | LOCKING TRACE - DEADLOCK | REQUESTED FROM: NOT SPECIFIED |
| MEMBER: S211 | TO: NOT SPECIFIED | ACTUAL FROM: 06/04/15 08:10:31.30 |
| DB2 VERSION: V10 | SCOPE: MEMBER | PAGE DATE: 06/04/15 |</p>
<table>
<thead>
<tr>
<th>PRIMAUTH</th>
<th>CORNAME</th>
<th>CONTYPE</th>
<th>ORIGAUTH</th>
<th>CORRMMBR</th>
<th>INSTANCE</th>
<th>EVENT</th>
<th>TIMESTAMP</th>
<th>RELATED TIMESTAMP</th>
<th>EVENT</th>
<th>TYPE</th>
<th>NAME</th>
<th>EVENT SPECIFIC DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKA</td>
<td>java</td>
<td>DRDA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>08:11:21.38069226</td>
<td>DEADLOCK</td>
<td></td>
<td></td>
<td></td>
<td>COUNTER=11985</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td>08:11:21.38069226</td>
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<td></td>
<td>WAITERS = 2</td>
</tr>
<tr>
<td>DISTSERV</td>
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<td></td>
<td>06/04/15 08:11:21.38069226</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TSTAMP=06/04/15</td>
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<td>HASH='X'00012011'</td>
</tr>
<tr>
<td>REQLOC</td>
<td>::FFFF:9.152.78.</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td>BLOCKER is HOLDER</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>--<em>VICTIM</em>--</td>
</tr>
</tbody>
</table>
Group-Scope Traces and Reports

In group-scope traces, events are reported in a chronological sequence within the DB2 data sharing group, regardless of which member of the group actually generated the events.

The member name is printed in the body of the trace for each reported event, so that it is easy to see the member where the event occurred. Similarly, group-scope reports show events that are aggregated by the OMEGAMON for DB2 PE identifiers you specified. Data in group-scope reports is presented by member.

The information in this section is only applicable to DB2 data sharing environments.
Locking Activity - Group-Scope

**Note:** For an introduction to the Locking report set and general locking information refer to the [Reporting User’s Guide](#).

### Group-Scope Locking Report

You can generate a Group-Scope Locking report as follows:

```locking
LOCKING
  REPORT
    SCOPE (GROUP)
    LEVEL (SUSPENSION)

```

This is an example of a Group-Scope Locking report:

```plaintext
LOCATION: USIBMSYSTDB2
GROUP: USIBMSYSTDB2

LOCKING REPORT - SUSPENSION
ORDER: DATABASE-PAGESET
SCOPE: GROUP
TO: 01/30/15 19:56:04.31
DB2 VERSION: V10

DATABASE PAGESET MEMBER --- LOCK RESOURCE --- TOTAL SUSPENDS LOCAL SUSPENDS LATCH SUSPENDS LATCH IRLMQ OTHER NMBR AET NMBR AET NMBR AET

'SPECIAL' 'BLANK' '
SSOQ ALTERBUF BPID=BP0 5 0 0 0 0 0.001645 0 N/C 0 N/C 0 N/C 0
SCA ACCS N/A 2 0 0 0 2 0.001674 0 N/C 0 N/C 0

** SUM OF SSOQ ** 7 0 0 0 7 0.001653 0 N/C 0 N/C 0

V53B GBP CAST BPID=GBP2 1 0 0 1 0.001395 0 N/C 0 N/C 0
GBP S/S BPID=GBP0 3 0 0 3 0.002451 0 N/C 0 N/C 0

** SUM OF V53B ** 4 0 0 4 0.002187 0 N/C 0 N/C 0

*GROUP TOTAL* 11 0 0 11 0.001847 0 N/C 0 N/C 0

TPCCE1 TCUST000 SSOQ OPENLOCK N/P 1 0 0 0 1 0.001677 0 N/C 0 N/C 0

AUSD01 SYDPS01 SSOQ TREEPLCK N/P 1 0 0 0 1 0.001445 0 N/C 0 N/C 0

V53B P/P PLCK PAGE=X'80000000' BPID=BP2 2 0 0 2 8.240814 0 N/C 0 N/C 0

*GROUP TOTAL* 3 0 0 3 5.494357 0 N/C 0 N/C 0

SYDPS02 V53B P/P CAST BPID=BP2 1 0 0 1 16.776381 0 N/C 0 N/C 0

*TOTAL* 4 0 0 4 8.314863 0 N/C 0 N/C 0

*GRAND TOTAL* 16 0 0 16 2.080090 0 N/C 0 N/C 0
```

### Identifiers Used in Locking

**Note:** For an introduction to the Locking report set and general locking information refer to the [Reporting User’s Guide](#).

Identifiers Used in Locking
In addition to the standard OMEGAMON for Db2 PE identifiers, Locking reports and traces use two other identifiers to show the type of resource and event type:

**RESOURCETYPE-Resource type**  
The type of lock resource. You can specify one of the values shown in Table 261 on page 3461.

**TYPE-Event type**  
Specifies which event types are to be included in, or excluded from, the lock detail trace. The valid values for this field are shown in Table 260.

Table 260. Event Types

<table>
<thead>
<tr>
<th>Type</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRLMREQ</td>
<td>Lock, unlock, change, query, and notify requests</td>
</tr>
<tr>
<td>CLAIMREQ</td>
<td>Claim acquire, claim change, and claim release</td>
</tr>
<tr>
<td>DRAINREQ</td>
<td>Drain request and drain release</td>
</tr>
<tr>
<td>PLockREQ</td>
<td>Page set or partition as well as page P-Lock requests</td>
</tr>
<tr>
<td>IRLMSUSP</td>
<td>The beginning of lock, unlock, change, query, and notify suspensions</td>
</tr>
<tr>
<td>DRAINSUSP</td>
<td>The beginning of drain suspensions</td>
</tr>
<tr>
<td>LATCHSUSP</td>
<td>The beginning of page latch suspensions</td>
</tr>
<tr>
<td>IRLMRES</td>
<td>The end (resumption) of lock, unlock, change, query, and notify suspensions</td>
</tr>
<tr>
<td>DRAINRES</td>
<td>The end (resumption) of drain suspensions</td>
</tr>
<tr>
<td>LATCHRES</td>
<td>The end (resumption) of page latch suspensions</td>
</tr>
<tr>
<td>TIMEOUT</td>
<td>Timeouts</td>
</tr>
<tr>
<td>DEADLOCK</td>
<td>Deadlocks</td>
</tr>
<tr>
<td>LOCKSUMMARY</td>
<td>Lock summary events</td>
</tr>
<tr>
<td>LOCKAVOID</td>
<td>Successful lock avoidance events</td>
</tr>
</tbody>
</table>

The default is all event types.

**Note:** TYPE can also be used with the REDUCE and FILE subcommands of locking. These subcommands support a limited number of types, as follows:

- Valid types for REDUCE are: IRLMRES, DRAINRES, and LATCHRES.
- Valid types for FILE are: IRLMREQ, CLAIMREQ, DRAINREQ, and LOCKAVOID.

If a non-valid type for REDUCE or FILE is used with EXCLUDE, the event type is not filtered.

If no valid types for REDUCE or FILE are used with INCLUDE, an empty report or file is produced.

**The Locking Header of Reports and Traces**  
This topic describes the headers and fields of Locking reports and traces. The report header and trace header are similar for all reports and traces. All other report or trace sections differ depending on the type of report and are described in the respective report or trace topics.
Note: For an introduction to the Locking report set and general locking information refer to the Reporting User’s Guide.

Layout of a Locking Report Header

The following example shows the layout of a report header, where the letter x is a placeholder marking the maximum size of the data section of each field.

LOCATION: xxxxxxxxxxxxxxxxxxx
GROUP: xxxxxxx
MEMBER: xxxxxxx
SUBSYSTEM: xxxx
DB2 VERSION: Vn Rn

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R34M0)
LOCKING REPORT - xxxxxxxxxx
ORDER: xxxxxx
SCOPE: xxxxxx
PAGE: 1-n
REQUESTED FROM: mm/dd/yy hh:mm:ss.nn
TO: mm/dd/yy hh:mm:ss.nn
INTERVAL FROM: mm/dd/yy hh:mm:ss.nn
TO: mm/dd/yy hh:mm:ss.nn

Layout of the Locking Trace Header

All traces have the same layout. This example shows the layout of a trace header, where the letter x is a placeholder marking the maximum size of the data section of each field. In this example the trace is ordered by the event timestamp.

LOCATION: xxxxxxxxxxxxxxxxxxx
GROUP: xxxxxxx
MEMBER: xxxxxxx
SUBSYSTEM: xxxx
DB2 VERSION: Vn Rn

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
LOCKING TRACE - xxxxxxxxxx
SCOPE: xxxxxx
PAGE: 1-n
REQUESTED FROM: mm/dd/yy hh:mm:ss.nn
TO: mm/dd/yy hh:mm:ss.nn
INTERVAL FROM: mm/dd/yy hh:mm:ss.nn
TO: mm/dd/yy hh:mm:ss.nn
ACTUAL FROM: mm/dd/yy hh:mm:ss.nn
PAGE DATE: mm/dd/yy

Field descriptions of Locking headers

Headings are printed on all reports and traces at the start of each page. Locking reports and traces carry the following header information:

LOCATION
The DB2 reporting location. If the location name is not available, the DB2 data sharing group name is printed in this field. If the DB2 data sharing group name does not exist, the DB2 subsystem ID is printed.

GROUP
The name of the DB2 data sharing group. This field shows N/A if there is no group name.

MEMBER
The name of the DB2 data sharing member or the member name of the DB2 subsystem. This field shows N/A if there is no member name.

This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

SUBSYSTEM
The ID of the DB2 subsystem that generated the data. This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

DB2 VERSION
The DB2 version number of the subsystem that generated the data.

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VnRnMn)
The product name and the version, release, and modification level.

REPORT or TRACE type
For report, this can be:
- SUSPENSION
- LOCKOUT
- DETAIL

For trace, this can be:
Locking Activity - Report Identifiers

- DEADLOCK
- TIMEOUT
- SUSPENSION
- LOCKOUT
- DETAIL

ORDER
If the ORDER option of the REPORT or TRACE subcommand was used to arrange the report entries, the selected keywords are shown in this field. Depending on the context, the OMEGAMON for Db2 PE identifiers by which lock events are grouped are shown here.

SCOPE
Scope of the report or trace, this can be MEMBER or GROUP. A member-scope report or trace shows data from a group for each individual member. In a group-scope report or trace, the data from individual members is consolidated and presented for the entire group.

PAGE
The page number in the format \textit{lll-nnnnmm}, where \textit{lll} denotes the location number within the report and \textit{nnnnmm} the page number within the location.

REQUESTED FROM and TO
The FROM and TO dates and times specified in the REPORT or TRACE subcommand.

If both FROM and TO dates and times are omitted from the REPORT subcommand, the FROM and TO dates and times specified in GLOBAL are printed. If only the FROM date and time or only the TO date and time has been specified, NOT SPECIFIED is printed for the unspecified value.

If FROM and TO are not specified in REPORT or GLOBAL, NOT SPECIFIED appears for both the FROM and TO values.

If you have specified FROM and TO times without dates in REPORT or GLOBAL, ALL DATES is printed along with the specified times.

INTERVAL FROM
The start date and time of the first reduction interval covered by the report. If REDUCE is not specified, the INTERVAL defaults to 0 and the timestamps of the first and last events are printed.

INTERVAL TO
The end date and time of the last reduction interval covered by the report. If REDUCE is not specified, the INTERVAL defaults to 0 and the timestamps of the first and last events are printed.

ACTUAL FROM/TO
The date and time of the first and last record included in the log for a location, group, subsystem, or member.

PAGE DATE
The date of the timestamps printed on this page. A page break occurs at the change of the date. This is useful if a trace page contains more than one entry and the date is not shown for each entry.

Locking Activity Report
Here you find a detailed description about Locking activity reports.

\textbf{Note}: For an introduction to the Locking Activity report set and general locking information refer to the \textit{Reporting User’s Guide}.
Lock Suspension Report:

The Lock Suspension report summarizes all Lock Suspension activities across a specified time period.

The suspensions are reported by any combination of up to three OMEGAMON for Db2 PE identifiers. The report summarizes the Lock Suspension activities of:

- An IRLM request (except when the resource type is a drain lock).
- An IRLM request where the resource type is a drain lock.
- A drain request where the claim count is not zero.

This suspension occurs when the agent making the drain request has to wait for the claim count on the particular resource to become zero.

- A suspension of a page latch request.

This suspension occurs when the agent making the page latch request has to wait for a page which is currently being held by another agent.

The Lock Suspension report is produced if level SUSPENSION is specified in the REPORT subcommand. The ORDER subcommand specifies by which OMEGAMON for Db2 PE identifiers the report is to be sorted.

Optionally, the SPREADSHEETDD subcommand option can be used to create a data set with Lock Suspension data that can be imported in spreadsheet programs for individual analyses. Refer to “Using Lock Suspension Data with Spreadsheets” on page 3466 for more details.

Every suspension results in a normal resume or a lockout (deadlock or timeout), or is canceled (in the case of page latch suspensions). In any case, and if the suspension delay is unacceptable, review the plans and associated tables and indexes.

"[Layout of a Suspension Report]" shows the layout of a suspension report. The letter x is a placeholder marking the maximum size of a field. See "Lock Suspension Report" on page 3466 for an example of a suspension report.

The report presents data summarized by OMEGAMON for Db2 PE identifiers. The report can be sorted by up to three identifiers. For group-scope reports, the member name is added implicitly as an additional identifier and sort criterion.

Layout of a Suspension Report

This is the layout of a suspension report.

<table>
<thead>
<tr>
<th>LOCATION: xxxxxxxxxxxxxxxxxxx</th>
<th>OMEGAMONXE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
<th>PAGE: 1-n</th>
<th>REQUESTED FROM: mm/dd/yy hh:mm:ss.nn</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEMBER: xxxxxxxxx</td>
<td>LOCKING REPORT - SUSPENSION</td>
<td>TO: mm/dd/yy hh:mm:ss.nn</td>
<td></td>
</tr>
<tr>
<td>SUBSYSTEM: xxxx</td>
<td>ORDER: xxxxxx</td>
<td>INTERVAL FROM: mm/dd/yy hh:mm:ss.nn</td>
<td></td>
</tr>
<tr>
<td>DB2 VERSION: Yn Rn</td>
<td>SCOPE: xxxxxx</td>
<td>TO: mm/dd/yy hh:mm:ss.nn</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IDENT1xx</th>
<th>IDENT2xx</th>
<th>IDENT3xx</th>
<th>--- LOCK RESOURCE ---</th>
<th>--- TOTAL SUSPENDS ---</th>
<th>--- LOCAL LATCH ---</th>
<th>--- GLOB. SUSPENDS ---</th>
<th>--- S.NFY ---</th>
<th>--- NORMAL SUSPENDS ---</th>
<th>--- TIMEOUT/CANCEL SUSPENDS ---</th>
<th>--- DEADLOCK SUSPENDS ---</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEMBER</td>
<td>TYPE</td>
<td>NAME</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>xxxxxxxxxxxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxx</td>
<td>xxxxxxxxxxxxxxxxxxx</td>
</tr>
</tbody>
</table>

"[Layout of a Suspension Report]" shows the layout of a suspension report. The letter x is a placeholder marking the maximum size of a field. See "Lock Suspension Report" on page 3466 for an example of a suspension report.
Field description

The header information to this report is described in “The Locking Header of Reports and Traces” on page 3457.

IDENT1XX, IDENT2XX, IDENT3XX

These mark the positions where the order criteria are listed and reported.

In group-scope reports, MEMBER is automatically added as the second, third, or fourth identifier.

If you specify DATABASE, PAGESET, or both, in the ORDER option, the database name, page set name, or both names, are removed from the resource name. In this case, ‘BLANK’ is printed.

MEMBER

Group member name of the DB2 subsystem. This is only printed for member-scope reports.

LOCK RESOURCE TYPE

The type of resource on which the suspended request is made. Valid values are shown in Table 261.

Table 261. Lock Resource Type

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALTERBUF</td>
<td>Alter buffer pool lock</td>
</tr>
<tr>
<td>BINDLOCK</td>
<td>Autobind lock and remote bind lock for the serialization of local autobinds or packages, remote binds, and remote rebinds of packages</td>
</tr>
<tr>
<td>CATM CAT</td>
<td>CATMAINT convert catalog lock</td>
</tr>
<tr>
<td>CATM DIR</td>
<td>CATMAINT convert directory lock</td>
</tr>
<tr>
<td>CATM MIG</td>
<td>CATMAINT migration lock</td>
</tr>
<tr>
<td>CDB PLCK</td>
<td>DDF communications database P-lock</td>
</tr>
<tr>
<td>COLLECT</td>
<td>Collection ID</td>
</tr>
<tr>
<td>DATABASE</td>
<td>Locking of the DBD</td>
</tr>
<tr>
<td>DATAPAGE</td>
<td>Data page locking</td>
</tr>
<tr>
<td>DBALLOC</td>
<td>Start and stop lock on the database allocation table</td>
</tr>
<tr>
<td>DBCMD SER</td>
<td>Database command serialization</td>
</tr>
<tr>
<td>DBD</td>
<td>DBD load lock</td>
</tr>
<tr>
<td>DBD PLCK</td>
<td>DBD P-lock</td>
</tr>
<tr>
<td>DRAIN</td>
<td>All types of drain locking</td>
</tr>
<tr>
<td>DRAIN CS</td>
<td>Cursor stability drain lock</td>
</tr>
</tbody>
</table>
### Table 261. Lock Resource Type (continued)

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRAIN RR</td>
<td>Repeatable read drain lock</td>
</tr>
<tr>
<td>DRAIN W</td>
<td>Write drain lock</td>
</tr>
<tr>
<td>EXCP UPD</td>
<td>Database group exception update lock</td>
</tr>
<tr>
<td>GBP CAST</td>
<td>Group buffer pool level castout P-lock</td>
</tr>
<tr>
<td>GBP S/S</td>
<td>Group buffer pool start and stop lock</td>
</tr>
<tr>
<td>HASH-ANC</td>
<td>Hash anchor lock</td>
</tr>
<tr>
<td>HDRPHASHB</td>
<td>BACKUP SYSTEM or RESTORE SYSTEM utility lock</td>
</tr>
<tr>
<td>INDEX KEY</td>
<td>Index Key lock</td>
</tr>
<tr>
<td>INDEXEOF</td>
<td>Index end-of-file lock</td>
</tr>
<tr>
<td>INDEXPAGE</td>
<td>Index page locking</td>
</tr>
<tr>
<td>LOB</td>
<td>Large object</td>
</tr>
<tr>
<td>LPL/GRECP</td>
<td>Database group exception LPL/GRECP lock</td>
</tr>
<tr>
<td>LPLRECVRY</td>
<td>Logical page list recovery</td>
</tr>
<tr>
<td>MASSDEL</td>
<td>Mass delete lock</td>
</tr>
<tr>
<td>OPENLOCK</td>
<td>Page set or data set open lock</td>
</tr>
<tr>
<td>OTHER</td>
<td>All unlisted resource types</td>
</tr>
<tr>
<td>P/P CAST</td>
<td>Page set and partition level castout P-lock</td>
</tr>
<tr>
<td>P/P PLCK</td>
<td>Page set and partition P-lock</td>
</tr>
<tr>
<td>PAGE</td>
<td>Resource involved in page latch suspensions</td>
</tr>
<tr>
<td>PAGEPLCK</td>
<td>Page P-lock</td>
</tr>
<tr>
<td>PAGESET</td>
<td>Nonpartitioned table spaces and indexes. Drained at the page set level.</td>
</tr>
<tr>
<td>PART NSPL</td>
<td>Partitions of partitioned table spaces and indexes using the non-SPL (selective partition locking) scheme.</td>
</tr>
<tr>
<td>PART SPL</td>
<td>Partitions of partitioned table spaces and indexes using the SPL (selective partition locking) scheme.</td>
</tr>
<tr>
<td>RLF PLCK</td>
<td>RLF P-lock</td>
</tr>
<tr>
<td>ROW</td>
<td>Data row locking</td>
</tr>
<tr>
<td>RPR_DBD</td>
<td>Repair DBD test and diagnose lock</td>
</tr>
<tr>
<td>SCA ACCS</td>
<td>SCA access for restart or redo information</td>
</tr>
<tr>
<td>SKCT</td>
<td>Skeleton cursor table locking</td>
</tr>
</tbody>
</table>
Table 261. Lock Resource Type (continued)

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKPT</td>
<td>Skeleton package table</td>
</tr>
</tbody>
</table>

Note, if the lock resource type has a value of SKPT the Lock Detail report shows compressed parts of the SKPT resource name as hexadecimal strings in reports and traces. It consists of the following parts:
- Collection ID, which is compressed (18 bytes)
- Program name, which is compressed (8 bytes)
- Consistency token (8 bytes)

With the hexadecimal value you can compare values of different locks. See "Layout of a Locking Detail report for the lock resource type SKPT" on page 3472 for an example of a Locking Detail report for the lock resource type SKPT.

SKPT resource names are shown for the Locking Activity report at the following LEVEL:
- LOCKOUT
- SUSPENSION

SKPT resource names are shown for the Locking Activity trace at the following LEVEL:
- LOCKOUT
- TIMEOUT
- SUSPENSION
- DETAIL

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSLGRNG</td>
<td>Buffer manager SYSLGRNG recording lock</td>
</tr>
<tr>
<td>TABLE</td>
<td>Table locking</td>
</tr>
<tr>
<td>TREEPLCK</td>
<td>Index tree P-lock</td>
</tr>
<tr>
<td>UTIL EXC</td>
<td>Utility exclusive execution lock</td>
</tr>
<tr>
<td>UTIL UID</td>
<td>Utility UID lock</td>
</tr>
<tr>
<td>UTILSER</td>
<td>Utility serialization lock</td>
</tr>
<tr>
<td>XML LOCK</td>
<td>XML lock</td>
</tr>
</tbody>
</table>

**Note:** For a suspended request where the resource type is not supplied, N/P is printed.

**LOCK RESOURCE NAME**

The name on which the suspended request is made. Each part of the lock resource name is printed on a separate line. The abbreviations shown in the report are explained, in alphabetical order, in Table 262.

Table 262. Lock Resource Name Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANCH</td>
<td>Anchor point ID</td>
</tr>
<tr>
<td>BPID</td>
<td>Buffer pool ID</td>
</tr>
<tr>
<td>COLL</td>
<td>Collection name</td>
</tr>
<tr>
<td>CKTN</td>
<td>Consistency token</td>
</tr>
</tbody>
</table>
Table 262. Lock Resource Name Abbreviations (continued)

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB</td>
<td>Database name</td>
</tr>
<tr>
<td>HASH</td>
<td>Database group exception hash class</td>
</tr>
<tr>
<td>OB</td>
<td>Object name</td>
</tr>
<tr>
<td>PAGE</td>
<td>Physical page</td>
</tr>
<tr>
<td>PART</td>
<td>Partition</td>
</tr>
<tr>
<td>PKID</td>
<td>Package name</td>
</tr>
<tr>
<td>PLAN</td>
<td>Plan name</td>
</tr>
<tr>
<td>RMID</td>
<td>Resource manager ID</td>
</tr>
<tr>
<td>ROW</td>
<td>Data row</td>
</tr>
<tr>
<td>ROWI</td>
<td>Row ID for LOB</td>
</tr>
<tr>
<td>SUBP</td>
<td>Subpage</td>
</tr>
<tr>
<td>UID</td>
<td>Utility ID</td>
</tr>
<tr>
<td>VER#</td>
<td>Version number of LOB</td>
</tr>
</tbody>
</table>

Note:
1. The database names and object names are translations obtained from the IFCID 105 and 107 records. If these records are not available, the decimal representation of the database and object names are printed.
2. If you specify DATABASE, PAGESET, or both, in the ORDER option, the database name, page set name, or both names, are removed from the resource name and printed in the OMEGAMON for Db2 PE identifier column. If the name only consists of the database and page set, N/P is printed in the resource name column. If the resource name does not contain the database and page set, 'BLANK' is printed in the OMEGAMON for Db2 PE identifier column and all resource name parts are printed in the lock resource block.

TOTAL SUSPENDS
The number of suspensions for the particular combination of OMEGAMON for Db2 PE identifiers.

SUSPEND REASONS
The reason why a particular request was suspended. The requests composing the particular combination of OMEGAMON for Db2 PE identifiers and lock resource can be suspended for several reasons. The SUSPEND REASONS column shows all reasons identified by the IRLM resume records. Therefore, the sum of the counts in this column can differ from the TOTAL SUSPENDS count.

The categorized reasons for suspension are:

LOCAL
Local resource contention. This occurs when you request access to a local resource that is locked.

LATCH
IRLM latch contention. This occurs when the IRLM needs to serialize a resource. For example, the IRLM serializes the adding
and removing of locks to the lock table. The lock table is latched for a short period of time, and the resulting suspensions, if any, are brief.

**GLOB.**
Global contention. This occurs when you request access to a global resource that is locked.

**IRLMQ**
IRLM queued request.

**S.NFY**
Intersystem message sending.

**OTHER**
Suspensions other than those listed here. Suspensions reported as OTHER are either serviceability values, drain suspensions, contentions with retained locks, or page latch suspensions.

**RESUME REASONS**
The reasons for resumption of the suspended tasks. The reason can be normal, timeout, deadlock, and canceled (canceled only applies to page latch suspensions).

**NORMAL NMBR**
The number of suspensions that ended when the task resumed normal processing after completion of the lock request. In page latch suspensions, this is the number of suspensions where the latch requester was not canceled.

**NORMAL AET**
The average elapsed time of a suspension that ended in the task resuming normally. In page latch suspensions, this is the average elapsed time of a suspension where the latch requester was not canceled.

The format for this field is $ssss.nnnnnn$.

**TIMEOUT NMBR**
The number of waits to access locked resources that resulted in exceeding a preset time interval.

**TIMEOUT AET**
The average elapsed time of a resumption due to a timeout.

The format for this field is $ssss.nnnnnn$.

**CANCEL NMBR**
The number of page latch suspensions that ended with the latch requester being canceled.

**CANCEL AET**
The average elapsed time of a page latch suspension that ended with the latch requester being canceled.

The format for this field is $ssss.nnnnnn$.

**DEADLOCK NMBR**
The number of deadlocks.

**DEADLOCK AET**
The average duration of a deadlock.

The format for this field is $ssss.nnnnnn$. 
SUM OF
The sum printed for the lowest-level identifier when there is more than one combination of request type, resource type, and lock resource reported under it.

GROUP TOTAL
The sum of report entries that belong to a data sharing group if more than one member of the group is reported for a particular combination of OMEGAMON for Db2 PE identifiers. A GROUP TOTAL only appears in group-scope reports.

SUBTOTAL
When a report is ordered by three identifiers and there is more than one third-level identifier reported under it, a subtotal is printed each time the second-level identifier changes.

TOTAL
When a report is ordered by two or three identifiers and there is more than one second-level identifier reported under it, a total is printed each time the first-level identifier changes.

GRAND TOTAL
If there is more than one first-level identifier reported, a grand total is printed at the end of each group in a group-scope report or at the end of each member in a member-scope report.

Lock Suspension Report

The following sample suspension report is produced with this command:

LOCKING REPORT

This is a sample Lock Suspension report.

Using Lock Suspension Data with Spreadsheets:

This section provides the necessary information to enable you to use lock suspension report data that is created with the LOCKING REPORT SPREADSHEETDD command in a spreadsheet program.

It is assumed that you created a data set with lock suspension data on the host by using the SPREADSHEETDD option of the LOCKING REPORT command. Refer to the Report Command Reference for more information about the SPREADSHEETDD option. Further, it is assumed that you downloaded the data set to your client as a
text file (choose ascii or text, not binary, as transfer type in your file transfer program). The data set should be available as a plain text file in ASCII format on your client.

It is assumed that you are familiar with the use of spreadsheet programs. Modern spreadsheets provide means to import data from plain text files, provided that data in these files is organized as records and individual fields of the records are separated by a known separator character. The file containing lock suspension data has its fields separated by colons (:) Therefore, you must specify the colon as the separator character (also called a delimiter) when you are importing the data into the spreadsheet program. See the help information of the spreadsheet of your choice for details on how to import data.

After the data is imported to your spreadsheet, the records from the plain text file are represented in spreadsheet rows and the fields are represented in spreadsheet columns.

The remainder of this section describes details about the data as it is initially represented in the spreadsheet. Further use, such as sorting, filtering, analysis, and interpretation is not described. For the latter, see “Lock Suspension Report” on page 3460.

• The first row contains report header information, similar to OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) Locking Report Suspension.

You might notice how the colon-separated format in the plain text file converts to subsequent cells in a spreadsheet row.

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) :Locking;Report :Suspension

• The second row contains the column labels, as shown in Table 263. Approximately 35 columns are shown; the precise number depends on what was specified with the ORDER subcommand option when the data was generated.

• The third and all following rows contain the accumulated lock suspension data values.

Empty cells represent missing data values, usually shown in reports as N/A, N/C, or N/P.

Table 263. Spreadsheet representation of lock suspension data

<table>
<thead>
<tr>
<th>Col.</th>
<th>Column label</th>
<th>Includes the following DB2 lock resource types</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Group</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Member</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Subsystem</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Database</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Pageset</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>(Content varies)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Suspensions Total Occurrences</td>
<td>All</td>
</tr>
<tr>
<td>9</td>
<td>Suspensions Average Elapsed Time</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Deadlocks Total Occurrences</td>
<td>All</td>
</tr>
<tr>
<td>11</td>
<td>Timeouts Total Occurrences</td>
<td>All</td>
</tr>
<tr>
<td>12</td>
<td>Row Lock Suspension Occurrences</td>
<td>Row (X'18')</td>
</tr>
</tbody>
</table>
### Table 263. Spreadsheet representation of lock suspension data (continued)

<table>
<thead>
<tr>
<th>Col.</th>
<th>Column label</th>
<th>Includes the following DB2 lock resource types</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Row Lock Suspension Average Elapsed Time</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Page Lock Suspension Occurrences</td>
<td>Datapage (X'00')</td>
</tr>
<tr>
<td>15</td>
<td>Page Lock Suspension Average Elapsed Time</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Page Latch Suspension Occurrences</td>
<td>Number of IFCID 226 and 227 pairs</td>
</tr>
<tr>
<td>17</td>
<td>Page Latch Suspension Average Elapsed Time</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Pageset Lock Suspension Occurrences</td>
<td>• Pageset (X'02')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Partitioned table space (X'03')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Partition (X'06')</td>
</tr>
<tr>
<td>19</td>
<td>Pageset Lock Suspension Average Elapsed Time</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Database Lock Suspension Occurrences</td>
<td>Database (X'01')</td>
</tr>
<tr>
<td>21</td>
<td>Database Lock Suspension Average Elapsed Time</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Table Lock Suspension Occurrences</td>
<td>Table (X'10')</td>
</tr>
<tr>
<td>23</td>
<td>Table Lock Suspension Average Elapsed Time</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>LOB Lock Suspension Occurrences</td>
<td>LOB (X'30')</td>
</tr>
<tr>
<td>25</td>
<td>LOB Lock Suspension Average Elapsed Time</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Drain Lock Suspension Occurrences</td>
<td>• CS-read drain (X'14')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• RR-read drain (X'15')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Write drain (X'16')</td>
</tr>
<tr>
<td>27</td>
<td>Drain Lock Suspension Average Elapsed Time</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Page P-Lock Suspension Occurrences</td>
<td>Page P-Lock (X'1E')</td>
</tr>
<tr>
<td>29</td>
<td>Page P-Lock Suspension Average Elapsed Time</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Pageset P-Lock Suspension Occurrences</td>
<td>Pageset/partition P-Lock (X'1D')</td>
</tr>
<tr>
<td>31</td>
<td>Pageset P-Lock Suspension Average Elapsed Time</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Other P-Lock Suspension Occurrences</td>
<td>• Index manager tree P-Lock (X'1C')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• DDF CDB P-Lock (X'1F')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Group Buffer Pool level castout P-Lock (X'20')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pageset or partition level castout P-Lock (X'21')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• RLF P-Lock (X'22')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• DBD P-Lock (X'23')</td>
</tr>
<tr>
<td>33</td>
<td>Other P-Lock Suspension Average Elapsed Time</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Miscellaneous Lock Suspension Occurrences</td>
<td>All others not listed above.</td>
</tr>
<tr>
<td>35</td>
<td>Miscellaneous Lock Suspension Average Elapsed Time</td>
<td></td>
</tr>
</tbody>
</table>
Lockout Report:

The lockout report summarizes timeouts and deadlocks occurring within a specified period of time.

The report shows the number of times an agent, identified by up to three OMEGAMON for Db2 PE identifiers, has been timed out or involved in a deadlock when requesting a particular resource. In addition, it shows the other contenders for the resource and the number of times they act as holders or waiters.

There is no correlation between the number of deadlock events reported by Locking reports and traces and the number of deadlocks reported in Accounting and Statistics reports. Whereas Accounting and Statistics reports count all deadlock occurrences, regardless of how they resolve, Locking reports only those deadlocks that were resolved by DB2. DB2 can resolve a deadlock either by making a process roll back, thereby releasing the locks it holds on resources, or by requesting a process to terminate.

The lockout report is produced if level LOCKOUT is specified in the REPORT subcommand and if there is at least one combination of a lockout agent's identifier satisfying the FROM and TO, and INCLUDE or EXCLUDE criteria.

The ORDER subcommand specifies by which OMEGAMON for Db2 PE identifiers the report is to be sorted. You can specify up to three identifiers.

Note: For an introduction to the Locking report set and general locking information refer to the Reporting User's Guide.

Layout of a Lockout Report

This is the layout of a lockout report. The letter x is a placeholder marking the maximum size of a field. See “Example of a Lockout Report” on page 3471 for an example of a lockout report.
Locking Activity - Lockout Report

Field description

Here is a description of all fields except for the report header, which is described in "The Locking Header of Reports and Traces" on page 3457.

LOCK RESOURCE TYPE
The type of resource involved in the lockout. Valid values are shown in Table 261 on page 3461.

LOCK RESOURCE NAME
The name of the resource on which the timeout or deadlock occurred. Each part of the lock resource name is printed on a separate line. The abbreviations shown in the report are explained, in alphabetical order, in Table 262 on page 3463.

TIMEOUTS
The number of times the resource was involved in a timeout.

DEADLOCKS
The number of times the resource was involved in a deadlock.

There is no correlation between the number of deadlocks reported by Locking reports and traces and the number of deadlocks reported in Accounting and Statistics reports. Whereas Accounting and Statistics reports count all deadlock occurrences, regardless of how they resolve, Locking reports only those deadlocks that were resolved by DB2. DB2 can resolve a deadlock either by making a process roll back, thereby releasing the locks on resources, or by requesting a process to terminate.

AGENTS
The agents in contention for the resource during the lockout. This block consists of the following columns:

MEMBER
The agent's member name. In a non-data-sharing environment, this field shows N/P.

PLANNAME
The agent's plan name or the word SYSTEM if there is contention with a retained lock.

CONNECT
The agent's connection name.

CORRID
The agent's correlation identifier.

BLOCKER/HOLDER
For timeouts, the number of times the agent held the resource during the lockout.
For deadlocks, the number of times the agent was the blocker, either as a holder or a waiter.

WAITER
The number of times the agent waited for the resource during the lockout.

LOCKOUTS FOR
The number of timeout and deadlock records aggregated for the currently reported set of OMEGAMON for Db2 PE identifiers.

For timeouts, this value is equivalent to the sum of the entries in the TIMEOUTS column.
A deadlock record involves several resources. Therefore, this value differs from the sum of the entries in the DEADLOCKS column.

**GROUP TOTAL**

The sum of report entries that belong to a data sharing group if more than one member of the group is reported for a particular combination of the DB2 identifiers. A GROUP TOTAL only appears in group-scope reports.

**SUBTOTAL**

When a report is ordered by three identifiers and there is more than one third-level identifier reported under it, a subtotal is printed each time the second-level identifier changes.

**TOTAL**

When a report is ordered by two or three identifiers and there is more than one second-level identifier reported under it, a total is printed each time the first-level identifier changes.

**GRAND TOTAL**

If there is more than one first-level identifier reported, a grand total is printed at the end of each group in a group-scope report or at the end of each member in a member-scope report.

### Example of a Lockout Report

The following command is used to produce the example of the Lockout report:

```sql
LOCKING
 REPORT
 LEVEL (LOCKOUT)
```

Here is the example of the Lockout report:

<table>
<thead>
<tr>
<th>LOCATION: STLEC1</th>
<th>GROUP: N/P</th>
<th>LOCKING REPORT - LOCKOUT</th>
<th>ORDER: PRIMAUTH-PLANNAME</th>
<th>SCOPE: MEMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DB2 VERSION: V10</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PRIMAUTH</th>
<th>PLANNAME</th>
<th>*** LOCK RESOURCE ***</th>
<th>TYPE</th>
<th>NAME</th>
<th>TIMEOUTS</th>
<th>DEADLOCKS</th>
<th>MEMBER</th>
<th>PLANNAME</th>
<th>CONNECT</th>
<th>CORRID</th>
<th>BLOCKER/ HOLDER WAITER</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSADM</td>
<td>DSNTEP3</td>
<td>SYST</td>
<td>SKPT</td>
<td></td>
<td>1</td>
<td>0</td>
<td>N/P</td>
<td>DSNTEP3</td>
<td>BATCH</td>
<td>LBZUTT1</td>
<td></td>
</tr>
</tbody>
</table>

**LOCKING REPORT COMPLETE**

**Locking Detail Report:**

The Locking Detail (also referred to as Lock Detail) report is based on IFCID 21, which records the detail lock requests.

The Locking Detail report is produced if level DETAIL is specified in the REPORT subcommand.

The ORDER subcommand specifies by which OMEGAMON for Db2 PE identifiers the report is to be sorted. In this sample the data is accumulated and ordered by DATABASE-PAGESET.
Locking Activity - Lock Detail Report

“The Layout of a Locking Detail Report” shows the layout of a Locking Detail report. The letter x is a placeholder marking the maximum size of a field. See “Locking Detail Report” on page 3474 for an example of a Locking Detail report.

Note: For an introduction to the Locking report set and general locking information refer to the Reporting User’s Guide

Layout of a Locking Detail Report

You can generate a Locking Detail report as follows:

```
LOCKING
REPORT
  SCOPE (MEMBER)
  LEVEL (DETAIL)
```

```
LOCATION: xxxx
GROUP: xxxx
MEMBER: xxxx
SUBSYSTEM: xxxx
DB2 VERSION: x
```

```
DATABASE --- LOCK RESOURCE --- TOTAL LOCAL LOCK UNLOCK IS IX SIX NSU MAN CMT ALLOC COND
PAGESET TYPE NAME ---REQ TYPE--- -----LOCK STATE------ ---LOCK DURATION---
```

```
**TSNAME**
LOCK TYPE resource-name
```

```
**SUM OF TSNAME**
```

```
TOTAL
```

```
```

Note: If the lock resource type has a value of SKPT (skeleton package table locking) the Lock Detail report shows compressed parts of the SKPT resource name as hexadecimal strings in reports and traces. It consists of the following parts:

- Collection ID, which is compressed.
- Program name, which is compressed.
- Consistency token

With the hexadecimal value you can compare values of different locks. See “Layout of a Locking Detail report for the lock resource type SKPT” for an example of a Locking Detail report for the lock resource type SKPT.

Layout of a Locking Detail report for the lock resource type SKPT

Here is an example of the layout of a Locking Detail report for the lock resource type SKPT.

```
LOCATION: xxxx
GROUP: xxxx
MEMBER: xxxx
SUBSYSTEM: xxxx
DB2 VERSION: x
```

```
DATABASE --- LOCK RESOURCE --- TOTAL LOCAL LOCK UNLOCK IS IX SIX NSU MAN CMT ALLOC COND
PAGESET TYPE NAME ---REQ TYPE--- -----LOCK STATE------ ---LOCK DURATION---
```

```
TSNAME SKPT COLL(HEX)=x'11223344556677880900112323455667788'
PKD(HEX)=x'1122334455667788'
CTKN =0000000000000000
```

```
xxxxxxxxxxxx xxxxxxxxxx xxxxxxxxxx xxxxxxxxxx xxxxxxxxxx xxxxxxxxxx xxxxxxxxxx
xxxxxxxxxxxx xxxxxxxxxx xxxxxxxxxx xxxxxxxxxx xxxxxxxxxx xxxxxxxxxx xxxxxxxxxx
```

```
```
Field description

Here is a description of all fields except for the report header, which is described in “The Locking Header of Reports and Traces” on page 3457.

**LOCK RESOURCE TYPE**
The type of resource on which the lock detail request is made. Valid values are shown in Table 261 on page 3461.

**LOCK RESOURCE NAME**
The name on which the lock detail request is made. Each part of the lock resource name is printed on a separate line. The abbreviations shown in the report are explained, in alphabetical order, in Table 262 on page 3463.

**TOTAL REQ**
The total number of lock requests. The sum is calculated by adding the number of request types like LOCK, UNLOCK, CHANGE, or OTHER request types.

**LOCAL**
The number of lock requests that were not sent to cross-system extended services (XES). The sum is calculated by adding the number of request types like LOCK, UNLOCK, CHANGE, or OTHER request types found in the IRLM FUNCTION CODE if data indicates that the request was not sent to z/OS XES.

**XES**
The number of lock requests that were sent to cross-system extended services (XES). The sum is calculated by adding the number of request types like LOCK, UNLOCK, CHANGE, or OTHER request types found in the IRLM FUNCTION CODE if data indicates that the request was sent to z/OS XES.

**REQ TYPE**
The lock request types:
- LOCK  Lock function
- UNLOCK  Unlock function
- CHNGE  Change function
- OTHER  Any other functions

**LOCK STATE**
The lock state can be:
- IS  Intent share
- IX  Intent exclusive
- SIX  Share with intent exclusive
- NSU  Non shared update
- S  Share
Locking Activity - Lock Detail Report

X   Exclusive
U   Update

LOCK DURATION
The lock duration can be:

CMT   Commit
CMT+1 Commit + 1
ALLOC Allocation
MAN   Manual
MAN+1 Manual + 1
OTHER Other

COND
The number of lock requests with request type or mode CONDITIONAL.

AUTREL
The number of lock requests with request type or mode AUTOMATIC RELEASE.

TOTAL
Total lines are printed regardless of the number of different IDs printed before even if the report presents only a single ID.

Locking Detail Report

You can generate a Locking Detail report as follows:

```
LOCKING REPORT
  SCOPE (MEMBER)
  LEVEL (DETAIL)
```

```
"Locking Detail Report" shows a sample Locking Detail report, produced by the following command:

```
LOCKING REPORT
  LEVEL (DETAIL)
```

LOCATION: OMPDD0001
GROUP: N/P
MEMBER: DB2U001
SUBSYSTEM: DB2U
DB2 VERSION: V10

LOCATION: OMPDD0001
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
PAGE: 1-1
REQUESTED FROM: NOT SPECIFIED
TO: NOT SPECIFIED
ORDER: DATABASE-PAGESET
SCOPE: MEMBER
INTERVAL FROM: 03/04/15 08:54:13.83
TO: 03/04/15 09:02:47.51

```

<table>
<thead>
<tr>
<th>DATABASE</th>
<th>RES RESOURCE</th>
<th>TOTAL REQ</th>
<th>LOCAL XES</th>
<th>LOCAL CHNGE</th>
<th>TYPE</th>
<th>--LOCK STATE--</th>
<th>--LOCK DURATION--</th>
<th>ALLOC</th>
<th>COND</th>
<th>CMNT</th>
<th>MAN+1</th>
<th>MAN</th>
<th>CMNT+1</th>
<th>OTHER</th>
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Locking Activity - Lock Detail Report

--- LOCK RESOURCE --- TOTAL LOCAL LOCK UNLOCK IS IX SIX NSU MAN CMT ALLOCCOND MAN+1 CMT+1 OTHER AUREL
--- REQ-- REQ-- LOCK STATE ------ LOCK DURATION--

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<th>PAGESET</th>
<th>TYPE</th>
<th>NAME</th>
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</tr>
</tbody>
</table>
### Lock Activity - Lock Detail Report

#### DATABASE PAGESET

<table>
<thead>
<tr>
<th>LOCK RESOURCE</th>
<th>TYPE</th>
<th>NAME</th>
<th>LOCAL LOCK</th>
<th>LOCAL UNLOCK</th>
<th>LOCAL CHG</th>
<th>IS</th>
<th>IX</th>
<th>SIX</th>
<th>NSU</th>
<th>MAN</th>
<th>CMT</th>
<th>ALLOC</th>
<th>COND</th>
</tr>
</thead>
</table>

#### DATABASE PAGESET

<table>
<thead>
<tr>
<th>LOCK RESOURCE</th>
<th>TYPE</th>
<th>NAME</th>
<th>LOCAL LOCK</th>
<th>LOCAL UNLOCK</th>
<th>LOCAL CHG</th>
<th>IS</th>
<th>IX</th>
<th>SIX</th>
<th>NSU</th>
<th>MAN</th>
<th>CMT</th>
<th>ALLOC</th>
<th>COND</th>
</tr>
</thead>
</table>
### DB2 Locking Activity - Lock Detail Report

**TOTAL**

<table>
<thead>
<tr>
<th>NAME</th>
<th>LOCAL</th>
<th>LOCK</th>
<th>OTHER</th>
<th>SIX</th>
<th>NSU</th>
<th>MAN</th>
<th>CMT</th>
<th>ALLOC</th>
<th>COND</th>
<th>OTHER</th>
<th>AUTREL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAGEPLCK PART= 1</strong></td>
<td>2 0</td>
<td>1 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td><strong>PAGEPLCK PART= 2</strong></td>
<td>2 0</td>
<td>1 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td><strong>PAGEPLCK PART= 3</strong></td>
<td>6 0</td>
<td>3 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td><strong>PAGEPLCK PART= 4</strong></td>
<td>2 0</td>
<td>0 0</td>
<td>1 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
</tr>
</tbody>
</table>

**TOTAL**

<table>
<thead>
<tr>
<th>NAME</th>
<th>LOCAL</th>
<th>LOCK</th>
<th>OTHER</th>
<th>SIX</th>
<th>NSU</th>
<th>MAN</th>
<th>CMT</th>
<th>ALLOC</th>
<th>COND</th>
<th>OTHER</th>
<th>AUTREL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAGEPLCK PART= 1</strong></td>
<td>4 0</td>
<td>2 0</td>
<td>2 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
</tr>
</tbody>
</table>

**TOTAL**

<table>
<thead>
<tr>
<th>NAME</th>
<th>LOCAL</th>
<th>LOCK</th>
<th>OTHER</th>
<th>SIX</th>
<th>NSU</th>
<th>MAN</th>
<th>CMT</th>
<th>ALLOC</th>
<th>COND</th>
<th>OTHER</th>
<th>AUTREL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAGEPLCK PART= 1</strong></td>
<td>4 0</td>
<td>0 0</td>
<td>0 0</td>
<td>2 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
</tr>
</tbody>
</table>
### Locking Activity - Lock Detail Report

<table>
<thead>
<tr>
<th>OPENLOCK</th>
<th>N/P</th>
<th>6</th>
<th>6</th>
<th>3</th>
<th>3</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>6</th>
<th>0</th>
<th>0</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAGELOCN</td>
<td>PART= 1</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PAGESN</td>
<td>N/P</td>
<td>59</td>
<td>0</td>
<td>59</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>** SUM OF SYSLNX **</td>
<td></td>
<td>198</td>
<td>6</td>
<td>160</td>
<td>6</td>
<td>0</td>
<td>59</td>
<td>0</td>
<td>0</td>
<td>38</td>
<td>154</td>
<td>0</td>
<td>98</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL**

| DSNB01 | 334 | 18 | 228 | 74 | 0 | 59 | 0 | 0 | 50 | 154 | 0 | 104 |
| DSNBO6 | 316 | 32 | 0 | 5 | 123 | 73 | 0 | 0 | 130 | 41 |
| DSNACH01 | DRAIN CS N/P | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 |
| OPENLOCK   | N/P | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| ** SUM OF DSNACH01 ** | | 4 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 |
| SYSDATE    | DATAPAGE PAGE=X'00000027' | 12 | 12 | 12 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 9 |
|           | PAGE=X'00000028' | 6 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 6 |
|           | PAGE=X'00000160' | 132 | 132 | 66 | 66 | 0 | 0 | 0 | 0 | 66 | 0 | 0 | 0 |
|           | PAGE=X'0000160F' | 24 | 24 | 12 | 12 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 12 |
|           | PAGE=X'0000170' | 1656 | 1656 | 864 | 792 | 0 | 0 | 0 | 0 | 864 | 0 | 0 | 72 |

**TOTAL**

| OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | 1-95966 |
| LOCKING REPORT - DETAIL | REQUESTED FROM: NOT SPECIFIED |
| ORDER: DATABASE-PAGES | TO: NOT SPECIFIED |
| DB2 VERSION: V10 | INTERVAL FROM: 03/04/15 08:54:13.83 |
| SCOPE: MEMBER | TO: 03/04/15 09:02:47.51 |

### DATABASE

<table>
<thead>
<tr>
<th>DATABASE PAGESET</th>
<th>--- LOCK RESOURCE ---</th>
<th>TOTAL</th>
<th>LOCAL</th>
<th>--REQ LOCK</th>
<th>TYPE</th>
<th>-----LOCK STATE-----</th>
<th>--LOCK DURATION--</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>EXE</td>
<td>CHANGE</td>
<td>S</td>
<td>X</td>
<td>U</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| DATABASE PAGESET | PAGE=X'00000390' | 12 | 12 | 12 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 9 |
|                  | PAGE=X'00000399EE' | 12 | 12 | 12 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 9 |
|                  | PAGE=X'00000399EF' | 52 | 52 | 52 | 0 | 0 | 0 | 0 | 52 | 0 | 0 | 39 |
|                  | PAGE=X'00000399E4' | 52 | 52 | 52 | 0 | 0 | 0 | 0 | 52 | 0 | 0 | 39 |
|                  | PAGE=X'0000039F0' | 32 | 32 | 32 | 0 | 0 | 0 | 0 | 32 | 0 | 24 |
|                  | PAGE=X'000003968' | 5 | 5 | 5 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
|                  | PAGE=X'000003971' | 410 | 410 | 410 | 0 | 0 | 0 | 0 | 410 | 0 | 328 |
|                  | **SUM OF 9** | 2038 | 1923 | 1901 | 137 | 126 | 0 | 0 | 1775 | 126 | 0 | 601 |

**GRAND TOTAL**

| 2602 | 2095 | 2417 | 185 | 368 | 0 | 0 | 0 | 1918 | 451 | 42 | 723 |
| 507 | 0 | 0 | 2180 | 27 | 0 | 0 | 137 | 0 | 54 | 0 |
| 2160727 | 1050K | 1576K | 568K | 24K | 70460 | 130 | 0 | 537K | 891K | 37113 | 566K |
| 1111K | 1568 | 781 | 983K | 395K | 5621 | 62188 | 5017 | 629K | 40093 |

### Locking Trace

**Note:** For an introduction to the Locking report set and general locking information refer to the [Reporting User’s Guide](#). It also provides information on input to locking.

The layout for locking traces is the same for each trace apart from the event-specific data. "Layout of a Deadlock Trace" on page 3479 [shows the general layout of the locking trace and describes the common fields.](#)

---

**Locking Report Complete**
### Field description

Here you find a description of all fields except for the trace header and the OMEGAMON for Db2 PE identifiers, for details of the trace header see "The Locking Header of Reports and Traces" on page 3457. The descriptions start with the timestamp block and move to the right.

**reporttype**
- This can be:
  - DEADLOCK
  - TIMEOUT
  - LOCKOUT
  - SUSPENSION
  - DETAIL

**EVENT TIMESTAMP**
- The time at which the event occurred. The trace is sorted and printed in the order of this timestamp. The format of this timestamp is `hh:mm:ss.nnnnnnnn`.

**RELATED TIMESTAMP**
- The timestamp of the suspended request that was selected as the victim of this event. This field only shows a value for suspension and detail traces. For other traces, this field always shows N/P because the related suspension event is not reported.

**EVENT**
- The Locking event. This varies according to the type of trace.

**LOCK RESOURCE TYPE**
- The type of locked resource. The values for the locked resource types are shown in Table 261 on page 3461.

**LOCK RESOURCE NAME**
- The name of the resource. Each part of the lock resource name is printed on a separate line. The format of the name depends on the resource type as shown in Table 262 on page 3463.

**EVENT SPECIFIC DATA**
- The layout and content of the event specific data varies according to the reported event and is described in the sections following.
Deadlock Trace:

The deadlock trace contains an entry for every occurrence of a deadlock during a specified time period.

The trace shows when the deadlock occurred and provides details on the resources involved in the deadlock and information about the threads that held the resource or waited to use the resource. If the resource was held by more than one agent and not all of them were actively involved in the deadlock, the holder data cannot be determined and is not printed.

The data specific to the deadlock. For each resource involved in a deadlock there is a block of waiter's data and a block of blocker's data.

A blocker is a thread that prevents the victim getting its lock. The blocker can be a holder of the lock or another waiter (one that came in before the victim) that is incompatible with the holder's lock.

There is no correlation between the number of deadlock events reported by Locking reports and traces and the number of deadlocks reported in Accounting and Statistics reports. Whereas Accounting and Statistics reports count all deadlock occurrences, regardless of how they resolve, Locking reports only those deadlocks that were resolved by DB2. DB2 can resolve a deadlock either by making a process roll back, thereby releasing the locks it holds on resources, or by requesting a process to terminate.

The format of the deadlock-specific data is shown in “The Format of Deadlock-Specific Data.”

Trace Data Specific to Deadlock Event: This topic describes the trace data that is specific to the Deadlock Event.

The Format of Deadlock-Specific Data

The following example shows the layout of Deadlock-Specific data.

```
COUNTER = XXXX
WAITERS = XXXX
TSTAMP = MM/DD/YY HH:MM:SS.sss
HASH = 'HHHHHHHHHHHHHHHHHHHH`

---------- BLOCKER is HOLDER ----------
LUW = XXXX.XXXXXX.XXXXXXXXXX
MEMBER = XXXX
PLANNAME = XXXX
CORRID = XXXX
DURATION = XXXX
PRIMAUTH = XXXX
STATE = XXXX
STMTINFO = XXXX
ENDUSER = XXXX
WSNAME = XXXX
TRANSAC = XXXX
PROGNAME = XXXX
COLLID = XXXX
LOCATION = XXXX
CONTOKEN = X
STMTID = X

-------- WAITER --------
LUW = XXXX.XXXXXX.XXXXXXXXXX
MEMBER = XXXX
PLANNAME = XXXX
CORRID = XXXX
DURATION = XXXX
PRIMAUTH = XXXX
REQUEST = XXXX
WORTH = XXXX
STATE = XXXX
STMTINFO = XXXX
ENDUSER = XXXX
WSNAME = XXXX
TRANSAC = XXXX
PROGNAME = XXXX
COLLID = XXXX
LOCATION = XXXX
CONTOKEN = X
STMTID = X
```
Field description

The individual fields have the following meaning:

**COUNTER**
- The deadlock interval counter.

**WAITERS**
- The number of waiters involved in the deadlock.

**TSTAMP**
- The time when the deadlock occurred.

**HASH**
- The lock resource hash value.

**LUW**
- The ID of the blocker's or waiter's logical unit of work.

**MEMBER**
- The blocker's or waiter's member name. In a non-data-sharing environment, this field contains N/P.

**CONNECT**
- The holder's or waiter's connection name.

**PLANNAME**
- The blocker's or waiter's plan name.

**CORRID**
- The blocker's or waiter's correlation name.

**DURATION**
- The lock duration of the deadlock blocker or waiter. Valid values are shown in Table 264.

### Table 264. Lock Duration

<table>
<thead>
<tr>
<th>Duration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANUAL</td>
<td>Varies depending on the ISOLATION parameter</td>
</tr>
<tr>
<td>MANUAL+1</td>
<td>Temporary change of consistency level from CS to RR during bind and DDL</td>
</tr>
<tr>
<td>COMMIT</td>
<td>Until commit</td>
</tr>
<tr>
<td>COMMIT+1</td>
<td>Past commit; applies to locks needed to maintain the position for a cursor opened WITH HOLD</td>
</tr>
<tr>
<td>ALLOCATN</td>
<td>Until deallocation</td>
</tr>
<tr>
<td>PLAN</td>
<td>For the duration of the plan</td>
</tr>
<tr>
<td>UTILITY</td>
<td>For the duration of the utility execution</td>
</tr>
<tr>
<td>INTEREST</td>
<td>For the duration of P-Locks</td>
</tr>
<tr>
<td>FREE ALL</td>
<td>Until all locks are freed</td>
</tr>
</tbody>
</table>

**PRIMAUTH**
- The primary authorization ID of the thread.

**REQUEST**
- The waiter's request, which can be one of the following:
  - LOCK
  - UNLOCK
  - CHANGE
The waiter's worth value assigned by DB2.

The holder's or waiter's state or mode of the lock applied to the resource. Valid values are shown in Table 265.

**Table 265. Lock State**

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPS</td>
<td>Unprotected share</td>
</tr>
<tr>
<td>IS</td>
<td>Intent share</td>
</tr>
<tr>
<td>IX</td>
<td>Intent exclusive</td>
</tr>
<tr>
<td>S</td>
<td>Share</td>
</tr>
<tr>
<td>U</td>
<td>Update</td>
</tr>
<tr>
<td>SIX</td>
<td>Share with intent exclusive</td>
</tr>
<tr>
<td>NSU</td>
<td>Nonshared update</td>
</tr>
<tr>
<td>X</td>
<td>Exclusive</td>
</tr>
</tbody>
</table>

The statement information of the holder or waiter.

End user's user ID. This field is not shown when this information is not present.

End user's workstation name. This field is not shown when this information is not present.

The end user's transaction name. This field is not shown when this information is not present.

The program name can be one of the following:
- The name of the blocker's program that is currently in control at the time of the deadlock and not necessarily the program that acquired the lock.
- The waiter's program that is contending the resource.

The collection identifier can be one of the following:
- The package collection ID of the blocker's program that is currently in control at the time of the deadlock and not necessarily the program that acquired the lock.
- The package collection ID of the waiter's program that is contending the resource.

The location can be one of the following:
- The location of the blocker's program that is currently in control at the time of the deadlock and not necessarily the program that acquired the lock.
- The location of the waiter's program that is contending the resource.
CONTOKEN
The consistency token can be one of the following:
- The consistency token of the blocker's program that is currently in control at the time of the deadlock and not necessarily the program that acquired the lock.
- The consistency token of the waiter's program that is contending the resource.

STMTID
The statement ID of the holder or waiter.

Deadlock Trace Example: "Deadlock trace example" shows a sample deadlock trace, produced by the following command:

<table>
<thead>
<tr>
<th>Locking Trace Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION: OMPDA21</td>
</tr>
<tr>
<td>GROUP: ODBAGROU</td>
</tr>
<tr>
<td>SUBSYSTEM: ODB</td>
</tr>
<tr>
<td>DB2 VERSION: V10</td>
</tr>
<tr>
<td>PRIMAUTH CORNAME CONTYPE</td>
</tr>
<tr>
<td>ORIGAUTH CORNAME ID</td>
</tr>
<tr>
<td>PLANNAME CONNECT</td>
</tr>
<tr>
<td>EVENT TIMESTAMPEVENT</td>
</tr>
<tr>
<td>LOCK RESOURCE EVENT</td>
</tr>
<tr>
<td>STMTID EVENT SPECIFIC</td>
</tr>
<tr>
<td>STATE ENDUSER</td>
</tr>
<tr>
<td>TRANSACT ENDUSER</td>
</tr>
<tr>
<td>PRIMAUTH ENDUSER</td>
</tr>
</tbody>
</table>

---

Deadlock trace example

This is a sample deadlock trace:
SHA  java  DBA  17:31:08.12271550 DEADLOCK
SHA  'BLANK'  C508B2220AB3  N/P
DISTSERV  SERVER  TABLE  DB  =TDKDB
RELOC  ::FFFF:9.152.122  0B  =11
ENDUSER  :sha
WSNAME  :miller
TRANSACT:java

LUW=G9987A4A.B5FF.C508B2220AB3  N/P
MEMBER  =DA31MEMB
CONNECT  =SERVER
PLANNAME=DISTSERV
CORRID  =java
DURATION=COMMIT
PRIMAUTH=SHA
REQUEST  =CHANGE
WORTH  = 17
STATE  = X
STMTINFO=N/A
ENDUSER  :sha
WSNAME  =miller
TRANSAC=java
PROGRAM=SYSKA501
COLLID  =NULLID
LOCATION=N/P
CONTOKEN='X'5359534C564L3031
STMTID  = N/A

SHA  java  DBA  17:31:08.12271550 DEADLOCK
SHA  'BLANK'  C508B2220AB3  N/P
DISTSERV  SERVER  TABLE  DB  =TDKDB
RELOC  ::FFFF:9.152.122  0B  =11
ENDUSER  :sha
WSNAME  :miller
TRANSACT:java

LUW=G9987A4A.B5FF.C508B2220AB3  N/P
MEMBER  =DA31MEMB
CONNECT  =SERVER
PLANNAME=DISTSERV
CORRID  =java
DURATION=COMMIT
PRIMAUTH=SHA
REQUEST  =CHANGE
WORTH  = 17
STATE  = X
STMTINFO=N/A
ENDUSER  :sha
WSNAME  =miller
TRANSAC=java
PROGRAM=SYSKA501
COLLID  =NULLID
LOCATION=N/P
CONTOKEN='X'5359534C564L3031
STMTID  = N/A

SHA  java  DBA  17:31:08.12271550 DEADLOCK
SHA  'BLANK'  C508B2220AB3  N/P
DISTSERV  SERVER  TABLE  DB  =TDKDB
RELOC  ::FFFF:9.152.122  0B  =11
ENDUSER  :sha
WSNAME  :miller
TRANSACT:java

LUW=G9987A4A.B5FF.C508B2220AB3  N/P
MEMBER  =DA31MEMB
CONNECT  =SERVER
PLANNAME=DISTSERV
CORRID  =java
DURATION=COMMIT
PRIMAUTH=SHA
REQUEST  =CHANGE
WORTH  = 17
STATE  = X
STMTINFO=N/A
ENDUSER  :sha
WSNAME  =miller
TRANSAC=java
PROGRAM=SYSKA501
COLLID  =NULLID
LOCATION=N/P
CONTOKEN='X'5359534C564L3031
STMTID  = N/A

SHA  java  DBA  17:31:13.10897581 DEADLOCK
SHA  'BLANK'  C508B2220AB3  N/P
DISTSERV  SERVER  TABLE  DB  =TDKDB
RELOC  ::FFFF:9.152.122  0B  =11
ENDUSER  :sha
WSNAME  :miller
TRANSACT:java

LUW=G9987A4A.B5FF.C508B2220AB3  N/P
MEMBER  =DA31MEMB
CONNECT  =SERVER
PLANNAME=DISTSERV
CORRID  =java
DURATION=COMMIT
PRIMAUTH=SHA
REQUEST  =CHANGE
WORTH  = 17
STATE  = X
STMTINFO=N/A
ENDUSER  :sha
WSNAME  =miller
TRANSAC=java
PROGRAM=SYSKA501
COLLID  =NULLID
LOCATION=N/P
CONTOKEN='X'5359534C564L3031
STMTID  = N/A

SHA  java  DBA  17:31:08.12271550 DEADLOCK
SHA  'BLANK'  C508B2220AB3  N/P
DISTSERV  SERVER  TABLE  DB  =TDKDB
RELOC  ::FFFF:9.152.122  0B  =11
ENDUSER  :sha
WSNAME  :miller
TRANSACT:java

LUW=G9987A4A.B5FF.C508B2220AB3  N/P
MEMBER  =DA31MEMB
CONNECT  =SERVER
PLANNAME=DISTSERV
CORRID  =java
DURATION=COMMIT
PRIMAUTH=SHA
REQUEST  =CHANGE
WORTH  = 17
STATE  = X
STMTINFO=N/A
ENDUSER  :sha
WSNAME  =miller
TRANSAC=java
PROGRAM=SYSKA501
COLLID  =NULLID
LOCATION=N/P
CONTOKEN='X'5359534C564L3031
STMTID  = N/A

SHA  java  DBA  17:31:13.10897581 DEADLOCK
SHA  'BLANK'  C508B2220AB3  N/P
DISTSERV  SERVER  TABLE  DB  =TDKDB
RELOC  ::FFFF:9.152.122  0B  =11
ENDUSER  :sha
WSNAME  :miller
TRANSACT:java

LUW=G9987A4A.B5FF.C508B2220AB3  N/P
MEMBER  =DA31MEMB
CONNECT  =SERVER
PLANNAME=DISTSERV
CORRID  =java
DURATION=COMMIT
PRIMAUTH=SHA
REQUEST  =CHANGE
WORTH  = 17
STATE  = X
STMTINFO=N/A
ENDUSER  :sha
WSNAME  =miller
TRANSAC=java
PROGRAM=SYSKA501
COLLID  =NULLID
LOCATION=N/P
CONTOKEN='X'5359534C564L3031
STMTID  = N/A
Locking Activity - Trace

ENDUSER = sha
WSNAME = miller
TRANSAC = java
PROGNAME = SYSKA501
COLLID = NULLID
LOCATION = N/P
CONTOKEN = '5359534C564L3031'
STMTID = N/A

---------- WAITER -----------
LUW = G9987A4A.AB57.C5087DE5ED7E
MEMBER = DA3MEMB
CONNECT = -SERVER
PLANNAME = DISTSERV
CORRID = -java
DURATION = COMMIT
PRIMAUTH = SHA
REQUEST = CHANGE
WORTH = 18
STATE = X
STMTINFO = N/A
ENDUSER = sha
WSNAME = miller
TRANSAC = java
PROGNAME = SYSKA501
COLLID = NULLID
LOCATION = N/P
CONTOKEN = '5359534C564C3031'
STMTID = N/A

TABLE 0B = TOXDB
OB = 11

HASH = '00010B1E'
---------- BLOCKER IS WAITER -----------
LUW = G9987A4A.0B57.C5087DE5ED7E
MEMBER = DA3MEMB
CONNECT = -SERVER
PLANNAME = DISTSERV
CORRID = -java
DURATION = COMMIT
PRIMAUTH = SHA
REQUEST = CHANGE
WORTH = 17
STATE = X
STMTINFO = N/A
ENDUSER = sha
WSNAME = miller
TRANSAC = java
PROGNAME = SYSKA501
COLLID = NULLID
LOCATION = N/P
CONTOKEN = '5359534C564C3031'
STMTID = N/A

TABLE 0B = TOXDB
OB = 11

HASH = '00010B1E'
---------- BLOCKER IS HOLDER -----------
LUW = G9987A4A.0B57.C5087DE5ED7E
MEMBER = DA3MEMB
CONNECT = -SERVER
PLANNAME = DISTSERV
CORRID = -java
DURATION = COMMIT
PRIMAUTH = SHA
REQUEST = CHANGE
WORTH = 18
STATE = X
STMTINFO = N/A
ENDUSER = sha
WSNAME = miller
TRANSAC = java
PROGNAME = SYSKA501
COLLID = NULLID
LOCATION = N/P
CONTOKEN = '5359534C564C3031'
STMTID = N/A

SHA: java  ORDA: 17:31:18.11530803 DEADLOCK
SHA: 'BLANK' C508B221EA1B N/P
DISTSERV SERVER

ENDUSER : sha
WSNAME : miller
TRANSACT: java

SHA: java  ORDA: 17:31:18.11530803 DEADLOCK
SHA: 'BLANK' C508B221EA1B N/P
DISTSERV SERVER

ENDUSER : sha
WSNAME : miller
TRANSACT: java

SHA: java  ORDA: 17:31:18.11530803 DEADLOCK
SHA: 'BLANK' C508B221EA1B N/P
DISTSERV SERVER

ENDUSER : sha
WSNAME : miller
TRANSACT: java

SHA: java  ORDA: 17:31:18.11530803 DEADLOCK
SHA: 'BLANK' C508B221EA1B N/P
DISTSERV SERVER

ENDUSER : sha
WSNAME : miller
TRANSACT: java

SHA: java  ORDA: 17:31:18.11530803 DEADLOCK
SHA: 'BLANK' C508B221EA1B N/P
DISTSERV SERVER

ENDUSER : sha
WSNAME : miller
TRANSACT: java

SHA: java  ORDA: 17:31:18.11530803 DEADLOCK
SHA: 'BLANK' C508B221EA1B N/P
DISTSERV SERVER

ENDUSER : sha
WSNAME : miller
TRANSACT: java

SHA: java  ORDA: 17:31:18.11530803 DEADLOCK
SHA: 'BLANK' C508B221EA1B N/P
DISTSERV SERVER

ENDUSER : sha
WSNAME : miller
TRANSACT: java

SHA: java  ORDA: 17:31:18.11530803 DEADLOCK
SHA: 'BLANK' C508B221EA1B N/P
DISTSERV SERVER

ENDUSER : sha
WSNAME : miller
TRANSACT: java

SHA: java  ORDA: 17:31:18.11530803 DEADLOCK
SHA: 'BLANK' C508B221EA1B N/P
DISTSERV SERVER

ENDUSER : sha
WSNAME : miller
TRANSACT: java

SHA: java  ORDA: 17:31:18.11530803 DEADLOCK
SHA: 'BLANK' C508B221EA1B N/P
DISTSERV SERVER
Locking Activity - Trace

<table>
<thead>
<tr>
<th>TABLE DB</th>
<th>DB = TDKDB</th>
<th>HASH</th>
<th>X'00010B1E'</th>
</tr>
</thead>
<tbody>
<tr>
<td>0B = 11</td>
<td>-----------</td>
<td>BLOCKER IS WAITER--------</td>
<td></td>
</tr>
<tr>
<td>LUW=G99874A.B601.C50BB220A8B</td>
<td>MEMBER =DA31MEMB CONNECT =SERVER</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PLANNAME=DISTSERV CORRID =java</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DURATION=COMMIT PRIMAUTH=SHA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STATE = X STMTINFO=N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENDUSER =sha</td>
<td>WSNAMemesailler</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRANSAC=SYSKA501</td>
<td>PROGNAME=SYSKA501</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PLANNAME=DISTSERV CORRID =java</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DURATION=COMMIT PRIMAUTH=SHA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REQUEST =CHANGE WORTH = 17</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STATE = X STMTINFO=N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENDUSER =sha</td>
<td>WSNAMemesailler</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRANSAC=SYSKA501</td>
<td>PROGNAME=SYSKA501</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PLANNAME=DISTSERV CORRID =java</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DURATION=COMMIT PRIMAUTH=SHA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REQUEST =LOCK UNCONDITIONAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STATE = X IS</td>
<td>ZPARM INTERVAL = 30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DURATION=COMMIT</td>
<td>INTERV.COUNTER= 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HASH =X'00015F0F'</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STMTINFO=DYNAMIC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STMTID =X'000000000000A341'</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>----------- HOLDERS/WAITERS -----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LUW=DEIBMIPS.IPUAXZ32.C6215376BB44</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MEMBER =S232 CONNECT =BATCH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PLANNAME=DISTSERV CORRID =YULT3978</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DURATION=COMMIT PRIMAUTH=SHA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STATE = X STMTINFO=DYNAMIC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STMTID =X'000000000000A312'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Locking Activity - Trace

Timeout Trace:

The timeout trace shows when a timeout occurred and provides details of the resource involved in the timeout event and information about the threads that held the resource or waited to use the resource.

The following sections show the layout of event-specific information for a timeout trace and describe the fields reported. At the end of this topic you find an example of a timeout trace.

Trace Data Specific to Timeout Event: The details related to the timeout. The format of the timeout-specific data is shown in "Format of timeout-specific data."

Format of timeout-specific data

The following example shows details related to the timeout.

REQUEST =LOCK UNCONDITIONAL |
STATE =X IS | ZPARM INTERVAL = 30 |
DURATION=COMMIT | INTERV.COUNTER= 1 |
HASH =X'00015F0F' |
STMTINFO=DYNAMIC |
STMTID =X'000000000000A341' |
----------- HOLDERS/WAITERS ----------- |
HOLDER |
LUW=DEIBMIPS.IPUAXZ32.C6215376BB44 |
MEMBER =S232 CONNECT =BATCH |
PLANNAME=DISTSERV CORRID =YULT3978 |
DURATION=COMMIT PRIMAUTH=SHA |
STATE =X STMTINFO=DYNAMIC |
STMTID =X'000000000000A312' |

Field description

The individual fields have the following meaning:

REQUEST

The timeout request, consists of one of the following:

- LOCK
- CHANGE

Followed by the timeout attribute CONDITIONAL or UNCONDITIONAL.
STATE
The state or mode of the lock applied to the resource. Valid values are shown in Table 265 on page 3482.

ZPARM INTERVAL
The timeout interval (ZPARM value), which is the timeout value specified on the installation panel DSNTIPX or in the ZPARM name STORTIME in DSN6SYSP.

DURATION
The length of time for which the lock was held. Valid values are shown in Table 266.

<table>
<thead>
<tr>
<th>Duration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANUAL</td>
<td>Varies depending on the ISOLATION parameter</td>
</tr>
<tr>
<td>MANUAL+1</td>
<td>Temporary change of consistency level from CS to RR during bind and DDL</td>
</tr>
<tr>
<td>COMMIT</td>
<td>Until commit</td>
</tr>
<tr>
<td>COMMIT+1</td>
<td>Past commit; applies to locks needed to maintain the position for a cursor opened WITH HOLD</td>
</tr>
<tr>
<td>ALLOCATN</td>
<td>Until deallocation</td>
</tr>
<tr>
<td>PLAN</td>
<td>Lock held for the duration of the plan</td>
</tr>
<tr>
<td>UTILITY</td>
<td>For the duration of the utility execution</td>
</tr>
<tr>
<td>FREE ALL</td>
<td>Until all locks are freed</td>
</tr>
<tr>
<td>X'00'</td>
<td>The suspension reason is a retained lock</td>
</tr>
</tbody>
</table>

The DURATION attribute controls when locks are released. As a general rule, a lock is only released when an agent makes an unlock request with a duration longer than, or equal to, the longest lock duration specified for the resource by that agent.

You increase lock durations using either a lock request or a change request. Lock durations are decreased using a change request.

INTERV.COUNTER
The number of timeout intervals that can occur before the agent is timed out.

HASH
The lock resource hash value.

STMTINFO
The waiter’s statement information. Possible values are:

STATIC
The statement is of type static.

DYNAMIC
The statement is of type dynamic.

STMTID
The cached statement ID for the statement waiting for the resource. A value of zero indicates that the client did not supply this information.
Fields that are printed for each holder/waiter

The following fields are printed for each holder/waiter of the reported lock resource:

- **LUW**: The ID of the holder's or waiter's logical unit of work. If the reason for the suspension is a retained lock, this field contains the word SYSTEM.

- **MEMBER**: The holder's or waiter's DB2 member name. In a non-data-sharing environment, N/P is printed.

- **CONNECT**: The holder's or waiter's connection name. If the reason for the suspension is a retained lock, this field contains the word SYSTEM.

- **PLANNAME**: The holder's or waiter's plan name. If the reason for the suspension is a retained lock, this field contains the word SYSTEM.

- **CORRID**: The holder's or waiter's correlation identifier. If the reason for the suspension is a retained lock, this field contains the word SYSTEM.

- **DURATION**: The lock duration of the timeout holder or waiter. Valid values are shown in Table 266 on page 3487.

- **PRIMAUTH**: The primary authorization ID.

- **STATE**: The holder's or waiter's state or mode of the lock applied to the resource. Valid values are shown in Table 265 on page 3482.

- **STMTINFO**: The holder's statement information. Possible values are:
  - **STATIC**: The statement is of type static.
  - **DYNAMIC**: The statement is of type dynamic.

- **STMTID**: The cached statement ID for the statement holding the resource. A value of zero indicates that the client did not supply this information.

Timeout Trace Example: "Timeout trace example" shows a sample Timeout trace, produced by the following command:

```
: LOCKING TRACE (TIMEOUT)
```

Timeout trace example

This is a sample Timeout trace:

```
LOCATION: STLEC1
GROUP: N/P
MEMBER: N/P
SUBSYSTEM: VA1A
DB2 VERSION: V10
PRIMAUTH? CORRNAME? CONNTYPE
```

```
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) PAGE: 1-1
LOCKING TRACE - TIMEOUT REQUESTED FROM: NOT SPECIFIED
TO: NOT SPECIFIED
ACTUAL FROM: 06/04/15 00:15:44.20
SCOPE: MEMBER
PAGE DATE: 06/04/15
3488 IBM Db2 Performance Expert on z/OS
```
Lockout Trace:

The lockout trace contains details of timeout and deadlock events.

You generate it by using the following command:

```
LOCKING TRACE (LEVEL (LOCKOUT))
```

For information on the layout of a lockout trace, refer to "Deadlock Trace" on page 3480 and "Timeout Trace" on page 3486.

Lockout Trace

Here is an example of a lockout trace.

```
LOCATION: STLEC1
GROUP: N/P
SUBSYSTEM: VAIA
DB2 VERSION: V10
PRIMAUTH: SYSADM
CORRNAME: L829UTT2
INSTANCE: TSO
PLANNAME: DSNTEP3
CONNECT: BATCH
RELATED: CTKN=0000000000000000
TIMESTAMP: 00:15:44.20054922
EVENT: SKPT
REQUEST = LOCK
STATE = U
ZPARM INTERVAL= 60
DURATION-MANUAL INTERV.COUNTER= 1
CTKN=0000000000000000
HASH = 'X'00848402'
STMTINFO=Dynamic
STMTID = 'X'0000000000000000'

COLL(HEX)=
'X'112233445566778899001122334455667788'
PKID(HEX)=
'X'1122334455667788'

HOLDER
LUW=USIBMSY.SYEC1DB2.C448AF1E53C6
MEMBER = N/P
CONNECT = BATCH
PLANNAME=DSNTEP3
CORRID = L829UTT1
DURATION = COMMIT
PRIMAUTH = SYSADM
STATE = X
STMTINFO=Dynamic
STMTID = 'X'0000000000000000'
```

Lock Suspension Trace:

The lock suspension trace identifies applications that have been suspended after a lock was requested on a resource that is not available.
The trace shows an entry for the suspension of each of the following:

- An IRLM request (except when the resource type is a drain lock).
- An IRLM request where the resource type is a drain lock.
- A drain request where the claim count is not zero.

This suspension occurs when the agent making the drain request has to wait for the claim count on the particular resource to become zero.

- A page latch request.

This suspension occurs when the agent making the page latch request has to wait for a page that is currently being held by another agent.

The lock suspension trace is produced if level SUSPENSION is specified in the TRACE subcommand and if there is at least one pair of IFCIDs 44/45, 213/214, 215/216, or 226/227 in the input data set satisfying the FROM and TO, and INCLUDE or EXCLUDE criteria.

The following sections show the layout of a lock suspension trace and describe the various fields of the trace. At the end of this topic you find an example of a lock suspension trace.

**Lock Suspension Trace Example:**

This topic shows an example of a Lock Suspension trace.

Enter the following command to produce a Lock Suspension trace:

```
LOCKING TRACE (LEVEL (SUSPENSION))
```

**Lock Suspension trace example**

This is a sample layout of a Lock Suspension trace.

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>GROUP</th>
<th>MEMBER</th>
<th>SUBSYSTEM</th>
<th>DB2 VERSION</th>
<th>PRIMAUTH</th>
<th>CORRNAME</th>
<th>CONNTYPE</th>
<th>ORIGAUTH</th>
<th>CORRMBR</th>
<th>INSTANCE</th>
<th>PLANNAME</th>
<th>CONNECT</th>
<th>RELATED TIMESTAMP</th>
<th>EVENT TIMESTAMP</th>
<th>EVENT</th>
<th>TYPE</th>
<th>NAME</th>
<th>EVENT SPECIFIC DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMPDA21</td>
<td>N/P</td>
<td>N/P</td>
<td>DA21</td>
<td>V10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Lock Suspension Events - Lock, Unlock, Change, and Notify Suspend:**

This topic shows the format of data specific to Lock, Unlock, Change, and Notify Suspend for Lock Suspension events. It also describes the fields provided for this event.
Format of data specific to Lock, Unlock, Change, and Notify Suspend

This is the sample format for data specific to Lock, Unlock, Change, and Notify Suspend.

DURATION=xxxxxxxx
STATE=xxxxx
XES
PROP=x
ORIG.RSN=xxxxx
xxxxxxxxxx
XES
FORC=x
ASYN=x
PARENT=xxxxxxxx
HASH='x'hhhhhhhh'

Field description

DURATION
The length of time the lock is held. Valid values are shown in Table 267.

Table 267. Lock Duration - IRLM SUSPEND

<table>
<thead>
<tr>
<th>Duration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTEREST</td>
<td>Duration of P-Locks</td>
</tr>
<tr>
<td>MANUAL</td>
<td>Varies depending on the ISOLATION parameter</td>
</tr>
<tr>
<td>MANUAL+1</td>
<td>Temporary change of consistency level from CS to RR during bind and DDL</td>
</tr>
<tr>
<td>COMMIT</td>
<td>Until commit</td>
</tr>
<tr>
<td>COMMIT+1</td>
<td>Past commit; applies to locks needed to maintain the position for a cursor opened WITH HOLD</td>
</tr>
<tr>
<td>ALLOCATN</td>
<td>Until deallocation</td>
</tr>
<tr>
<td>PLAN</td>
<td>For the duration of the plan</td>
</tr>
<tr>
<td>UTILITY</td>
<td>For the duration of the utility execution</td>
</tr>
<tr>
<td>FREE ALL</td>
<td>Until all locks are freed</td>
</tr>
<tr>
<td>N/A</td>
<td>Not applicable to NOTIFY SUSPEND</td>
</tr>
</tbody>
</table>

STATE
The state or mode of the lock applied to the resource. Valid values are shown in Table 265 on page 3482.

ORIG.RSN
The original reason for the suspension. The task remains suspended until all suspension causes are cleared. Valid values are shown in Table 268.

Table 268. Reason for Suspension - IRLM SUSPEND

<table>
<thead>
<tr>
<th>Reason</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTER SYSTEM</td>
<td>Intersystem communication required to resolve the lock request</td>
</tr>
<tr>
<td>IQ</td>
<td>Queued IRLM request</td>
</tr>
<tr>
<td>LOCAL CONTENTION</td>
<td>Local resource contention</td>
</tr>
<tr>
<td>LATCH CONT GENERIC</td>
<td>Generic IRLM latch contention</td>
</tr>
<tr>
<td>LATCH CONT MAIN</td>
<td>Main IRLM latch contention</td>
</tr>
<tr>
<td>LATCH CONT NOTIFY</td>
<td>IRLM notify latch contention</td>
</tr>
<tr>
<td>LATCH CONT RESOURCE</td>
<td>IRLM resource latch contention</td>
</tr>
<tr>
<td>LATCH CONT WORKUNIT</td>
<td>IRLM work unit latch contention</td>
</tr>
<tr>
<td>LS</td>
<td>Local storage cannot be exceeded in cross-memory mode</td>
</tr>
<tr>
<td>NOTIFY MSG SENT</td>
<td>Intersystem message sending</td>
</tr>
</tbody>
</table>
Table 268. Reason for Suspension - IRLM SUSPEND (continued)

<table>
<thead>
<tr>
<th>Reason</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETAINED LOCK</td>
<td>Contention with a retained lock</td>
</tr>
</tbody>
</table>

**PARENT**

The parent token for explicit hierarchical locking.

**HASH**

The lock hash value.

The following fields are printed if both of the following conditions are satisfied:

- The OMEGAMON for Db2 PE subsystem is a member of a data sharing group.
- It is an IRLM suspension.

aaaaaaaaaaaaaaaaaaaaaaaaa

Stands for the lock attributes, which can be one or more of the following:

- MODIFY or NMODIFY
- GLOBAL or LOCAL
- P-LOCK or L-LOCK

**XES PROP**

An indicator whether or not IRLM propagated the request to XES. Possible values are Y(es) or N(o).

**XES FORC**

An indicator whether or not the lock was requested to be forced to XES. Possible values are Y(es) or N(o).

**XES ASYN**

An indicator whether or not IRLM sent the request asynchronously to XES. Possible values are Y(es) or N(o).

This field is only printed if XES PROP=Y.

**Lock Suspension Events - Lock, Unlock, Change, and Notify Resume:**

The format of the data for these events depends on whether these events occurred in a data sharing or non-data-sharing environment.

"Format of data specific to Lock, Unlock, Change, and Notify Resume (Data Sharing)" shows the format in a data sharing environment. "Format of data specific to Lock, Unlock, Change, and Notify Resume (Non-Data Sharing)" on page 3493 in a non-data-sharing environment.

**Format of data specific to Lock, Unlock, Change, and Notify Resume (Data Sharing)**

This is the sample format for data specific to Lock, Unlock, Change, and Notify Resume in a data sharing environment.
Format of data specific to Lock, Unlock, Change, and Notify Resume (Non-Data Sharing)

This is the sample format for data specific to Lock, Unlock, Change, and Notify Resume in a non-data-sharing environment.

SUSP.TIME = ss.nnnnnn
LOCAL CONTENTION = Y
RESUME RSN = xxxxxxxx
LATCH CONTENTION = Y*
IRLM QUEUED REQ = N

Description of individual fields

The individual fields have the following meaning:

**SUSP.TIME**
The duration of the suspension.

**DURATION**
The length of time the lock is held. For a list of possible values, refer to Table 267 on page 3491.

**STATE**
The state or mode of the lock applied to the resource. For a list of possible values, refer to Table 265 on page 3482.

**RESUME RSN**
The reason for resumption. Valid values are shown in Table 269.

### Table 269. Reason for Resume - IRLM Requests

<table>
<thead>
<tr>
<th>Reason</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMAL</td>
<td>The suspended task resumed normally when the resource became available.</td>
</tr>
<tr>
<td>DEADLOCK</td>
<td>The suspended task resumed after a deadlock.</td>
</tr>
<tr>
<td>TIMEOUT</td>
<td>The suspended task resumed when a preset time interval expired.</td>
</tr>
<tr>
<td>IDENTIFY</td>
<td>The suspended task is resumed after an identify call to IRLM.</td>
</tr>
</tbody>
</table>

**XES PROP**
An indicator whether or not IRLM propagated the request to XES. Possible values are Y(es) or N(o).

**XES FORC**
An indicator whether or not the lock was requested to be forced to XES. Possible values are Y(es) or N(o).

**XES ASYN**
An indicator whether or not IRLM sent the request asynchronously to XES. Possible values are Y(es) or N(o).

This field is only printed if XES PROP=Y.

X

Stands for the lock attributes. It can be one or more of the following:
- MODIFY or NMODIFY
- GLOBAL or LOCAL
- P-LOCK or L-LOCK

For example:
MODIFY GLOBAL L-LOCK

**PARENT**
The parent token for explicit hierarchical locking.

**HASH**
The lock hash value.

**Description of suspension fields**

A request can be suspended for several reasons. For example, the original reason may have been an IRLM latch contention, then the request may first have hit local contention and, after it was resolved, global level contention. The fields in the right block show whether or not a particular reason for suspension was encountered, which is indicated by Y(es) or N(o). The original reason is marked with an asterisk (*).

**LOCAL CONTENTION**
The local resource contention.

**LATCH CONTENTION**
The IRLM latch contention.

**IRLM QUEUED REQ**
The IRLM queued request. This request is only valid for IRLM suspensions.

**GLOBAL CONT.**
The global contention. Intersystem communication is required to resolve the lock request. This reason applies to data sharing environments only.

**NOTIFY MSG SENT**
Intersystem message sending. This reason only applies to data sharing environments and IFCID 44 suspensions.

Only applies if it is an IRLM suspension and the global contention is hit (GLOBAL CONT=Y). If these conditions are satisfied, it can be one of the following values:

**IRLM GLOBAL CONT**
The request hit IRLM global resource contention.

**XES GLOBAL CONT**
The request hit XES global resource contention.

**FALSE/SYNC-ASYNC**
This can be one of the following:

**FALSE CONT**
The request is a false contention (shown if QW0045W8 is ON)

**SYNC-TO-ASYNC CONV**
The request is a sync-to-async conversion (shown if QW0045W8 is OFF)

**RETAINED LOCK**
Indicates whether there was contention with a retained lock.
**Lock Suspension Events - Query Suspend:**

This topic shows the format of data specific to Query Suspend for Lock Suspension events. It also describes the fields provided for this event.

**Format of data specific to Query Suspend**

This is an example of the format of the data for this event.

```
ORIG.RSN=xxxxx xxxxxxxxx
```

**Field description**

This field shows the original reason for suspension. For a list of possible values, refer to [Table 268 on page 3491](#).

**Lock Suspension Events - Query Resume:**

This topic shows the format of data specific to Query Resume for Lock Suspension events. It also describes the fields provided for this event.

**Format of data specific to Query Resume**

The data specific to this event is derived from the IFCIDs 44/45 and 213/214. This is the format of the data for this event:

```
SUSP.TIME =s.nnnnnn LOCAL CONTENTION=Y
RESUME RSN=xxxxxxx LATCH CONTENTION=Y*
IRLM QUEUED REQ =N
RESUME RSN=xxxxxxx LATCH CONTENTION=Y*
IRLM QUEUED REQ =N
```

**Field description**

This field shows the original reason for suspension. For a list of possible values, refer to “Format of data specific to Lock, Unlock, Change, and Notify Resume (Data Sharing)” on page 3492.

**Lock Suspension Events - Drain Suspend:**

This topic shows the format of data specific to Drain Suspend for Lock Suspension events. It also describes the fields provided for this event.

**Format of data specific to Drain Suspend**

This is the format of the data for this event:

```
CLAIM NO=nnnnn CLASS=xxxxx
```

**Field description**

The individual fields have the following meaning:

**CLAIM NO**

The number of claims held on this resource.

**CLASS**

The claim class. Valid values are shown in [Table 270](#).

**Table 270. Claim Classes - DRAIN SUSPEND**

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>Cursor stability read</td>
</tr>
</tbody>
</table>
Locking Activity - Trace

Table 270. Claim Classes - DRAIN SUSPEND (continued)

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR</td>
<td>Repeatable read</td>
</tr>
<tr>
<td>WRITE</td>
<td>Write</td>
</tr>
</tbody>
</table>

Lock Suspension Events - Drain Resume:

This topic shows the format of data specific to Drain Resume for Lock Suspension events. It also describes the fields provided for this event.

The data specific to this event is derived from the IFCIDs 215 and 216. The format of the data for this event is shown in "Format of data specific to Drain Resume".

Format of data specific to Drain Resume

This is the format of the data for this event:

\[
\begin{align*}
\text{SUS.TIME} & = s.nnnnn \\
\text{CLASS} & = xxxxx \\
\text{RESM.RSN} & = xxxxxxxx \\
\text{CLAIM NO} & = nnnnn
\end{align*}
\]

Field description

The individual fields have the following meaning:

SUS.TIME
The duration of the suspension.

CLASS
The claim class. Valid values are shown in Table 270 on page 3495.

RESM.RSN
The reason for resumption. Valid values are shown in the following table.

Table 271. Reason for Resume - DRAIN RESUME

<table>
<thead>
<tr>
<th>Reason</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMAL</td>
<td>The suspended task resumed normally when the resource became available.</td>
</tr>
<tr>
<td>TIMEOUT</td>
<td>The suspended task resumed when a preset time interval expired.</td>
</tr>
</tbody>
</table>

CLAIM NO
The number of claims held on this resource.

Lock Suspension Events - Latch Suspend:

This topic shows the format of data specific to Latch Suspend for Lock Suspension events. It also describes the fields provided for this event.

Format of data specific to Latch Suspend

This is the format of the data for this event:

\[
\text{TYPE} = xxxxxxxx
\]
Field description

The field shown represents the type of the latch. It can have one of the following values:

Table 272. Latch Types - LATCH SUSPEND

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHARED</td>
<td>S latch</td>
</tr>
<tr>
<td>EXCLUSIVE</td>
<td>X latch</td>
</tr>
</tbody>
</table>

Lock Suspension Events - Latch Resume:

This topic shows the format of data specific to Latch Resume for Lock Suspension events. It also describes the fields provided for this event.

Format of data specific to Latch Resume

This is the format of the data for this event:

```plaintext
SUS.TIME=s.nnnnnn
TYPE=xxxxxxxxx
STATUS =xxxxxxxxx
```

Field description

The individual fields have the following meaning:

**SUS.TIME**

The duration of the suspension.

**TYPE**

The type of latch. Valid values are shown in Table 272.

**STATUS**

The latch status. It can have one of the following values:

Table 273. Latch Status - LATCH RESUME

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMAL</td>
<td>Normal completion of a page latch wait.</td>
<td></td>
</tr>
<tr>
<td>CANCELLED</td>
<td>The page latch wait was canceled before the latch was obtained. For example, the agent representing the latch was abnormally terminated during a page latch wait.</td>
<td></td>
</tr>
</tbody>
</table>

Lock Detail Trace Data:

The lock detail trace describes all locking events in a DB2 system. It includes those that can be viewed in suspension, timeout, or deadlock traces. This trace gives you a global view of the entire locking activity in the system.

You determine which locking events you want to see in a lock detail trace. You do this in the TRACE command by specifying the TYPE identifier in the INCLUDE and EXCLUDE options.

The lock detail trace is produced if level DETAIL is specified on the TRACE command and if there is at least one IFCID in the input data set that satisfies the FROM and TO, and INCLUDE or EXCLUDE criteria.
The following sections show the sample layout of a Lock Detail trace and describe the various fields of the trace.

Example of a Lock Detail Trace:

This topic shows an example of a Lock Detail trace.

`Lock Detail trace example` shows a sample Lock Detail trace, produced by the following command:

```
; LOCKING
 TRACING
   LEVEL (DETAIL)
 ;
```

Lock Detail trace example

This is the sample layout of a Lock Detail trace.

```
LOCATION: OMPDA21
GROUP: N/P
MEMBER: N/P
SUBSYSTEM: DA21
DB2 VERSION: 10

EVENT  TIMESTAMP  TYPE  NAME  DATA
---  --------  ----  ------  --------
19:45:53.99629213  LOCK  SKPT  DURATION=COMMIT

LOCKING TRACE COMPLETE
```

Locking Activity - Trace

Lock Detail Trace - Lock Summary:

This section shows the event specific data for Lock Summary.

The format of Lock Summary data

The following sample shows the format of the data for this event.

```
MAX PAGE & ROW LOCKS= 11  LOCKAV=YES
SHARED ESCAL= 0  EXCLUS. ESCAL= 0
MAX PAGE & ROW LOCKS= 1  LOCKAV=NO
TABLESPACE TYPE=UNSEGMENTED  SIZE=PAGE
TABLES WITH ESCALATIONS=XXXXXX
MAX STATE=XXXXX  PRE-ESCAL. STATE=XXXXX
```

Field description

The individual fields have the following meaning:

**MAX PAGE & ROW LOCKS**

The maximum number of page or row locks across all table spaces held concurrently for the thread.

If IFCID 020 is not present, N/A is printed in this field.

**LOCKAV**

Indicates if lock avoidance techniques are used within this unit of work across all table spaces. Possible values are Y(es) or N(0).

If IFCID 218 is not present, N/A is printed in this field.
SHARED ESCAL
The number of escalations to shared mode for the thread:
- For segmented table spaces, the number of tables that have escalated
- For partitioned table spaces using selective partition locking (SPL), the number of partitions that have escalated
- For simple and partitioned table spaces, the number of table spaces that have escalated

If IFCID 020 is not present, N/A is printed in this field.

EXCLUS.ESCAL
The number of escalations to exclusive mode for the thread:
- For segmented table spaces, the number of tables that have escalated
- For partitioned table spaces using selective partition locking (SPL), the number of partitions that have escalated
- For simple and partitioned table spaces, the number of table spaces that have escalated

If IFCID 020 is not present, N/A is printed in this field.

Fields that are printed once for each table space

The following fields are printed once for each table space:

MAX PAGE & ROW LOCKS
The maximum number of page or row locks per table space held concurrently by the thread.
If IFCID 020 is not present, N/A is printed in this field.

LOCKAV
Indicates if lock avoidance techniques are used for this table space. Possible values are Y(es) or N(o).
If IFCID 218 is not present, N/A is printed in this field.

TABLE SPACE TYPE
The table space type:

SIMPLE
Simple table spaces

SEGMENTED
Segmented table spaces

PARTITIONED
Partitioned table spaces

PARTIT.-SPL
Partitioned table spaces using selective partition locking (SPL)

If IFCID 020 is not present, the table space type is not printed.

SIZE
The lock size used, which can be one of the following:
- PAGE
- ROW
- TABLE
TABLES WITH ESCALATIONS
The number of tables within the table space for which escalations occurred. This field is only printed for segmented table spaces or partitioned table spaces using SPL.

If IFCID 020 is not present, N/A is printed in this field.

MAX STATE
The highest lock state for the table space. This field is only printed for simple table spaces or partitioned table spaces not using SPL.

If IFCID 020 is not present, N/A is printed in this field.

Possible values are shown in Table 274.

Table 274. Lock State

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS</td>
<td>Intent share</td>
</tr>
<tr>
<td>IX</td>
<td>Intent exclusive</td>
</tr>
<tr>
<td>S</td>
<td>Share</td>
</tr>
<tr>
<td>U</td>
<td>Update</td>
</tr>
<tr>
<td>SIX</td>
<td>Share with intent exclusive</td>
</tr>
</tbody>
</table>

PRE-ESCAL. STATE
The lock state before escalations. A list of values is shown in Table 274. If no escalation occurred, NO ESCALATIONS is printed.

This field is only printed for simple table spaces or partitioned table spaces not using SPL.

If IFCID 020 is not present, N/P is printed.

Lock Detail Trace - Lock, Unlock, and Change Requests:

This section shows the event specific data for Lock, Unlock, and Change Requests.

Format of Lock, Unlock, and Change Requests

The following sample shows the format of the data for these events.

DURATION=xxxxxxxx STATE=xxxxx XES PROP=x
RSN CODE=xxxxxxx RTNCD=xx XES FORC=x
aaaaaaaaaaaaaaaa xEX ASYN=x
PARENT =xxxxxxx CACHE=xxx
OWNER =xxxxxxx HASH=x 'hhhhhhhh'

Field description

The individual fields have the following meaning:

DURATION
The length of time the lock is held. Valid values are shown in Table 275.

Table 275. Lock Duration-IRLM Requests

<table>
<thead>
<tr>
<th>Duration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTEREST</td>
<td>Duration used for P-Locks</td>
</tr>
<tr>
<td>MANUAL</td>
<td>Varies depending on the ISOLATION parameter</td>
</tr>
<tr>
<td>MANUAL+1</td>
<td>Temporary change of consistency level from CS to RR during bind and DDL</td>
</tr>
</tbody>
</table>
The duration controls when locks are released. A lock is usually only released when an agent makes an unlock request with a duration longer, or equal to, the longest lock duration the agent specified for the resource.

You can increase lock durations using either a lock request or a change request.

STATE

The state or mode of the lock applied to the resource. Valid values are shown in Table 276.

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS</td>
<td>Intent share</td>
</tr>
<tr>
<td>IX</td>
<td>Intent exclusive</td>
</tr>
<tr>
<td>S</td>
<td>Share</td>
</tr>
<tr>
<td>U</td>
<td>Update</td>
</tr>
<tr>
<td>SIX</td>
<td>Share with intent exclusive</td>
</tr>
<tr>
<td>NSU</td>
<td>Nonshared update</td>
</tr>
<tr>
<td>X</td>
<td>Exclusive</td>
</tr>
<tr>
<td>N/A</td>
<td>Not applicable for NOTIFY SUSPEND</td>
</tr>
</tbody>
</table>

RTNCD

The return code issued in response to the request. The possible return codes are shown in Table 277.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Successful completion</td>
</tr>
<tr>
<td>4</td>
<td>Successful completion, lock state unchanged</td>
</tr>
<tr>
<td>8</td>
<td>Unsuccessful completion, system error</td>
</tr>
<tr>
<td>12</td>
<td>Unsuccessful completion, logic error in request</td>
</tr>
<tr>
<td>16</td>
<td>Unsuccessful completion, request specification not valid</td>
</tr>
</tbody>
</table>

RSN CODE

The reason code issued in response to the request. The reason code is not applicable for lock avoidance.
Locking Activity - Trace

Fields that are only printed if the DB2 subsystem is a member of a data sharing group

The remaining fields are only printed if the DB2 subsystem is a member of a data sharing group.

aaaaaaaaaaaaaaaaaaaaa

Stands for the lock attributes, which can be:

- MODIY or NMODIFY
- GLOBAL or LOCAL
- P-LOCK or L-LOCK

**PARENT**

The parent lock token if one was specified for explicit hierarchical locking. The field is only printed for LOCK REQUESTs.

If this field is not 0, the request applies to a child of a parent that has already been locked.

**CACHE**

The cached state of a P-Lock. For the state values, refer to Table 276 on page 3501.

This field is only applicable and printed for page set and partition P-Locks.

**OWNER**

The member name of the owner of a retained lock that caused this request to be denied and the owner of the lock that caused this request to time out. If neither of these conditions exist, this field is not printed.

**HASH**

The lock hash value.

**XES PROP**

An indicator whether or not IRLM propagated the request to XES. Possible values are Y(es) or N(o).

**XES FORC**

An indicator whether or not the lock was requested to be forced to XES. Possible values are Y(es) or N(o).

**XES ASYN**

An indicator whether or not IRLM sent the request asynchronously to XES. Possible values are Y(es) or N(o).

This field is only printed if XES PROP=Y.

**Lock Detail - Query Requests:**

This section shows the event specific data for Query Requests.

**Format of Query Requests**

This is an example of the format of the data for this event.

<table>
<thead>
<tr>
<th>RSN CODE</th>
<th>RTNCD</th>
</tr>
</thead>
</table>

For an explanation of the individual fields refer to Table 277 on page 3501

**Lock Detail - Claim Acquire, Change, and Release:**

This section shows the event specific data for Claim Acquire, Change, and Release.
Format of Claim Acquire, Change, and Release

This is an example of the format of the data for this event.

DURATION=xxxxxxxxx  CLASS=xxxxxx  RSN CODE=xxxxxxxx  RTNCD=x

Field description

The individual fields have the following meaning:

**DURATION**

The duration of the claim. The values for this field are shown in **Table 278**.

<table>
<thead>
<tr>
<th>Duration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMIT</td>
<td>Until commit</td>
</tr>
<tr>
<td>COMMIT+1</td>
<td>Past commit; applies to locks needed to maintain the position for a cursor opened WITH HOLD</td>
</tr>
<tr>
<td>ALLOCATN</td>
<td>Until deallocation</td>
</tr>
</tbody>
</table>

**CLASS**

The claim class of the claim request. The values for this field are shown in **Table 279**.

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>Cursor stability read</td>
</tr>
<tr>
<td>RR</td>
<td>Repeatable read</td>
</tr>
<tr>
<td>WRITE</td>
<td>Write</td>
</tr>
</tbody>
</table>

**RSN CODE**

The reason code issued in response to the request. The values for this field are shown in **Table 280**.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Successful claim</td>
</tr>
<tr>
<td>00C90080</td>
<td>Unsuccessful claim, resource is started</td>
</tr>
<tr>
<td>00C90081</td>
<td>Unsuccessful claim, resource is stopped</td>
</tr>
<tr>
<td>00C90082</td>
<td>Unsuccessful claim, resource is used by a utility</td>
</tr>
<tr>
<td>00C90083</td>
<td>Unsuccessful claim, resource is used by a utility that allows R/O access only</td>
</tr>
<tr>
<td>00C90086</td>
<td>Unsuccessful claim, resource is started for utility-only access</td>
</tr>
<tr>
<td>00C90088</td>
<td>Unsuccessful claim, deadlock</td>
</tr>
<tr>
<td>00C9008E</td>
<td>Unsuccessful claim, timeout on drain lock</td>
</tr>
<tr>
<td>00C90092</td>
<td>Unsuccessful claim, IRLM out-of-storage condition</td>
</tr>
<tr>
<td>00C90093</td>
<td>Unsuccessful claim, IRLM error</td>
</tr>
<tr>
<td>00C90097</td>
<td>Unsuccessful claim, resource has an image copy pending</td>
</tr>
<tr>
<td>00C900A0</td>
<td>Unsuccessful claim, resource has recovery pending</td>
</tr>
<tr>
<td>00C900A3</td>
<td>Unsuccessful claim, resource has a check pending</td>
</tr>
</tbody>
</table>
Locking Activity - Trace

RTNCD

The return code issued in response to the request. The values for this field are shown in Table 281.

Table 281. Return Codes-Claim Requests

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Successful completion</td>
</tr>
<tr>
<td>4</td>
<td>Logical claim needed</td>
</tr>
<tr>
<td>8</td>
<td>Unsuccessful completion</td>
</tr>
</tbody>
</table>

Lock Detail - Drain Request, Pseudo, and Release:

This section shows the event specific data for Drain Request, Pseudo, and Release.

Format of Drain Request, Pseudo, and Release

This is an example of the format of the data for this event.

```
STATE = xxxxx
CLASS = xxxxx
RSN CODE = xxxxxxxxx
RTNCD = x
```

Field description

The individual fields have the following meaning:

STATE

The lock state. It is only applicable to DRAIN REQUEST. Possible values are shown in Table 282.

Table 282. Lock State-Drain Requests

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IX</td>
<td>Intent exclusive</td>
</tr>
<tr>
<td>X</td>
<td>Exclusive</td>
</tr>
</tbody>
</table>

CLASS

The claim class of the drain request. The values for this field are shown in Table 283.

Table 283. Claim Classes-Drain Requests

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>Cursor stability read</td>
</tr>
<tr>
<td>RR</td>
<td>Repeatable read</td>
</tr>
<tr>
<td>WRITE</td>
<td>Write</td>
</tr>
</tbody>
</table>

RSN CODE

The reason code issued in response to the request. The values for this field are shown in Table 284.

Table 284. Reason Codes-Drain Requests

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Successful claim</td>
</tr>
<tr>
<td>00C90088</td>
<td>Unsuccessful claim, deadlock</td>
</tr>
</tbody>
</table>
Table 284. Reason Codes-Drain Requests (continued)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00C9008E</td>
<td>Unsuccessful claim, timeout</td>
</tr>
<tr>
<td>00C90092</td>
<td>Unsuccessful claim, IRLM out-of-storage condition</td>
</tr>
<tr>
<td>00C90093</td>
<td>Unsuccessful claim, IRLM error</td>
</tr>
</tbody>
</table>

RTNCD
The return code issued in response to the request. The values for this field are shown in [Table 285].

Table 285. Return Codes-Drain Requests

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Successful completion</td>
</tr>
<tr>
<td>8</td>
<td>Unsuccessful completion</td>
</tr>
</tbody>
</table>

Lock Detail - Lock Avoidance:
This section shows the event specific data for Lock Avoidance.
This event does not have event-specific data.

Lock Detail - P-Lock Requests:
This section shows the event specific data for P-Lock requests.
P-Lock requests include the following events:
- **Page set or partition P-Lock request or page set or partition P-Lock negotiation request**
  These P-Locks track inter-DB2 interest on a linear page set (table space or index) or a partition of a partitioned page set.
  The cached state of the page set or partition P-Lock tells DB2 which data sharing protocols must be used to maintain inter-DB2 buffer coherency for the page set or partition. For example, a cached state of IS tells DB2 that whenever a page belonging to that page set or partition is read into the buffer pool, the page must be registered to the coupling facility for cross-invalidation purposes. If the cached state were SIX, the coupling facility page registration would not be necessary.
  Normally the P-Lock is held by DB2 in the cached state. The P-Lock state determines whether or not the page set or partition is GBP-dependent:
  - If the page set or partition P-Lock is held in S or X, then the page set or partition is not GBP-dependent.
  - Otherwise, the page set or partition is GBP-dependent.

- **Page P-Lock request or page P-Lock negotiation request**
  These P-Locks preserve the inter-DB2 cached page (buffer) coherency when row level locking is used and the page set or partition is actively R/W shared between two or more DB2 systems. The most common cases of subpage concurrency are row-level locking.

**Note:** Page P-Locking can add a significant overhead to data sharing if inter-DB2 workloads are not properly balanced. Class 21 is added to monitor these events.
without having to use the costly Class 7. However, page P-Lock events are recorded in Class 7 as well. Therefore, if Class 7 and 21 are both active, two records are reported for the same event.

The format of the data for these events is shown in “Format of Page Set or Partition P-Lock Requests” and “Format of Page P-Lock Requests.”

**Format of Page Set or Partition P-Lock Requests**

The following example shows the format of the data for this event.

REQUEST=xxxxxx OBJECT=xxxxxxxxxxx
MEMBER =xxxxxxxx REQUESTED STATE =xxxxx
OLD STATE=xxxxx OLD CACHED STATE=xxxxx
NEW STATE=xxxxx NEW CACHED STATE=xxxxx

Field description

Here is a description of the field labels shown in the previous examples:

**REQUEST**
The IRLM request type, which can be one of the following:
• LOCK
• UNLOCK
• CHANGE
• EXIT

**OBJECT**
The DB2 object type, which can be one of the following:
• TABLESPACE
• INDEXSPACE
• DATA PAGE
• HEADER PAGE
• INDEX PAGE
• SPACE MAP PAGE

**MEMBER**
A DB2 member name that depends on the request type:
• For exit requests, the name of the DB2 member in conflict with this member’s currently held P-Lock state.
• For lock, unlock, and change requests, for which P-Lock is rejected, the name of the DB2 member in conflict with this request.

**REQUESTED STATE**
The requested lock state. It only applies to lock, change, and exit requests.
For exit requests, this is the P-Lock state requested by the member causing the P-Lock exit of this member. If the request from the other member was not in conflict with the state of this member, this field shows NH.

The values for this field are shown in Table 286.

**Table 286. Lock State**

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH</td>
<td>Not held</td>
</tr>
<tr>
<td>IS</td>
<td>This DB2 has R/O interest on the page set or partition and one or more other DB2s in the group have R/W interest</td>
</tr>
<tr>
<td>IX</td>
<td>This DB2 has R/W interest on the page set or partition, one or more other DB2s in the group have R/O interest, and one or more can also have R/O interest</td>
</tr>
<tr>
<td>S</td>
<td>This DB2 has R/O interest on the page set or partition and no other DB2 in the group has R/W interest but one or more can have R/O interest</td>
</tr>
<tr>
<td>SIX</td>
<td>This DB2 has R/W interest on the page set or partition and no other DB2 in the group has R/W interest but one or more can have R/O interest</td>
</tr>
<tr>
<td>NSU</td>
<td>Nonshared update</td>
</tr>
<tr>
<td>X</td>
<td>This DB2 has R/W interest on the page set or partition and no other DB2 in the group has any interest</td>
</tr>
<tr>
<td>RD</td>
<td>Request denied</td>
</tr>
</tbody>
</table>

**OLD STATE**

The previously held P-Lock state.

The values for this field are shown in Table 286.

**NEW STATE**

The newly held P-Lock state.

The values for this field are shown in Table 286.

**OLD CACHED STATE**

The previous P-Lock cached state.

The values for this field are shown in Table 286.

**NEW CACHED STATE**

The new P-Lock cached state.

The values for this field are shown in Table 286.

Stands for the P-Lock attributes, which can be one or more of the following:

- UNCONDITIONAL or CONDITIONAL.
- RESTART or NONRESTART. Such a request instructs IRLM to convert a retained lock held by the DB2 system into an active lock. If the requested lock is not retained, IRLM grants the request as normal.
- MODIFY or NONMODIFY.

**Lock Detail - Notify Request:**

This section shows the event specific data for Notify request.
In some cases, DB2 data sharing uses the IRLM notify request to maintain non-buffer pool cache coherency between DB2 systems in the group. Examples of a notify request usage are DBD coherency and High Used RBA (HURBA) for a data set.

**Format of Data Specific to NOTIFY REQUEST**

This is an example of the format of the data for this event.

```
TYPE=xxxxxxxx  STATE=xxxx
WAIT=xxx      HOLDERS=xxxx
```

**Field description**

Here is a description of the field labels shown in the previous example:

**TYPE**  The type of notify operation. Possible values are SEND or RECEIVE.

**STATE**  The lock state. For a list of possible values, refer to [Table 276 on page 3501](#).

If this field contains one of the listed values, only those lock holders owning the lock in the specified state are notified.

**WAIT**  Indicates if the request is synchronous, that is, suspended until all responses are received, in which case WAIT=YES is printed, or asynchronous, that is, WAIT=NO.

**HOLDERS**  The number of holders notified.

This field is not applicable or printed if TYPE=RECEIVE.

**Lock Detail - Lock Escalation:**

This section shows the event specific data for Lock Escalation.

This trace shows details of a lock escalation. It is shown when data from IFCID 337 is present in the input data.

**Format of the Lock Escalation**

This sample shows the format of the data specific to Lock Escalation.

```
STATE =IS  NUMLOCKS= 815
STMTNO = 4711
STMTINFO=XXXXXXXXXXXXXXXXX
STMTID =X’XXXXXXXXXXXXXXXX’
COLLID =COLLECTIONXXXXXXXXX2XXXXXXXXX3
XXXXXXXXXXXXXXXXXXX5XXXXXXXXX6
XXXXXXXXXXXXXXX8XXXXXXXXX9
XXXXXXXXXXX0XXXXXXXXXX1XXXXXXXXX2
XXXXXXXXXZ
PACKAGE =PACKAGEXX1XXXXXXXXX2XXXXXXXXX3
XXXXXXXXXXXXXXXXXXX5XXXXXXXXX6
XXXXXXXXXXXXXXX8XXXXXXXXX9
XXXXXXXXXXX0XXXXXXXXXX1XXXXXXXXX2
XXXXXXXXXZ
```
Field description

**STATE**

The state or mode of the lock applied to the resource. Valid values are shown in Table 287.

<table>
<thead>
<tr>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS</td>
<td>Intent share</td>
</tr>
<tr>
<td>IX</td>
<td>Intent exclusive</td>
</tr>
<tr>
<td>S</td>
<td>Share</td>
</tr>
<tr>
<td>U</td>
<td>Update</td>
</tr>
<tr>
<td>SIX</td>
<td>Shared intent exclusive</td>
</tr>
<tr>
<td>X</td>
<td>Exclusive</td>
</tr>
</tbody>
</table>

**NUMLOCKS**

Number of held lower level locks that were released by escalation.

**STMTNO**

Statement number.

**STMTINFO**

The waiter statement information. Possible values are:

**STATIC**

The statement is of type static

**DYNAMIC**

The statement is of type dynamic.

**NONE**

No statement ID, no type.

**STMTID**

The waiter statement ID.

**COLLID**

Collection ID.

**PACKAGE**

Package name.

**The Locking File Data Set**

The locking file data set creates a sequential data set of formatted DB2 locking detail records that can be loaded into the OMEGAMON for Db2 PE performance database using the DB2 load utility.

Use the performance database to produce tailored reports using a reporting facility such as Query Management Facility (QMF).

The locking file data set contains a record for each occurrence of the following events:

- A LOCK, UNLOCK, CHANGE, or QUERY request processed by DB2
- A request to acquire a claim, change a claim duration, or release a claim
- A request to release a drain on a claim class
- Whenever lock avoidance is successful
The output of the FILE command is a sequential variable blocked data set.

The content of the output data set is determined by the FILE command options you specify, and by the input SMF/GTF records processed.

Descriptions of the layouts of these records can be found in the RKO2SAMP library. The member name is DGOLDNFL.

Note: For an introduction to the Locking report set and general locking information refer to the Reporting User’s Guide.

Record Trace Report Set

These topics provide information about the record trace reports.

Note: For an introduction to the Record Trace report set and general Record Trace information refer to the Reporting User’s Guide. It also provides information on input to Record Trace reports.

Record Headers

Records written in a record trace report are prefixed by a header. The header is rewritten if any of the header information changes.

Field description

The following information is reported in the trace header:

PRIMAUTH
The authorization ID under which the transaction is running. Derived from the DB2 field QWHCAID.

ORIGAUTH
The original authorization ID under which the transaction started. Derived from the DB2 field QWHCOPID.

PLANNNAME
The DB2 plan name. Derived from the DB2 field QWHCPNL.

CONNECT
The connection ID. Derived from the DB2 field QWHCCN.

CORRNAME
The correlation name. Derived from the DB2 field QWHCCV.

CORRNMBR
The correlation number. Derived from the DB2 field QWHSLUUV.

CONNTYPE
The type of connection being used to interface with DB2. Derived from the DB2 field QWHATYP.
END_USER
User ID of the workstation end user. Derived from the DB2 field QWHCEUID.

RECORD TIME
The timestamp contained in the trace record. The format is hours, minutes, seconds, and hundred-millionths of a second. Derived from the DB2 field QWHSSTCK.

TCB CPU TIME
The CPU time stored in the trace record. The format is minutes, seconds, and hundred-millionths of a second. Derived from the DB2 field QWHUCPU.

WS_NAME
Name of the workstation. Derived from the DB2 field QWHCEUWN.

DEST SEQ NO
The destination sequence number. Derived from the DB2 field QWHSWSEQ.

ACE
The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified. Derived from the DB2 field QWHSACE.

IFCID
The instrumentation facility component identification (DB2 trace record type). Derived from the DB2 field QWHSIID.

DESCRIPTION
A brief description of the IFCID record. The description indicates whether the record contains accounting, statistics, or performance data. For performance data, the description also indicates the event.

TRANSACT
Name of the workstation transaction. Derived from the DB2 field QWHCEUTX.

DATA
The data is printed in the standard hexadecimal dump format. The character format is on the right.

The Summary Record Trace
The summary record trace lists all records in the same sequence as an input data set.

You can use this listing to check which records are in the DB2 instrumentation trace data. The short trace and long traces are normally too bulky for this purpose.

The summary record trace can be used with all the selection options such as INCLUDE and EXCLUDE.

The following command produces the summary record trace shown in “Example of the Summary Record Trace.”

;RECTRACE
TRACE
FROM (,17:38:00)
TO (,17:40:00)
LEVEL (SUMMARY)
;

Example of the Summary Record Trace
Here is an example of a Summary record trace.
### ACE Cross-Reference Table:

For every trace specified, an ACE cross-reference table is printed for each location.

The columns of the ACE cross-reference table are:

<table>
<thead>
<tr>
<th>Number</th>
<th>Address</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x'05831CBF8'</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>x'0583C3EB8'</td>
<td></td>
</tr>
</tbody>
</table>

**Records:**

**LOCATION:** STLC1

**GROUP:** ONSCAT

**SUBSYSTEM:** V71A

**DB2 VERSION:** V10

---

**SUBSYSTEM:** DSNTEP3

**LOCATION:** T1240108 T50

**TRANSACTION:** BLANK

**DESCRIPTION:**

```
00655954
006314593
006314594
006314595
006314596
006314597
006314598
006314599
006314600
006314601
006314602
006314603
006314604
006314605
006314606
006314607
006314608
006314609
006314610
006314611
006314612
006314613
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006314696
006314697
006314698
006314699
0063146A0
0063146A1
0063146A2
0063146A3
0063146A4
0063146A5
0063146A6
0063146A7
0063146A8
0063146A9
0063146AA
0063146AB
0063146AC
0063146AD
0063146AE
0063146AF
0063146B0
0063146B1
0063146B2
0063146B3
0063146B4
0063146B5
0063146B6
0063146B7
0063146B8
0063146B9
0063146BA
0063146BB
0063146BC
0063146BD
0063146BE
0063146BF
0063146C0
0063146C1
0063146C2
0063146C3
0063146C4
0063146C5
0063146C6
0063146C7
0063146C8
0063146C9
0063146CA
0063146CB
0063146CC
0063146CD
0063146CE
0063146CF
0063146D0
0063146D1
0063146D2
0063146D3
0063146D4
0063146D5
0063146D6
0063146D7
0063146D8
0063146D9
0063146DA
0063146DB
0063146DC
0063146DD
0063146DE
0063146DF
0063146E0
0063146E1
0063146E2
0063146E3
0063146E4
0063146E5
0063146E6
0063146E7
0063146E8
0063146E9
0063146EA
0063146EB
0063146EC
0063146ED
0063146EE
0063146EF
0063146F0
0063146F1
0063146F2
0063146F3
0063146F4
0063146F5
0063146F6
0063146F7
0063146F8
0063146F9
0063146FA
0063146FB
0063146FC
0063146FD
0063146FE
0063146FF
```
ACE NUMBER
The cross-reference number for the hexadecimal address of the agent control element. The lowest valid cross-reference number is 1. 0 indicates that the ACE address is not available.

ACE ADDRESS
The hexadecimal address of the agent control element. Derived from the DB2 field QWHSACE.

Data Fields:
This topic describes the general format of the IFCID records presented in the summary record trace.

The records are presented in the requested sequence. There is one entry on the report for each record selected from the input data set, so the report can show more than one record of the same IFCID record type. Use the RECORD TIME field on the report to distinguish between records with the same IFCID record type.

Note:
1. An arrow (-->) pointing to the right on the trace indicates the beginning of an event.
2. An arrow (<--) pointing to the left on the trace indicates the end of an event.

Logical Unit of Work Identifiers:
The logical unit of work identifiers are shown in the DATA column in front of the formatted data.

NETWORKID: APCNET  LUNAME: SYDAPC4  LUWSEQ: 1

Field description

NETWORKID
The network ID.

LUNAME
The name of the logical unit.

LUWSEQ
The sequence number of the logical unit of work.

DDF Data:
DDF data is only printed if there is a DDF header.

The following is printed in the DATA column after the formatted record:

REQUESTING LOCATION: USIBMSYSTDB2
REQUESTING TIMESTAMP: 01/30/14 18:54:53.90330718
AR NAME: USIBMSYSTDB2  PRDID: DB2 11  M0

Field description
Here is a description of the field labels shown in the previous example:

REQUESTING LOCATION
The location requesting the work.

REQUESTING TIMESTAMP
The timestamp of the requester location.
AR NAME
The name of the application requester.

PRDID
The name, version, release, and modification level of the product making the request.

Accounting Token:

All record trace reports show the value (in hexadecimal) of the accounting token in the DATA column when it contains a value other than blanks or binary zeros.

The Accounting token is used to correlate CICS records with DB2 records for the same task. If TOKENI=YES for TYPE=INIT, TOKENE=YES for TYPE=ENTRY, or both applies, in the resource control table, then the CICS logical unit of work ID (LUWID) minus the commit count (2 bytes) is passed to this field.

The first 8 bytes contain the network name, and the following 8 bytes contain the LU name. The final 6 bytes are the unique value.

ACCTKN X'00000000000000000000000000000000000000000000000'

The Short and Long Record Traces
The short and long record traces are similar. The short record trace reports non-serviceability data from records which are used by other subcomponents of the batch component. Serviceability records and fields are not printed on the short record trace. Only the occurrence of large records such as statistics, accounting, and system parameters is shown.

The long record trace reports all instrumentation facility records including Statistics, Accounting, and Performance records. The DB2 field names of serviceability fields are printed, as well as the occurrence of the serviceability records.

Depending on the record layout, the records are presented in either the DATA column or the full width of the report page.

If there is no data present for an IFCID, NO DATA is printed. If any unexpected data is found, it is printed in dump format. The dump format is also used for IFCID 0.

The Short Record Trace:

The short record trace lists selected records from an input data set. It selects and formats nonserviceability data from the user-selected records that appear on other OMEGamon for Db2 PE reports.

Use the short record trace to access the DB2 nonserviceability data used by OMEGamon for Db2 PE, and to access data not presented in other reports.

Some long records (for example, system statistics) are ignored by the short record trace and some records are shown in abbreviated form.

The short record trace can be used with all the selection options such as INCLUDE and EXCLUDE.

The following command produces the short record trace example shown in "Example of the Short Record Trace" on page 3515.
### Example of the Short Record Trace

This is an example of a short record trace produced by the previous command:

```plaintext
LOCATION: PMODBE1 OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) PAGE: 1-1 REQUESTED FROM: ALL 21:54:00.00 TO: DATES 21:56:00.00 ACTUAL FROM: 07/15/15 21:54:00.11 PAGE DATE: 07/15/15
GROUP: DBE1 RECORD TRACE - SHORT REQUESTED FROM: ALL 21:54:00.00 TO: DATES 21:56:00.00 ACTUAL FROM: 07/15/15 21:54:00.11 PAGE DATE: 07/15/15

MEMBER: SE11 DATES 21:56:00.00
SUBSYSTEM: SE11

<table>
<thead>
<tr>
<th>LOCATION:</th>
<th>PMODBE1</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP:</td>
<td>DBE1</td>
</tr>
<tr>
<td>MEMBER:</td>
<td>SE11</td>
</tr>
<tr>
<td>SUBSYSTEM:</td>
<td>SE11</td>
</tr>
<tr>
<td>DB2 VERSION:</td>
<td>V11</td>
</tr>
</tbody>
</table>

**Example of the Long Record Trace**

The long record trace lists selected records from an input data set. It lists and formats all data from user-selected records.

Use the long record trace to produce a formatted report of all data in the selected trace records.

The long record trace can be used with all the selection options such as INCLUDE and EXCLUDE.

**Note:** A long record trace can show a great amount of data. Consider limiting the size of the report with the INCLUDE, EXCLUDE, FROM, and TO options of the TRACE subcommand.

The following command produces the long record trace example in "Example of a Long Record Trace."

```plaintext
... RECTRACE TRACE FROM (21:54:00) TO (21:56:00) LEVEL(LONG) ...
```

### The Long Record Trace:

The long record trace lists selected records from an input data set. It lists and formats all data from user-selected records.

Use the long record trace to produce a formatted report of all data in the selected trace records.

The long record trace can be used with all the selection options such as INCLUDE and EXCLUDE.

**Note:** A long record trace can show a great amount of data. Consider limiting the size of the report with the INCLUDE, EXCLUDE, FROM, and TO options of the TRACE subcommand.

The following command produces the long record trace example in "Example of a Long Record Trace."

```plaintext
... RECTRACE TRACE FROM (21:54:00) TO (21:56:00) LEVEL(LONG) ...
```

### Example of a Long Record Trace

This is an example of a long record trace produced by the previous command:

```plaintext
LOCATION: PMODBE1 OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) PAGE: 1-1 REQUESTED FROM: ALL 21:54:00.00 TO: DATES 21:56:00.00 ACTUAL FROM: 07/15/15 21:54:00.11 PAGE DATE: 07/15/15
GROUP: DBE1 RECORD TRACE - LONG REQUESTED FROM: ALL 21:54:00.00 TO: DATES 21:56:00.00 ACTUAL FROM: 07/15/15 21:54:00.11 PAGE DATE: 07/15/15
MEMBER: SE11 DATES 21:56:00.00
SUBSYSTEM: SE11
```

---

### Record Trace

*: RECTRACE TRACE FROM (21:54:00) TO (21:56:00) :

### Example of the Short Record Trace

This is an example of a short record trace produced by the previous command:

```
LOCATION: PMODBE1 OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) PAGE: 1-1 REQUESTED FROM: ALL 21:54:00.00 TO: DATES 21:56:00.00 ACTUAL FROM: 07/15/15 21:54:00.11 PAGE DATE: 07/15/15
GROUP: DBE1 RECORD TRACE - SHORT REQUESTED FROM: ALL 21:54:00.00 TO: DATES 21:56:00.00 ACTUAL FROM: 07/15/15 21:54:00.11 PAGE DATE: 07/15/15
MEMBER: SE11 DATES 21:56:00.00
SUBSYSTEM: SE11
```

---

### The Long Record Trace:

The long record trace lists selected records from an input data set. It lists and formats all data from user-selected records.

Use the long record trace to produce a formatted report of all data in the selected trace records.

The long record trace can be used with all the selection options such as INCLUDE and EXCLUDE.

**Note:** A long record trace can show a great amount of data. Consider limiting the size of the report with the INCLUDE, EXCLUDE, FROM, and TO options of the TRACE subcommand.

The following command produces the long record trace example in "Example of a Long Record Trace."

```
... RECTRACE TRACE FROM (21:54:00) TO (21:56:00) LEVEL(LONG) ...
```

### Example of a Long Record Trace

This is an example of a long record trace produced by the previous command:

```
LOCATION: PMODBE1 OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) PAGE: 1-1 REQUESTED FROM: ALL 21:54:00.00 TO: DATES 21:56:00.00 ACTUAL FROM: 07/15/15 21:54:00.11 PAGE DATE: 07/15/15
GROUP: DBE1 RECORD TRACE - LONG REQUESTED FROM: ALL 21:54:00.00 TO: DATES 21:56:00.00 ACTUAL FROM: 07/15/15 21:54:00.11 PAGE DATE: 07/15/15
MEMBER: SE11 DATES 21:56:00.00
SUBSYSTEM: SE11
```
Record Trace

DB2 VERSION: VII
PRIMAUTH CONNAME: CBA37B3FD88
ORIGAUTH CONNAME: N/P
PLANNAME: N/P
CONRTMR: N/P
CLOSED: N/P

<table>
<thead>
<tr>
<th>Instance</th>
<th>END_USER</th>
<th>WS_NAME</th>
<th>TRANSACT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instance</th>
<th>END_USER</th>
<th>WS_NAME</th>
<th>TRANSACT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LOCATION: PDBBE1
GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - LONG
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - Long
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - Long
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - Long
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

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REQUESTED FROM: All
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REQUESTED FROM: All
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REQUESTED FROM: All
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GROUP: DBE1
RECORD TRACE - Long
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049

GROUP: DBE1
RECORD TRACE - Long
REQUESTED FROM: All
ACTUAL FROM: 21:54:00.11351049
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<tr>
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<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAM)</th>
<th>Page: 1-4</th>
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<tr>
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<tr>
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<td>To: Dates: 21:56:00.00</td>
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<th>CORRMBR</th>
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<th>QWSCOTH</th>
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<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAM)</th>
<th>Page: 1-5</th>
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<tr>
<td>Group: DBE1</td>
<td>Record Trace - Long</td>
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<tr>
<td>Member: SE11</td>
<td>To: Dates: 21:56:00.00</td>
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Chapter 6. Batch reporting 3517
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### Record Trace

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<th>CBA373F938B N/P</th>
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<tr>
<td>N/P</td>
<td>‘BLANK’ 21:54:03.28092609 91110 1 2 DB STATISTICS</td>
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#### Buffer Pool Activity

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<tr>
<td>CURRENT ACTIVE BUFFERS</td>
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<td>GETPAGE REQUESTS</td>
<td>117869485</td>
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<tr>
<td>IGETPAGE REQUESTS-SEQUENTIAL</td>
<td>684022005</td>
<td>PAGES WRITTEN</td>
<td>1359</td>
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<tr>
<td>NUMBER OF DATA SET OPENS</td>
<td>99</td>
<td>SYNCHRONOUS READS</td>
<td>8009</td>
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<tr>
<td>ISYNCHRONOUS WRITES</td>
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<td>BUFFERS ALLOCATED-VPOOL</td>
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<tr>
<td>ISYNCHRONOUS READS-SEQUENTIAL</td>
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<td>ASYNCHRONOUS WRITES</td>
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<td>IDSHM MIGRATED DATA SETS</td>
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<td>VERTICAL DEFERRED WRITE THRESHOLD</td>
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<td>IPPOOL EXPANSION OR CONTRACT</td>
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<td>PAGES READ VIA SEQUENTIAL PREFETCH</td>
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<tr>
<td>IDATA MANAGER BUF CRITICAL THRESHOLD</td>
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<td>VPOOL EXPANSION FAILURE</td>
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<td>CONCURRENT PREFETCH 1/0 STREAMS-HWM</td>
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<td>PAGE-INS REQUIRED FOR WRITE</td>
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<td>IPREFETCH 1/0 STREAMS REDUCTION</td>
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<td>IDSYNCHRONOUS REQUESTS</td>
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<td>IDT DYNAMIC REQUESTS</td>
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<td>MERGE PASS DEGRADED-LOW BUFFER</td>
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<td>IPAGES READ VIA DYNAMIC PREFETCH</td>
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<td>WORKFILE REQUEST REJECTED-LOW BUFFER</td>
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<td>WORKFILE REQUESTED-ALL MERGE PASS</td>
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<td>WORKFILE NOT CREATED-NO BUFFER</td>
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<td>IPREFETCH QUANTITY REDUCED TO HALF</td>
<td>56914</td>
<td>PREFETCH DISABLED-NO BUFFER</td>
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<td>WORKFILE PREFETCH NOT SCHEDULED</td>
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<td>PREFETCH QUANTITY REDUCED TO QUARTER</td>
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<td>IPREFETCH DISABLED-NO READ ENGINE</td>
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<td>WORKFILE PAGES TO DESTROY</td>
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<td>PAGE-INS REQUIRED FOR READ</td>
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<td>PAGES ADDED TO L3P</td>
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#### Data Manager Data

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<td>ICOMPLETELY BYPASSED</td>
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### DB2 Version 9 Section

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<td>AGENT MAX STORAGE (MB)</td>
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<td>TOTAL WHOLE 4K STORAGE (MB)</td>
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<td>TOTAL WHOLE 32K STORAGE (MB)</td>
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### DB2 Version 10 or Higher Section

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<th>AGENT STORAGE LIMIT (KB)</th>
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</thead>
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<td>MAX TOTAL STORAGE USED (KB)</td>
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<td>MAX STORAGE USAGE LIMIT EXCEEDED (KB)</td>
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</tr>
<tr>
<td>CUR 4K TBSPACE STORAGE USED (KB)</td>
<td>0</td>
<td>CUR 32K TBSPACE STORAGE USED (KB)</td>
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<tr>
<td>4K INSTEAD OF 32K TBSPACE USED</td>
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<td>32K INSTEAD OF 4K TBSPACE USED</td>
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<td>CUR ACTIVE (OM) IN-MEMORY</td>
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<td>CUR STORAGE (OM) IN-MEMORY (KB)</td>
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<td>MAX ACTIVE (OM) IN-MEMORY</td>
<td>0</td>
<td>MAX STORAGE (OM) IN-MEMORY (KB)</td>
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</tr>
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<td>CUR ACTIVE (SORT) IN-MEMORY</td>
<td>0</td>
<td>CUR STORAGE (SORT) IN-MEMORY (KB)</td>
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**Location:** PMMEDB1  
**OEMAGMON xe for DB2 Performance Expert (YSAPE)**  
**Page:** 1-14  
**GROUP:** BE1  
**RECORD TRACING - LONG**  
**REQUESTED FROM:** ALL  
**TO:** DATES  
**DB2 Version:** 911  
**PAGE DATE:** 07/15/15 21:54:00.11  
**SUBSYSTEM:** SQL  
**PRIMAUTH CONNECT:** INSTANCE  
**END USER:** SNAME  
**TRANSACTION:** TCB CPU TIME  
**DATA PLAN NAME:** CONTNAME  
**CONNECTION:** TECHNICAL  
**DESCRIPTION:** SDK ETC  

---

**INSERT ROWS SKIPPED:** 0 | DELETE ROWS ACCESSED | 0 |
Record Trace

UPDATE ROWS ACCESSED ...............: 0

-------------------------------------------------------------------------------------------------------------------------
| LOCKING DATA |
-------------------------------------------------------------------------------------------------------------------------
| IDEADLOCKS  | 0  | LOCK REQUEST | 515403 | LOCK SUSPENSIONS | 31 | CLAIM REQUESTS | 14322 |
| ITEMDEETS   | 0  | UNLOCK REQUEST | 589055 | IRUM LATCH SUSPENS. | 175 | CLAIM REQ. FAILED | 0 |
| ESCALATIONS(SHR) | 0  | QUERY REQUEST | 2114 | OTHER SUSPENSIONS | 2185 | DRAIN REQUESTS | 1628 |
| ESCALATIONS(Exc) | 0  | CHANGE REQUEST | 6017 | DRAIN REQ. FAILED | 0 |

MAXIMUM PAGE/ROW LOCKS HELD N/A OTHER REQUEST 2

-------------------------------------------------------------------------------------------------------------------------
| EDM POOL DATA |
-------------------------------------------------------------------------------------------------------------------------
| IPAGES IN POOL : 0 | CT PAGES : 0 | PT PAGES : 0 |
| IFREE PAGES : 0 | CT REQUESTS : 2540 | PT REQUESTS : 514 | DBD REQUESTS : 5590 |
| IDDM POOL FULL : 0 | CT NOT IN POOL : 6 | PT NOT IN POOL : 43 | DBD NOT IN POOL : 5 |
| ICACHE INSERTS : 11 | CACHE REQUESTS : 80 |

-------------------------------------------------------------------------------------------------------------------------
| P-LOCK |
-------------------------------------------------------------------------------------------------------------------------
| NOTIFY |
-------------------------------------------------------------------------------------------------------------------------
| PG |
| PG |
| PG |
| REGISTER |
| DELETE |
| WRITE |
| CHANGED |
| READ |
| READ |
| SYN.READS(NF)-DATA |

-------------------------------------------------------------------------------------------------------------------------
| PLANNAME |
-------------------------------------------------------------------------------------------------------------------------
| DB2 |

-------------------------------------------------------------------------------------------------------------------------
| XPROC |
-------------------------------------------------------------------------------------------------------------------------
| FAILS |
| STATEMENTS |
| PKG |
| CACHE |
| EDM |
| FREE |

MAXIMUM ESCALATIONS(EXC) ESCALATIONS(SHR)

LOCATION: PNOB2E1
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMD) PAGE: 1-15
GROUP: DBE1 RECORD TRACE - LONG REQUESTED FROM: ALL 21:54:00.00
MEMBER: 757 TO: DATIONS 21:54:00.11
SUBSYSTEM: SE11 ACTUAL FROM: 07/15/11 21:54:00.11
DB2 VERSION: V11
PAGE DATE: 07/15/15

PRMAUTH CONNECT INSTANCE END_USER WS_NAME TRANSCONT
ORIGAUTH CONNAME CONTYPE RECORD TIME DESTINO ACE IFC DESCRIPTION DATA
PLANNAME CORRNR TCB CPU TIME ID

-------------------------------------------------------------------------------------------------------------------------
| LOCATION: PNOB2E1 |
-------------------------------------------------------------------------------------------------------------------------
| OMAGRAM XE FOR DB2 PERFORMANCE EXPERT (VSRAMD) PAGE: 1-18 |

GROUP BUFFER POOLS ACTIVITY DATA

GROUP BUFFER POOL ID ..................: 0 | FLAGS .........................: X'1800'
ISYN.READS(X1)-DATA RETURNED ........: 2609 | SYN.READS(NF)-DATA RETURNED ........: 21
ISYN.READS(X1)-DATA RET .............: 5792 | SYN.READS(NF)-NO DATA RET ...........: 201
IREAD FOR CASTOUT MULT ..............: 52 | WRITE AND REGISTER MULT .............: 363
ICLEAN PAGES WRITTEN ...............: 358 | WRITE AND REGISTER ..................: 2810
ICHANGED PAGES SYNC.WRITTEN ..........: 3722 | PAGES WRITE & REG MULT ................: 907
ICHANGED PAGES ASYNC.WRITTEN ........: 55 | CASTOUT CLASS THRESHOLD .............: 4
WRITE FAILOUT-NO STORAGE .............: 0 | GROUP BP CASTOUT THRESHOLD ...........: 0
IREQ.PAGE LIST RPL (RPL) REQ ........: 58 | DELETE NAME LIST SEC-GP ................: 0
IPAGES CHECKPOINTS TRIGGERED ........: 0 | DELETE PAGE FROM SEC-GP ...............: 0
IPAGES RETRIEVED FROM GBP ..........: 0 | READ CASTOUT STATS SEC-GP .............: 0
IREAD STORAGE STATS .................: 12550 | UNLOCK CASTOUT ......................: 466
IDELETE NAME .......................: 1361 | READ CASTOUT CLASS ...................: 3036
INUNREAD PAGE ......................: 0 | WR.OF READ FOR CASTOUT REQ ...........: 1942
INREGIST PAGE ......................: 27 | READ DIRECTORY INFO ...................: 0
IEXPCLICT X-INVALID .................: 0 | GBP-DEPENDENT GETPAGES ..............: 9074
IPG P-LOCK UNLOCK ..................: 5369 | ASYNCH GBP REQUESTS .................: 5917
IPG P-LOCK UNLOCK REQ SP MAP PG : 45 | ASYNCH SEC-GP REQUESTS ...............: 0
IPG P-LOCK LOCK SUSP SP MAP PG : 6 | WRITE SEC-GP FAILED ..................: 0
IPG P-LOCK LOCK KP SP MAP PG : 0 | PG P-LOCK LOCK KP DATA PG ...........: 3222
IPG P-LOCK LOCK KP IX LEAF PG : 1483 | PG P-LOCK LOCK KP DATA PG ...........: 135
IPG P-LOCK LOCK SUSP IX LEAF PG : 36 | PG P-LOCK LOCK KP DATA PG ...........: 0
IPG P-LOCK LOCK KP IX LEAF PG : 0

-------------------------------------------------------------------------------------------------------------------------
| LOCATION: PNOB2E1 |
-------------------------------------------------------------------------------------------------------------------------
| OMAGRAM XE FOR DB2 PERFORMANCE EXPERT (VSRAMD) PAGE: 1-18 |

DATA SHARING LOCKING DATA

LOCK REQ (P-LOCKS) : 10694 | SYNCH.XES - LOCK REQ : 456679 | SUSPENDS - IRUM GBL CONT. : 11048
UNLOCK REQ (P-LOCKS) : 7033 | SYNCH.XES - CHANGE REQ : 22255 | SUSPENDS - XES GBL CONT. : 0
INQUIRE REQ (P-LOCKS) : 3519 | SYNCH.XES - UNLOCK REQ : 502978 | SUSP SYNCH/ASYNC CONV (VF) : N/A
NOTIFY MESSAGES SENT : 76 | ASYNCH.XES - RESOURCES : 803 | INCOMPAT RETAINED LOCK : 0
NOTIFY MESSAGES RECEIVED : 15008 | P-LOCK/AFY EXITS ENGINES : 500 | P-LOCK/AFY EX.ENG. N/A : 0
IPSET/PART P-LOCK NEGOTIAT : 3223 | PAGE P-LOCK NEGOTIAT : 0 | OTHER P-LOCK NEGOTIAT : 1800
P-LOCK CHECK DURING NEG. : 4757 | FALSE CONTENTIONS : 240
ASYNC-ASYNC XES CONV : 44838 | FLMG COUNTS PER : SUBSYS NO DELAY LOCK REQ REJECTS : 0

LOCATION: PNOB2E1
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMD) PAGE: 1-18

3522 IBM Db2 Performance Expert on z/OS
### Record Trace

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<th>1-20</th>
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### Location: PMDBE1

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<td>1 106 SY PARAMETERS</td>
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IBM Db2 Performance Expert on z/OS
Record Trace

SUBSYSTEM: SE11
DB2 VERSION: V11
PRIMAUTH CONNECT INSTANCE END USER WS NAME TRANSACT
ORIGAUTH CORNAME CONNTYPE RECORD TIME DESTN ACCE IF1 DESCRIPTION DATA
PLANNAME CORNMNR TCB CPU TIME ID

SYSPR SE11 CBA37B3FD98 N/P
SYSPR 016.WSWM 'BLANK' 21:54:03.28113166 91111 1 106 SYS PARAMETERS

'BLANK' T 01 75.80329233

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I [QWPATTRS] ......... 1 QWP4MKDS .......... 40 QWP4MKOC ...........
I [QWP4LTPM] ......... 10 QWP4NML5 .......... X'00' QWP4NML8 ...........
I [QWP4SCLC] ......... 255 QWP4MS4A .......... X'00' QWP4MSS6 ...........
I [QWP4LPRC] ......... NO QWP4LPRCS ........ NO QWP4LPRCS ........ NO
I [QWP4CRMTR] ......... 500 QWP4BXRTR ........ 500 QWP4BXRTR ........ 500
I [QWP4SCAC] ......... YES QWP4SCAC .......... NO QWP4SCAC .......... NO
I [QWP4DSCOM] .....
I [QWP4ASRR] ......... NO QWP4ASRR .......... NO QWP4ASRR .......... NO
I [QWP4ASRC] ......... 500 QWP4ASRC .......... N/P QWP4ASRC .......... N/P
I [QWP4ASRM] ......... 1 QWP4ASRM .......... 1024 QWP4ASRM .......... 1000
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I IRLM PROCESSING PARAMETERS
I-----------------------------------------------
I DATABASES/SPACES STARTED AUTOMATICALLY
I-----------------------------------------------
I APPLICATION PROGRAMMING DEFAULTS
I-----------------------------------------------
I VSM CATALOG NAME QUALIFIER
I-----------------------------------------------
I DATA SHARING PARAMETERS
I-----------------------------------------------
I APPLICATION PROGRAMMING DEFAULTS
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I OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (YSRAM)
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I GROUP: DBE1
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I SUBSYSTEM: SE11
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I DB2 VERSION: V11
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Chapter 6. Batch reporting 3525
Record Trace

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LOCATION: PNODEBE1
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAM) PAGE: 1/28
GROUP: DBE1
REQUESTED FROM: ALL 21:54:00.00
TO: GATE1 21:54:00.00
SUBSYSTEM: SE11
ACTUAL FROM: 07/15/15 21:54:00.11
PAGE DATE: 07/15/15

DB2 VERSION: 11

PRIMAUTH CONNNAME CONNTYPE RECORD TIME DESTINO ACI IFC DESCRIPTION DATA
SYSSPR SE11 CBA42ED794D N/P
SYSSPR OZ0_CLST 'BLANK' 21:54:03.8410001 91118 2 150 OBID/OBID

'BLANK' AT01 0.00010481 TRANSLATION

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OBID: 116 OBJECT NAME: DX000001
OBID: 6 DATABASE NAME: DSNB06
OBID: 2102 OBJECT NAME: DSNB06
OBID: 6 DATABASE NAME: DSNB06
OBID: 2099 OBJECT NAME: SYSTSYAR
OBID: 6 DATABASE NAME: DSNB06
OBID: 217 OBJECT NAME: DSNB06
OBID: 6 DATABASE NAME: DSNB06
OBID: 240 OBJECT NAME: DSNFMK01
OBID: 6 DATABASE NAME: DSNB06
OBID: 234 OBJECT NAME: DSNFLX01
OBID: 6 DATABASE NAME: DSNB06
OBID: 236 OBJECT NAME: DSNFLX02
OBID: 6 DATABASE NAME: DSNB06
OBID: 95 OBJECT NAME: DSNX0001
OBID: 6 DATABASE NAME: DSNB06
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OBID: 5 OBJECT NAME: HONGLTBD
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OBID: 2 OBJECT NAME: HONGLTBD
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OBID: 110 OBJECT NAME: DSNAH01
OBID: 6 DATABASE NAME: DSNB06
OBID: 14 OBJECT NAME: SYSGPAUT
OBID: 6 DATABASE NAME: DSNB06
OBID: 1943 OBJECT NAME: DSNAPX02
OBID: 1 DATABASE NAME: DSNB06
OBID: 9 OBJECT NAME: SYSXSPA

3526 IBM Db2 Performance Expert on z/OS
### Record Trace

**LOCATION:** PM0DBE1  
**GROUP:** DBE1  
**SUBSYSTEM:** SE11  
**DB VERSION:** V11  
**PAGES:** 1-34

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<td>157571856</td>
</tr>
<tr>
<td>System Agent Stack Storage in Use</td>
<td>802816</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total 64-BIT VARIABLE POOL</td>
<td>36864</td>
<td>Total 64-BIT Fixed:</td>
<td>98304</td>
</tr>
<tr>
<td>Total 64-BIT GETMAINED</td>
<td>0</td>
<td>Total 64-BIT Private for Stor Mang:</td>
<td>1400832</td>
</tr>
<tr>
<td>Total 64-BIT POOL</td>
<td>0</td>
<td>Total 64-BIT Private for Pool Summary:</td>
<td>2133</td>
</tr>
<tr>
<td>Total 64-BIT Real 4K Frames in Use</td>
<td>5</td>
<td>64-BIT 4K AUX Slots in Use:</td>
<td>408</td>
</tr>
<tr>
<td>Total 64-BIT AUX POOL</td>
<td>9</td>
<td>Above Value W/O BP Storage:</td>
<td>396</td>
</tr>
</tbody>
</table>

---

#### Address Space Summary - CPU

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above Value W/O BP Storage</td>
<td>396</td>
</tr>
<tr>
<td>Above Value W/O BP Storage</td>
<td>408</td>
</tr>
</tbody>
</table>

---

#### Thread Information

<table>
<thead>
<tr>
<th>Thread Information</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active and Disconnected DBATS</td>
<td>0</td>
</tr>
<tr>
<td>Deferred Write Engines</td>
<td>0</td>
</tr>
<tr>
<td>Prefetch Engines</td>
<td>7</td>
</tr>
<tr>
<td>Parallel Child Threads</td>
<td>0</td>
</tr>
</tbody>
</table>

---

#### Shared/Common Storage Summary

---

**LOCATION:** PM0DBE1  
**GROUP:** DBE1  
**SUBSYSTEM:** SE11  
**DB VERSION:** V11  
**PAGES:** 1-35

---

#### Address Space Summary - Pool Summary

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above Value W/O BP Storage</td>
<td>396</td>
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<tr>
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<td>408</td>
</tr>
</tbody>
</table>

---

#### Thread Information

<table>
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</tr>
<tr>
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<td>0</td>
</tr>
<tr>
<td>Prefetch Engines</td>
<td>7</td>
</tr>
<tr>
<td>Parallel Child Threads</td>
<td>0</td>
</tr>
</tbody>
</table>

---

#### Shared/Common Storage Summary

---

Chapter 6. Batch reporting  3527
Record Trace

| 131-BIT COMMON FIXED POOL STORAGE | : 1036288 | 31-BIT COMMON VARIABLE POOL STORAGE | : 696320 |
| 131-BIT COMMON GETMAIN STORAGE | : 105917 | EXTENDED CSA SIZE | : 31601472 |
| 164-BIT COMMON FIXED POOL STORAGE | : 5767168 | 64-BIT COMMON VARIABLE POOL STORAGE | : 203460608 |
| 164-BIT COMMON GETMAIN STORAGE | : 200512 | 64-BIT COMMON STORAGE-STOR MGR CTRL | : 1400832 |
| 164-BIT SHARED VARIABLE POOL STORAGE | : 21352448 | 64-BIT SHARED FIXED POOL STORAGE | : 3599424 |
| 164-BIT SHARED GETMAIN STORAGE | : 6671588 | 64-BIT SHARED STORAGE-STOR MGR CTRL | : 11868592 |
| 164-BIT SHARED SYSTEM AGENT STACK (AS) | : 268435456 | 64-BIT SHARED SYSTEM AS IN USE | : 30797312 |
| 164-BIT SHARED NON-SYSTEM AS | : 895306368 | 64-BIT SHARED NON-SYSTEM AS IN USE | : 5242880 |

SHARED MEMORY OBJECTS
| N/P | 11 |

SHARED MEMORY OBJECTS PAGES
| N/P | 721420288 | HW FOR 64-BIT SHARED BYTES | : 295437499648 |

SHARED MEMORY OBJECTS PAGES IN REAL
| N/P | 13442 | AUX SLots USED FOR 64-BIT SHARED STOR: | : 56295 |
| N/P | 145124 | 64-BIT PAGES PAGED OUT TO AUX STOR: | : 182103 |
| N/P | 397 | 64-BIT SHARED STG 4K FRMS IN USE: | : 7089 |
| N/P | 65 | 64-BIT STACK 4K FRMS IN USE: | : 3876 |
| N/P | 89 | 64-BIT COMMON 4K FRMS IN USE: | : 3770 |

LOG MGR WRITE BUFFER FRAMES IN REAL
| N/P | 1004 | LOG MANAGER CONTROL FRAMES IN REAL: | : 1 |

LOG MGR WRITE BUFFER FRAMES IN AUX
| N/P | 30 | LOG MANAGER CONTROL FRAMES IN AUX: | : 0 |

QW0225_MARN
| 1 | QW0225_REALAVAIL | : 1244 |

QW0225_REALAVAILLO
| 480 | QW0225_REALAVAILLOCK | : 1180 |

QW0225_ESQAS
| 146554880 | QW0225_ESQA_Alloc | : 23918144 |

QW0225_ESQA_HWM
| 24973688 | QW0225_ECSA_Alloc | : 141291504 |

QW0225_ECSA_HWM
| 149582360 | QW0225_ECSA_Conv | : 0 |

LOCATION: PMDBE1  OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSAM)  PAGE: 1-36
GROUP: DBE1  RECORD TRACE - LONG  REQUESTED FROM: ALL 21:54:00.00
MEMBER: SE11  TO: DATES 21:54:00.00
SUBSYSTEM: SE11  ACTUAL FROM: 07/15/15 21:54:00.11
DB2 VERSION: V11  PAGE DATE: 07/15/15

PRIMAUTH CONNECT INSTANCE END_USER WS_NAME TRANSACT
ORIGAUTH CORRNAME CORRMBR TCB CPU TIME ID

---

N/P | CBA37BD7DFB8 | N/P |

N/P | "BLANK" 21:54:07.9536325 9120 1 225 STORAGE MGR |

N/P | POOL SUMMARY |

---

| STATEMENT CACHE / xPROC Detail |

| IALLOCATED STOR FOR DYN SQL STMTS | : 106496 | REQUESTED STOR FOR DYN SQL STMTS | : 36032 |
| IALLOCATED STOR FOR STATIC SQL STMTS | : 212992 | HW REQUESTED STOR FOR DYN SQL STMTS | : 36032 |

| TOTAL 31-BIT XPROC DYNAMIC SQL | : N/A | ALLOCATED 31-BIT XPROC DYNAMIC SQL | : N/A |
| TOTAL 31-BIT XPROC STATIC SQL | : N/A | HW ALLOCATED 31-BIT XPROC DYNAMIC SQL | : N/A |

| STATEMENTS IN 64-BIT AGENT LOCAL POOLS (ALP) | : 0 | HW STMT COUNT IN 64-BIT ALP AT HIGH STOR TIME | : 0 |
| IALLOCATED STMT CACHE IN 64-BIT ALP | : 0 | HW ALLOCATED STMT CACHE 64-BIT ALP | : 0 |
| ITTIMESTAMP OF HW AFTER LAST 225 REC: 07/15/15 21:53:00.433538 TOTAL 64-BIT STMT CACHE BLKS 2G | : 167936 |

| QW0225F1: | 0 | QW0225F2: | 0 |

---

| STORAGE POOL DETAILS |

| 131-BIT DMBI PRIVATE VARIABLE POOLS: |
| AGENT LOCAL STORAGE | : 516096 | SYSTEM AGENT STORAGE | : 339968 |
| BUFFER MANAGER STORAGE BLOCKS | : 610384 |

---

| IRLM POOL STATISTICS |

| IABOVE THE BAR VALUES: |
| IATB CSA CURRENT | : 0 | ATB CSA HIGH WATER MARK | : 0 |
| IATB PRIVATE CURRENT | : 0 | ATB PRIVATE HIGH WATER MARK | : 0 |
| IATB PRIVATE MAX AVAILABILITY | : 0 |

| BELOW THE BAR VALUES: |
| IBTB PRIVATE CURRENT | : 0 | BTB PRIVATE HIGH WATER MARK | : 0 |
| IBTB PRIVATE MAX AVAILABILITY | : 0 |

| ICBA: |

---
Dump Record Trace

The dump record trace lists all data from selected records of an input data set in hexadecimal format.
The Dump Record Trace

The following command produces the dump record trace example shown in "Dump Record Trace Example."

Dump Record Trace Example

Here is an example of a dump record trace for IFCID 225. The left-hand side of the trace shows a full hexadecimal dump of the record and the section on the right shows the same data in character format.

LOCATION: DSNLW0A
GROUP: N/P
REQUESTED FROM: NOT SPECIFIED
DB2 VERSION: V10
MEMBER: N/P
SUBSYSTEM: LWA
DB2 XE FOR DB2 PERFORMANCE EXPERT (V8R4MD)
PAGE: 1-1
REQUESTED: TO: NOT SPECIFIED
PAGE DATE: 08/13/16

TCP CPU TIME

PLANNAME: SYSOPR

DB2 PERFORMANCE EXPERT on z/OS

<table>
<thead>
<tr>
<th>LOCATION: DSNLW0A</th>
<th>GROUP: N/P</th>
<th>REQUESTED FROM: NOT SPECIFIED</th>
<th>DB2 VERSION: V10</th>
<th>MEMBER: N/P</th>
<th>SUBSYSTEM: LWA</th>
<th>DB2 XE FOR DB2 PERFORMANCE EXPERT (V8R4MD)</th>
<th>PAGE: 1-1</th>
<th>REQUESTED: TO: NOT SPECIFIED</th>
<th>PAGE DATE: 08/13/16</th>
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TCP CPU TIME

PLANNAME: SYSOPR

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TCP CPU TIME

PLANNAME: SYSOPR

DB2 PERFORMANCE EXPERT on z/OS

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<th>SUBSYSTEM: LWA</th>
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TCP CPU TIME

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DB2 PERFORMANCE EXPERT on z/OS

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TCP CPU TIME

PLANNAME: SYSOPR

DB2 PERFORMANCE EXPERT on z/OS

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TCP CPU TIME

PLANNAME: SYSOPR

DB2 PERFORMANCE EXPERT on z/OS

<table>
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<tr>
<th>LOCATION: DSNLW0A</th>
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<th>MEMBER: N/P</th>
<th>SUBSYSTEM: LWA</th>
<th>DB2 XE FOR DB2 PERFORMANCE EXPERT (V8R4MD)</th>
<th>PAGE: 1-1</th>
<th>REQUESTED: TO: NOT SPECIFIED</th>
<th>PAGE DATE: 08/13/16</th>
</tr>
</thead>
</table>

TCP CPU TIME

PLANNAME: SYSOPR

DB2 PERFORMANCE EXPERT on z/OS

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<tr>
<th>LOCATION: DSNLW0A</th>
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<th>DB2 VERSION: V10</th>
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<th>DB2 XE FOR DB2 PERFORMANCE EXPERT (V8R4MD)</th>
<th>PAGE: 1-1</th>
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<th>PAGE DATE: 08/13/16</th>
</tr>
</thead>
</table>

TCP CPU TIME

PLANNAME: SYSOPR

DB2 PERFORMANCE EXPERT on z/OS
Note: This type of record trace is used for diagnostic purposes only. It is not explained in detail.

Column Descriptions of the Dump Record Trace:

The column description of the Dump record trace.

The following columns are shown on the dump record trace:

**PRIMAUTH**
The authorization ID under which the transaction is running. Derived from the DB2 field QWHCAID.

**ORIGAUTH**
The original authorization ID under which the transaction started. Derived from the DB2 field QWHCOPID.

**PLANNAME**
The DB2 plan name. Derived from the DB2 field QWHCPLAN.

**CONNECT**
The connection ID. Derived from the DB2 field QWHCCN.

**CORRNAME**
The correlation name. Derived from the DB2 field QWHCCV.

**CORRNMBR**
The correlation number. Derived from the DB2 field QWHCCV.

**CONNTYPE**
The type of connection being used to interface with DB2. Derived from the DB2 field QWHCCST.

**INSTANCE**
The unique number assigned to a thread. Derived from the DB2 field QWHSUNIQ.

**RECORD TIME**
The timestamp contained in the trace record. The format is hours, minutes, seconds, and hundred-millionths of a second. Derived from the DB2 field QWHSSTCK.

**TCB CPU TIME**
The CPU time stored in the trace record. The format is minutes, seconds, and hundred-millionths of a second. Derived from the DB2 field QWHUCPU.

**DEST SEQ NO**
The destination sequence number. Derived from the DB2 field QWHSWSEQ.

**ACE**
The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified. Derived from the DB2 field QWHSACE.

**IFCID**
The instrumentation facility component identification (DB2 trace record type). Derived from the DB2 field QWHSIID.

**DESCRIPTION**
A brief description of the IFCID record. The description indicates whether the record contains accounting, statistics, or performance data. For performance data, the description also indicates the event.
DATA  The data is printed in the standard hexadecimal dump format. The character format is on the right.

ACE Cross-Reference Table:

For every trace specified, an ACE cross-reference table is printed at the end of each location.

The columns of the ACE cross-reference table are:

ACE NUMBER
The cross-reference number for the hexadecimal address of the agent control element. The lowest valid cross-reference number is 1. 0 indicates that the ACE address is not available.

ACE ADDRESS
The hexadecimal address of the agent control element. Derived from the DB2 field QWHSACE.

IFCID Record Blocks
This topic describes the Instrumentation Facility Component Identifier (IFCID) record trace blocks. The description within each block is presented in alphabetical order.

IFCID 001 - System Statistics:

System service statistics are written at regular intervals specified by the install parameter STATISTICS TIME on panel DSNTIPN.

Most counters in this record are accumulated since DB2 was last started. Some counters can include values recorded prior to the report period covered. Values are reset to zero when DB2 is started.

IFCID 001 - Checkpoint and IFI Data:

This topic shows detailed information about “Record Trace - IFCID 001 - Checkpoint and IFI Data”.

Record trace - IFCID 001 - Checkpoint and IFI Data

The field labels shown in the following sample layout of “Record Trace - IFCID 001 - Checkpoint and IFI Data” are described in the following section.

CHECKPOINT AND IFI DATA

<table>
<thead>
<tr>
<th>CHECKPOINT COUNT: 2</th>
<th>REASON STATISTICS INVOKED: ACTIVATED BY TIMER</th>
<th>HIGH USED RBA : X'0000000000000056AE'</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFI ABENDS: 0</td>
<td>IFI READA: 0</td>
<td>DCAP.LOG REC.RETRIEVED: 0</td>
</tr>
<tr>
<td>IFI UNRECOG.: 0</td>
<td>IFI READS: 0</td>
<td>DCAP.LOG READS: 0</td>
</tr>
<tr>
<td>IFI COMMANDS: 0</td>
<td>IFI WRITE: 0</td>
<td>DCAP.LOG REC.RETURNED: 0</td>
</tr>
<tr>
<td>DCAP.TABLES RETURNED: 0</td>
<td>DCAP.DESCRIPTIONS: 0</td>
<td>DCAP.DESCRIPTIONS: 0</td>
</tr>
<tr>
<td>NO ROLLUP ACC RECS-ROLLUP THRESHOLD EXCEEDED: 0</td>
<td>NO ROLLUP ACC RECS-ROLLUP STORAGE THRESHOLD EXCEEDED: 0</td>
<td>NO ROLLUP ACC RECS-ROLLUP STORAGE THRESHOLD EXCEEDED: 0</td>
</tr>
</tbody>
</table>

CHECKPOINT COUNT
The number of checkpoints DB2 has taken.

A checkpoint is a point at which DB2 records internal status information to the DB2 log. This information is used in the recovery process if DB2 abends.

Background and Tuning Information
For Statistics reports only: A checkpoint is taken when the specified number of log records have been written. A checkpoint is also taken each time DB2 switches to a new active log data set. If the Statistics reporting period is 30 minutes and the value of this field is 15, then DB2 is taking checkpoints every 2 minutes.

If the data sets are too small or the value for LOGLOAD is too low, checkpoints occur too frequently. As a result, database writes do not perform efficiently. The frequency of DB2 checkpoints can be decreased by increasing the value of the DSNZPARM LOGLOAD (CHECKPOINT FREQ on the Tracing install panel).

Rule of thumb: In a production environment, DB2 should take checkpoints every 10 minutes or so.

The default value for LOGLOAD is 50000. The actual value that you choose is dependent on the volume and nature of the work performed by your DB2 subsystem. It is a trade-off between the performance efficiency of larger numbers and the longer time to restart DB2 when there is an abnormal termination.

Field Name: QWSDCKPT
This is an exception field.

REASON STATISTICS INVOKED
The reason why statistics records were written.
Field Name: QWSDRINV

HIGH USED RBA
The high-used RBA address of the log (DB2 field prior to DB2 11: QWSDLR).
Field Name: QWSDLRG

IFI ABENDS
The number of instrumentation facility interface (IFI) abends.
Field Name: QWSDSCA

IFI READA
The number of calls made to IFI using the READA (read asynchronous data) function.
Field Name: QWSDSCRA

DCAPLOG REC.RETRIEVED
The number of log records retrieved for which data capture processing was invoked.
Field Name: QWSDCDLC

DCAPDATA ROWS RETURNED
The total number of data capture data rows returned.
Field Name: QWSDCDDR

IFI UNRECOG.
The number of calls made to IFI using a function that is not recognized by the interface.
IFI READS
The number of calls made to IFI using the READS (read synchronous data) function.

Field Name: QWSDSCU

DCAPLOG READS
The total number of data capture log reads for processing IFI reads requests for IFCID 185.

Field Name: QWSDSCRS

DCAPDATA DESC.RETURNED
The total number of data capture describes performed.
A data capture describe is the process of getting descriptive information about a DB2 table from the catalog.

Field Name: QWSDCDLR

IFI COMMANDS
The number of calls made to IFI using the COMMAND function.

Field Name: QWSDCDMB

IFI WRITE
The number of calls made to IFI using the WRITE function.

Field Name: QWSDSCCO

DCAPLOG REC.RETURNED
The total number of data capture log records returned.

Field Name: QWSDSCWD

DCAPDESCRIPTES
The total number of data capture describes performed.
A data capture describe is the process of getting descriptive information about a DB2 table from the catalog.

Field Name: QWSDCDTR

DCAPTABLES RETURNED
The total number of data capture tables returned to the caller of the IFI reads call for IFCID 185.

Field Name: QWSDCDD

NO ROLLUP ACC RECS-ROLLUP THRESHOLD EXCEEDED
The number of roll-up accounting records written due to roll-up threshold exceeded.

Field Name: QWSDCDDH

NO ROLLUP ACC RECS-ROLLUP STORAGE THRESHOLD EXC
The number of roll-up accounting records written due to roll-up accounting storage threshold exceeded.

Field Name: QWSDARSG
NO ROLLUP ACC RECS-STALENESS THRESHOLD EXCEEDED

The number of roll-up accounting records written due to staleness threshold exceeded.

Field Name: QWSDARST

NO RECS NOT QUALIFIED FOR ACC ROLLUP

The number of records that failed to qualify for accounting roll-up because all roll-up key fields are equal to NULL or because of NULL values that are not permitted.

Field Name: QWSDARIR

IFCID 001 - CPU Time Data:

This topic shows detailed information about “Record Trace - IFCID 001 - CPU Time Data”.

This section shows CPU timer values for each resource manager and control address space.

Record trace - IFCID 001 - CPU Time Data

The field labels shown in the following sample layout of “Record Trace - IFCID 001 - CPU Time Data” are described in the following section.

<table>
<thead>
<tr>
<th>CPU TIME DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROCEDURE NAME</td>
</tr>
<tr>
<td>MSTR</td>
</tr>
<tr>
<td>TCB TIME</td>
</tr>
<tr>
<td>PROCEDURE NAME</td>
</tr>
<tr>
<td>DBM1</td>
</tr>
<tr>
<td>TCB TIME</td>
</tr>
</tbody>
</table>

PROCEDURE NAME

The last 4 characters of the procedure used to start the address space, or a constant identifier.

Field Name: QWSAPROC

ADDR SPACE ASID

The ASID of the address space.

Field Name: QWSAASID

ASCB

The ASCB token.

Field Name: QWSAASCB

SRB TIME

The accumulated SRB time for the address space. This value includes both, the preemptable and nonpreemptable SRB time. It does not include CPU time that is consumed on an IBM zIIP.

Field Name: QWSASRBT

PREEMP SRB TIME

The preemptible SRB timer value for the address space. This value does not include the CPU time that is consumed on an IBM zIIP.
**ICFID 001 - CPU Time Data**

**Field Name:** QWSAPSRB

**PREEMP SRB ZIIP**

The preemptable SRB timer value that is consumed on an IBM zIIP for address space.

**Field Name:** QWSAPSRB_ZIIP

**TCB TIME**

The accumulated job step time (TCB) for the address space.

**Field Name:** QWSAEJST

**QWSAMCPU (S)**

This field is for IBM service use.

**Field Name:** QWSAMCPU

---

**ICFID 001 - DB2 Command Data:**

This topic shows detailed information about “Record Trace - ICFID 001 - DB2 Command Data”.

**Record trace - ICFID 001 - DB2 Command Data**

The field labels shown in the following sample layout of “Record Trace - ICFID 001 - DB2 Command Data” are described in the following section.

**DISPLAY DB**

The number of DB2 DISPLAY DATABASE commands issued to view objects within one or more DB2 databases. This includes normal and abnormal completion of the command.

**Field Name:** Q9STCTR0

**DISPLAY THRD**

The number of DB2 DISPLAY THREAD commands issued to view threads active within the DB2 subsystem. This includes normal and abnormal completion of the command.

**Field Name:** Q9STCTR1

**DISP UTIL**

The number of DB2 DISPLAY UTILITY commands issued to view the status of one or more DB2 utilities. This includes normal and abnormal completion of the command.

**Field Name:** Q9STCTR2
The number of DB2 DISPLAY TRACE commands issued to determine the currently active DB2 traces. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRC

DISPL RLIMIT

The number of DB2 DISPLAY RLIMIT commands issued to view the current status of the DB2 resource limit facility. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRG

START DB

The number of DB2 START DATABASE commands issued to make a database available for use. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR5

START TRACE

The number of DB2 START TRACE commands issued to initiate a DB2 trace. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR6

START DB2

The number of DB2 START DB2 commands issued to bring up a DB2 subsystem. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR7

START RLIM

The number of DB2 START RLIMIT commands issued to enable the DB2 resource limit facility. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR8

STOP DB

The number of DB2 STOP DATABASE commands issued to prevent access to a DB2 database. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR9

STOP TRACE

The number of DB2 STOP TRACE commands issued to terminate one or more active DB2 traces. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR9

STOP DB2

The number of STOP DB2 commands. This includes both normal and abnormal completions.

Field Name: Q9STSCRA

STOP RLIM
IFCID 001 - DB2 Command Data

The number of DB2 STOP RLIMIT commands issued to disable the DB2 resource limit facility. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR6

RECOV BSDS

The number of DB2 RECOVER BSDS commands issued to reestablish dual bootstrap data sets after one has been disabled by a data set error. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR3

RECOV INDOUBT

The number of DB2 RECOVER INDOUBT commands issued to recover threads left indoubt because DB2 or a transaction manager could not automatically recover them. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR4

MODIFY TRACE

The number of DB2 MODIFY TRACE commands issued to alter trace events (IFCID) for an active trace. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR6

TERM UTILITY

The number of DB2 TERM UTILITY commands issued to stop execution of a DB2 utility. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR6

START DDF

The number of DB2 START DDF commands issued to enable the DB2 distributed data facility. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR6

STOP DDF

The number of DB2 STOP DDF commands issued to disable the DB2 distributed data facility. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR6

CANCEL THREAD

The number of DB2 CANCEL THREAD commands issued to cancel a thread. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR6

DISPL LOCATN

The number of DB2 DISPLAY LOCATION commands issued to display statistics about threads with a distributed relationship. This includes normal and abnormal completion of the command.
Field Name: Q9STCTRL

UNREC CMDS
The number of commands not recognized by DB2. The number is incremented if the command verb or primary keyword cannot be determined. For example:
• "-DISPLOX DATABASE(*)" is an unknown verb.
• "-DISPLAY FATAFASE(*)" is an unknown primary keyword.

Field Name: Q9STEROR

ARCH LOG
The number of DB2 ARCHIVE LOG commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRM

SET ARCH
The number of DB2 SET ARCHIVE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRP

DISPL ARCH
The number of DB2 DISPLAY ARCHIVE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRQ

RESET INDOUBT
The number of DB2 RESET INDOUBT commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRR

ALTER BUFFER
The number of DB2 ALTER BUFFERPOOL commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRN

DISP BUF
The number of DB2 DISPLAY BUFFERPOOL commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRO

DISP GROUP
The number of DB2 DISPLAY GROUP commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRX

DISP PROCEDURE
The number of DB2 DISPLAY PROCEDURE commands executed. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRU

RESET GENERIC
The number of DB2 RESET GENERICLU commands issued. This includes normal and abnormal completion of the command.

**Field Name:** Q9STCTRD

**ALTER GBPOOL**

The number of DB2 ALTER GROUPBUFFERPOOL commands issued. This includes normal and abnormal completion of the command.

**Field Name:** Q9STCTRS

**DISP GBPOOL**

The number of DB2 DISPLAY GROUPBUFFERPOOL commands issued. This includes normal and abnormal completion of the command.

**Field Name:** Q9STCTRT

**START PROC**

The number of DB2 START PROCEDURE commands issued. This includes normal and abnormal completion of the command.

**Field Name:** Q9STCTRV

**STOP PROCEDURE**

The number of DB2 STOP PROCEDURE commands issued. This includes normal and abnormal completion of the command.

**Field Name:** Q9STCTRW

**DISPLAY GROUP**

The number of DB2 DISPLAY GROUP commands issued. This includes normal and abnormal completion of the command.

**Field Name:** Q9STCTRX

**ALTER UTILITY**

The number of DB2 ALTER UTILITY commands issued. This includes normal and abnormal completion of the command.

**Field Name:** Q9STCTRY

**DISP FUNC**

The number of DB2 DISPLAY FUNCTION commands issued. This includes normal and abnormal completion of the command.

**Field Name:** Q9STCTRZ

**START FUNC**

The number of DB2 START FUNCTION commands issued. This includes normal and abnormal completion of the command.

**Field Name:** Q9STCTX0

**STOP FUNCTION**

The number of DB2 STOP FUNCTION commands issued. This includes normal and abnormal completion of the command.

**Field Name:** Q9STCTX1

**SET LOG**
The number of DB2 SET LOG commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTX2

DISPLAY LOG

The number of DB2 DISPLAY LOG commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTX3

SET SYSPARM

The number of DB2 SET SYSPARM commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTX4

DISPLAY DDF

The number of DB2 DISPLAY DDF commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTX5

ACCESS DB

The number of DB2 ACCESS DATABASE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTAD

START PROFILE

The number of DB2 START PROFILE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTSS

STOP PROFILE

The number of DB2 STOP PROFILE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTST

DISPLAY PROF

The number of DB2 DISPLAY PROFILE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTSD

DISP PROFILE

The number of DB2 DISPLAY PROFILE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTSD

DISP ACCEL

The number of DB2 DISPLAY ACCEL commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTDA

START ACCEL
IFCID 001 - DB2 Command Data

The number of DB2 START ACCEL commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTSA

STOP ACCEL

The number of DB2 STOP ACCEL commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTXA

MODIFY DDF

The number of DB2 MODIFY DDF commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTMD

START DYNQRY

The number of START DYNQUERYCAPTURE DB2 commands.

Field Name: Q9STCTSQ

STOP DYNQRY

The number of STOP DYNQUERYCAPTURE DB2 commands.

Field Name: Q9STCTXQ

DISP DYNQRY

The number of DISPLAY DYNQUERYCAPTURE DB2 commands.

Field Name: Q9STCTDQ

IFCID 001 - DDF Data by Location:

This topic shows detailed information about “Record Trace - IFCID 001 - DDF Data by Location”.

Record trace - IFCID 001 - DDF Data by Location

The field labels shown in the following sample layout of “Record Trace - IFCID 001 - DDF Data by Location” are described in the following section.

DDF DATA BY LOCATION

<table>
<thead>
<tr>
<th>LOCATION NAME (SHORT)</th>
<th>DRDA REMOTE LOCS</th>
<th>PROID REMOTE LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION NAME (LONG)</td>
<td>DRDA REMOTE LOCS</td>
<td></td>
</tr>
<tr>
<td>INITIATED CONVERSATIONS:</td>
<td>0</td>
<td>DEALLOCATED CONVERSATIONS:</td>
</tr>
<tr>
<td>INITIATED FROM REMOTE SITE:</td>
<td>77</td>
<td>MESSAGES RECY FR REMOTE:</td>
</tr>
<tr>
<td>SQL STMTS SENT TO REMOTE:</td>
<td>0</td>
<td>SQL STMTS RECY FR REMOTE:</td>
</tr>
<tr>
<td>BYTES SENT TO REMOTE:</td>
<td>515642017</td>
<td>BYTES RECY FR REMOTE:</td>
</tr>
<tr>
<td>ROWS SENT TO REMOTE:</td>
<td>2621554</td>
<td>ROWS RETRIEVED FR REMOTE:</td>
</tr>
<tr>
<td>BLOCKS TRANSMITTED:</td>
<td>16054</td>
<td>BLOCKS RECEIVED:</td>
</tr>
<tr>
<td>COMMIT REQUESTS SENT:</td>
<td>0</td>
<td>COMMIT REQUESTS RECEIVED:</td>
</tr>
<tr>
<td>ABORT REQUESTS SENT:</td>
<td>0</td>
<td>ABORT REQUESTS RECEIVED:</td>
</tr>
<tr>
<td>INQUIRY THREADS:</td>
<td>0</td>
<td>CONV REQUESTS QUEUED:</td>
</tr>
</tbody>
</table>

LOCATION NAME (SHORT)

The name of the remote location.

Field Name: QLSTLOCN

LOCATION NAME (LONG)

The name of the remote location.
Field Name: QLSTLOCN

INITIATED CONVERSATIONS

The number of conversations that were initiated from the requester location. This value is maintained at the requester location.

A conversation is a specific instance of using TCP/IP or SNA LU 6.2 to transfer information between a requester and a server. A conversation is a logical connection between a requester and a server.

Field Name: QLSTCNVS

INITIATED FROM REMOTE SITE

The number of conversations that were initiated from the requester to the server location. This value is updated at the server location.

Field Name: QLSTCNVR

MESSAGES SENT TO REMOTE

The number of messages sent to the remote location. A message is a group of characters and control bit sequences transferred on a single TCP/IP or SNA API call. This value is maintained at the location where the messages originated.

Field Name: QLSTMSGS

SQL STMTS SENT TO REMOTE

The number of SQL statements sent to the remote server. This value is updated at the requester location.

Field Name: QLSTSQLS

BYTES SENT TO REMOTE

The number of bytes of data sent to the requester location. This value is maintained at the server location.

Field Name: QLSTBYTES

ROWS SENT TO REMOTE

The number of data rows sent to the requester location (includes SQLDA). This value is updated at the server location.

Field Name: QLSTROWS

BLOCKS TRANSMITTED

The number of blocks transmitted using block fetch. This value is maintained at the server location.

Field Name: QLSTBTBF

COMMITS REQUESTS SENT

The number of commit requests sent to the server (single-phase commit protocol) and the committed requests sent to the participant (two-phase commit protocol).

Field Name: QLSTCOMS

INDOUBT THREADS
IFCID 001 - DDF Data by Location

The number of threads that became indoubt with the remote location as the coordinator (two-phase commit operations only). A large value might indicate network problems.

Field Name: QLSTINDT

PRDID REMOTE LOCATION

The product ID and version of the remote location.

Field Name: QLSTPRID

DEALLOCATED CONVERSATIONS

The number of conversations that were deallocated from this site to the remote site.

Field Name: QLSTCNVT

MESSAGES RECEIVED FROM REMOTE

The number of messages received by VTAM from the remote location. This value is maintained at the location where the messages were received.

More messages might be sent from the server location than are received by the requester due to the manner in which distributed SQL statements are processed internally.

Field Name: QLSTMSGR

SQL STATEMENTS RECEIVED FROM REMOTE

The number of SQL statements received from the requester location. This value is updated at the server location.

Field Name: QLSTSQLR

BYTES RECEIVED FROM REMOTE

The number of bytes of data received from the server location. This value is maintained at the requester location.

More bytes of data might be sent from the server location than are received by the requester due to the manner in which distributed SQL statements are processed internally.

Field Name: QLSTBYTR

ROWS RETRIEVED FROM REMOTE

The number of data rows received from the server location. This value is maintained at the requester location.

Note:

- This value does not include any SQLDA or SQLCA transmitted.
- Block fetch can significantly affect the number of rows sent across the network. When used with nonupdate cursors, block fetch groups as many rows as possible into the message buffer, and transmits the buffer over the network without requiring a VTAM message. Consequently, more rows of data might be sent from the server location than are received by the requester location. This is especially true when DB2 private protocol is used because multiple blocks can be transmitted from the server with no intervening messages from the requester.
BLOCKS RECEIVED

The number of blocks received from the remote location using block fetch. This value is maintained at the requester location.

**Field Name:** QLSTBRBF

COMMIT REQUESTS RECEIVED

The number of commit requests received from the requester (single-phase commit protocol) and committed requests received from the coordinator (two-phase commit protocol).

**Field Name:** QLSTCOMR

ABORT REQUESTS SENT

The number of abort requests sent to the server (single-phase commit protocol) and backout requests sent to the participant (two-phase commit protocol).

**Field Name:** QLSTABRS

ABORT REQUESTS RECEIVED

The number of abort requests received from the requester (single-phase commit protocol) and backout requests received from the coordinator (two-phase commit protocol).

**Field Name:** QLSTABRR

CONV REQUESTS QUEUED

The number of conversation requests queued by the distributed data facility and waiting for allocation. This value is maintained at the requester location.

**Background and Tuning Information**

When this value is high, increase the limit for the number of conversations.

**Field Name:** QLSTCNVQ

This is an *exception* field.

**IFCID 001 - Destination Related Data:**

This topic shows detailed information about “Record Trace - IFCID 001 - Destination Related Data”.

This record contains one data section for each destination.

**Record trace - IFCID 001 - Destination Related Data**

The field labels shown in the following sample layout of “Record Trace - IFCID 001 - Destination Related Data” are described in the following section.

<table>
<thead>
<tr>
<th>DEST NAME</th>
<th>SMF</th>
<th>SEQNO</th>
<th>310 RECS WRITTEN</th>
<th>310 RECS NOT WRITTEN</th>
<th>0 BUFFER ERRORS</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT ACTIVE ERRORS</td>
<td>0</td>
<td>RECS NOT ACCEPTED</td>
<td>0</td>
<td>WRITER FAILURES</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>QWSBOTH1</td>
<td>0</td>
<td>QWSBOTH2</td>
<td>0</td>
<td>QWSBOTH4</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>QWSBOTH3</td>
<td>0</td>
<td>QWSBOTH4</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DEST NAME**

The name of the external destination:

**GTF** Generalized trace facility
SMF  System management facilities
RES  Resident trace table (not accumulated)
OPN  Special destination for IFI READA buffered records

All other values are shown in hexadecimal.

Field Name: QWSBNM
SEQNO
The unique destination sequence of the last record written to the destination.
Field Name: QWSBWSEQ
RECS WRITTEN
The number of records written to the destination.
Field Name: QWSBSRSW
RECS NOT WRITTEN
The number of records not written to the destination.
Field Name: QWSBSRNW
BUFFER ERRORS
The number of SMF buffer-overrun errors.
Field Name: QWSBSBUF
NOT ACTIVE ERRORS
The number of times SMF was not active.
Field Name: QWSBSACT
RECS NOT ACCEPTED
The number of records not accepted by the destination writer.
Field Name: QWSBSRNA
WRITER FAILURES
The number of write failures to the destination.
Field Name: QWSBSWF

IFCID 001 - Global DDF Data:

This topic shows detailed information about “Record Trace - IFCID 001 - Global DDF Data”.

Record trace - IFCID 001 - Global DDF Data

The field labels shown in the following sample layout of “Record Trace - IFCID 001 - Global DDF Data” are described in the following section.
DBAT/CONN QUEUED-MAX ACTIVE

The number of times a DBAT or connection was queued because it reached the ZPARM maximum for active remote threads (MAXDBAT).

Field Name: QDSTQDBT
This is an exception field.

CONN REJECTED-MAX CONNECTED

The number of connections that were rejected because the ZPARM limit for maximum remote connections (CONDBAT) was reached.

Field Name: QDSTQCRT

CONN CLOSED - MAX QUEUED

The number of queued client connections whose TCP/IP sockets were closed because the system parameter MAXCONQN was exceeded.

The socket close only occurs when the DB2 subsystem is a member of a data sharing group and DB2 was started with DDF THREADS set to INACTIVE.

Field Name: QDSTNCQC

QUEUED CLIENT CONNECTIONS

The number of queued client connections whose TCP/IP socket were closed due to system parameter MAXCONQW being exceeded.

The socket close only occurs when the DB2 subsystem is a member of a data sharing group and DB2 was started with DDF THREADS set to INACTIVE.

Field Name: QDSTNCCW

COLD START CONNECTIONS

The number of cold start connections with all remote locations (two-phase commit operations only).

Field Name: QDSTCSTR
This is an exception field.

WARM START CONNECTIONS

The number of warm start connections with all remote locations (two-phase commit operations only).

Field Name: QDSTWSTR
This is an exception field.

RESYNCHRONIZATION ATTEMPTED
The number of resynchronization connections attempted with all remote locations (two-phase commit operations only).

**Background and Tuning Information**

A large value can indicate network or system problems.

**Field Name:** QDSTRSAT

This is an *exception* field.

**RESYNCHRONIZATION SUCCEEDED**

The number of resynchronization connections that succeeded with all remote locations (two-phase commit operations only).

**Background and Tuning Information**

If the value of this field is much less than the number of resynchronizations attempted, network problems might exist.

**Field Name:** QDSTRSSU

This is an *exception* field.

**CUR TYPE 1 INACTIVE DBATS**

The current number of inactive DBATs type 1 (snapshot).

**Field Name:** QDSTQCIT

**HWM TYPE 1 INACTIVE DBATS**

The maximum number of inactive type 1 DBATs.

This value is a high-water mark.

**Field Name:** QDSTQMIT

This is an *exception* field.

**TYPE 1 CONNECTIONS TERMINATED**

The number of threads or connections that were terminated instead of being made type 1 inactive because the maximum number of type 1 inactive threads was reached (MAXTYPE1).

**Field Name:** QDSTNITC

**CUR INACTIVE CONNS (TYPE 2)**

The current number of type 2 inactive connections.

**Field Name:** QDSTCIN2

**HWM INACTIVE CONNS (TYPE 2)**

The maximum number of concurrent type 2 inactive connections that existed.

This value is a high-water mark for QDSTCIN2.

**Field Name:** QDSTMIN2

**ACC QU INACT CONNS (TYPE 2)**

The number of RECEIVE requests on type 2 inactive or new connections that are queued to be serviced by a disconnected (pooled) DBAT.

**Field Name:** QDSTQIN2

**CUR QU INACT CONNS (TYPE 2)**
The current number of type 2 inactive or new connections that are queued waiting for a database access thread (DBAT).

Field Name: QDSTNQR2

MIN QUEUE TIME

The minimum queue time of a type 2 inactive or new connection that was queued waiting for a database access thread (DBAT) in the last statistical period.

Field Name: QDSTNQM

MAX QUEUE TIME

The maximum queue time of a type 2 inactive or new connection that was queued waiting for a database access thread (DBAT) in the last statistical period.

Field Name: QDSTNMX

AVG QUEUE TIME

The average queue time of a type 2 inactive or new connection that was queued waiting for a database access thread (DBAT) in the last statistical period.

Field Name: QDSTNA

HWM QU INACT CONNS (TYPE 2)

The maximum number of type 2 inactive or new connections that are queued waiting for a database access thread.

This value is a high-water mark for QDSTNQR2.

Field Name: QDSTMQR2

CUR ACTIVE AND DISCON DBATS

The current number of active and disconnected (pooled) DBATs.

Field Name: QDSTCNAT

HWM ACTIVE AND DISCON DBATS

The maximum number of active and disconnected (pooled) DBATs that existed.

This value is a high-water mark for QDSTCNAT.

Field Name: QDSTHWAT

This is an exception field.

HWM TOTL REMOTE CONNECTIONS

The maximum number of active and remote connections. This value is a high-water mark.

Field Name: QDSTHWDT

This is an exception field.

CUR DISCON DBATS NOT IN USE

The current number of disconnected (pooled) DBATs that are available to process type 2 inactive or new connections.

Field Name: QDSTNADS
HWM DISCON DBATs NOT IN USE

The maximum number of disconnected (pooled) DBATs that are available to process type 2 inactive or new connections.

This value is a high-water mark for QDSTNADS.

Field Name: QDSTMADS

DBATs CREATED

The number of requests that required a database access thread (DBAT) to be created to process the request.

Note: This does not include database access threads created to replace disconnected (pooled) DBATs that terminated because they reached their reuse limit.

Field Name: QDSTNDBA

DISCON (POOL) DBATs REUSED

The number of requests that were satisfied by assigning a disconnected (pooled) DBAT to process the request.

Field Name: QDSTPOOL

CUR ACTIVE DBATs-BND DEALLC

The current number of DBATs that are active because the associated packages were bound with RELEASE(DEALLOCATE).

Field Name: QDSTNARD

HWM ACTIVE DBATs-BND DEALLC

The maximum number of DBATs that are active because the associated packages were bound with RELEASE(DEALLOCATE).

Field Name: QDSTMARD

IFCID 001 - IFCID Data:

This topic shows detailed information about “Record Trace - IFCID 001 - IFCID Data”.

This record contains one data section for each active IFCID.

Record trace - IFCID 001 - IFCID Data

The field labels shown in the following sample layout of “Record Trace - IFCID 001 - IFCID Data” are described in the following section.

IFCID

The IFCID for the following statistics.

Field Name: QWSCIID

IFCID SEQNO

The last sequence number used for this IFCID.

Field Name: QWSCISEQ
RECS WRITTEN

The number of records successfully written for this IFCID.

Field Name: QWSCSRSW

RECS NOT WRITTEN

The number of records not written to this IFCID.

Field Name: QWSCSRNW

RECS NOT DESIRED

The number of records not desired.

Field Name: QWSCSRND

BUFFER NOT AVAILABLE

The number of errors due to the buffer not being available.

Field Name: QWSCSBNA

COLLECT FAILURES

The number of collection failures.

Field Name: QWSCSCF

IFCID 001 - Log Manager Data:

This topic shows detailed information about “Record Trace - IFCID 001 - Log Manager Data”.

Record trace - IFCID 001 - Log Manager Data

The field labels shown in the following sample layout of “Record Trace - IFCID 001 - Log Manager Data” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRITE REQUEST-WAIT</td>
<td>0</td>
</tr>
<tr>
<td>WRITE REQUEST-NO WAIT</td>
<td>280321</td>
</tr>
<tr>
<td>WRITE REQUEST-FORCE</td>
<td>136240</td>
</tr>
<tr>
<td>WRITE LOG BUFFER</td>
<td>138532</td>
</tr>
<tr>
<td>WRITE I/O REQUESTS</td>
<td>144663</td>
</tr>
<tr>
<td>WRITE BUFFER SCHEDULED-THRESHOLD</td>
<td>30  13074</td>
</tr>
<tr>
<td>WRITE BUFFER PAGED IN</td>
<td>0</td>
</tr>
<tr>
<td>WAIT FOR UNAVAILABLE LOG BUFFER</td>
<td>0  151568</td>
</tr>
<tr>
<td>TOTAL BSDS ACCESS REQUESTS</td>
<td>8273</td>
</tr>
<tr>
<td>ARCHIVE READ ALLOCATIONS</td>
<td>0</td>
</tr>
<tr>
<td>ARCHIVE WRITE ALLOCATIONS</td>
<td>1</td>
</tr>
<tr>
<td>QJSTLSUS</td>
<td>138502</td>
</tr>
<tr>
<td>QJSTCL2</td>
<td>1</td>
</tr>
<tr>
<td>QJSTCLSN</td>
<td>X'00CAF11AE9A68B3F8A00'</td>
</tr>
<tr>
<td>QJSTAVAL</td>
<td>8'00'</td>
</tr>
</tbody>
</table>

WRITE REQUEST-WAIT

The number of wait log write requests. Wait indicates that the log record is first written to the log buffer and then to the log data set.

Field Name: QJSTWR

READ FROM OUTPUT BUFFER

The number of log reads satisfied from the output buffer.

Background and Tuning Information

This field, together with the reads satisfied from active log and reads satisfied from archive log (QJSTRACT and QJSTRARH) fields indicate how
IFCID 001 - Log Manager Data

efficiently DB2 retrieves log records. Use these numbers to adjust the number of output buffers and the total active log capacity to maximize DB2 performance.

**Field Name:** QJSTRBUF

This is an *exception* field.

**WRITE REQUEST-NO WAIT**

The number of log write requests.

The log record is written asynchronously to the log buffer. The application does not wait for the record to be written to the log data set and regains control immediately.

Buffered log records are written to DASD when the buffer threshold is exceeded.

**Field Name:** QJSTWRNW

This is an *exception* field.

**READ FROM ACTIVE LOG**

The number of log reads satisfied from the active log data set.

**Background and Tuning Information**

This field, together with the reads satisfied from archive log and reads satisfied from output buffer fields, indicate how efficiently DB2 retrieves log records. Use these numbers to adjust the number of output buffers and the total active log capacity to maximize DB2 performance. Ideally, this value should be 0 or very small.

**Field Name:** QJSTRACT

This is an *exception* field.

**WRITE REQUEST-FORCE**

The number of force log write requests. Force indicates that the log record is written to the log buffer, forcing the buffer to be written to the log data set on DASD.

**Field Name:** QJSTWRF

**READ FROM ARCHIVE LOG**

The number of log reads satisfied from archive log data sets.

**Field Name:** QJSTRARY

**WRITE LOG BUFFER**

The number of calls to the log write routine. This does not represent the number of physical log I/Os.

**Field Name:** QJSTBFWR

**READ DELAY-TAPE VOLUME CONTENTION**

The number of read accesses that were delayed because of a tape volume contention when only one reader per tape is possible.

**Background and Tuning Information**
This field shows the number of agents forced to wait because a tape volume was already in use by another. If this number is not 0, increase the read tape units on the archive log data set parameters panel DSNTIPA.

Field Name: QJSTTVC
This is an exception field.

WRITE I/O REQUESTS
The total number of log-write I/O requests (such as media manager calls). This is the sum of the IFCID 038/039 pairs and includes both copy1 and copy2 active log data set writes.

Background and Tuning Information
This value should correspond to the active log write I/O activity in an RMF report.

Field Name: QJSTLOGW

READ DELAY-UNAVAILABLE RESOURCE
The number of read accesses delayed due to unavailable resources.

Background and Tuning Information
Generally, this can be due to insufficient tape units allocated. If this is so, reissue the SET ARCHIVE command and use a higher value for the count parameter. Another (although unlikely) cause is insufficient archive log read service task availability.

Field Name: QJSTWUR
This is an exception field.

WRITE BUFFER SCHEDULED-THRESHOLD
The number asynchronous log write requests made because the log write threshold was reached.

Background and Tuning Information
This counter is provided primarily for an internal check. It is recommended to use the default write threshold of 20 buffers.

Field Name: QJSTTHR

CI CREATED-ACTIVE LOG
The number of active log output control intervals created.

Background and Tuning Information
Log records are placed sequentially in output log buffers, which are formatted as VSAM control intervals. The control intervals are written to a set of predefined DASD active log data sets, which are used sequentially and recycled.

The ratio of this field to write output log buffers should be low.

Rules of thumb:
The lower the value, the better. A high value indicates that too many I/Os are required for the number of log buffers created.
It is possible that WRTTHRSH is set too low. It is also possible that transactions could be arriving so infrequently that at commit time force requests are not queued and each force request is individually triggering an I/O of its log buffers.

Field Name: QJSTBFFL

WRITE BUFFER PAGED IN
The number of times an output log buffer had to be paged in before it could be initialized. The log-write latch is held at this point.

Background and Tuning Information
A nonzero value could indicate that the output log buffer size is too large, or there is insufficient real storage to back up the output log buffer size.

Field Name: QJSTBPAG

CI OFFLOADED
The number of control intervals (CIs) offloaded from the active log to the archive log.

Field Name: QJSTCIOF

WAIT FOR UNAVAILABLE LOG BUFFER
The number of waits caused by an unavailable output log buffer.
When DB2 wants to write a log record and the log buffer is not available, DB2 and the application must wait for an available log buffer.

Background and Tuning Information
Another possible cause is that the size of the write threshold might be too close to the size of the output buffer.
If this field is not 0, increase the number in the output buffer field on installation panel DSNTIPL to increase the number of output buffers or increase the size of the buffer.

Field Name: QJSTWTB
This is an exception field.

CI WRITTEN
The total number of log control intervals (CIs) written. This includes CI rewrites and both copy1 and copy2 active log data set writes. If a given CI is rewritten 5 times, this counter is incremented by 5.

Field Name: QJSTCIWR

TOTAL BSDS ACCESS REQUESTS
The number of BSDS access requests.

Field Name: QJSTBSDS

CI SERIAL WRITE
The number of serial log write I/O requests. A serial log write I/O request occurs when DB2 rewrites a log CI that was previously written as a partial CI, in a dual logging environment. This value includes COPY1 and COPY2 active log data set writes. The difference between WRITE I/O REQ and CI SERIAL WRITE gives the number of parallel log write I/O requests. Typically, the first CI in a list of one start I/O is written serially, and the
remaining to both COPY1 and COPY2 active log data sets. This value is meaningful only when DB2 runs in dual active log mode.

Field Name: QJSTSERW

ARCHIVE READ ALLOCATIONS
The number of archive log read allocations. It indicates the frequency of archive log open and close activity.

Background and Tuning Information
A high number indicates a need for more or larger active log data sets. This value should be small, ideally 0.

Field Name: QJSTALR

LOOK-AHEAD TAPE VOL MOUNTS ATTEMPTED
The number of look ahead (tape volume) mounts attempted.

Background and Tuning Information
This field and field QJSTLAMA (label LOOK-AHEAD MOUNT SUCCESSFUL) show the efficiency of look ahead for tape mounts.

Field Name: QJSTLAMA

ARCHIVE WRITE ALLOCATIONS
The number of archive log write allocations. It indicates the frequency of archive log open and close activity.

Background and Tuning Information
A high number indicates a need for more or larger active log data sets. This value should be small, ideally 0.

Field Name: QJSTALW

LOOK-AHEAD TAPE VOL MOUNTS SUCCEEDED
The number of successful look-ahead (tape volume) mounts. It indicates the look-ahead mounting performance gains.

Background and Tuning Information
For maximum performance, this field and field QJSTLAMA (label LOOK-AHEAD MOUNT ATTEMPTED) should be equal. To find the number of failed attempts, subtract the value in this field from LOOK-AHEAD MOUNT ATTEMPTED. Too many failed attempts negate potential performance gains. This can be caused by not having enough tape units available. Issue the DISPLAY ARCHIVE command and note the current count value. Then issue the SET ARCHIVE command using a higher value for the count parameter.

Field Name: QJSTLAMS

QJSTLSUS
This field is for IBM service use.

Field Name: QJSTLSUS

QJSTSPNN
This field is for IBM service.
IFCID 001 - Log Manager Data

Field Name: QJSTSPNN

QJSTSPNI
This field is for IBM service.

Field Name: QJSTSPNI

QJSTCLID
This field is for IBM service.

Field Name: QJSTCLID

QJSTCL2
This field is for IBM service.

Field Name: QJSTCL2

QJSTCLSN
This field is for IBM service.

Field Name: QJSTCLSN

QJSTAVAL
This field is for IBM service.

Field Name: QJSTAVAL

IFCID 001 - Subsystem Services Data:

This topic shows detailed information about “Record Trace - IFCID 001 - Subsystem Services Data”.

Record trace - IFCID 001 - Subsystem Services Data

The field labels shown in the following sample layout of “Record Trace - IFCID 001 - Subsystem Services Data” are described in the following section.

<table>
<thead>
<tr>
<th>SUBSYSTEM SERVICES DATA</th>
<th>IDENTIFY</th>
<th>ROLLBACK</th>
<th>SSAM EOM</th>
<th>SSAM EGT</th>
<th>IDBACK=</th>
<th>IFDFORE=</th>
<th>CTHREAD=</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>66</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

IDENTIFY

The number of successful connections to DB2 from an allied address space (TSO, BATCH, CICS, IMS, CAF, or UTILITY).

Field Name: Q3STIDEN

CREATE THREAD

The number of successful create thread requests. It does not include DBATs.

A thread is required before an application can use SQL. When established, a thread can have one or more secondary authorization IDs.

A thread is needed to perform any DB2 activity. For example, a thread is needed to run a DB2 utility to perform an IFI request such as READS, or to process a DB2 command such as -DISPLAY THREAD. However, a thread is not created if the command failed because of a syntax error.

Background and Tuning Information
Thread reuse can help improve performance.

The term *thread reuse* only applies to IMS and CICS attachments. In the case of the TSO attachment facility and the call attachment facility (CAF), threads cannot be reused, because the threads are allocated to the user address space.

Thread reuse should be considered in the following cases:

- If transaction volume is high:
  
  High volume transactions should achieve a high percentage of thread reuse. If threads are reused on low volume transactions, the number of threads needed increases because these threads are not automatically terminated by IMS when not being used. This may result in too many idle threads for the level of the DB2 workload. Under CICS, protected threads are terminated after about 45 seconds if no transaction eligible to reuse the thread has been received.

- If thread creation cost is significant:
  
  As a rule of thumb, more than 5% of the total CPU cost of transaction processing is considered significant.

The ACQUIRE and RELEASE parameters of BIND should be specified to minimize the thread creation cost, while providing the needed concurrency:

- If most of the application plan's SQL statements are executed, then ACQUIRE(ALLOCATE) is cheaper than ACQUIRE(USE).
- If only a small number of the SQL statements are executed, ACQUIRE(USE) becomes cheaper and improves concurrency, because the required resources are only acquired (locked) when the plan actually references (uses) them. An example would be a generalized plan used by many different transactions. It would contain multiple logic paths referencing different tables.

  Note that, when packages are involved, ACQUIRE(USE) is always implicitly used.

- Concurrency in thread reuse is based on page locking provided by the IS and IX intent locks, whose duration is governed by ACQUIRE and RELEASE of BIND.

  RELEASE(DEALLOCATE) is strongly recommended for thread-reuse transactions to reduce transaction CPU time.

When thread reuse is implemented, monitor the EDM pool. It should be sufficient in size to accommodate expanding plans where the next transaction requires additional plan sections over those that are already part of the plan.

**Field Name:** Q3STCTHD

This is an *exception* field.

**UR INDOUBT**

The number of indoubt units of recovery.

A unit of recovery is indoubt when a failure occurs after a successful prepare but before a successful commit. The failure can occur in the address space of the application, the transaction manager, DB2, or all of these. IMS and CICS applications use the prepare and commit sequence to commit work. Ideally, this value should be 0.

**Field Name:** Q3STINDT
This is an *exception* field.

**COMMIT PH 2**

The number of successful commit phase 2 in a two-phase environment such as CICS or IMS. It includes successfully committed agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF). It does not include successful single-phase commits or distributed two-phase commits.

**Background and Tuning Information**

IMS and CICS applications use the PREPARE and COMMIT sequence to commit work. A nonzero value for this field indicates that updates have occurred.

**Field Name:** Q3STCOMM

**ROLLBACK**

The number of times a unit of recovery was successfully rolled back. Some reasons for a rollback include:

- Application program abend
- Application rollback request
- Application deadlock on database records
- Application canceled by operator
- Thread abend due to resource shortage

This number also includes successfully aborted agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF).

**Field Name:** Q3STABRT

This is an *exception* field.

**SIGNON**

The number of signons that identified a new user of an existing thread for IMS and CICS.

This field is valid only for CICS and IMS (not valid for TSO, CAF, or UTILITY).

The initial signon does not perform an authorization check because the thread does not exist yet, but a resignon can.

**Background and Tuning Information**

If the number of signons is greater than the number of create thread occurrences, some threads have been reused. In the case of the TSO attachment facility and the call attachment facility (CAF), there is no sign-on, because the user is identified when the TSO address space is connected.

**Field Name:** Q3STSIGN

This is an *exception* field.

**UR INDOUBT RESOLV**

The number of indoubt units of recovery successfully resolved, either automatically or manually. It includes successful indoubt resolutions for agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF).
A unit of recovery is indoubt when a failure occurs after a successful prepare but before a successful commit. This number should equal the number of units of recovery gone indoubt. If it is less, then some indoubt units of recovery might still exist.

Field Name: Q3STRIUR

COMMIT PH 1

The number of successful requests for commit phase 1 in a two-phase commit environment such as CICS or IMS. It includes successfully prepared agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF). It does not include successful single-phase commits or distributed two-phase commits.

Background and Tuning Information

IMS and CICS applications use the PREPARE and COMMIT sequence to commit work.

Field Name: Q3STPREP

SSAM EOM

The number of times MVS deleted non-DB2 address space while connected to DB2.

Field Name: Q3STMEOM

TERMIN.THREAD

The number of time threads that terminated successfully.

This number does not agree with the create thread count because each level of a thread's access (IDENTIFY, SIGNON, and CREATE THREAD) must be terminated.

Background and Tuning Information

The value of this field is usually greater than the number of create thread occurrences, because it also includes the termination of connections to DB2 (IDENTIFY) and other internal counts.

Field Name: Q3STTERM

EXITS

The number of successful DSN3EXIT requests.

Field Name: Q3STEXIT

SYNCHS

The total number of commits in a single-phase commit environment such as TSO, CAF, or UTILITY. IMS applications use the prepare-and-commit sequence; CICS applications use both the synchronized commit request and the prepare-and-commit sequence to commit work.

Note that DBATs executed on this location are not included. For DBAT statistics, see SINGLE PHASE COMMITS received on the DDF activity block.

Field Name: Q3STS SYNC

SSAM EOT

The number of times non-DB2 tasks abended while connected to DB2.
Field Name: Q3STMEOT

CRT.THRD QUED

The number of create thread requests queued (not including DBATs).
The total number of threads accessing data that can be allocated concurrently is the MAX USERS value on the installation panel DSNTIPE. Requests are queued when the MAX USERS value is exceeded. If no threads are queued during peak hours, the maximum number of threads might be set too high.

Background and Tuning Information

As a rule of thumb about 1% thread queuing is acceptable. When this is appreciably higher, increase the value of MAX USERS on the DB2 install panel DSNTIPE.
The combined maximum allowed for MAX USERS and MAX REMOTE ACTIVE cannot exceed 2000.

Field Name: Q3STCTHW

This is an exception field.

SUBS.INT.CALLS

The number of subsystem interface calls processed.

Field Name: Q3STSSSI

READ ONLY COMMIT

The number of read-only commits.
There are occasions when CICS or IMS invokes DB2 when no DB2 resource was altered since the completion of the last commit process. When this occurs, DB2 performs both phases of the two-phase commit during the first commit phase and records that the user or job is read-only in relation to its DB2 processing.

Field Name: Q3STRDON

IDBACK*

The maximum number of connections to a single instance from batch or TSO background tasks.
This is a high-water mark.

Field Name: Q3STHWIB

IDFORE*

The maximum number of connections to a single instance from TSO foreground tasks.
This is a high water-mark.

Field Name: Q3STHWIF

CTHREAD*

The highest number of batch CICS, IMS, and TSO tasks (CTHREAD) to a single instance.
This is a high-water mark.

Field Name: Q3STHWCT
ICFID 001 - QSST Data:

This topic shows detailed information about “Record Trace - IFCID 001 - QSST Data”.

This block contains DB2 serviceability fields. Most of these fields are for IBM service use.

Record trace - IFCID 001 - QSST Data

The field labels shown in the following sample layout of “Record Trace - IFCID 001 - QSST Data” are described in the following section.

QSSTGPLF

This field is for IBM service use.

Field Name: QSSTGPLF

QSSTCONT

The number of full system contractions.

Field Name: QSSTCONT

QSSTCRIT

The number of critical storage shortages after contraction.

Field Name: QSSTCRIT

QSSTABND

The number of abends due to local storage shortage.

Field Name: QSSTABND

ICFID 001 - QVAS Data:

This topic shows detailed information about “Record Trace - IFCID 001 - QVAS Data”.

This block contains DB2 serviceability fields. These fields are for IBM service use.

Record trace - IFCID 001 - QVAS Data

The field labels shown in the following sample layout of “Record Trace - IFCID 001 - QVAS Data” are described in the following section.
IFCID 001 - QVAS Data

QVASSUSP

This field is for IBM service use.

Field Name: QVASSUSP

IFCID 001 - QVLS Data:

This topic shows detailed information about “Record Trace - IFCID 001 - QVLS Data”.

The QVLS latch counters represent the number of suspends that were performed by agents that attempted to obtain a latch.

The DB2 latch contentions can be traced by running a performance trace for IFCID 51, 52, 56, and 57. The latch class counters may represent more than one contention because they are reported as modulo 32. For example, LC12 could be either due to latch class X'0C' or latch class X'4C'. The following paragraph shows the predominant latch contention for each latch class. The latch class contentions per second are reported in the Statistics report and trace.

If the latch class contentions per second are:
• Less than 1000, you can ignore them.
• Between 1000 and 10000, you need to start monitoring the issue.
• Greater than 10000 and if this has an impact on your performance, gather the performance trace for the IFCIDs 51, 52, 56, and 57. Then contact IBM support for assistance.

There is not a one-to-one relationship between the QVLS counters and IFCID 56 or 57, because an agent might suspend multiple times or not at all, while trying to obtain a latch. That is why the QVLS counters are not directly related to Accounting Class 3.

Record trace - IFCID 001 - QVLS Data

The field labels shown in the following sample layout of “Record Trace - IFCID 001 - QVLS Data” are described in the following section.

QVLSLC01

This field is infrequently used.

Field Name: QVLSLC01

QVLSLC02

The predominant latch usage is: Global authorization cache.

Field Name: QVLSLC02

QVLSLC03

The predominant latch usage is: DDF disconnect.
<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QVLSLC03</td>
<td>SYSSTRING cache.</td>
</tr>
<tr>
<td>QVLSLC04</td>
<td>IRLM data sharing exits or RLF.</td>
</tr>
<tr>
<td>QVLSLC05</td>
<td>Data sharing index split.</td>
</tr>
<tr>
<td>QVLSLC06</td>
<td>Index latch and OBD allocation.</td>
</tr>
<tr>
<td>QVLSLC07</td>
<td>Query parallelism.</td>
</tr>
<tr>
<td>QVLSLC08</td>
<td>Utilities or stored procedure URIDs.</td>
</tr>
<tr>
<td>QVLSLC09</td>
<td>Sequence objects (stand-alone and table-based Identity Column).</td>
</tr>
<tr>
<td>QVLSLC10</td>
<td>Database allocation control latch (latch class X'0C') or WebSphere global transaction ID latch (latch class X'4C').</td>
</tr>
<tr>
<td>QVLSLC11</td>
<td>Pageset operations.</td>
</tr>
</tbody>
</table>
The predominant latch usage is represented by various buffer pool related activities, including buffer pool control block and pool serialization.

Field Name: QVLSLC14

QVLSLC15
The predominant latch usage is: ARCHIVE LOG MODE (QUIESCE).

Field Name: QVLSLC15

QVLSLC16
The predominant latch usage is: UR synonym chain.

Field Name: QVLSLC16

QVLSLC17
The predominant latch usage is: RURE chain.

Field Name: QVLSLC17

QVLSLC18
The predominant latch usage is: DDF resynch list.

Field Name: QVLSLC18

QVLSLC19
The predominant latch usage is: logical log write (in contrast to physical log write).

Field Name: QVLSLC19

QVLSLC20
The predominant latch usage is: System checkpoint.

Field Name: QVLSLC20

QVLSLC21
The predominant latch usage is: Accounting rollup.

Field Name: QVLSLC21

QVLSLC22
The predominant latch usage is: Internal checkpoint.

Field Name: QVLSLC22

QVLSLC23
The predominant latch usage is: Buffer Manager latch for page latch contention timer queue or deferred write latch. Both types of latches have latch class X'17'.

Field Name: QVLSLC23

QVLSLC24
The predominant latch usage is: Buffer Manager prefetch scheduling latch. EDM LRU latch can be identified by latch class X'18' while Buffer Manager prefetch scheduling latch can be identified by latch class X'38' in a latch contention trace.

Field Name: QVLSLC24

QVLSLC25
The predominant latch usage is: EDM hash latch.

Field Name: QVLSLC25

QVLSLC26

The predominant latch usage is: Dynamic statement cache.

Field Name: QVLSLC26

QVLSLC27

The predominant latch usage is: stored procedure queue latch and UDF.

Field Name: QVLSLC27

QVLSLC28

The predominant latch usage is: Stored procedures or authorization cache.

Field Name: QVLSLC28

QVLSLC29

The predominant latch usage is: Field procs and DDF transaction manager.

Field Name: QVLSLC29

QVLSLC30

The predominant latch usage is: Agent services.

Field Name: QVLSLC30

QVLSLC31

The predominant latch usage is: Storage manager.

Field Name: QVLSLC31

QVLSLC32

The predominant latch usage is shared storage pool latch.

Field Name: QVLSLC32

QVLSLC254

The predominant latch usage is: Index latch.

Field Name: QVLSLC254

IFCID 001 - z/OS Metrics:

This topic shows detailed information about “Record Trace - IFCID 001 - z/OS Metrics”.

Record trace - IFCID 001 - z/OS Metrics

The field labels shown in the following sample layout of “Record Trace - IFCID 001 - z/OS Metrics” are described in the following section.

<table>
<thead>
<tr>
<th>Z/OS METRICS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LPAR CPS</td>
<td>0</td>
</tr>
<tr>
<td>LPAR CPU UTILIZATION</td>
<td>0</td>
</tr>
<tr>
<td>LPAR PAGE-IN RATE</td>
<td>0</td>
</tr>
<tr>
<td>LPAR REAL STOR (MB)</td>
<td>0</td>
</tr>
<tr>
<td>LPAR VIRT STOR (MB)</td>
<td>0</td>
</tr>
<tr>
<td>LPAR FREE REAL STOR (MB)</td>
<td>0</td>
</tr>
<tr>
<td>LPAR FREE VIRT STOR (MB)</td>
<td>0</td>
</tr>
<tr>
<td>DB2 SUBSYS CPU UTILIZATION</td>
<td>0</td>
</tr>
<tr>
<td>DB2 SUBSYS PAGE-IN RATE</td>
<td>0</td>
</tr>
<tr>
<td>DB2 SUBSYS USED REAL STOR (MB)</td>
<td>0</td>
</tr>
<tr>
<td>DB2 SUBSYS USED VIRT STOR (MB)</td>
<td>0</td>
</tr>
<tr>
<td>DB2 MSTR CPU UTILIZATION</td>
<td>0</td>
</tr>
<tr>
<td>DB2 DBM1 CPU UTILIZATION</td>
<td>0</td>
</tr>
</tbody>
</table>
LPAR CPS
The number of standard central processors (CPs) on the logical partition (LPAR) at the end of the defined Monitor III gatherer time interval (called MINTIME). This value does not include ZIIPs. This value is from Resource Measurement Facility (RMF) field CPUG3_PRCON.

Field Name: QWOSLNCP

LPAR CPU UTILIZATION
The percentage of the MINTIME time interval during which RMF reported that the entire LPAR was in use, averaged for a single processor. This value is calculated using Resource Measurement Facility (RMF) field CPUG3_LOGITI.

Field Name: QWOSLPRU

DB2 SUBSYS CPU UTILIZATION
The percentage of the MINTIME time interval during which RMF reported that all DB2 address spaces were in use, calculated for a single processor.

Field Name: QWOSDB2U

LPAR PAGE-IN RATE
The PAGE-IN rate (%) for the LPAR. This value is always set to 0.

Field Name: QWOSLPIR

DB2 SUBSYS PAGE-IN RATE
The PAGE-IN rate (%) for the DB2 subsystem. This value is set to 0.

Field Name: QWOSDPIR

LPAR REAL STOR (MB)
The total real storage in the LPAR, in MB. This value is derived from RMF field GEIRPOOL_VE, which is the number of online real storage frames.

Field Name: QWOSLRST

DB2 SUBSYS USED REAL STOR (MB)
The real storage used by DB2 subsystems, in MB. This value is the sum of the following values for all DB2 address spaces in the LPAR, converted to MB:

- The number of frames for swapped-in users. This value is derived from RMF field ASIFMCT_VE.
- The number of frames for idle users. This value is derived from RMF field ASIFMCTI_VE.

Field Name: QWOSDRSU

LPAR VIRT STOR (MB)
The total virtual storage in the LPAR, in MB. This value is the sum of the following values for all address spaces in the LPAR:

- The number of frames for swapped-in users. This value is derived from RMF field ASIFMCT_VE.
• The number of frames for idle users. This value is derived from RMF field ASIFMCTI_VE.
• The number of auxiliary slots. This value is derived from RMF field ASIAUXSC_VE.

**Field Name:** QWOSLVST

**DB2 SUBSYS USED VIRT STOR (MB)**

The virtual storage used by DB2 subsystems, in MB. This value is the sum of the following values for all DB2 address spaces in the LPAR, converted to MB:

• The number of frames for swapped-in users. This value is derived from RMF field ASIFMCT_VE.
• The number of frames for idle users. This value is derived from RMF field ASIFMCTI_VE.

**Field Name:** QWOSDVSTU

**DB2 SUBSYS FREE VIRT STOR (MB)**

The free virtual storage in the LPAR, in MB. This value is the sum of the following values, converted to MB:

• The total real storage in the LPAR (QWOSLRST)
• The number of currently available slots (RMF field GEISLTA)

**Field Name:** QWOSLRVSF

**DB2 DBM1 CPU UTILIZATION**

The percentage of the MINTIME time interval during which RMF reported that the DB2 DBM1 address space was in use, calculated for a single processor.

**Field Name:** QWOSDBMU

**UNREFERENCED INTERVALS**

The Unreferenced Interval Count (UIC). This value is RMF field GEIAHUIC_VE.

**Field Name:** QWOSLUIC

**QWOSFLG**

This field is for IBM service use.

**Field Name:** QWOSFLG

**QWOSRCDE**

This field is for IBM service use.
IFCID 001 - z/OS Metrics

Field Name: QWOSRCDE

QWOSRSNC

This field is for IBM service use.

Field Name: QWOSRSNC

IFCID 002 - DB2 Statistics: Database 2 Statistics shows the data from IFCID 002.

IFCID 002 - Accelerator Data - Prior to V4:

This topic shows detailed information about “Record Trace - IFCID 002 - Accelerator Data - Prior to V4”.

This topic only refers to IBM DB2 Analytics Accelerator for z/OS prior to version 4.

Note: The field descriptions of the fields QUERIES SUCCESSFULLY EXECUTED, QUERIES FAILED TO EXECUTE, CURRENTLY EXECUTING QUERIES, and MAXIMUM EXECUTING QUERIES refer to SQL statements passed to the accelerator. For product identifiers of IBM DB2 Analytics Accelerator for z/OS prior to AQT04015, the SQL statements are SELECT queries passed to the accelerator.

Record trace - IFCID 002 - Accelerator Data - Prior to V4

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Accelerator Data - Prior to V4” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODUCT ID</td>
<td>The accelerator product identifier.</td>
</tr>
<tr>
<td>SERVER ID</td>
<td>The accelerator server identifier.</td>
</tr>
<tr>
<td>STATE</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q8STPRID</td>
<td></td>
</tr>
<tr>
<td>Q8STNAME</td>
<td></td>
</tr>
</tbody>
</table>

3568 IBM Db2 Performance Expert on z/OS
Shows the current accelerator state. The state depends on the version of IBM DB2 Analytics Accelerator for z/OS:

- **Version 4**:
  
  - 0 = INITIALIZING
  - 1 = ONLINE
  - 3 = OFFLINE
  - 5 = MAINTENANCE
  - 255 = UNKNOWN

- **Prior to Version 4**:
  
  - 0 = INITIALIZED
  - 1 = ONLINE
  - 2 = PAUSED
  - 3 = OFFLINE
  - 4 = STOPPED
  - 5 = MAINTENANCE
  - 6 = DOWN
  - 7 = UNKNOWN

**Field Name: Q8STSTATE**

**QUERIES SUCCESSFULLY EXECUTED**

The number of SQL statements (sent by this DB2 system since accelerator start) that were successfully executed in the accelerator.

**Field Name: Q8STSREQ**

**QUERIES FAILED TO EXECUTE**

The number of SQL statements (sent by this DB2 system since accelerator start) that failed to be successfully executed for any reason.

**Field Name: Q8STFREQ**

**QUERIES FAILED TO EXECUTE - ACCELERATOR IN INVALID STATE**

The number of queries (sent by this DB2 system since accelerator start) that failed to be successfully executed, for example, because the accelerator was in an invalid state.

**Field Name: Q8STFINV**

**CURRENTLY EXECUTING QUERIES**

The number of currently (actively) executing SQL statements in the accelerator on behalf of all DB2 systems (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STACTV_64).

**Field Name: Q8STACTV**

**MAXIMUM EXECUTING QUERIES**

The maximum number of SQL statements actively executing in the accelerator concurrently at any time since accelerator start on behalf of all DB2 systems (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STMAXA_64).
Field Name: Q8STMAXA

CONNECTS TO ACCELERATOR
The number of connects to the accelerator from this DB2 system.

Field Name: Q8STCONN

REQUESTS SENT TO ACCELERATOR
The number of Distributed Relational Database Architecture (DRDA) requests sent by this DB2 system to the accelerator.

Field Name: Q8STREQ

REQUESTS SENT TO ACCELERATOR - TIMED OUT
The number of connections that were timed out when this DB2 system sent requests to the accelerator.

Field Name: Q8STTOUT

REQUESTS SENT TO ACCELERATOR - FAILED
The number of connections that failed when this DB2 system sent requests to the accelerator.

Field Name: Q8STFAIL

BYTES SENT TO ACCELERATOR
The total number of bytes sent to the accelerator.

Field Name: Q8STBYTS

BYTES RECEIVED FROM ACCELERATOR
The total number of bytes received from the accelerator.

Field Name: Q8STBYTR

MESSAGES SENT TO ACCELERATOR
The total number of messages sent to the accelerator.

Field Name: Q8STMSGS

MESSAGES RECEIVED FROM ACCELERATOR
The total number of messages received from the accelerator.

Field Name: Q8STMSGR

BLOCKS SENT TO ACCELERATOR
The total number of blocks sent to the accelerator.

Field Name: Q8STBLKS

BLOCKS RECEIVED FROM ACCELERATOR
The total number of blocks received from the accelerator.

Field Name: Q8STBLKR

ROWS SENT TO ACCELERATOR
The total number of rows sent to the accelerator.

Field Name: Q8STROWS

ROWS RECEIVED FROM ACCELERATOR
The total number of rows received from the accelerator.

**Field Name:** Q8STROWR

**TCP/IP SERVICES ELAPSED TIME**

The accumulated accelerator services TCP/IP elapsed time measured in DB2. It starts when sending the requests to the accelerator and ends when receiving the results from the accelerator.

**Field Name:** Q8STTELA

**WAIT TIME IN ACCELERATOR**

The wait time spent in the accelerator when executing requests from the DB2 subsystem.

**Field Name:** Q8STAWAT

**AVG. QUEUE LENGTH (LAST 3 HOURS)**

The average queue length during the last 3 hours at the accelerator.

**Field Name:** Q8STAVGQ03

**AVG. QUEUE LENGTH (LAST 24 HOURS)**

The average queue length during the last 24 hours at the accelerator.

**Field Name:** Q8STAVGQ24

**MAXIMUM QUEUE LENGTH**

The high watermark of the queue length at the accelerator (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STMAXQ_64).

**Field Name:** Q8STMAXQ

**AVG QUEUE WAIT ELAPSED TIME**

The average wait time at the accelerator queue.

**Field Name:** Q8STQUEW

**MAX QUEUE WAIT ELAPSED TIME**

The maximum wait time at the accelerator queue.

**Field Name:** Q8STQUEM

**WORKER NODES**

The number of active worker nodes (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STWNOD_64).

**Field Name:** Q8STWNOD

**WORKER NODES AVG CPU UTILIZATION (%)**

The current CPU utilization on the accelerator worker nodes. This is a snapshot, which is the average CPU utilization across all worker nodes (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STWCPU_64).

**Field Name:** Q8STWCPU

**COORDINATOR AVG CPU UTILIZATION (%)**

The current CPU utilization on the accelerator coordinator node (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STCCPU_64).
Field Name: Q8STCCPU

DISK STORAGE AVAILABLE (MB)

The disk storage (MB) available at the accelerator.

Field Name: Q8STDSKA

DISK STORAGE AVAILABLE - IN USE (%)

The current disk utilization of the accelerator worker nodes, expressed as percentage of the used I/O channels/resources.

Field Name: Q8STDSKU

DISK STORAGE AVAILABLE - IN USE FOR DATABASE (MB)

The disk storage in-use for accelerator databases for this DB2 system.

Field Name: Q8STDSKB

DATA SLICES

The number of data slices at the accelerator. This equals the degree of parallel I/O channels.

Field Name: Q8STNMDS

DATA SKEW

When table data is loaded into the accelerator, it may be unevenly distributed across the different data slices on the disks. This disparity is called data skew. The counter represents the accumulated skew over all tables that belong to the DB2 subsystem. The skew of a table is the ratio that shows how uneven the data slices are, as calculated by ((maximum data slice size - minimum data slice size) / median data slice size).

A high value indicates, that data reorganization can improve disk utilization and query performance.

Field Name: Q8STSKEW

PROCESSORS

The number of CPU cores available on all worker nodes.

Field Name: Q8STCORS

ELAPSED TIME IN ACCELERATOR

The accumulated elapsed time spent in the accelerator when executing requests from the DB2 subsystem.

Field Name: Q8STAELA

CPU TIME SPENT IN ACCELERATOR

The CPU time spent in the accelerator when executing requests from the DB2 subsystem.

Field Name: Q8STACPU

ICFID 002 - Accelerator Data - Subsystem/Group Perspective V4 or later:

This topic shows detailed information about “Record Trace - IFCID 002 - Accelerator Data - Subsystem/Group Perspective V4 or later”.

Note: This topic only refers to IBM DB2 Analytics Accelerator for z/OS version 4 or later.
A value of -1 in the following fields indicates that the status of the acceleration or replication server is unknown:

- CPU TIME EXECUTING QUERIES
- CPU TIME LOAD/ARCHIVE/RESTORE
- WAIT TIME IN ACCELERATOR
- CPU TIME FOR REPLICAITION
- REPLICAITION LATENCY

Note: The descriptions of the fields labelled with SQL STMTS refer to SQL statements passed to the accelerator. For product identifiers of IBM DB2 Analytics Accelerator for z/OS prior to AQT04015, the SQL statements are SELECT queries passed to the accelerator and the fields INSERT STMTS to ROLLBACK STMTS are N/A.

Record trace - IFCID 002 - Accelerator Data - Subsystem/Group Perspective V4 or later

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Accelerator Data - Subsystem/Group Perspective V4 or later” are described in the following section.

### PRODUCT ID
The accelerator product identifier.

**Field Name:** Q8STPRID

### SERVER ID
The accelerator server identifier.

**Field Name:** Q8STNAME

### STATE
Shows the current accelerator state. The state depends on the version of IBM DB2 Analytics Accelerator for z/OS:

- **Version 4:**
  - 0 = INITIALIZING
  - 1 = ONLINE
IFCID 002 - Accelerator Data - Subsystem Perspective - V4 or later

3 = OFFLINE
5 = MAINTENANCE
255 = UNKNOWN

• Prior to Version 4:
  0 = INITIALIZED
  1 = ONLINE
  2 = PAUSED
  3 = OFFLINE
  4 = STOPPED
  5 = MAINTENANCE
  6 = DOWN
  7 = UNKNOWN

Field Name: Q8STSTATE

SQL STMTS SUCCESSFULLY EXECUTED

The number of SQL statements (sent by this DB2 system since accelerator start) that were successfully executed in the accelerator.

Field Name: Q8STSREQ

CURRENTLY EXECUTING SQL STMTS

The number of currently executing SQL statements in the accelerator on behalf of this DB2 system.

Field Name: Q8STNQCS

MAXIMUM EXECUTING SQL STMTS

Shows the maximum number of SQL statements executing in the accelerator at any time since accelerator start on behalf of this DB2 system.

Field Name: Q8STMNQS

CONNECTS TO ACCELERATOR

The number of connects to the accelerator from this DB2 system.

Field Name: Q8STCONN

REQUESTS SENT TO ACCELERATOR

The number of Distributed Relational Database Architecture (DRDA) requests sent by this DB2 system to the accelerator.

Field Name: Q8STREQ

REQUESTS TIMED OUT

The number of connections that were timed out when this DB2 system sent requests to the accelerator.

Field Name: Q8STOUT

REQUESTS FAILED

The number of connections that failed when this DB2 system sent requests to the accelerator.

Field Name: Q8STFAIL
BLOCKS SENT TO ACCELERATOR
The total number of blocks sent to the accelerator.
Field Name: Q8STBLKS

BLOCKS RECEIVED FROM ACCELERATOR
The total number of blocks received from the accelerator.
Field Name: Q8STBLKR

ELAPSED TIME IN TCP/IP SERVICES
The accumulated accelerator services TCP/IP elapsed time measured in DB2. It starts when sending the requests to the accelerator and ends when receiving the results from the accelerator.
Field Name: Q8STTELA

CPU TIME IN TCP/IP SERVICES
The accelerator services TCP/IP CPU time measured in DB2. It starts when sending the requests to the accelerator and ends when receiving the results from the accelerator.
Field Name: Q8STTCPU

ELAPSED TIME IN ACCELERATOR SERVICES
The accelerator services elapsed time.
Field Name: Q8STSELA

CPU TIME IN ACCELERATOR SERVICES
The CPU time of the accelerator services.
Field Name: Q8STSCPU

LOG RECORDS READ
The number of log records read by the replication capture agent for this DB2 system.
Field Name: Q8STNLRS

LOG RECORDS FOR ACCELERATOR TABLES
The number of log records (read by the replication capture agent for this DB2 system) that are applicable to tables in this accelerator.
Field Name: Q8STNLTS

LOG RECORD BYTES PROCESSED
The number of log record bytes processed by the replication capture agent for this DB2 system.
Field Name: Q8STNBS

CPU TIME FOR REPLICATION
The total CPU cost associated with the replication apply process for this DB2 system.
Field Name: Q8STTCCS

REPLICATION STATUS
The current replication state of the accelerator for this DB2 system:
0  Started
1  Stopped
2  Error
3  Starting
4  Stopping

Field Name: Q8STCSS

REPLICATION STATUS CHANGE

The timestamp when the last change of the accelerator replication state occurred for this DB2 system.

Field Name: Q8STTLSC

SQL STMTS FAILED TO EXECUTE

The number of SQL statements (sent by this DB2 system since accelerator start) that failed to be successfully executed for any reason.

Field Name: Q8STFREQ

CPU TIME EXECUTING SQL STMTS

The total CPU cost associated with executing SQL statements in the accelerator on behalf of this DB2 system.

Field Name: Q8STTCQS

CPU TIME LOAD/ARCHIVE/RESTORE

The total CPU cost spent in the accelerator for data maintenance operations from this DB2 system. Replication-related operations are not included.

Field Name: Q8STTCMS

BYTES SENT TO ACCELERATOR

The total number of bytes sent to the accelerator.

Field Name: Q8STBYTS

BYTES RECEIVED FROM ACCELERATOR

The total number of bytes received from the accelerator.

Field Name: Q8STBYTR

MESSAGES SENT TO ACCELERATOR

The total number of messages sent to the accelerator.

Field Name: Q8STMSGS

MESSAGES RECEIVED FROM ACCELERATOR

The total number of messages received from the accelerator.

Field Name: Q8STMSGR

ROWS SENT TO ACCELERATOR

The total number of rows sent to the accelerator.

Field Name: Q8STROWS

ROWS RECEIVED FROM ACCELERATOR

The total number of rows received from the accelerator.
FIELD NAME: Q8STROWR

ELAPSED TIME IN ACCELERATOR
The accumulated elapsed time spent in the accelerator when executing requests from the DB2 subsystem.

FIELD NAME: Q8STAELA

CPU TIME IN ACCELERATOR
The CPU time spent in the accelerator when executing requests from the DB2 subsystem.

FIELD NAME: Q8STACPU

WAIT TIME IN ACCELERATOR
The wait time spent in the accelerator when executing requests from the DB2 subsystem.

FIELD NAME: Q8STAWAT

INSERT ROWS FOR ACCELERATOR TABLES
The number of INSERT rows applicable to accelerator tables that were processed by the replication capture agent for this DB2 system.

FIELD NAME: Q8STNIS

UPDATE ROWS FOR ACCELERATOR TABLES
The number of UPDATE rows applicable to accelerator tables that were processed by the replication capture agent for this DB2 system.

FIELD NAME: Q8STNUS

DELETE ROWS FOR ACCELERATOR TABLES
The number of DELETE rows applicable to accelerator tables that were processed by the replication capture agent for this DB2 system.

FIELD NAME: Q8STNDS

REPLICATION LATENCY
The current replication latency for this DB2 system. Latency is defined as the time difference between the timestamp, when the last log record was applied to the target, compared to the current time.

FIELD NAME: Q8STCRL

IFCID 002 - Accelerator Data - Subsystem Perspective - V4 or later:

This topic shows detailed information about “Record Trace - IFCID 002 - Accelerator Data - Accelerator Perspective V4 or later”.

Note: This topic only refers to IBM DB2 Analytics Accelerator for z/OS version 4 or later.

A value of -1 in the following fields indicates that the status of the acceleration or replication server is unknown:

• CPU TIME EXECUTING QUERIES
• CPU TIME LOAD/ARCHIVE/RESTORE
• AVG QUEUE WAIT ELAPSED TIME
• MAX QUEUE WAIT ELAPSED TIME
IFCID 002 - Accelerator Data - Accelerator Perspective - V4 or later

- WORKER NODES DISK UTILIZATION (%)
- WORKER NODES AVG CPU UTILIZATION (%)
- COORDINATOR CPU UTILIZATION (%)
- CPU TIME FOR REPLICATION

Note: The descriptions of the fields labelled with QUERIES refer to SQL statements passed to the accelerator. For product identifiers of IBM DB2 Analytics Accelerator for z/OS prior to AQT04015, the SQL statements are SELECT queries passed to the accelerator and the fields INSERT STMTS to ROLLBACK STMTS are N/A.

Record trace - IFCID 002 - Accelerator Data - Accelerator Perspective V4 or later

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Accelerator Data - Accelerator Perspective V4 or later” are described in the following section.

ACCELERATOR DATA - ACCELERATOR PERSPECTIVE

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUERIES SUCCESSFULLY EXECUTED</td>
<td>2</td>
</tr>
<tr>
<td>CURRENTLY EXECUTING QUERIES</td>
<td>0</td>
</tr>
<tr>
<td>MAXIMUM EXECUTING QUERIES</td>
<td>0</td>
</tr>
<tr>
<td>MAXIMUM EXECUTING QUERIES</td>
<td>1</td>
</tr>
<tr>
<td>ACCELERATOR SERVER START</td>
<td>12/16/13 09:38:08.975827</td>
</tr>
<tr>
<td>ACCELERATOR STATUS CHANGE</td>
<td>12/16/13 09:38:14.665673</td>
</tr>
<tr>
<td>CURRENT QUEUE LENGTH</td>
<td>0</td>
</tr>
<tr>
<td>MAXIMUM QUEUE LENGTH</td>
<td>0</td>
</tr>
<tr>
<td>AVG QUEUE WAIT ELAPSED TIME</td>
<td>0.005356</td>
</tr>
<tr>
<td>MAX QUEUE WAIT ELAPSED TIME</td>
<td>0.518395</td>
</tr>
<tr>
<td>WORKER NODES DISK UTILIZATION (%)</td>
<td>0.00</td>
</tr>
<tr>
<td>COORDINATOR CPU UTILIZATION (%)</td>
<td>10.00</td>
</tr>
<tr>
<td>LOG RECORDS READ</td>
<td>4142380</td>
</tr>
<tr>
<td>LOG RECORDS FOR ACCELERATOR TABLES</td>
<td>2839302</td>
</tr>
<tr>
<td>LOG RECORDS FOR ACCELERATOR TABLES</td>
<td>187458080</td>
</tr>
<tr>
<td>CPU TIME FOR REPLIATION</td>
<td>15.616267</td>
</tr>
</tbody>
</table>

**QUERIES SUCCESSFULLY EXECUTED**

The number of SQL statements (sent by all DB2 systems since accelerator start) that successfully executed in the accelerator.

Field Name: Q8STNQSA

**CURRENTLY EXECUTING QUERIES**

The number of currently (actively) executing SQL statements in the accelerator on behalf of all DB2 systems (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STACTV_64).

Field Name: Q8STACTV

**MAXIMUM EXECUTING QUERIES**

The maximum number of SQL statements actively executing in the accelerator concurrently at any time since accelerator start on behalf of all DB2 systems (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STMAXA_64).

Field Name: Q8STMAXA

**ACCELERATOR SERVER START**

The timestamp when the accelerator server process started last time.

Field Name: Q8STTART

**ACCELERATOR STATUS CHANGE**

...
The timestamp when the last change of the accelerator occurred.

Field Name: Q8STTATC

**CURRENT QUEUE LENGTH**

The current queue length at the accelerator.

Field Name: Q8STCQL

**MAXIMUM QUEUE LENGTH**

The high watermark of the queue length at the accelerator (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STMAXQ_64).

Field Name: Q8STMAXQ

**AVG QUEUE WAIT ELAPSED TIME**

The average wait time at the accelerator queue.

Field Name: Q8STQUEW

**MAX QUEUE WAIT ELAPSED TIME**

The maximum wait time at the accelerator queue.

Field Name: Q8STQUEM

**WORKER NODES DISK UTILIZATION (%)**

The current disk utilization of the accelerator worker nodes, expressed as percentage of the used I/O channels/resources.

Field Name: Q8STDSKU

**WORKER NODES AVG CPU UTILIZATION (%)**

The current CPU utilization on the accelerator worker nodes. This is a snapshot, which is the average CPU utilization across all worker nodes (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STWCPU_64).

Field Name: Q8STWCPU

**COORDINATOR CPU UTILIZATION (%)**

The current CPU utilization on the accelerator coordinator node (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STCCPU_64).

Field Name: Q8STCCPU

**LOG RECORDS READ**

The number of log records read by the replication capture agents for all DB2 systems.

Field Name: Q8STNLRA

**LOG RECORDS FOR ACCELERATOR TABLES**

The number of log records read by the replication capture agents for all DB2 systems that are applicable to tables in this accelerator.

Field Name: Q8STNLTA

**LOG RECORD Bytes PROCESSED**

The number of log record bytes processed by the replication capture agents for all DB2 systems.
CPU TIME FOR REPLICATION

The total CPU cost associated with the replication apply process for all DB2 systems.

Field Name: Q8STNBA

QUERIES FAILED TO EXECUTE

Shows the number of SQL statements (sent by all DB2 systems since accelerator start) that were not successfully executed for any reason.

Field Name: Q8STTCCA

CPU TIME EXECUTING QUERIES

The total CPU cost associated with executing SQL statements in the accelerator on behalf of all DB2 systems.

Field Name: Q8STTCQA

CPU TIME LOAD/ARCHIVE/RESTORE

The total CPU cost spent in the accelerator for data maintenance operations from all DB2 systems. Replication-related operations are not included.

Field Name: Q8STTCMA

DISK STORAGE AVAILABLE (MB)

The disk storage (MB) available at the accelerator.

Field Name: Q8STDSKA

DISK STOR IN USE - THIS DB2 SYS (MB)

The disk storage in-use for accelerator databases for this DB2 system.

Field Name: Q8STDSKB

DISK STOR IN USE - ALL DB2 SYS (MB)

The disk storage (MB) in-use for accelerator databases for all DB2 systems.

Field Name: Q8STDSA

WORKER NODES

The number of active worker nodes (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STWNOD_64).

Field Name: Q8STWNOD

AVAILABLE CPU CORES

The number of CPU cores available on all worker nodes.

Field Name: Q8STCORS

DATA SLICES

The number of data slices at the accelerator. This equals the degree of parallel I/O channels.

Field Name: Q8STNMDS

INSERT ROWS FOR ACCELERATOR TABLES

The number of INSERT rows applicable to accelerator tables that were processed by the replication capture agents for all DB2 systems.
Field Name: Q8STNIA

**UPDATE ROWS FOR ACCELERATOR TABLES**

The number of UPDATE rows applicable to accelerator tables that were processed by the replication capture agents for all DB2 systems.

Field Name: Q8STNUA

**DELETE ROWS FOR ACCELERATOR TABLES**

The number of DELETE rows applicable to accelerator tables that were processed by the replication capture agents for all DB2 systems.

Field Name: Q8STNDA

**IFCID 002 - Accelerator SQL Call Data V4 or later:**

This topic shows detailed information about “Record Trace - IFCID 002 - Accelerator SQL Call Data V4 or later”.

**Record trace - IFCID 002 - Accelerator SQL Call Data V4 or later**

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Accelerator SQL Call Data V4 or later” are described in the following section.

<table>
<thead>
<tr>
<th>ACCELERATOR SQL CALL DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSERT STMTS SENT TO ACCELERATOR ...: 3 UPDATE STMTS SENT TO ACCELERATOR ...: 7</td>
</tr>
<tr>
<td>DELETE STMTS SENT TO ACCELERATOR ...: 4 DROP STMTS SENT TO ACCELERATOR ...: 8</td>
</tr>
<tr>
<td>CREATE STMTS SENT TO ACCELERATOR ...: 5 COMMIT STMTS SENT TO ACCELERATOR ...: 9</td>
</tr>
<tr>
<td>ROLLBACK STMTS SENT TO ACCELERATOR ...: 6 OPEN STMTS SENT TO ACCELERATOR ...: 10</td>
</tr>
</tbody>
</table>

**INSERT STMTS SENT TO ACCELERATOR**

The number of INSERT statements sent by the DB2 system to the accelerator.

Field Name: Q8STINSC

**DELETE STMTS SENT TO ACCELERATOR**

The number of DELETE statements sent by the DB2 system to the accelerator.

Field Name: Q8STDELC

**CREATE STMTS SENT TO ACCELERATOR**

The number of CREATE statements sent by the DB2 system to the accelerator.

Field Name: Q8STCRTC

**ROLLBACK STMTS SENT TO ACCELERATOR**

The number of ROLLBACK statements sent by the DB2 system to the accelerator.

Field Name: Q8STRBKC

**UPDATE STMTS SENT TO ACCELERATOR**

The number of UPDATE statements sent by the DB2 system to the accelerator.

Field Name: Q8STUPDC

**DROP STMTS SENT TO ACCELERATOR**
IFCID 002 - Accelerator SQL Call Data V4 or later

The number of DROP statements sent by the DB2 system to the accelerator.

Field Name: Q8STDRPC

COMMIT STMTS SENT TO ACCELERATOR

The number of COMMIT statements sent by the DB2 system to the accelerator.

Field Name: Q8STCMTC

OPEN STMTS SENT TO ACCELERATOR

The number of OPEN statements sent by the DB2 system to the accelerator.

Field Name: Q8STOPNC

IFCID 002 - Buffer pool activity:

This topic shows detailed information about “Record Trace - IFCID 002 - Buffer Pool Activity”.

This block shows buffer pool activity at thread level.

For details on buffer pool activities, refer to the documentation of Performance Expert Buffer Pool Analyzer.

This report has the same layout as “IFCID 002 - Miscellaneous” on page 3628.

Record trace - IFCID 002 - Buffer Pool Activity

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Buffer Pool Activity” are described in the following section.

**BUFFER POOL ID**

The buffer pool ID.

Field Name: QBSTPID

**FLAGS**

The number of DROP statements sent by the DB2 system to the accelerator.

Field Name: Q8STDRPC

**COMMIT STMTS SENT TO ACCELERATOR**

The number of COMMIT statements sent by the DB2 system to the accelerator.

Field Name: Q8STCMTC

**OPEN STMTS SENT TO ACCELERATOR**

The number of OPEN statements sent by the DB2 system to the accelerator.

Field Name: Q8STOPNC

*IFCID 002 - Buffer pool activity:*

This topic shows detailed information about “Record Trace - IFCID 002 - Buffer Pool Activity”.

This block shows buffer pool activity at thread level.

For details on buffer pool activities, refer to the documentation of Performance Expert Buffer Pool Analyzer.

This report has the same layout as “IFCID 002 - Miscellaneous” on page 3628.

**Record trace - IFCID 002 - Buffer Pool Activity**

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Buffer Pool Activity” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUFFER POOL ID</td>
<td>0</td>
</tr>
<tr>
<td>CURRENT ACTIVE BUFFERS</td>
<td>96</td>
</tr>
<tr>
<td>BUFFER UPDATES</td>
<td>1512283</td>
</tr>
<tr>
<td>GETPAGE REQUESTS-SEQUENTIAL</td>
<td>1565136</td>
</tr>
<tr>
<td>NUMBER OF DATA SET OPENS</td>
<td>334</td>
</tr>
<tr>
<td>SYNCHRONOUS WRITES</td>
<td>7085</td>
</tr>
<tr>
<td>SYNCHRONOUS READS-SEQUENTIAL</td>
<td>579</td>
</tr>
<tr>
<td>VPOOL EXPANSION OR CONTRACT</td>
<td>66736</td>
</tr>
<tr>
<td>DATA MANAGER BUF CRITICAL THRESHOLD</td>
<td>0</td>
</tr>
<tr>
<td>LIST PREFETCH REQUESTS</td>
<td>214</td>
</tr>
<tr>
<td>LIST PREFETCH READS</td>
<td>57</td>
</tr>
<tr>
<td>PREFETCH 1/0 STREAMS REDUCTION</td>
<td>0</td>
</tr>
<tr>
<td>MAX WORKFILES CONCURRENTLY USED</td>
<td>0</td>
</tr>
<tr>
<td>DYNAMIC PREFETCH REQUESTS</td>
<td>13266</td>
</tr>
<tr>
<td>DYNAMIC PREFETCH READS</td>
<td>237</td>
</tr>
<tr>
<td>PAGES READ VIA DYNAMIC PREFETCH</td>
<td>3011</td>
</tr>
<tr>
<td>WORKFILE REQUESTED-ALL MERGE PASS</td>
<td>0</td>
</tr>
<tr>
<td>PREFETCH QUANTITY REDUCED TO HALF</td>
<td>46172</td>
</tr>
<tr>
<td>WORKFILE PREFETCH NOT SCHEDULED</td>
<td>0</td>
</tr>
<tr>
<td>PREFETCH DISABLED-NO READ ENGINE</td>
<td>0</td>
</tr>
<tr>
<td>FAILED COND SEGAM GETPAGE REQUEST</td>
<td>0</td>
</tr>
<tr>
<td>WORKFILE PAGES NOT WRITTEN</td>
<td>0</td>
</tr>
<tr>
<td>MINIMUM BUFFERS ON SLRU (LIM)</td>
<td>1720</td>
</tr>
<tr>
<td>MAXIMUM BUFFERS ON SLRU (HWM)</td>
<td>1721</td>
</tr>
<tr>
<td>IN-MEM OVL RND REQUESTS</td>
<td>0</td>
</tr>
<tr>
<td>IN-MEM OVL RND SYNC READS</td>
<td>0</td>
</tr>
<tr>
<td>RANDOM GETPAGE BUFFER HIT</td>
<td>10226</td>
</tr>
<tr>
<td>SUCCESSFUL ZHYPERLINK READS</td>
<td>3486</td>
</tr>
</tbody>
</table>

**BUFFER POOL ID**

The buffer pool ID.

Field Name: QBSTPID

**FLAGS**

The number of DROP statements sent by the DB2 system to the accelerator.

Field Name: Q8STDRPC

**COMMIT STMTS SENT TO ACCELERATOR**

The number of COMMIT statements sent by the DB2 system to the accelerator.

Field Name: Q8STCMTC

**OPEN STMTS SENT TO ACCELERATOR**

The number of OPEN statements sent by the DB2 system to the accelerator.

Field Name: Q8STOPNC

The number of DROP statements sent by the DB2 system to the accelerator.

Field Name: Q8STDRPC

**COMMIT STMTS SENT TO ACCELERATOR**

The number of COMMIT statements sent by the DB2 system to the accelerator.

Field Name: Q8STCMTC

**OPEN STMTS SENT TO ACCELERATOR**

The number of OPEN statements sent by the DB2 system to the accelerator.

Field Name: Q8STOPNC

*IFCID 002 - Buffer pool activity:*

This topic shows detailed information about “Record Trace - IFCID 002 - Buffer Pool Activity”.

This block shows buffer pool activity at thread level.

For details on buffer pool activities, refer to the documentation of Performance Expert Buffer Pool Analyzer.

This report has the same layout as “IFCID 002 - Miscellaneous” on page 3628.

**Record trace - IFCID 002 - Buffer Pool Activity**

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Buffer Pool Activity” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUFFER POOL ID</td>
<td>0</td>
</tr>
<tr>
<td>CURRENT ACTIVE BUFFERS</td>
<td>96</td>
</tr>
<tr>
<td>BUFFER UPDATES</td>
<td>1512283</td>
</tr>
<tr>
<td>GETPAGE REQUESTS-SEQUENTIAL</td>
<td>1565136</td>
</tr>
<tr>
<td>NUMBER OF DATA SET OPENS</td>
<td>334</td>
</tr>
<tr>
<td>SYNCHRONOUS WRITES</td>
<td>7085</td>
</tr>
<tr>
<td>SYNCHRONOUS READS-SEQUENTIAL</td>
<td>579</td>
</tr>
<tr>
<td>VPOOL EXPANSION OR CONTRACT</td>
<td>66736</td>
</tr>
<tr>
<td>DATA MANAGER BUF CRITICAL THRESHOLD</td>
<td>0</td>
</tr>
<tr>
<td>LIST PREFETCH REQUESTS</td>
<td>214</td>
</tr>
<tr>
<td>LIST PREFETCH READS</td>
<td>57</td>
</tr>
<tr>
<td>PREFETCH 1/0 STREAMS REDUCTION</td>
<td>0</td>
</tr>
<tr>
<td>MAX WORKFILES CONCURRENTLY USED</td>
<td>0</td>
</tr>
<tr>
<td>DYNAMIC PREFETCH REQUESTS</td>
<td>13266</td>
</tr>
<tr>
<td>DYNAMIC PREFETCH READS</td>
<td>237</td>
</tr>
<tr>
<td>PAGES READ VIA DYNAMIC PREFETCH</td>
<td>3011</td>
</tr>
<tr>
<td>WORKFILE REQUESTED-ALL MERGE PASS</td>
<td>0</td>
</tr>
<tr>
<td>PREFETCH QUANTITY REDUCED TO HALF</td>
<td>46172</td>
</tr>
<tr>
<td>WORKFILE PREFETCH NOT SCHEDULED</td>
<td>0</td>
</tr>
<tr>
<td>PREFETCH DISABLED-NO READ ENGINE</td>
<td>0</td>
</tr>
<tr>
<td>FAILED COND SEGAM GETPAGE REQUEST</td>
<td>0</td>
</tr>
<tr>
<td>WORKFILE PAGES NOT WRITTEN</td>
<td>0</td>
</tr>
<tr>
<td>MINIMUM BUFFERS ON SLRU (LIM)</td>
<td>1720</td>
</tr>
<tr>
<td>MAXIMUM BUFFERS ON SLRU (HWM)</td>
<td>1721</td>
</tr>
<tr>
<td>IN-MEM OVL RND REQUESTS</td>
<td>0</td>
</tr>
<tr>
<td>IN-MEM OVL RND SYNC READS</td>
<td>0</td>
</tr>
<tr>
<td>RANDOM GETPAGE BUFFER HIT</td>
<td>10226</td>
</tr>
<tr>
<td>SUCCESSFUL ZHYPERLINK READS</td>
<td>3486</td>
</tr>
</tbody>
</table>
The flag byte shows if more QBST data is following or if this is the last of the QBST repeating groups.

**Field Name:** QBSTFLG

**CURRENT ACTIVE BUFFERS**

The total number of currently active (nonstealable) buffers. This field is an instantaneous sample of the number of buffers in the buffer pool that were updated or in use at the time this monitor data was requested. Because this field gives a snapshot value at statistics collection time, it only shows a problem if it happens at this time.

**Background and Tuning Information**

The buffer pool might be too small if the percentage of active pages in the buffer pool is beyond the deferred write threshold (DWQT).

**Field Name:** QBSTCBA

**GETPAGE REQUESTS**

The number of Getpage requests including conditional and unconditional requests.

**Field Name:** QBSTGET

**BUFFER UPDATES**

The number of times buffer updates were requested against pages in the buffer pool.

**Background and Tuning Information**

The ratio of Buffer Updates to Pages Written (QBSTPWS) suggests a high level of efficiency as it increases, because more updates are being externalized per physical write.

Buffer updates per pages written depends strongly on the type of application. For example, a batch program that processes a table in skip sequential mode with a high row update frequency in a dedicated environment can achieve very good update efficiency. In contrast, update efficiency tends to be lower for transaction processing applications, because transaction processing tends to be random.

The following can influence the number of updates per page:

**Number of rows per page**

A small PCTFREE value gathers more rows on the same page. However, at the same time this can impact concurrency.

**Buffer pool size and deferred write thresholds**

Increase DWQT and VDWQT or the size of the buffer pool. This causes DB2 to let page updates accumulate in the buffer pool. Therefore, the probability that more updates per page get captured increases. This effect is less significant if the buffer pool is concurrently used by several transactions, it also depends on the type of transaction.

**Field Name:** QBSTSWS

This is an exception field.

**UNAVAILABLE BUFFER-VPOOL FULL**
The number of times a usable buffer could not be located in the virtual buffer pool because the virtual buffer pool was full.

**Background and Tuning Information**

Ideally, this value should be 0. Any other value indicates that the buffer pool is underallocated. In this case, use the ALTER BUFFERPOOL command to increase the virtual buffer pool size until this value remains at 0.

**Field Name:** QBSTXFL

This is an *exception* field.

**GETPAGE REQUESTS-SEQUENTIAL**

The number of Getpage requests issued by sequential access requesters.

**Field Name:** QBSTSGT

**PAGES WRITTEN**

The number of pages in the buffer pool written to DASD.

**Background and Tuning Information**

Consider the ratio of Pages Written per write I/O. The number of write I/O operations includes Asynchronous Writes (QBSTWIO) and Synchronous Writes (QBSTIMW).

The ratio of pages per write I/O suggests a high level of efficiency as the ratio increases, because more pages are being externalized per physical write.

The following factors impact the ratio of pages written per write I/O:

**Checkpoint frequency**

At checkpoint time, I/Os are scheduled to write all updated pages on the deferred write queue to DASD. If this occurs too frequently, the deferred write queue does not grow large enough to achieve a high ratio of pages written per write I/O.

The checkpoint frequency depends on the number of logs written between two consecutive checkpoints. This number is set at installation time; see the field CHECKPOINT FREQ of installation panel DSNTIPN.

**Frequency of active log switch**

DB2 takes a system checkpoint each time the active log is switched. High frequency of active log switches causes the problem described under checkpoint frequency.

**Buffer pool size and deferred write thresholds**

The deferred write thresholds (VDWQT and DWQT) are a function of buffer pool size. If the buffer pool size is decreased, these thresholds are reached more frequently, causing I/Os to be scheduled more often to write some of the pages on the deferred write queue to DASD. This prevents the deferred write queue from growing large enough to achieve a high ratio of pages written per write I/O.

**Number of data sets, and the spread of updated pages across them**

The efficiency of write I/O also depends on the number of data sets associated with the buffer pool and spread of updated pages across them. Because of the nature of batch processing, the ratio of
pages written to write I/Os can be expected to be higher than that expected for transaction type workloads.

To determine update efficiency, use also the value in the Buffer Updates field (QBSTWS) to check the number of buffer updates per page written.

**Field Name:** QBSTPWS

This is an *exception* field.

**NUMBER OF DATA SET OPENS**

The number of data sets physically opened successfully. This value is cumulative from the start of the DB2 statistics interval.

**Field Name:** QBSTDSO

This is an *exception* field.

**SYNCHRONOUS READS**

The number of synchronous read I/O operations performed by DB2 for applications and utilities.

**Background and Tuning Information**

This number includes both Synchronous Reads Sequential Access Only (QBSTSIO) and synchronous read operations for non-sequential access.

You can use this value and the value of Synchronous Reads Sequential Access Only to calculate the number of Non-Sequential Synchronous Reads.

Check the buffer pool hit ratio if the number of non-sequential synchronous reads is larger than expected.

**Field Name:** QBSTRIO

This is an *exception* field.

**SYNCHRONOUS WRITES**

The total number of immediate writes.

Immediate writes occur when:

- An immediate write threshold (IWTH) is reached
- No deferred write engines are available
- More than two checkpoints pass without a page being written.

Sometimes DB2 uses synchronous writes even when the IWTH is not exceeded. As an example, when more than two checkpoints pass without a page being written. This type of situation does not indicate a buffer shortage.

**Background and Tuning Information**

A small number of immediate writes can be expected. Synchronous writes occur if there are too many checkpoints and/or the buffer pool is too small.

If a large number of synchronous writes occur, monitor the DM Critical Threshold Reached (QBSTDMC) field. Reaching Immediate Write Threshold (IWTH-97.5%) implies that the Data Management Threshold (DMTH-95%) has been crossed. You can ignore the value in the immediate
write field when DM Critical Threshold Reached is zero. Otherwise consider increasing the size of the buffer pool. You can use the ALTER BUFFERPOOL command.

Check also the System Event Checkpoint field (QWSDCKPT) in the Subsystem Services block to see whether the frequency of DB2 checkpoints should be reduced. To do this, increase the value of ZPARM LOGLOAD.

Field Name: QBSTIMW
This is an exception field.

BUFFERS ALLOCATED-VPOOL
The number of buffers allocated for a virtual buffer pool.

Note: In DB2 10, the buffer pool size can increase continuously by up to 25% for each DB2 restart. In DB2 11, the AUTOSIZE option of the ALTER BUFFERPOOL command can limit the range within VPSIZEMIN and VPSIZEMAX.

Background and Tuning Information
You should monitor the buffer pool hit ratio field to find the optimum size of the buffer pool. Usually the buffer pool hit ratio is improved by increasing the size of the buffer pool. However, paging the buffer pool storage impacts DB2 performance if the virtual buffer pool is too large.

Page-ins Required for Read I/O (QBSTRPI) and Page-ins Required for Write I/O (QBSTWPI) are useful when determining whether paging affects the performance of a certain buffer pool. The Resource Measurement Facility (RMF) also provides reports on MVS paging activity:

Storage Paging
When the virtual buffer pool is extended into expanded storage, MVS storage paging activity occurs. If a large buffer pool size results in excessive storage paging, consider allocating more real storage to the LPAR.

Paging to Auxiliary Storage
If the virtual buffer pool size requirements exceed the central storage and expanded storage available, the oldest buffer pool pages migrate to auxiliary paging storage. When these pages are accessed subsequently, I/O must bring them back into real storage. This should be avoided. You could have a smaller buffer pool and let DB2 do the I/O rather than use MVS paging with its I/O CPU overhead. This is a situation that you (as the system programmer) should monitor.

You can use the ALTER BUFFERPOOL command to alter the size of the virtual buffer pool.

Changing the size of the virtual buffer pool implicitly changes the buffer pool thresholds. See the Deferred Write Threshold Reached field (QBSTDWT).

Field Name: QBSTVPL

SYNCHRONOUS READS-SEQUENTIAL
The number of synchronous read I/O requests issued by sequential access requesters.

Background and Tuning Information
Sequential synchronous read I/Os can occur because:

- Prefetch is disabled (QBSTSPD).
- Prefetch pages could have been stolen from the buffer pool before the Getpage request is issued for those pages. Subsequently the pages are reread synchronously. A negative buffer pool hit ratio can indicate the same problem.
- The pages requested are not consecutive: DB2 estimated the selected range of pages to be so small that prefetch would make no sense. See also Sequential Prefetch Requested (QBSTSEQ).

It is normal to have a small value for SYNC READ I/O (SEQUENTIAL) because before the sequential prefetch is scheduled, the first page of a prefetch is read by SYNC READ I/O. However, if this number is large, consider increasing the size of the buffer pool or reviewing the sequential steal thresholds (VPSEQT and HPSEQT).

**Field Name:** QBSTSIO

This is an *exception* field.

**ASYNCHRONOUS WRITES**

The number of asynchronous write I/O operations performed by media manager to a direct access storage device.

**Field Name:** QBSTWIO

This is an *exception* field.

**DFHSM MIGRATED DATA SETS**

The number of times migrated data sets were encountered.

**Field Name:** QBSTMIG

This is an *exception* field.

**SEQUENTIAL PREFETCH REQUESTS**

The number of sequential prefetch requests. This counter is incremented for each PREFETCH request (which can result in an I/O read). If the prefetch results in an I/O read, up to 64 pages may be read for SQL, and up to 128 pages for utilities. A request does not result in an I/O read if all pages to be prefetched are already in the buffer pool.

This counter does not include sequential detection, which is recorded in the Dynamic Prefetch - Requested field.

**Background and Tuning Information**

Sequential prefetch reads a sequential set of pages. It allows CP and I/O operations to be overlapped. DB2 determines at BIND time whether sequential prefetch is used or not.

Sequential prefetch is generally used for a table space scan.

The number of prefetch requests by itself is not a good indicator for efficiency of prefetching:

- At run time not every prefetch request results in read I/O: the Sequential Prefetch Reads field (QBSTPIO) shows the number of read I/O operations caused by sequential prefetch. The Prefetch Disabled No Buffer (QBSTSPD) and Prefetch Disabled No Read Engine fields (QBSTREE) show the number of times prefetch was disabled because buffers and read engines had not been available.
ICCID 002 - Buffer Pool Activity

- Check the value in the buffer pool hit ratio. A negative value indicates that prefetched pages are stolen from the buffer pool before they are read. The pages are subsequently reread synchronously. There will be also a large value in the Synchronous Reads Total (QBSTRIO) field.
- Decreasing the size of the buffer pool can reduce the prefetch quantity, leading to a larger number of prefetch requests. See also the Sequential Prefetch Pages Read field (QBSTSP).

Field Name: QBSTSEQ
This is an exception field.

HORIZONTAL DEFERRED WRITE THRESHOLD

The number of times the deferred write threshold (DWTH) was reached.

This threshold is a percentage of the virtual buffer pool that might be occupied by unavailable pages, including both updated pages and pages in use. DB2 checks this threshold when an update to a page is completed. If the percentage of unavailable pages in the virtual buffer pool exceeds the threshold, write operations are scheduled for enough data sets (up to 128 pages per data set) to reduce the number of unavailable buffers to 10% below the threshold.

Background and Tuning Information

The default value for this threshold is 30%. You can change that to any value from 0% to 90% by using the DWQT option on the ALTER BUFFERPOOL command.

The deferred write thresholds, DWQT and VDWQT, are specified as a percentage, their absolute value depends on the size of the virtual buffer pool.

Consider the following aspects when changing the deferred write thresholds:

Optimize the ratio of pages written per write I/O
The ratio can be monitored using the Pages Written (QBSTPWS) field.

When the buffer pool is relatively small, the default thresholds could prevent the deferred write queue from growing large enough to achieve a high ratio of pages written per write I/O. Raising these thresholds will, in this instance, reduce the I/O write frequency, increasing the number of pages written per I/O.

Distribute I/O evenly over time
If a virtual buffer pool is very large, it is unlikely that the default values of either DWQT or VDWQT will ever be reached. In this case, write I/Os tend to occur in surges, triggered by DB2 checkpoints. Lowering the VDWQT and the DWQT could improve performance by distributing the write I/Os more evenly over time.

Impact on other buffer pool thresholds
Increasing DWQT and VDWQT allows updated pages to use a larger portion of the virtual buffer pool. Large DWQT and VDWQT can have a significant effect on the other thresholds. For example, in work load where pages are frequently updated, and the updated pages exceed the size of the virtual buffer pool, setting both DWQT and VDWQT to 90% would probably cause frequent
threshold-reached events for sequential prefetch (and possibly the data management and immediate write).

**Field Name:** QBSTDWT

This is an *exception* field.

**DFHSM RECALL TIMEOUTS**

The number of recall timeouts.

**Field Name:** QBSTRTO

**SEQUENTIAL PREFETCH READS**

The number of asynchronous read I/O operations due to normal sequential prefetch (applications and utilities).

**Background and Tuning Information**

Prefetch Read I/O is not activated if one of the following conditions applies:

- All pages in the prefetch range are already in the buffer pool.
- Prefetch is disabled (QBSTSPD).

This means that the value in this field is usually smaller than the number of sequential prefetch requests (QBSTSEQ).

**Field Name:** QBSTPIO

This is an *exception* field.

**VERTICAL DEFERRED WRITE THRESHOLD**

The number of times the vertical deferred write threshold (VDWQT) was reached. This threshold is similar to the deferred write threshold but it applies to the number of updated pages for one single page set in the buffer pool. If the percentage or number of updated pages for the data set exceeds the threshold, writes up to 128 pages are scheduled for that data set.

**Field Name:** QBSTDWV

This is an *exception* field.

**VPOOL EXPANSION OR CONTRACT**

The number of successful virtual buffer pool expansions or contractions due to the ALTER BUFFERPOOL command. An increase in this counter indicates that buffer-pool-related system parameters have been changed.

**Field Name:** QBSTVPA

This is an *exception* field.

**PAGES READ VIA SEQUENTIAL PREFETCH**

The total number of pages read due to a normal sequential prefetch. A sequential prefetch request does not result in a read I/O if all the pages you want are found in the buffer pool.

**Background and Tuning Information**

For requests issued by application programs, the number of pages per READ I/O primarily depends on the page size and the size of the buffer pool. Normally sixty-four 4 KB pages (or eight 32 KB pages) is the
maximum prefetch quantity for table space scans, whether data or index. Utilities use a prefetch quantity of up to 64 pages.

The number of pages per READ I/O can be lower because:
- Pages within the prefetch range may already be in the buffer pool.
- Not enough pages are available because of a buffer shortage.
- A prefetch quantity of 8 pages or less is used for work files.

A small value for this ratio can indicate:
- A good performing buffer pool being so large that most of the pages, which had otherwise to be prefetched, are cached in the buffer pool. In this case, the buffer pool hit ratio should be high.
- A buffer shortage condition, reducing the efficiency of sequential prefetch. This could mean, for example, work-file prefetch quantity reduction from 8 to 4 to 2, as the number of available buffers shrinks. In this case, you should consider tuning the buffer pool.

Field Name: QBSTSP

This is an exception field.

DATA MANAGER BUF CRITICAL THRESHOLD

The number of times the data manager critical threshold (DMTH-95%) was reached.

This field shows how many times a page was immediately released because the data management threshold was reached.

The threshold is checked before a page is read or updated. If the threshold has not been exceeded, DB2 accesses the page in the virtual buffer pool once for each page, no matter how many rows are retrieved or updated in that page. If the threshold has been exceeded, Getpage requests and RELEASEs apply to rows instead of pages. That is, if more than one row is retrieved or updated in a page, more than one Getpage request and RELEASE is performed on that page.

Background and Tuning Information

Avoid reaching this threshold wherever possible because it significantly affects CPU usage. Set virtual buffer pool sizes large enough or reduce the workload on the buffer pool.

Field Name: QBSTDNC

This is an exception field.

VPOOL EXPANSION FAILURE

The total number of virtual buffer pool expansion failures due to the lack of virtual storage space.

Background and Tuning Information

Ideally, this value should be 0. If it is not, check the virtual storage allocation of the DB2 database address space for areas that can be reduced. For example, you can reduce the size of other buffer pools.

Field Name: QBSTXFV

This is an exception field.

LIST PREFETCH REQUESTS

The number of list prefetch requests.
List prefetch allows DB2 to access data pages efficiently even when the required data pages are not contiguous. It allows CP and I/O operations to be overlapped.

**Background and Tuning Information**

DB2 determines at BIND time whether sequential prefetch is used. List prefetch is chosen as follows:

- Usually with a single index that has a cluster ratio lower than 80%.
- Sometimes on a single index with a high cluster ratio, if the estimated amount of data to be accessed is too small to make sequential prefetch efficient.
- Always to access data by multiple index access.
- Always to access data from the inner table during a hybrid join.

DB2 never chooses list prefetch if the estimated number of RIDs to be processed takes more than 50% of the RID pool. During execution time, list prefetch processing terminates if more than 25% of the rows (with a minimum of 4075) in the table must be accessed.

Data pages are read in quantities equal to the sequential prefetch quantity (QBSTSEQ), which depends on buffer pool size and is usually 64 pages.

**Field Name:** QBSTLPF

This is an *exception* field.

**CONCURRENT PREFETCH I/O STREAMS-HWM**

The highest number of concurrent prefetch I/O streams allocated to support a parallel I/O or CP query in this buffer pool. It reflects prefetch activities for non-workfile page sets.

This number only applies to query I/O and CP parallelism.

**Field Name:** QBSTXIS

This is an *exception* field.

**LIST PREFETCH READS**

The number of asynchronous read I/O operations caused by the list prefetch.

The number of pages read is shown by the List Prefetch Pages Read (QBSTLPP) field.

**Background and Tuning Information**

Prefetch Read I/O is not activated if one of the following conditions apply:

- All pages in the prefetch range are already in the buffer pool.
- Prefetch is disabled (Prefetch Disabled No Read Engine - QBSTREE).

This means that the value in this field is usually less than the number of list prefetch requests (QBSTLPF).

**Field Name:** QBSTLIO

This is an *exception* field.

**PAGE-INS REQUIRED FOR WRITE**

The number of page-ins required for a write I/O.

**Field Name:** QBSTWPI
PREFETCH I/O STREAMS REDUCTION

The total number of requested prefetch I/O streams that were denied because of a lack of buffer pool storage space.

It only applies to query I/O and CP parallelism.

For example, if 100 prefetch I/O streams are requested and only 80 are granted, then 20 is added to the number in this field.

Background and Tuning Information

Consider increasing the size of the buffer pool if this value is not 0.

The ratio of this field and the Reduced parallel query requests field gives the average degree of parallel query processing that was reduced because of insufficient buffer pool space. The Prefetch I/O streams - Concurrent streams - high-water mark field gives the highest degree of parallel query processing that was reduced for one or more queries processed in parallel.

The number in this field reflects the prefetch activities for non-workfile page sets.

Field Name: QBSTJIS

This is an exception field.

PAGES READ VIA LIST PREFETCH

The number of pages read via list prefetch.

Field Name: QBSTLPP

MAX WORKFILES CONCURRENTLY USED

The maximum number of work files concurrently used during merge processing within this statistics period.

Ideally, each work file needs 16 buffers to allow DB2 to perform a sequential prefetch for work files.

Field Name: QBSTWFM

This is an exception field.

PARALLEL QUERY REQUESTS

The total number of requests made for parallel query support in this buffer pool. This field only applies to non-workfile page sets in query I/O and CP parallelism.

Field Name: QBSTPQO

DYNAMIC PREFETCH REQUESTS

The number of dynamic prefetch requests. Dynamic prefetch is the process that is triggered because of sequential detection. If the prefetch request results in an I/O read, up to 32 advancing pages can be read at a time.

Background and Tuning Information

Dynamic prefetch reads a sequential set of pages. It allows CP and I/O operations to be overlapped. If DB2 does not choose prefetch at bind time it can sometimes use it at execution time. The method is called sequential detection.

The number of prefetch requests by itself is not a good indicator for efficiency of prefetching because:
At run time not every prefetch request results in read I/O: the Dynamic Prefetch Reads field shows the number of read I/O operations caused by dynamic prefetch. The Prefetch Disabled No Buffer (QBSTSPD) and Prefetch Disabled No Read Engine (QBSTREE) fields show the number of times prefetch was disabled because buffers and read engines had not been available.

Prefetch pages can be stolen from the buffer pool before they are read. This is indicated by a negative buffer pool hit ratio. The pages are subsequently reread synchronously. This will also cause an unexpectedly large value for total synchronous reads (QBSTRIO).

Decreasing the size of the buffer pool can reduce the prefetch quantity (QBSTDPP), leading to a larger number of prefetch requests.

Field Name: QBSTDPP
This is an exception field.

MERGE PASSES REQUESTED
The total number of merge passes for DB2 sort activities. This value reflects how many merge passes were requested for DB2 to determine the number of work files permitted to support each merge pass.

Field Name: QBSTWFR

DYNAMIC PREFETCH READS
The number of asynchronous read I/Os because of dynamic prefetch. The number of pages read is recorded in the Dynamic Prefetch Pages Read field.

Background and Tuning Information
A prefetch request does not result in an I/O if one of the following conditions apply:
• All pages to be prefetched are already in the buffer pool.
• The prefetch is canceled.

This means that the value in this field is usually smaller than the number of dynamic prefetch requests.

Field Name: QBSTDIO
This is an exception field.

MERGE PASS DEGRADED-LOW BUFFER
The number of times that a merge pass was not efficiently performed due to a shortage of space in the buffer pool. The number in this field is incremented for each merge pass where the maximum number of work files allowed is less than the number of work-files requested.

Background and Tuning Information
The maximum number of work files allowed is calculated as follows:
• Buffers consumed = 2 * (work files already allocated)
• Buffers available = (sequential steal threshold * buffer pool size - buffers consumed)
• Maximum work files allowed = buffers available / (2 * 8)

The default for the sequential steal threshold is 0.8.
Ideally, the number in this field should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are too many concurrent work files. For example, there could be a number of concurrently open cursors that require sorting. Consider increasing the buffer pool size using the ALTER BUFFERPOOL command.

Field Name: QBSTWFF

This is an exception field.

PAGES READ VIA DYNAMIC PREFETCH

The number of pages read because of dynamic prefetch. Dynamic prefetch is the process that is triggered by sequential detection.

Background and Tuning Information

The ratio of Dynamic Prefetch Pages Read to Dynamic Prefetch Reads is between 0 and 32.

DB2 can fetch up to 32 pages per prefetch.

The number of pages per READ I/O can be lower because:

• Pages within the prefetch range are already in the buffer pool.
• Not as many pages are available due to a buffer shortage.

A small value for this ratio can indicate:

• A good performing buffer pool being large enough to contain pages that would otherwise be prefetched. This is indicated by a high buffer pool hit ratio.
• A buffer shortage condition, which reduces the efficiency of dynamic prefetch. In this instance the buffer pool hit ratio will be low. Consider tuning the buffer pool.

Field Name: QBSTDPP

This is an exception field.

WORKFILE REQUEST REJECTED-LOW BUFFER

The total number of work files that were rejected during all merge passes because of insufficient buffer resources.

Background and Tuning Information

This field and the degraded low buffers field determine the average number of work files that cannot be honored at each merge pass because of insufficient buffer pool space.

Ideally, the number in this field should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are too many concurrent work files. For example, there could be a number of concurrently open cursors that require sorting. Consider increasing the size of the buffer pool using the ALTER BUFFERPOOL command.

Note that, when there are many concurrent sorts or large sorts, it is a good idea to dedicate a separate buffer pool for sort work files. This will greatly facilitate work-file performance tuning.

Field Name: QBSTWFD

This is an exception field.

WORKFILE REQUESTED-ALL MERGE PASS
The total number of work files requested for all merge passes.

This field and the Merge Passes Requested field determine the average number of work files requested in a single merge pass.

For DB2 to perform an efficient prefetch for work files, each workfile should have at least 16 dedicated buffers. Work files used during sort phase processing or other non-sort-related processing are not included in this number.

Field Name: QBSTWFT

WORKFILE NOT CREATED-NO BUFFER

This field is only applicable if DB2 is running under MVS/XA.

The number of times a work file could not be created due to insufficient buffer resources. It indicates that a sort is in progress and limited in regard to the number of work files it can use.

Background and Tuning Information

Ideally, this should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are many concurrent work files. For example, there could be a number of open cursors that require sorting.

Generally, sorts are performed more efficiently with additional work files, but there are internal DB2 limits on the number of work files a transaction can have. It is possible that at run time a transaction cannot use as many work files as it had planned. You can control this by increasing the buffer pool size (ALTER BUFFERPOOL), or changing the transaction so it requires fewer concurrent work files.

Field Name: QBSTMAX

This is an exception field.

PREFETCH QUANTITY REDUCED TO HALF

The total number of times prefetch quantity is reduced from normal to 50% of normal. The normal size depends on the page size of the buffer pool.

This field only applies to query I/O and CP parallelism.

Background and Tuning Information

The number in this field indicates when DB2 had to reduce the sequential prefetch quantity to continue executing concurrently with parallel queries in the system. If the number is small, it may be tolerable.

Field Name: QBSTPL1

This is an exception field.

PREFETCH DISABLED-NO BUFFER

The total number of times sequential prefetch was disabled because buffers were not available.

Field Name: QBSTSPD

This is an exception field.

WORKFILE PREFETCH NOT SCHEDULED

The number of times a sequential prefetch was not scheduled for a work file because the dynamic prefetch quantity is zero.
Background and Tuning Information

The work-file prefetch checks the dynamic prefetch quantity (normally 1 to 8 pages). When the quantity is zero, the value in this field is incremented. A high number in this field implies that the buffer pool is too small.

Ideally, the number in this field should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are many concurrent work files. For example, there could be a number of concurrently open cursors that require sorting.

Consider increasing the size of the buffer pool or allocating a buffer pool specifically for DSNDB07 usage. This can be especially effective with high-use query systems whose reports make extensive use of sort activity.

Field Name: QBSTWKPD

This is an exception field.

PREFETCH QUANTITY REDUCED TO QUARTER

The total number of times prefetch quantity is reduced from 50% to 25% of normal. The normal size depends on the page size of the buffer pool.

This field only applies to query I/O and CP parallelism.

Background and Tuning Information

The query response for parallel queries can be significantly degraded if the value in this field is not 0.

Field Name: QBSTPL2

This is an exception field.

PREFETCH DISABLED-NO READ ENGINE

The total number of times a prefetch is disabled because of an unavailable read engine.

Background and Tuning Information

Because there are 600 read engines, a maximum of 600 concurrent prefetch operations can be processed at a time. When this maximum is reached, prefetching is disabled and this count is incremented. The value in this field should be close to 0.

Field Name: QBSTREE

This is an exception field.

WORKFILE PAGES TO DESTRUCT

The number of pages for which destructive read was requested.

Field Name: QBSTWDRP

FAILED COND SEQ&RDM GETPAGE REQUEST

The number of sequential and random Getpage requests which failed because the page was not in the buffer pool. Failed conditional requests do not initiate I/O operations.

Field Name: QBSTNGT

PAGE-INS REQUIRED FOR READ

The number of page-ins required for a read I/O.
**Note:** A non-zero value can be accepted if a buffer pool expansion via ALTER BPSIZE occurs. In other situations, a non-zero value indicates a shortage of real storage relative to the buffer pool size.

**Field Name:** QBSTRPI

This is an *exception* field.

**WORKFILE PAGES NOT WRITTEN**

The number of pages dequeued from VDWQ for destructive read requests.

**Field Name:** QBSTWBVQ

**FAILED COND SEQ GETPAGE REQUEST**

The number of conditional sequential Getpage requests which failed because the page was not in the buffer pool. Failed conditional requests do not initiate I/O operations.

**Field Name:** QBSTNSG

**MINIMUM BUFFERS ON SLRU (LWM)**

The minimum number of buffers on the sequential least-recently-used (SLRU) chain in the last statistical period. This is the low-water mark (LWM) within an interval.

**Field Name:** QBSTSMIN

**PAGES ADDED TO LPL**

The number of times that one or more pages were added to the logical page list (LPL).

**Field Name:** QBSTLPL

**MAXIMUM BUFFERS ON SLRU (HWM)**

The maximum number of buffers on the sequential least-recently-used (SLRU) chain in the last statistical period. This is the high-water mark (HWM) within an interval.

**Field Name:** QBSTSMAX

**LENGTH OF SLRU = VPSEQT**

The number of times when the length of the sequential least-recently-used (SLRU) chain equals the sequential steal threshold VPSEQT.

**Field Name:** QBSTHST

**IN-MEM OVL RND REQUESTS**

The number of non-sequential GETPAGE requests using overflowed buffers.

If this counter has a non-zero value, the buffer pool size should be increased.

**Field Name:** QBSTAGET

This is an *exception* field.

**IN-MEM OVL SEQ REQUESTS**

The number of sequential GETPAGE requests using overflowed buffers.

If this counter has a non-zero value, the buffer pool size should be increased.
Field Name: QBSTASGE
This is an exception field.

IN-MEM OVL RND SYNC READS
The number of synchronous read I/O operations for non-sequential GETPAGE requests using overflowed buffers.
If this counter has a non-zero value, the buffer pool size should be increased.

Field Name: QBSTASYN
This is an exception field.

IN-MEM OVL SEQ SYNC READS
The number of synchronous read I/O operations for sequential GETPAGE requests using overflowed buffers.
If this counter has a non-zero value, the buffer pool size should be increased.

Field Name: QBSTASSE
This is an exception field.

RANDOM GETPAGE BUFFER HIT
The number of times that the random Getpage request has a buffer hit and the buffer is on the least-recently-used (SLRU) chain.

Field Name: QBSTRHS

DASD CACHE READ HITS
The number of I/Os where the requested pages were found in the DASD subsystem cache. These I/Os could have potentially been successful if zHyperLink was used.

Field Name: QBSTSYOC

SUCCESSFUL ZHYPERLINK READS
The number of DASD reads successfully completed using zHyperLink.

Field Name: QBSTSYIO

IFCID 002 - Data Manager Data:
This topic shows detailed information about “Record Trace - IFCID 002 - Data Manager Data”.

Record trace - IFCID 002 - Data Manager Data
The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Data Manager Data” are described in the following section.

<table>
<thead>
<tr>
<th>Field Label</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURRENT RIDLIST BLOCKS</td>
<td>5 CURRENT RIDLIST OVERFLOWED</td>
</tr>
<tr>
<td>MAX RIDLIST BLOCKS</td>
<td>0 MAX RIDLIST OVERFLOWED</td>
</tr>
<tr>
<td>RL PROCESSING-MDS LIMIT EXCEEDED</td>
<td>139960 RL PROCESSING-MDS LIMIT EXCEEDED</td>
</tr>
<tr>
<td>RL PROCESSING-NO STORAGE</td>
<td>0 RL PROCESSING-NO STORAGE</td>
</tr>
<tr>
<td>COLUMNS BYPASSED</td>
<td>0</td>
</tr>
<tr>
<td>CURRENT STORAGE USED (KB)</td>
<td>0 MAX AGENT STORAGE LIMIT (KB)</td>
</tr>
<tr>
<td>MAX TOTAL STORAGE USED (KB)</td>
<td>87872 MAX STORAGE USAGE LIMIT EXCEEDED</td>
</tr>
<tr>
<td>CURRENT 4KB TBSpace USED (KB)</td>
<td>0 CUR 32K TBSpace OVERFLOWED</td>
</tr>
<tr>
<td>MAX 4K TBSpace STORAGE USED (KB)</td>
<td>0 32K NOT USED OF 4K TBSpace USED</td>
</tr>
<tr>
<td>CURRENT Active (DM) IN-MEMORY</td>
<td>0 CUR STORAGE (DM) IN-MEMORY</td>
</tr>
<tr>
<td>MAX Active (DM) IN-MEMORY</td>
<td>0 MAX STORAGE (DM) IN-MEMORY</td>
</tr>
<tr>
<td>CURRENT Active (SORT) IN-MEMORY</td>
<td>0 CUR STORAGE (SORT) IN-MEMORY</td>
</tr>
</tbody>
</table>
| MAX Active (SORT) IN-MEMORY      | 1 MAX STORAGE (SORT) IN-MEMORY | 24
CUR RIDLIST BLOCKS

The number of RID blocks currently in use (snapshot value).

Field Name: QISTRCUR

CUR RIDLIST BLOCKS OVERFLOWED

This field is currently not set by DB2.

Field Name: QISTWFRCUR

MAX RIDLIST BLOCKS

The highest number of RID blocks in use at any time since DB2 startup. This is a high-water mark.

Field Name: QISTRHIG

This is an exception field.

MAX RIDLIST BLOCKS OVERFLOWED

This field is currently not set by DB2.

Field Name: QISTWFRHIG

RL PROCESSING-RDS LIMIT EXCEEDED

The number of times when the number of RIDs that can fit into the guaranteed number of RID blocks was greater than the maximum limit (25% of table size).

Background and Tuning Information

Ideally, this value should be 0.

The matching index scan part of the RID list processing scanned more than 25% of the index. RID list processing is then terminated, the index scan is abandoned and normally replaced by a tablespace scan.

Reasons for this are:

- Inaccurate or incomplete RUNSTATS statistics. To avoid this, you should collect all statistics on a regular basis, especially simple and correlated column statistics. Using RUNSTATS with SHRLEVEL(CHANGE) does not prevent access to data.

- Optimizer error. In this instance, you could disable RID list processing by adding the clause OPTIMIZE FOR 1 ROW to the SQL statement, or force the access path to index only by adding the necessary columns to the index.

Field Name: QISTRLLM

This is an exception field.

RL PROCESSING-DM LIMIT EXCEEDED

The number of times when the number of RID entries was greater than the physical limit of approximately 26 million RIDs.
Field Name: QISTRPLM
This is an exception field.

RL PROCESSING-NO STORAGE
The number of times the DBM1 storage was exhausted during RID list processing.

Background and Tuning Information
This failure occurs when the DBM1 storage limit is reached.

Field Name: QISTRSTG
This is an exception field.

RL PROCESSING-PROC.LIMIT EXCEEDED
The number of times the maximum RID pool storage was exceeded.

The size is determined by the installation parameter RID POOL SIZE (DB2 install panel DSNTIPC). It can be 0, or between 128 KB and 10 GB. The general formula for calculating the RID pool size is:
(Number of concurrent RID processing activities) x (average number of RIDs) x 2 x (5 bytes per RID).

Field Name: QISTRMAX
This is an exception field.

COLUMNS BYPASSED
The total number of columns (rows x columns) for which an invalid select procedure was encountered.
DB2 bypasses invalid select procedures which can cause some degradation in performance.

Field Name: QISTCOLS
This is an exception field.

CUR TOTAL STORAGE USED (KB)
The total amount of storage (KB) currently used in the Workfile Database at system level.

Field Name: QISTWCTO
DB2 V11 and above.

MAX AGENT STORAGE LIMIT (KB)
The maximum amount of storage (KB) in the Workfile Database that can be used by each agent (derived from ZPARM MAXTEMPS).

Field Name: QISTWMXA

MAX TOTAL STORAGE USED (KB)
The maximum total amount of storage (KB) ever used in the Workfile Database at system level since DB2 startup.

Field Name: QISTWMXU
DB2 V11 and above.

MAX STORAGE USAGE LIMIT EXCEEDED
The number of times the maximum amount of storage that an agent can use in the Workfile database was exceeded.

Field Name: QISTWFNE

CUR 4K TABSPACE STORAGE USED (KB)

The total amount of storage (KB) currently used for 4 KB table spaces in the Workfile Database.

Field Name: QISTW4K

CUR 32K TABSPACE STORAGE USED (KB)

The total amount of storage (KB) currently used for 32 KB table spaces in the Workfile Database.

Field Name: QISTW32K

4K INSTEAD OF 32K TABSPACE USED

The number of times that space in a 4 KB page table space was used because space in a 32 KB page table space was preferred but not available in the Workfile Database.

Field Name: QISTWF2

32K INSTEAD OF 4K TABSPACE USED

The number of times that space in a 32 KB page table space was used because space in a 4 KB page table space was preferred but not available in the Workfile Database.

Field Name: QISTWF1

CUR ACTIVE (DM) IN-MEMORY

The number of currently active in-memory work files created by the Data Manager.

Field Name: QISTIMAC

CUR STORAGE (DM) IN-MEMORY (KB)

The total space used for currently active in-memory work files created by the Data Manager.

Field Name: QISTIMSC

MAX ACTIVE (DM) IN-MEMORY

The maximum number of in-memory work files (created by the Data Manager) that were active at any point in time since DB2 startup. This is a high-water mark count.

Field Name: QISTIMAH

MAX STORAGE (DM) IN-MEMORY (KB)

The maximum space used for active in-memory work files created by the Data Manager at any point in time since DB2 startup. This is a high-water mark count.

Field Name: QISTIMSH

CUR ACTIVE (SORT) IN-MEMORY

The number of currently active in-memory work files created by the SORT component.
**Field Name:** QISTSIAAC

**CUR STORAGE (SORT) IN-MEMORY (KB)**

The total space used for currently active in-memory work files created by the SORT component.

**Field Name:** QISTSISC

**MAX ACTIVE (SORT) IN-MEMORY**

The maximum number of in-memory work files created by the SORT component that were active at any point in time since DB2 start. This is a high-water mark count.

**Field Name:** QISTSIAH

**MAX STORAGE (SORT) IN-MEMORY (KB)**

The maximum space used for active in-memory work files created by the SORT component at any point in time since DB2 startup. This is a high-water mark count.

**Field Name:** QISTI2AC

DB2 V11 and above.

**CUR DGTT STORAGE USED (KB)**

The total amount of storage (KB) currently used for DGTTs in the Workfile Database by all agents on the system.

**Field Name:** QISTDGTTCTO

DB2 V11 and above.

**MAX ACTIVE (NONSORT) IN-MEMORY**

The maximum number of non-SORT related in-memory work files created by the Data Manager that were active at any point in time since DB2 startup. This is a high-water mark count.

**Field Name:** QISTSIAH

**MAX DGTT STORAGE USED (KB)**

The maximum total amount of storage (KB) ever used for DGTTs in the Workfile Database by all agents on the system since DB2 startup.

**Field Name:** QISTDGTTMXU

DB2 V11 and above.

**IN-MEMORY (NONSORT) OVERFLOWED**

The number of times non-SORT related in-memory work files overflowed into a physical table space.

**Field Name:** QISTI2OF

DB2 V11 and above.
CUR WORKFILE STORAGE USED (KB)
The total amount of storage (KB) currently used for non-DGTT work files in the Workfile Database by all agents on the system.

Field Name: QISTWFCT
DB2 V11 and above.

IN-MEMORY WORKFILE NOT CREATED
The number of times an in-memory work file was not created due to critical storage conditions.

Field Name: QISTIMNC
DB2 V11 and above.

MAX WORKFILE STORAGE USED
The maximum total amount of storage (KB) ever used for non-DGTT work files in the Workfile Database by all agents on the system since DB2 startup.

Field Name: QISTWFMXU
DB2 V11 and above.

TOTAL STORAGE CONFIG (KB)
The total storage (KB) configured for all table spaces in the Workfile Database.

Field Name: QISTWSTG
DB2 V11 and above.

MAX AGENT STORAGE USED (KB)
The maximum amount of storage (KB) ever used in the Workfile Database by any thread since DB2 startup.

Field Name: QISTAMXU
DB2 V11 and above.

TOTAL DGTT STORAGE CONFIG (KB)
The total preferred storage (KB) configured for DGTTs in the Workfile Database.

Field Name: QISTDGTTSTG
DB2 V11 and above.

AGENT STORAGE THRESHOLD (%)
The alert threshold of high space-usage for DGTTs or non-DGTT work files in the Workfile Database by an agent (derived from ZPARM WFSTGUSE_AGENT_THRESHOLD).

Field Name: QISTASTH
DB2 V11 and above.

TOTAL WORKFILE STORAGE CONFIG (KB)
The total preferred storage (KB) configured for non-DGTT work files in the Workfile Database.

Field Name: QISTWFSTG
DB2 V11 and above.

**TOTAL STORAGE THRESHOLD (%)**

The alert threshold of high space-usage for DGTTs or non-DGTT work files in the Workfile Database (derived from zparm WFSTGUSE_SYSTEM_THRESHOLD).

**Field Name:** QISTSTH

DB2 V11 and above.

**INSERT ROWS SKIPPED**

The number of rows skipped by read transactions because of uncommitted INSERT operations (using currently committed semantic for FETCH).

**Field Name:** QISTRCCI

**DELETE ROWS ACCESSED**

The number of rows accessed by read transactions because of uncommitted DELETE operations (using currently committed semantic for FETCH).

**Field Name:** QISTRCCD

**UPDATE ROWS ACCESSED**

The number of rows accessed by read transactions because of uncommitted UPDATE operations (using currently committed semantic for FETCH).

**Field Name:** QISTRCCU

**NUMBER OF FAST INSERT PIPES**

The number of Data Manager (DM) fast insert pipes that were allocated since DB2 restart.

**Field Name:** QISTINPA

**NUMBER OF FAST INSERT PIPES DISABLED**

The number of DM fast insert pipes that have been disabled since DB2 restart.

**Field Name:** QISTINPD

**IFCID 002 - Data Manager Data**

This topic shows detailed information about “Record Trace - IFCID 002 - Data Sharing Locking Data”.

**Record trace - IFCID 002 - Data Sharing Locking Data**

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Data Sharing Locking Data” are described in the following section.

```
<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Sharing Locking Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCK REQ (P-LOCKS)</td>
<td>60865 SYNCH.XES - LOCK REQ</td>
</tr>
<tr>
<td>UNLOCK REQ (P-LOCKS)</td>
<td>65415 SYNCH.XES - CHANGE REQ</td>
</tr>
<tr>
<td>CHANGE REQ (P-LOCKS)</td>
<td>2288 SYNCH.XES - UNLOCK REQ</td>
</tr>
<tr>
<td>NOTIFY MESSAGES SENT</td>
<td>18566 ASYNCH.XES - RESOURCES</td>
</tr>
<tr>
<td>NOTIFY MESSAGES RECEIVED</td>
<td>36866 P-LOCK/NOTIFY EXITS ENGINES</td>
</tr>
<tr>
<td>PSET/PART P-LOCK NEGOTIAT.</td>
<td>2207 PAGE P-LOCK NEGOTIAT.</td>
</tr>
<tr>
<td>P-LOCK CHANGE DURING REG.</td>
<td>2433 FALSE CONTENTIONS</td>
</tr>
<tr>
<td>SYNC-ASYNC XES CONV</td>
<td>37563 FLMG COUNTS PER</td>
</tr>
</tbody>
</table>
```

**LOCK REQ (P-LOCKS)**

The number of lock requests for P-locks.
Field Name: QTGSLPLK

SYNCH.XES - LOCK REQ

The number of P/L-lock requests propagated to z/OS XES synchronously. This number is not incremented if the request is suspended before going to XES.

Field Name: QTGSLSLM

SUSPENDS - IRLM GLBL CONT

The number of suspensions due to IRLM global resource contention. All IRLM lock states were in conflict on the same resource.

Global contention requires intersystem communication to resolve the lock conflict whereas local contention does not.

Field Name: QTGSIGLO

UNLOCK REQ (P-LOCKS)

The number of unlock requests for P-locks.

Field Name: QTGSUPLK

SYNCH.XES - CHANGE REQ

The number of change requests propagated to z/OS XES synchronously, including logical and physical locks. This number is not incremented if the request is suspended before going to XES.

Field Name: QTGSCSLM

SUSPENDS - XES GLBLL CONT

The number of suspensions due to z/OS XES global resource contention. The z/OS XES lock states were in conflict but the IRLM lock states were not.

IRLM has many lock states but XES is only aware of the exclusive and shared lock states.

Field Name: QTGSSGLO

CHANGE REQ (P-LOCKS)

The number of change requests for P-locks.

Field Name: QTGSCPLK

SYNCH.XES - UNLOCK REQ

The number of unlock requests propagated to z/OS XES synchronously, including logical and physical locks. This number is not incremented if the request is suspended before going to XES.

Field Name: QTGSUSLM

NOTIFY MESSAGES SENT

The number of notify messages sent.

Field Name: QTGSNTFY

ASYNCH.XES - RESOURCES
The number of resources propagated by IRLM to z/OS XES asynchronously, including logical and physical locks.

This can happen when new inter-DB2 interest occurs on a parent resource or when a request completes after the requester’s execution unit was suspended.

Field Name: QTGSKIDS

**INCOMPAT RETAINED LOCK**

The number of global lock or change requests denied or suspended due to an incompatible retained lock.

Field Name: QTGSDRTA

**NOTIFY MESSAGES RECEIVED**

The number of notify messages received.

Field Name: QTGSNTFR

**P-LOCK/NOTIFY EXITS ENGINES**

The maximum number of engines available for physical lock exit or notify exit requests.

Field Name: QTGSPEMX

**P-LOCK/NFY EX.ENGINE N/A**

The number of times an engine is not available for physical lock exit or notify exit requests.

Field Name: QTGSPEQW

**PSET/PART P-LOCK NEGOTIAT.**

The number of times this DB2 was driven to negotiate a partition or page set physical lock due to changing inter-DB2 interest levels on the partition or page set.

Field Name: QTGSPPPE

**PAGE P-LOCK NEGOTIAT.**

The number of times this DB2 negotiated a page physical lock because of physical lock contention within DB2.

Field Name: QTGSPGPE

**OTHER P-LOCK NEGOTIAT.**

The number of times this DB2 was driven to negotiate a physical lock type other than page set, partition, or page.

Field Name: QTGSOTPE

**P-LOCK CHANGE DURING NEG.**

The number of times a physical lock change request was issued during physical lock negotiation.

Field Name: QTGSCCHNP

**FALSE CONTENTIONS**

The total number of false contentions for LOCK and UNLOCK requests. A false contention occurs when different resource names hash to the same entry in the coupling facility (CF) lock table. The CF detects contention
within the hash entry, and XES uses intersystem messaging to determine that no actual resource contention exists.

**Note:** The QTGFSFCON flag indicates whether the false contention is reported at subsystem(=1) or LPAR level (=0).

**Field Name:** QTGFSFLMG  
**SYNC-ASYNC XES CONV**  
The number of synchronous to asynchronous heuristic conversions for LOCK requests in XES. This conversion is done when XES determines that it is more efficient to drive the request asynchronously to the coupling facility (CF).

**Field Name:** QTGFSFLSE

**FLMG COUNTS PER**  
Flags describing QTGS counters:
- **ON**     QTGFSFLMG counts per subsystem (SUBSYS)
- **OFF**    QTGFSFLMG counts per LPAR

**Field Name:** QTGFSFLGS

**NO DELAY LOCK REQ REJECTS**  
The total number of failed DB2 lock requests to XES to process without delay. XES rejects the lock request because it could not process it synchronously.

**Field Name:** QTGSCREJ

**IFCID 002 - Dynamic SQL Statement**:

This topic shows detailed information about “Record Trace - IFCID 002 - Dynamic SQL Statement”.

**Record trace - IFCID 002 - Dynamic SQL Statement**

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Dynamic SQL Statement” are described in the following section.

**REOPTIMIZATION**

The total number of times reoptimization occurs because the value of the host variable or parameter marker changes.

**Field Name:** QXSTREOP

**FOUND IN CACHE**

The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.

**Field Name:** QXSTFND

**IMPLICIT PREPARES**
An implicit prepare occurs when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEPDYNAMIC YES.

If the skeleton copy of the prepared SQL statement exists in the global dynamic SQL cache in the EDM pool, a short prepare is executed, otherwise a full prepare is executed.

Field Name: QXSTIPRP

STMT INVALID (MAX)

The number of times statements are invalidated in the local dynamic SQL cache because the MAXKEEPD limit has been reached and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

Field Name: QXSTDEXP

NOT FOUND IN CACHE

The number of times that DB2 searched the prepared statement cache but could not find a suitable prepared statement.

Field Name: QXSTNFND

PREPARES AVOIDED

This field indicates the number of times where no SQL PREPARE or EXECUTE IMMEDIATE was issued by the application and a copy of a prepared SQL statement was found in local dynamic SQL cache.

When an application plan or package is bound with KEEPDYNAMIC YES, a copy of each prepared SQL statement for the application thread is held in the local dynamic SQL cache and kept across a commit boundary.

An application thread can save the total cost of a prepare by using a copy of the prepared statement in the local dynamic SQL cache from an earlier prepare by the same thread. To do this, the application must be modified to avoid issuing repetitive SQL PREPAREs for the same SQL statement.

Field Name: QXSTNPRP

STMT INVALID (DDL)

The number of times statements are invalidated in the local dynamic SQL cache because of SQL DDL or updated RUNSTATS information and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

Field Name: QXSTDINV

CSWL STMTS PARSED

The number of times DB2 parsed dynamic statements because CONCENTRATE STATEMENTS WITH LITERALS behavior was used for the prepare of the statement for the dynamic statement cache.

Field Name: QXSTCWLP

CSWL LITS REPLACED

The number of times DB2 replaced at least one literal in a dynamic statement because CONCENTRATE STATEMENTS WITH LITERALS was used for the prepare of the statement for dynamic statement cache.

Field Name: QXSTCWLR
CSWL MATCHES FOUND

The number of times DB2 found a matching reusable copy of a dynamic statement in cache during prepare of a statement that had literals replaced because of CONCENTRATE STATEMENTS WITH LITERALS.

Field Name: QXSTCWLM

CSWL DUPLS CREATED

The number of times DB2 created a duplicate STMT instance in the statement cache for a dynamic statement that had literals replaced by CONCENTRATE STATEMENTS WITH LITERALS behavior. The duplicate STMT instance was needed because a cache match failed because the literal reusability criteria was not met.

Field Name: QXSTCWLD

LOAD FROM CATALOG

The number of loads from the catalog.

It shows the number of times a PREPARE request was satisfied by making a copy from the stabilized statement in the SYSIBM.SYSDYNQRY catalog table. The stabilized statement search is done only when no matching statement was found in the prepared statement cache. This field should be identical to QISEDPSL, but it is reported from the QXST section (SQL Statement Execution).

Field Name: QXSTSFND

IFCID 002 - EDM Pool Data

This topic shows detailed information about “Record Trace - IFCID 002 - EDM Pool Data”.

Record trace - IFCID 002 - EDM Pool Data

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - EDM Pool Data” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAGES IN POOL</td>
<td>This field shows the sum of the values for the following counters:</td>
</tr>
<tr>
<td>FREE PAGES</td>
<td></td>
</tr>
<tr>
<td>EDM POOL FULL</td>
<td></td>
</tr>
<tr>
<td>EDW POOL DATA</td>
<td></td>
</tr>
<tr>
<td>IFCID 002 - Dynamic SQL Statement</td>
<td></td>
</tr>
</tbody>
</table>

This field shows the sum of the values for the following counters:
IFCID 002 - EDM Pool Data

- HELD BY CT
- HELD BY PT
- FREE PAGES

Field Name: QISEPAGE

CT PAGES

The current number of pages used for the cursor tables (CTs). This is a snapshot value.

Field Name: QISECT

PT PAGES

The current number of pages used for package tables (PTs). This is a snapshot value.

Field Name: QISEKT

FREE PAGES

The number of pages currently not used by any object in the EDM pool, in the EDM pool (below), or in the RDS pool (below). This is a snapshot value.

Field Name: QISEFREE

CT REQUESTS

The number of requests for cursor table (CT) sections.

Field Name: QISECTG

PT REQUESTS

The number of requests for package table (PT) sections.

Field Name: QISEKTG

DBD REQUESTS

The number of requests for database descriptors (DBDs).

Field Name: QISEDBDG

EDM POOL FULL

The total number of failures because the EDM pool or EDM pool (below) was full.

Field Name: QISEFAIL

This is an exception field.

CT NOT IN POOL

The number of times a cursor table section was loaded from DASD.

To find the number of times the CT was found in the EDM pool, subtract this value from the value of the Requests for sections - CT field.

Field Name: QISECTL

This is an exception field.

PT NOT IN POOL

The number of times a package table section was loaded from DASD.
To find the number of times the PT was already in the EDM pool, subtract this value from the value of the Requests for sections - PT field.

Field Name: QISEKTL

This is an exception field.

DBD NOT IN POOL

The total number of times database descriptors were loaded from DASD.

To find the number of times the DBD was already in the EDM pool, subtract this value from the value of Requests for sections - DBD field.

Field Name: QISEDBDL

This is an exception field.

CACHE INSERTS

The number of full prepare requests.

A Full Prepare occurs for both Explicit Prepare and Implicit Prepare requests when the skeleton copy of the prepared SQL statement is not found in global dynamic SQL cache in the EDM pool.

Field Name: QISEDSI

This is an exception field.

CACHE REQUESTS

The number of requests for prepared statement cache sections.

Field Name: QISEDSG

LOAD FROM CATALOG

The number of times a dynamic SQL statement is found in a catalog.

Field Name: QISEDPSF

LOOK-UP IN CATALOG

The number of look-ups in a catalog to satisfy a dynamic SQL statement prepare request.

This field is updated when a statement is not found in the cache and the criteria is met to look for it in the catalog table. It is only incremented on the first look up and not if there are multiple rows that might be a match. This is a system level value so it will be the number of times it has been checked since DB2 was started. It is incremented even if no copies of the statement have been captured.

Field Name: QISEDPSL

POSSIBLE ROW FOUND

The number indicates duplicated statement hash (stmt hash) entries. It shows the number of times rows are read from the catalog before a match is found.

This field is incremented each time a row is read that might be a match. This is a serviceability field.

Field Name: QISEDPCS

MATCH THR TXT/BND OPT
The number of times a catalog match is found without checking the authentication ID (authid). This number indicates whether statements are monitored by multiple authids.

This field is incremented each time a row is read and everything is matched, but before the authids are checked. This is a serviceability field.

**Field Name:** QISEDPSM

**PKG SEARCH NOT FOUND**

When a package is bound with a wild card (*) for package names, in the form of PKLIST(COL1.*, COL2.*.....), EDM generates a NOT-FOUND record to avoid future I/O if a collection ID/package name combination does not exist.

This field shows how often a cached record was located during package binding.

**Field Name:** QISEKNFM

**PKG SEARCH NOT FOUND INSERT**

When a package is bound with a wild card (*) for package names, in the form of PKLIST(COL1.*, COL2.*.....), EDM generates a NOT-FOUND record to avoid future I/O if a collection ID/package name combination does not exist.

This field shows how often a record was added to the cache during package binding.

**Field Name:** QISEKNFA

**PKG SEARCH NOT FOUND DELETE**

When a package is bound with a wild card (*) for package names, in the form of PKLIST(COL1.*, COL2.*.....), EDM generates a NOT-FOUND record to avoid future I/O if a collection ID/package name combination does not exist.

This field shows how often a record was removed from the cache during package binding.

**Field Name:** QISEKNFR

**STATEMENTS IN GLOBAL CACHE**

Number of statements in the global cache.

**Field Name:** QISESTMT

**PAGES IN STMT POOl (ABOVE)**

The current number of pages in the EDM Statement pool above the 2 GB bar. This is a snapshot value. For DB2 12 this field shows N/A.

**Field Name:** QISECPGE

**PAGES IN DBD POOL (ABOVE) (Prior to DB2 12)**

This field shows the number of pages in the DBD pool above the 2 GB bar.

**Field Name:** QISEDPGE

**HELD BY STATEMENTS**

The number of pages in the EDM Statement pool above the 2 GB bar that is used for cached dynamic SQL statements. This is a snapshot value.
Field Name: QISEDYNP

HELD BY DBD

The current number of pages used for database descriptors (DBDs). This is a snapshot value.

Field Name: QISEDDBD

FREE PAGES (Prior to DB2 12)

This field shows the number of free pages in the DBD pool above the 2 GB bar.

Field Name: QISEDFFRE

This is an exception field.

STEALABLE PAGES

The current number of stealable pages used for skeleton cursor and package tables.

Field Name: QISEKLRU

FAILS DUE TO STMT POOL FULL

The total number of failures because the EDM Statement pool above the 2 GB bar was full. For DB2 12 this field shows N/A.

Field Name: QISECFAL

FREE PAGES

The number of pages currently not used by any object in the EDM Statement pool above the 2 GB bar. For DB2 12 this field shows N/A.

Field Name: QISECFRE

FAILS DUE TO DBD POOL FULL

This field shows the total number of failures because the DBD pool above the 2 GB bar was full.

Field Name: QISEDFFAL

This is an exception field.

PAGES IN RDS POOL (ABOVE)

The number of pages in the RDS pool above the 2 GB bar.

Field Name: QISESPGE

PAGES IN SKEL POOL (ABOVE) (Prior to DB2 12)

The current number of pages in the EDM skeleton pool above the 2 GB bar.

Field Name: QISEKPGE

HELD BY CT

The number of pages in the RDS pool above the 2 GB bar used for the cursor tables (CTs). This is a snapshot value.

Field Name: QISECTA

HELD BY SKCT
IFCID 002 - EDM Pool Data

The current number of pages used for skeleton cursor tables (SKCTs). This is a snapshot value.
Field Name: QISESKCT

HELD BY PT
The number of pages in the RDS pool above the 2 GB bar used for the package tables (PTs). This is a snapshot value.
Field Name: QISEKTA

HELD BY SKPT
The current number of pages used for skeleton package tables (SKPTs). This is a snapshot value.
Field Name: QISESKPT

FREE PAGES (Prior to DB2 12)
The number of pages currently not used by any object in the EDM skeleton pool above the 2 GB bar.
Field Name: QISEKFRE

STEALABLE PAGES
The current number of stealable pages used for database descriptors (DBDs).
Field Name: QISEDLRU

FAILS DUE TO RDS POOL FULL
The number of failures because the RDS pool above the 2 GB bar was full.
Field Name: QISESFAL

FREE PAGES
The number of free pages in the RDS pool above the 2 GB bar.
Field Name: QISESFRE

FAILS DUE TO SKEL POOL FULL
The total number of failures because the EDM skeleton pool above the 2 GB bar was full.
Field Name: QISEKFAL

SHAREABLE STATIC SQL STMT REQUESTS
The number of shareable static SQL statement requests. Prior to DB2 11, the field is used for the number of requests of executable code sequences (xPROC).
Field Name: QISEKSPG

XPROC ALLOC STOR
The total storage allocated to executable code sequences (xPROC).
Field Name: QISEKSPA

PLAN BTB STORAGE
The storage allocated to plans below the bar.
Field Name: QISESQCB
PKG BTB STORAGE

The storage allocated to packages below the bar.

Field Name: QISESQKB

PLAN ATB STORAGE

The storage allocated to plans above the bar.

Field Name: QISESQCA

PKG ATB STORAGE

The storage allocated to packages above the bar.

Field Name: QISESQKA

REQ STOR FOR STATIC STMTS

The total storage requested for shareable static SQL statements.

Field Name: QISEKSPA8

IFCID 002 - Group Buffer Pools Activity Data:

This topic shows detailed information about “Record Trace - IFCID 002 - Group Buffer Pools Activity Data”.

Record trace - IFCID 002 - Group Buffer Pools Activity Data

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Group Buffer Pools Activity Data” are described in the following section.

GROUP BUFFER POOL ID ............: 0  FLAGS ......................: X'80'
SYN.READS(XI)-DATA RETURNED ;: 16941 SYN.READS(NF)-DATA RETURNED ;: 83
SYN.READS(XI)-NO DATA RET ...: 25588 SYN.READS(NF)-NO DATA RET ...: 111
READ FOR CASTOUT MULT .......: 1252 WRITE AND REGISTER MULT .......: 1179
READ FOR CASTOUT ..............: 4608 WRITE AND REGISTER ..............: 10548
CLEAN PAGES WRITTEN ..........: 0 PAGES WRITE & REG MULT ..........: 7409
CHANGED PAGES ASYN.WRITTEN ..: 17880 PAGES CASTOUT ..............: 11386
CHANGED PAGES ASYN.WRITTEN ..: 77 CASTOUT CLASS THRESHOLD .......: 65
WRITE FAILED-NO STORAGE ......: 0 GROUP BP CASTOUT THRESHOLD ......: 0
REG.PAGE LIST (RPL) REQ ......: 607 DELETE NAME LIST SEC-GBP ......: 0
BGP CHECKPOINTS TRIGGERED ...: 0 DELETE PAGE FROM SEC-GBP ......: 0
PAGES RETRIEVED FROM GBP ..: 78 READ CASTOUT STATS SEC-GBP ..: 0
READ STORAGE STATS ...........: 66803 UNLOCK CASTOUT ..............: 7804
DELETE NAME ..................: 333 READ CASTOUT CLASS ...........: 6150
UNREGISTER PAGE ...............: 0 EXIT OF READ FOR CASTOUT REQ ....: 7343
REGISTER PAGE ................: 47 READ DIRECTORY INFO ...........: 0
EXPLICIT X-INVALID ..........: 0 GBP-DEPENDENT GETPAGES ...........: 2730629
PG P-LOCK UNLOCK REQ ........: 2095465 ASYNCH GBP REQUESTS .......: 6343
PG P-LOCK LOCK REQ SP MAP PG : 2078633 ASYNCH SEC-GBP REQUESTS .......: 0
PG P-LOCK LOCK SUSP SP MAP PG: 39439 WRITE SEC-GBP FAILED ...........: 0
PG P-LOCK LOCK NOG SP MAP PG : 0 PG P-LOCK LOCK DATA PG .......: 10866
PG P-LOCK LOCK NOG IX LEAF PG : 3718 PG P-LOCK LOCK SUSP DATA PG .......: 67
PG P-LOCK LOCK NOG IX LEAF PG : 15 PG P-LOCK LOCK NOG DATA PG .......: 4
PG P-LOCK LOCK NOG IX LEAF PG : 0 PAGES IN WRITE AROUND ...........: 16

GROUP BUFFER POOL ID

The group buffer pool identifier.

Field Name: QBGLGN

FLAGS

The flag byte shows if more QBGL data is following or if this is the last of the QBGL repeating groups.

Field Name: QBGLFLG

SYN.READS(XI)-DATA RETURNED
The number of requests made to read a page from the group buffer pool because the page was invalidated in the member's buffer pool. The member found the required page in the group buffer pool.

**Background and Tuning Information**

When you increase the size of the group buffer pool (GBP), the number of pages returned from the GBP can increase. Conversely, decreasing the size of the GBP can cause DB2 to return fewer pages because the GBP cannot hold pages long enough to allow them to be retrieved again.

**Field Name:** QBGLXD

This is an *exception* field.

**SYN.READS(NF)-DATA RETURNED**

The number of requests made to read a page from the group buffer pool because the page was not in the buffer pool of the member. The member found the page in the group buffer pool.

**Background and Tuning Information**

The requesting member needs a page from a table space or index that is GBP-dependent or has GBPCACHE ALL defined. To get that page, the group buffer pool is checked before the page set on DASD.

If the group buffer pool is used to cache both clean and changed pages (GBPCACHE ALL is used for all data), you can try to get more pages returned from the group buffer pool by increasing the size of the group buffer pool. Do not tune the GBP based on this counter if it is used for caching changed pages only (GBPCACHE CHANGED).

**Field Name:** QBGLMD

This is an *exception* field.

**SYN.READS(XI)-NO DATA RET.**

The number of requests to read a page from the group buffer pool made because the page was invalidated in the member's buffer pool. The page was not found in the GBP and the page was recovered from DASD.

**Field Name:** QBGLGXR

**SYN.READS(NF)-NO DATA RET.**

The number of requests made to read a page from the group buffer pool because the page was not in the member's buffer pool. The member did not find the required data in the group buffer pool and had to retrieve the page from DASD.

**Background and Tuning Information**

The requesting member needs a page from a table space or index that is GBP-dependent or has GBPCACHE ALL defined. To get that page, the group buffer pool is checked before the page set on DASD.

You can compare the value in this counter with the number of pages that were returned from the group buffer pool, see Sync.Read (Not Found) - Data Returned. If the group buffer pool is used to cache both clean and changed pages (GBPCACHE ALL is used for all data), you can try to get more pages returned from the group buffer pool by increasing the size of the group buffer pool. Do not tune the GBP based on this counter if it is used for caching changed pages only (GBPCACHE CHANGED).
Field Name: QBGLMR
READ FOR CASTOUT MULT
The number of Read For Castout Multiple requests.

Field Name: QBGLCM
WRITE AND REGISTER MULT
The number of Write and Register Multiple requests.

Field Name: QBGLWM
READ FOR CASTOUT
The number of Read For Castout requests. One page read per request.

Field Name: QBGLCR
WRITE AND REGISTER
The number of Write and Register requests.

Field Name: QBGLWS
CLEAN PAGES WRITTEN
The number of clean pages that were synchronously written to the group buffer pool from the virtual pool.

Background and Tuning Information
Only GBPCACHE ALL causes clean (unchanged) pages to be written to the coupling facility. The pages are written to the coupling facility even if the page set is not GBP-dependent. If group buffer pool caching works effectively for prefetch, the value in this field should be much smaller than the value in Synchronous Read (Not Found) - Data Returned.

Field Name: QBGLWC
This is an exception field.

PAGES WRITE & REG MULT
The number of pages written using Write and Register Multiple (WARM) requests.

Field Name: QBGLWP
CHANGED PAGES SYNC.WRITTEN
The number of changed pages written synchronously to the group buffer pool.

Pages are written with Write and Register (WAR) requests or Write and Register Multiple (WARM) requests.

At commit time changed pages are forced from the virtual buffer pool of the member to the coupling facility.

Background and Tuning Information
In data sharing, changed pages must have been written to the group buffer pool by the time a transaction commits. The pages are written either synchronously (force at commit) or asynchronously, for example, when a local buffer pool threshold is reached or at a member's checkpoint. The
number of pages that have to be forced out synchronously (in “burst mode”) at commit time can be reduced if asynchronous writes are triggered more frequently.

You can use the vertical deferred write threshold (VDWQT) to reduce the number of pages that have to be forced out synchronously and to increase the number of pages that are asynchronously written before the transaction commits. For GBP-dependent page sets, writes triggered by the vertical deferred write threshold go to the coupling facility. You can cause changed pages to be written out quicker and in smaller increments, by reducing the vertical deferred write threshold (VDWQT).

Field Name: QBGLSW
This is an exception field.

PAGES CASTOUT
The number of data pages that were cast out of the group buffer pool of the member.

Castout to a page set or partition is done by the castout owner of the page set or partition. This is normally the DB2 subsystem that had the first update intent on the page set or partition.

Background and Tuning Information
The number of pages written per I/O is normally close to the value of this field divided by the value in Unlock Castout.

For example, if an average of four pages is written per castout write I/O, the number of pages cast out should be four times the number in this field.

Because DB2 usually includes more than one page in the request to write pages to DASD, the number in this field should always be significantly more than Unlock Castout. If it is not (for example, when “unlock castout” is more than half of “pages castout”), the castout write I/O is inefficient; probably because you have random update patterns on the DB2 data or a low castout threshold.

Field Name: QBGLRC
This is an exception field.

CHANGED PAGES ASYNC.WRITTEN
The number of changed pages written asynchronously to the group buffer pool.

Pages are written in response to Write and Register (WAR) and Write and Register Multiple (WARM) requests.

Changed pages can be written from the member’s virtual buffer pool to the group coupling facility before the application commits. This happens when, for example, a local buffer pool threshold is reached, or when P-lock negotiation forces the pages on the vertical deferred write queue to be written to the group buffer pool.

Background and Tuning Information
In data sharing, changed pages must have been written to the group buffer pool before a transaction commits. The pages are written either synchronously during commit processing or asynchronously before the transaction commits when, for example, a local buffer pool threshold is
reached or at a member’s checkpoint. See Changed Pages - Written Synchronously for the number of changed pages synchronously written to the group buffer pool.

The vertical deferred write threshold (VDWQT) can be used to reduce the number of pages that have to be forced out synchronously and to increase the number of pages that are asynchronously written before the transaction commits. For GBP-dependent page sets, writes triggered by the vertical deferred write threshold go to the coupling facility. If you want changed pages to be written out quicker and in smaller increments, you can lower the vertical deferred write threshold (VDWQT).

**Field Name:** QBGLAW

This is an *exception* field.

**CASTOUT CLASS THRESHOLD**

The number of times group buffer pool castout was initiated because the group buffer pool class castout threshold was detected.

**Background and Tuning Information**

The class castout threshold is one of two group buffer pool thresholds. In most cases the default value for the class threshold (5 percent) is a good choice. Depending on your workload, altering this value can reduce DASD contention during castout.

**Field Name:** QBGLCT

This is an *exception* field.

**WRITE FAILED-NO STORAGE**

The number of coupling facility write requests that could not complete due to a lack of coupling facility storage resources.

**Background and Tuning Information**

A value greater than zero indicates that the data page resources of the coupling facility are being consumed faster than the DB2 castout processes can free them.

On write failure, the affected DB2 member initiates castout and retries several times, and finally, if it is a changed page, it will be added to the logical page list (LPL) requiring recovery.

If the problem is not simply due to a momentary surge in activity, you need either to decrease the group buffer pool castout thresholds, or to increase the number of data entries in the group buffer pool. To increase the number of data entries, you can do one of the following:

- Increase the total size of the group buffer pool.
- Adjust the ratio of directory entries to data entries in favor of data entries.

**Field Name:** QBGLWF

This is an *exception* field.

**GROUP BP CASTOUT THRESHOLD**

The number of times a group buffer pool castout was initiated because the group buffer pool castout threshold was detected.

**Background and Tuning Information**
The GBP castout threshold, GBP class castout threshold, and the length of the GBP checkpoint interval determine the castout characteristics of the group buffer pool.

You can consider this threshold a safety margin to protect the group buffer pool from being accidentally flooded by overactive applications.

In most situations, the default value for the group buffer pool castout threshold of 30 percent is a good choice. Use the ALTER GROUPBUFFERPOOL command to tune the group buffer pool thresholds.

**Field Name:** QBGLGT

This is an *exception* field.

**REG.PAGE LIST (RPL) REQ.**

The number of register page list (RPL) requests made by prefetch. The group buffer pool must be allocated in a group coupling facility with CFLEVEL=2 or higher.

**Background and Tuning Information**

Performance might be improved by enabling RPL.

**Field Name:** QBGLAX

This is an *exception* field.

**DELETE NAME LIST SEC-GBP**

The number of DELETE NAME LIST requests to delete pages from the secondary group buffer pool that have just been cast out from the primary.

**Field Name:** QBGL2D

This is an *exception* field.

**GBP CHECKPOINTS TRIGGERED**

The number of group buffer pool checkpoints triggered by this member.

**Background and Tuning Information**

The value of this counter depends on the length of the group buffer pool checkpoint interval.

**Field Name:** QBGLCK

**DELETE PAGE FROM SEC-GBP**

The number of group buffer pool requests to delete a page from the secondary group buffer pool. These requests are issued by the group buffer pool structure owner to delete orphaned data entries in the secondary GBP as part of the garbage collection logic.

**Field Name:** QBGL2N

**PAGES RETRIEVED FROM GBP**

The number of coupling facility reads performed by prefetch to retrieve a changed page from the group buffer pool.

**Field Name:** QBGLAY

This is an *exception* field.

**READ CASTOUT STATS SEC-GBP**
The number of coupling facility requests to read the castout statistics for the secondary group buffer pool. These requests are issued by the group buffer pool structure owner to check for orphaned data entries in the secondary group buffer pool.

**Field Name:** QBGL2R

This is an *exception* field.

**READ STORAGE STATS**

The number of times DB2 requested statistics information from the group buffer pool. It is issued by the group buffer pool structure owner at timed intervals to determine whether the group buffer pool castout threshold (GBPOOLT) has been reached.

**Field Name:** QBGLOS

**UNLOCK CASTOUT**

The number of times DB2 issued an unlock request to the coupling facility for completed castout I/Os.

When pages are cast out to DASD, they are locked for castout in the coupling facility. This castout lock is not an IRLM lock; it is to ensure that only one system can cast out a given page at a time.

**Background and Tuning Information**

The number of pages written per I/O is normally close to the value of pages castout divided by the value of this field.

For example, if an average of four pages is written per castout write I/O, the number of pages cast out should be four times the value in this field.

Because DB2 usually includes more than one page in a write request, the number in this field should always be significantly less than pages castout. If it is not (for example, when "unlock castout" is more than half of "pages castout"), the castout write I/O is inefficient; possibly because you have random update patterns on the DB2 data or a low castout threshold.

**Field Name:** QBGLUN

**DELETE NAME**

The number of requests made by DB2 to delete directory and data entries associated with a particular page set or partition from the group buffer pool.

DB2 issues this request when it changes a page set or partition from GBP-dependent to non GBP-dependent. DB2 also issues this request for objects that are defined with GBPCACHE ALL when those objects are first opened.

**Background and Tuning Information**

This counter is a measure of how often page sets or partitions change between being and not being dependent on the group buffer pool.

You can prevent DB2 going in and out of GBP dependency too often by tuning the following subsystem parameters that affect data sets when they are switched to a different state:

**PCLOSEN**

Pseudoclose frequency. The number of checkpoints required before a data set that was not updated can be a pseudoclose candidate.
IFCID 002 - Group Buffer Pools Activity Data

If the PCLOSEN condition is met, the page set or partition is converted from read-write to read-only state. Depending on other concurrent users, this could raise the chance for the page set or partition to go out of GBP dependency.

PCLOSET
Pseudoclose time. The amount of time (in minutes) that must elapse before a data set can be a pseudoclose candidate.

If the PCLOSEN or PCLOSET condition is met, the page set or partition is converted from read-write to read-only state. Depending on other concurrent users, this could raise the chance for the page set or partition to go out of GBP dependency.

LOGLOAD
The number of log records that DB2 writes between successive checkpoints.

These parameters are specified in the CHECKPOINT FREQ field in panel DSNTIPN.

Field Name: QBGLDN

READ CASTOUT CLASS
The number of requests made to the group buffer pool to determine which pages, from a particular page set or partition, must be cast out because they are cached as changed pages.

This request is issued either by the page set or partition castout owner, or, when the group buffer pool castout threshold is reached, by the group buffer pool structure owner.

Field Name: QBGLCC

UNREGISTER PAGE
The number of times DB2 unregistered interest for a single page. This happens when DB2 steals pages from the member’s buffer pool that belong to GBP-dependent page sets or partitions.

Background and Tuning Information
A large value here indicates that the local buffer pool contains a mixture of GBP-dependent data and non-GBP-dependent data.

The page stolen from the local buffer pool is replaced by a new one. This counter makes a distinction on whether the new page depends on the group buffer pool or not.

Usually a page of a GBP-dependent page set or partition is replaced by a page that is also GBP-dependent. In this instance, the unregister request for the page being stolen is combined with the read and register request for the new page. These combined requests do not contribute to this counter.

If, however, a page of a GBP-dependent page set or partition is replaced by a page that is not GBP-dependent, then only an unregister request is sent to the coupling facility. These separate requests are counted here.

Field Name: QBGLDG

NR.OF READ FOR CASTOUT REQ.
The number of requests issued by the group buffer pool structure owner to determine which castout classes have changed pages.
This request is made by the group buffer pool structure owner when the group buffer pool threshold is reached. Normally, you would expect only one or two requests each time the group buffer pool threshold is reached.

**Field Name:** QBGLCS

**REGISTER PAGE**

The number of times DB2 registered interest in a single page.

These are “register-only” requests, which means that DB2 is not requesting any data back from the request.

This request is made only to create a directory entry for the page to be used for cross-invalidation when the page set or partition P-lock is downgraded from S to IS mode, or from SIX to IX mode.

**Field Name:** QBGLRG

**READ DIRECTORY INFO**

The number of requests issued by the group buffer pool structure owner to read the directory entries of all changed pages in the group buffer pool.

This request is issued at group buffer pool checkpoints to record the oldest recovery log record sequence number (LRSN). It is used as a basis for recovery if the group buffer pool fails.

Such requests might have to be issued several times for each group buffer pool checkpoint to read the directory entries for all changed pages.

**Background and Tuning Information**

If the value of this counter appears to be abnormally high, consider upgrading the coupling facility to CFLEVEL=2 or higher to raise the number of directory entries that can be read with one request. You can also increase the group buffer pool checkpoint interval, but this can lengthen the recovery for the group buffer pool.

**Field Name:** QBGLRD

**EXPLICIT X-INVALID**

The number of times an explicit coupling facility cross-invalidation request was issued.

**Field Name:** QBGLEX

**GBP-DEPENDENT GETPAGES**

The number of Getpages made for GBP-dependent objects.

**Field Name:** QBGLGG

**PG P-LOCK UNLOCK REQ**

The number of page P-lock unlock requests.

**Field Name:** QBGLU1

**ASYNCH GBP REQUESTS**

The number of asynchronous IXLCACHE invocations for the primary group buffer pool.

**Field Name:** QBGAHS

**PG P-LOCK LOCK REQ SP MAP PG**
IFCID 002 - Group Buffer Pools Activity Data

The number of page P-lock lock requests for space map pages.
Field Name: QBGLP1

ASYNCH SEC-GBP REQUESTS
The number of IXLCACHE invocations for the secondary group buffer pool.
Field Name: QBGA2H

PG P-LOCK LOCK SUSP SP MAP PG
The number of page P-lock suspensions for space map pages.
Field Name: QBGLS1

WRITE SEC-GBP FAILED
The number of coupling facility requests to write changed pages to the secondary group buffer pool for duplexing that failed because of a lack of storage in the coupling facility.
Field Name: QBGL2F
This is an exception field.

PG P-LOCK LOCK NEG SP MAP PG
The number of page P-lock negotiations for space map pages.
Field Name: QBGLN1

PG P-LOCK LOCK REQ DATA PG
The number of page P-lock requests for data pages.
Field Name: QBGLP2

PG P-LOCK LOCK REQ IX LEAF PG
The number of page P-lock requests for index leaf pages.
Field Name: QBGLP3

PG P-LOCK LOCK SUSP DATA PG
The number of page P-lock suspensions for data pages.
Field Name: QBGLS2

PG P-LOCK LOCK SUSP IX LEAF PG
The number of page P-lock suspensions for index leaf pages.
Field Name: QBGLS3

PG P-LOCK LOCK NEG DATA PG
The number of page P-lock negotiations for data pages.
Field Name: QBGLN2

PG P-LOCK LOCK NEG IX LEAF PG
The number of page P-lock negotiations for index leaf pages.
Field Name: QBGLN3

PAGES IN WRITE AROUND
The number of changed pages that were written to disk through group buffer pool write-around due to condition write failures to the group buffer pool.

**Field Name:** QBGLWA

**IFCID 002 - Locking Data:**

This topic shows detailed information about “Record Trace - IFCID 002 - Locking Data”.

**Record trace - IFCID 002 - Locking Data**

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Locking Data” are described in the following section.

<table>
<thead>
<tr>
<th>LOCKING DATA</th>
<th>0</th>
<th>LOCK REQUEST</th>
<th>96361</th>
<th>LOCK SUSPENSIONS</th>
<th>0</th>
<th>CLAIM REQUESTS</th>
<th>3220</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEADLOCKS</td>
<td>0</td>
<td>UNLOCK REQUEST</td>
<td>19731</td>
<td>IRLM LATCH SUSPENS</td>
<td>0</td>
<td>CLAIM REQ. FAILED</td>
<td>0</td>
</tr>
<tr>
<td>TIMEOUTS</td>
<td>0</td>
<td>QUERY REQUEST</td>
<td>0</td>
<td>OTHER SUSPENSIONS</td>
<td>0</td>
<td>DRAIN REQUESTS</td>
<td>111</td>
</tr>
<tr>
<td>ESCALATIONS(SHR)</td>
<td>0</td>
<td>CHANGE REQUEST</td>
<td>3753</td>
<td>DRAIN REQ. FAILED</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAXIMUM PAGE/ROW LOCKS HELD</td>
<td>N/A</td>
<td>OTHER REQUEST</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DEADLOCKS**

The number of times deadlocks were detected. This number should be low, ideally 0.

**Background and Tuning Information**

Deadlocks occur when two or more application processes each hold locks on resources that the others need, without which they cannot proceed. Ensure that all applications accessing the same tables access them in the same order.

To improve concurrency:
- Use row level locking instead of page level locking to minimize deadlocks.
- For small tables use page level locking with MAXROWS 1.

To minimize deadlocks:
- Delay updates to just before commit.
- Use SELECT with the FOR UPDATE clause to use U lock.
- Adjust the deadlock detection cycle parameter DEADLOK in the IRLM procedure.

This field is incremented once for each deadlock encountered. There is no correlation between this field and the deadlock events reported in the Locking report set or the number of IFCID 172 records written. This field reports all deadlocks, regardless of how they were resolved. The locking report and record trace IFCID 172 show only those deadlocks that were resolved by DB2.

**Field Name:** QTXADEA

This is an *exception* field.

**LOCK REQUEST**

The number of requests to lock a resource.

**Field Name:** QTXALOCK

This is an *exception* field.
LOCK SUSPENSIONS
The number of times a lock could not be obtained and the unit of work was suspended.

Background and Tuning Information
This number should be low, ideally 0.
The number of lock suspensions is a function of the lock requests. Lock suspensions (or conflicts) can happen on either LOCK REQUEST or CHANGE REQUEST.
Suspensions are highly dependent on the application and table space locking protocols.
Field Name: QTXASLOC
This is an exception field.

CLAIM REQUESTS
The number of claim requests.
Field Name: QTXACLNO
This is an exception field.

TIMEOUTS
The number of times a unit of work was suspended for a time exceeding the timeout value. This number should be low, ideally 0.
Field Name: QTXATIM
This is an exception field.

UNLOCK REQUEST
The number of requests to unlock a resource.
This value can be less than the number of lock requests because DB2 can release several locks with a single unlock request.
Field Name: QTXAUNLK

IRLM LATCH SUSPENS.
The number of latch suspensions.
Field Name: QTXASLAT

CLAIM REQ. FAILED
The number of unsuccessful claim requests.
Field Name: QTXACLUN

ESCALATIONS(SHR)
The number of times the maximum page locks per table space are exceeded, and the table space lock escalates from a page lock (IS) to a table space lock (S) for this thread. You can specify the number of locks allowed per table space with the LOCKS PER TABLE(SPACE) parameter on the DB2 install panel DSNTIPJ.

Background and Tuning Information
Escalations can cause unpredictable response times. Lock escalations should only happen when an application process updates or references (if repeatable read is used) more pages than normal.

**Field Name:** QTXALES
This is an *exception* field.

**QUERY REQUEST**
The number of query requests.

**Field Name:** QTXAQRY
This is an *exception* field.

**OTHER SUSPENSIONS**
The number of suspensions caused by something other than lock or latch.

**Field Name:** QTXASOTH
This is an *exception* field.

**DRAIN REQUESTS**
The number of drain requests.

**Field Name:** QTXADRNO
This is an *exception* field.

**ESCALATIONS(EXC)**
The number of times the maximum page locks per table space are exceeded and the table space lock escalates from a page lock (IX) to a table space lock (X).

**Background and Tuning Information**
Escalations can cause unpredictable response times. Lock escalations should only happen when an application process updates or references (if repeatable read is used) more pages than it normally does.

A useful rule of thumb is to compare the number of escalations (shared and exclusive) to the successful escalations (those that did not cause deadlocks and timeouts). If this value, or the number Lock escalations - shared and if the number of timeouts or deadlocks is also not 0, the timeout or deadlock is probably caused by the escalation.

If many escalations cause deadlocks and timeouts, the recommendation is to change the escalation threshold value. Use of ANY is extremely useful to prevent unnecessary and expensive page locks, for example locking all pages in a tablespace.

Lock escalations, shared or exclusive, should not be expected in a transaction environment.

**Field Name:** QTXALEX
This is an *exception* field.

**CHANGE REQUEST**
The number of change requests.

**Field Name:** QTXACHG
This is an *exception* field.
IFCID 002 - Locking Data

DRAIN REQ. FAILED

The number of unsuccessful drain requests.

Field Name: QTXADRUN

This is an exception field.

MAXIMUM PAGE/ROW LOCKS HELD

The maximum number of page or row locks concurrently held against all table spaces by a single application during its execution. This count is a high-water mark. It cannot exceed the LOCKS PER USER parameter on panel DSNTIPJ.

Field Name: QTXANPL

This is an exception field.

OTHER REQUEST

The number of requests to IRLM to perform a function other than LOCK, UNLOCK, QUERY, or CHANGE.

Field Name: QTXAIRLM

This is an exception field.

IFCID 002 - Miscellaneous:

This topic shows detailed information about “Record Trace - IFCID 002 - Miscellaneous”.

Record trace - IFCID 002 - Miscellaneous

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Miscellaneous” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MX ST LOB VAL (MB)</td>
<td>Maximum storage used for LOB values.</td>
</tr>
<tr>
<td>SPARSE IX DISABLED</td>
<td></td>
</tr>
<tr>
<td>TRANSFER OWNERSHIP</td>
<td></td>
</tr>
<tr>
<td>QXPFSNUM .............</td>
<td></td>
</tr>
<tr>
<td>QXPMAU ..............</td>
<td></td>
</tr>
<tr>
<td>QXN1093H .............</td>
<td></td>
</tr>
<tr>
<td>MX ST XML VAL (MB)</td>
<td>Maximum storage used for XML values.</td>
</tr>
<tr>
<td>SPARSE IX BUILT WF</td>
<td></td>
</tr>
<tr>
<td>NO ON CALL RID/LPF</td>
<td></td>
</tr>
<tr>
<td>QXPFSNUM .............</td>
<td></td>
</tr>
<tr>
<td>QXPMAUG .............</td>
<td></td>
</tr>
<tr>
<td>QXN1093A .............</td>
<td></td>
</tr>
</tbody>
</table>

ARRAY EXPANSIONS

The number of times an array variable is expanded beyond 32 KB.

Field Name: QXSTARRAY_EXPANSIONS

SPARSE IX DISABLED

The number of times that sparse index was disabled because of insufficient storage.

Field Name: QXSISTOR
SPARSE IX BUILT WF
The number of times that sparse-index built a physical work file for probing.

Field Name: QXSIWF

REFRESH TABLE
The number of REFRESH TABLE statements.

Field Name: QXREFTBL

TRANSFER OWNERSHIP
The number of TRANSFER OWNERSHIP statements.

Field Name: QXTRNOWN

NO DM CALL RID/LPF
The number of times that RDS did not call data manager for RID list retrieval for multiple index access or list prefetch because runtime adaptive index processing was able to determine the outcome.

Field Name: QXRSDMAD

FETCH 1 BLOCK ONLY
The number of times that RDS fetched one block and made no subsequent requests for additional blocks.

Field Name: QXR1BOAD

QXPFSLNUM
This field is for IBM service use.

Field Name: QXPFSLNUM

QXPFSENUM
This field is for IBM service use.

Field Name: QXPFSENUM

QXPFSENUMG
This field is for IBM service use.

Field Name: QXPFSENUMG

QXPFMAXU
This field is for IBM service use.

Field Name: QXPFMAXU

QXPFMAXUG
This field is for IBM service use.

Field Name: QXPFMAXUG

QXN1093A
This field is for IBM service.

Field Name: QXN1093A

QXN1093B
This field is for IBM service.
IFCID 002 - Miscellaneous

Field Name: QXN1093B

IFCID 002 - Nested SQL Activity:

This topic shows detailed information about “Record Trace - IFCID 002 - Nested SQL Activity”.

Record trace - IFCID 002 - Nested SQL Activity

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Nested SQL Activity” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX CASCAD LVL</td>
<td>The maximum level of indirect SQL cascading. This includes cascading because of triggers, UDFs, or stored procedures.</td>
</tr>
<tr>
<td>CALL STATEMENTS</td>
<td>The number of SQL CALL statements executed.</td>
</tr>
<tr>
<td>PROCEDURE ABENDS</td>
<td>The number of times a stored procedure terminated abnormally.</td>
</tr>
<tr>
<td>CALL TIMEOUTS</td>
<td>The number of times an SQL call timed out waiting to be scheduled.</td>
</tr>
<tr>
<td>CALL REJECTS</td>
<td>The number of times an SQL CALL statement was rejected due to the procedure being in the STOP ACTION(REJECT) state.</td>
</tr>
<tr>
<td>UDF EXECUTED</td>
<td>The number of user-defined functions executed.</td>
</tr>
<tr>
<td>UDF ABENDS</td>
<td>The number of times a user-defined function abended.</td>
</tr>
</tbody>
</table>
UDF TIMEOUTS
The number of times a user-defined function timed out while waiting to be scheduled.

Field Name: QXCAUDTO
This is an exception field.

UDF REJECTS
The number of times a user-defined function was rejected.

Field Name: QXCAUDRJ
This is an exception field.

STMT TRIGGER
The number of times a statement trigger was activated.

Field Name: QXSTTRG
This is an exception field.

ROW TRIGGER
The number of times a row trigger was activated.

Field Name: QXROWTRG
This is an exception field.

SQL ERROR TRIGGER
The number of times an SQL error occurred during the execution of a triggered action. This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.

Field Name: QXTRGERR
This is an exception field.

IFCID 002 - Query Parallelism:
This topic shows detailed information about “Record Trace - IFCID 002 - Query Parallelism”.

Record trace - IFCID 002 - Query Parallelism
The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Query Parallelism” are described in the following section.

IFCID 002 - Nested SQL Activity
The maximum degree of parallelism estimated for a parallel group at bind time based on the cost formula. If the parallel group contains a host variable or parameter marker, then bind time will estimate the parallel group degree based on a valid assumption value.

Field Name: QXMAXESTIDG

MEMBERS SKIPPED

The number of times the parallelism coordinator had to bypass a DB2 when distributing tasks because one or more DB2 members did not have enough buffer pool storage. The number in this field is only incremented at the parallelism coordinator once per parallel group, even though more than one DB2 might have lacked buffer pool storage for that parallel group. It is also only incremented when the buffer pool is defined to allow for parallelism. For example, if VPXPSEQT=0 on an assistant, DB2 does not send parallel work there and the number in this field is not incremented.

Field Name: QQXCSKIP

PARALL. DISABLED

Indicates whether query parallelism is disabled by the Resource Limit Facility for at least one dynamic select statement in this thread. A non-zero value means that query parallelism is disabled.

Field Name: QQXRLFDPA

MAX DEG PLANNED

The maximum degree of parallelism planned for a parallel group. It is the ideal parallel group degree obtained at execution time after the host variable or parameter marker value is "plug-in" and before buffer pool negotiation and system negotiation are performed.

Field Name: QXMAXPLANDG

MAX DEG EXECUTED

The maximum degree of parallelism executed among all parallel groups to indicate the extent to which queries were processed in parallel.

Field Name: QXMAXDEG

FALL TO SEQ-CURSOR

The total number of parallel groups that fell back to sequential mode due to a cursor that can be used by UPDATE or DELETE.

Field Name: QXDEGCUR

GROUPS EXECUTED

The total number of parallel groups executed.

Field Name: QXTOTGRP

ONE DB2-COORD=NO

The total number of parallel groups executed on a single DB2 subsystem due to the COORDINATOR subsystem value being set to NO. When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a DB2 subsystem with COORDINATOR=YES, but is run on a DB2 subsystem with COORDINATOR=NO.

Field Name: QXCOORNO
FALL TO SEQ-NOESA

The total number of parallel groups that fell back to sequential mode due to a lack of ESA sort support.

Field Name: QXDEGESAA

PARALL.GROUPS

The total number of parallel groups that DB2 intended to run across the data sharing group. This number is only incremented at the parallelism coordinator at run time.

Field Name: QXXCBPNX

ONE DB2-ISO LVL

The total number of parallel groups executed on a single DB2 subsystem due to repeatable-read or read-stability isolation.

Field Name: QXISORR

FALL TO SEQ-STOR

The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool.

The exception field name is QXDEGBUF.

Field Name: QXDEGBUF

RAN REDUCED-STOR

The total number of parallel groups that did not reach the planned parallel degree because of a lack of storage space or contention on the buffer pool.

The exception field name is QXREDGRP.

Background and Tuning Information

If this field is not 0, increase the size of the current buffer pool using the ALTER BUFFERPOOL command or use the ALTER TABLESPACE command to assign table spaces accessed by this query to a different buffer pool.

Field Name: QXREDGRP

This is an exception field.

ONE DB2-DCL TTAB

The number of parallel groups in a query block that were downgraded to CPU parallelism because they referenced a UDF and a declared temporary table was detected at execution time.

DB2 enforces execution on a single DB2 (CPU parallelism), in this instance, because it cannot determine at incremental bind time for the statement whether the UDF will reference the declared temporary table. Other parallel groups in the same statement are not necessarily downgraded.

Field Name: QXDEGDTT

FALL TO SEQ-NEGOTN

The total number of parallel groups that fell back to sequential mode due to system negotiation result of system stress level.

Field Name: QXSTODGNGRP
RAN REDUCED-NEGOTN
The total number of parallel groups that did not reach the planned parallel degree due to system negotiation result of system stress level.

Field Name: QXSTOREDGRP

REFORM PARAL-CFG
The total number of parallel groups where DB2 reformulated the parallel portion of the access path because of a change in the number of active members, or because of a change of processor models on which they run, from bind time to run time. This counter is incremented only on the parallelism coordinator at run time.

Field Name: QXREPOP1

FALL TO SEQ-A.PROC
The total number of parallel groups that fell back to sequential mode under an autonomous procedure.

Field Name: QXDEGAT

RAN AS PLANNED
The total number of parallel groups that executed in the planned parallel degree. This field is incremented by one for each parallel group that executed in the planned degree of parallelism (as determined by DB2).

Field Name: QXNORGRP

REFORM PARAL-BUF
The total number of parallel groups in which DB2 reformulated the parallel portion of the access path because there were insufficient buffer-pool resources. This counter is incremented only at the parallelism coordinator at run time.

Field Name: QXREPOP2

QXPAROPT
This field is for IBM service.

Field Name: QXPAROPT

IFCID 002 - RID List Processing:
This topic shows detailed information about “Record Trace - IFCID 002 - RID List Processing”.

Record trace - IFCID 002 - RID List Processing
The field labels shown in the following sample layout of “Record Trace - IFCID 002 - RID List Processing” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RL PROCESSING USED</td>
<td>73361</td>
</tr>
<tr>
<td>RL PROCESSING NOT USED-LIMIT EXCEEDED</td>
<td>0</td>
</tr>
<tr>
<td>RL OVERFLOWED-MAX LIMIT</td>
<td>0</td>
</tr>
<tr>
<td>RL PROCESSING NOT USED-NO STORAGE</td>
<td>11610</td>
</tr>
<tr>
<td>RL OVERFLOWED-MAX LIMIT</td>
<td>11610</td>
</tr>
</tbody>
</table>

RL PROCESSING USED
The number of times RID list (also called RID pool) processing is used.

During RID (RECORD ID) list processing, DB2 uses an index to produce a list of candidate RIDs, which is called a RID list. The RID list can be sorted
and intersected (ANDed) or unioned (ORed) with other RID lists before actually accessing the data pages. RID list processing is used for a single index (index access with list prefetch) or for multiple indexes (multiple index access), which is when the RID lists are ANDed and ORed.

This field is incremented once for a given table access when RID list processing is used for index access with list prefetch, for multiple index access, or for both. For multiple index access, if a final RID list is obtained through ANDing and ORing of RID lists, the counter is incremented once, even if not all indexes were used by the RIDs in the multiple index access.

**Background and Tuning Information**

A nonzero value in this field indicates that DB2 has used list prefetch. If this is the case, check the access path selection.

**Field Name:** QXMIAP

This is an *exception* field.

### RL PROCESSING NOT USED-NO STORAGE

The number of times DB2 detected that no storage was available to hold a list of RIDs during a given RID list process involving one index (single index access with list prefetch) or multiple indexes (multiple index access).

This field can be incremented during retrieval, sorting, ANDing, and ORing of RID lists for index access with list prefetch (single index). For single index access, this field can only be incremented once per access. For multiple index access, it can be incremented for every index involved in the ANDing and ORing of RID lists.

**Field Name:** QXNSMIAP

This is an *exception* field.

### RL PROCESSING NOT USED-LIMIT EXCEEDED

The number of times DB2 detected that a RID list exceeded one or more internal limits during a given RID list (or RID pool) process involving one index (single index access with list prefetch) or multiple indexes (multiple index access). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs.

For index access with list prefetch (single index), this field can only be incremented during RID list retrieval. For multiple index access, this field can be incremented during RID list retrieval, ANDing, and ORing. This counter reflects the number of times internal limits or threshold values were exceeded for the RID lists obtained directly from an index as well as for RID lists derived during the ANDing and ORing process.

**Background and Tuning Information**

Before you increase the RID list storage size, investigate the cause of the failure using the statistics record or the performance trace. You can specify the size for the RID list on the DB2 installation panel DSNTIPC.

**Field Name:** QXMRMIAP

This is an *exception* field.

### RL SKIPPED-INDEX KNOWN


IFCID 002 - RID List Processing

The number of times a RID list retrieval for multiple index access was skipped because it was not necessary due to DB2 being able to predetermine the outcome of index ANDing or ORing.

**Field Name:** QXRSMIAP

**RL OVERFLOWED-NO STORAGE**

The number of times a RID list was overflowed to a work file because no RID pool storage was available to hold the list of RIDs.

**Field Name:** QXWFRIDS

**RL INTERRUPTED (HJ)-NO STORAGE**

The number of times a RID list append for a hybrid join was interrupted because no RID pool storage was available to hold the list of RIDs.

**Field Name:** QXHJINCS

**RL OVERFLOWED-MAX LIMIT**

The number of times a RID list was overflowed to a work file because the number of RIDs exceeded one or more internal limits.

**Field Name:** QXWFRIDT

**RL INTERRUPTED (HJ)-MAX LIMIT**

The number of times a RID list append for a hybrid join was interrupted because the number of RIDs exceeded one or more internal limits.

**Field Name:** QXHJINCT

*IFCID 002 - ROWID:*

This topic shows detailed information about “Record Trace - IFCID 002 - ROWID”.

**Record trace - IFCID 002 - ROWID**

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - ROWID” are described in the following section.

<table>
<thead>
<tr>
<th>ROWID</th>
<th>DIRECT ACCESS</th>
<th>INDEX USED</th>
<th>TABLE SPACE SCAN USED</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**DIRECT ACCESS**

The number of times that direct row access was successful.

**Field Name:** QXROIMAT

**INDEX USED**

The number of times an index was used to find a record.

**Field Name:** QXROIINX

**TABLE SPACE SCAN USED**

The number of times that an attempt to use direct row access reverted to using a table-space scan because DB2 was unable to use a matching index scan.

**Background and Tuning Information**

Ideally, this value should be 0.
Table-space scans can happen, for example, when a REORG is performed between the read of the ROWID column and the use of the host variable in the WHERE clause of the SQL statement. This causes the RID value in the host variable to be incorrect. DB2 first tries a matching-index scan before using a table-space scan.

To avoid table space scans, you can force the access path of an unsuccessful direct row access to use a matching index scan on the primary-index key by adding PKCOL to the WHERE clause in the SQL statement. .... WHERE ROWIDCOL=:HVROWID AND PKCOL=:HVPK ....

**Field Name:** QXROITS

**IFCID 002 - Service Controller Data:**

This topic shows detailed information about “Record Trace - IFCID 002 - Service Controller Data”.

**Record trace - IFCID 002 - Service Controller Data**

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Service Controller Data” are described in the following section.

### Field Name: QXROITS

**IFCID 002 - Service Controller Data:**

This topic shows detailed information about “Record Trace - IFCID 002 - Service Controller Data”.

**Field name:** QTPKALLA

**OPEN DATASETS - HWM**

The maximum number of data sets concurrently open since the last time DB2 was started. This is a high-water mark (HWM).

### Background and Tuning Information

Monitor this field to see whether you are reaching the maximum number of open data sets permissible.
**IFCID 002 - Service Controller Data**

**Note:** The maximum number of open data sets is 200,000. The default is 20,000.

**Field Name: QTMAXDS**
This is an *exception* field.

**AUTHORIZ.ATTEMPTS**
The number of authorization checks performed for plans, packages, and stored procedures since DB2 was started. This includes successful and failed checks.

**Field Name: QTAUCHK**
This is an *exception* field.

**PLAN ALLOC.SUCC.**
The number of successful plan allocation attempts.
The cause of plan allocation failure could be plan unavailability or attempting to allocate a nonexistent plan.

**Field Name: QTALLOC**

**PACK.ALLOC.SUCC.**
The number of successful package allocation attempts.

**Background and Tuning Information**
Package allocation failure can occur when a package is unavailable or does not exist.

A high count of the number of packages unsuccessfully allocated (QTPKALLA - QTPKALL) typically occurs when a package list with multiple collections is used and frequently-used packages are found in the back end rather than in the front end of a package list. For example, when a package is found in the tenth collection, QTPKALLA is incremented by 10, one for each collection searched, but QTPKALL is incremented by 1.

A high number of packages unsuccessfully allocated can be accompanied by a high count of the number of unsuccessful checks for package execute authority made using the package authorization check because an application entry was not found in the cache (QTPACNOT). In this case, placing frequently used packages in the front end of a package list would reduce the number of Buffer Manager Getpages to the catalog/directory tablespaces.

**Field Name: QTPKALL**

**OPEN DATASETS - CURR.**
The number of data sets concurrently open (snapshot).

**Field Name: QTDSOPN**

**AUTHORIZ.SUCCESS.**
The number of successful authorization checks performed on plans, packages, and stored procedures, since DB2 was started.

**Field Name: QTAUSUC**
This is an *exception* field.

**PLANS BOUND**
The number of plans successfully bound and kept for future agent allocations.

This field represents the sum of successful BIND ADD (QTBINDA) and successful BIND REPLACE (QTBINDR) commands. This counter is not incremented for BIND subcommands with no plan ID specified, as identified by QTTESTB. Note that QTBINDA + QTBINDR is not necessarily equal to this field. It is equal only if all BIND ADD and BIND REPLACE subcommands issued are successful.

Field Name: QTPLNBD
This is an exception field.

PACKAGES BOUND
The number of packages bound and kept for future package allocations.
It is the sum of successful BIND ADD PACKAGE and BIND REPLACE PACKAGE subcommands, but only if all these commands are really issued successfully.

Field Name: QTPKGBD

DS NOUSE,NOCLOSE-HWM
The maximum number of data sets on the deferred close queue. It is a high-water mark representing the maximum number of data sets that are not in use but have not been physically closed yet.

Field Name: QTMAXPB
This is an exception field.

AUTH.SUCC-NO CAT.
The number of successful authorization checks that do not use the DB2 catalog (including plan cache checks and public checks).

Background and Tuning Information
For transaction level security, ENABLE and DISABLE on BIND PACKAGE should be used to ensure adequate security. Granting execute authority on the plan to public should be adequate.

Field Name: QTAUCCH

BIND PLAN (ADD)
The number of successful and unsuccessful BIND ADD subcommands issued.
The sum of QTBINDA, QTBINDR, and QTTESTB equals the total number of BIND subcommands.

Field Name: QTBINDA

BIND PACK (ADD)
The number of successful and unsuccessful BIND ADD PACKAGE subcommands issued.

Field Name: QTBINDPA

DS NOUSE,NOCLOSE-CURR.
The number of data sets that are not currently used, but are not closed due to a deferred close (snapshot).
Field Name: QTSLWDD
This is an exception field.

AUTH.SUCC-PUBLIC
The number of successful authorization checks based on EXECUTE authority granted to PUBLIC.

Field Name: QTAUPUB
This is an exception field.

BIND PLAN (REPL)
The number of successful and unsuccessful BIND REPLACE subcommands issued.

Field Name: QTBINDR
This is an exception field.

BIND PACK (REPL)
The number of successful and unsuccessful BIND REPLACE PACKAGE subcommands issued.

Field Name: QTBINDPR
This is an exception field.

DS CLOSED-THRESH.REACH
The number of data sets that were closed because the total number of open data sets reached the deferred close threshold value. The deferred close value is based on the value of DSMAX or the MVS DD limit ( whichever is smaller).

Field Name: QTDSDRN
This is an exception field.

PKG-AUTH.SUCC
The number of successful package EXECUTE authorization checks without accessing the DB2 catalog.

Field Name: QTPACAUT

AUTOB.PLAN ATTMP
The number of attempts to autobind a plan. This occurs when the plan was invalidated by modifications to the declarations of the data referenced by the programs bound as part of the plan. For example, dropping an index when it is used in the plan results in automatic bind.

Field Name: QTABINDA

AUTOB.PACK ATTMP
The number of attempts to autobind a package.

Background and Tuning Information
If YES was specified, or defaulted, for autobind on DB2 install panel DSNTIPB, an autobind occurs when a plan or package:
- Is invalid because declarations of the data referenced by the program or package were modified. For example, when an index used in a package
is dropped, an automatic bind occurs when the package is run for the first time after the index was dropped.

- Was bound in a later release and is used in a previous release for the first time.
- Was used in a previous release but is later remigrated and used in a later release for the first time.

Field Name: QTAUTOBA

This is an exception field.

R/W TO R/O CONVERSIONS

The number of infrequently updated data sets that are converted from R/W to R/O state. An updated data set is considered infrequently updated when it has not been updated for either 5 consecutive DB2 checkpoints or 60 minutes. For tablespace data sets, the switching from R/W to R/O state means the SYSLGRNG entry is closed.

Field Name: QTPCCT

This is an exception field.

PKG-AUTH.SUCC-PUB

The number of successful package EXECUTE authorization checks without accessing the DB2 catalog. Package EXECUTE authority was granted to PUBLIC in the package authorization cache.

Field Name: QTPACPUB

AUTOB.PLAN SUCC.

The number of plans successfully autobound.

Field Name: QTABIND

AUTOB.PACK SUCC.

The number of packages successfully autobound.

Field Name: QTPKABND

PKG-AUTH.UNSUCC

The number of unsuccessful package EXECUTE authorization checks in the package authorization cache. No applicable entry was found in the cache and DB2 catalog access was used.

Field Name: QTPACNOT

REBIND PLAN COMM

The number of REBIND subcommands issued. More than one plan can be rebound with a single REBIND subcommand. If the value in this field is 1, the number of plans you are attempting to rebind is shown in the Rebind - plan attempts field.

Field Name: QTREBIND

REBIND PACK COMM

The number of REBIND PACKAGE subcommands issued. More than one package can be rebound with a single subcommand. If the value in this field is 1, Rebind - package attempts shows the number of packages you are attempting to rebind.
Field Name: QTRBINDP

PKG-AUTHID OWRTN
The number of times an authorization ID was overwritten to add another one to the package authorization cache.

Field Name: QTPACOW1

REBIND PLAN ATTM
The number of attempts to rebind a plan. This number can be larger than the value shown in the Rebind - plan subcommands field because you can specify more than one plan in a single REBIND subcommand.

Field Name: QTRBINDA

REBIND PACK ATTM
The number of attempts to rebind a package. This can be larger than the value shown in Rebind package subcommands because you can rebind more than one package with a single command.

Field Name: QTRBNDPA

PKG-ENTRY OWRTN
The number of times an entry for a collection-ID or package-ID was overwritten to add another one to the package authorization cache.

Field Name: QTPACOW2

PLANS REBOUND
The number of rebind attempts that completed successfully. This field is equal to the Rebind - Plan attempts field if all specified plans rebound successfully.

Field Name: QTPLNRBD

PACKAGES REBOUND
The number of packages successfully rebound. If all specified packages were rebound successfully, this field is equal to Rebind package attempts.

Field Name: QTPKGRBD

RTN-AUTH.SUCC
The number of times the routine authorization cache was checked successfully of EXECUTE authority on a stored procedure or user-defined function. The DB2 catalog was not accessed. This counter includes the number of PUBLIC authorization checks.

Field Name: QTRACAUT

FREE PLAN COMMND
The number of FREE subcommands issued.
More than one plan can be freed with a single FREE subcommand. If this field is 1, then the number of plans you are trying to free is shown in ATTEMPTS TO FREE A PLAN.

Field Name: QTFREE

FREE PACKAGE COM
The number of FREE PACKAGE subcommands issued.
More than one package can be freed with a single FREE subcommand. If the value in this field is 1, then the number of packages you are attempting to free is shown in ATTEMPTS TO FREE A PACKAGE.

**Field Name:** QTFREEP

**RTN-AUTH.SUCC-PUB**

Number of successful authorization checks for user-defined function or stored procedure execution authority when that authority is held by PUBLIC. The DB2 catalog was not checked.

**Field Name:** QTRACPUB

**FREE PLAN ATTEMPT**

The number of attempts to free a plan.

This value can be larger than FREE PLAN SUBCOMMANDS because multiple plan IDs can be specified in a single FREE subcommand.

**Field Name:** QTFREEA

**FREE PACK ATTEMPT**

The number of attempts to free a package. This number can be larger than FREE PACKAGE SUBCOMMANDS because you can free several packages with a single command.

**Field Name:** QTFREEAP

**RTN-AUTH.UNSUCC**

Number of unsuccessful authorization checks for user-defined function or stored procedure EXECUTE authority because no applicable entry was found in the routine authorization cache.

**Field Name:** QTRACNOT

**PLANS FREED**

The number of times a plan was successfully freed.

Freeing a plan can fail if someone else is using the plan and holds a lock on it.

**Field Name:** QTPLNFRD

**PACKAGES FREED**

The number of times a package was successfully freed. If all the specified packages were freed successfully, the value of this field is equal to ATTEMPTS TO FREE A PACKAGE.

**Field Name:** QTPKGFRD

**RTN-AUTHID OWRRTN**

Number of times an individual authorization ID was overwritten in an entry of the routine authorization cache.

**Field Name:** QTACOW1

**TEST BINDS**

The number of BIND subcommands issued without a plan ID.

**Field Name:** QTTESTB

**AUTOB.INV.RES.ID**
IFCID 002 - Service Controller Data

The number of requests to allocate a nonexistent plan or package. This is the number of all plan and package allocation attempts that failed because the resource was unavailable or the object did not exist.

Field Name: QTINVRID

RTN-ENTRY OWRTN

Number of times that DB2 overwrote a routine entry in the routine authorization cache.

An entry in the routine authorization cache can refer to a function or procedure or to all functions or procedures within a specific schema.

Field Name: QTRACOW2

RTN-CACHE NO ADD

Number of times that DB2 could not add an entry to the routine authorization cache.

An entry in the routine authorization cache can refer to a function or procedure or to all functions or procedures within a specific schema.

Field Name: QTRACNAC

**IFCID 002 - Simulated Buffer Pool Activity:**

This topic shows detailed information about “Record Trace - IFCID 002 - Simulated Buffer Pool Activity”.

This block is provided for each simulated buffer pool.

**Record trace - IFCID 002 - Simulated Buffer Pool Activity**

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - Simulated Buffer Pool Activity” are described in the following section.

<table>
<thead>
<tr>
<th>SIMULATED BUFFER POOL ID</th>
<th>BUFFER POOL ID</th>
<th>CURRENT PAGES IN USE</th>
<th>CURRENT SEQ PAGES IN USE</th>
<th>MAX PAGES IN USE</th>
<th>MAX SEQ PAGES IN USE</th>
<th>PAGES MOVED INTO SIMULATED BP</th>
<th>TOTAL AVOIDABLE SYNC 1/O DELAY</th>
<th>CURRENT SEQ PAGES IN USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>2077149</td>
<td>2077152</td>
<td>109436</td>
<td>113140</td>
<td>34732432</td>
<td>2:37:06.172028</td>
<td>0</td>
<td>113140</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2077152</td>
<td>2077152</td>
<td>113140</td>
<td>34732432</td>
<td>2:37:06.172028</td>
<td>0</td>
<td>113140</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2077152</td>
<td>109436</td>
<td>2077152</td>
<td>34732432</td>
<td>2:37:06.172028</td>
<td>0</td>
<td>113140</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2077152</td>
<td>109436</td>
<td>2077152</td>
<td>34732432</td>
<td>2:37:06.172028</td>
<td>0</td>
<td>113140</td>
</tr>
</tbody>
</table>

**BUFFER POOL ID**

The buffer pool ID.

Field Name: QBSPBPID

**CURRENT PAGES IN USE**

The number of simulated buffers currently in use in the simulated buffer pool.

Field Name: QBSPIU

**MAX PAGES IN USE**

The highest number of simulated buffers that were in use in the simulated buffer pool.

Field Name: QBSPHU

**CURRENT SEQ PAGES IN USE**
The number of simulated buffers currently in use for sequential pages in the simulated buffer pool.

Field Name: QBSPSUS

**MAX SEQ PAGES IN USE**

The highest number of simulated buffers that were in use for sequential pages in the simulated buffer pool.

Field Name: QBSPHSU

**PAGES MOVED INTO SIMULATED BP**

The number of pages logically moved into the simulated buffer pool from the virtual buffer pool.

Field Name: QBSPMVI

**TOTAL AVOIDABLE SYNC I/O DELAY**

The total time waiting for synchronous read I/O from disk for pages found in the simulated buffer pool.

Field Name: QBSPDTM

**FLAGS**

The flag byte shows if more QBSP data is following or if this is the last of the QBSP repeating groups.

Field Name: QBSPFLG

**AVOIDABLE READ I/O - SYNC READ I/O (R)**

The number of pages found in the simulated buffer pool for a random request that could have avoided a synchronous read I/O from disk.

Field Name: QBSPDRR

**AVOIDABLE READ I/O - SYNC READ I/O (S)**

The number of pages found in the simulated buffer pool for a sequential request that could have avoided a synchronous read I/O from disk.

Field Name: QBSPDRS

**AVOIDABLE READ I/O - ASYNC READ I/O**

The number of pages found in the simulated buffer pool for a prefetch request that could have avoided an asynchronous read I/O from disk.

Field Name: QBSPDRA

**AVOIDABLE READ I/O - SYNC GBP READS (R)**

The number of pages found in the simulated buffer pool for a random request that could have avoided a synchronous read from GBP.

Field Name: QBSPGRR

**AVOIDABLE READ I/O - SYNC GBP READS (S)**

The number of pages found in the simulated buffer pool for a sequential request that could have avoided a synchronous read from GBP.

Field Name: QBSPGRS

**AVOIDABLE READ I/O - ASYNC GBP READS**
IFCID 002 - Simulated Buffer Pool Activity

The number of pages found in the simulated buffer pool for a prefetch request that could have avoided an asynchronous read from GBP.

Field Name: QBSPGRA

IFCID 002 - SQL Call Data:

This topic shows detailed information about “Record Trace - IFCID 002 - SQL Call Data”.

Record trace - IFCID 002 - SQL Call Data

The field labels shown in the following sample layout of “Record Trace - IFCID 002 - SQL Call Data” are described in the following section.

<table>
<thead>
<tr>
<th>SQL CALL DATA</th>
<th>SELECT ..........: 1215838</th>
<th>INSERT ..........: 2317413</th>
<th>UPDATE ..........: 3308351</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DELETE ..........: 34478</td>
<td>DESCRIBE ..........: 972</td>
<td>PREPARE ..........: 30540</td>
</tr>
<tr>
<td>OPEN ..........: 138162</td>
<td>CLOSE ..........: 126456</td>
<td>FETCH ..........: 74137826</td>
<td></td>
</tr>
<tr>
<td>COMMENT ON ....: 0</td>
<td>LOCK TABLE ....: 0</td>
<td>GRANT ..........: 0</td>
<td></td>
</tr>
<tr>
<td>REVOKE ..........: 0</td>
<td>INCREMENTAL BINDS: 46353</td>
<td>LABEL ON ..........: 0</td>
<td></td>
</tr>
<tr>
<td>DESCRIBE TABLE ..: 0</td>
<td>CONNECT TYPE 2 ...: 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELEASE ..........: 0</td>
<td>ASSOCIATE LOCATOR: 5</td>
<td>ALLOCATE CURSOR ..: 5</td>
<td></td>
</tr>
<tr>
<td>RENAME TABLE .....: 0</td>
<td>HOLD LOCATOR .....: 0</td>
<td>FREE LOCATOR .....: 0</td>
<td></td>
</tr>
<tr>
<td>MERGE ..........: 0</td>
<td>TRUNCATE TABLE .....: 0</td>
<td>RENAME INDEX .....: 12</td>
<td></td>
</tr>
<tr>
<td>CREATE DATABASE .: 0</td>
<td>DROP DATABASE ...: 0</td>
<td>ALTER DATABASE ...: 0</td>
<td></td>
</tr>
<tr>
<td>CREATE STOGROUP ..: 0</td>
<td>DROP STOGROUP ...: 0</td>
<td>ALTER STOGROUP ...: 0</td>
<td></td>
</tr>
<tr>
<td>CREATE TBSSPACE ..: 0</td>
<td>DROP TBSSPACE ...: 0</td>
<td>ALTER TBSSPACE ...: 0</td>
<td></td>
</tr>
<tr>
<td>CREATE TABLE .....: 30</td>
<td>DROP TABLE ......: 11614</td>
<td>ALTER TABLE ......: 0</td>
<td></td>
</tr>
<tr>
<td>CREATE AUX TABLE : 0</td>
<td>CREATE TMP TABLE : 0</td>
<td>DECLARE TMP TABLE: 11600</td>
<td></td>
</tr>
<tr>
<td>CREATE INDEX .....: 12</td>
<td>CREATE VIEW .....: 12</td>
<td>ALTER VIEW ......: 6</td>
<td></td>
</tr>
<tr>
<td>CREATE SYNONYM ..: 0</td>
<td>DROP SYNONYM ..: 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CREATE ALIAS .....: 0</td>
<td>DROP ALIAS .....: 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CREATE SEQUENCE ..: 6</td>
<td>DROP SEQUENCE ..: 6</td>
<td>ALTER SEQUENCE ..: 6</td>
<td></td>
</tr>
<tr>
<td>CREATE TRIGGER ..: 6</td>
<td>DROP TRIGGER ..: 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CREATE DIST TYPE ..: 6</td>
<td>DROP DIST TYPE ..: 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CREATE FUNCTION ..: 6</td>
<td>DROP FUNCTION ..: 6</td>
<td>ALTER FUNCTION ..: 6</td>
<td></td>
</tr>
<tr>
<td>CREATE PROCEDURE ..: 6</td>
<td>DROP PROCEDURE ..: 6</td>
<td>ALTER PROCEDURE ..: 6</td>
<td></td>
</tr>
<tr>
<td>CREATE ROLE .....: 12</td>
<td>DROP ROLE .....: 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CREATE TRUST CONT.: 6</td>
<td>DROP TRUST CONT.: 6</td>
<td>ALTER TRUST CONT: 6</td>
<td></td>
</tr>
<tr>
<td>CREATE MASK/PERM : 0</td>
<td>DROP MASK/PERM ..: 0</td>
<td>ALTER MASK/PERM ..: 0</td>
<td></td>
</tr>
<tr>
<td>CREATE VARIABLE ..: 0</td>
<td>DROP VARIABLE ..: 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DROP PACKAGE .....: 0</td>
<td>ALTER JAR ......: 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SET CUR SQL ID ..: 25</td>
<td>SET HOST VAR .....: 34657212</td>
<td>SET CONNECTION ..: 0</td>
<td></td>
</tr>
<tr>
<td>SET CUR DEGREE ..: 0</td>
<td>SET CUR RULES .....: 0</td>
<td>SET CUR PATH .....: 0</td>
<td></td>
</tr>
<tr>
<td>SET CUR PRECISION: 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MULTI-ROM PROCESSING:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROWS.FETCHED ....: 75968806</td>
<td>ROWS.INSERTED ....: 2915959</td>
<td>ROWS.UPDATED ....: 3486197</td>
<td></td>
</tr>
<tr>
<td>ROWS.DELETED ....: 490627</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SELECT

The number of SQL SELECT statements executed.

Field Name: QBXSELECT

INSERT

The number of INSERT statements executed.

Field Name: QBXINSRT

UPDATE

The number of UPDATE statements executed.

Field Name: QBXUPDTE

DELETE

The number of DELETE statements executed.

Field Name: QBXDELETE
The number of DESCRIBE, DESCRIBE CURSOR, DESCRIBE INPUT, and DESCRIBE PROCEDURE statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXDESC

The number of SQL PREPARE statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXPREP

The number of OPEN statements executed.

Field Name: QXOPEN

The number of CLOSE statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXCLOSE

The number of FETCH statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXFETCH

The number of COMMENT ON statements executed.

Field Name: QXCMTON

The number of LOCK TABLE statements executed.

Field Name: QXLOCK

The number of GRANT statements executed.

Field Name: QXGRANT

The number of REVOKE statements executed.

Field Name: QXREVOK

The number of incremental binds (excluding prepare). It is incremented by:

- SQL statements with BIND VALIDATE(RUN) that fail at bind time and are bound again at execution time
• Static DDL statements (such as CREATE TABLE, DROP TABLE, LOCK TABLE) that use DB2 private protocol

**Background and Tuning Information**

If a plan is bound with VALIDATE(RUN), DB2 performs validity checks at bind time and rechecks any failures at run time. This can result in catalog contention and degraded application performance, depending on the number of statements flagged and how many times they are executed. Avoid VALIDATE(RUN) if possible. Ensure that all objects are created and all privileges are granted before bind, and select the VALIDATE(BIND) option.

**Field Name:** QXINCRB
This is an exception field.

**LABEL ON**
The number of LABEL ON statements executed.

**Field Name:** QXLABON
This is an exception field.

**DESCRIBE TABLE**
The number of DESCRIBE TABLE statements executed.

**Field Name:** QXDSCRTB
This is an exception field.

**CONNECT TYPE 1**
The number of CONNECT type 1 statements executed.

**Field Name:** QXCON1
This is an exception field.

**CONNECT TYPE 2**
The number of CONNECT type 2 statements executed.

**Field Name:** QXCON2
This is an exception field.

**RELEASE**
The number of RELEASE statements executed.

**Field Name:** QXREL
This is an exception field.

**ASSOCIATE LOCATOR**
The number of SQL ASSOCIATE LOCATORS statements executed.

**Field Name:** QXALOCL
This is an exception field.

**ALLOCATE CURSOR**
The number of SQL ALLOCATE CURSOR statements executed.

**Field Name:** QXALOCC
This is an exception field.
RENAME TABLE
The number of RENAME TABLE statements executed.
Field Name: QXRNTAB
This is an exception field.

HOLD LOCATOR
The number of SQL HOLD LOCATOR statements executed.
Field Name: QXHOLDL

FREE LOCATOR
The number of SQL FREE LOCATOR statements executed.
Field Name: QXFREEL

MERGE
The number of times a MERGE statement was executed.
Field Name: QXMERGE

TRUNCATE TABLE
The number of TRUNCATE TABLE statements issued.
Field Name: QXTRTBL

RENAME INDEX
The number of RENAME INDEX statements issued.
Field Name: QXRNIX

CREATE DATABASE
The number of CREATE DATABASE statements executed.
Field Name: QXCRDAB

DROP DATABASE
The number of DROP DATABASE statements executed.
Field Name: QXDRPDB

ALTER DATABASE
The number of ALTER DATABASE statements executed.
Field Name: QXALDAB

CREATE STOGROUP
The number of CREATE STOGROUP statements executed.
Field Name: QXCRSTG

DROP STOGROUP
The number of DROP STOGROUP statements executed.
Field Name: QXDRPST

ALTER STOGROUP
The number of ALTER STOGROUP statements executed.
Field Name: QXALTST
IFCID 002 - SQL Call Data

CREATE TABSPACE
The number of CREATE TABLESPACE statements executed.
Field Name: QXCTABS

DROP TABSPACE
The number of DROP TABLESPACE statements executed.
Field Name: QXDRPTS

ALTER TABSPACE
The number of ALTER TABLESPACE statements executed.
Field Name: QXALTTS

CREATE TABLE
The number of CREATE TABLE statements executed.
Field Name: QXCRTAB

DROP TABLE
The number of DROP TABLE statements executed.
Field Name: QXDRPTA

ALTER TABLE
The number of ALTER TABLE statements executed.
Field Name: QXALTTA

CREATE AUX TABLE
The number of CREATE AUXILIARY TABLE statements executed.
Field Name: QXALTAB

CREATE TMP TABLE
The number of CREATE GLOBAL TEMPORARY TABLE statements executed.
Field Name: QXCRGTT

DECLARE TMP TABLE
The number of DECLARE GLOBAL TEMPORARY TABLE statements executed.
Field Name: QXDCLGTT

CREATE INDEX
The number of CREATE INDEX statements executed.
Field Name: QXCRINX

DROP INDEX
The number of DROP INDEX statements executed.
Field Name: QXDRPIX

ALTER INDEX
The number of ALTER INDEX statements executed.
Field Name: QXALTIX
CREATE VIEW
The number of CREATE VIEW statements executed.
Field Name: QXDEFVU

DROP VIEW
The number of DROP VIEW statements executed.
Field Name: QXDRPVU

ALTER VIEW
The number of ALTER VIEW statements issued.
Field Name: QXALTVW

CREATE SYNONYM
The number of CREATE SYNONYM statements executed.
Field Name: QXCRSYN

DROP SYNONYM
The number of DROP SYNONYM statements executed.
Field Name: QXDRPSY

CREATE ALIAS
The number of CREATE ALIAS statements executed.
Field Name: QXCRALS

DROP ALIAS
The number of SQL DROP ALIAS statements executed.
Field Name: QXDRPAL

CREATE SEQUENCE
The number of CREATE SEQUENCE statements.
Field Name: QXCRESEQ

DROP SEQUENCE
The number of ALTER SEQUENCE statements.
Field Name: QXALTSEQ

ALTER SEQUENCE
The number of DROP SEQUENCE statements.
Field Name: QXDROSEQ

CREATE TRIGGER
The number of SQL CREATE TRIGGER statements.
Field Name: QXCRTRIG

DROP TRIGGER
The number of DROP TRIGGER statements executed.
Field Name: QXDRPTR

CREATE DIST TYPE
The number of CREATE DISTINCT TYPE statements executed.
Field Name: QXCDIST

DROP DIST TYPE
The number of DROP DISTINCT TYPE statements executed.
Field Name: QXDDIST

CREATE FUNCTION
The number of CREATE FUNCTION statements executed.
Field Name: QXCRUDF

DROP FUNCTION
The number of DROP FUNCTION statements executed.
Field Name: QXDRPFN

ALTER FUNCTION
The number of DROP DISTINCT TYPE statements executed.
Field Name: QXDDIST

CREATE PROCEDURE
The number of CREATE PROCEDURE statements issued.
Field Name: QXCRPRO

DROP PROCEDURE
The number of DROP PROCEDURE statements executed.
Field Name: QXDRPPR

ALTER PROCEDURE
The number of ALTER PROCEDURE statements executed.
Field Name: QXALPRO

CREATE ROLE
The number of CREATE ROLE statements executed.
Field Name: QXCRROL

DROP ROLE
The number of DROP ROLE statements issued.
Field Name: QXDRPROL

CREATE TRUST CONT
The number of CREATE TRUSTED CONTEXT statements issued.
Field Name: QXCRCTX

DROP TRUST CONT
The number of DROP TRUSTED CONTEXT statements issued.
Field Name: QXDRPCTX

ALTER TRUST CONT
The number of ALTER TRUSTED CONTEXT statements issued.
Field Name: QXALTCTX

CREATE MASK/PERM
The number of CREATE MASK and CREATE PERMISSION statements executed.
Field Name: QXCREMP

DROP MASK/PERM
The number of DROP MASK and DROP PERMISSION statements executed.
Field Name: QXDRPMP

ALTER MASK/PERM
The number of ALTER MASK and ALTER PERMISSION statements executed.
Field Name: QXALTMP

CREATE VARIABLE
The number of CREATE VARIABLE statements.
Field Name: QXCRTSV

DROP VARIABLE
The number of DROP VARIABLE statements.
Field Name: QXDRPSV

DROP PACKAGE
The number of SQL DROP PACKAGE statements executed.
Field Name: QXDRPPKG

ALTER JAR
The number of ALTER JAR statements issued.
Field Name: QXALTJR

SET CUR SQL ID
The number of SET CURRENT SQLID statements executed.
Field Name: QXSETSQL

SET HOST VAR
The number of SET HOST VARIABLE statements executed. The special register that was retrieved is not tracked.
Field Name: QXSETHV

SET CONNECTION
The number of SET CONNECTION statements executed.
Field Name: QXSETCON

SET CUR DEGREE
The number of SET CURRENT DEGREE statements executed.
Field Name: QXSETCDG

SET CUR RULES
The number of SET CURRENT RULES statements executed.

Field Name: QXSETCRL

SET CUR PATH
The number of SET CURRENT PATH statements executed.

Field Name: QXSETPTH

SET CUR PRECISION
The number of SET CURRENT PRECISION statements executed.

Field Name: QXSETCPR

ROWS Fetched
The number of rows fetched.

Field Name: QXRWSFETCHD

ROWS INSERTED
The number of rows inserted.

Field Name: QXRWSINSRTD

ROWS UPDATED
The number of rows updated.

Field Name: QXRWSUPDTD

ROWS DELETED
The number of rows deleted.

Field Name: QXRWSDELETED

IFCID 003 - Accounting: Accounting shows the data from IFCID 003.

IFCID 003 - Accelerator Data:
This topic shows detailed information about “Record Trace - IFCID 003 - Accelerator Data”.

Record trace - IFCID 003 - Accelerator Data
The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Accelerator Data” are described in the following section.

<table>
<thead>
<tr>
<th>ACCELERATOR DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVER ID:</td>
</tr>
<tr>
<td>PRODUCT ID:</td>
</tr>
<tr>
<td>CONNECTS TO ACCELERATOR</td>
</tr>
<tr>
<td>REQUESTS SENT TO ACCELERATOR</td>
</tr>
<tr>
<td>TIME OUT</td>
</tr>
<tr>
<td>FAILED</td>
</tr>
<tr>
<td>BYTES SENT TO ACCELERATOR</td>
</tr>
<tr>
<td>BYTES RECEIVED FROM ACCELERATOR</td>
</tr>
<tr>
<td>MESSAGES SENT TO ACCELERATOR</td>
</tr>
<tr>
<td>MESSAGES RECEIVED FROM ACCELERATOR</td>
</tr>
<tr>
<td>BLOCKS SENT TO ACCELERATOR</td>
</tr>
<tr>
<td>BLOCKS RECEIVED FROM ACCELERATOR</td>
</tr>
<tr>
<td>ROWS SENT TO ACCELERATOR</td>
</tr>
<tr>
<td>ROWS RECEIVED FROM ACCELERATOR</td>
</tr>
<tr>
<td>ACCELERATOR SVC TCP/IP CPU TIME</td>
</tr>
<tr>
<td>ACCELERATOR SVC TCP/IP ELAPSED TIME</td>
</tr>
<tr>
<td>ACCUMULATED ACCELERATOR CPU TIME</td>
</tr>
<tr>
<td>ACCUMULATED ACCELERATOR ELAPSED TIME</td>
</tr>
<tr>
<td>ACCUMULATED ACCELERATOR WAIT TIME</td>
</tr>
</tbody>
</table>

SERVER ID
The accelerator server identifier.

Field Name: Q8ACNAME
PRODUCT ID

The accelerator product identifier.

Field Name: Q8ACPRID

CONNECTS TO ACCELERATOR

The number of accelerator connects.

Field Name: Q8ACCONN

REQUESTS SENT TO ACCELERATOR

The number of accelerator requests.

Field Name: Q8ACREQ

REQUESTS SENT TO ACCELERATOR - TIMED OUT

The number of timed out requests.

Field Name: Q8ACTOUT

REQUESTS SENT TO ACCELERATOR - FAILED

The number of failed requests.

Field Name: Q8ACFAIL

BYTES SENT TO ACCELERATOR

The number of bytes sent.

Field Name: Q8ACBYTES

MESSAGES SENT TO ACCELERATOR

The number of messages sent.

Field Name: Q8ACMSGS

BLOCKS SENT TO ACCELERATOR

The number of blocks sent.

Field Name: Q8ACBLKS

ROWS SENT TO ACCELERATOR

The number of rows sent.

Field Name: Q8ACROWS

BYTES RECEIVED FROM ACCELERATOR

The number of bytes returned.

Field Name: Q8ACBYTR

MESSAGES RECEIVED FROM ACCELERATOR

The number of messages returned.

Field Name: Q8ACMSGR

BLOCKS RECEIVED FROM ACCELERATOR

The number of blocks returned.

Field Name: Q8ACBLKR

ROWS RECEIVED FROM ACCELERATOR
IFCID 003 - Accelerator Data

The number of rows returned.

**Field Name:** Q8ACROWR

**ACCELERATOR SVCS TCPIP CPU TIME**

The accelerator services TCP/IP CPU time measured in DB2 for the amount of CPU consumed by the DDF service task to perform the SEND and RECEIVE to an accelerator service. It does not account for the TCP/IP address CPU to route the message on to the network and receive the reply into the DDF task.

**Field Name:** Q8ACTCPU

**ACCUMULATED ACCELERATOR CPU TIME**

The CPU time spent in the accelerator when executing requests from the DB2 subsystem.

**Field Name:** Q8ACACPU

**ACCUMULATED ACCELERATOR WAIT TIME**

The wait time spent in the accelerator when executing requests from the DB2 subsystem.

**Field Name:** Q8ACA Wat

**ACCELERATOR SVCS TCPIP ELAPSED TIME**

The accelerator services TCP/IP elapsed time measured in DB2. It starts when sending the requests to the accelerator and ends when receiving the results from the accelerator.

**Field Name:** Q8ACTE LA

**ACCUMULATED ACCELERATOR ELAPSED TIME**

The elapsed time spent in the accelerator when executing requests from the DB2 subsystem.

**Field Name:** Q8ACAE LA

**IFCID 003 - Accelerator SQL Call Data V4 or later:**

This topic shows detailed information about “Record Trace - IFCID 003 - Accelerator SQL Call Data V4 or later”.

**Record trace - IFCID 003 - Accelerator SQL Call Data V4 or later**

The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Accelerator SQL Call Data V4 or later” are described in the following section.

```sql
 INSERT STMTS SENT TO ACCELERATOR .....: 7 ROWS INSERTED ........................: 1080005
 DELETE STMTS SENT TO ACCELERATOR .....: 0 ROWS DELETED ............................: 0
 UPDATE STMTS SENT TO ACCELERATOR .....: 0 ROWS UPDATED ............................: 0
 OPEN STMTS SENT TO ACCELERATOR .....: 0 ROWS FETCHED .............................: 0
 CREATE STMTS SENT TO ACCELERATOR .....: 0 DROP STMTS SENT TO ACCELERATOR .....: 0
 COMMIT STMTS SENT TO ACCELERATOR .....: 1 ROLLBACK STMTS SENT TO ACCELERATOR .....: 0
```

**INSERT STMTS SENT TO ACCELERATOR**

The accumulated number of INSERT statements sent to the accelerator from DB2.

**Field Name:** Q8ACINSC

**DELETE STMTS SENT TO ACCELERATOR**

IBM Db2 Performance Expert on z/OS
The accumulated number of DELETE statements sent to the accelerator from DB2.

Field Name: Q8ACDELC

**UPDATE STMTS SENT TO ACCELERATOR**

The accumulated number of UPDATE statements sent to the accelerator from DB2.

Field Name: Q8ACUPDC

**OPEN STMTS SENT TO ACCELERATOR**

The accumulated number of OPEN statements sent to the accelerator from DB2.

Field Name: Q8ACOPNC

**CREATE STMTS SENT TO ACCELERATOR**

The accumulated number of CREATE statements sent to the accelerator from DB2.

Field Name: Q8ACCRTC

**COMMIT STMTS SENT TO ACCELERATOR**

The accumulated number of COMMIT statements sent to the accelerator from DB2.

Field Name: Q8ACCRTC

**ROWS INSERTED**

The accumulated number of rows inserted to the accelerator by DB2.

Field Name: Q8ACROWI

**ROWS DELETED**

The accumulated number of rows deleted on the accelerator by DB2.

Field Name: Q8ACROWD

**ROWS UPDATED**

The accumulated number of rows updated on the accelerator by DB2.

Field Name: Q8ACROWU

**ROWS FETCHED**

The accumulated number of rows returned by the accelerator to DB2.

Note: For completed queries, this is the total number of rows returned to DB2. For in-process queries, this is the number of rows that have been sent so far (and more rows may still be coming).

Field Name: Q8ACROWC

**DROP STMTS SENT TO ACCELERATOR**

The accumulated number of DROP statements sent to the accelerator from DB2.

Field Name: Q8ACDRPC

**ROLLBACK STMTS SENT TO ACCELERATOR**
The accumulated number of ROLLBACK statements sent to the accelerator from DB2.

Field Name: Q8ACRBKC

IFCID 003 - Buffer Manager Accounting Data:

This topic shows detailed information about “Record Trace - IFCID 003 - Buffer Manager Accounting Data”.

Record trace - IFCID 003 - Buffer Manager Accounting Data

The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Buffer Manager Accounting Data” are described in the following section.

<table>
<thead>
<tr>
<th>BUFFER MANAGER ACCOUNTING DATA</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BUFFER POOL ID</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>GETPAGES</td>
<td>31016</td>
<td>SEQ. PREFETCH 1913</td>
</tr>
<tr>
<td>GETPAGES FAILED</td>
<td>0</td>
<td>LIST PREFETCH 0</td>
</tr>
<tr>
<td>BUFFER UPDATES</td>
<td>0</td>
<td>DYNAMIC PREFETCH 0</td>
</tr>
<tr>
<td>SYNCHRON. WRITE</td>
<td>0</td>
<td>PAGES READ ASYN-PAR 26991</td>
</tr>
<tr>
<td>ZHYPERLINK READ</td>
<td>243</td>
<td>ZHYPERLINK CPU TIME 10167</td>
</tr>
<tr>
<td>DASD CACHE READ HITS</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

BUFFER POOL ID

The buffer pool ID used by this thread.

Field Name: QBACPID

SYNCHRON. READ

The number of synchronous read I/O operations. DB2 increments this counter for each media manager synchronous physical read. Asynchronous I/O requests are not counted.

Field Name: QBACRIO

GETPAGES

The number of Getpage requests. This counter is incremented by successful Getpage requests for queries processed in parallel for each thread and for all successful and unsuccessful Getpage requests for queries that are not processed in parallel.

Background and Tuning Information

Reducing the number of Getpages can improve DB2 performance by reducing the number of synchronous page reads. With fewer Getpages, the requested page is more likely to be returned from the buffer pool. CPU usage is also reduced.

Check the ratio of Getpages to SQL DML statements, as a rule of thumb, try and keep this ratio below six for a typical online transaction SQL.

You might need to modify the database and query design, for example:

- Add indexes to tables to reduce the number of pages scanned.
- Reassess the number of tables used and denormalize them, if necessary.
- As an example, a large table with many columns can result in several pages being fetched to satisfy a simple query requesting just a few columns. Splitting such a table into several tables with fewer columns, tailored to queries, will result in fewer pages returned for each query.
- Use correlated rather than non-correlated queries to force the use of an index.
Field Name: QBACGET

This is an exception field.

SEQ. PREFETCH

The number of SEQUENTIAL PREFETCH requests. This is incremented for each PREFETCH request. Each request can result in an I/O read. If it does, up to 64 pages can be read for SQL and up to 128 pages for utilities. For SQL, depending on the buffer pool size, a request does not result in an I/O if all the requested pages are already in the buffer pool.

DB2 can use sequential prefetch if the data is accessed in sequential order even though sequential prefetch was not requested at bind time. This is known as sequential detection and is not included in the sequential prefetch count. Sequential detection is included in dynamic prefetch requests field.

Background and Tuning Information

Table space scans and nonmatching index scans generally use sequential prefetch.

Field Name: QBACSEQ

This is an exception field.

GETPAGES FAILED

The number of times that a page requested for a query processed in parallel was unavailable because an I/O was in progress or the page was not found in the buffer pool. The agent does not wait, but control returns to the agent.

This counter is used only when queries are processed in parallel.

Background and Tuning Information

If this value is close to zero, most pages are already in the buffer pool, and wait time for synchronous I/O is small.

This counter can be high when, for example, there is a cluster index scan and the data is not truly clustered by the index key. In this instance, data pages are not accessed in their true order and the cluster ratio is not valid. Use the Runstats utility to update it.

The value of this field is also used to determine how many sequential prefetches of one page were scheduled.

Field Name: QBACNGT

LIST PREFETCH

The number of LIST PREFETCH requests.

Special Considerations:

1. List prefetch allows DB2 to access data pages efficiently even if the needed data pages are not contiguous. It can be used with single index access and is always used with multiple index access.
2. List prefetch is always used to access data from the inner table during a hybrid join.
3. Data pages are read in quantities equal to the sequential prefetch quantity, which depends on the buffer pool size and is usually 64 pages.
4. During bind time DB2 does not use list prefetch if the estimated number of RIDs to be processed would take more than 50% of the RID pool. During execution time, list prefetch processing terminates if DB2 detects that more than 25% of the rows in the table need to be accessed. If list prefetch is terminated, it is indicated in IFCID 125.

**Field Name:** QBACLPF

This is an exception field.

**BUFFER UPDATES**

The number of times a buffer update occurs. This is incremented every time a page is updated and is ready to be written to DASD. If the same page is updated twice, for example, the number is incremented by 2.

This number is kept for all types of pages including data pages and work-file pages.

**Background and Tuning Information**

A nonzero value indicates any of the following activities:

- SQL INSERT, UPDATE, or DELETE
- Merge scan join
- Internal sort activity on the work files

Check the access path to determine whether sort activity can be minimized or avoided.

**Field Name:** QBACSW

This is an exception field.

**DYNAMIC PREFETCH**

The number of (dynamic) PREFETCH requests. This is triggered by sequential detection. This includes prefetches for segmented table spaces.

**Background and Tuning Information**

Dynamic prefetch is typically used for a SELECT or UPDATE that is run repeatedly, accessing the index for each access.

If sequential prefetch, list prefetch, and dynamic prefetch reads have large values, check whether the access path can be improved.

**Field Name:** QBACDPF

This is an exception field.

**SYNCHRON. WRITE**

The number of immediate (synchronous) write I/O operations.

**Background and Tuning Information**

Although an immediate write is rare, a small nonzero value is acceptable. A large value indicates that the system needs tuning.

**Field Name:** QBACIMW

This is an exception field.

**PAGES READ ASYN-PAR**

The number of asynchronous pages read by prefetch that the agent triggered.
Background and Tuning Information

This is used to determine the buffer pool hit ratio: (Getpage requests - Synchronous reads - Asynchronous pages read) / Getpage requests.

**Field Name:** QBACSIO

This is an exception field.

**ZHYPERLINK READ**

The number of DASD reads done using zHyperLink.

**Field Name:** QBACSYI

**ZHYPERLINK CPU TIME**

The amount of CPU time used for successful zHyperLink reads.

zHyperLink I/O is synchronous with respect to the CPU, thus CPU time accumulates from the beginning of the I/O until it completes.

**Field Name:** QBACSYIT

**DASD CACHE READ HITS**

The number of I/Os where the requested pages were found in the DASD subsystem cache. These I/Os could have potentially been successful if zHyperLink was used to do the I/O.

**Field Name:** QBACIOC

**IFCID 003 - Data Sharing Accounting Data:**

This topic shows detailed information about “Record Trace - IFCID 003 - Data Sharing Accounting Data”.

**Record trace - IFCID 003 - Data Sharing Accounting Data**

The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Data Sharing Accounting Data” are described in the following section.

**DATA SHARING ACCOUNTING DATA**

**MEMBER NAMES:**

For an assisting task, the name of the parallelism coordinator. For a coordinating task, the name of each assisting member.

**Field Name:** QWDAXCQO

**IFCID 003 - Data Sharing Locking Data:**

This topic shows detailed information about “Record Trace - IFCID 003 - Data Sharing Locking Data”.

**Record trace - IFCID 003 - Data Sharing Locking Data**

The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Data Sharing Locking Data” are described in the following section.

**DATA SHARING LOCKING DATA**

**LOCK REQUESTS**

The number of lock requests for P-locks.
Field Name: QTGALPLK

LOCK - XES
The number of P/L-lock requests propagated to z/OS XES synchronously.
This number is not incremented if the request is suspended before going to XES.

Field Name: QTGALSLM

SUSPENSIONS - IRLM
The number of suspensions due to IRLM global resource contention (IRLM lock states were in conflict).

Field Name: QTGAIGLO

UNLOCK REQUESTS
The number of unlock requests for P-locks.

Field Name: QTGAUPLK

UNLOCK - XES
The number of unlock requests propagated to z/OS XES.

Field Name: QTGAUSLM

SUSPENSIONS - XES
The number of suspensions due to z/OS XES global resource contention (z/OS XES lock states were in conflict whereas IRLM lock states were not).

Field Name: QTGASGLO

CHANGE REQUESTS
The number of change requests for P-locks.

Field Name: QTGACPLK

CHANGE - XES
The number of change requests propagated to z/OS XES.

Field Name: QTGACSLM

INCOMPATIBLE LOCKS
The number of global lock or change requests denied or suspended due to an incompatible retained lock.

Field Name: QTGADRTA

NOTIFY SENT
The number of notify messages sent.

Field Name: QTGANTFY

SYNC-ASYNC XES CONV
The total number of sync-to-async heuristic conversions for LOCK requests in XES. This conversion is done when XES determines that it is more efficient to drive the request asynchronously to the coupling facility (CF).

Field Name: QTGAFLSE

FALSE CONTENTIONS
The total number of false contentions for LOCK and UNLOCK requests. A false contention occurs when different resource names hash to the same entry in the coupling facility (CF) lock table. The CF detects contention within the hash entry, and XES uses intersystem messaging to determine that no actual resource contention exists.

Field Name: QTGAFCNT

IFCID 003 - DDF Data by Location:

This topic shows detailed information about “Record Trace - IFCID 003 - DDF Data by Location”.

Record trace - IFCID 003 - DDF Data by Location

The field labels shown in the following sample layout of “Record Trace - IFCID 003 - DDF Data by Location” are described in the following section.

DDF DATA BY LOCATION

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE</td>
<td>PACKAGE</td>
</tr>
<tr>
<td>ROLLED NBR THREADS</td>
<td>1</td>
</tr>
<tr>
<td>LOCATION NAME (LONG)</td>
<td>::FFFF:9.65.12.94</td>
</tr>
<tr>
<td>LOCATION NAME (SHORT)</td>
<td>::FFFF:9.65.12.9</td>
</tr>
<tr>
<td>FLAGS</td>
<td>X'00'</td>
</tr>
<tr>
<td>ABORT REQUESTS RECEIVED</td>
<td>0</td>
</tr>
<tr>
<td>ABORT REQUESTS SENT</td>
<td>0</td>
</tr>
<tr>
<td>BLKS RECV USING BLK FETCH</td>
<td>0</td>
</tr>
<tr>
<td>BLKS TRANS USING BLK FETCH</td>
<td>2</td>
</tr>
<tr>
<td>BYTES RECV FROM REMOTE</td>
<td>819</td>
</tr>
<tr>
<td>BYTES SENT TO REMOTE</td>
<td>752</td>
</tr>
<tr>
<td>CONV REQS QUEUED BY DDF</td>
<td>0</td>
</tr>
<tr>
<td>CONV INITIATED FR LOCAL</td>
<td>1</td>
</tr>
<tr>
<td>COMMIT REQS RECV FR REG/COG</td>
<td>0</td>
</tr>
<tr>
<td>COMMIT REQS SENT TO SRV/PAR</td>
<td>0</td>
</tr>
<tr>
<td>MSGS RECV FR REMOTE</td>
<td>8</td>
</tr>
<tr>
<td>MSGS SENT TO REMOTE</td>
<td>8</td>
</tr>
<tr>
<td>RNS OF DATA RETR FR REMOTE</td>
<td>0</td>
</tr>
<tr>
<td>RNS OF DATA SENT TO REMOTE</td>
<td>1</td>
</tr>
<tr>
<td>SOL STMT RECEIVED FR REMOTE</td>
<td>0</td>
</tr>
<tr>
<td>SOL STMT SENT TO REMOTE</td>
<td>0</td>
</tr>
<tr>
<td>LOCAL ELAPSED TIME</td>
<td>0.000000</td>
</tr>
<tr>
<td>INDOUBT THREADS</td>
<td>0</td>
</tr>
<tr>
<td>TYPE</td>
<td>ROLLUP</td>
</tr>
<tr>
<td>ROLLED NBR THREADS</td>
<td>9</td>
</tr>
<tr>
<td>LOCATION NAME (LONG)</td>
<td>PMODA11</td>
</tr>
<tr>
<td>LOCATION NAME (SHORT)</td>
<td>PMODA11</td>
</tr>
<tr>
<td>FLAGS</td>
<td>X'10'</td>
</tr>
</tbody>
</table>

TYPE (Either ROLLUP, ROLSUM OR PACKAGE)

The flag byte:

X'20' This value is shown if DRDA is used to communicate with the server.

X'40' This value is shown if DB2 private protocol is used to communicate with the server.

All other values shown in this field are serviceability.

Field Name: QLACFLGS

LOCATION NAME (LONG)

The name of the remote location with which this information is associated. If the local location is the requester, this field is a server location. If the local location is a server location, this field is the requester location. An allied thread is created at a DB2 requester, and a database access thread is created at a DB2 server. An accounting record is for either a requester or a server, but not for both.

This field is invalid if summary rollup data is present. In Accounting this field is set to ROLSUM.

Field Name: QLACLOCN

This is an exception field.

LOCATION NAME (SHORT)
The name of the remote location with which this information is associated. If the local location is the requester, this field is a server location. If the local location is a server location, this field is the requester location. An allied thread is created at a DB2 requester, and a database access thread is created at a DB2 server. An accounting record is for either a requester or a server, but not for both.

This field is invalid if summary rollup data is present. In Accounting this field is set to *ROLSUM*.

**Field Name:** QLACLOCN

This is an exception field.

**ABORT REQUESTS RECEIVED**

The number of abort requests received from the requester (single-phase commit protocol) and backout requests received from the coordinator (two-phase commit protocol).

**Field Name:** QLACABRR

This is an exception field.

**BLKS RECV USING BLK FETCH**

The number of blocks received using block fetch. This value is maintained at the requester location.

**Field Name:** QLACBRBF

This is an exception field.

**BYTES RECV FROM REMOTE**

The number of bytes the server location received from the requester location.

More bytes of data might be sent from the server location than are received by the requester, because of the way in which distributed SQL statements are processed internally.

**Field Name:** QLACBYTR

This is an exception field.

**CONV REQS QUEUED BY DDF**

A number of conversation requests queued by DDF that are waiting for allocation. This value is maintained at the requester location.

If the value is a large number, you might want to increase the limit for the number of conversations.

**Field Name:** QLACCNVQ

This is an exception field.

**CONV INITIATED FR LOCAL**

The number of conversations (both successful and unsuccessful) initiated by the requester location to be executed at the server location. This number is maintained at the requester.

**Field Name:** QLACCNVS

This is an exception field.

**COMMIT REQS RECV FR REQ/COO**
The number of commit requests received from the requester (single-phase commit protocol) and committed requests received from the coordinator (two-phase commit protocol).

**Field Name:** QLACCOMR

This is an *exception* field.

**MSGS RECV FR REMOTE**

The number of messages received from the location. This value is maintained at the location where the messages were received.

More messages might be sent from the server location than are received by the requester because of the way in which distributed SQL statements are processed internally.

**Field Name:** QLACMSGR

This is an *exception* field.

**ROWS OF DATA RETR FR REMOTE**

The number of rows of data retrieved from the server location. This value is maintained at the requester location.

**Special Considerations:**

1. The number of rows received from the server location does not include either the SQLDA or SQLCA.

2. Block fetch can significantly affect the number of rows sent across the network. When used with non-UPDATE cursors, block fetch puts as many rows as possible into the message buffer, and transmits the buffer across the network without requiring a VTAM message. Consequently, more rows of data might be sent from the server location than are received by the reporting (requester) location. This is especially true when DB2 private protocol is used because multiple blocks can be transmitted from the server with no intervening messages sent by the requester.

**Field Name:** QLACROWR

This is an *exception* field.

**SQL STMT RECEIVED FR REMOTE**

The number of SQL statements received from the requester location.

**Field Name:** QLACSQLR

This is an *exception* field.

**LOCAL ELAPSED TIME**

The elapsed time at the requester location until the database access agent completed its work, including DB2 processing time and network time. This value is maintained at the requester location and is calculated by accumulating the difference between the store clock values obtained before and after each network request.

**Field Name:** QLACCPUL

**ROLLED NBR THREADS**

The number of threads to roll data into this QLAC data section. Non-rollup QLACs have a value of 1 and rollup QLACs have a value of 1 or more.
Field Name: QLACRLNU

FLAGS

The flag byte:

X'20'  This value is shown if DRDA is used to communicate with the server.

X'40'  This value is shown if DB2 private protocol is used to communicate with the server.

All other values shown in this field are serviceability.

Field Name: QLACFLGS

ABORT REQUESTS SENT

The number of abort requests sent to the server (single-phase commit protocol) and backout requests sent to the participant (two-phase commit protocol).

Field Name: QLACABRS

This is an exception field.

BLKS TRANS USING BLK FETCH

The number of blocks transmitted using block fetch. This value is maintained at the server location.

Field Name: QLACBTBF

This is an exception field.

BYTES SENT TO REMOTE

The number of bytes the server location sent to the requester location. This value is maintained at the server location.

More bytes of data might be sent from the server location than are received by the requester due to the way in which distributed SQL statements are processed internally.

Field Name: QLACBYTS

This is an exception field.

CONV INITIATED FR REMOTE

A count of conversations initiated by the requester.

This number is updated at the server location.

Field Name: QLACCNVR

This is an exception field.

CONV TERMINATED FR LOCAL

The number of terminated conversations in the server block (DB2 private protocol only). It is maintained at the requester location.

This number can be different from the number of successful conversation allocations, because some conversations might not have been terminated when the accounting record was written.

Field Name: QLACCNVT

This is an exception field.
COMMIT REQS SENT TO SRV/PAR
The number of commit requests sent to the server (single-phase commit protocol) and committed requests sent to the participant (two-phase commit protocol).
Field Name: QLACCOMS
This is an exception field.

MSGS SENT TO REMOTE
The number of messages sent to the location. It is maintained at the location where the messages originated.
Field Name: QLACMSGS
This is an exception field.

ROWS OF DATA SENT TO REMOTE
The number of rows sent from the server location to the requester location. The value includes SQLDA and is maintained at the server location.
Field Name: QLACROWS
This is an exception field.

SQL STMT SENT TO REMOTE
The number of SQL statements sent to the server location. This value is maintained at the requesting location.
Field Name: QLACSQLS
This is an exception field.

INDOUBT THREADS
The number of threads that went indoubt with the remote location as coordinator (two-phase commit operations only). It is maintained at the participant and indicates that the communication with the coordinator was lost.
Field Name: QLACINDT
This is an exception field.

PRID REMOTE SITE
The original DB2 field specifies the information in the following field names of the remote requester or server location:

PRODUCT ID
It consists of 3 characters and can have the following values:

<table>
<thead>
<tr>
<th>Original ID from DB2</th>
<th>Shown as</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN</td>
<td>DB2</td>
</tr>
<tr>
<td>ARI</td>
<td>SQL/DS</td>
</tr>
<tr>
<td>QSQ</td>
<td>DB2/400</td>
</tr>
<tr>
<td>SQL</td>
<td>COMMON SERV</td>
</tr>
<tr>
<td>JCC</td>
<td>JDBC DRIVER</td>
</tr>
<tr>
<td>'000000'X, '404040'X</td>
<td>N/P</td>
</tr>
<tr>
<td>Other</td>
<td>Original ID from DB2</td>
</tr>
</tbody>
</table>
Note:
- If the record is written at the application requester location, or if summary rollup data is available, N/P is shown in Accounting TRACE and REPORT.
- In Accounting FILE and SAVE DDF tables, BLANK is shown.

PRODUCT VERSION (PROD VERSION)
It consists of 5 digits and is shown as VvvRrrMm, where:
- vV Version level
- rr Release level
- m Modification level

Note: For DDF/RRSAF rollup records, the product ID and product version contain a value derived from the last thread to rollup. For query parallelism rollup threads, the value is derived from the parent record.

Field Name: QLACPRID

IFCID 003 - Dynamic SQL Statement:

This topic shows detailed information about “Record Trace - IFCID 003 - Dynamic SQL Statement”.

Record trace - IFCID 003 - Dynamic SQL Statement

The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Dynamic SQL Statement” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REOPTIMIZATION</td>
<td>The total number of times reoptimization occurs because the value of the host variable or parameter marker changes.</td>
</tr>
<tr>
<td>FOUND IN CACHE</td>
<td>The number of times a PREPARE command was satisfied by copying a statement from the prepared statement cache.</td>
</tr>
<tr>
<td>IMPLICIT PREPARES</td>
<td>An implicit prepare occurs when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEP_DYNAMIC YES. If the skeleton copy of the prepared SQL statement exists in the global dynamic SQL cache in the EDM pool, a short prepare is executed, otherwise a full prepare is executed.</td>
</tr>
</tbody>
</table>
The number of times statements are invalidated in the local dynamic SQL cache because the MAXKEEPD limit has been reached and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

Field Name: QXSTDEXP

NOT FOUND IN CACHE
The number of times that DB2 searched the prepared statement cache but could not find a suitable prepared statement.

Field Name: QXSTNFND

PREPARES AVOIDED
This field indicates the number of times where no SQL PREPARE or EXECUTE IMMEDIATE was issued by the application and a copy of a prepared SQL statement was found in local dynamic SQL cache.

When an application plan or package is bound with KEEP_DYNAMIC YES, a copy of each prepared SQL statement for the application thread is held in the local dynamic SQL cache and kept across a commit boundary.

An application thread can save the total cost of a prepare by using a copy of the prepared statement in the local dynamic SQL cache from an earlier prepare by the same thread. To do this, the application must be modified to avoid issuing repetitive SQL PREPAREs for the same SQL statement.

Field Name: QXSTNPRP

STMT INVALID (DDL)
The number of times statements are invalidated in the local dynamic SQL cache because of SQL DDL or updated RUNSTATS information and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

Field Name: QXSTDINV

CSWL STMTS PARSED
The number of times DB2 parsed dynamic statements because CONCENTRATE_STATEMENTS_WITH_LITERAL behavior was used for the prepare of the statement for the dynamic statement cache.

Field Name: QXSTCWLP

CSWL LITS REPLACED
The number of times DB2 replaced at least one literal in a dynamic statement because CONCENTRATE_STATEMENTS_WITH_LITERAL behavior was used for the prepare of the statement for dynamic statement cache.

Field Name: QXSTCWLR

CSWL MATCHES FOUND
The number of times DB2 found a matching reusable copy of a dynamic statement in cache during prepare of a statement that had literals replaced because of CONCENTRATE_STATEMENTS_WITH_LITERAL behavior.

Field Name: QXSTCWLW

CSWL DUPLS CREATED
The number of times DB2 created a duplicate STMT instance in the statement cache for a dynamic statement that had literals replaced by
CONCENTRATE STATEMENTS WITH LITERALS behavior. The duplicate STMT instance was needed because a cache match failed because the literal reusability criteria was not met.

**Field Name:** QXSTCWLD

LOAD FROM CATALOG

The number of loads from the catalog.

It shows the number of times a PREPARE request was satisfied by making a copy from the stabilized statement in the SYSIBM.SYSDYNQRY catalog table. The stabilized statement search is done only when no matching statement was found in the prepared statement cache. This field should be identical to QISEDPSL, but it is reported from the QXST section (SQL Statement Execution).

**Field Name:** QXSTSFND

**IFCID 003 - Dynamic SQL Statement**

This topic shows detailed information about “Record Trace - IFCID 003 - Group Buffer Pools Activity Data”.

**Record trace - IFCID 003 - Group Buffer Pools Activity Data**

The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Group Buffer Pools Activity Data” are described in the following section.

**GROUP BUFFER POOL ID**

The group buffer pool identifier.

**Field Name:** QBGAGN

**READ(XI)-DATA RETURNED**

The number of coupling facility read requests required because the buffer was marked invalid. Data is returned from the group buffer pool.

**Field Name:** QBGAXD

**READ(XI)-NO DATA RET.**

The number of group buffer pool read requests due to buffer XI where no data was returned.

**Field Name:** QBGAXR

**EXPRESSIT X-INVALID**

The number of times an explicit coupling facility cross-invalidation request was issued.

**Field Name:** QBGAEX

**GBP-DEPENDENT GETPAGES**
The number of coupling facility READ requests required because the buffer was marked invalid. Data is returned from the group buffer pool.

**Field Name:** QBGAGG

**PG P-LOCK LOCK REQ SP M**
The number of page P-lock lock requests for space map pages.

**Field Name:** QBGAP1

**PG P-LOCK LOCK SUSP SP**
The number of page P-lock suspensions for space-map pages.

**Field Name:** QBGAS1

**PG P-LOCK UNLOCK REQ**
The number of page P-lock unlock requests.

**Field Name:** QBGAU1

**WRITE & REGISTER MULT**
The number of write and register multiple (warm) requests.

**Field Name:** QBGAWM

**READ(NF)-DATA RETURNED**
The number of coupling facility read requests necessary because the requested page was not found in the buffer pool. Data is returned from the coupling facility.

**Field Name:** QBGAMD

**READ(NF)-NO DATA RET.**
The number of group-buffer-pool reads due to local buffer-pool miss where no data was returned.

**Field Name:** QBGAMR

**READ PREFETCH**
The number of pages read from the group buffer pool due to prefetch under the control of the agent.

**Field Name:** QBGAMN

**ASYNCH GBP REQUESTS**
The number of asynchronous IXLCACHE invocations for the primary group buffer pool.

**Field Name:** QBGAHS

**PG P-LOCK LOCK REQ DATA**
The number of page P-lock lock requests for data pages.

**Field Name:** QBGAP2

**PG P-LOCK LOCK SUSP DAT**
The number of page P-lock lock suspensions for data pages.

**Field Name:** QBGAS2

This is an *exception* field.
WRITE AND REGISTER
The number of Write and Register (WAR) requests.
Field Name: QBGAWS

CLEAN PAGES WRITTEN
The number of clean pages written to the group buffer pool.
Field Name: QBGAWC

CHANGED PAGES WRITTEN
The number of changed pages written to the group buffer pool as a result of write and register (WAR), or write and register multiple (WARM) requests.
Field Name: QBGASW
This is an exception field.

UNREGISTER PAGE
The number of coupling facility requests to unregister a page.
Field Name: QBGADG
This is an exception field.

ASYNCH SEC-GBP REQUESTS
The number of IXLCACHE invocations for the secondary group buffer pool.
Field Name: QBGA2H

PG P-LOCK LOCK REQ IX L
The number of page P-lock lock requests for index-leaf pages.
Field Name: QBGAP3

PG P-LOCK LOCK SUSP IX
The number of page P-lock lock suspensions for index-leaf pages.
Field Name: QBGAS3

IFI CALL ELAPSED TIME
The accumulated elapsed time for processing IFI calls. This field is only calculated if accounting class 5 is active.
Field Name: QIFAAIET
IFI CALL TCB CPU TIME

The accumulated CPU time spent processing IFI calls. This is the same as the TCB time (class 5).
This field is only calculated if accounting class 5 is active.

Field Name: QIFAAITT
This is an exception field.

DESCRIPTES ELAPSED

The accumulated elapsed time for processing data capture describes. Data capture describes occur only during IFI read requests for IFCID 185. This time is a subset of the log extraction time.

Field Name: QIFAAAMBT
This is an exception field.

LOG EXTRACT ELAPSED

The accumulated elapsed time for extracting log records for tables defined with DATA CAPTURE CHANGES. This time is a subset of the class 5 elapsed time.

Field Name: QIFAAAMLT
This is an exception field.

IFI CALLS

The number of IFI calls.

Field Name: QIFAAANIF

LOG READS PERFORMED

The number of log reads performed for processing IFI READS requests for IFCID 185.

Field Name: QIFAAANLR

LOG RECS CAPTURED

The number of retrievable log records that were written for tables defined with DATA CAPTURE CHANGES. This number includes only those log records that can be retrieved by an IFI READS call for IFCID 185. Some records can be written but not retrieved, for example if monitor trace class 6 is not active.

Field Name: QIFAAANRC

DATA DESCRIPT. RETURNED

The number of data descriptions returned in IFCID 185. The data descriptions are mapped in IFCID 185.

Field Name: QIFAAANDD

DESCRIPTES

The number of data capture describes for processing READS requests for IFCID 185 data.

Field Name: QIFAAANMB

DATA ROWS RETURNED
IFCID 003 - IFI Class 5 Times and Data Capture

The number of data rows returned in IFCID 185. Two rows are returned for each row altered by an SQL UPDATE statement.

**Field Name:** QIFAANDR

**LOG RECS RETURNED**

The number of log records returned to the caller of the IFI READS call for IFCID 185.

**Field Name:** QIFAANRR

**TABLES RETURNED**

The total number of tables returned to the caller of IFI READS call for IFCID 185.

**Field Name:** QIFAANTB

**IFCID 003 - Initial Client/Server Correlation Data:**

This topic shows detailed information about “Record Trace - IFCID 003 - Initial Client/Server Correlation Data”.

This topic also shows detailed information about “Initial Other Requester Correlation Data”.

**Record trace - IFCID 003 - Initial Client/Server Correlation Data**

The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Initial Client/Server Correlation Data” are described in the following section.

**BYTES:**

The length of the product ID and accounting string.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

**Field Name:** QMDAASLN

**PRODUCT ID**

Shows the product identifier (ID) of the requester. It can have the following values:

- **DB2** For DB2 UDB for z/OS
- **SQL/DS** For DB2 UDB for VSE and VM
- **JDBC DRIVER** For Universal JDBC driver
- **COMMON SERV** For DB2 UDB for Linux, UNIX, Windows
- **DB2/400** For DB2 UDB for iSeries
Otherwise, it shows the first 3 characters of the product ID, or N/P if the
record was written at the application requester location.

For DDF/RRSAF rollup records, the field will contain a value derived from
the last thread to rollup.

**Field Name:** QMDAPRID

**PRODUCT VERSION**

The version, release, and modification level of the product, which
generated the accounting information. It has the following format: \textit{vv rr m},
where:

- \textit{vv}   Version level
- \textit{rr}   Release level
- \textit{m}    Modification level

N/P is shown if the record was written at the application requester
location.

For DDF/RRSAF rollup records, the field will contain a value derived from
the last thread to rollup.

**Field Name:** QMDAPMOD

**CLIENT PLATFORM**

The client platform, such as AIX. This is a 1 to 18 character field padded
with blanks.

For DDF/RRSAF rollup records, the field will contain a value derived from
the last thread to rollup.

**Field Name:** QMDAPLAT

**CLIENT APPLICATION NAME**

The name of the client application. This is a 1 to 20 character field padded
with blanks. An example is "PAYROLL".

For DDF/RRSAF rollup records, the field will contain a value derived from
the last thread to rollup.

**Field Name:** QMDAAPPL

**CLIENT AUTHID**

The client authorization ID of an application process. This is a 1 to 8
character field padded with blanks. An example is "SMITH".

For DDF/RRSAF rollup records, the field will contain a value derived from
the last thread to rollup.

**Field Name:** QMDAAATID

**DDCS ACCOUNT SUFFIX**

The account suffix. The maximum length of this field is 200 bytes. This
field is the user-supplied portion (suffix) of the accounting string. An
example is "DEFAULT_DRDA". A value of zero in QMDASFLN Indicates
there is no account suffix.

For DDF/RRSAF rollup records, the field will contain a value derived from
the last thread to rollup.

**Field Name:** QMDASUFX
ACCOUNTING STRING

The accounting string:
- For local DB2 threads, the format of the accounting string is shown in QMDAINFO.
- For database access threads, the accounting string contains the accounting string sent by the requester.
- The QMDAPRID value identifies which product generated the accounting string.
  - If the requester is DB2, the accounting string is defined in QMDAINFO.
  - If QMDAPTYP is DSN, QMDAINFO defines the format.
  - If QMDAPTYP is SQL or JCC, QMDASQLI defines the format.
  - Otherwise, the format is undefined.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDAASTR

IFCID 003 - Initial DB2 Requester and MVS Correlation Data:

This topic shows detailed information about “Record Trace - IFCID 003 - Initial DB2 Requester and MVS Correlation Data”.

Record trace - IFCID 003 - Initial DB2 Requester and MVS Correlation Data

The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Initial DB2 Requester and MVS Correlation Data” are described in the following section.

BYTES: 226
PRODUCT ID: 082
PRODUCT VERSION: V11R01M5
LOCATION: PMODB1H
LU NAME: IPSAQB1H
CONNECTION: DB2CALL
PLANNAME: DB1HEXC1
MVS ACCOUNTING DATA:
  ACCOUNTING-ASTR0-1234567890ABCDEDGHIJKLMNOPQRSTUVWXYZ
  ACCOUNTING-ASTR1-1234567890ABCDEDGHIJKLMNOPQRSTUVWXYZ
  ACCOUNTING-ASTR2-1234567890ABCDEDGHIJKLMNOPQRSTUVWXYZ

*** Long name section:
LOCATION : PMODB1H
*** End of long names

BYTES

The length of the product ID and accounting string.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDAASLN

PRODUCT ID

Shows the product identifier (ID) of the requester. It can have the following values:
- DB2 For DB2 UDB for z/OS
- SQL/DS For DB2 UDB for VSE and VM
- JDBC DRIVER For Universal JDBC driver
COMMON SERV
For DB2 UDB for Linux, UNIX, Windows

DB2/400
For DB2 UDB for iSeries
Otherwise, it shows the first 3 characters of the product ID, or N/P if the record was written at the application requester location.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDAPRID

PRODUCT VERSION
The version, release, and modification level of the product, which generated the accounting information. It has the following format: vv rr m, where:

vv Version level
rr Release level
m Modification level
N/P is shown if the record was written at the application requester location.
For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDAPMOD

LOCATION
The location name for the DB2 subsystem that created the QMDAINFO values.
For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.
This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Field Name: QMDALOCN

NET ID
The NETID of the DB2 subsystem that created the QMDAINFO values.
For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDANETN

LU NAME
The SNA LU name of the DB2 subsystem that created the QMDAINFO values.
For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDALUNM

CONNECT
IFCID 003 - Initial DB2 Requester and MVS Correlation Data

The connection name of the DB2 system that created the MVS and DDF accounting values.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDACNAM

CONNTYPE

The type of subsystem connection at the DB2 system where the SQL application is running. Possible values and their descriptions are:

BATCH
  TSO or call attach

SASS  CICS

MASS  IMS

DIST  Distributed

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDACTYP

CORRNAME

The first 8 bytes of the correlation ID at the DB2 system running the SQL.

The last 4 bytes of the correlation ID at the DB2 system running the SQL.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDACORR

AUTHID

The DB2 authorization ID that the SQL application used before name translation and before driving the connection exit at the DB2 site where the SQL application is running.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDAAUTH

PLANNAME

The DB2 plan used at the DB2 system running the SQL.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDAPLAN

MVS ACCOUNTING DATA

The MVS accounting string associated with the MVS address space of the SQL application. It is filled if PROD_TYP=D; otherwise X'00' is used.

This information comes from the ACCT= parameter on the job statement. If the ACCT= parameter is blank, the information on the EXEC statement is used. TSO logon Accounting information is used only if there is a value in the account field on the TSO Logon panel. Do not confuse this field with the Accounting correlation token.
ICFID 003 - Initial DB2 Requester and MVS Correlation Data

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup.

Field Name: QMDAACCT

ICFID 003 - Instrumentation Accounting Data:

This topic shows detailed information about “Record Trace - ICFID 003 - Instrumentation Accounting Data”.

Note: ICFID 003 and ICFID 147 have the same layout.

Record trace - ICFID 003 - Instrumentation Accounting Data

The field labels shown in the following sample layout of “Record Trace - ICFID 003 - Instrumentation Accounting Data” are described in the following section.

<table>
<thead>
<tr>
<th>INSTRUMENTATION ACCOUNTING DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS 1 BEGINNING STORE CLOCK TIME 10/20/08 08:36:54.206466</td>
</tr>
<tr>
<td>ELAPSED TIME</td>
</tr>
<tr>
<td>BEGINNING MVS TCB TIME</td>
</tr>
<tr>
<td>STORED PROC ELAPSED TIME</td>
</tr>
<tr>
<td>STORED PROCEDURE TCB TIME</td>
</tr>
<tr>
<td>UDF ELAPSED TIME</td>
</tr>
<tr>
<td>UDF TCB TIME</td>
</tr>
<tr>
<td>NETWORK ID VALUE</td>
</tr>
<tr>
<td>REASON ACCT INVOKED:</td>
</tr>
<tr>
<td>CLASS 1/2 STORED PROC SE TCB TIME</td>
</tr>
<tr>
<td>STORED PROC EVC TCB TIME</td>
</tr>
<tr>
<td>STORED PROC CP ELAPSED TIME</td>
</tr>
<tr>
<td>UDF NF SE CPU TIME</td>
</tr>
<tr>
<td>UDF NF ELC TCB TIME</td>
</tr>
<tr>
<td>UDF NF CP CPU TIME</td>
</tr>
<tr>
<td>CLASS 2 DB2 ELAPSED TIME</td>
</tr>
<tr>
<td>TCB TIME</td>
</tr>
<tr>
<td>STORED PROC ELAPSED TIME</td>
</tr>
<tr>
<td>STORED PROCEDURE TCB TIME</td>
</tr>
<tr>
<td>CP CPU TIME UDF</td>
</tr>
<tr>
<td>TRIG ELAP TIME UNDER ENCLAVE</td>
</tr>
<tr>
<td>TRIG TCB TIME UNDER ENCLAVE</td>
</tr>
<tr>
<td>TRIG ELAP TIME NOT UNDER ENCLAVE</td>
</tr>
<tr>
<td>TRIG TCB TIME NOT UNDER ENCLAVE</td>
</tr>
<tr>
<td>CLASS 3 ACCU LOCK ELAPSED TIME</td>
</tr>
<tr>
<td>DB2 LATCH SUSP TIME</td>
</tr>
<tr>
<td>SYNCHRONOUS I/O SUSP TIME</td>
</tr>
<tr>
<td>LOG WRITE I/O SUSP TIME</td>
</tr>
<tr>
<td>OTHER READ SUSP TIME</td>
</tr>
<tr>
<td>OTHER WRITE SUSP TIME</td>
</tr>
<tr>
<td>UPDATE COMMIT SUSP TIME</td>
</tr>
<tr>
<td>PAGE LATCH(DB2+IRLM) SUSP TIME</td>
</tr>
<tr>
<td>NOTIFY MESSAGES SUSP TIME</td>
</tr>
<tr>
<td>GLOB CONT PARENT L-LOCK TIME</td>
</tr>
<tr>
<td>GLOB CONT CHILD L-LOCK TIME</td>
</tr>
<tr>
<td>GLOB CONT OTHER L-LOCK TIME</td>
</tr>
<tr>
<td>GLOB CONT PGSET/PART P-LOCK TIME</td>
</tr>
<tr>
<td>GLOB CONT PAGE P-LOCK TIME</td>
</tr>
<tr>
<td>GLOB CONT OTHER P-LOCK TIME</td>
</tr>
<tr>
<td>SCHED, STORED PROC SUSP TIME</td>
</tr>
<tr>
<td>SCHED, UDF SUSP TIME</td>
</tr>
<tr>
<td>TCP/IP LOG XML TIME</td>
</tr>
<tr>
<td>ACCELERATOR SUSP TIME</td>
</tr>
<tr>
<td>AUTOP RCW SUSP TIME</td>
</tr>
<tr>
<td>PARALLEL QUERY SYNC SUSP TIME</td>
</tr>
<tr>
<td>CLASS 7 DATA COLLECTED</td>
</tr>
<tr>
<td>CLASS 8 DATA COLLECTED</td>
</tr>
<tr>
<td>MAX WORKFILE BLOCKS</td>
</tr>
<tr>
<td>MML SERVICE CLASS</td>
</tr>
<tr>
<td>ROLLUP DATA FOR PARALLEL CHILD TASKS</td>
</tr>
<tr>
<td>AUTON PROC ROLLUP DATA</td>
</tr>
</tbody>
</table>

CLASS 1: BEGINNING STORE CLOCK TIME

The beginning store clock value for the period covered by the accounting record. You can determine the elapsed time of the application by subtracting this field from the ending store clock value (QWACESC). Threads that do not terminate (such as CICS primed threads and IMS
wait-for-input message regions) can have an ending clock value that includes the time during which the thread was inactive and waiting for work.

If a roll-up trace record is written with accumulated counter data, QWACBSC represents the earliest begin store clock value for a thread that has rolled data into the record. In this case, QWACESC shows the accumulated elapsed time.

**Field Name:** QWACBSC

**CLASS 1: ENDING STORE CLOCK TIME**

The ending store clock value. You can use this field with the beginning store clock value (QWACBSC) to determine the elapsed time of an application.

If a roll-up record is written with accumulated accounting data, QWACESC contains the accumulated elapsed time. In Accounting Trace reports, the elapsed time is shown under **CLASS 1: NONNESTED ELAPSED TIME** and the **END TIME** is reported as N/P, because QWACESC does not contain a timestamp. In the Accounting FILE GENERAL table, the accumulated elapsed time QWACESC is stored in column **CLASS1_ELAPSED** and column **CLASS1_TIME_END** contains a timestamp 1900-01-01-00:00:00.000000.

**Field Name:** QWACESC

**CLASS 1: ELAPSED TIME**

The time covered by this accounting record. If the time cannot be calculated or the value is negative, N/C is printed in this field. Calculated from the DB2 field QWACESC - QWACBSC.

**Field Name:** RT0003ET

**CLASS 1: MVS TCB TIME**

The amount of MVS CPU time used. If the time cannot be calculated or the value is negative, N/C is printed in this field. Calculated from the DB2 field QWACEJST - QWACBJST.

**Field Name:** RT0003TT

**CLASS 1: BEGINNING MVS TCB TIME**

The beginning MVS CPU time for all environments (such as: CICS, IMS, RRSAF, or TSO). This CPU time is not affected by an IBM specialty engine. Binary zero means that no time value is available.

**Field Name:** QWACBJST

**CLASS 1: ENDING MVS TCB TIME**

The ending MVS CPU time. This CPU time is not affected by an IBM specialty engine. Binary zero means that no time value is available.

**Field Name:** QWACEJST

**CLASS 1: STORED PROC ELAPSED TIME**

The total elapsed time spent by the allied agent in stored procedures. A stored procedure may initiate a trigger or invoke a user-defined function. The time spent there is not included in this counter.
CLASS 1: CONVERSION FACTOR

The CPU service unit conversion factor allows for converting CPU time to a common unit, which is called service unit (SU). The conversion factor depends on the machine being used. With the SU, you can add up CPU execution times across multiple DB2 systems running on different machines. It is a raw value for RECORDTRACE and Accounting FILE data. For Accounting SAVE data it cannot be determined.

Field Name: QWACSPEA

CLASS 1: STORED PROCEDURE TCB TIME

The TCB time accumulated in DB2 for processing SQL CALL statements in the stored procedures or WLM address space. This time is only calculated if accounting class 1 is active.

SQL procedure times are included in this time if the SQL procedure was called on a nested task and was not invoked by the main application execution unit. This time does not include CPU time consumed on an IBM specialty engine.

Field Name: QWACSUCV

CLASS 1: PAR.TASKS

The number of parallel child agents, or Accounting intervals rolled up, or autonomous procedures rolled up. The value depends on the record type:

- For a non-rollup parent record, this value is the number of parallel child agents that were created.
- For a non-rollup child agent record, this value is 0.
- For a parallel query rollup record, this value is the number of parallel child agents rolled into the record.
- For a DDF/RRSAF rollup record, this value is the number of Accounting intervals that were rolled into the record for the corresponding end user.
- For an autonomous procedure rollup record, this value is the number of autonomous procedures rolled into the record.

Field Name: QWACSPCP

CLASS 1: PAR.TOKEN

Token used to correlate parallel task, utility task records, or autonomous procedure rollup records with the records of the originating task or main utility task.

Field Name: QWACPCNT

CLASS 1: UDF ELAPSED TIME

The total elapsed time spent by the allied agent in UDF functions processed in a DB2 stored procedure or WLM address space. A user-defined function may initiate a trigger or invoke a stored procedure. Non-inline UDF times are included in this time if the native UDF was called on a nested task and was not invoked by the main application execution unit.

This time includes time executing SQL.
ICCID 003 - Instrumentation Accounting Data

Note: With user-tailored reporting (UTR) you can include this field in the short layouts of Accounting.

Field Name: QWACUDEA

CLASS 1: COMMITS

The number of successful two-phase (units of recovery) or single-phase (syncs) commit requests. It indicates the number of units of recovery that are completed successfully, and for which the associated commit duration locks were released. It represents the total number of commit requests processed by the DB2 subsystem, whether the request was an explicit or implicit external request from an IMS or a CICS connection, or an implicit internal request within DB2 when DB2 was the commit coordinator or conducted read-only commit processing as a commit participant on phase-1 calls from an IMS or CICS connection.

For parallel queries, only the commits from the initiating (parent) thread are recorded by this counter.

Field Name: QWACCOMM

This is an exception field.

CLASS 1: SVPT REQ.

The number of named SAVEPOINTs set within a transaction.

Field Name: QWACSVPT

CLASS 1: UDF TCB TIME

The accumulated CPU time used to satisfy UDF requests processed in a DB2 stored procedure or WLM address space. Non-inline UDF times are included in this time if the native UDF was called on a nested task and was not invoked by the main application execution unit.

This time is only calculated if accounting class 1 is active.

This time does not include the CPU time consumed on an IBM specialty engine.

Field Name: QWACUDCP

CLASS 1: ROLLBACKS

The number of rollback requests. This is the number of units that were backed out, including rollbacks from attaches.

Special Considerations: This field contains the number of:
- Application program abends
- Application rollback requests
- Application deadlocks on database records
- Applications canceled by operator
- Thread abends due to resource shortage

Field Name: QWACABRT

This is an exception field.

CLASS 1: SVPT RLB.

The number of ROLLBACK TO SAVEPOINT statements executed.

Field Name: QWACRBSV
CLASS 1: NETWORK ID VALUE

The network ID. It is used with IMS and CICS.

Field Name: QWACNID

CLASS 1: PROGRAMS

The number of packages or DBRMs for which accounting data was collected.

Field Name: QWACPKGN

CLASS 1: SVPT REL.

The number of RELEASE SAVEPOINT statements executed.

Background and Tuning Information

Release savepoints as soon as possible. Outstanding savepoints block SQL operations that resolve remote locations. DB2 always releases outstanding savepoints when a transaction ends.

Field Name: QWACRLSV

This is an exception field.

CLASS 1: REASON ACCT INVOKED

The reason for termination, that is, for producing a DB2 accounting record.

Field Name: QWACRINV

This is an exception field.

CLASS 1: SE CPU TIME

The accumulated CPU time that is consumed while running on an IBM specialty engine in all environments. This value may be 0 when QWACRINV is greater than or equal to 20.

Field Name: QWACCLS1_ZIIP

CLASS 1/2 STORED PROC SE TCB TIME

The accumulated CPU time that is consumed while running stored procedure requests on the main application execution unit on an IBM specialty engine. As these SPs run entirely within DB2, this time represents class 1 and class 2 time.

Field Name: QWACSPNF_ZIIP

CLASS 1/2 STORED PROC ELAPSED TIME

The accumulated elapsed time that is consumed on an IBM specialty engine for executing stored procedure requests on the main application execution unit. As these stored procedures run entirely in DB2, this time represents class 1 and class 2 time.

Field Name: QWACSPNF_ELAP

CLASS 1/2 STORED PROC CP ELAPSED TIME

The accumulated CPU time that is used for executing stored procedure requests on the main application execution unit. This time does not include the time that is consumed on an IBM specialty engine. As these stored procedures run entirely in DB2, this time represents class 1 and class 2 time.
Field Name: QWACSPNF_CP

CLASS 1/2 UDF NF SE CPU TIME

Accumulated CPU time consumed executing user-defined functions on the main application execution unit on an IBM specialty engine. Since these UDFs run entirely within DB2, this time represents class 1 and class 2 time.

Field Name: QWACUDFNF_ZIIP

CLASS 1/2 UDF NF ELAPSED TIME

Accumulated elapsed time consumed executing user-defined functions on the main application execution unit. Since these UDFs run entirely within DB2, this time represents class 1 and class 2 time.

Field Name: QWACUDFNF_ELAP

CLASS 1/2 UDF NF CP CPU TIME

Accumulated CPU time consumed executing user-defined functions on the main application execution unit. This time does not include CPU consumed on an IBM specialty engine. Since these UDFs run entirely within DB2, this time represents class 1 and class 2 time.

Field Name: QWACUDFNF_CP

CLASS 2: DB2 ELAPSED TIME

The class 2 elapsed time for nonnested activity accumulated in DB2 for the allied agent. This time does not include the time spent in DB2 processing SQL statements issued by stored procedures, user-defined functions, or triggers.

Special Considerations

- The time for most thread allocation and certain abend conditions is not reflected in this time.
- The elapsed time for distributed processing is included in the elapsed time of allied-distributed threads.
- In query CP, sysplex query, or utility parallelism, this is the time shown in the originating record, which overlaps the elapsed times shown in the parallel records.

Note: This field is not normally shown in the short layouts but can be included with UTR.

Field Name: QWACASC

CLASS 2: DB2 ENTRY/EXIT EVENTS

The total number of DB2 entry and exit events processed by the allied address space to calculate the elapsed time in DB2 and the processor time.

This counter does not include the SQL entry and exit events processed by stored procedures.

Field Name: QWACARNA

This is an exception field.

CLASS 2: TCB TIME

The accumulated MVS CPU time that is spent in DB2. This CPU time does not include the:

- CPU time that is consumed on an IBM specialty engine
• CPU time that is consumed while processing SQL statements in a stored procedure

Field Name: QWCAJST

CLASS 2: NON-ZERO CLASS 2

This data section shows whether there is nonzero accounting class 2 data. Yes indicates that accounting class 2 or 7 was active during the life of the agent when a class 2 event occurred.

Field Name: QWACCLS2

CLASS 2: STORED PROC ELAPSED TIME

The total elapsed time that the allied agent spent executing SQL in the stored procedures or WLM address space.

A stored procedure may initiate a trigger or invoke a user-defined function this time is not included in this counter.

Note: This field is not normally shown in the short layouts but can be included with UTR.

Field Name: QWACSPEB

CLASS 2: DATA COLLECTED

The accounting class 2 data was being collected when this accounting record was written.

Field Name: QWACCL2O

CLASS 2: STORED PROCEDURE TCB TIME

The TCB time accumulated in DB2 for processing SQL statements issued by stored procedures. This time is only calculated if accounting class 2 is active.

Field Name: QWACSPTT

CLASS 2: STORED PROC. ENTRY/EXITS

The number of SQL entry or exit events performed by stored procedures. This number is only calculated if accounting class 2 is active.

Field Name: QWACSPNE

CLASS 2: UDF ELAPSED TIME

The total elapsed time spent by the allied agent executing SQL using UDF requests processed in a DB2 stored procedure or WLM address space. A user-defined function may initiate a trigger or invoke a stored procedure. Any time spent there is not included in this counter. This time includes time needed to connect and disconnect the UDF task. Non-inline UDF times are included in this time if the native UDF was called on a nested task and was not invoked by the main application execution unit.

Note: With user-tailored reporting (UTR) you can include this field in the short layouts of Accounting.

Field Name: QWACUDEB

CLASS 2: UDF SQL ENTRY/EXITS EVENTS

The number of SQL entry/exit events performed by user-defined functions.
This is only calculated if accounting class 2 is active.

Field Name: QWACUDNE

CLASS 2: CP CPU TIME UDF

The accumulated CPU time consumed in DB2 when processing SQL statements that were issued by UDF(s) processed in a DB2 stored procedure or WLM address space.

This time also includes the DB2 time required to connect and disconnect the UDF task. Non-inline UDF times are included in this time if the native UDF was called on a nested task and was not invoked by the main application execution unit.

This time is a subset of QWACUDCP and is only calculated if accounting class 2 is active.

This time does not include CPU consumed on an IBM specialty engine.

Field Name: QWACUDTT

CLASS 2: SE CPU TIME

The accumulated and consumed class 2 time on an IBM specialty engine (SE) that consists of times for non-nested, stored procedures, user-defined functions, triggers, and parallel tasks.

Note: All CPU times of an IBM specialty engine that are reported in DB2 trace records are already normalized by DB2 to the speed of the general purpose processor.

Field Name: QWACCLS2_ZIIP

CLASS 2: TRIG ELAP TIME UNDER ENCLAVE

The accumulated elapsed time used for executing triggers under an enclave.

Field Name: QWACTREE

CLASS 2: SE ELIGIBLE CP CPU TIME

The accumulated CPU time that is consumed on a standard CP for work eligible on an IBM specialty engine.

For records for the parent tasks in parallel queries, this value reflects zIIP-eligible time for the parent and the child tasks. Child task records have a value of 0.

Field Name: QWACZIIP_ELIGIBLE

CLASS 2: TRIG TCB TIME UNDER ENCLAVE

The accumulated CPU time used for executing triggers on a nested task. This time does not include CPU consumed on an IBM specialty engine.

Field Name: QWACTRTE

CLASS 2: QWACTRRT_ZIIP

The accumulated CPU time consumed on an IBM specialty engine while running triggers on a nested task or on the main application execution unit.

Field Name: QWACTRRT_ZIIP

CLASS 2: TRIG ELAP TIME NOT UNDER ENCLAVE
The accumulated elapsed time used when executing under the control of a trigger. This does not include the time used while in user-defined functions or stored procedures that are called from the trigger.

**Field Name:** QWACTRET

### CLASS 2: ELAPSED TIME ELIGIBLE FOR ACCEL

The accumulated elapsed time spent processing SQL in DB2 that may be eligible for execution on an accelerator.

**Field Name:** QWACCEL_ELIG_ELA

### CLASS 2: TRIG TCB TIME NOT UNDER ENCLAVE

The accumulated TCB time that is used when running under the control of a trigger. This does not include the time that is used while running in user-defined functions or stored procedures that are called from the trigger. This CPU time does not include the CPU time that is consumed on an IBM specialty engine.

**Field Name:** QWACTRTT

This is an *exception* field.

### CLASS 2: CP CPU TIME ELIGIBLE FOR ACCEL

The accumulated CPU time spent processing SQL in DB2 that may be eligible for execution on an accelerator.

**Field Name:** QWACCEL_ELIG_CP

### CLASS 2: SE CPU TIME ELIGIBLE FOR ACCEL

The accumulated CPU time consumed on an IBM specialty engine while processing SQL in DB2 that may be eligible for execution on an accelerator.

**Field Name:** QWACCEL_ELIG_SE

### CLASS 2: TRIG TCB TIME NOT UNDER ENCLAVE

The accumulated TCB time that is used when running under the control of a trigger. This does not include the time that is used while running in user-defined functions or stored procedures that are called from the trigger. This CPU time does not include the CPU time that is consumed on an IBM specialty engine.

**Field Name:** QWACTRTT

This is an *exception* field.

### CLASS 3: ACCU LOCK ELAPSED TIME

The accumulated wait time because of local contention for locks. The term *local contention* is used to differentiate from *global contention* (which is reported in QWACAWTL). Local contention does not require intersystem communication. The contention is detected and resolved entirely within this subsystem.

**Field Name:** QWACAWTL

This is an *exception* field.

### CLASS 3: WAIT TRACE EVENTS

The number of wait trace events processed for waits for local contention for locks.
Field Name: QWACARNL

**CLASS 3: DB2 LATCH SUSP TIME**

The accumulated wait time because of latch contention.

Field Name: QWACAWLH

**CLASS 3: LATCH WAIT TRACE EVENTS**

The number of wait trace events processed for waits for latch contention.

Field Name: QWACARLH

**CLASS 3: SYNCHRONOUS I/O SUSP TIME**

The accumulated I/O elapsed wait time for database I/O done under this thread. This field is for synchronous I/O only. It includes synchronous read and write I/O. This value is an average.

Field Name: QWACAWTI

**CLASS 3: SYNCHRONOUS I/O SUSP EVENTS**

The number of wait trace events processed for I/O.

Field Name: QWACARNE

**CLASS 3: LOG WRITE I/O SUSP TIME**

The accumulated wait time for log write I/O.

This value is an average.

Field Name: QWACAWLG

**CLASS 3: LOG WRITE I/O SUSP EVENTS**

The number of log I/O suspensions.

Field Name: QWACARLG

**CLASS 3: OTHER READ SUSP TIME**

The accumulated waiting time due to a read I/O that performed under a thread other than the one being reported. The time does not represent the total duration of the subject read I/O. It includes:

- Sequential prefetch
- List prefetch
- Dynamic Prefetch
- Synchronous read I/O performed by a thread other than the one being reported

Field Name: QWACAWTR

This is an *exception* field.

**CLASS 3: OTHER READ SUSP EVENTS**

The number of suspensions due to read I/O.

Field Name: QWACARNR

**CLASS 3: OTHER WRITE SUSP TIME**

The accumulated waiting time due to a write I/O that performed under a thread other than the one being reported. This time does not represent the total duration of the subject write I/O. It includes:

- An asynchronous write I/O
A synchronous write I/O performed by a thread other than the one being reported

- Frequent system checkpoints and low settings for deferred write thresholds
- When updating a page that is being written, the first thread wait is captured under Other Write I/O
- Other concurrent threads on the same DB2 subsystem will encounter Page latch suspension.

Field Name: QWACAWTW

This is an exception field.

CLASS 3: OTHER WRITE SUSP EVENTS

The number of suspensions due to write I/O.

Field Name: QWACARNW

CLASS 3: UPDATE COMMIT SUSP TIME

The accumulated wait time because of synchronous execution unit switch for DB2 Phase 2 commit, abort, or deallocation. This includes wait time for Phase 2 commit Log writes and database writes for LOB with LOG NO. For data sharing environment Page P-locks unlocks for updated pages and GBP writes.

Field Name: QWACAWTE

CLASS 3: UPDATE COMMIT SUSP EVENTS

The number of update commit suspensions.

Field Name: QWACARNS

CLASS 3: PAGE LATCH (DB2+IRLM) SUSP TIME

Page latch suspension could be due to concurrent threads that try to update a hot page that is frequently written because of a low deferred write threshold.

In the data sharing environment, within the same member, the first thread gets a P-lock (such as: Index leaf page P-Lock or P-Lock for Space map page or data page P-Lock for Row level locking) during high INSERT activity. Performance trace for IFCID 226 and 227 provide more information for detailed analysis.

With a high number of concurrent threads, for subsequent threads in the same member for the same resource, contention is reported as encountering a page latch contention. Randomizing the Index key helps minimizing page latch contentions for the Index leaf page.

If the page latch is for a space map page and an incremental image copy is not used, use the DDL TRACKMOD NO option to avoid frequent updates to the space map page. The Member Cluster option reduces page latch contention for a space map page.

Field Name: QWACAWTP

CLASS 3: PAGE LATCH (DB2+IRLM) SUSP EVENTS

The number of page latch wait trace events processed.

Field Name: QWACARNH

CLASS 3: NOTIFY MESSAGES SUSP TIME
The accumulated elapsed waiting time due to suspensions caused by sending notify messages to other members in the data sharing group. Messages are sent, for example, when the database descriptors are changed due to DDL.

Field Name: QWACAWTG

CLASS 3: NOTIFY MESSAGES EVENTS

The number of wait trace events processed for sending notify messages to other members in the data sharing group.

Field Name: QWACARNG

CLASS 3: GLOB CONT PARENT L-LOCK TIME

The accumulated global contention wait time for parent L-locks.

A parent L-lock can be one of the following types:
- Database
- Tablespace
- Table
- Partition

Background and Tuning Information

Performance Expert might adjust this value if the thread was suspended when performance data was gathered.

Field Name: QWACAWTJ

CLASS 3: GLOB CONT PARENT L-LOCK EVENTS

The number of wait trace events processed for group-level contentions in a data sharing environment.

Field Name: QWACARNJ

CLASS 3: GLOB CONT CHILD L-LOCK TIME

The accumulated global contention wait time for child L-locks.

A child L-lock type can be:
- Page
- Row

Field Name: QWACAWTK

CLASS 3: GLOB CONT CHILD L-LOCK EVENTS

The number of wait trace events processed for waits due to global contention for child L-locks.

Field Name: QWACARNK

CLASS 3: GLOB CONT OTHER L-LOCK TIME

The accumulated global contention wait time for other L-locks. Global extend lock is acquired in exclusive mode by Inserters before an extend service task switch.

Field Name: QWACAWTM

CLASS 3: GLOB CONT OTHER L-LOCK EVENTS

The number of wait trace events processed for waits due to global contention for other L-locks.
FIELD NAME: QWACARNM

CLASS 3: GLOB CONT PGSET/PART P-LOCK TIME
The accumulated global contention time for pageset and partition P-locks.

FIELD NAME: QWACAWTN

CLASS 3: GLOB CONT PGSET/PART P-LOCK EVENTS
The number of wait trace events processed for waits due to global contention for page set or partition P-locks.

FIELD NAME: QWACARNN

CLASS 3: GLOB CONT PAGE P-LOCK TIME
The accumulated global contention wait time for page P-locks.

FIELD NAME: QWACAWTO

CLASS 3: GLOB CONT PAGE P-LOCK EVENTS
The number of wait trace events processed for waits due to global contention for page P-locks.

FIELD NAME: QWACARNO

CLASS 3: GLOB CONT OTHER P-LOCK TIME
The accumulated global contention wait time for other P-locks. Includes suspension for Castout P-Locks and DBET locks. It could be because of Index Split processing which can be minimized if the Index key size is not large. If you can minimize the number of Index Keys in the Index, it will help to reduce the number of Index splits.

FIELD NAME: QWACAWTQ

CLASS 3: GLOB CONT OTHER P-LOCK EVENTS
The number of wait trace events processed for waits due to global contention for other P-locks.

FIELD NAME: QWACARNQ

CLASS 3: SCHED. STOR PROC SUSP TIME
The total elapsed waiting time for an available TCB before the stored procedure could be scheduled.

FIELD NAME: QWACCAST

CLASS 3: STORED PROCEDURE EVENTS
The number of wait trace events processed for an unavailable TCB needed for a stored procedure.

FIELD NAME: QWACCANM

CLASS 3: SCHED. UDF SUSP TIME
The total elapsed time spent waiting for an available TCB before the user-defined function could be scheduled.

FIELD NAME: QWACUDST

CLASS 3: NON-ZERO CLASS 3
CLASS 3 DATA IN THIS RECORD: Y/N

FIELD NAME: QWACCLS3
CLASS 3: TCP/IP LOB XML TIME
The accumulated wait time for TCP/IP LOB and XML (storing large object and XML) materialization.
Field Name: QWACALBW

CLASS 3: TCP/IP LOB XML EVENTS
The number of wait trace events that were processed for waits for TCP/IP LOB and XML materialization.
Field Name: QWACALBC

CLASS 3: ACCELERATOR SUSP TIME
The accumulated wait time for requests to an accelerator.
Field Name: QWACAACW

CLASS 3: ACCELERATOR EVENTS
The number of wait trace events processed for requests to an accelerator.
Field Name: QWACAACC

CLASS 3: AUTON PROC WAIT TIME
The accumulated time waiting for autonomous procedures to complete.
Field Name: QWAC_AT_WAIT

CLASS 3: AUTON PROC EVENTS
The number of autonomous procedures that were executed:
1. For non-rollup records, this value is the number of autonomous procedures that were executed.
2. For a parallel query rollup record, this value is 0.
3. For a DDF or RRSAF rollup record, this value is the number of autonomous procedures that were executed. These procedures are NOT counted in QWACPCNT.
4. For autonomous procedures rollup records, this value is 0.
Field Name: QWAC_AT_COUNT

CLASS 3: PARALLEL QUERY SYNC WAIT TIME
The accumulated time waiting for parallel queries to synchronize between parent and child tasks.
Field Name: QWAC_PQS_WAIT

CLASS 3: PARALLEL QUERY SYNC WAIT EVENTS
The number of times the parallel query processing had to suspend because it was waiting for the synchronization of parent or child.
Field Name: QWAC_PQS_COUNT

CLASS 3: CLASS 3 DATA COLLECTED
The accounting class 3 data was being collected when this accounting record was written.
Field Name: QWACCL3O

CLASS 7: DATA COLLECTED
The accounting class 7 data was being collected when this accounting record was written.

Field Name: QWACCL7O

CLASS 8: DATA COLLECTED

The accounting class 8 data was being collected when this accounting record was written.

Field Name: QWACCL8O

MAX WORKFILE BLOCKS

The maximum number of work-file blocks that are used by this agent at any given point in time (traditional work-file blocks, declared global temporary tables (DGTT) and DGTT indexes) (DB2 field QWAC_WORKFILE_MAX).

Field Name: QWAC_WORKFILE_MAX

CURR WORKFILE BLOCKS

The current number of work-file blocks that are used by this agent (traditional workfile use, declared global temporary tables (DGTT) and DGTT indexes).

Field Name: QWAC_WORKFILE_CURR

WLM SERVICE CLASS

The MVS workload manager service class name. This field is used for database access threads on MVS 5.2 or later.

Field Name: QWACWLME

PARALLEL CHILDS ROLLED INTO RECORD

The number of parallel child agents rolled into this record. The value depends on the record type:
1. For all non-rollup records, this value is 0.
2. For a parallel query rollup record, this value is the number of parallel child agents rolled into this record.
3. For a DDF/RRSAF rollup record, this value is the number of parallel query child agents rolled into this record. These agents are NOT counted in QWACPCNT.
4. For an autonomous procedure rollup record, this value is 0.

Field Name: QWAC_PT_COUNT

ROLLUP DATA FOR PARALLEL CHILD TASKS

The field indicates whether to roll up accumulate query parallel task’s accounting trace into originating task’s accounting trace. Possible values are:

YES Originating task cut an additional accounting trace record with all roll-up values from parallel tasks.

NO Each parallel task will produce its own accounting trace record.

Field Name: QWACPARR

PARALLEL QUERY ROLLUP DATA

This record contains parallel query rollup data.
IFCID 003 - Instrumentation Accounting Data

Field Name: QWAC_RU_PARQRY

AUTON PROC ROLLUP DATA

This record contains autonomous procedure rollup data.

Field Name: QWAC_RU_AT

IFCID 003 - Instrumentation Accounting Data Overflow:

This topic shows detailed information about “Record Trace - IFCID 003 - Instrumentation Accounting Data Overflow”.

Record trace - IFCID 003 - Instrumentation Accounting Data Overflow

The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Instrumentation Accounting Data Overflow” are described in the following section.

INSTRUMENTATION ACCOUNTING DATA OVERFLOW

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH.LOG(QUIES) SUSP TIME</td>
<td>The accumulated waiting time due to the processing of ARCHIVE LOG MODE(QUIESCE) commands.</td>
</tr>
<tr>
<td>ACCUM. READ SUSP TIME</td>
<td>This time does not represent the time required to perform the entire command.</td>
</tr>
<tr>
<td>CLAIM RELEASE SUSP TIME</td>
<td></td>
</tr>
<tr>
<td>1/O SERVICE TASK SUSP TIME</td>
<td></td>
</tr>
<tr>
<td>SYSLOGR SUSP TIME</td>
<td></td>
</tr>
<tr>
<td>DS MANAGER SUSP TIME</td>
<td></td>
</tr>
<tr>
<td>OTHER SERVICE SUSP TIME</td>
<td></td>
</tr>
<tr>
<td>COMMIT PHI WRITE 1/O TIME</td>
<td></td>
</tr>
<tr>
<td>ASYNCH. 1XL REQ. TIME</td>
<td></td>
</tr>
<tr>
<td>LOG COMPRESSION SUSP TIME</td>
<td></td>
</tr>
<tr>
<td>FAST INSERT PIPE WAIT TIME</td>
<td></td>
</tr>
<tr>
<td>SYNC READ DASD CACHE HIT WAIT TIME</td>
<td></td>
</tr>
</tbody>
</table>

ARCH.LOG(QUIES) SUSP TIME

The accumulated waiting time due to the processing of ARCHIVE LOG MODE(QUIESCE) commands.

This time does not represent the time required to perform the entire command.

Field Name: QWAXALOG

This is an exception field.

ARCH.LOG(QUIES) SUSP EVENTS

The number of ARCHIVE LOG MODE (QUIESCE) commands issued.

Field Name: QWAXALCT

ACCUM. READ SUSP TIME

The accumulated wait time for:

- Archive Log reads
- Active Log reads
- Active Log prefetch reads
- Fast Log apply log reads

Field Name: QWAXAWAR

WAIT TRACE READ EVENTS

DB2 V8: The number of wait trace events processed for archive reads, active reads, and active log prefetch reads.

Field Name: QWAXANAR
DRAIN LOCK SUSP TIME
   The accumulated waiting time for a drain lock. This is the time the
   requester is suspended while waiting to acquire the drain lock.
   Field Name: QWAXAWDR
   This is an exception field.

DRAIN LOCK SUSP EVENTS
   The number of wait trace events processed for waits for drain locks.
   Field Name: QWAXARND

CLAIM RELEASE SUSP TIME
   The accumulated waiting time for a drain waiting for claims to be released.
   After the drain lock is acquired, the drainer must wait for claim holders to
   release the object.
   Field Name: QWAXAWCL
   This is an exception field.

CLAIM RELEASE SUSP EVENTS
   The number of wait trace events processed for waits for claims to be
   released.
   Field Name: QWAXARNC

I/O SERVICE TASK SUSP TIME
   Accumulated waiting time for a synchronous execution unit switch to the
   DB2 OPEN/CLOSE data set service for the HSM recall service.
   This value is an average.
   Field Name: QWAXOCSE

I/O SERVICE TASK SUSP EVENTS
   Number of wait trace events processed of waits for synchronous execution
   unit switching to the Open/Close service.
   Field Name: QWAXOCNS

SYSLGRNG SUSP TIME
   Accumulated wait time for a synchronous execution unit switch to the DB2
   SYSLGRNG recording service. This service is sometimes used for Level ID
   checking for downlevel detection.
   This value is an average.
   Field Name: QWAXSLSE

SYSLGRNG SUSP EVENTS
   Number of wait trace events for a synchronous execution unit switch to
   the DB2 SYSLGRNG recording service.
   Field Name: QWAXSLNS

DS MANAGER SUSP TIME
IFCID 003 - Instrumentation Accounting Data Overflow

Accumulated wait time for a synchronous execution unit switch to the DB2 data space manager services. This includes DEFINE DATA SET, EXTEND DATA SET, DELETE DATA SET, RESET DATA SET, and VSAM CATALOG ACCESS.

This value is an average.

Field Name: QWAXDSSE

DS MANAGER SUSP Events

Number of wait trace events for waits for synchronous execution unit switching to the DB2 data space manager services.

Field Name: QWAXDSNS

OTHER SERVICE SUSP TIME

Could be due to a VSAM catalog update. In the distributed environment, it includes the waiting time for the response from the server system. Performance trace for IFCID 46 to 50, 170, and 171 provide more detailed information for analysis.

Field Name: QWAXOTSE

OTHER SERVICE SUSP EVENTS

Number of wait trace events for a synchronous execution unit switch to other DB2 service tasks.

Field Name: QWAXOTNS

COMMIT PH1 WRITE I/O TIME

The accumulated time waiting for phase 1 commit write I/O. An example for this suspension is LOB Table Space with LOG NO Phase 1 commit database synchronous write I/O processing.

Field Name: QWAXAWFC

COMMIT PH1 WRITE I/O EVENTS

The total number of wait trace events for commit phase 1 I/O.

Field Name: ADFCSUSC

ASYNC. IXL REQ. TIME

The accumulated wait time for IXLCACHE and IXLFCOMP requests.

Field Name: QWAXIXLT

ASYNC. IXL EVENTS

Number of wait trace events processed for asynchronous IXLCACHE or IXLFCOMP invocations.

Field Name: QWAXIXLE

LOB COMPRESSION SUSP TIME

The accumulated time waiting for a compression of DB2 large objects (LOB) (DB2 field QWAX_LOBCOMP_WAIT).

Field Name: QWAX_LOBCOMP_WAIT

LOB COMPRESSION SUSP EVENTS

The number of wait trace events processed for DB2 large object (LOB) compressions.
Field Name: QWAX_LOBCOMP_COUNT

FAST INSERT PIPE WAIT TIME
The accumulated wait time for pipe wait (DB2 field QWAX_PIPE_WAIT).

Field Name: QWAX_PIPE_WAIT

FAST INSERT PIPE WAIT EVENTS
The number of wait trace events that were processed for pipe wait (DB2 field QWAX_PIPE_WAIT_COUNT).

Field Name: QWAX_PIPE_WAIT_COUNT

SYNC READ DASD CACHE HIT WAIT TIME
The amount of time spent waiting for synchronous database reads where the requested pages were found in the DASD subsystem’s cache.

Field Name: QWACAWTD

SYNC READ WAIT DASD CACHE HIT EVENTS
The number of times the thread waited for synchronous database reads where the requested pages were found in the DASD subsystem’s cache.

Field Name: QWACAWCD

IFCID 003 - Locking Data:
This topic shows detailed information about “Record Trace - IFCID 003 - Locking Data”.

Record trace - IFCID 003 - Locking Data
The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Locking Data” are described in the following section.

| LOCKING DATA | | | |
| DEADLOCKS | LOCK REQUEST | LOCK SUSPENSIONS | CLAIM REQUESTS | |
| TIMEOUTS | UNLOCK REQUEST | IRLM LATCH SUSPENS. | CLAIM REQ. FAILED | |
| ESCALATIONS{SHR} | QUERY REQUEST | OTHER SUSPENSIONS | DRAIN REQUESTS | |
| ESCALATIONS{EXC} | CHANGE REQUEST | | DRAIN REQ. FAILED | |
| MAXIMUM PAGE/ROW LOCKS HELD | OTHER REQUEST | | | |

DEADLOCKS
The number of times deadlocks were detected. This number should be low, ideally 0.

Background and Tuning Information
Deadlocks occur when two or more application processes each hold locks on resources that the others need, without which they cannot proceed. Ensure that all applications accessing the same tables access them in the same order.

To improve concurrency:
- Use row level locking instead of page level locking to minimize deadlocks.
- For small tables use page level locking with MAXROWS 1.

To minimize deadlocks:
- Delay updates to just before commit.
- Use SELECT with the FOR UPDATE clause to use U lock.
- Adjust the deadlock detection cycle parameter DEADLOK in the IRLM procedure.
This field is incremented once for each deadlock encountered. There is no correlation between this field and the deadlock events reported in the Locking report set or the number of IFCID 172 records written. This field reports all deadlocks, regardless of how they were resolved. The locking report and record trace IFCID 172 show only those deadlocks that were resolved by DB2.

**Field Name:** QTXADEA

This is an *exception* field.

**LOCK REQUEST**

The number of requests to lock a resource.

**Field Name:** QTXALOCK

This is an *exception* field.

**LOCK SUSPENSIONS**

The number of times a lock could not be obtained and the unit of work was suspended.

**Background and Tuning Information**

This number should be low, ideally 0.

The number of lock suspensions is a function of the lock requests. Lock suspensions (or conflicts) can happen on either LOCK REQUEST or CHANGE REQUEST.

Suspensions are highly dependent on the application and table space locking protocols.

**Field Name:** QTXASLOC

This is an *exception* field.

**CLAIM REQUESTS**

The number of claim requests.

**Field Name:** QTXACLNO

This is an *exception* field.

**TIMEOUTS**

The number of times a unit of work was suspended for a time exceeding the timeout value. This number should be low, ideally 0.

**Field Name:** QTXATIM

This is an *exception* field.

**UNLOCK REQUEST**

The number of requests to unlock a resource.

This value can be less than the number of lock requests because DB2 can release several locks with a single unlock request.

**Field Name:** QTXAUNLK

**IRLM LATCH SUSPENS.**

The number of latch suspensions.

**Field Name:** QTXASLAT
CLAIM REQ. FAILED

The number of unsuccessful claim requests.

**Field Name:** QTXACLUN

ESCALATIONS(SHR)

The number of times the maximum page locks per table space are exceeded, and the table space lock escalates from a page lock (IS) to a table space lock (S) for this thread. You can specify the number of locks allowed per table space with the LOCKS PER TABLE(SPACE) parameter on the DB2 install panel DSNTIPJ.

**Background and Tuning Information**

Escalations can cause unpredictable response times. Lock escalations should only happen when an application process updates or references (if repeatable read is used) more pages than normal.

**Field Name:** QTXALES

This is an exception field.

QUERY REQUEST

The number of query requests.

**Field Name:** QTXAQRY

This is an exception field.

OTHER SUSPENSIONS

The number of suspensions caused by something other than lock or latch.

**Field Name:** QTXASOTH

This is an exception field.

DRAIN REQUESTS

The number of drain requests.

**Field Name:** QTXADRNO

This is an exception field.

ESCALATIONS(EXC)

The number of times the maximum page locks per table space are exceeded and the table space lock escalates from a page lock (IX) to a table space lock (X).

**Background and Tuning Information**

Escalations can cause unpredictable response times. Lock escalations should only happen when an application process updates or references (if repeatable read is used) more pages than it normally does.

A useful rule of thumb is to compare the number of escalations (shared and exclusive) to the successful escalations (those that did not cause deadlocks and timeouts). If this value, or the number Lock escalations - shared and if the number of timeouts or deadlocks is also not 0, the timeout or deadlock is probably caused by the escalation.
If many escalations cause deadlocks and timeouts, the recommendation is to change the escalation threshold value. Use of ANY is extremely useful to prevent unnecessary and expensive page locks, for example locking all pages in a table space.

Lock escalations, shared or exclusive, should not be expected in a transaction environment.

**Field Name:** QTXALEX
This is an *exception* field.

**CHANGE REQUEST**
The number of change requests.

**Field Name:** QTXACHG
This is an *exception* field.

**DRAIN REQ. FAILED**
The number of unsuccessful drain requests.

**Field Name:** QTXADRUN
This is an *exception* field.

**MAXIMUM PAGE/ROW LOCKS HELD**
The maximum number of page or row locks concurrently held against all table spaces by a single application during its execution. This count is a high-water mark. It cannot exceed the LOCKS PER USER parameter on panel DSNTIPJ.

**Field Name:** QTXANPL
This is an *exception* field.

**OTHER REQUEST**
The number of requests to IRLM to perform a function other than LOCK, UNLOCK, QUERY, or CHANGE.

**Field Name:** QTXAIRLM
This is an *exception* field.

**IFCID 003 - Logging:**
This topic shows detailed information about “Record Trace - IFCID 003 - Logging”.

**Record trace - IFCID 003 - Logging**
The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Logging” are described in the following section.

### LOGGING

| NUMBER OF LOG RECORDS WRITTEN | 0 | TOTAL BYTES WRITTEN | X'000000000000' |

**NUMBER OF LOG RECORDS WRITTEN**
The number of log records written.

**Field Name:** QWACLRN

**TOTAL BYTES WRITTEN**
The total number of log record bytes written.
Field Name: QWACLRAB

IFCID 003 - Miscellaneous:

This topic shows detailed information about “Record Trace - IFCID 003 - Miscellaneous”.

This report has the same layout as “IFCID 002 - Miscellaneous” on page 3628.

IFCID 003 - Nested SQL Activity:

This topic shows detailed information about “Record Trace - IFCID 003 - Nested SQL Activity”.

Record trace - IFCID 003 - Nested SQL Activity

The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Nested SQL Activity” are described in the following section.

```
<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX CASCADE LVL</td>
<td>0</td>
<td>The maximum level of indirect SQL cascading. This includes cascading because of triggers, UDFs, or stored procedures.</td>
</tr>
<tr>
<td>CALL STATEMENTS</td>
<td>0</td>
<td>The number of SQL CALL statements executed.</td>
</tr>
<tr>
<td>UDF EXECUTED</td>
<td>0</td>
<td>The number of user-defined functions executed.</td>
</tr>
<tr>
<td>STMT TRIGGER</td>
<td>0</td>
<td>The number of statements executed.</td>
</tr>
</tbody>
</table>
```

CALL STATEMENTS

The number of SQL CALL statements executed.

Field Name: QXCALL

This is an exception field.

PROCEDURE ABENDS

The number of times a stored procedure terminated abnormally.

Field Name: QXCALLLAB

This is an exception field.

CALL TIMEOUTS

The number of times an SQL call timed out waiting to be scheduled.

Field Name: QXCALLOTO

This is an exception field.

CALL REJECTS

The number of times an SQL CALL statement was rejected due to the procedure being in the STOP ACTION(REJECT) state.

Field Name: QXCALLRJ

This is an exception field.

UDF EXECUTED

The number of user-defined functions executed.
IFCID 003 - Nested SQL Activity

Field Name: QXCAUD
This is an exception field.

UDF ABENDS
The number of times a user-defined function abended.
Field Name: QXCAUDAB
This is an exception field.

UDF TIMEOUTS
The number of times a user-defined function timed out while waiting to be scheduled.
Field Name: QXCAUDTO
This is an exception field.

UDF REJECTS
The number of times a user-defined function was rejected.
Field Name: QXCAUDRJ
This is an exception field.

STMT TRIGGER
The number of times a statement trigger was activated.
Field Name: QXSTTRG
This is an exception field.

ROW TRIGGER
The number of times a row trigger was activated.
Field Name: QXROWTRG
This is an exception field.

SQL ERROR TRIGGER
The number of times an SQL error occurred during the execution of a triggered action. This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.
Field Name: QXTRGERR
This is an exception field.

IFCID 003 - Query Parallelism:
This topic shows detailed information about “Record Trace - IFCID 003 - Query Parallelism”.

This report has the same layout as IFCID 002 - Query Parallelism” on page 3631.

IFCID 003 - Resource Limit Facility:
This topic shows detailed information about “Record Trace - IFCID 003 - Resource Limit Facility”.
RES LIMIT SCOPE

Indicates how the resource limit was established. A value of 0 shows that the resource limit facility was not started.

Field Name: QTXAPREC

RLF TABLE ID

The identifier of the resource limit specification table.

Field Name: QTXARLID

LIMIT IN CPU 16 MICROSEC

The CPU time limit, in microseconds, set by the resource limit facility.

Field Name: QTXACLMT

RES LIMIT TYPE

Indicates how the type of resource limit was established: infinite, zero, or limit.

Note: Label QTXAFLG1 presents the first flag byte in hexadecimal:

- X'80'  Infinite limit
- X'40'  No run or zero limit

Field Name: QTXAFLG1

LIMIT IN SERVICE UNITS

The maximum number of CPU service units to be used. Normally, the value is not 0 if the RES LIMIT TYPE is LIMIT. A value of 0 indicates no limit.

Field Name: QTXASLMT

HIGHEST CPU 16 MICROSEC USED

The highest CPU time used by a single DB2 call, in microseconds. Note that there can be many DB2 calls for one SQL statement.

Field Name: QTXACHUS

QTXAFLG1 (S)

Indicates how the type of resource limit was established: infinite, zero, or limit.

Note: Label QTXAFLG1 presents the first flag byte in hexadecimal:

- X'80'  Infinite limit
- X'40'  No run or zero limit

Field Name: QTXAFLG1
IFCID 003 - RID List Processing

IFCID 003 - RID List Processing:

This topic shows detailed information about “Record Trace - IFCID 003 - RID List Processing”.

This report has the same layout as “IFCID 002 - RID List Processing” on page 3634.

IFCID 003 - Rollup Accounting Correlation Block:

This topic shows detailed information about “Record Trace - IFCID 003 - Rollup Accounting Correlation Block”.

Record trace - IFCID 003 - Rollup Accounting Correlation Block

The field labels shown in the following sample layout of “Record Trace - IFCID 003 - Rollup Accounting Correlation Block” are described in the following section.

TOKEN

The agent token for the transaction rolled into the record. This can be used to correlate to records written with the same QWHSACE value during the time of the transaction (QWARBSC to QWARESC).

Field Name: QWARACE

START

The beginning time for the transaction.

Field Name: QWARBSC

END

The end time for the transaction.

Field Name: QWARESC

IFCID 003 - ROWID:

This topic shows detailed information about “Record Trace - IFCID 003 - ROWID”.

Record trace - IFCID 003 - ROWID

The field labels shown in the following sample layout of “Record Trace - IFCID 003 - ROWID” are described in the following section.

DIRECT ACCESS

The number of times that direct row access was successful.

Field Name: QXROIMAT

INDEX USED
The number of times an index was used to find a record.

**Field Name:** QXROIINX

**TABLE SPACE SCAN USED**

The number of times that an attempt to use direct row access reverted to using a table-space scan because DB2 was unable to use a matching index scan.

**Background and Tuning Information**

Ideally, this value should be 0.

Table-space scans can happen, for example, when a REORG is performed between the read of the ROWID column and the use of the host variable in the WHERE clause of the SQL statement. This causes the RID value in the host variable to be incorrect. DB2 first tries a matching-index scan before using a table-space scan.

To avoid table space scans, you can force the access path of an unsuccessful direct row access to use a matching index scan on the primary-index key by adding PKCOL to the WHERE clause in the SQL statement. .... WHERE ROWIDCOL=:HVROWID AND PKCOL=:HVPK

**Field Name:** QXROITS

**IFCID 003 - SQL Call Data:**

This topic shows detailed information about “Record Trace - IFCID 003 - SQL Call Data”.

This report has the same layout as [“IFCID 002 - SQL Call Data” on page 3646](#).

**IFCID 004 - Trace Start:**

This topic shows detailed information about “Record Trace - IFCID 004 - Trace Start”.

**Record trace - IFCID 004 - Trace Start**

The field labels shown in the following sample layout of “Record Trace - IFCID 004 - Trace Start” are described in the following section.

**MESSAGE:**

The start trace message.

**Field Name:** QW0004MS

**IFCID 005 - Trace Stop:**

This topic shows detailed information about “Record Trace - IFCID 005 - Trace Stop”.


IFCID 005 - Trace Stop

Record trace - IFCID 005 - Trace Stop

The field labels shown in the following sample layout of “Record Trace - IFCID 005 - Trace Stop” are described in the following section.

MESSAGE: -STOP TRACE(*) CLASS(*) RMID(*) PLAN(*)
AUTHID(*) TNO(*)
QW0005CM 00000000

MESSAGE

The stop trace message.

Field Name: QW0005MS

IFCID 006 - Read I/O Start:

This topic shows detailed information about “Record Trace - IFCID 006 - Read I/O Start”.

Record trace - IFCID 006 - Read I/O Start

The field labels shown in the following sample layout of “Record Trace - IFCID 006 - Read I/O Start” are described in the following section.

DBID: 6 POOL ID: 0 ACE: 2
OBID: 112 FIRST : X’000000’ READTYPE: D
PAGE NUMBERING : ABS PARTITION NUMBER : 0
TABLE_SPACE_TYPE: X’00’ ZHYPERLINK REQUEST: N

DBID

The page set ID. This page set can be either a table space or an index space. If it is a table space, use this value to match column PSID in SYSIBM.SYSTABLESPACE to find the name of the table space. If it is an index space, use this value to match column ISOBID SYSIBM.SYSINDEXES to find the internal name of the index space. This is deduced from the DB2 fields QW0006OB, and QW0105TN or QW0107TN.

When present, the database name is shown, otherwise the decimal identifier from QW0006DB is shown, or N/A when this value is 0.

Field Name: RT0006DB

POOL ID

The internal identifier of the buffer pool. The values 0 through 49 are the identifiers for BP0 through BP49. The values 80 through 89 are the identifiers for BP32K through BP32K9.

Field Name: QW0006BP

ACE

The agent control element (ACE) token of the requester.

The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.

Field Name: QW0006AC

OBID

The page set ID. This page set can be either a table space or an index space. If it is a table space, use this value to match column PSID in SYSIBM.SYSTABLESPACE to find the name of the table space. If it is an
index space, use this value to match column ISOBID SYSIBM.SYSINDEXES to find the internal name of the index space. This is deduced from the DB2 fields QW0006OB, and QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0006OB is shown, or N/A when this value is 0.

Field Name: RT0006OB

FIRST

The hexadecimal number of the first page to be read for a table space that is not defined as large.

Field Name: QW0006PN

READTYPE

The type of read performed:
S  Sequential prefetch request
L  List prefetch request
D  Dynamic sequential prefetch request
R  Synchronous read request

Field Name: QW0006F

PAGE NUMBERING

Indicates how page numbers are shown for partitioned tables:
REL  Indicates that relative page numbers are shown in the partition.
ABS  Indicates that absolute page numbers are shown in the partition.
N/A  Not applicable.

Field Name: QW0006P1

TABLE_SPACE_TYPE

The type of the table space:
L  Non-EA large table
N  Non-large table
V  EA-enabled large table

Field Name: QW0006FG

PARTITION NUMBER

The partition number. This value is 0 if the table space is not partitioned.

Field Name: QW0006PT

ZHYPERLINK REQUEST

Indicates whether or not the I/O is using zHyperLink (synchronous) I/O.

Field Name: QW0006SI

IFCID 007 - Read I/O Stop:

This topic shows detailed information about “Record Trace - IFCID 007 - Read I/O Stop”.
## IFCID 007 - Read I/O Stop

The field labels shown in the following sample layout of “Record Trace - IFCID 007 - Read I/O Stop” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBID</td>
<td>DBID</td>
<td>The database ID. This is deduced from the DB2 fields QW0007DB, QW0105DN or QW0107DN. When present, the database name is shown, otherwise the decimal identifier from QW0007DB is shown, or N/A when this value is 0.</td>
</tr>
<tr>
<td>RETCODE</td>
<td>RETCODE</td>
<td>The return code from the media manager.</td>
</tr>
<tr>
<td>ACE</td>
<td>ACE</td>
<td>The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.</td>
</tr>
<tr>
<td>OBID</td>
<td>OBID</td>
<td>The object ID. This is deduced from the DB2 fields QW0007OB, QW0105TN or QW0107TN. When present, the name of the object is shown, otherwise the decimal identifier from QW0007OB is shown, or N/A when this value is 0.</td>
</tr>
<tr>
<td>READ</td>
<td>READ</td>
<td>The number of pages read.</td>
</tr>
<tr>
<td>PAGE NUMBERING</td>
<td>PAGE NUMBERING</td>
<td>Indicates how page numbers are shown for partitioned tables:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>REL Indicates that relative page numbers are shown in the partition.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ABS Indicates that absolute page numbers are shown in the partition.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N/A  Not applicable.</td>
</tr>
<tr>
<td>PARTITION NUMBER</td>
<td>PARTITION NUMBER</td>
<td>The partition number. This value is 0 if the table space is not partitioned.</td>
</tr>
</tbody>
</table>

### Sample Trace Layout:

```
DBID: 6  RETCODE: 0  ACE: 3
OBID: 2014  READ: 32
PAGE NUMBERING : ABS  PARTITION NUMBER : 1
DASD CACHE HIT : N  ZHYPERLINK REQUEST: Y
```

### Example Trace Data:

```
'000000040' '000000041' '000000042' '000000043'
'000000044' '000000045' '000000046' '000000047'
'000000048' '000000049' '00000004A' '00000004B'
'000000050' '000000051' '000000052' '000000053'
'000000054' '000000055' '000000056' '000000057'
'000000058' '000000059' '00000006A' '00000006B'
'00000005C' '00000005D' '00000005E' '00000005F'
```
Field Name: QW0007PT

DASD CACHE HIT
Indicates whether or not the requested data was found in the DASD subsystem cache. A value of N/A indicates that the I/O failed (RETCODE is not 0). zHyperLink I/O requires the requested data to be in the DASD subsystem cache for the I/O to be successful. If the requested data was in cache and the I/O was not done with zHyperLink, use of zHyperLink for this I/O operation might have been successful.

Field Name: QW0007DC

ZHYPERLINK REQUEST
Indicates whether or not the I/O is using zHyperLink (synchronous) I/O.

Field Name: QW0007SI

PAGE PREFETCHED VIA IO OPERATION
The page number that was prefetched during an I/O operation.

Field Name: QW0007PF

IFCID 008 - Write I/O Synch:

This topic shows detailed information about “Record Trace - IFCID 008 - Write I/O Synch”.

Record trace - IFCID 008 - Write I/O Synch

The field labels shown in the following sample layout of “Record Trace - IFCID 008 - Write I/O Synch” are described in the following section.

| DBID:     | DBHSR01  | ACTIVE: | 218 |
| OBID:     | HSRPSDFP | UPDATED: | 264 |
| POOL ID:  | 0        | WRITTEN: | 1   |
| WRITE TYPE: | NORMAL | PAGE FAULTS: | 0   |
| PARTITION NUMBER: | 0       |

DBID
The database ID. This is deduced from the DB2 fields QW0008DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0008DB is shown, or N/A when this value is 0.

Field Name: RT0008DB

ACTIVE
The number of active buffers in the pool.

Field Name: QW0008AB

OBID
The object ID. This is deduced from the DB2 fields QW0008OB, QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0008OB is shown, or N/A when this value is 0.

Field Name: RT0008OB

UPDATED
IFCID 008 - Write I/O Synch

The number of updated pages in the deferred write queue for the buffer pool that is identified in field QW0008BP.

Field Name: QW0008DW

POOL ID

The internal buffer pool identifier. The values 0 through 49 are the identifiers for BP0 through BP49. The values 80 through 89 are the identifiers for BP32K through BP32K9.

Field Name: QW0008BP

WRITTEN

The number of pages to be written.

Field Name: QW0008WR

WRITE TYPE

The type of write:

NORMAL Normal write to disk

CASTOUT Write to disk initiated by a castout from the coupling facility

Field Name: QW0008FC

PAGE FAULTS

The number of anticipated page faults. Real storage frames are tested before issuing write.

Field Name: QW0008PI

PARTITION NUMBER

The partition number. This value is 0 if the table space is not partitioned.

Field Name: QW0008PT

IFCID 009 - Write I/O:

This topic shows detailed information about “Record Trace - IFCID 009 - Write I/O”.

Record trace - IFCID 009 - Write I/O

The field labels shown in the following sample layout of “Record Trace - IFCID 009 - Write I/O” are described in the following section.

RETURN 0

RETURN

The return code from the media manager.

Field Name: QW0009MM

IFCID 010 - Write I/O Asynch:

This topic shows detailed information about “Record Trace - IFCID 010 - Write I/O Asynch”.

IFCID 008 - Write I/O Synch
Record trace - IFCID 010 - Write I/O Asynch

The field labels shown in the following sample layout of “Record Trace - IFCID 010 - Write I/O Asynch” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBID:</td>
<td>DBHSR01</td>
</tr>
<tr>
<td>ACTIVE:</td>
<td>218</td>
</tr>
<tr>
<td>OBID:</td>
<td>HSRDDSFP</td>
</tr>
<tr>
<td>UPDATED:</td>
<td>263</td>
</tr>
<tr>
<td>POOL ID:</td>
<td>0</td>
</tr>
<tr>
<td>WRITTEN:</td>
<td>1</td>
</tr>
<tr>
<td>WRITE TYPE:</td>
<td>NORMAL</td>
</tr>
<tr>
<td>PAGE FAULTS:</td>
<td>0</td>
</tr>
<tr>
<td>PARTITION NUMBER :</td>
<td>0</td>
</tr>
</tbody>
</table>

DBID

The database ID. Deduced from the DB2 fields QW0010DB, and QW0105DN or QW0107DN.

When present the database name is shown, otherwise the decimal identifier from QW0010DB is shown, or N/A when this value is 0.

Field Name: RT0010DB

ACTIVE

The number of active buffers in the pool.

Field Name: QW0010AB

OBID

The object ID. Deduced from the DB2 fields QW0010OB, and QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0010OB is shown or N/A when this value is 0.

Field Name: RT0010OB

UPDATED

The number of updated pages in the deferred write queue for the buffer pool that is identified in field QW0010BP.

Field Name: QW0010DW

POOL ID

The internal identifier of the buffer pool. The values 0 through 49 are the identifiers for BP0 through BP49. The values 80 through 89 are the identifiers for BP32K through BP32K9.

Field Name: QW0010BP

WRITTEN

The number of pages to be written.

Field Name: QW0010WR

WRITE TYPE

The type of write:

NORMAL

Normal write to disk

CASTOUT

Write to disk initiated by a castout from the coupling facility

Field Name: QW0010FC
IFCID 010 - Write I/O Asynch

PAGE FAULTS

The number of anticipated page faults. Real storage frames are tested before issuing write.

Field Name: QW0010PI

PARTITION NUMBER

The partition number. This value is 0 if the table space is not partitioned.

Field Name: QW0010PT

IFCID 011 - Validate Exit:

This topic shows detailed information about “Record Trace - IFCID 011 - Validate Exit”.

Record trace - IFCID 011 - Validate Exit

The field labels shown in the following sample layout of “Record Trace - IFCID 011 - Validate Exit” are described in the following section.

<table>
<thead>
<tr>
<th>DBID</th>
<th>REC ID</th>
<th>OBID</th>
<th>TIME</th>
<th>RETURN</th>
<th>REASON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>2</td>
<td>4/01/08 17:42:00.000000</td>
<td>0004</td>
<td>00000005</td>
</tr>
</tbody>
</table>

DBID

The database ID. Deduced from the DB2 fields QW0011DB, and QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0011DB is shown, or N/A when this value is 0.

Field Name: RT0011DB

REC ID

The decimal identifier of the DB2 table OBID.

Field Name: QW0011OB

OBID

The object ID. Deduced from the DB2 fields QW0011OB, and QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0011OB is shown or N/A when this value is 0.

Field Name: RT0011OB

TIME

The time at which the exit was called.

Field Name: QW0011TM

RETURN

The return code (EXPLRC1) from the exit.

Field Name: QW0011RT

REASON

The reason code (EXPLRC2) from the exit.

Field Name: QW0011RE
IFCID 012 - Edit Exit to Encode:

This topic shows detailed information about “Record Trace - IFCID 012 - Edit Exit to Encode”.

Record trace - IFCID 012 - Edit Exit to Encode

The field labels shown in the following sample layout of “Record Trace - IFCID 012 - Edit Exit to Encode” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBID</td>
<td>6</td>
</tr>
<tr>
<td>REC ID</td>
<td>19</td>
</tr>
<tr>
<td>OBID</td>
<td>9</td>
</tr>
<tr>
<td>TIME</td>
<td>06/03/08 05:32:00.000000</td>
</tr>
<tr>
<td>RETURN</td>
<td>000A</td>
</tr>
<tr>
<td>REASON</td>
<td>00000014</td>
</tr>
</tbody>
</table>

DBID

The database ID. Deduced from the DB2 fields QW0012DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0012DB is shown, or N/A when this value is 0.

Field Name: RT0012DB

REC ID

The decimal identifier of the DB2 table OBID.

Field Name: QW0012OB

OBID

The object ID. Deduced from the DB2 fields QW0010OB, and QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0010OB is shown or N/A when this value is 0.

Field Name: RT0010OB

TIME

The time at which the exit was called.

Field Name: QW0012TM

RETURN

The return code (EXPLRC1) from the exit.

Field Name: QW0012RT

REASON

The reason code (EXPLRC2) from the exit.

Field Name: QW0012RE

IFCID 013 - Hash Scan Input Start:

This topic shows detailed information about “Record Trace - IFCID 013 - Hash Scan Input Start”.

Record trace - IFCID 013 - Hash Scan Input Start

The field labels shown in the following sample layout of “Record Trace - IFCID 013 - Hash Scan Input Start” are described in the following section.
### DBID

The database ID. Deduced from the DB2 fields QW0010DB, and QW0105DN or QW0107DN.

When present the database name is shown, otherwise the decimal identifier from QW0010DB is shown, or N/A when this value is 0.

**Field Name:** RT0010DB

### REC ID

The decimal identifier of the DB2 table OBID.

**Field Name:** QW0013OB

### OBID

The object ID. Deduced from the DB2 fields QW0013OB, QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0013OB is shown or N/A when this value is 0.

**Field Name:** RT0013OB

### COLUMN1

The first column number.

**Field Name:** QW0013C1

### OPER

The logical operator:

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE</td>
<td>Not equal to</td>
</tr>
<tr>
<td>GT</td>
<td>Greater than</td>
</tr>
<tr>
<td>GE</td>
<td>Greater than or equal to</td>
</tr>
<tr>
<td>LE</td>
<td>Less than or equal to</td>
</tr>
<tr>
<td>E</td>
<td>Equal</td>
</tr>
<tr>
<td>L</td>
<td>Less than</td>
</tr>
<tr>
<td>LT</td>
<td>Less than</td>
</tr>
<tr>
<td>LI</td>
<td>Like</td>
</tr>
<tr>
<td>NL</td>
<td>Not like</td>
</tr>
<tr>
<td>??</td>
<td>Unknown operator</td>
</tr>
</tbody>
</table>

**Field Name:** QW0013OP

### COL/VAL

Column data is printed in decimal. Value data is printed in hexadecimal.

**Field Name:** QW0013VA

### CONN

The connector value:
IFCID 013 - Hash Scan Input Start

A And
0 Or

NONE Not specified

Field Name: QW0013CO

TRUE/FALSE

Indicates whether the comparison is true:
T True
F False

NONE Not specified

Field Name: QW0013TF

IFCID 014 - Hash Scan End:

This topic shows detailed information about “Record Trace - IFCID 014 - Hash Scan End”.

Record trace - IFCID 014 - Hash Scan End

The field labels shown in the following sample layout of “Record Trace - IFCID 014 - Hash Scan End” are described in the following section.

RETURN 0
QW0014RE 0

RETURN

The return code.

Field Name: QW0014RT

IFCID 015 - Index Scan Begin:

This topic shows detailed information about “Record Trace - IFCID 015 - Index Scan Begin”.

Record trace - IFCID 015 - Index Scan Begin

The field labels shown in the following sample layout of “Record Trace - IFCID 015 - Index Scan Begin” are described in the following section.

DBID DSNDDB6 REC ID 37 CUB 00F34BC5
OBID DSNSDX01 INDEX ID 5
COLUMN1 OPER COL/VAL CONN TRUE/FALSE
10 NE 4000000000000000 A 'NONE'
15 NE 4000000000000000 'NONE'

DBID

The database ID. Deduced from the DB2 fields QW0015DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0015DB is shown, or N/A when this value is 0.

Field Name: RT0015DB

REC ID

The decimal identifier of the DB2 table OBID.
IFCID 015 - Index Scan Begin

Field Name: QW0015OB

CUB
The hexadecimal address of the CUB token.

Field Name: QW0015AC

OBID
The object ID. Deduced from the DB2 fields QW0015OB, QW0105TN or QW0107TN.
When present, the name of the object is shown, otherwise the decimal identifier from QW0015OB is shown, or N/A when this value is 0.

Field Name: RT0015OB

INDX ID
The index identifier.

Field Name: QW0015IB

COLUMN1
The first column number.

Field Name: QW0015C1

OPER
The logical operator:
NE Not equal to
GT Greater than
GE Greater than or equal to
LE Less than or equal to
E Equal
L Less than
LT Less than
LI Like
NL Not like
?? Unknown operator

Field Name: QW0015OP

COL/VAL
Column data is printed in decimal. Value data is printed in hexadecimal.

Field Name: QW0015VA

CONN
The connector value:
A And
O Or
NONE Not specified

Field Name: QW0015CO
TRUE/FALSE

Indicates whether the comparison is true:

T    True
F    False
NONE Not specified

Field Name: QW0015TF

IFCID 016 - Insert Scan Begin:

This topic shows detailed information about “Record Trace - IFCID 016 - Insert Scan Begin”.

Record trace - IFCID 016 - Insert Scan Begin

The field labels shown in the following sample layout of “Record Trace - IFCID 016 - Insert Scan Begin” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBID</td>
<td>260</td>
</tr>
<tr>
<td>REC ID</td>
<td>26</td>
</tr>
<tr>
<td>SQL TYPE</td>
<td>N/A</td>
</tr>
<tr>
<td>OBID</td>
<td>12</td>
</tr>
<tr>
<td>TRIGGER LEVEL</td>
<td>N/A</td>
</tr>
<tr>
<td>WORKFILE TYPE</td>
<td>N/A</td>
</tr>
<tr>
<td>CUB</td>
<td>‘7F3F91EC'</td>
</tr>
<tr>
<td>INTEGRITY TYPE</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**DBID**

The database ID. Deduced from the DB2 fields QW0016DB, QW0105DN, or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0016DB is shown, or N/A when this value is 0.

Field Name: RT0016DB

**REC ID**

The decimal identifier of the DB2 table OBID.

Field Name: QW0016OB

**SQL TYPE**

Possible values are:

I    INSERT
U    UPDATE
    Insert into a transition table for an UPDATE.
D    DELETE
    Insert into a transition table for a DELETE.
R    RI
    Insert into a transition table for a DELETE SET NULL for referential integrity.

Field Name: QW0016ST

**OBID**

The object ID. Deduced from the DB2 fields QW0016OB, QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0016OB is shown, or N/A when this value is 0.
IFCID 016 - Insert Scan Begin

Field Name: RT0016OB

TRIGGER LEVEL
Depth of the trigger in the range 0 (no triggers) through 16.
Field Name: QW0016TL

WORKFILE TYPE
Possible values are:
WF Workfile
TT Temporary Table
TR Transition table
NW Non-workfile
Field Name: QW0016WT

CUB
The hexadecimal address of the CUB token.
Field Name: QW0016AC

INTEGRITY TYPE
BLANK
S SET NULL
This can occur when SQL TYPE=U
C CASCADE DELETE
This can occur when SQL TYPE=D
Field Name: QW0016RI

IFCID 017 - Sequential Scan Begin:

This topic shows detailed information about “Record Trace - IFCID 017 - Sequential Scan Begin”.

Record trace - IFCID 017 - Sequential Scan Begin

The field labels shown in the following sample layout of “Record Trace - IFCID 017 - Sequential Scan Begin” are described in the following section.

```
DBID DSN0006   REC ID   42
OBID SYSBAUT
CUB X'7D450BB8' TYPE N/A
COL1 OP COL/VAL  CONN T/F ST
 5 E X'B10E0000000000000000000000000000

DBID
The database ID. Deduced from the DB2 fields QW0017DB, QW0105DN or QW0107DN.
When present, the database name is shown, otherwise the decimal identifier from QW0017DB is shown, or N/A when this value is 0.
Field Name: RT0017DB

REC ID
The decimal identifier of the DB2 table OBID.
```
Field Name: QW0017OB

CUB
The hexadecimal address of the CUB token.

Field Name: QW0017AC

OBID
The object ID. Deduced from the DB2 fields QW0017OB, QW0105TN or QW0107TN.
When present, the name of the object is shown, otherwise the decimal identifier from QW0017OB is shown, or N/A when this value is 0.

Field Name: RT0017OB

SCAN TYPE
Possible values are:
- SQ  Sequential scan.
- WF  Work-file scan.
- TT  Temporary table scan.
- TR  Transition table scan for a trigger.

Field Name: QW0017TY

COL1
The first column number.

Field Name: QW0017C1

OP
The logical operator:
- NE  Not equal to
- GT  Greater than
- GE  Greater than or equal to
- LE  Less than or equal to
- E   Equal
- L   Less than
- LT  Less than
- LI  Like
- NL  Not like
- ??  Unknown operator

Field Name: QW0017OP

COL/VAL
Column data is printed in decimal. Value data is printed in hexadecimal.

Field Name: QW0017VA

CONN
The connector type:
IFCID 017 - Sequential Scan Begin

A And
0 Or
NONE Not specified

Field Name: QW0017CO

TRUE/FALSE

Indicates whether the comparison is true:
T True
F False
NONE Not specified

Field Name: QW0017TF

IFCID 018 - Scan End:

This topic shows detailed information about “Record Trace - IFCID 018 - Scan End”.

Record trace - IFCID 018 - Scan End

The field labels shown in the following sample layout of “Record Trace - IFCID 018 - Scan End” are described in the following section.

22.CKPA 'BLANK' 09:38:13.61943014 10 18 SCAN END <-- NETWORKID: DEIBMIPS LUNAME: IPSAQC11 LUWSEQ: 1
201 0.00005981

-------------------------------------------------------------------------------------------------------------------------
CUB X'00000000' QW0018RT 4 QW0018RE 13172737

DATA TYPE  INDEX ROW PROC  0 ROW EXAM  0 STG1-QUAL  0 STG2-QUAL  0 ROW INSRT  0
ROW UPDATE  0 ROW DELET  0 PAGES  2 R I SCAN  0 R I DELET  0 ROW SKIP  0
FST INSRT  0 N-PIPE IN  0 PIPE RE  0 INS WAIT  0

CUB

The hexadecimal address of the cursor block token of the caller.

Field Name: QW0018AC

DATA TYPE

The scan type identification:

INDEX Index scan
SEQD Sequential data scan
SEQR Transition table sequential data scan
SEQT Temporary table sequential data scan
SEQW Work-file sequential data scan

Field Name: QW0018ID

ROW PROC

The number of rows processed.

Field Name: QW0018RP

ROW EXAM

The number of rows examined. If DATA TYPE shows INDEX, this number is the number of index entries (not rows) scanned.
Field Name: QW0018LA
STG1-QUAL
The number of rows qualified at stage 1.
Field Name: QW0018DQ
STG2-QUAL
The number of rows qualified at stage 2.
Field Name: QW0018RQ
ROW INSRT
The number of rows inserted.
Field Name: QW0018IN
ROW UPDTE
The number of rows updated.
Field Name: QW0018UP
ROW DELET
The number of rows deleted. If the delete was a mass delete, the indicator MASS is printed.
Field Name: QW0018DE
PAGES
The number of get page requests issued by the data manager to the buffer manager. Note that for an index scan the value includes the number of index pages scanned.
Field Name: QW0018PS
RI SCAN
The number of additional pages scanned for referential integrity.
Field Name: QW0018PR
RI DELET
The number of additional rows deleted for referential integrity.
Field Name: QW0018DR
ROW SKIP
The number of rows skipped due to an incompatible hold lock.
Field Name: QW0018SK
FST INSRT
The number of rows inserted using the fast insert algorithm. This value is usually 1, but it is more than 1 for insert with subselect.
Field Name: QW0018FI
N-PIPE IN
The number of times that fast insert could not be used for the insert operation, so a non-pipe insert algorithm was used instead.
Field Name: QW0018FS
PIPE RE

The number of times that the fast insert pipe was refilled for the insert operation.

Field Name: QW0018FA

INS WAIT

The number of times that the insert operation waited for the fast insert pipe to fill.

Field Name: QW0018FW

IFCID 019 - Edit Exit to Decode:

This topic shows detailed information about “Record Trace - IFCID 019 - Edit Exit to Decode”.

Record trace - IFCID 019 - Edit Exit to Decode

The field labels shown in the following sample layout of “Record Trace - IFCID 019 - Edit Exit to Decode” are described in the following section.

<table>
<thead>
<tr>
<th>DBID</th>
<th>DSN0806</th>
<th>REC ID</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBID</td>
<td>DSNDSX01</td>
<td>TIME</td>
<td>3/29/89 14:27:35.645897</td>
</tr>
<tr>
<td>RETURN</td>
<td>X’0000’</td>
<td>REASON</td>
<td>X’00000000’</td>
</tr>
</tbody>
</table>

DBID

The database ID. Deduced from the DB2 fields QW0019DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0019DB is shown, or N/A when this value is 0.

Field Name: RT0019DB

REC ID

The decimal identifier of the DB2 table OBID.

Field Name: QW0019OB

OBID

The object ID. Deduced from the DB2 fields QW0019OB, QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0019OB is shown, or N/A when this value is 0.

Field Name: RT0019OB

TIME

The time at which the exit was called.

Field Name: QW0019TM

RETURN

The return code (EXPLRC1) from the user edit exit.

Field Name: QW0019RT

REASON

The reason code (EXPLRC2) from the user edit exit.
Field Name: QW0019RE

IFCID 020 - Lock Summary:

This topic shows detailed information about “Record Trace - IFCID 020 - Lock Summary”.

This record has a variable format. It contains one data section for each table table space section present in the record.

Record trace - IFCID 020 - Lock Summary

The field labels shown in the following sample layout of “Record Trace - IFCID 020 - Lock Summary” are described in the following section.

MAXNO: 12 SHARED: 0 EXCL: 0
DBID : FIJ1DB01 OBID : FIJS0010 MAX LOCK: 0
TABLESPACE TYPE: PARTIT.-SPL ESCALATED: 0
LOCK SIZE : TABLESPACE OR TABLE
HISTATE: INTENT SHARE PRESTATE: NO LOCK ESCALATION

MAXNO
The maximum number of page, row and LOB locks held concurrently for the thread across all tables spaces and index spaces.

Field Name: QW0020TP

SHARED
The number of escalations to shared mode for the thread:
• For segmented table spaces, the number of tables that have escalated
• For partitioned table spaces using selective partition locking (SPL), the number of partitions that have escalated
• For simple and partitioned table spaces, the number of table spaces that have escalated

Field Name: QW0020TS

EXCL
The number of escalations to exclusive mode for the thread:
• For segmented table spaces, the number of tables that have escalated
• For partitioned table spaces using selective partition locking (SPL), the number of partitions that have escalated
• For simple and partitioned table spaces, the number of table spaces that have escalated

Field Name: QW0020TX

Table space sections
The record contains one data section for each relevant table space. These sections are only printed if they are present in the record.

Field Name: QW0020N

DBID
The database ID. Deduced from the DB2 fields QW0020PD, QW0105DN or QW0107DN.
When present, the database name is shown, otherwise the decimal identifier from QW0020PD is shown, or N/A when this value is 0.
IFCID 020 - Lock Summary

**Field Name:** RT0020DB

**OBID**

The object ID. Deduced from the DB2 fields QW0020PP, QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0020PP is shown, or N/A when this value is 0.

**Field Name:** RT0020OB

**MAX LOCK**

The maximum number of either page, row or LOB locks held by the thread.

**Field Name:** QW0020PL

**ESCALATED**

The number of escalations:

- For segmented table spaces, the number of tables that have escalated within the table space
- For partitioned table spaces using selective partition locking (SPL), the number of partitions that have escalated
- For table spaces using SPL, the number of partitions that have escalated

If the value in TABLESPACE TYPE is SIMPLE or PARTITIONED, this field is not printed.

**Field Name:** QW0020PC

**LOCK SIZE**

The lock size used.

**Field Name:** QW0020PR

**HISTATE**

The highest table space lock state. This field is printed for simple table spaces and partitioned table spaces not using SPL.

**Field Name:** QW0020PS

**PRESTATE**

The table space lock state before escalation. This field is printed for simple table spaces and partitioned table spaces not using SPL.

**Field Name:** QW0020PE

**IFCID 021 - Lock Detail:**

This topic shows detailed information about “Record Trace - IFCID 021 - Lock Detail”.

Record trace - IFCID 021 - Lock Detail

The field labels shown in the following sample layout of “Record Trace - IFCID 021 - Lock Detail” are described in the following section.
LOCK DURATION : MANUAL
REQUEST TYPE: L-LOCK
IRLM RETURN SUBCODE: B'0000000000000000'
PARENT TOKEN : X'7F68F3F0'
GLOBAL/LOCAL: GLOBAL
OWNER : 'BLANK'
CACHED STATE : N/A
LOCK HASH VALUE : X'0C4C3603'

LOCK RES TYPE

The locked resource type.

Note: For data sharing, SKELETON CURSOR TABLE LOCKING and SKELETON PACKAGE TABLE LOCK are LP-locks (an LP-lock has an L-lock component and a P-lock component).

Field Name: QW0021KT

DBID

The database ID. This field is not applicable if the value in LOCK RES TYPE is:

- SKELETON CURSOR TABLE LOCKING
- UTILITY SERIALIZATION LOCK
- SKELETON PACKAGE TABLE LOCK
- COLLECTION
- BINDLOCK
- ALTER BUFFER POOL
- GROUP BUFFERPOOL START/STOP LOCK
- GROUP BUFFER POOL LEV CASTOUT P-LOCK
- CATMAINT MIGRATION LOCK
- CATMAINT CONVERT CATALOG LOCK
- CATMAINT CONVERT DIRECTORY LOCK

Field Name: QW0021KD

OBID

The object ID. This field is not applicable if the value in LOCK RES TYPE is:

- SKELETON CURSOR TABLE LOCKING
- UTILITY SERIALIZATION LOCK
- SKELETON PACKAGE TABLE LOCK
- COLLECTION
- BINDLOCK
- ALTER BUFFER POOL
- GROUP BUFFERPOOL START/STOP LOCK
- DDF CDB P-LOCK
- GROUP BUFFER POOL LEV CASTOUT P-LOCK
- DBD P-LOCK
- CATMAINT MIGRATION LOCK
- CATMAINT CONVERT CATALOG LOCK
- CATMAINT CONVERT DIRECTORY LOCK

Field Name: QW0021KP

RESOURCE ID

The hexadecimal identifier of the small resource. If LOCK RES TYPE is:

**DATA PAGE LOCKING**
First 3 bytes are the page number

**PARTITION LOCKING**
Last byte is the partition number

**INDEX PAGE LOCKING**
First 3 bytes are the page number

**HASH ANCHOR LOCK**
First 3 bytes are the page number and the last byte is the anchor point ID
IFCID 021 - Lock Detail

**CS-READ DRAIN**
Last byte is the partition number (optional)

**RR-READ DRAIN**
Last byte is the partition number (optional)

**WRITE DRAIN**
Last byte is the partition number (optional)

**ROW LOCK**
First 3 bytes are the page number and the last byte is the row ID of the record

**INDEX END OF FILE LOCK**
Last byte is the partition number (optional)

**PAGESET/PARTITION P-LOCK**
First byte is the 1-based partition number (optional)

**PAGE P-LOCK**
First byte is the 1-based partition number (optional) and the last 3 bytes are the relative page number

**PAGESET/PARTITION LEVEL CASTOUT P-LOCK**
First byte is the 1-based partition number (optional)

**Note:**
- In large partitioned table spaces, the page number covers 4 bytes instead of 3.
- If table spaces use relative page numbers, the resource ID covers 7 bytes. It contains the partition number in the first 2 bytes, the page number in the next 4 bytes, and the record ID in the seventh byte.

For all other lock resource types, the resource ID is not applicable.

**Field Name:** QW0021KR

**NAME**
The plan name or collection name. This field is only printed if the value in LOCK RES TYPE is SKELETON CURSOR TABLE LOCKING or COLLECTION.

Deduced from the DB2 field QW0021KD, QW0021KP, and QW0021KR when the locked resource type is skeleton cursor table locking.

**Field Name:** RT21NAME

**COLL**
The collection identifier. This field is only printed if the value in LOCK RES TYPE is SKELETON PACKAGE TABLE LOCK.

The package identifier. This field is only printed if the value in LOCK RES TYPE is SKELETON PACKAGE TABLE LOCK.

The consistency token. This field is only printed if the value in LOCK RES TYPE is SKELETON PACKAGE TABLE LOCK.

**Field Name:** QW0021RN

**BPID**
The buffer pool ID. This field is only printed if the value in LOCK RES TYPE is:
ALTER BUFFER POOL
GROUP BUFFERPOOL START/STOP LOCK
PAGESET/PARTITION P-LOCK
PAGE P-LOCK
GROUP BUFFERPOOL LEV CASTOUT P-LOCK
PAGESET/PARTITION LEV CASTOUT P-LOCK

For ALTER BUFFER POOL, deduced from QW0021KD || QW0021KP.
For GROUP BUFFERPOOL START/STOP LOCK, deduced from QW0021KD || QW0021KP.
For PAGESET/PARTITION P-LOCK, deduced from QW0021P1.
For PAGE P-LOCK, deduced from QW0021P1.
For GROUP BUFFERPOOL LEV CASTOUT P-LOCK deduced from QW0021P1.
For PAGESET/PARTITION LEV CASTOUT P-LOCK, deduced from QW0021P1.

Field Name: RT21BPID

IRLM FUNC CODE
The IRLM function code.

Field Name: QW0021FC

RETURN TOKEN
The IRLM returned token.

Field Name: QW0021FT

REQUEST TOKEN
The lock request token. If the value in IRLM FUNC CODE is LOCK, this field shows "BLANK". If the value in IRLM FUNC CODE is UNLOCK or CHANGE, this field contains a 0 or a non-zero value. A 0 indicates that the lock name is used to identify the object that is to be unlocked or changed. A non-zero value is the same as the value in RETURN TOKEN. It associates the unlock or change request with the locked object.

Field Name: QW0021RT

LOCK STATE
The lock state.

Field Name: QW0021ST

DB2 TOKEN
The DB2 token which identifies the subsystem.

Field Name: QW0021TK

IRLM RETURN CODE
The return code from IRLM:
0: The request completed successfully.
4: The request completed successfully, but the lock state remained unchanged.
8: The request completed unsuccessfully because of a system error or condition.
12 The request completed unsuccessfully because of a logic error in the request.
16 The request completed unsuccessfully because of an invalid request specification.
20 The request completed unsuccessfully because IRLM resources are not available.

Field Name: QW0021RC

LOCK ATTRIBUTES
This field shows various lock attributes.
Field Name: QW0021FL

PROP TO XES
Indicates whether the request was propagated to XES by IRLM.
Field Name: QW0021Y1

ASYN TO XES
Indicates whether IRLM sent the request to XES asynchronously.
Field Name: QW0021Y2

LOCK DURATION
The lock duration:

MANUAL Varies depending on the ISOLATION parameter (QW0021DR= x'20')

MANUAL+1 Temporary change of consistency level from CS to RR during bind and DDL (QW0021DR= x'21')

COMMIT Until commit (QW0021DR=x '40')
COMMIT+1 Past commit; applies to locks needed to maintain the position for a cursor opened WITH HOLD (QW0021DR=x '41')

ALLOCATION Until deallocation (QW0021DR=x '60')

PLAN For the duration of the plan (QW0021DR=x '80')

UTIL For the duration of the utility execution (QW0021DR=x '81')

INTEREST Duration used for P-locks (QW0021DR=x 'FE')

FREE ALL Until all locks are freed (QW0021DR=x 'FF')

N/A Not applicable for NOTIFY SUSPEND

Field Name: QW0021DR

REQUEST TYPE
Indicates whether it was a P-lock or L-lock request.
Field Name: QW0021Z1

IRLM RETURN SUBCODE
The IRLM return subcode.

Field Name: QW0021SC

PARENT TOKEN

The parent lock token for explicit hierarchical locking. This token is only significant when DB2 is a member of a data sharing group. If the value in this field is not 0, then this request is for a child of a parent that has already been locked. This value must match the RETURN TOKEN field of the previously locked parent. This field is only applicable if the value in IRLM FUNC CODE is LOCK.

Field Name: QW0021PT

GLOBAL/LOCAL

Indicates whether this is a global or local lock.

Field Name: QW0021GF

OWNER

The DB2 member name of either of the following:

- The owner of an incompatible retained lock on this resource that caused this request to be denied
- The owner of an incompatible held lock on this resource that caused this request to timeout

Field Name: QW0021SN

CACHED STATE

The cached state of the P-lock. This field is only applicable if the value in REQUEST TYPE is P-LOCK, and the value in LOCK RES TYPE is PAGESET/PARTITION P-LOCK.

Field Name: QW0021CS

LOCK HASH VALUE

The hash value of the locked resource.

Field Name: QW0021LH

IFCID 022 - Minibind:

This topic shows detailed information about “Record Trace - IFCID 022 - Minibind”.

Minibind record shows information about mini plans, which are generated by the optimizer at bind and SQL prepare time. One mini plan is generated for each table and for each subselect block in the query. This means that if your query uses subqueries, more than one mini plan record is written.

Note:

- When interpreting this record, relate table and mini plans by table name.
- The order of the mini plans might not be the same as the order of the table as written in the SQL statement.
- When you are not sure about the accessing order of the tables, use EXPLAIN to get the query block number and plan number.
- This IFCID shows whether sequential prefetch is used.
IFCID 022 - Minibind

- This mini plan block is written for each query and repeated for each subsequent subquery.
- If the query or subquery uses index scan (INDEX_NUMBER > 0), information is provided for each index used.

Record trace - IFCID 022 - Minibind

The field labels shown in the following sample layout of “Record Trace - IFCID 022 - Minibind” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUERYNO</td>
<td>The number identifying the statement to be prepared.</td>
</tr>
<tr>
<td>PLANNAME</td>
<td>The plan name or package ID.</td>
</tr>
<tr>
<td>COST</td>
<td>The relative cost of the SQL statement. It might not relate to the actual CPU or elapsed time for the query.</td>
</tr>
<tr>
<td>PARALLELISM_DISABLED</td>
<td>Indicates whether query parallelism is disabled by the resource limit facility (RLF) for dynamic queries:</td>
</tr>
<tr>
<td>I/O ONLY</td>
<td>Query I/O parallelism is disabled. (QW0022RP=x '01')</td>
</tr>
<tr>
<td>CP ONLY</td>
<td>Query CP parallelism is disabled. (QW0022RP=x '02')</td>
</tr>
<tr>
<td>CP + I/O</td>
<td>Query I/O and CP parallelism is disabled. (QW0022RP=x '03')</td>
</tr>
</tbody>
</table>

Field Name: QW0022QN

The plan name or package ID.

Field Name: QW0022PN

The number identifying the statement to be prepared.

Field Name: QW0022OS

Indicates whether query parallelism is disabled by the resource limit facility (RLF) for dynamic queries:

<table>
<thead>
<tr>
<th>No Value (QW0022RP=x '00')</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I/O Only</td>
<td>Query I/O parallelism is disabled. (QW0022RP=x '01')</td>
</tr>
<tr>
<td>CP Only</td>
<td>Query CP parallelism is disabled. (QW0022RP=x '02')</td>
</tr>
<tr>
<td>CP + I/O</td>
<td>Query I/O and CP parallelism is disabled. (QW0022RP=x '03')</td>
</tr>
</tbody>
</table>
Sysplex query parallelism is disabled. (QW0022RP=x '04')

Sysplex query and query I/O parallelism is disabled. (QW0022RP=x '05')

Sysplex query and query CP parallelism is disabled. (QW0022RP=x '06')

The entire query parallelism (I/O, CP, and sysplex) is disabled. (QW0022RP=x '07')

Query parallelism does not apply to this statement. (QW0022RP=x 'FF')

Field Name: QW0022RP

QBLOCNO
The position of the query in the statement.
Field Name: QW0022QB

COLLID
The collection ID of the package.
Field Name: QW0022CI

PROGNAME
The name of the package containing the statement to be prepared.
Field Name: QW0022PG

CONSISTENCY_TOKEN
The consistency token.
Field Name: QW0022CT

APPLNAME
The name of the application plan.
Field Name: QW0022AL

WHEN_OPTIMIZE
Indicates when the access path of the SQL statement is optimized:

DEFAULT
The access path is determined at bind time using default values.

BIND
The access path is determined at bind time using default values, but it is reoptimized at runtime using values of input variables.

RUN
The access path is determined at runtime using values of input variables.

REOPT
The access path is reoptimized at runtime because the value of the host variable or parameter marker changes.

Field Name: QW0022RX

OPT_HINT_IDENT
Access path hint value.
Field Name: QW0022QO
IFCID 022 - Minibind

OPTIMIZE_HINTS_USED
Indicates whether the query used access path hints.
Field Name: QW0022HT

UNITS
Estimated processor cost in service units for the SQL statement.
Field Name: QW0022AS

MILLI_SEC
Estimated processor cost in milliseconds for the SQL statement.
Field Name: QW0022CE

COSTCATEGORY
The cost category for the statement can be one of the following:
A This SQL statement is a category A statement.
B This SQL statement is a category B statement.
'BLANK' Indicates that there is no processor cost estimate for this trace record.
Field Name: QW0022CC

PARENT_Q_BLOCKNO
Parent query block number.
Field Name: QW0022PQ

MEMBER
The member name of the DB2 that executed EXPLAIN. The column is blank if the DB2 subsystem was not in a data sharing environment when EXPLAIN was executed.
Field Name: QW0022GM

STATEMENT_TYPE
For each query block, the type of operation performed. For the outermost query, the statement type. Possible values:

SELECT
   SELECT

INSERT
   INSERT

UPDATE
   UPDATE

DELETE
   DELETE

SELUPD
   SELECT for UPDATE

DELCUR
   DELETE current of cursor
UPDCUR
  UPDATE current of cursor
CORSUB
  Correlated subquery
NCOSUB
  Noncorrelated subquery
Field Name: QW0022QT

TIMESTAMP
  The timestamp at which the row is processed.
Field Name: QW0022TS

BIND_TIME
  The date and time at which the plan or package to which this statement belongs was bound.
Field Name: QW0022BT

VERSION
  The version ID of the package.
Field Name: QW0022VN

PREDICATE #
  If the REASON field has a value of REOPT, the predicate number that triggers the REOPT decision is shown.
Field Name: QW0022PD

REASON
  Reason code for cost category B. This value is blank if the cost category is not B. Possible values are:

HOST VARIABLES
  If there are host variables, parameter markers, or special registers in range or between predicates.

TABLE CARDINALITY
  If the table cardinality is missing for one or more tables.

TRIGGERS
  If there are insert, update, or delete triggers defined on the target table.

UDF
  If there are user-defined functions referenced in the SQL statement.

REFERENTIAL CONSTRAINTS
  If a table that is the target of a delete has referential constraints defined on it.

HAVING CLAUSE
  If a having clause causes an SQL statement to be assigned to cost category B.
Field Name: QW0022RS

PLANNO
  The plan number of the step in which the query is processed.
Field Name: QW0022PL

**METHOD or NEXTSTEP**

The join method used for the step.

**Note:** NEXTSTEP is shown if this field has one of the following values 0, 4, 8, 12, 1, 5, 9, 13, 2, 6, 10, 14, 3, 7, 11, or 15. Otherwise, METHOD is displayed.

Field Name: QW0022OD

**SORTN_UNIQ**

Indicates whether the new table is sorted to remove duplicate rows.

Field Name: QW0022UN

**SORTC_UNIQ**

Indicates whether the composite table is sorted to remove duplicate rows.

Field Name: QW0022N

**DATABASE**

The database ID.

Field Name: QW0022DD

**SORTN_JOIN**

Indicates whether the new table is sorted for a merge scan join or hybrid join. For a hybrid join, this is a sort of the RID list.

Field Name: QW0022IN

**SORTC_JOIN**

Indicates whether the composite table is sorted for a nested loop join, merge scan join, or hybrid join.

Field Name: QW0022J

**OBJECT**

The internal ID of the table in hexadecimal (2 bytes). Use this value to match column “OBID” in SYSIBM.SYSTABLES to find the name of the table. For example, X'2A' is 42, which is table SYSDATABASE.

Field Name: QW0022OB

**ACCESSTYPE**

The method of accessing the new table. N/P is printed if there is no access type.

Field Name: QW0022YP

**SORTN_ORDERBY**

Indicates whether the new table is sorted for ORDER BY.

Field Name: QW0022DB

**SORTC_ORDERBY**

Indicates whether the composite table is sorted for ORDER BY.

Field Name: QW0022O
CREATOR

The creator of the new table accessed in this step.

Field Name: QW0022CR

PAGE_RANGE

Whether the table qualifies for page range screening, so that plans scan only the partitions that are needed. Y = Yes; N = No.

Field Name: QW0022PR

SORTN_GROUPBY

Indicates whether the new table is sorted for GROUP BY.

Field Name: QW0022PB

SORTC_GROUPBY

Indicates whether the composite table is sorted for GROUP BY.

Field Name: QW0022G

TNAME

The name of the table accessed in this step, without qualifier. This field is blank if a view is used instead of a real table.

Field Name: QW0022TN

JOIN_TYPE

The type of join:

F    FULL OUTER JOIN
L    LEFT OUTER JOIN
S    STAR JOIN
blank INNER JOIN or no join

RIGHT OUTER JOIN converts to a LEFT OUTER JOIN when you use it, so that JOIN_TYPE contains L.

Field Name: QW0022JT

SORTN_PGROUP_ID

The parallel group identifier for the parallel sort of the new table.

Field Name: QW0022P6

SORTC_PGROUP_ID

The parallel group identifier for the parallel sort of the composite table.

Field Name: QW0022P7

CORRELATION_NAME

The correlation name of a table or view that is specified in the statement. If there is no correlation name, then the column is blank.

Field Name: QW0022CN

MERGE_JOIN_COLS

The number of columns that are joined during a merge scan join (Method=2).
**IFCID 022 - Minibind**

**Field Name:** QW0022JC

**ACCESS_DEGREE**
The number of parallel tasks or operations activated by a query.

**Field Name:** QW0022P1

**JOIN_DEGREE**
The number of parallel tasks or operations used in joining the composite table with the new table.

**Field Name:** QW0022P3

**TSLOCKMODE**
Indicates the lock mode to be acquired on the new table or its table space.
If the isolation can be determined at bind time, possible values are:

- **IS** Intent share lock
- **IX** Intent exclusive lock
- **S** Share lock
- **U** Update lock
- **X** Exclusive lock
- **SIX** Share with intent exclusive lock
- **N** UR isolation, no lock

If the isolation cannot be determined at bind time, the lock mode determined by the isolation at run time is shown by the following values:

- **NS** For UR isolation: no lock. For CS or RR isolation: an S lock.
- **NIS** For UR isolation: no lock. For CS or RR isolation: an IS lock.
- **NSS** For UR isolation: no lock. For CS isolation: an IS lock. For RR isolation: an S lock.
- **SS** For UR or CS isolation: no lock. For RR isolation: an S lock.

The data in this column is right-justified.

**Field Name:** QW0022LM

**PARALLELISM_MODE**
The kind of parallelism, if any, that is used at bind time:

- **I** Query I/O parallelism
- **C** Query CP parallelism
- **X** Sysplex query parallelism

**Field Name:** QW0022PM

**ACCESS_PGROUP_ID**
The ID of the parallel group for accessing the new table.

**Field Name:** QW0022P2

**JOIN_PGROUP_ID**
The ID of the parallel group for joining the composite table with the new table.
Field Name: QW0022P4

AGGREGATE_FUNCT

Indicates when an SQL column function is evaluated. Possible values are:

R  Column function is evaluated during data retrieval.
S  Column function is evaluated during SORT.

Field Name: QW0022Z

INDEX_NUMBER

Number of index access operations.

Field Name: QW0022MN

PREFETCH

The number of PREFETCH requests.

Field Name: QW0022EF

DIRECT_ROW_ACC

Indicates whether DB2 can use direct row access to a table row without a table space or index scan:

YES  Direct row access was used
NO   Direct row access was not used

Field Name: QW0022PA

PAGES_FOR_TABLE

The number of pages for the table. A value of "-1" indicates that statistics are not available.

Field Name: QW0022NP

TAB_CARDINALITY

Table cardinality in floating point.

Field Name: QW0022CY

STARJOIN

Indicates whether star join was used, possible values are:

YES  Star join was used
NO   Star join was not used

Field Name: QW0022SJ

TABLE_TYPE

The table type can be:

T  Table
F  Table function
W  Workfile
Q  Table queue (not materialized)

Field Name: QW0022TT

INDEXONLY
Indicates what kind of prefetch of the data is used:

- **SEQ**  Sequential prefetch
- **LIST**  List prefetch
- **NO**  No prefetch

**Field Name:** QW0022XO

**MATCHCOLS**

The number of index keys used in an index scan. This field is 0 if either no index is used or an index is used that has no matching columns.

**Field Name:** QW0022XM

**MIXOPSEQ**

The sequence number of a step in a multiple index operation.

**Field Name:** QW0022MS

**PREFETCH_INDEX**

Indicates whether data pages are to be read in advance by a prefetch.

**Field Name:** QW0022XF

**OPERATION**

The type of index access operation.

**Field Name:** QW0022MO

**ACCESS_NAME**

The index name. This field applies only to index scans. N/A is printed for table space scans or when no index is used.

**Field Name:** QW0022XC

**ACCESS_CREATOR**

The index creator.

**Field Name:** QW0022XN

**IFCID 023 - Utility Start:**

This topic shows detailed information about “Record Trace - IFCID 023 - Utility Start”.

**Record trace - IFCID 023 - Utility Start**

The field labels shown in the following sample layout of “Record Trace - IFCID 023 - Utility Start” are described in the following section.
DBID
The database ID. Deduced from the DB2 fields QW0023DB, QW0105DN or QW0107DN.
When present, the database name is shown, otherwise the decimal identifier from QW0023DB is shown, or N/A when this value is 0.
Field Name: RT0023DB

UTILITY NAME
The utility name.
Field Name: QW0023NM

OBID
The object ID. Deduced from the DB2 fields QW0023PD, QW0105TN or QW0107TN.
When present, the name of the object is shown, otherwise the decimal identifier from QW0023OB is shown, or N/A when this value is 0.
Field Name: RT0023OB

UTILITY PHASE
The phase name of the utility.
Field Name: QW0023PH

RQSTASK
The number of requested subtasks.
Field Name: QW0023R1

UTILITY ID
The identifier of the utility.
Field Name: QW0023ID

DBNAME
The database name.
Field Name: QW0023DB

OBJECT NAME
The object name.
Field Name: QW0023PD

REORG KEEPDICTIONARY
The reorg utility is specified with the KEEPDICTIONARY keyword.
Field Name: QW0023D1

LOAD KEEPDICTIONARY
The load utility is specified with the KEEPDICTIONARY keyword.
Field Name: QW0023B1

COPY CONCURRENT
The copy utility is specified with the CONCURRENT keyword.
Field Name: QW0023A1
The rebuild utility is specified with the REUSE keyword.
Field Name: QW0023F1

The reorg utility is specified with the REUSE keyword.
Field Name: QW0023D2

The load utility is specified with the REUSE keyword.
Field Name: QW0023B2

The copy utility is specified with the SHRLEVEL(CHANGE) keyword.
Field Name: QW0023A2

The rebuild utility is specified with the SORTKEYS keyword.
Field Name: QW0023F2

The reorg utility is specified with the LOG(NO) keyword.
Field Name: QW0023D3

The load utility is specified with the LOG(NO) keyword.
Field Name: QW0023B3

The copy utility is specified with the PARALLEL keyword.
Field Name: QW0023A3

The rebuild utility is specified with the STATISTICS keyword.
Field Name: QW0023F3

The reorg utility is specified with the SORTKEYS keyword.
Field Name: QW0023D4

The load utility is specified with the SORTKEYS keyword.
Field Name: QW0023B4

The copy utility is specified with the CHECKPAGE keyword.
Field Name: QW0023A4

IFCID 023 - Utility Start
The rebuild utility is specified with the WORKDDN keyword.

**Field Name:** QW0023F4

**REORG SORDDATA**

The reorg utility is specified with the SORDDATA keyword.

**Field Name:** QW0023D5

**LOAD SHRLEVEL CHANGE**

The load utility is specified with the SHRLEVEL(CHANGE) keyword.

**Field Name:** QW0023B5

**REORG NOSYSREC**

The reorg utility is specified with the NOSYSREC keyword.

**Field Name:** QW0023D6

**LOAD COPYDDN**

The load utility is specified with the COPYDDN keyword.

**Field Name:** QW0023B6

**RECOVER REUSE**

The recover utility is specified with the REUSE keyword.

**Field Name:** QW0023A7

**RUNSTATS SAMPLE**

The runstats utility is specified with the SAMPLE keyword.

**Field Name:** QW0023G1

**REORG SHRLEVEL CHANGE**

The reorg utility is specified with the SHRLEVEL(CHANGE) keyword.

**Field Name:** QW0023D7

**LOAD STATISTICS**

The load utility is specified with the STATISTICS keyword.

**Field Name:** QW0023B7

**RECOVER PARALLEL**

The recover utility is specified with the PARALLEL keyword.

**Field Name:** QW0023A8

**RUNSTATS SHRLEVEL CHANGE**

The runstats utility is specified with the SHRLEVEL(CHANGE) keyword.

**Field Name:** QW0023G2

**REORG SHRLEVEL REFERENCE**

The reorg utility is specified with the SHRLEVEL(REFERENCE) keyword.

**Field Name:** QW0023D8

**LOAD PART INDDN**

The load utility is specified with the PART(INDDN) keyword.
FIELD NAME: QW0023B8

REORG COPYDDN

The reorg utility is specified with the COPYDDN keyword.

FIELD NAME: QW0023E1

UNLOAD SHRLEVEL REFERENCE

The unload utility is specified with the SHRLEVEL(REFERENCE) keyword.

FIELD NAME: QW0023H1

REORG STATISTICS

The reorg utility is specified with the STATISTICS keyword.

FIELD NAME: QW0023E2

UNLOAD SHRLEVEL CHANGE ISOLATION CS

The unload utility is specified with the SHRLEVEL(CHANGE ISOLATION CS) keyword.

FIELD NAME: QW0023H2

REORG FASTSWITCH

The reorg utility is specified with the FASTSWITCH keyword.

FIELD NAME: QW0023E3

UNLOAD SHRLEVEL CHANGE ISOLATION UR

The unload utility is specified with the SHRLEVEL(CHANGE ISOLATION UR) keyword.

FIELD NAME: QW0023H3

IFCID 023 - Utility Start

FIELD NAME: RT0024DB

UTILITY NAME

The utility name.

FIELD NAME: QW0024NM

IFCID 024 - Utility Change:

This topic shows detailed information about “Record Trace - IFCID 024 - Utility Change”.

Record trace - IFCID 024 - Utility Change

The field labels shown in the following sample layout of “Record Trace - IFCID 024 - Utility Change” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBID</td>
<td>The database ID. Deduced from the DB2 fields QW0024DB, QW0105DN or QW0107DN. When present, the database name is shown, otherwise the decimal identifier from QW0024DB is shown, or N/A when this value is 0.</td>
</tr>
<tr>
<td>UTILITY NAME</td>
<td>The utility name.</td>
</tr>
</tbody>
</table>

FIELD NAME: RT0024DB

UTILITY NAME

The utility name.

FIELD NAME: QW0024NM
OBID
The object ID. Deduced from the DB2 fields QW0023PD, QW0105TN or QW0107TN.
When present, the name of the object is shown, otherwise the decimal identifier from QW0024OB is shown, or N/A when this value is 0.

Field Name: RT0024OB

UTILITY PHASE
The phase name of the utility.
Field Name: QW0024PH

ITEMS
The number of items processed by the utility.
Field Name: QW0024DN

UTILITY ID
The identifier of the utility.
Field Name: QW0024ID

DBNAME
The database name.
Field Name: QW0024NA

OBJECT NAME
The table space name or index name.
Field Name: QW0024PN

PART/DATASET#
The number of the partition or data set if the utility is operating on one partition or data set. Otherwise, the value in this field is 0.
Field Name: QW0024PT

IFCID 025 - Utility End:
This topic shows detailed information about “Record Trace - IFCID 025 - Utility End”.

Record trace - IFCID 025 - Utility End
The field labels shown in the following sample layout of “Record Trace - IFCID 025 - Utility End” are described in the following section.
The database ID. Deduced from the DB2 fields QW0025DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0025DB is shown, or N/A when this value is 0.

Field Name: RT0025DB

UTILITY NAME

The utility name.

Field Name: QW0025NM

OBID

The object ID. Deduced from the DB2 fields QW0025PD, QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0025OB is shown, or N/A when this value is 0.

Field Name: RT0025OB

UTILITY PHASE

The phase name of the utility.

Field Name: QW0025PH

ITEMS

The phase name of the utility.

Field Name: QW0025DN

UTILITY ID

The identifier of the utility.

Field Name: QW0025ID

JOBNAME

The job name of the utility.

Field Name: QW0025JN

STEPNAME

The step name of the utility job.

Field Name: QW0025JS

ELAPSED TIME

The utility elapsed time at termination. This field and the following time fields are in time-of-day format. If this field contains binary zeroes, no data is available for this field or for the following time fields. For example, this is the case for subphase termination records.

Field Name: QW0025UE

SUBTASKS

The final subtask count.

Field Name: QW0025R1

DFSORT

DFSORT was invoked at least once. Possible values are Y or N.
Field Name: QW0025DF

DB2SORT
DB2 SORT was invoked at least once. Possible values are Y or N.
Field Name: QW0025DS

DATA SORTS
The number of parallel data sorts.
Field Name: QW0025DA

INDEX SORTS
The number of parallel index sorts.
Field Name: QW0025IX

OTHER SORTS
The number of other sorts.
Field Name: QW0025OS

SHRLEVEL
The SHRLEVEL value of the utility. Possible values are: NONE, REFERENCE, CHANGE, or N/A.
Field Name: QW0025SL

CPU TIME
The CPU time of the utility.
Field Name: QW0025UC

ZIIP TIME
The total utility ZIIP time (if Accounting class 1 trace is activated).
Field Name: QW0025UZ

SORT CPU
The Sort CPU time.
Field Name: QW0025SC

SORT ZIIP
The Sort ZIIP time (if provided by the Sort program).
Field Name: QW0025SZ

IFCID 026 - IBM Service Record:
This topic shows detailed information about “Record Trace - IFCID 026 - IBM Service Record”.

This record is for IBM service use.

IFCID 027 - Sort Workfile Records:
This topic shows detailed information about “Record Trace - IFCID 027 - Sort Workfile Records”.

Chapter 6. Batch reporting 3745
IFCID 027 - Sort Workfile Records

The field labels shown in the following sample layout of “Record Trace - IFCID 027 - Sort Workfile Records” are described in the following section.

RECORDS IN NEW WORKFILE

The number of records in the new work file.

Field Name: QW0027NR

SPARSE INDEX SPACE USED (KB)

The size of the in-memory work file in kilobytes (KB).

Field Name: QW0027OZ

ESTIMATED SIZE ALL IN-MEM (KB)

The APS estimated size of all sparse indexes in a query if they are all in the in-memory part (in KB).

Field Name: QW0027TZ

ESTIMATED RECORDS IN SP INDEX

The APS estimated number of records in the current sparse index.

Field Name: QW0027IR

SKIP FACTOR

The skip factor if sparse index records are found in the work file. It shows a value of 1 if found in the in-memory part.

Field Name: QW0027SF

RECORDS IN IN-MEMORY PART

The number of records in the in-memory part of the sparse index.

Field Name: QW0027IE

RECORDS IN WORKFILE PART

The number of records in the work-file part of the sparse index.

Field Name: QW0027WE

DATA AREA SIZE (BYTES)

The data area size for a sparse index (in bytes).

Field Name: QW0027DS

KEY SIZE SP IDX (BYTES)

The key size for a sparse index (in bytes).

Field Name: QW0027KS

TOTAL NR OF IDX IN QUERY

The total number of indexes in the query.
The total number of sparse indexes in the query.

**Field Name:** QW0027TS

**CURRENT IDX IN PROCESS**

The current sparse index that is processed.

**Field Name:** QW0027SC

**TYPE OF RECORD**

The type of record. Possible values are:

- **B** Indicates that a sparse index combination of hash and work file is used (both in-memory and physical work file).
- **H** Indicates a sparse index hash is used (in-memory work file only).
- **O** Indicates that a sparse index binary is used (in-memory work file only).
- **S** Indicates that no sparse index is used because of storage constraints.
- **T** Indicates that a sparse index work-file is used.
- **W** Indicates that no sparse index is used.

**Field Name:** QW0027SP

**IFCID 028 - Sort Phase Detail:**

This topic shows detailed information about “Record Trace - IFCID 028 - Sort Phase Detail”.

**Record trace - IFCID 028 - Sort Phase Detail**

The field labels shown in the following sample layout of “Record Trace - IFCID 028 - Sort Phase Detail” are described in the following section.

| OMPEUSER 'BLANK' | RRS | KOPLAN 'BLANK' | N/P | 15:15:38.81346278 | 991294 | 28 SORT PHASE DETAIL | NETWORKID: DEIBMIPS | LUNAME: IPSAQB11 | LUSEQ: 5 | IWORK | 0 WORKFILES REQ | 0 TYPE I | PASS | 0 WORKFILES ACQ | 0 | PARALLELISM DEGREE | 0 | WORKFILE RECORDS | 0 | MULTIPLE DISTINCT SORTS | 0 | CURRENT MULTIPLE DISTINCT SORT | 0 |

**IWORK**

The number of work files created during the sort input phase. If the rows to be sorted are already in order, there is one work file. The number of work files needed depends on the distribution of the sort key. The maximum number of work files is limited by the buffer pool size. This field is valid if TYPE equals I.

**Field Name:** QW0028NP

**WORKFILES REQ**

The number of work files requested from the buffer manager at the beginning of each merge pass (MVS/ESA 3.1.3). It is valid if TYPE equals S.

If this field is greater than WORKFILES ACQ, there is another merge pass. If both fields are equal, this is the last or only merge pass.
Field Name: QW0028WA

**TYPE**

The type of IFCID 28. It indicates the phase when the IFCID 28 record is issued. Valid values are:

- **I**  The end of the input phase
- **S**  The start of a merge pass
- **E**  The end of a merge pass
- **Z**  The start of output work file partitioning
- **W**  During the output work file partitioning
- **X**  The end of output work file partitioning
- **K**  The start of last merge pass partitioning
- **M**  During last merge pass partitioning
- **L**  The end of last merge pass partitioning
- **T**  The start of one record partitioning
- **O**  During one record partitioning
- **U**  The end of one record partitioning
- **V**  The start of presorted records partitioning
- **P**  During presorted records partitioning
- **Y**  The end of presorted records partitioning

Field Name: QW0028TY

**PASS**

The current merge pass. It is issued at the end of the merge pass and, therefore, valid if TYPE equals **E**.

Field Name: QW0028MP

**WORKFILES ACQ**

The number of work files actually acquired from the buffer manager at the beginning of each merge pass (MVS/ESA 3.1.3). It is valid if TYPE equals **S**.

Field Name: QW0028WG

**PARALLELISM DEGREE**

The partition work file number. The value in this field is 0 if partitioning is not requested. If partitioning is requested, the value can be from 1 to \( n \), where \( n \) is the degree of parallelism. It is valid if TYPE equals **Z**, **W**, **X**, **K**, **M**, **L**, **T**, **O**, **U**, **V**, **P**, or **Y**.

Field Name: QW0028PW

**WORKFILE RECORDS**

The number of records in the partition work file. It is valid if TYPE equals **Z**, **W**, **X**, **K**, **M**, **L**, **T**, **O**, **U**, **V**, **P**, or **Y**.

Field Name: QW0028PN

**RECS SORTED AFT INS PHASE**
The number of records sorted into work files after the sort input phase.

Field Name: QW0028NR

MULTIPLE DISTINCT SortS

Total number of multiple distinct sorts.

Field Name: QW0028DS

MULTIPLE DISTINCT READ

The number of records read into a group at the start of the GROUPBY phase for a multiple distinct sort.

Field Name: QW0028DR

MULTIPLE DISTINCT GROUPS

The total number of multiple distinct sort groups.

Field Name: QW0028DG

CURRENT MULTIPLE DISTINCT SORT

The multiple distinct sort currently being processed.

Field Name: QW0028DC

IFCID 029 - EDM Request Start:

This topic shows detailed information about “Record Trace - IFCID 029 - EDM Request Start”.

Record Trace - IFCID 029 - EDM Request Start

The field labels shown in the following sample layout of “Record Trace - IFCID 029 - EDM Request Start” are described in the following section.

EDM REQUEST--->

START NETWORKID: DEIBMIPS LUNAME: IPSAU851 LUWSEQ: 1
EDMID CT PLAN HSRTEP2L RDS '80000000' SEQNO 1 CT LGTH 120

EDM REQUEST---> 'BLANK'

START NETWORKID: DEIBMIPS LUNAME: IPSAU851 LUWSEQ: 1
EDMID CT PLAN HSRTEP2L RDS '00000001' SEQNO 0 CT LGTH 3560

EDM REQUEST---> 'BLANK'

START NETWORKID: DEIBMIPS LUNAME: IPSAU851 LUWSEQ: 1
EDMID PT

EDM REQUEST--->

START NETWORKID: DEIBMIPS LUNAME: IPUAQB61 LUWSEQ: 1
EDMID DY
SCHEMA NAME = SCHEMA1
HASH ID X'00000000000000000000000000000000'
COPY ID 0 DPS QUERY ID 0 RELEASE BOUND X'00'

LOCATION N/P
COLLECTION HSRTEP2VL1XXXXXXXXXXXXX3XXXXXXXXX4XX
XXXXXXXX5XXXXXXXXXX7XXXXXXXXXX8XX
XXXXXXXX9XXXXXXXXXX0XXXXXXXXX1XXXXXXXXXX2XX
XXXXXXXXX3XXXXXXXXX4XX

PACKAGE ID DSN0EP2L0000000
CONSISTENCY TOKEN X'0000000000000000'
RDS X'00000000' SEQNO 0 PT LGTH 120
QW0029SV X'0000'

EDMID

The type of request:
IFCID 029 - EDM Request Start

**DB**  Database descriptor

**DY**  SYSDYNQRY table

**CT**  Cursor table

**PT**  Package table

Field Name: QW0029ID

**DBID**

The database ID. Deduced from the DB2 fields QW0029DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0029DB is shown, or N/A when this value is 0.

Field Name: RT0029DB

**DB LGTH**

The length of the section associated with this DBD.

Field Name: QW0029DL

**PLAN**

The plan name for the CT or XT request.

Field Name: QW0029PL

**RDS**

The RDS identifier number. Special cases are:

- `x'00000001'`
  - SKCT header
- `x'FFFFFFFE'`
  - SKCT directory

Field Name: QW0029KN

**SEQNO**

The sequence number within the RDS number. This is QW0029SN for CT or QW0029GN for PT.

Field Name: RT0029SN

**CT LGTH**

The length of the CT or XT sections in bytes.

Field Name: QW0029CL

**LOCATION**

The name of the package location. This field shows 'BLANK' if the local location name is not defined.

Field Name: QW0029LN

**COLLECTN**

The collection identifier of the package.

Field Name: QW0029CI

**PCKG ID**
The package identifier.
Field Name: QW0029PI

CONSISTENCY TOKEN
The consistency token of the package.
Field Name: QW0029CT

PT LGTH
The length of the PT section in bytes.
Field Name: QW0029GL

SCHEMA NAME
The name of the schema.
Field Name: QW0029SC

HASH ID
The hash ID.
Field Name: QW0029QH

COPY ID
The Copy ID.
Field Name: QW0029CP

DPS QUERY ID
The identifier of the stabilized dynamic query.
Field Name: QW0029QD

RELEASE BOUND
The release bound.
Field Name: QW0029RB

IFCID 030 - EDM Request End:
This topic shows detailed information about “Record Trace - IFCID 030 - EDM Request End”.

Record trace - IFCID 030 - EDM Request End
The field labels shown in the following sample layout of “Record Trace - IFCID 030 - EDM Request End” are described in the following section.

IFCID 029 - EDM Request Start
<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QW0030ID</td>
<td>Database ID. Deduced from the DB2 fields QW0030DB, QW0105DN, or QW0107DN. When present, the database name is shown, otherwise the decimal identifier from QW0030DB is shown, or N/A when this value is 0.</td>
</tr>
<tr>
<td>QW0030DC</td>
<td>The number of calls to the data manager for the DBD.</td>
</tr>
<tr>
<td>QW0030PL</td>
<td>The plan name for the CT or XT request.</td>
</tr>
<tr>
<td>QW0030RN</td>
<td>The RDS identifier number for PT. Special cases are: x'00000001' SKCT header, x'FFFFFFFE' SKCT directory.</td>
</tr>
</tbody>
</table>

**RDS**

The type of request:

- **DB** Database descriptor
- **DY** SYSDYNQRY table
- **CT** Cursor table
- **PT** Package table

The database ID. Deduced from the DB2 fields QW0030DB, QW0105DN, or QW0107DN. When present, the database name is shown, otherwise the decimal identifier from QW0030DB is shown, or N/A when this value is 0.

The number of calls to the data manager for the DBD.

The plan name for the CT or XT request.

The RDS identifier number for CT. Special cases are:

- **x'00000001'** SKCT header
- **x'FFFFFFFE'** SKCT directory

The RDS identifier number for PT. Special cases are:

- **x'00000001'** SKCT header
- **x'FFFFFFFE'** SKCT directory
Field Name: QW0030KN

SEQNO
The sequence number within the RDS number. This is QW0030SN for CT or QW0030GN for PT.

Field Name: RT0030SN

CT CALLS
The number of calls to the data manager for CT.

Field Name: QW0030CC

LOCATION
The name of the package location. This field shows "BLANK" if the local location name is not defined.

Field Name: QW0030LN

COLLCTN
The collection identifier of the package.

Field Name: QW0030CI

PCKG ID
The package identifier.

Field Name: QW0030PI

CONSISTENCY TOKEN
The consistency token of the package.

Field Name: QW0030CT

PT CALLS
The number of calls to the data manager for PT.

Field Name: QW0030GC

SCHEMA NAME
The name of the schema.

Field Name: QW0030SC

HASH ID
The hash ID.

Field Name: QW0030QH

COPY ID
The Copy ID.

Field Name: QW0030CP

DPS QUERY ID
The identifier of the stabilized dynamic query.

Field Name: QW0030QD

RELEASE BOUND
The release bound.
Field Name: QW0030RB

RECORDS READ

The number of records read.

Field Name: QW0030QC

IFCID 031 - EDM Full:

This topic shows detailed information about “Record Trace - IFCID 031 - EDM Full”.

Record trace - IFCID 031 - EDM Full

The field labels shown in the following sample layout of “Record Trace - IFCID 031 - EDM Full” are described in the following section.

EDM FULL --> NETWORKID: DEIBMIPS LUNAME: IPSAU851 LUWSEQ: 1
EDMID CT PLAN PLANNAMI
RDS X'00001267' SEQNO 1 CT LGTH 16 'BLANK'
EDM FULL --> NETWORKID: DEIBMIPS LUNAME: IPSAU851 LUWSEQ: 1
EDMID PT LOCATION LOCATION01xxxxxxxxxxxxxxxxxxxxxxxxx4X
XXXXXXXXX5xxxxxxxxxxxx6xxxxxxxxxxxx7xxxxxxxxxxxx8XX
XXXXXXXXX9xxxxxxxxxxxx0xxxxxxxxxxxx1xxxxxxxxxxxx2XX
XXXXXXXXX COLLECTION COLLECTION01xxxxxxxxxxxx3xxxxxxxxxxxx4X
XXXXXXXXX5xxxxxxxxxxxx6xxxxxxxxxxxx7xxxxxxxxxxxx8XX
XXXXXXXXX9xxxxxxxxxxxx0xxxxxxxxxxxx1xxxxxxxxxxxx2XX
XXXXXXXXX PACKAGE ID PACKAGE01xxxxxxxxxxxx2xxxxxxxxxxxx3xxxxxxxxxxxx4X
XXXXXXXXX5xxxxxxxxxxxx6xxxxxxxxxxxx7xxxxxxxxxxxx8XX
XXXXXXXXX9xxxxxxxxxxxx0xxxxxxxxxxxx1xxxxxxxxxxxx2XX
XXXXXXXXX CONSISTENCY TOKEN X'C3D6D5E2E3D6D2F1'
RDS X'FFFFFEF' SEQNO 66 PT LGTH 120
QW0031SV X'E7E7'
EDM FULL --> 'BLANK'
NETWORKID: DEIBMIPS LUNAME: IPSAU851 LUWSEQ: 1
EDMID PT LOCATION LOCATION01xxxxxxxxxxxx2xxxxxxxxxxxx3xxxxxxxxxxxx4X
XXXXXXXXX5xxxxxxxxxxxx6xxxxxxxxxxxx7xxxxxxxxxxxx8XX
XXXXXXXXX9xxxxxxxxxxxx0xxxxxxxxxxxx1xxxxxxxxxxxx2XX
XXXXXXXXX Z COLLECTION COLLID01xxxxxxxxxxxx2xxxxxxxxxxxx3xxxxxxxxxxxx4X
XXXXXXXXX5xxxxxxxxxxxx6xxxxxxxxxxxx7xxxxxxxxxxxx8XX
XXXXXXXXX9xxxxxxxxxxxx0xxxxxxxxxxxx1xxxxxxxxxxxx2XX
XXXXXXXXX Z PACKAGE ID PACKAGE01xxxxxxxxxxxx2xxxxxxxxxxxx3xxxxxxxxxxxx4X
XXXXXXXXX5xxxxxxxxxxxx6xxxxxxxxxxxx7xxxxxxxxxxxx8XX
XXXXXXXXX9xxxxxxxxxxxx0xxxxxxxxxxxx1xxxxxxxxxxxx2XX
XXXXXXXXX Z CONSISTENCY TOKEN X'C3D6D5E2E3D6D2F1'
RDS X'FFFFFEF' SEQNO 66 PT LGTH 120
QW0031SV X'E7E7'

EDMID

The type of request:

DB   Database
CT   Cursor
XT   DBD extension
PT  Package table

Field Name: QW0031ID

DBID

The database ID. Deduced from the DB2 fields QW0031DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0031DB is shown, or N/A when this value is 0.

Field Name: RT0031DB

DB LGTH

The length of the section associated with this DBD.

Field Name: QW0031DL

PLAN

The plan name for the CT or XT request.

Field Name: QW0031PL

RDS

The RDS identifier number for CT. Special cases are:

x'00000001'
    SKCT header

x'FFFFFFFE'
    SKCT directory

Field Name: QW0031RN

RDS

The RDS identifier number for PT. Special cases are:

x'00000001'
    SKCT header

x'FFFFFFFE'
    SKCT directory

Field Name: QW0031KN

SEQNO

The sequence number within the RDS number. This is QW0031SN for CT or QW0031GN for PT.

Field Name: R0031SN

CT LGTH

The length of the CT or XT sections in bytes.

Field Name: QW0031CL

LOCATION

The name of the package location. This field shows "BLANK" if the local location name is not defined.

Field Name: QW0031LN

COLLCTN
IFCID 031 - EDM Full

The collection identifier of the package.
Field Name: QW0031CI

PCKG ID
The package identifier.
Field Name: QW0031PI

CONSISTENCY TOKEN
The consistency token of the package.
Field Name: QW0031CT

PT LGTH
The length of the PT section in bytes.
Field Name: QW0031GL

IFCID 032 - Log Wait Start:

This topic shows detailed information about “Record Trace - IFCID 032 - Log Wait Start”.

Record trace - IFCID 032 - Log Wait Start

The field labels shown in the following sample layout of “Record Trace - IFCID 032 - Log Wait Start” are described in the following section.

FUNC TYPE: WFRC
QW0032RB 155344864

FUNC TYPE
The function type or request type:

WFRC Write force request
ARC Archive log command
'' Normal write-force request

Deduced from the DB2 fields QW0032FT and QW0032RT.
Field Name: QW0032FT

IFCID 033 - Log Wait End:

This topic shows detailed information about “Record Trace - IFCID 033 - Log Wait End”.

This record is for IBM service use.

Record trace - IFCID 033 - Log Wait End

The field labels shown in the following sample layout of “Record Trace - IFCID 033 - Log Wait End” are described in the following section.

QW0033RS
IFCID 033 - Log Wait End

This field is for IBM service use.

Field Name: QW0033RS

IFCID 034 - Log Read Start:

This topic shows detailed information about “Record Trace - IFCID 034 - Log Read Start”.

Record trace - IFCID 034 - Log Read Start

The field labels shown in the following sample layout of “Record Trace - IFCID 034 - Log Read Start” are described in the following section.

DSID : X'XXXXXXXX
ACE : ZZ9
WAIT TIME TYPE: ACTIVE LOG READ
QW0034HR: X'HHHHH'
QW0034LR: X'HHHHHHHHH'

DSID

The data set identifier of the log manager.

Field Name: QW0034DI

WAIT TIME TYPE

The type of wait time. Possible values are:
• ACTIVE LOG READ
• ACTIVE LOG PREFETCH READ
• BSDS READ
• PEER-BSDS READ

Otherwise, a hexadecimal value is shown.

Field Name: QW0034TY

ACE

The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.

Field Name: QW0034AC

IFCID 035 - Log Read End:

This topic shows detailed information about “Record Trace - IFCID 035 - Log Read End”.

Record trace - IFCID 035 - Log Read End

The field labels shown in the following sample layout of “Record Trace - IFCID 035 - Log Read End” are described in the following section.

RET 0 ACE 1

RET

The return code.

Field Name: QW0035RT

ACE
IFCID 035 - Log Read End

The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.

Field Name: QW0035AC

IFCID 036 - Log Non I/O Start:

This topic shows detailed information about “Record Trace - IFCID 036 - Log Non I/O Start”.

Record trace - IFCID 036 - Log Non I/O Start

The field labels shown in the following sample layout of “Record Trace - IFCID 036 - Log Non I/O Start” are described in the following section.

<table>
<thead>
<tr>
<th>DSID</th>
<th>:</th>
<th>DSIDNAME</th>
<th>EVENT ID: ALLC</th>
</tr>
</thead>
<tbody>
<tr>
<td>REQUEST TYPE: ALLD</td>
<td>ACE</td>
<td>:</td>
<td>1</td>
</tr>
</tbody>
</table>

DSID

The data set identifier of the log manager.

Field Name: QW0036DI

EVENT ID

The event identifier:

- ALLC Allocation
- DTAU Data set unavailable
- OPEN Open
- CLOS Close
- DEAL Deallocate
- CLOC Wait for the catalog to be located
- WTOR Wait for reply from write-to-operator
- HSMR Wait for HSM recall
- UUNI Wait for unavailable tape unit
- URST Wait for unavailable reader service task
- MDSV Wait for multi-data set volume
- POSI Wait for tape volume positioning

Field Name: QW0036EI

REQUEST TYPE

The request type:

- ALLD Demand allocation
- ALLL Look ahead (premount) allocation

Field Name: QW0036RT

ACE
The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.

**Field Name:** QW0036AC

IFCID 037 - Log Non I/O End:

This topic shows detailed information about “Record Trace - IFCID 037 - Log Non I/O End”.

**Record trace - IFCID 037 - Log Non I/O End**

The field labels shown in the following sample layout of “Record Trace - IFCID 037 - Log Non I/O End” are described in the following section.

```
RET  0  ACE  1  
QW0037RC  0
```

RET

The return code.

**Field Name:** QW0037RT

ACE

The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.

**Field Name:** QW0037AC

IFCID 038 - Active Write Start:

This topic shows detailed information about “Record Trace - IFCID 038 - Active Write Start”.

**Record trace - IFCID 038 - Active Write Start**

The field labels shown in the following sample layout of “Record Trace - IFCID 038 - Active Write Start” are described in the following section.

```
DSID  ACTLG101  COPY  1  ACE  2  
CI     1
QW0038VR  4345856  QW0038FR  0
QW0038LR  155340800  QW0038LC  155344772
QW0038LB  X'7F709470'
```

DSID

The data set identifier of the log manager.

**Field Name:** QW0038DI

COPY

The copy number of the active log data set.

**Field Name:** QW0038CN

ACE

The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.
IFCID 038 - Active Write Start

Field Name: QW0038AC

CI
The number of contiguous control intervals.

Field Name: QW0038CC

IFCID 039 - Active Write End:

This topic shows detailed information about “Record Trace - IFCID 039 - Active Write End”.

Record trace - IFCID 039 - Active Write End

The field labels shown in the following sample layout of “Record Trace - IFCID 039 - Active Write End” are described in the following section.

<table>
<thead>
<tr>
<th>DSID</th>
<th>ACTLG102</th>
<th>COPY</th>
<th>1</th>
<th>ACE</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>RET</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QW0039RC</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DSID**
The data set identifier.

Field Name: QW0039DI

**COPY**
The copy number of the active log data set.

Field Name: QW0039CN

**ACE**
The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.

Field Name: QW0039AC

**RET**
The return code.

Field Name: QW0039RT

IFCID 040 - Archive Write Start:

This topic shows detailed information about “Record Trace - IFCID 040 - Archive Write Start”.

Record trace - IFCID 040 - Archive Write Start

The field labels shown in the following sample layout of “Record Trace - IFCID 040 - Archive Write Start” are described in the following section.

<table>
<thead>
<tr>
<th>DSID</th>
<th>DSIDNAME</th>
</tr>
</thead>
</table>

**DSID**
The data set identifier of the log manager.

Field Name: QW0040DI
IFCID 041 - Archive Write End:

This topic shows detailed information about “Record Trace - IFCID 041 - Archive Write End”.

Record trace - IFCID 041 - Archive Write End

The field labels shown in the following sample layout of “Record Trace - IFCID 041 - Archive Write End” are described in the following section.

```
RET 0 BLOCKS 5
RET
```

The return code.

Field Name: QW0041RT

BLOCKS

The number of blocks written.

Field Name: QW0041BW

IFCID 042 - Checkpoint Start:

This topic shows detailed information about “Record Trace - IFCID 042 - Checkpoint Start”.

When present, data is printed in dump format, otherwise NO DATA is printed.

IFCID 043 - Checkpoint End:

This topic shows detailed information about “Record Trace - IFCID 043 - Checkpoint End”.

Record trace - IFCID 043 - Checkpoint End

The field labels shown in the following sample layout of “Record Trace - IFCID 043 - Checkpoint End” are described in the following section.

```
RBA X'0000008F65341288'
RBA
```

The beginning checkpoint RBA.

Field Name: QW0043BC

IFCID 044 - Lock Suspend:

This topic shows detailed information about “Record Trace - IFCID 044 - Lock Suspend”.

Record trace - IFCID 044 - Lock Suspend

The field labels shown in the following sample layout of “Record Trace - IFCID 044 - Lock Suspend” are described in the following section.
LOCK RES TYPE

The locked resource type.

Note: For data sharing, SKELETON CURSOR TABLE LOCKING and SKELETON PACKAGE TABLE LOCK are LP-locks (an LP-lock has an L-lock component and a P-lock component).

Field Name: QW0044KT

NAME

The plan name or collection name. This field is only printed if the value in LOCK RES TYPE is SKELETON CURSOR TABLE LOCKING or COLLECTION.

Deduced from the DB2 field QW0021KD, QW0021KP, and QW0021KR when the locked resource type is skeleton cursor table locking.

Field Name: RT21NAME

BPID

The buffer pool ID. This field is only printed if the value in LOCK RES TYPE is:

ALTER BUFFER POOL
GROUP BUFFERPOOL START/STOP LOCK
PAGESET/PARTITION P-LOCK
PAGE P-LOCK
GROUP BUFFERPOOL LEV CASTOUT P-LOCK
PAGESET/PARTITION LEV CASTOUT P-LOCK

For ALTER BUFFER POOL, deduced from QW0021KD || QW0021KP.

For GROUP BUFFERPOOL START/STOP LOCK, deduced from QW0021KD || QW0021KP.

For PAGESET/PARTITION P-LOCK, deduced from QW0021P1.

For PAGE P-LOCK, deduced from QW0021P1.

For GROUP BUFFERPOOL LEV CASTOUT P-LOCK deduced from QW0021P1.

For PAGESET/PARTITION LEV CASTOUT P-LOCK, deduced from QW0021P1.

Field Name: RT21BPID

DBID

The database ID. This field is not applicable if the value in LOCK RES TYPE is:

SKELETON CURSOR TABLE LOCKING
SKELETON PACKAGE TABLE LOCK
COLLECTION
ALTER BUFFER POOL

Deduced from the DB2 fields QW0044KD, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0044KD is shown, or N/A when this value is 0.

Field Name: RT0044DB

OBID
The object ID of the table space or page set. This field is not applicable if the value in LOCK RES TYPE is:
SKELETON CURSOR TABLE LOCKING
SKELETON PACKAGE TABLE LOCK
COLLECTION
ALTER BUFFER POOL

Deduced from the DB2 fields QW0044OB, QW0105TN, QW0107TN, QW0105OB, or QW0107OB.

The table space or object name is shown, when present, otherwise the decimal identifier from QW0044OB is shown, or N/A when this value is 0.

Field Name: RT0044OB

RESOURCE ID
The hexadecimal identifier of the small resource. If LOCK RES TYPE is:

DATA PAGE LOCKING
First 3 bytes are the page number

DATA SET LOCKING (PARTITION)
Last byte is the partition number

INDEX PAGE LOCKING
First 3 bytes are the page number

HASH ANCHOR LOCK
First 3 bytes are the page number and the last byte is the anchor point ID

CS-READ DRAIN
Last byte is the partition number (optional)

RR-READ DRAIN
Last byte is the partition number (optional)

WRITE DRAIN
Last byte is the partition number (optional)

ROW LOCK
First 3 bytes are the page number and the last byte is the row ID of the record

INDEX END OF FILE LOCK
Last byte is the partition number (optional)

Note:
• In large partitioned table spaces, the page number covers 4 bytes instead of 3.
• If table spaces use relative page numbers, the resource ID covers 7 bytes. It contains the partition number in the first 2 bytes, the page number in the next 4 bytes, and the record ID in the seventh byte.

This field is not applicable if the value in LOCK RES TYPE is SKELETON CURSOR TABLE LOCKING, SKELETON PACKAGE TABLE LOCK, COLLECTION, TABLE LOCK, or ALTER BUFFER POOL. If the value is UTILITY SERIALIZATION LOCK or BINDLOCK, N/A is printed.

Field Name: QW0044KR

COLL
IFCID 044 - Lock Suspend

The collection identifier. This field is only printed if the value in LOCK RES TYPE is SKELETON PACKAGE TABLE LOCKING.

The package identifier. This field is only printed if the value in LOCK RES TYPE is SKELETON PACKAGE TABLE LOCKING.

The consistency token. This field is only printed if the value in LOCK RES TYPE is SKELETON PACKAGE TABLE LOCKING.

The buffer pool ID. This field is only printed if the value in LOCK RES TYPE is ALTER BUFFER POOL.

Field Name: QW0044RN

IRLM FUNC CODE

The IRLM function code.

Field Name: QW0044FC

STATE

The lock state.

Field Name: QW0044ST

DURATION

The lock duration:

MANUAL  Varies depending on the ISOLATION parameter (QW0044DR=x '20')

MANUAL+1 Temporary change of consistency level from CS to RR during bind and DDL (QW0044DR=x '21')

COMMIT  Until commit (QW0044DR=x '40')

COMMIT+1 Past commit; applies to locks needed to maintain the position for a cursor opened WITH HOLD (QW0044DR=x '41')

ALLOCATION  Until deallocation (QW0044DR= '60')

PLAN  For the duration of the plan (QW0044DR=x '80')

UTIL  For the duration of the utility execution (QW0044DR=x '81')

INTEREST  Duration used for P-locks (QW0044DR=x 'FE')

FREE ALL  Until all locks are freed (QW0044DR=x 'FF')

N/A  Not applicable for NOTIFY SUSPEND

Field Name: QW0044DR

REASON SUSP

The reason for the suspend:

LC  IRLM latch contention

IQ  IRLM queued request

LR  Local resource contention
IFCID 044 - Lock Suspend

GR  Global resource contention
IS  Intersystem communication
N   Notify message sent
LS  No longer used
RL  Contention with a retained lock

Field Name: QW0044WS

REQ TOKEN
The IRLM lock request token.
Field Name: QW0044RT

LOCK ATTRIBUTES
The lock attributes.
Field Name: QW0044FO

PROP TO XES
Indicates whether the request was propagated to XES by IRLM.
Field Name: QW0044Y1

ASYN TO XES
Indicates whether the request was sent to XES asynchronously by IRLM.
Field Name: QW0044Y2

PARENT TOKEN
The parent token for explicit hierarchical locking. This field is valid if the
DB2 subsystem is a member of a data sharing group.
Field Name: QW0044PT

LOCK HASH VALUE
The hash value of the locked resource.
Field Name: QW0044LH

IFCID 045 - Lock Resume:

This topic shows detailed information about “Record Trace - IFCID 045 - Lock
Resume”.

Record trace - IFCID 045 - Lock Resume

The field labels shown in the following sample layout of “Record Trace - IFCID 045
- Lock Resume” are described in the following section.

REASON FOR RESUME : NORMAL RESUME
REASON FOR SUSPEND : X'08'
IRLM LATCH CONTENTION  : NO
IRLM QUEUED REQUEST    : NO
LOCAL RESOURCE CONTENTION : NO
RETIRED LOCK CONTENTION : NO
GLOBAL RESOURCE CONTENTION : YES
INTER-SYSTEM MESSAGE SENDING : NO
GLOBAL CONTENTION EXTENT  : X'F0'
XES GLOBAL CONTENTION    : NO
IRLM GLOBAL CONTENTION  : YES
IFCID 045 - Lock Resume

FALSE CONT OR CONV : NO
QW0045W4 NO QW0045W6 NO QW0045W8 NO
QW0045X1 NO QW0045X2 NO QW0045X5 NO
QW0045X6 NO QW0045X7 NO QW0045X8 NO

REASON FOR RESUME

The reason for the lock resume.
Field Name: QW0045R

REASON FOR SUSPEND

The reason for the suspension. The nonserviceability values are:

IRLM LATCH CONTENTION
Indicates whether IRLM latch contention occurred. (QW0045W1)

IRLM QUEUED REQUEST
Indicates whether there was an IRLM queued request. (QW0045W2)

LOCAL RESOURCE CONTENTION
Indicates whether local resource contention occurred. (QW0045W3)

RETAIINED LOCK CONTENTION
Indicates whether there was contention with a retained lock. (QW0045W4)

GLOBAL RESOURCE CONTENTION
Indicates whether intersystem communication was required to resolve an IRLM request. (QW0045W5)

INTER-SYSTEM MESSAGE SENDING
Indicates whether any intersystem message was sent. (QW0045W7)

Field Name: QW0045SR

GLOBAL CONTENTION EXTENT

The extent of global contention. This is applicable if the value in the GLOBAL RESOURCE CONTENTION field is YES. The nonserviceability values are:

XES GLOBAL CONTENTION
Indicates whether XES global contention occurred. DB2 field QW0045X3.

IRLM GLOBAL CONTENTION
Indicates whether IRLM global contention occurred. DB2 field QW0045X4.

FALSE CONT OR CONV
Indicates whether XES global contention or IRLM global contention occurred. DB2 field QW0045X4.

Field Name: QW0045XR

IFCID 046 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 046 - IBM Service Record”.

This record is for IBM service use.

3766 IBM Db2 Performance Expert on z/OS
IFCID 047 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 047 - IBM Service Record”.

This record is for IBM service use.

IFCID 048 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 048 - IBM Service Record”.

This record is for IBM service use.

IFCID 049 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 049 - IBM Service Record”.

This record is for IBM service use.

IFCID 050 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 050 - IBM Service Record”.

This record is for IBM service use.

IFCID 051 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 051 - IBM Service Record”.

This record is for IBM service use.

IFCID 052 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 052 - IBM Service Record”.

This record is for IBM service use.

IFCID 053 - SQL Describe/Commit/Rollback/Remote Statement:

This topic shows detailed information about “Record Trace - IFCID 053 - SQL Describe/Commit/Rollback/Remote Statement”.

If this event is not recognized, UNRECOG CMD is printed.

The following data is printed in the DATA column:

Record trace - IFCID 053 - SQL Describe/Commit/Rollback/Remote Statement

The field labels shown in the following sample layout of “Record Trace - IFCID 053 - SQL Describe/Commit/Rollback/Remote Statement” are described in the following section.
IFCID 053 - SQL Describe/Commit/Rollback/Remote Statement

LOCATION NAME
The location name.

Field Name: QW0053LN

PKG COLLECTION ID
The package collection identifier.

Field Name: QW0053PC

PROGRAM NAME
The name of the program.

Field Name: QW0053PN

CONSISTENCY TOKEN
The consistency token.

Field Name: QW0053TS

SECTION NUMBER
The section number of the Relational Data system Input parameter list (RDI).

Field Name: QW0053SECTN

STATEMENT NUMBER
The number of the statement executed.

Field Name: QW0053SN

QUERY COMMAND ID
The ID of the query command.

Field Name: QW0053QID

QUERY INSTANCE ID
The ID of the query instance.

Field Name: QW0053QID

SQL REQUEST TYPE
The type of SQL request.

Field Name: QW0053CID

EXPANSION REASON
The reason for the expansion. It can have the following values:
GET_ARCHIVE
Expansion caused by built-in SYSIBMADM.GET_ARCHIVE global variable.

TEMPORAL BUSINESS_TIME
Expansion caused by the current temporal BUSINESS_TIME special register.

TEMPORAL SYSTEM_TIME
Expansion caused by the current temporal SYSTEM_TIME special register.

TEMPORAL SYSTEM_TIME & BUSINESS_TIME
Expansion caused by the current temporal SYSTEM_TIME & current temporal BUSINESS_TIME special registers.

NO EXPANSION
The query does not contain any expansion.

Field Name: QW0053ER

SQLCA CONTENTS
This section contains the SQLCA fields. It is only printed if the value in the ENTRY/EXIT TYPE field is RETURNED.

Field Name: QW0053SQ

DATA TYPE
The scan type identification:

**INDX**  Index scan
**SEQD**  Sequential data scan
**SEQW**  Sequential data work-file scan

Field Name: QW0053ID

ROW PROC
The number of rows processed.

Field Name: QW0053RP

ROW EXAM
The number of rows examined. If DATA TYPE shows **INDX**, this number is the number of index entries (not rows) scanned.

Field Name: QW0053LA

STG1-QUAL
The number of rows qualified at stage 1.

Field Name: QW0053DQ

STG2-QUAL
The number of rows qualified at stage 2.

Field Name: QW0053RQ

ROW INSRT
The number of rows inserted.

Field Name: QW0053IN
IFCID 053 - SQL Describe/Commit/Rollback/Remote Statement

ROW UPDTE
The number of rows updated.
Field Name: QW0053UP

ROW DELET
The number of rows deleted. If the delete was a mass delete, the indicator MASS is printed.
Field Name: QW0053DE

PAGES
The number of get page requests issued by the data manager to the buffer manager. Note that for an index scan the value includes the number of index pages scanned.
Field Name: QW0053PS

RI SCAN
The number of additional pages scanned for referential integrity.
Field Name: QW0053PR

RI DELET
The number of additional rows deleted for referential integrity.
Field Name: QW0053DR

IFCID 055 - Set SQLID:

This topic shows detailed information about “Record Trace - IFCID 055 - Set SQLID”.

This IFCID is written when a SET CURRENT SQLID STATEMENT is issued. It shows the previous SQLID, the new SQLID, and whether the statement succeeded. This record is only written at the application server when DRDA protocol is used.

This record is written when performance trace class 3 is on. This record is written when audit class 7 is on. MONITOR1 privilege is required for reading via ifi.

The SQLID is the SQL authorization ID of the process. This is:
- The authorization ID used for authorization checking on dynamically prepared CREATE, GRANT, and REVOKE SQL statements
- The owner of a table space, database, storage group, or synonym created by a dynamically issued CREATE statement
- The implicit qualifier of all table, view, alias, and index names specified in dynamic SQL statements.

The initial value of CURRENT SQLID can be provided by the connection or sign-on exit routine, otherwise the initial value is the primary authorization ID of the process.

Record trace - IFCID 055 - Set SQLID

The field labels shown in the following sample layout of “Record Trace - IFCID 055 - Set SQLID” are described in the following section.
SET SQLID  NETWORKID: DEIBMIPS LUNAME: IPSAU851 LUWSEQ:  1
PREV SQLID:  DB2PM
NEW SQLID:  DB2PM
STATUS : SUCCESSFUL EXECUTION

PREV SQLID

The initial value of the SQLID before execution of the request.

Field Name: QW0055OI

NEW SQLID

If the command completed successfully, the new value of the SQLID is shown. If the command did not complete successfully, the value of the attempted SQLID change is shown.

Field Name: QW0055NI

STATUS

The success or failure of the attempted authorization change. Possible values are:
• SUCCESS or SUCCESSFUL for a successful authorization change
• FAILURE for a failed attempt

Note: The SQL statement is always successful if the user has SYSADM authority.

Field Name: QW0055ST

IFCID 056 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 056 - IBM Service Record”.

This record is for IBM service use.

Record trace - IFCID 056 - IBM Service Record

The field labels shown in the following sample layout of “Record Trace - IFCID 056 - IBM Service Record” are described in the following section.

QW0056LA: X'1122334456677888'  QW0056LC: X'E2'
QW0056LF: X'00000A00'

QW0056LA

This field is for IBM service use.

Field Name: QW0056LA

QW0056LC

This field is for IBM service use.

Field Name: QW0056LC

QW0056LF

This field is for IBM service use.

Field Name: QW0056LF
IFCID 057 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 057 - IBM Service Record”.

This record is for IBM service use.

Record trace - IFCID 057 - IBM Service Record

The field labels shown in the following sample layout of “Record Trace - IFCID 057 - IBM Service Record” are described in the following section.

QW0057LA: X'1122334456677788'
QW0057LC: X'88'
QW0057TS: X'00000A00'

QW0057LA

This field is for IBM service use.

Field Name: QW0057LA

QW0057LC

This field is for IBM service use.

Field Name: QW0057LC

QW0057TS

This field is for IBM service use.

Field Name: QW0057TS

IFCID 058 - End SQL:

This topic shows detailed information about “Record Trace - IFCID 058 - End SQL”.

Record trace - IFCID 058 - End SQL

The field labels shown in the following sample layout of “Record Trace - IFCID 058 - End SQL” are described in the following section.

LOCATION NAME : OMPDBZ4
PKG COLLECTION ID : DSNTIA10
PROGRAM NAME : DSNTIAD
CONSISTENCY TOKEN : X'18B61ACB02FABE19'
STATEMENT NUMBER : 1989
QUERY COMMAND ID : X'0000000000000000'
QUERY INSTANCE ID: X'0000000000000000'
SQL REQUEST TYPE : 0
EXPANSION REASON : X'0000000000000000'
SQLCODE : 0
SQLSTATE: 00000
SQLCAID: SQLCA
SQLCABC: 136
SQLERRP: DSN
SQLERRD1: 0
SQLERRD2: 0
SQLERRD3: 0
SQLERRD4: -1
SQLERRD5: 0
SQLERRD6: 0
SQLERRD7: 0
SQLERRD8: 0
SQLERRD9: 0
SQLERRA: 0

ACCUMULATED TIME VALUES:
IN-DB2 ELAPSED : 0.759050
IN-DB2 CPU : 0.758975
WAIT FOR SYNC I/O : 7.503980
WAIT FOR LOCK/LATCH : 0.000918
WAIT FOR READ BY OTHER THR: 0.554322
WAIT FOR WRTE BY OTHER THR: 0.171751
NBR OF TIMES RD LIST NOT USED, BECAUSE:
NBR EXCEEDS DB2 LIMITS : 0
WAIT FOR PAGE LATCH : 0.002227
WAIT FOR PARENT CHILD SYNC: 0.014852
LOCATION NAME
The location name.
Field Name: QW0058LN

PKG COLLECTION ID
The package collection identifier.
Field Name: QW0058PC

PROGRAM NAME
The program name.
Field Name: QW0058PN

CONSISTENCY TOKEN
The consistency token.
Field Name: QW0058TS

SECTION NUMBER
The section number of the Relational Data system Input parameter list (RDI).
Field Name: QW0058SECTN

STATEMENT NUMBER
The number of the statement executed.
Field Name: QW0058SN

QUERY COMMAND ID
The ID of the query command.
Field Name: QW0058CID

QUERY INSTANCE ID
The ID of the query instance.
Field Name: QW0058QID

SQL REQUEST TYPE
Field Name: QW0058TOS

EXPANSION REASON
The reason for the expansion. It can have the following values:

GET_ARCHIVE
Expansion caused by built-in SYSIBMADM.GET_ARCHIVE global variable.

TEMPORAL BUSINESS_TIME
Expansion caused by the current temporal BUSINESS_TIME special register.

TEMPORAL SYSTEM_TIME
Expansion caused by the current temporal SYSTEM_TIME special register.
TEMPORAL SYSTEM_TIME & BUSINESS_TIME
Expansion caused by the current temporal SYSTEM_TIME &
current temporal BUSINESS_TIME special registers.

NO EXPANSION
The query does not contain any expansion.

Field Name: QW0058EXR

SQLCA CONTENTS
This section contains the SQLCA fields. It is only printed if the value in the
ENTRY/EXIT TYPE field is RETURNED.

Field Name: QW0058SQ

DATA TYPE
The scan type identification.
INDX   Index scan
SEQD   Sequential data scan
SEQW   Sequential data work-file scan

Field Name: QW0058ID

ROW PROC
The number of rows processed.

Field Name: QW0058RP

ROW EXAM
The number of rows examined. If DATA TYPE shows INDX, this number is
the number of index entries (not rows) scanned.

Field Name: QW0058LA

STG1-QUAL
The number of rows qualified at stage 1.

Field Name: QW0058DQ

STG2-QUAL
The number of rows qualified at stage 2.

Field Name: QW0058RQ

ROW INSRT
The number of rows inserted.

Field Name: QW0058IN

ROW UPDTE
The number of rows updated.

Field Name: QW0058UP

ROW DELET
The number of rows deleted. If the delete was a mass delete, the indicator
MASS is printed.

Field Name: QW0058DE
PAGES
The number of get page requests issued by the data manager to the buffer manager. Note that for an index scan, the value includes the number of index pages scanned.
Field Name: QW0058PS

RI SCAN
The number of additional pages scanned for referential integrity.
Field Name: QW0058PR

RI DELET
The number of additional rows deleted for referential integrity.
Field Name: QW0058DR

LOB SCAN
Additional pages scanned in a LOB table space.
Field Name: QW0058PL

LOB UPDTE
Number of LOB data pages updated by SQL INSERT or SQL UPDATE.
Field Name: QW0058UL

IN-DB2 ELAPSED
The accumulated in-DB2 elapsed time.
Field Name: QW0058ET

IN-DB2 CPU
The accumulated in-DB2 CPU time. It includes CPU time consumed on an IBM specialty engine.
Field Name: QW0058CP

WAIT FOR SYNC I/O
The accumulated wait for synchronous I/O.
Field Name: QW0058SI

WAIT FOR LOCK/LATCH
The accumulated wait time for locks.
Field Name: QW0058LK

SYNC EXEC UNIT SWITCH
The accumulated wait time for the synchronous execution unit switches.
Field Name: QW0058EU

WT FOR GLOBAL LOCKS
The accumulated wait time for global locks.
Field Name: QW0058GL

WT FOR READ BY OTHER THR
The accumulated wait time for read activity done by another thread.
Field Name: QW0058OR

WT FOR WRTE BY OTHER THR
The accumulated wait time for write activity done by another thread.
Field Name: QW0058OW

NBR EXCEEDS DB2 LIMITS
The number of times RID list was not used because the number of RIDS would have exceeded DB2 limits.
Field Name: QW0058RL

NOT ENOUGH STORAGE
The number of time a RID list was not used because there is not enough storage available to hold the list of RIDs.
Field Name: QW0058RS

WAIT FOR LATCH
The accumulated wait for latch.
Field Name: QW0058LH

WAIT FOR PAGE LATCH
The accumulated wait time for page latch.
Field Name: QW0058PA

WAIT FOR DRAIN LOCK
The accumulated wait time for drain lock.
Field Name: QW0058DA

WAIT FOR CLAIM COUNT
The accumulated wait time for claim count.
Field Name: QW0058CL

WAIT FOR LOG WRITER
The accumulated wait time for log writer.
Field Name: QW0058LG

WAIT FOR CHILD L-LOCKS
The accumulated wait time for global child L-locks.
Field Name: QW0058AWTK

WAIT FOR PAGESET L-LOCKS
The accumulated wait time for global Pageset or Partition L-locks.
Field Name: QW0058AWTN

WAIT FOR OTHER L-LOCKS
The accumulated wait time for global other L-locks.
Field Name: QW0058AWTM

WAIT FOR PAGE P-LOCKS
The accumulated wait time for global page P-locks.
Field Name: QW0058AWTO

WAIT FOR OTHER P-LOCKS
The accumulated wait time for global other P-locks.

Field Name: QW0058AWTQ

WAIT FOR PIPE
The accumulated wait time for pipe.

Field Name: QW0058PW

WT FOR PARENT CHILD SYNC
The accumulated time waiting for parallel queries to synchronize between parent and child tasks.

Field Name: QW0058PQ

IFCID 059 - Fetch Start:

This topic shows detailed information about “Record Trace - IFCID 059 - Fetch Start”.

Record trace - IFCID 059 - Fetch Start

The field labels shown in the following sample layout of “Record Trace - IFCID 059 - Fetch Start” are described in the following section.

START LOCATION NAME : PM05DB51
PKG COLLECTION ID: HSRTEP2VL1XXXXXXXX2XXXXXXXX3XXXX
XXXXXXXXXXXXX5XXXXXXXX6XXXXXXXXX
7XXXXXXXXXXXXXXXX9XXXXXXXXX0XX
XXXXXXXX1XXXXXXXX2XXXXXXXXZ
PROGRAM NAME : DSN@EP2L
CURSOR NAME : C1
CONSISTENCY TOKEN: X'172A1C98193C380E'
STATEMENT NUMBER : 1627
STATEMENT TYPE : X'01'
QUERY COMMAND ID : ----
QUERY INSTANCE ID : ----
FETCH SENSITIVITY: UNSPECIFIED
FETCH ORIENTATION: NEXT

LOCATION NAME
The location name.

Field Name: QW0059LN

PKG COLLECTION ID
The package collection identifier.

Field Name: QW0059PC

PROGRAM NAME
The program name.

Field Name: QW0059PN

CURSOR NAME
The name of the cursor used by the FETCH statement.

Field Name: QW0059CN
IFCID 059 - Fetch Start

CONSISTENCY TOKEN
The consistency token.
Field Name: QW0059TS

STATEMENT NUMBER
The statement number.
Field Name: QW0059SN

STATEMENT TYPE
The statement type. X'01' indicates FETCH.
Field Name: QW0059ST

QUERY COMMAND ID
The ID of the query command.
Field Name: QW0059CID

QUERY INSTANCE ID
The ID of the query instance.
Field Name: QW0059QID

FETCH SENSITIVITY
Identifies the fetch sensitivity. It can be one of the following:
- Sensitive
- Insensitive
- Unspecified
Field Name: QW0059FS

FETCH ORIENTATION
Identifies the fetch orientation. It can be one of the following:
- First
- Last
- Before
- After
- Next
- Previous
- Current
- Absolute
- Relative
- Unspecified
Field Name: QW0059FO

IFCID 060 - Select Start:
This topic shows detailed information about “Record Trace - IFCID 060 - Select Start”.
Record trace - IFCID 060 - Select Start

The field labels shown in the following sample layout of “Record Trace - IFCID 060 - Select Start” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>START LOCATION NAME</td>
<td>PM05D851</td>
</tr>
<tr>
<td>PKG COLLECTION ID</td>
<td>DB2PM</td>
</tr>
<tr>
<td>PROGRAM NAME</td>
<td>DGO@PCI</td>
</tr>
<tr>
<td>CONSISTENCY TOKEN</td>
<td>X'1747F0EF086D1D5E'</td>
</tr>
<tr>
<td>STATEMENT NUMBER</td>
<td>318</td>
</tr>
<tr>
<td>STATEMENT TYPE</td>
<td>X'00'</td>
</tr>
<tr>
<td>QUERY COMMAND ID</td>
<td>N/P</td>
</tr>
<tr>
<td>QUERY INSTANCE ID</td>
<td>N/P</td>
</tr>
<tr>
<td>ISOLATION</td>
<td>RR</td>
</tr>
<tr>
<td>REOPTIMIZATION</td>
<td>NO</td>
</tr>
</tbody>
</table>

**LOCATION NAME**

The location name.

Field Name: QW0060LN

**PKG COLLECTION ID**

The package collection identifier.

Field Name: QW0060PC

**PROGRAM NAME**

The program name.

Field Name: QW0060PN

**CONSISTENCY TOKEN**

The consistency token.

Field Name: QW0060TS

**STATEMENT NUMBER**

The statement number of the statement executed.

Field Name: QW0060SN

**STATEMENT TYPE**

The statement type. X'00' indicates SELECT.

Field Name: QW0060ST

**QUERY COMMAND ID**

The ID of the query command.

Field Name: QW0060CID

**QUERY INSTANCE ID**

The ID of the query instance.

Field Name: QW0060QID

**ISOLATION**

The isolation level:

- RR  Repeatable read
- CS  Cursor stability
- RS  Read stability
IFCID 060 - Select Start

UR Uncommitted read

Field Name: QW0060I

REOPTIMIZATION
Indicates whether the access path of the SQL statement was reoptimized at run time.

Field Name: QW0060RO

IFCID 061 - Insert/Update/Delete Start:

This topic shows detailed information about “Record Trace - IFCID 061 - Insert/Update/Delete Start”.

Record trace - IFCID 061 - Insert/Update/Delete Start

The field labels shown in the following sample layout of “Record Trace - IFCID 061 - Insert/Update/Delete Start” are described in the following section.

```
START       LOCATION NAME       : PM05D851
PKG COLLECTION ID : DB2PM
PROGRAM NAME        : DG00PC4
CONSISTENCY TOKEN : X'1746B2741FC9F534'
STATEMENT NUMBER   : 168
STATEMENT TYPE      : UPDATE TYPE- NON CURSOR
CURSOR NAME         : N/P
QUERY COMMAND ID    : N/P
QUERY INSTANCE ID   : N/P
ISOLATION           : RR
REOPTIMIZATION      : NO
```

LOCATION NAME
The location name.

Field Name: QW0061LN

PKG COLLECTION ID
The package collection ID.

Field Name: QW0061PC

PROGRAM NAME
The program name.

Field Name: QW0061PN

CONSISTENCY TOKEN
The consistency token.

Field Name: QW0061TS

STATEMENT NUMBER
The statement number of the statement executed.

Field Name: QW0061SN

STATEMENT TYPE
The statement type. Possible values are:

- STATEMENT TYPE
- INSERT TYPE
IFCID 061 - Insert/Update/Delete Start

- UPDATE TYPE- NON CURSOR
- UPDATE TYPE- CURSOR
- MERGE TYPE
- DELETE TYPE- NON CURSOR
- DELETE TYPE- CURSOR
- TRUNCATE TYPE

Field Name: QW0061ST

CURSOR NAME
The name of the cursor.
Field Name: QW0061CN

QUERY COMMAND ID
The ID of the query command.
Field Name: QW0061CI

QUERY INSTANCE ID
The ID of the query instance.
Field Name: QW0061QI

ISOLATION
The isolation level:

RR  Repeatable read
CS  Cursor stability
RS  Read stability

Field Name: QW0061II

REOPTIMIZATION
Indicates whether the access path of the SQL statement was reoptimized at run time.
Field Name: QW0061RO

IFCID 062 - DDL Start:

This topic shows detailed information about “Record Trace - IFCID 062 - DDL Start”.

Record trace - IFCID 062 - DDL Start

The field labels shown in the following sample layout of “Record Trace - IFCID 062 - DDL Start” are described in the following section.

<table>
<thead>
<tr>
<th>DDL START</th>
<th>STATEMENT TYPE: ALTER VIEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJECT TYPE : TABLESPACE</td>
<td></td>
</tr>
<tr>
<td>OBJECT NAME : HSRPDSBU</td>
<td></td>
</tr>
</tbody>
</table>

STATEMENT TYPE
The type of statement that is processed. Possible values are:
- ALTER DATABASE
- ALTER FUNCTION
- ALTER INDEX
• ALTER JAR
• ALTER MASK
• ALTER PERMISSION
• ALTER PROCEDURE
• ALTER SEQUENCES
• ALTER STORAGE GROUP
• ALTER TABLE
• ALTER TABLESPACE
• ALTER TRUSTED CONT
• ALTER VIEW
• CREATE ALIAS
• CREATE AUX TABLE
• CREATE DATABASE
• CREATE DISTINCT TYPE
• CREATE FUNCTION
• CREATE GLBL T.TAB
• CREATE INDEX
• CREATE JAR
• CREATE MASK
• CREATE PERMISSION
• CREATE PROCEDURE
• CREATE ROLE
• CREATE SEQUENCES
• CREATE STORAGE GROUP
• CREATE SYNONYM
• CREATE TABLE
• CREATE TABLESPACE
• CREATE TRIGGER
• CREATE TRUSTED CONT
• CREATE VIEW
• COMMENT ON
• DECLARE GLBL T.TAB
• DROP ALIAS
• DROP DATABASE
• DROP DISTINCT TYPE
• DROP INDEX
• DROP JAR
• DROP MASK
• DROP PERMISSION
• DROP PROCEDURE
• DROP ROLE
• DROP SEQUENCES
• DROP STORAGE GROUP
• DROP SYNONYM
• DROP TABLE
• DROP TABLESPACE
• DROP TRIGGER
• DROP TRUSTED CONTEXT
• DROP PACKAGE
• DROP UDF
• DROP VIEW
• FREE LOCATOR
• GRANT
• HOLD LOCATOR
• LABEL ON
• LOCK
• RENAME INDEX
• RENAME TABLE
• REVOKE
• TRANSFER OWNERSHIP

Field Name: QW0062ST

OBJECT TYPE

The type of object that is processed. Possible values are:
• ALIAS
• DATABASE
• DISTINCT TYPE
• FUNCTION
• INDEX
• JAR
• NO OBJECT
• PACKAGE
• ROLE
• SEQUENCES
• STORAGE GROUP
• STORED PROC
• SYNONYM
• TABLE
• TABLESPACE
• TRIGGER
• TRUSTED CONTEXT
• VIEW

Field Name: QW0062OT

OBJECT NAME

The object name. The name does not include high-level qualifiers.

Field Name: QW0062ON

IFCID 063 - SQL Statement:

This topic shows detailed information about “Record Trace - IFCID 063 - SQL Statement”.

Chapter 6. Batch reporting 3783
Record trace - IFCID 063 - SQL Statement

The field labels shown in the following sample layout of “Record Trace - IFCID 063 - SQL Statement” are described in the following section.

SQL STATEMENT NETWORKID: DEIBMIPS LUNAME: IPSAU851 LUWSEQ: 1 OPTIONS: X’04’ HOST LANG: N/A SQL STATEMENT:
STATEMENT IDENTIFIER: 29011 TYPE OF STATEMENT : DYNAMIC CCSID: 1208 OPTIONS
This field consists of 8 bits. The bits indicate the parser options and the host language. The four most significant bits describe the parser options:

Bit 7  String delimiter (0 = apostrophe; 1 = quotation mark)
Bit 6  Decimal separator (0 = period; 1 = comma)
Bit 5  SQL delimiter (0 = apostrophe; 1 = quotation mark)
Bit 4  Mixed data (0 = no; 1 = yes)
Bit 3  Reserved
Bits 0 to 2  Host language

The three least significant bits (0 to 2) are the host language bit mask. The hexadecimal value indicates the host language:

001  Host language is Assembler
010  Host language is COBOL
011  Host language is PL/I
100  Host language is Dynamic SQL
101  Host language is FORTRAN
110  Host language is COBOL2
111  Look at HOST LANG field
Field Name: QW0063OT

HOST LANG
Additional host language option. This field is optional. When the OPTIONS host language bit mask is x'7', it indicates the host language.

**Field Name:** QW0063HL

**SQL STATEMENT**

The SQL statement being processed.

**Note:**
- SQL text longer than 5000 characters is truncated.
- Host variables are represented as :H

**Field Name:** QW0063ST

**STATEMENT IDENTIFIER**

The type of statement.

**Field Name:** QW0063TY

**TYPE OF STATEMENT**

The statement identifier.

**Field Name:** QW0063SI

**CCSID**

The coded character set identifier (CCSID).

**Field Name:** QW0063CC

**IFCID 064 - Prepare Start**:

This topic shows detailed information about “Record Trace - IFCID 064 - Prepare Start”.

**Record trace - IFCID 064 - Prepare Start**

The field labels shown in the following sample layout of “Record Trace - IFCID 064 - Prepare Start” are described in the following section.

```
START LOCATION NAME : PM05D851
PKG COLLECTION ID: HSRTEP2VL1XXXXXXXX2XXXXXXXXX3XXXX
XXXXXXXX4XXXXXXX5XXXXXXXX6XXXXXXXX
X7XXXXXXXX8XXXXXXXXX9XXXXXXXXX0XX
XXXXXXXX1XXXXXXXX2XXXXXXXXXZ
PROGRAM NAME : DSN@EP2L
TIME STAMP : X'172A1C98193C380E'
STATEMENT NUMBER : 1550
STATEMENT TYPE : X'81'
CURSOR NAME : C1
QUERY COMMAND ID : QRYCMD01
QUERY INSTANCE ID: QRYINS01
LOCATION NAME

The location name.

**Field Name:** QW0064LN

**PKG COLLECTION ID**

The package collection identifier.

**Field Name:** QW0064CI
PROGRAM NAME

The program name.

Field Name: QW0064PN

TIME STAMP

The hexadecimal value of the precompiler timestamp.

Field Name: QW0064TS

STATEMENT NUMBER

The statement number.

Field Name: QW0064SN

STATEMENT TYPE

The statement types:

x'81' Prepare a cursor section.

x'80' Prepare a noncursor section.

x'C1' Implicit prepare of a cursor section.

x'C0' Implicit prepare of a noncursor section.

Field Name: QW0064ST

CURSOR NAME

The name of the cursor used by the PREPARE statement.

Field Name: QW0064CN

QUERY COMMAND ID

The ID of the query command.

Field Name: QW0064CID

QUERY INSTANCE ID

The ID of the query instance.

Field Name: QW0064QID

IFCID 065 - Open Cursor:

This topic shows detailed information about “Record Trace - IFCID 065 - Open Cursor”.

Record trace - IFCID 065 - Open Cursor

The field labels shown in the following sample layout of “Record Trace - IFCID 065 - Open Cursor” are described in the following section.
QUERY COMMAND ID : ----
QUERY INSTANCE ID : ----
ISOLATION : RR
REOPTIMIZATION : NO
CURSOR SCROLLABILITY : NON-SCROLL
CURSOR SENSITIVITY : UNSPECIFIED
CURSOR RESULT TABLE TYPE: UNSPECIFIED
CURSOR CLOSE COMMIT : NO IMPLICIT COMMIT

LOCATION NAME
The location name.
Field Name: QW0065LN

PKG COLLECTION ID
The package collection identifier.
Field Name: QW0065PC

PROGRAM NAME
The program name.
Field Name: QW0065PN

CONSISTENCY TOKEN
The consistency token.
Field Name: QW0065TS

STATEMENT NUMBER
The statement number.
Field Name: QW0065SN

STATEMENT TYPE
The statement type. X'91' indicates OPEN.
Field Name: QW0065ST

CURSOR NAME
The name of the cursor used by the OPEN cursor statement.
Field Name: QW0065CN

QUERY COMMAND ID
The ID of the query command.
Field Name: QW0065CID

QUERY INSTANCE ID
The ID of the query instance.
Field Name: QW0065QID

ISOLATION
The isolation level:
RR Repeatability read
CS Cursor stability
RS Read stability
UR Uncommitted read
IFCID 065 - Open Cursor

XR  Repeatable read with X lock
XS  Read stability with X lock

Field Name: QW0065I

REOPTIMIZATION
Indicates whether the access path of the SQL statement was reoptimized at run time.
Field Name: QW0065RO

CURSOR SCROLLABILITY
Identifies the cursor scrollability. It can be one of the following:
• Scroll
• None-scroll
Field Name: QW0065SC

CURSOR SENSITIVITY
Identifies the cursor sensitivity. It can be one of the following:
• Sensitive
• Insensitive
• Unspecified
Field Name: QW0065SV

CUR RESULT TABLE TYPE
Identifies the type of the cursor result table. It can be one of the following:
• Static
• Dynamic
• Unspecified
Field Name: QW0065RT

CURSOR CLOSE COMMIT
The cursor attribute implicit commit, which closed the cursor. Possible values are:
• IMPPLICIT COMMIT
• NO IMPPLICIT COMMIT
• N/A
Otherwise the values are shown in hexadecimal.
Field Name: QW0065TY

IFCID 066 - Close Cursor:
This topic shows detailed information about “Record Trace - IFCID 066 - Close Cursor”.

Record trace - IFCID 066 - Close Cursor
The field labels shown in the following sample layout of “Record Trace - IFCID 066 - Close Cursor” are described in the following section.
CURSOR LOCATION NAME : PM05D851
PKG COLLECTION ID : HSRTEP2VL1XXXXXXXXX2XXXXXXXXX3
XXXXXXXXX4XXXXXXXXX5XXXXXXXXX6
XXXXXXXXX7XXXXXXXXX8XXXXXXXXX9
XXXXXXXXX0XXXXXXXXX1XXXXXXXXX2
XXXXXXXXXZ

PROGRAM NAME : DSN@EP2L
CONSISTENCY TOKEN : X'172A1C98193C380E'
STATEMENT NUMBER : 1889
STATEMENT TYPE : X'A1'
CURSOR NAME : C1
CLOSE STMT TYPE : IMPLICIT
QUERY COMMAND ID : ----
QUERY INSTANCE ID : ----

LOCATION NAME

The location name.
Field Name: QW0066LN

PKG COLLECTION ID

The package collection identifier.
Field Name: QW0066PC

PROGRAM NAME

The program name.
Field Name: QW0066PN

CONSISTENCY TOKEN

The consistency token.
Field Name: QW0066TS

STATEMENT NUMBER

The statement number.
Field Name: QW0066SN

STATEMENT TYPE

The statement type. X'A1' indicates CLOSE.
Field Name: QW0066ST

CURSOR NAME

The name of the cursor used by the CLOSE cursor statement.
Field Name: QW0066CN

CLOSE STMT TYPE

The Close statement type. Possible values are:
• IMPLICIT
• EXPLICIT
• N/A
Otherwise the values are shown in hexadecimal.
Field Name: QW0066TY

QUERY COMMAND ID

The ID of the query command.
IFCID 066 - Close Cursor

Field Name: QW0066CID

QUERY INSTANCE ID

The ID of the query instance.

Field Name: QW0066QID

IFCID 067 - Accounting:

This topic shows detailed information about “Record Trace - IFCID 067 - Accounting”.

When present, data is printed in dump format, otherwise NO DATA is printed.

IFCID 068 - Rollback Start:

This topic shows detailed information about “Record Trace - IFCID 068 - Rollback Start”.

Record trace - IFCID 068 - Rollback Start

The field labels shown in the following sample layout of “Record Trace - IFCID 068 - Rollback Start” are described in the following section.

PSWKEY  X'80'
QW0066FR  X'007C6428'

PSWKEY

The PSW key of the holder.

Field Name: QW0068CK

IFCID 069 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 069 - IBM Service Record”.

This record is for IBM service use.

IFCID 070 - Commit Phase 2 Start:

This topic shows detailed information about “Record Trace - IFCID 070 - Commit Phase 2 Start”.

Record trace - IFCID 070 - Commit Phase 2 Start

The field labels shown in the following sample layout of “Record Trace - IFCID 070 - Commit Phase 2 Start” are described in the following section.

PSWKEY  X'8E'
QW0070FR  X'00000000'

PSWKEY

The PSW key of the caller.

Field Name: QW0070CK
IFCID 071 - Commit Phase 2 End:

This topic shows detailed information about “Record Trace - IFCID 071 - Commit Phase 2 End”.

This record is for IBM service use.

Record trace - IFCID 071 - Commit Phase 2 End

The field labels shown in the following sample layout of “Record Trace - IFCID 071 - Commit Phase 2 End” are described in the following section.

```
71 COMMIT <-- NETWORKID: DEIBMIPS LUNAME: IPUAPZA5 LUWSEQ: 20796
PHASE 2 END QW0071FR X'00000000' QW0071RT 0
QW0071RS 14233856
QW0071NI X'00000000000000000000000000000000'
```

**QW0071FR**

This field is for IBM service use.

**Field Name:** QW0071FR

IFCID 072 - Create Thread Start:

This topic shows detailed information about “Record Trace - IFCID 072 - Create Thread Start”.

Record trace - IFCID 072 - Create Thread Start

The field labels shown in the following sample layout of “Record Trace - IFCID 072 - Create Thread Start” are described in the following section.

```
RESRC NAME: ABE5B03
```

**RESOURCE NAME**

The plan name used in thread creation. If the thread is created to process a DB2 command, the field shows 'BLANK'.

**Field Name:** QW0072RN

IFCID 073 - Create Thread End:

This topic shows detailed information about “Record Trace - IFCID 073 - Create Thread End”.

Record trace - IFCID 073 - Create Thread End

The field labels shown in the following sample layout of “Record Trace - IFCID 073 - Create Thread End” are described in the following section.

```
QLGTH 0
QW0073RT 0 QW0073RS 0
QW0073WT 1
```

**QLGTH**

The queue length of the create thread request.

**Field Name:** QW0073QL
IFCID 074 - Terminate Thread Start

IFCID 074 - Terminate Thread Start:

This topic shows detailed information about “Record Trace - IFCID 074 - Terminate Thread Start”.

When data is present, it is printed in dump format.

IFCID 075 - Terminate Thread End:

This topic shows detailed information about “Record Trace - IFCID 075 - Terminate Thread End”.

Record trace - IFCID 075 - Terminate Thread End

The field labels shown in the following sample layout of “Record Trace - IFCID 075 - Terminate Thread End” are described in the following section.

```
QW0075RT  0   QW0075RS  0
QW0075CO  X'2E8D5C3'
```

IFCID 076 - End of Memory Start:

This topic shows detailed information about “Record Trace - IFCID 076 - End of Memory Start”.

Record trace - IFCID 076 - End of Memory Start

The field labels shown in the following sample layout of “Record Trace - IFCID 076 - End of Memory Start” are described in the following section.

```
PSWKEY  X'01'  FLGS  X'07'  ASID  256
QW0076SS  X'01234567'  QW0076AM  X'89ABCDEF'
QW0076FC  2   QW0076AS  X'12345678'
```

PSWKEY

The PSW key of the SSI caller.

Field Name: QW0076CK

FLGS

SSI caller flags:

X'80' SSI caller problem state (P-bit)
X'40' A-bit SSI caller AMODE 31 (A-bit)
X'20' Abnormal end of memory

Field Name: QW0076F1

ASID

The identifier of the end of memory address space.

Field Name: QW0076ID

IFCID 077 - End of Memory End:

This topic shows detailed information about “Record Trace - IFCID 077 - End of Memory End”.

Record trace - IFCID 077 - End of Memory End

The field labels shown in the following sample layout of “Record Trace - IFCID 077 - End of Memory End” are described in the following section.

RETURN

The return code. This field is always 0.

Field Name: QW0077R0

PROCESSED END OF MEMORY?
Indicates whether end of memory was processed.

Field Name: QW0077PR

IFCID 078 - End of Task Start:
This topic shows detailed information about “Record Trace - IFCID 078 - End of Task Start”.

Record trace - IFCID 078 - End of Task Start

The field labels shown in the following sample layout of “Record Trace - IFCID 078 - End of Task Start” are described in the following section.

ACE 2
QW0078AS X’00B9F328’  QW0078AG X’00B226C8’

ACE
The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.

Field Name: QW0078AC

IFCID 079 - End of Task End:
This topic shows detailed information about “Record Trace - IFCID 079 - End of Task End”.

When present, data is printed in dump format, otherwise NO DATA is printed.

IFCID 080 - IBM Service Record:
This topic shows detailed information about “Record Trace - IFCID 080 - IBM Service Record”.

This record is for IBM service use.

IFCID 081 - IBM Service Record:
This topic shows detailed information about “Record Trace - IFCID 081 - IBM Service Record”.

This record is for IBM service use.
IFCID 082 - Identify Start

IFCID 082 - Identify Start:

This topic shows detailed information about “Record Trace - IFCID 082 - Identify Start”.

Record trace - IFCID 082 - Identify Start

The field labels shown in the following sample layout of “Record Trace - IFCID 082 - Identify Start” are described in the following section.

PSWKEY X'70'
FLAGS X'40'
QW0082SS X'007C9FBC' QW0082AM X'02E9C5A8'
QW0082FC 41

PSWKEY

The PSW key of the SSI caller.

Field Name: QW0082CK

FLAGS

The flags of the SSI caller:

X'80' P-bit of the SSI caller (problem state)
X'40' A-bit of the SSI caller (AMODE 31)

Field Name: QW0082F1

IFCID 083 - Identify End:

This topic shows detailed information about “Record Trace - IFCID 083 - Identify End”.

Record trace - IFCID 083 - Identify End

The field labels shown in the following sample layout of “Record Trace - IFCID 083 - Identify End” are described in the following section.

END RECOPT: 'BLANK' ACCESS: SUCCESSFUL
CURR SQLID : HSR
ORIG AUTHID: HSR
SECONDARY AUTHORIZATION IDS:
DE#01892 DE#03704 D010D PMDEV PMDEVX
PMDEVX5 PMDEVX6 PMDEVX7 PMDEV5 PMDEV6
PMDEV61 PMDEV7 PMDEV71 PMDEV72 PMDEV81
PM3704 USERS
ACEE UTOKEN : 'BLANK'
QW0083RT 0 QW0083RS 0
QW0083CT X'C2C1E3C3CB404040'

RECOPT

The record coordination option specification.

Field Name: QW0083RO

ACCESS

The success or failure of the attempted authorization change. Possible values are:

SUCCESSFUL

The access is permitted.
DENIED BY IDENTIFY AUTH EXIT
   The access is denied by the authorization exit.

DENIED BY SAF/SECURITY SYSTEM
   The access is denied by the security authorization facility or
   security system.

Field Name: QW0083AD

CURR SQLID
   The current SQL authorization ID.
Field Name: QW0083QD

ORIG AUTHID
   The original primary authorization ID.
Field Name: QW0083OP

SECONDARY AUTHORIZATION IDS
   A list of the secondary authorization IDs. This list is only produced if there
   are secondary authorization IDs.
Field Name: QW0083SA

ACEE U_TOKEN
   The ACEE U_TOKEN.
Field Name: QW0083UT

IFCID 084 - Prepare Start:
   This topic shows detailed information about “Record Trace - IFCID 084 - Prepare
   Start”.

Record trace - IFCID 084 - Prepare Start
   The field labels shown in the following sample layout of “Record Trace - IFCID 084
   - Prepare Start” are described in the following section.
   PSWKEY  X’00’
   QW0084FR  X’00000000’
   PSWKEY
   The PSW key of the caller.
Field Name: QW0084CK

IFCID 085 - Prepare End:
   This topic shows detailed information about “Record Trace - IFCID 085 - Prepare
   End”.

Record trace - IFCID 085 - Prepare End
   The field labels shown in the following sample layout of “Record Trace - IFCID 085
   - Prepare End” are described in the following section.
IFCID 086 - Signon Start

This topic shows detailed information about “Record Trace - IFCID 086 - Signon Start”.

Record trace - IFCID 086 - Signon Start

The field labels shown in the following sample layout of “Record Trace - IFCID 086 - Signon Start” are described in the following section.

**Field Name:** QW0086CK

- **PSWKEY**
  - The PSW key of the SSI caller.

**IFCID 087 - Signon End:**

This topic shows detailed information about “Record Trace - IFCID 087 - Signon End”.

Record trace - IFCID 087 - Signon End

The field labels shown in the following sample layout of “Record Trace - IFCID 087 - Signon End” are described in the following section.

**Field Name:** QW0087AD

- **ACCESS**
  - The success or failure of the attempted access. Possible values are:
    - **SUCCESSFUL**
      - If the access is permitted.
    - **DENIED BY SIGNON AUTH EXIT**
      - If the access was denied by the signon authorization exit.

**Field Name:** QW0087QD

- **CURRENT SQLID**
  - The value of the authorization ID as set by the IDENTIFY or SIGNON exit.

**Field Name:** QW0087OP

- **ORIGINAL AUTHID**
  - The original value of the authorization ID, as passed to the IDENTIFY or SIGNON authorization exit.

**Field Name:** QW0087AD

- **SECONDARY AUTHORIZATION IDS**
  - Lists the secondary authorization IDs set by the IDENTIFY or SIGNON authorization exits. If no secondary authorization IDs exist, this line is not printed. Secondary authorization IDs are printed in rows of five, up to a maximum of 49 rows (245 AUTHIDs).
Field Name: QW0087SA

ACEE UTOKEN

The ACEE UTOKEN.

Field Name: QW0087UT

IFCID 088 - Synch Start:

This topic shows detailed information about “Record Trace - IFCID 088 - Synch Start”.

Record trace - IFCID 088 - Synch Start

The field labels shown in the following sample layout of “Record Trace - IFCID 088 - Synch Start” are described in the following section.

PSWKEY X'00'
QW0088FR X'00000000'

PSWKEY

The PSW key of the caller.

Field Name: QW0088CK

IFCID 089 - Synch End:

This topic shows detailed information about “Record Trace - IFCID 089 - Synch End”.

Record trace - IFCID 089 - Synch End

The field labels shown in the following sample layout of “Record Trace - IFCID 089 - Synch End” are described in the following section.

QW0089FR X'007BC428' QW0089RT 0
QW0089RS 0

IFCID 090 - DB2 Command Start:

This topic shows detailed information about “Record Trace - IFCID 090 - DB2 Command Start”.

Record trace - IFCID 090 - DB2 Command Start

The field labels shown in the following sample layout of “Record Trace - IFCID 090 - DB2 Command Start” are described in the following section.

COMMAND: -ARCHIVE LOG MODE(QUIESCE) TIME(2)
PHB X'02BC1040'

COMMAND

The command text.

The input PHB token is extracted from the first 4 bytes of the COMMAND field.

Field Name: QW0090CT
IFCID 091 - Command End

IFCID 091 - Command End:

This topic shows detailed information about “Record Trace - IFCID 091 - Command End”.

Record trace - IFCID 091 - Command End

The field labels shown in the following sample layout of “Record Trace - IFCID 091 - Command End” are described in the following section.

QW0091RC 0 QW0091RS 0
QW0091BA X'7F4B9F10'

IFCID 092 - AMS Command Start:

This topic shows detailed information about “Record Trace - IFCID 092 - AMS Command Start”.

Record trace - IFCID 092 - AMS Command Start

The field labels shown in the following sample layout of “Record Trace - IFCID 092 - AMS Command Start” are described in the following section.

COMMAND: DEFINE CLUSTER
(NAME(DSN220C.DSNDBC.CDDB.EMPLOYEE.I0001.A001
) NOERASE LINEAR OWNER(DB2ADM) REUSE) DATA
(NAME(DSN220C.DSNDBD.CDDB.EMPLOYEE.I0001.A001
) RECORDS(00000003 00000003) OWNER(DB2ADM)
SHAREOPTIONS(3,3) REUSE VOLUMES('ELURU2'));

COMMAND
The command text.

Field Name: QW0092P1

IFCID 093 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 093 - IBM Service Record”.

This record is for IBM service.

IFCID 094 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 094 - IBM Service Record”.

This record is for IBM service use.

IFCID 095 - Sort Start:

This topic shows detailed information about “Record Trace - IFCID 095 - Sort Start”.

When present, data is shown in dump format, otherwise NO DATA is printed.

IFCID 096 - Sort End:

This topic shows detailed information about “Record Trace - IFCID 096 - Sort End”.
Record trace - IFCID 096 - Sort End

The field labels shown in the following sample layout of “Record Trace - IFCID 096 - Sort End” are described in the following section.

<table>
<thead>
<tr>
<th>COLLECTION ID: DB2PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM NAME: DGO@PC2</td>
</tr>
<tr>
<td>RECCNO : 26</td>
</tr>
<tr>
<td>AREA : 53</td>
</tr>
<tr>
<td>KEYSZ : 4</td>
</tr>
<tr>
<td>SIZE : 57</td>
</tr>
<tr>
<td>WORK : 1</td>
</tr>
<tr>
<td>RET : 0</td>
</tr>
<tr>
<td>IWORK : 1</td>
</tr>
<tr>
<td>ROW DEL : 0</td>
</tr>
<tr>
<td>RET : 0</td>
</tr>
<tr>
<td>SORT KEYS : 1</td>
</tr>
<tr>
<td>SMTNO : 780</td>
</tr>
<tr>
<td>WORKFILES : 0</td>
</tr>
<tr>
<td>SORT COLUMNS : 7</td>
</tr>
<tr>
<td>PARTITIONING BY SORT : NO</td>
</tr>
<tr>
<td>SORT IN ADDITION : NO</td>
</tr>
<tr>
<td>TYPE : ESA</td>
</tr>
<tr>
<td>PARTITIONING OCCURRED : NOT PARTITIONING</td>
</tr>
<tr>
<td>QW0096IN ($) : 0</td>
</tr>
<tr>
<td>QW0096RD ($) : 0</td>
</tr>
<tr>
<td>QW0096RU ($) : 0</td>
</tr>
</tbody>
</table>

**COLLECTION ID**

The package collection ID for the query that invokes sort.

*Field Name: QW0096PC*

**PROGRAM NAME**

The program name for the query that invokes sort.

*Field Name: QW0096PN*

**RECCNO**

The number of records sorted.

*Field Name: QW0096NR*

**AREA**

The sort data area size in bytes.

*Field Name: QW0096DL*

**KEYSZ**

The sort key size in bytes.

*Field Name: QW0096KL*

**SIZE**

The sort record size in bytes (the sort key size and the data area size).

*Field Name: QW0096WR*

**WORK**

The number of work files used for both input and merge phases.

*Field Name: QW0096WF*

**RET**

The sort return code:

0  Successful
4  Empty - sort successful
8  Resource unavailable
12 Sort key too long
16 Error detected by fetch routine during input phase
20 Serious processing error

Field Name: QW0096RC

IWORK

The number of initial work files. The sorting of records can take more than one work file. The number of work files needed depends on the distribution of sort key values. The maximum number of work files is limited by the buffer pool size.

Field Name: QW0096IR

ROW DEL

The number of rows deleted because records were merged for the evaluation of column functions with GROUP BY.

Field Name: QW0096RL

PASSES

The number of merge passes during sort processing.

Field Name: QW0096MP

SORT KEYS

The number of sort keys.

Field Name: QW0096SK

STMTNO

The statement number for the query that invokes sort.

Field Name: QW0096SN

WORKFILES

The number of work files, equal to the degree of parallelism, that sort has partitioned.

Field Name: QW0096PW

SORT COLUMNS

The number of sort columns.

Field Name: QW0096SC

PARTITIONING BY SORT

Indicates whether the sorted records were partitioned.

Field Name: QW0096PP

SORT IN ADDITION

Indicates whether the input records were only partitioned or partitioned and sorted:

YES The records were only partitioned.

NO The records were partitioned and sorted.

Field Name: QW0096PO

TYPE

The type of sort that occurred. The possible values are:
IFCID 096 - Sort End

<table>
<thead>
<tr>
<th>ESA</th>
<th>ORDER BY sort using the ESA sort hardware instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESAG</td>
<td>GROUP BY sort using the ESA sort hardware instructions</td>
</tr>
<tr>
<td>ESAT</td>
<td>ESA tag sort using the ESA sort hardware instructions</td>
</tr>
<tr>
<td>RCYC</td>
<td>GROUP RECYCLING sort using the ESA sort hardware instructions</td>
</tr>
<tr>
<td>REG</td>
<td>Regular sort</td>
</tr>
<tr>
<td>NONE</td>
<td>No sort occurred.</td>
</tr>
</tbody>
</table>

Field Name: QW0096TS

PARTITIONING OCCURRED

Indicates when partitioning took place:

W  The work file was partitioned at the end of the input phase. No merge occurred.
M  The output was partitioned during the last merge pass.
O  One record was put into one partition.
P  The records were presorted before being partitioned.
N  The work file was not partitioned.

Field Name: QW0096PT

IFCID 097 - AMS Command End:

This topic shows detailed information about “Record Trace - IFCID 097 - AMS Command End”.

Record trace - IFCID 097 - AMS Command End

The field labels shown in the following sample layout of “Record Trace - IFCID 097 - AMS Command End” are described in the following section.

RETURN 0 COMMAND: DEFINE DSNC210.DSNDBC.DB2PMDB1.DB2PMIX1.IO001.A001 CLUSTER CATALOG(DSNC210);

RETURN

The AMS return code.

Field Name: QW0097RC

COMMAND

The AMS command text.

Field Name: QW0097P1

IFCID 098 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 098 - IBM Service Record”.

This record is for IBM service use.
IFCID 099 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 099 - IBM Service Record”.

This record is for IBM service use.

IFCID 100 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 100 - IBM Service Record”.

This record is for IBM service use.

IFCID 101 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 101 - IBM Service Record”.

This record is for IBM service use.

IFCID 102 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 102 - IBM Service Record”.

This record is for IBM service use.

IFCID 103 - SOS Off:

This topic shows detailed information about “Record Trace - IFCID 103 - SOS Off”.

Record trace - IFCID 103 - SOS Off

The field labels shown in the following sample layout of “Record Trace - IFCID 103 - SOS Off” are described in the following section.

TIME: 3/18/92 14:25:37.400234

TIME

Store clock time.

Field Name: QW0103SC

IFCID 104 - Log Data Set:

This topic shows detailed information about “Record Trace - IFCID 104 - Log Data Set”.

Record trace - IFCID 104 - Log Data Set

The field labels shown in the following sample layout of “Record Trace - IFCID 104 - Log Data Set” are described in the following section.

DSID ACTLG103
DSNAME DSNC310.LOGCOPY1.DS03

DSID

The data set identifier of the active log manager.
Field Name: QW0104DI

DSNAME
The data set name of the active log.

Field Name: QW0104DN

IFCID 105 - DBID/OBID Translation:

This topic shows detailed information about “Record Trace - IFCID 105 - DBID/OBID Translation”.

This record contains up to 100 data sections. The following data is printed for each section in the record:

Record trace - IFCID 105 - DBID/OBID Translation

The field labels shown in the following sample layout of “Record Trace - IFCID 105 - DBID/OBID Translation” are described in the following section.

<table>
<thead>
<tr>
<th>DBID:</th>
<th>5</th>
<th>DATABASE NAME: DSNDB07</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBID:</td>
<td>24</td>
<td>OBJECT NAME: DSN05X02</td>
</tr>
</tbody>
</table>

DBID
The decimal identifier of the database.

Field Name: QW0105DB

DATABASE NAME
The database name.

Field Name: QW0105DN

OBID
The decimal identifier of the object. Examples of objects are table space and index space.

Field Name: QW0105OB

OBJECT NAME
The name of the object. Examples of objects are table space and index space.

Field Name: QW0105TN

IFCID 106 - System Parameters: IFCID 106 shows the data from system parameters.

IFCID 106 - Application Programming Defaults:

This topic shows detailed information about “Record Trace - IFCID 106 - Application Programming Defaults”.

This block shows application programming defaults.

The values shown are used as default values by the program preparation panels, program preparation CLIST (DSNH), and precompiler. They can also be used as defaults by other programs, such as Query Management Facility (QMF).
Changing some of these defaults is not recommended because changes can make the syntax of existing SQL statements invalid or affect the way application programs run.

Values set here are contained in load module DSNHDECP, in library prefix.SDSNEXIT, which can be loaded and accessed by application programs. When modifying DSNHDECP, do so only by changing and running the installation CLIST.

Do not modify the data in DSNHDECP. If you modify any installation parameters by changing job DSNTIJUZ directly, these values are not recorded for later updates, new installations, or migrations.

Record trace - IFCID 106 - Application Programming Defaults

The field labels shown in the following sample layout of “Record Trace - IFCID 106 - Application Programming Defaults” are described in the following section.

---

VERSION ............: 1210
DECIMAL POINT OPT.: PERIOD
DEFAULT SUBSYSTEM: DC61
DEFLT ENC SCHEME : EBCDIC
DEFAULT HOST LANG: EBCDIC
DISTR SQL STR DEL: EBCDIC
DECFLOAT RND MODE: HALF EVEN
DEFAULT DELIMITER: APOST
DEFLT DEC ARITHM : DEC15
DATE FORMAT ......: ISO
TIME FORMAT ......: ISO
IMP TIMEZONE .......: CURRENT
IMP TIMEZONE(HEX): X'9999999C'
DEFAULT LOCALE ..: 'BLANK'
QWPBLVL ............: V12R1M0
QWPBLEN ............: 260
QWPBCHAR ............: ALPHANUM

VERSION
The version, release, and modification level.

Field Name: QWPBREL

DECIMAL POINT OPT
Indicates whether the decimal contains a comma (,) or a period (.). This parameter is used for dynamic SQL and COBOL programs. It is not used or supported by other languages.

Install parameter DECIMAL POINT IS on panel DSNTIPF, or ZPARM DECIMAL in DSNHDECP.

Derivation: DB2 field QWPBDE

Field Name: QWPBDE

EBCDIC SBCS CCSID
The EBCDIC single-byte coded character set ID.

A coded character set identifier (CCSID) must be specified when DDF STARTUP OPTION field on panel DSNTIPR is set to AUTO or COMMAND, or when the MIXED DATA field on panel DSNTIPF is set to YES. When mixed data is used, valid Mixed Data CCSID must also be specified.

A nonexistent CCSID causes an error.

An incorrect CCSID can corrupt data.
Install parameter EBCDIC CCSID on panel DSNTIPF, or ZPARM SCCSID in DSNHDECP.

Field Name: QWPBSID

DEFAULT SUBSYSTEM

The MVS subsystem name for DB2. The name is used in member IEFSSN xx of SYS1.PARMLIB.

A valid name has 1-4 characters, the first must be A-Z, #, $, or @. Others must be A-Z, 1-9, #, $, or @. Default is DSN1.

Install parameter SUBSYSTEM NAME on panel DSNTIPM, or ZPARM SSID in DSNHDECP.

Field Name: QWPBSSID

DEFAULT ENC SCHEME

The default encoding scheme, which can be ASCII or EBCDIC, or UNICODE.

Install parameter DEF ENCODING SCHEME on panel DSNTIPF, or ZPARM ENSCHEME in DSNHDECP.

Derivation: DB2 field QWPBENS

Field Name: QWPBENS

EBCDIC MBCS CCSID

The EBCDIC mixed coded character set ID.

A coded character set identifier (CCSID) must be specified when DDF STARTUP OPTION field on panel DSNTIPR is set to AUTO or COMMAND, or when the MIXED DATA field on panel DSNTIPF is set to YES. When mixed data is used, valid Mixed Data CCSID must also be specified.

A nonexistent CCSID causes an error.

An incorrect CCSID can corrupt data.

Install parameter EBCDIC CCSID on panel DSNTIPF, or ZPARM MCCSID in DSNHDECP.

Field Name: QWPBMID

DEFAULT HOST LANG

The default programming language for your site. This can be:

- ASM
- C
- CPP
- COBOL
- COB2
- IBMCOB
- FORTRAN
- PLI

When this is C or C++, you can fold SQL identifiers to uppercase.

Install parameter LANGUAGE DEFAULT on panel DSNTIPF, or ZPARM DEFLANG in DSNHDECP.
Field Name: QWPBLANG

DISTR SQL STR DEL

The SQL delimiter for bind operations at this DB2 if the requester does not provide DB2 with this information.

Field Name: QWPBDSD

EBCDIC GBCS CCSID

The EBCDIC graphic coded character set ID.

A coded character set identifier (CCSID) must be specified when DDF STARTUP OPTION field on panel DSNTIPR is set to AUTO or COMMAND, or when the MIXED DATA field on panel DSNTIPF is set to YES. When mixed data is used, valid Mixed Data CCSID must also be specified.

A nonexistent CCSID causes an error.

An incorrect CCSID can corrupt data.

Install parameter EBCDIC CCSID on panel DSNTIPF, or ZPARM GCCSID in DSNHDECP.

Field Name: QWPBGID

DECFLOAT RND MODE

The default rounding mode for the decimal floating point type. Possible values are:

- X'80' ROUND_CEILING
- X'40' ROUND_DOWN
- X'20' ROUND_FLOOR
- X'10' ROUND_HALF_DOWN
- X'08' ROUND_HALF_EVEN
- X'04' ROUND_HALF_UP
- X'02' ROUND_UP

Otherwise this field shows 'BLANK'.

ZPARM DEF_DECFLOAT_ROUND_MODE in DSNHDECP.

Field Name: QWPBDDRM

DEFLT DEC ARITHM

Indicates the rules of precision for a decimal field.

Install parameter DECIMAL ARITHMETIC on panel DSNTIP4, or ZPARM DECAR in DSNHDECP.

Derivation: DB2 field QWPBAR

Field Name: QWPBAR

ASCII SBCS CCSID

The ASCII single-byte coded character set ID.

The default (0) means the installation has no ASCII databases, table spaces, or tables.
Install parameter ASCII CCSID on panel DSNTIPF, or ZPARM ASCCSID in DSNHDECP.

Field Name: QWPBASID

DEFAULT DELIMITER

Shows the string delimiter for COBOL. Default string delimiter is the quotation mark. This option is applicable to all types of COBOL.

Install parameter STRING DELIMITER on panel DSNTIPF, or ZPARM DELIM in DSNHDECP.

Field Name: QWPBDL

DEFLT MIXED GRAPH

Indicates whether the code points X'0E' and X'0F' are the shift-out and shift-in controls for character strings that include double-byte characters.

Install parameter MIXED DATA on panel DSNTIPF, or ZPARM MIXED in DSNHDECP.

Field Name: QWPBGRA

ASCII MBCS CCSID

Indicates the ASCII mixed coded character set ID.

The default (0) means the installation has no ASCII databases, table spaces, or tables.

Install parameter ASCII CCSID on panel DSNTIPF, or ZPARM AMCCSID in DSNHDECP.

Field Name: QWPBAMID

DEFLT SQL DELIMIT

The string delimiter for SQL.

Install parameter SQL STRING DELIMITER on panel DSNTIPF, or ZPARM SQLDELI in DSNHDECP.

Derivation: DB2 field QWPBSNL

Field Name: QWPBSNL

SQL LANG SUPP LVL

Shows whether SQL, the language standard used by applications, conforms to 1986 ANSI SQL standard.

YES Conforms to the 1986 ANSI SQL standard

NO Conforms to the SQL language defined by DB2

86 Conforms to the 1986 ANSI SQL standard

Install parameter STD SQL LANGUAGE on panel DSNTIP4, or ZPARM STDSQL in DSNHDECP.

Field Name: QWPBSQL

ASCII GBCS CCSID

Indicates the ASCII graphic coded character set ID.

The default (0) means the installation has no ASCII databases, table spaces, or tables.
IFCID 106 - Application Programming Defaults

Install parameter ASCII CCSID on panel DSNTIPF, or ZPARM AGCCSID in DSNHDECP.

**Field Name:** QWPBAGID

**DATE FORMAT**

Default output format for dates.

Valid formats are ISO (yyyy-mm-dd), USA (mm/dd/yyyy), EUR (dd.mm.yyyy), JIS (yyyy-mm-dd), or LOCAL (your choice, defined by a date exit routine). DB2 interprets the input date from the punctuation and converts the output date to the required format.

Install parameter DATE FORMAT on panel DSNTIP4, or ZPARM DATE in DSNHDECP.

**Field Name:** QWPBDATE

**USE FOR DYN RULES**

Shows whether DB2 uses the application programming defaults specified on this panel or those of the DB2 precompiler options for dynamic SQL statements bound using DYNAMICRULES bind, define, or invoke behavior.

When YES, the application programming (DSNHDECP) defaults are used for dynamic SQL statements in plans or packages bound using DYNAMICRULES bind, define, or invoke behavior.

The following defaults are affected:

- DECIMAL POINT IS
- STRING DELIMITER
- SQL STRING DELIMITER
- MIXED DATA
- DECIMAL ARITHMETIC

When NO, values of the precompiler options are used for dynamic SQL statements in plans or packages bound with DYNAMICRULES(BIND).

Install parameter USE FOR DYNAMICRULES on panel DSNTIP4, or ZPARM DYNRULES in DSNHDECP.

**Field Name:** QWPBDRLS

**UNICODE SBCS CCSID**

Unicode Single Byte Character Set identification.

Parameter UNICODE CCSID in installation panel DSNTIPF, or ZPARM USCCSID in macro DSNHDECP.

**Field Name:** QWPBUSID

**TIME FORMAT**

Indicates the default output format for times.

Valid values are ISO (hh:mm:ss), USA (hh:mm AM), EUR (hh:mm:ss), JIS (hh:mm:ss), or LOCAL (your choice, defined by a time exit routine). DB2 interprets the input time from the punctuation and converts the output time to the required format.

Install parameter TIME FORMAT on panel DSNTIP4, or ZPARM TIME in DSNHDECP.
Field Name: QWPBTIME

DB2 DECP INDICAT
Indicates that DECP is supplied by DB2.
Using a DB2 supplied DECP could cause data corruption due to applications using wrong CCSIDs.

Field Name: QWPBDB2S

UNICODE MBCS CCSID
Unicode Mixed Character Set identification.
Parameter UNICODE CCSID in installation panel DSNTIPF, or ZPARM UMCCSID in macro DSNHDECP.

Field Name: QWPBUMID

IMP TIMEZONE
The implicit time zone that is associated with DB2 table columns and routine parameters that are declared as time stamp with time zone.
For IFCID 106 - Application Programming Defaults, this field is displayed twice, with its hex value and in a readable string.
This field corresponds to DSNHDECP field IMPLICIT_TIMEZONE.

Field Name: QWPBIMTZ

LOCAL DATE LENGTH
Shows the length of the longest field required to hold a locally defined date.
The default (0) indicates an IBM-supplied format (ISO, JIS, USA, or EUR).
Install parameter LOCAL DATE LENGTH on panel DSNTIP4, or ZPARM DATELEN in DSNHDECP.

Field Name: QWPBDLEN

UNICOD GBCS CCSID
Unicode graphics character set identification.
Parameter UNICODE CCSID in installation panel DSNTIPF, or ZPARM UGCCSID in macro DSNHDECP.

Field Name: QWPBUGID

IMP TIMEZONE (HEX)
The implicit time zone that is associated with DB2 table columns and routine parameters that are declared as time stamp with time zone.
For IFCID 106 - Application Programming Defaults, this field is displayed twice, with its hex value and in a readable string.
This field corresponds to DSNHDECP field IMPLICIT_TIMEZONE.

Field Name: QWPBIMTZ

LOCAL TIME LENGTH
Shows the length of the longest field required to hold a time when a locally defined time format is used.
The default (0) indicates an IBM-supplied format (ISO, JIS, USA, or EUR).
Install parameter LOCAL TIME LENGTH on panel DSNTIP4, or ZPARAM TIMELEN in DSNHDECP.

Field Name: QWPBTLEN

NEWFUN CUR REL

If YES, the DB2 subsystem/group is running in New Function Mode. At this mode/catalog level, the New Function Mode is enabled and available. The DB2 catalog is completely Unicode (UTF-8) and long names can be used.

Install parameter INSTALL TYPE on panel DSNTIPA1, or ZPARAM NEWFUN in DSNHDECP.

Field Name: QWPBNEWF

APPLIC ENCODING

Application encoding scheme.

Install parameter APPLICATION ENCODING on installation panel DSNTIPF, or ZPARAM APPENSC in DSNHDECP.

Field Name: QWPBAPSC

PAD NULL-TERMIN

Shows whether output host variables that are NULL-terminated strings are padded with blanks and a NULL terminator.

When NO, NULL-terminated output host variables have the NULL terminator placed at the end of actual data returned in the host variable. When YES, NULL-terminated output host variables have the NULL terminator placed at the end of the string, after the string has been padded with blanks from the end of the actual data to the declared length of the output host variable.

Install parameter PAD NUL-TERMINATED on installation panel DSNTIP4, or ZPARAM PADNTSTR in DSNHDECP.

Field Name: QWPB PAD

NEWFUN CUR REL-1

Shows the current release minus one of the new-function mode (NEWFUN).

Field Name: QWPBNEWFN1

DSNHDECP DS NAME

Shows the fully qualified DECP name of the data set from which the DSNHDECP module was loaded.

Field Name: QWPBLNM

NEWFUN CUR REL-2

Shows the current release minus two of the new-function mode (NEWFUN).

Field Name: QWPBNEWFN2

DEFAULT LOCALE

The system LOCALE LC_CTYPE.
A locale is the part of the system environment that depends on language and cultural conventions. An LC_TYPE is a subset of a locale that applies to character functions. The UPPER, LOWER, and TRANSLATE scalar functions use the CURRENT LOCALE LC_CTYPE system default or special register. The results of these functions can vary, depending on the setting of the locale.

The following values are possible:

**BLANK**
The source field is empty.

This is the default, unless it is necessary to run the UPPER, LOWER, or TRANSLATE functions for data that must be interpreted using the rules provided by specific locales, for example, En_US or Fr_CA.

**1st word**
The source field contains left-justified word(s), where each byte of a word is > X'40'. It can be a single word or several ones, delimited by bytes <= X'40'.

*Note:* These hexadecimal codes do not represent printable characters.

**N/P**
The source field contains regular words that are not left-justified. This means that the first bytes are <= X'40'. N/P is also shown if the whole source field only consists of bytes < X'40', such as zeros.

Install parameter LOCALE LC_CTYPE on panel DSNTIPF, or ZPARM LC_TYPE in DSNHDECP.

**Field Name:** QWP8LCTP

**DSNHDECP DS NAME**
The system LOCALE LC_CTYPE.

A locale is the part of the system environment that depends on language and cultural conventions. An LC_TYPE is a subset of a locale that applies to character functions. The UPPER, LOWER, and TRANSLATE scalar functions use the CURRENT LOCALE LC_CTYPE system default or special register. The results of these functions can vary, depending on the setting of the locale.

The following values are possible:

**BLANK**
The source field is empty.

This is the default, unless it is necessary to run the UPPER, LOWER, or TRANSLATE functions for data that must be interpreted using the rules provided by specific locales, for example, En_US or Fr_CA.

**1st word**
The source field contains left-justified word(s), where each byte of a word is > X'40'. It can be a single word or several ones, delimited by bytes <= X'40'.

*Note:* These hexadecimal codes do not represent printable characters.
IFCID 106 - Application Programming Defaults

N/P  The source field contains regular words that are not left-justified. This means that the first bytes are <= X'40'. N/P is also shown if the whole source field only consists of bytes < X'40', such as zeros.

Install parameter LOCALE LC_CTYPE on panel DSNTIPF, or ZPARM LC_TYPE in DSNHDECP.

Field Name: DSNHDECP

QWPBLVL

This field is for IBM service.

Field Name: QWPBLVL

QWPBLEN

Shows the length of the control block.

Field Name: QWPBLEN

QWPBEYE

Shows the control block eyecatcher (DECP).

Field Name: QWPBEYE

QWPBCHAR

Shows the default character set, ALPHANUM or KATAKANA.

ZPARM CHARSET in DSNHDECP.

Field Name: QWPBCHAR

IFCID 106 - Data Sharing Parameters:

This topic shows detailed information about “Record Trace - IFCID 106 - Data Sharing Parameters”.

This block shows the members in a data-sharing group.

DB2 subsystems that share data must belong to a DB2 data sharing group, which runs on a Parallel Sysplex. A data sharing group is a collection of one or more DB2 subsystems that access shared DB2 data. A Parallel Sysplex is a collection of MVS systems that communicate and cooperate with each other.

Record trace - IFCID 106 - Data Sharing Parameters

The field labels shown in the following sample layout of “Record Trace - IFCID 106 - Data Sharing Parameters” are described in the following section.

<table>
<thead>
<tr>
<th>GROUP NAME</th>
<th>DATA SHARING PARAMETERS</th>
<th>MAX # OF MEMBERS</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP NAME</td>
<td>'BLANK'</td>
<td>248</td>
<td></td>
</tr>
<tr>
<td>MEMBER NAME</td>
<td>DC11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RANDOM ATTACH</td>
<td>YES</td>
<td>PEER RECOVERY</td>
<td>NONE</td>
</tr>
<tr>
<td>QWPALVL</td>
<td>DSN1210</td>
<td>QWPACOOR</td>
<td>NO</td>
</tr>
<tr>
<td>QWPASST</td>
<td></td>
<td>QWPAPASSST</td>
<td>NO</td>
</tr>
</tbody>
</table>

GROUP NAME

The name of the DB2 data sharing group.

The group name encompasses the entire data sharing group and is the basis for the coupling facility structure names.

N/A means this DB2 is not part of a data sharing group.
Install parameter GROUP NAME on panel DSNTIPK, or ZPARM GRPNAME in DSN6GRP.

Field Name: QWPAGRPN

DATA SHARING ENAB
Indicates whether data sharing is enabled.

Field Name: QWPADSHR

MAX # OF MEMBERS
The maximum number of members possible in a data sharing group. This is a constant (248) and is not shown on any installation panel.

Field Name: QWPAMAXM

MEMBER NAME
The member name of this DB2.
N/A means this DB2 is not part of a data sharing group.

Install parameter MEMBER NAME on panel DSNTIPK, or ZPARM MEMBNAME in DSN6GRP.

Field Name: QWPAMBRN

IMMEDWRITE FLAG
Indicates how DB2 updates group buffer pool dependent pages. This is only valid in a data-sharing environment.

Group buffer pool dependent pages can be written to DASD or SYSTEM pagesets.

Values shown are:

NO  DB2 uses normal write activity for updates, this is the default. Pages are written out at, or before phase 2 commit, or at the end of an abend for transactions that have rolled back.

PH1  Pages are written out at, or before phase 1 commit.

If a transaction subsequently rolls back, the pages are updated in the group buffer pool at the end of the rollback and are written out at the end of the abend.

YES  Pages are written out to the coupling facility as soon as the buffer update commits. Pages are written out regardless of whether the update occurs during forward progress or rollback of the transaction.

This option can affect performance due to coupling facility overhead.

Install parameter IMMEDIATE WRITE on panel DSNTIP8, or ZPARM IMMEDWR1 in DSN6GRP.

Field Name: QWPAIMMW

CONVERSION FACTOR
The CPU service unit conversion factor for this CPU.
This factor allows conversion CPU time in seconds to a common unit, called service unit (SU). The conversion factor used depends on the machine. Service units allow you to calculate CPU execution times across a data sharing group.

The conversion factor is used as follows:

\[
CP\text{ secs} \times \frac{16,000,000}{\text{Conversion Factor}} = \text{SUs}
\]

\[
\text{SUs} \times \frac{\text{Conversion Factor}}{16,000,000} = CP\text{ secs}
\]

This field does not map to an installation panel.

Field Name: QWPASUCV

RANDOM ATTACH

Specifies a random group attach flag:

N  Not eligible for random group attach.

NOT N  Eligible for random group attach.

This field corresponds to field RANDOM ATTACH on installation panel DSNTIPK. The ZPARM name is RANDOMATT in DSN6GRP.

Field Name: QWPARAND

PEER RECOVERY

Specifies whether this data sharing member is to participate in data sharing peer recovery.

NONE  None.

RECOVER  This member is recovered by a peer member in case it fails.

ASSIST  This member attempts to initiate peer recovery for other failed members. When this member detects a failure, it will attempt to initiate a LIGHT(YES) restart for the failed member if it has not been initiated to recover the retained locks.

BOTH  Both RECOVER and ASSIST options are activated for this member.

Field Name: QWPAPERREC

QWPACOOR

Shows whether this DB2 member can coordinate parallel processing on other members of the group.

When NO, a query can be processed by this DB2 member only.

When YES, a read-only query running on this DB2 member can be processed in part on other members of the group.

N/A means this DB2 is not part of a data sharing group.

Install parameter COORDINATOR on panel DSNTIPK or ZPARM COORDNTR in DSN6GRP.

Field Name: QWPACOOR

QWPASST
Shows whether this DB2 member can assist a parallelism coordinator with parallel processing.

When YES, this member is considered an assistant at both bind and run time. To be a viable assistant at run time, both the VPPSEQT and VPXPSEQT buffer pool thresholds of this member must be greater than 0.

N/A means this DB2 is not part of a data sharing group.

Install parameter ASSISTANT on panel DSNTIPK or ZPARM ASSIST in DSN6GRP.

**Field Name:** QWPASST

**IFCID 106 - Databases/Spaces Automatically Deferred:**

This topic shows detailed information about “Record Trace - IFCID 106 - Databases/Spaces Automatically Deferred”.

**Record trace - IFCID 106 - Databases/Spaces Automatically Deferred**

The field labels shown in the following sample layout of “Record Trace - IFCID 106 - Databases/Spaces Automatically Deferred” are described in the following section.

**DATABASES/SPACES**

**STARTED AUTOMATICALLY ALL**

**Tablespace Names**

Contains the name of a table space or index space that is to be started automatically.

**Field Name:** QWPS8SPNM

**IFCID 106 - Databases/Spaces Automatically Restarted:**

This topic shows detailed information about “Record Trace - IFCID 106 - Databases/Spaces Automatically Restarted”.

**Database Names**

The name of a database that is to be started automatically.

**Field Name:** QWP8DBNM

**IFCID 106 - Databases/Spaces Automatically Started:**

This topic shows detailed information about “Record Trace - IFCID 106 - Databases/Spaces Automatically Started”.

**Record trace - IFCID 106 - Databases/Spaces Automatically Started**

The field labels shown in the following sample layout of “Record Trace - IFCID 106 - Databases/Spaces Automatically Started” are described in the following section.

**DATABASES/SPACES**

**STARTED AUTOMATICALLY ALL**

**Database names**

The name of a database that is to be started automatically.

**Field Name:** QWP8DBNM

**Tablespace names**
IFCID 106 - Databases/Spaces Automatically Started

Contains the name of a table space or index space that is to be started automatically.

Field Name: QWP8SPNM

IFCID 106 - Distributed Data Facility Parameters:

This topic shows detailed information about “Record Trace - IFCID 106 - Distributed Data Facility Parameters”.

This block shows how Distributed Data Facility (DDF) was started and the protocols used.

To use DDF, you must have VTAM installed, even if you use TCP/IP connections only.

Record trace - IFCID 106 - Distributed Data Facility Parameters

The field labels shown in the following sample layout of “Record Trace - IFCID 106 - Distributed Data Facility Parameters” are described in the following section.

<table>
<thead>
<tr>
<th>FIELD NAME</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACILITY NAME</td>
<td>DDF</td>
</tr>
<tr>
<td>DBAT STATUS</td>
<td>INACTIVE</td>
</tr>
<tr>
<td>IDLE THR TIMEOUT</td>
<td>120</td>
</tr>
<tr>
<td>POOL THR TIMEOUT</td>
<td>120</td>
</tr>
<tr>
<td>CONN Q MAX DEPTH</td>
<td>0</td>
</tr>
<tr>
<td>CONN Q MAX WAIT</td>
<td>0</td>
</tr>
<tr>
<td>SP_PARRMS_JV</td>
<td>NO</td>
</tr>
<tr>
<td>DSBL_IMPCAST_JV</td>
<td>NO</td>
</tr>
<tr>
<td>SP_PARRMS_NJV</td>
<td>NO</td>
</tr>
<tr>
<td>DSBL_IMPCAST_NJV</td>
<td>NO</td>
</tr>
</tbody>
</table>

FACILITY NAME

The name of the DDF facility.

Field Name: QWP9NAME

FACILITY START

Indicates whether DDF is loaded, and if so, how it was started.

When NO, DDF was not loaded at DB2 startup and cannot be started.

AUTO means DDF was loaded and started automatically when DB2 was started. The DDF address space was started as part of DDF initialization.

COMMAND means DDF was initialized and the DDF address space was started at DB2 startup. IF DDF is running, it was started from the console with the -DSN1 DSTART DDF command. If it is not running, it can be started with this command.

Install parameter DDF STARTUP OPTION on panel DSNTIPR, or ZPARM DDF in DSN6FAC.

Field Name: QWP9STRT

TCP/IP VERIFIED

Indicates whether DB2 accepts TCP/IP connection requests containing only a user ID.

When YES, a connection request is accepted with a user ID only. This value must be the same for all members of a data sharing group.

When NO (default), TCP/IP clients must provide authentication information (password, RACF PassTicket, or Kerberos ticket) to gain access to DB2.
Install parameter TCP/IP ALREADY VERIFIED on panel DSNTIP5, or ZPARM TCPALVER in DSN6FAC.

**Field Name:** QWP9TCPA

**DBAT STATUS**

Shows whether DB2 inactives threads that have successfully committed or rolled back, and hold no cursors.

ACTIVE provides the best performance but consumes system resources.

INACTIVE is recommended when the installation must support a large number of connections.

When a thread becomes eligible for inactivation, DB2 tries to make it a type 2 inactive thread, which uses less storage than a type 1 inactive thread. If this fails, DB2 tries to make it a type 1 inactive thread. If neither attempt is successful, the thread remains active.

Install parameter DDF THREADS on panel DSNTIPR, or ZPARM CMTSTAT in DSN6FAC.

**Field Name:** QWP9CMST

**RLF DYNAMIC ERROR**

Shows what DB2 does when the governor cannot access the resource limit specification table or when no row in the table matches the currently executing statement.

NOLIMIT (default) allows all dynamic SQL statements to run without limit.

NORUN terminates all dynamic SQL statements immediately with an SQL error code.

The number of CPU service units allowed for a query can be anywhere from 1 to 5000000.

Install parameter RLST ACCESS ERROR on panel DSNTIPR, or ZPARM RLFERRD in DSN6FAC (DB2 field QWP9RLER).

**Field Name:** QWP9RLER

**TCP/IP KEEPALIVE**

Indicates whether the TCP/IP configuration KeepAlive value has been overwritten.

When ENABLE (default), KeepAlive is enabled, the TCP/IP configuration stack value is used.

When DISABLE, TCP/IP KeepAlive has been disabled.

A value in the range 1 through 65534 means KeepAlive is active, and the TCP/IP stack value has been overridden. The number reported shows the time, in seconds, between TCP/IP probes.

When considering overwriting the keep-alive time, it is recommended to set a value close to the IDLE THREAD TIMEOUT value on installation panel DSNTIPR or the IRLM RESOURCE TIMEOUT value on installation panel DSNTIPI. It is good practice to set all these to about five minutes, or less.
Because KeepAlive detection is accomplished by probing the network at this interval, avoid small values, which can cause excessive network traffic and system resource consumption.

The trick is to find a proper balance that allows network failures to be detected on a timely basis without impacting system and network performance.

Install parameter TCP/IP KEEPALIVE on panel DSNTIP5, ZPARM TCPIPAlive in DSN6FAC.

Field Name: QWP9TCKA

**IDLE THR TIMEOUT**

The approximate time, in seconds, that an active server thread can remain idle before it is canceled.

Inactive and indoubt threads are not subject to timeout.

Threads are checked for timeouts every 3 minutes. This means that timeouts might not be honored for up to 3 minutes when the timeout value is less than this.

0 (default) means timeout processing is disabled, idle server threads remain in the system and continue to hold their resources, if any.

Install parameter IDLE THREAD TIMEOUT on panel DSNTIPR, or ZPARM IDTHTOIN in DSN6FAC.

Field Name: QWP9TTO

**RLF STATIC ERROR**

Shows what DB2 does when the governor cannot access the resource limit specification table or when no row in the table matches the currently running statement:

**NOLIMIT**

This is the default. It allows all static SQL statements to run without limit.

**NORUN**

Terminates all static SQL statements immediately with an SQL error code. A number from 1 to 500000 is the default limit; if the limit is exceeded, the SQL statement is terminated.

Install parameter REMOTE STATIC SQL on panel DSNTIPO4, or ZPARM RLFERRDSTC in DSN6FAC (DB2 field QWP9RLER).

Field Name: RLFERRDSTC

**MAX T1 INACT THR**

Indicates the number of type 1 inactive threads that DB2 allows.

A large number of type 1 inactive threads can adversely affect system performance. Type 1 inactive threads are used for DB2 private protocol.

DRDA uses type 2 inactive threads.

Zero indicates that type 1 inactive connections are not allowed. Threads remain active when they become eligible to be made a type 1 inactive thread.
A value greater than zero indicates that type 1 inactive connections are allowed, but are limited to this number. When a thread becomes eligible to be made a type 1 inactive thread, and this threshold is reached, the remote connection is terminated.

When this is equal to MAX REMOTE CONNECTED on panel DSNTIPE, DB2 allows all remote threads to become type 1 inactive threads.

Install parameter MAX INACTIVE DBATS on panel DSNTIPR, or ZPARM MAXTYPE1 in DSN6FAC.

**Field Name:** QWP9MAX1

**POOL THR TIMEOUT**

The approximate time, in seconds, that a DBAT can remain idle in the pool before it is terminated.

A DBAT thread in the pool counts as an active thread against MAX REMOTE ACTIVE and can hold locks, but does not have any cursors.

Threads are checked for timeouts every 3 minutes. This means that timeouts might not be honored for up to 3 minutes when the timeout value is less than this. The default is 120.

Install parameter POOL THREAD TIMEOUT on panel DSNTIP5, ZPARM POOLINAC in DSN6FAC.

**Field Name:** QWP9INAC

**PRIVATE PROTOCOL**

Shows if it is allowed to use the private protocol. It can have the following values:

**YES**  Allows private-protocol-related plan-owner-based package authorization behavior. Plan-owner-based package execution authorization semantics are honored for DB2 for z/OS DRDA requester systems that might rely on it. Secondary IDs are not used to determine package execution privileges for remote DB2 for z/OS applications.

**NO**  Does not allow any private-protocol-related behavior.

Plan-owner-based package execution authorization semantics are not honored. This might affect DB2 for z/OS DRDA requester systems that rely on it. Secondary IDs are used to determine package execution privileges for remote DB2 for z/OS applications.

**ZPARM name** PRIVATE_PROTOCOL in DSN6FAC.

**Field Name:** QWP9PRVPA

**RESYNCH INTERVAL**

The number of minutes between resynchronization periods.

A resynchronization period is the time during which indoubt logical units of work involving this DB2 subsystem and partner logical units are processed.

Install parameter RESYNC INTERVAL on panel DSNTIPR, or ZPARM RESYNC in DSN6FAC.

**Field Name:** QWP9RYC

**CONN Q MAX DEPTH**
The maximum depth of the connection-request queue of connections that are waiting for a DBAT to process a request. If this value is non-zero, and QWP9CMST is active, or the subsystem is not a member of a data sharing group, DB2 operates as if this value were 0.

A value of 0 is displayed for OFF; a value of 32767 is displayed for ON.

This field corresponds to field CONN QUEUE MAX DEPTH on installation panel DSNTIP5. The ZPARM name is MACONQN in DSN6FAC.

Field Name: QWP9MCONQN

ID & PASSWORD REQ

Shows whether user ID and password are required. In addition, one of the following is required:

- The user ID and password and any RACF PassTickets (A PassTicket is a one-time-only password that is generated by a requesting product or function) are Advanced Encryption Standard (AES) encrypted.
- A Kerberos ticket is required.
- The connection is protected by a z/OS Communications Server IP Application Transparent Transport Layer Security (AT-TLS) policy, which is ensured through a DB2 SECPORT.
- The connection is protected by an IPSec tunnel.

Field Name: QWP9TCPVE

SQL INTRPT DISABL

Shows how SQL interrupts are processed. It can have the following values:

- **NO** SQL interrupt processing is enabled.
- **YES** DB2 SQL interrupt support is disabled.

Note: YES should only be used if remote client systems experience failures because of SQL interrupts. In this case, SQL interrupt support should be disabled only until the remote client systems can be modified to tolerate SQL interrupts.

ZPARM name SQLINTRP in DSN6FAC.

Field Name: QWP9SINTD

CONN Q MAX WAIT

The maximum time that a connection waits for a DBAT request. If this value is non-zero, and QWP9CMST is active, or the subsystem is not a member of a data sharing group, DB2 operates as if this value were 0.

A value of 0 is displayed for OFF; a value of 1 is displayed for ON.

This field corresponds to field CONN QUEUE MAX WAIT on installation panel DSNTIP5. The ZPARM name is MAXCONQW in DSN6FAC.

Field Name: QWP9MCONQW

DDF COMP PRIOR V

The DDF compatibility parameter. The DB2 server with new-function mode has not yet been activated. The DDF compatibility parameter causes this server to identify itself to all remote clients as being in new-function mode for the previous version. The format of this field in the trace record is \textit{nnr}, where \textit{nn} is the version of the DB2 server and \textit{r} is the release.
Field Name: QWP9DDFCIP

SP_PARMS_JV

Specifies that when a Java client application calls a DB2 for z/OS stored procedure, DB2 returns output argument values with data types that match the data types that were specified in the CallableStatement.registerOutParameter method calls.

If SP_PARMS_JV is not specified, DB2 returns output parameter values with data types that match the data types of the parameters in the stored procedure definition.

ZPARM name DDF_COMPATIBILITY and ZPARM value SP_PARMS_JV in DSN6FAC.

Field Name: QWP9SPPMJ

SP_PARMS_NJV

Specifies that when a non-Java client application calls a DB2 for z/OS stored procedure, DB2 returns output argument values with data types that match the data types of the corresponding CALL statement arguments, unless one of the following conditions are true:

- The non-Java client is Version 10 or later.
- The stored procedure uses a parameter data type that was introduced in DB2 for z/OS Version 10 (XML, TIMESTAMP WITH TIMEZONE, or TIMESTAMP with precision greater than 6).

If one condition is true, DB2 returns output parameter values with data types that match the data types of the parameters in the stored procedure definition. If SP_PARMS_NJV is not specified, DB2 returns output parameter values with data types that match the data types of the parameters in the stored procedure definition.

ZPARM name DDF_COMPATIBILITY and ZPARM value SP_PARMS_NJV in DSN6FAC.

Field Name: QWP9ICFJ

IGNORE_TZ

Shows whether to ignore the time zone (TMZ) in TMZ input for Java.

Field Name: QWP9ITZJ

DSBL_IMPCAST_JV

Specifies whether the DB2 for z/OS server disables implicit casting of input host variables from numeric data types to string data types, or from string data types to numeric data types, when the application is a Java client application that uses the IBM Data Server Driver for JDBC and SQLJ.

If application compatibility is set to:

- V10R1: DB2 uses DISABLE_IMPCAST_JV.
- V11R1 or later: DB2 always does implicit casting.

ZPARM name DDF_COMPATIBILITY ZPARM value DISABLE_IMPCAST_JV in DSN6FAC.

Field Name: QWP9IC1J

DSBL_IMPCAST_NJV
Specifies that DB2 for z/OS disables implicit casting of input host variables from numeric data types to string data types, or from string data types to numeric data types, when the application is a non-Java client application that uses an IBM Data Server client or driver that is at Version 10.5 or earlier.

ZPARM name DDF_COMPATIBILITY and ZPARM value DISABLE_IMPCAST_NJV in DSN6FAC.

Field Name: QWP9ICIN

IFCID 106 - IRLM Processing Parameters:

This topic shows detailed information about “Record Trace - IFCID 106 - IRLM Processing Parameters”.

Record trace - IFCID 106 - IRLM Processing Parameters

The field labels shown in the following sample layout of “Record Trace - IFCID 106 - IRLM Processing Parameters” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC SPECIFIED</td>
<td>YES</td>
</tr>
<tr>
<td>DEADLOCK WAIT</td>
<td>5000</td>
</tr>
<tr>
<td>LOCAL/GLOBAL CYCL</td>
<td>1</td>
</tr>
<tr>
<td>MAX CSA USAGE</td>
<td>0</td>
</tr>
<tr>
<td>LOCKTAB HASH ENTR</td>
<td>0</td>
</tr>
<tr>
<td>LOCKTAB LIST ENTR</td>
<td>0</td>
</tr>
<tr>
<td>MAX 31-BIT STOR</td>
<td>0</td>
</tr>
<tr>
<td>MAX 64-BIT STOR</td>
<td>0</td>
</tr>
</tbody>
</table>

PC SPECIFIED

Shows whether the IRLM uses the cross-address-space program call. This parameter determines where the IRLM lock control block structure is stored.

If you run a tightly-controlled environment and virtual storage is not constrained, use PC=NO. PC=YES is the conservative choice where insufficient information about the environment is available to make a well-informed decision.

With PC=NO, locks are managed in extended common service area (ECSA) and it is possible to achieve better CPU performance, because DB2 does not use cross-memory services for IRLM requests. However, ECSA is a limited resource and constrains the size of the private address space area available above the 16-MB line. The demand for ECSA storage to support locks may be excessive when one or more of the following conditions are true:

- Extensive use of row-level locking
- Ineffective lock avoidance
- Infrequent application commits
- Lock escalation via NUMLKTS and LOCKMAX is disabled because the applications cannot tolerate the impact
- Effectively no limit on the number of locks taken by an application (NUMLKUS is set very high)
- Multiple DB2 subsystems with IRLM PC=NO reside on the same z/OS image

Assuming the average lock consumes 536 bytes of storage, a single application which takes 100000 locks before a commit would consume almost 52 MB of ECSA when IRLM is configured with PC=NO. MAXCSA would have to be set to at least 52 MB. If a very large number of locks are held by concurrent application processes, the demand for ECSA may not be able to be supported.
Recommendation: If you run applications that have many of the above characteristics, it is strongly recommended to use PC=YES. Certain ERP vendor applications that run concurrent processes can acquire a very large number of held locks that would require a very large setting for MAXCSA, or cause an ECSA overflow which would adversely impact the availability of the z/OS image.

If PC=NO is selected, MAXCSA should be sized to support the concurrent number of held locks required and to avoid an ECSA overflow condition. When setting MAXCSA, check to ensure that the ECSA setting in PARMLIB is sufficient to support the aggregate demand from IRLM and other subsystems. The ECSA size for z/OS is specified by the CSA keyword in the IEASSYSnn member in SYS1.PARMLIB.

With PC=YES, locks are managed in the extended private area of the IRLM address space. This can increase the CPU cost of lock and unlock requests relative to PC=NO. However, with reasonable lock avoidance, the total CPU overhead is likely to be limited to 1 to 2%, which is well within measurement noise and therefore not significant.

With PC=YES, the MAXIMUM ECSA option is ignored but must not be zero. The amount of storage allowed for LOCK usage is determined from the extended storage provided to the IRLM address space at startup time. This amount is reduced by 200 MB to allow a buffer for IRLM and z/OS required storage and for DMBS MUST COMPLETE processes. The amount being monitored can be seen in the display message from the irlmproc,STATUS,STOR command. IRLM still uses CSA and ECSA for other purposes. If you need to create a dump for DB2 diagnostic purposes, you need to ensure that IRLM is included in the dump, and that the dump data sets are large enough to hold IRLM.

PC=NO is a good solution when one or more of the following conditions are true, particularly when running a data sharing configuration:

- Optimal CPU performance is required
- No constraint is necessary on available ECSA
- Significant IRLM lock contention and a very large number of lock requests with ineffective lock avoidance
- Relatively high IRLM SRB time

YES puts the lock control block structure in the IRLM private address space, and the program call instruction is used to address it. IRLM still uses CSA and ECSA for other purposes. With PC=YES, the MAXIMUM ECSA option is ignored.

**Field Name**: QWP5PCY

**DEADLOCK WAIT**

Wait time for local deadlock.

**Field Name**: QWP5DLOK

**LOCAL/GLOBAL CYC**

Number of local cycles per global cycle.

**Field Name**: QWP5DCYC

**TIMEOUT INTERVAL**

Timeout interval.
MAX CSA USAGE

The maximum amount of common service area that can be used by IRLM.

The amount of space needed for the common service area (CSA) below the 16 MB line is less than 40 KB for each DB2 subsystem and 24 KB for each IRLM. High concurrent activity, parallelism, or high contention can require more CSA.

Most of the DB2 common data resides in the extended common service area (ECSA). Most modules, control blocks, and buffers reside in the extended private area. A DB2 subsystem with 200 concurrent users and 2000 open data sets should need less than 2 MB of virtual storage below the 16 MB line.

LOCKTAB HASH ENTR

The number of z/OS lock table hash entries.

MAX 31-BIT STOR

The maximum amount of 31-bit IRLM private storage that is available of the 2 GB virtual storage limit, for normal operations in IRLM. IRLM reserves an additional 10% of the 2 GB for use by requests in IRLM.

PENDING HASH ENTR

The number of z/OS lock table hash entries pending.

LOCKTAB LIST ENTR

The number of z/OS lock table list entries.

MAX 64-BIT STOR

The maximum amount of 64-bit IRLM private storage that is available of the total amount of storage that is specified by MEMLIMIT, for normal operations in IRLM. IRLM reserves an additional 10% of the amount that is specified by MEMLIMIT for use by requests in IRLM.

Record trace - IFCID 106 - Log Initialization Parameters (Part 1)

This topic shows detailed information about “Record Trace - IFCID 106 - Log Initialization Parameters (Part 1)”.

The field labels shown in the following sample layout of “Record Trace - IFCID 106 - Log Initialization Parameters (Part 1)” are described in the following section.
LOG OUTPUT BUFFER

The output log buffer size in kilobytes.

There is only one output log buffer per DB2 subsystem.

Increasing this parameter reduces BSDS I/O updates when there is a buffer wraparound. Frequent wraparounds are likely in LOAD or REORG with logging, and mass insert operations.

Increasing this parameter also helps avoid log write waits for an available buffer during heavy update workload.

When the specified size is not a 4 KB multiple, it is rounded up to the next 4 KB multiple.

Install parameter OUTPUT BUFFER on DSNTIPL, or ZPARM OUTBUFF in DSN6LOGP.

Field Name: QWP2OBPS

MAX ARCH INP UNIT

The maximum number of archive log volumes that can be allocated at the same time.

Field Name: QWP2INLM

DEALLOC TIME(MIN)

The number of minutes an archive read tape unit can remain unused before it is deallocated.

When archive log data is read from tape, this value should be high enough to allow DB2 to optimize tape handling for multiple read applications.

Install parameter DEALLOC PERIOD on panel DSNTIPA, or ZPARM DEALLCT in DSN6LOGP.

Field Name: QWP2DMIN

READ COPY2 ARCH

Indicates whether COPY2 archives should be read first when the DB2 subsystem is started. The default is NO. Install parameter READ COPY2 ARCHIVE on panel DSNTIPO, or ZPARM TRKRSITE in DSN6SPRM.

Field Name: QWP2ARC2

MAX ARCH IN BSDS

The maximum number of archive log volumes that can be recorded in the BSDS.

When this number is exceeded, recording resumes at the beginning of the BSDS.

For dual archive, this value applies to each log data set. As an example, a value of 500 allows 500 COPY-1 and 500 COPY-2 data sets in the BSDS.

You must create image copies of all DB2 objects, probably several times, before the archive log data sets are discarded. If you fail to retain an adequate number of archive log data sets for all the image copies, you might need to cold start or reinstall DB2. In either case, data is lost.
IFCID 106 - Log Initialization Parameters (Part 1)

Install parameter RECORDING MAX on panel DSNTIPA, or ZPARM MAXARCH in DSN6LOGP.

Field Name: QWP2ARCL

DEALLOC TIME(SEC)

The deallocation time in seconds.

Field Name: QWP2DSEC

ACTIVE LOG COPIES

The number of copies of the active log being maintained: 2 indicates dual logging.

Field Name: QWP2DUAL

DUAL BSDS MODE

Shows whether two BSDS data sets are used.

A second BSDS (strongly recommended) makes recovery much easier in most situations. In cases that normally require recovery and restart, a second BSDS allows you to continue working. The storage overhead required is small and the data set is relatively inactive.

DB2 parameter TWOBSDS in DSN6LOGP.

Field Name: QWP2DBSD

OFFLOAD OPTION

Shows whether the offload process is initiated online.

ZPARM OFFLOAD in macro DSN6LOGP.

Field Name: QWP2OFFL

ARCH LOG COPIES

The number of copies of the archive log being produced during offloading: 2 indicates dual logging.

Install parameter NUMBER OF COPIES on PANEL DSNTIPH, or ZPARM TWOARCH in DSN6LOGP.

Field Name: QWP2ADL

REM COPY SW ACCEL

Specifies whether DB2 uses software (SW) to control the remote copy process for active log output in peer-to-peer remote copy (PPRC) environments. It can have the following values:

• DISABLE (This is the default value)
• ENABLE

ZPARM REMOTE_COPY_SW_ACCEL in DSN6LOGP.

Field Name: QWP2RCSA

IFCID 106 - Log Initialization Parameters (Part 2):

This topic shows detailed information about “Record Trace - IFCID 106 - Log Initialization Parameters (Part 2)”.
The field labels shown in the following sample layout of “Record Trace - IFCID 106 - Log Initialization Parameters (Part 2)” are described in the following section.

**DATASET BLOCKSIZE:**

The block size of the archive log data set.

The block size must be compatible with the device type used for archive logs. The value is rounded up to the next multiple of 4096 bytes.

If the archive log is written to tape, use the largest possible block size to improve the reading speed.

Recommended block size values are 28672 for tape, 20480 for 3380, and 24576 for 3390 or RAMAC.

Install parameter BLOCK SIZE on panel DSNTIPA, or ZPARM BLKSIZE in DSN6ARVP.

Field Name: QWP3BKSZ

**COPY1 DEVICE TYPE**

The device type or unit name for storing archive log data sets.

The value can be any alphanumeric string. If you choose to archive to DASD, you can specify a generic device type with a limited volume range. DB2 requires that all archive log data sets allocated on DASD are cataloged.

If the device type is DASD, CATALOG DATA must be set to YES. If the unit name specifies DASD, the archive log data sets can extend to a maximum of 15 volumes. PRIQTY and SECQTY must be large enough to contain all active log data set data without extending beyond 15 volumes. If the unit name specifies a tape device, DB2 can extend to a maximum of 20 volumes. Default is TAPE.

Install parameter DEVICE TYPE 1 on panel DSNTIPA, or ZPARM UNIT in DSN6ARVP.

Field Name: QWP3UNT1

**MSS GROUP NAME 1**

The mass storage system volume group name of the first storage group.

Field Name: QWP3MSV1

**PRIMARY ALLOCATION**

The primary space allocation for archive data sets.
IFCID 106 - Log Initialization Parameters (Part 2)

Install parameter PRIMARY QUANTITY on installation panel DSNTIPA, or ZPARM PRIQTY in DSN6ARVP.

Field Name: QWP3RISP

COPY2 DEVICE TYPE

Indicates the device type or unit name for storing the second copy of archive log data sets.

The value can be any alphanumeric string. If you choose to archive to DASD, you can specify a generic device type with a limited volume range. DB2 requires that all archive log data sets allocated on DASD are cataloged.

If the device type is DASD, then CATALOG DATA must be set to YES. If the unit name specifies DASD, the archive log data sets can extend to a maximum of 15 volumes. PRIQTY and SECQTY must be large enough to contain all active log data set data without extending beyond 15 volumes.

If the unit name specifies a tape device, DB2 can extend to a maximum of 20 volumes. Default is TAPE.

Install parameter DEVICE TYPE 2 on panel DSNTIPA, or ZPARM UNIT2 in DSN6ARVP.

Field Name: QWP3UNT2

MSS GROUP NAME 2

The mass storage system volume group name of the second storage group.

Field Name: QWP3MSV2

SECONDARY ALLOC.

The amount of DASD secondary space allocation for an archive log data set.

The units used are specified by the ALLOCATION UNITS field. When blank (default), the CLIST calculates this space using block size and size of the log.

Install parameter SECONDARY QTY on panel DSNTIPA, or ZPARM SECQTY in DSN6ARVP.

Field Name: QWP3SECS

COPY 1 PREFIX

The prefix of the first archive log data set.

Install parameter Archive Logs: COPY1 PREFIX on panel DSNTIPH, or ZPARM ARCPFX1 in DSN6ARVP.

Field Name: QWP3RE1N

RETENTION PERIOD

The number of days DB2 keeps archive log data sets.

This value is added to the current date to calculate the expiration date.

The retention period is often used in tape management systems to control the reuse and scratching of data sets and tapes. DB2 uses this as the value for the dynamic allocation parameter DALRETPD when archive log data sets are created.
Install parameter RETENTION PERIOD on panel DSNTIPA, or ZPARM ARCRETN in DSN6ARVP.

Field Name: QWP3RETN

COPY 2 PREFIX

The prefix of the second archive log data set. If single logging is used, this value is a default.

Install parameter Archive Logs: COPY2 PREFIX on panel DSNTIPH, or ZPARM ARCPFX2 in DSN6ARVP.

Field Name: QWP3RE2N

SINGLE VOLUME

Indicates whether single-volume DASD archives are used.

Install parameter SINGLE VOLUME on panel DSNTIPA, or ZPARM SVOLARC in DSN6ARVP.

Field Name: QWP3SVOL

QUIESCE PERIOD

The maximum amount of time (in seconds) permitted for DB2 to attempt a full system quiesce.

Install parameter QUIESCE PERIOD on panel DSNTIPA, or ZPARM QUIESCE in DSN6ARVP.

Field Name: QWP3MQP

CATALOG ARCH DS

The alias of the VSAM integrated catalog facility user catalog or the name of the master catalog where the DB2 VSAM data sets created during installation are cataloged. The MVS catalog alias is also used as the high-level qualifier for DB2 VSAM data sets.

Install parameter CATALOG ALIAS on panel DSNTIPA, or ZPARM CATALOG in DSN6ARVP.

Field Name: QWP3CTLG

SPACE ALLOC METHOD

The unit used in allocating archive data sets. Possible values are:

CYLINDER
Space allocation by cylinders (QWP3CYL=1)

TRACKS
Space allocation by tracks (QWP3TRCK=1)

BLOCKS
Space allocation by blocks (QWP3CYL=0 and QWP3TRCK=0)

Install parameter ALLOCATION UNITS on panel DSNTIPA, or ZPARM ALCUNIT in DSN6ARVP.

Field Name: RT0106SA

ARCHLOG RACF PROT

Indicates whether archive log data sets are protected with individual RACF profiles when they are created.
When YES, RACF protection must be active for DB2. YES also means that you cannot use RACF generic profiles for archive log data sets. If your archive log is on tape, RACF class TAPEVOL must be active, otherwise, the off-load will fail.

Install parameter ARCHIVE LOG RACF on panel DSNTIPP, or ZPARM PROTECT in DSN6ARVP.

**Field Name:** QWP3RTCT

**WTOR BEF ARCH MNT**

Indicates whether DB2 must send a message to the operator and wait for an answer before attempting to mount an archive log data set.

Other DB2 users can be forced to wait while the mount is pending. They are not affected while DB2 is waiting for a response to the message.

When YES, a device such as tape is used that requires long delays for mounts. DEVICE_TYPE 1 shows the device type or unit name.

Install parameter WRITE TO OPER on panel DSNTIPA, or ZPARM ARCWTOR in DSN6ARVP.

**Field Name:** QWP3WTOR

**COMPACT DATA**

Indicates whether data written to archive logs is compacted.

This option only applies to data written to a 3480 device that has the improved data recording capability (IDRC) feature.

Install parameter COMPACT DATA on panel DSNTIPA, or ZPARM COMPACT in DSN6ARVP.

**Field Name:** QWP3COMP

**TS ARCHLOG DS**

Indicates whether the date and time of creation of the DB2 archive log data set is included in the archive log data set name.

Possible values are:

**YES (QWP3DTIM=1)**

The maximum allowable length of the user-controlled portion of the archive log prefix is reduced from 35 characters to 19 characters. This allows the 16-character timestamp to be added to the archive log data set prefix. The timestamp format is as follows: $DydddThhmmnst$, where:

- **D** Starts the date.
- **yy** Is the last two digits of the year.
- **ddd** Is the day of the year.
- **T** Starts the time.
- **hh** Is the hour.
- **mm** Are the minutes.
- **ss** Are the seconds.
- **t** Is the tenths of a second.
The maximum allowable length of the user-controlled portion of the archive log prefix is reduced from 35 characters to 19 characters. This reduction in size permits the 16-character date and time qualifiers (timestamp) to be added to the archive log data set prefix.

**NO (QWP3DTIM=0 and QWP3DTFM=0)**

The archive data set name does not contain a timestamp.

**EXT (QWP3DTFM=1)**

The archive data set name contains a timestamp with an extended date component in the format: .Dyyyyddd. A value of EXT in this field causes the lengths of the values that are entered for field COPY 1 PREFIX and field COPY 2 PREFIX to be audited to ensure that neither exceeds 17 bytes (19 bytes for other settings of TIMESTAMP ARCHIVES).

Install parameter TIMESTAMP ARCHIVES on panel DSNTIPH, or ZPVTSTAMP in DSN6ARVP.

**Field Name: QWP3LVL**

This field is for IBM service.

**Field Name: QWP3WLST**

This field is for IBM service.

**IFCID 106 - Miscellaneous Installation Parameters**

This topic shows detailed information about “Record Trace - IFCID 106 - Miscellaneous Installation Parameters”.

This block shows values that are not shown on DB2 installation panels. These values are either set internally by DB2, or calculated from other install parameter values.

When this block contains names that are too long for the space available, they are truncated. The full name is shown in the list of long names, which is printed at the end of this block. When present, the list shows the parameter identifier, in alphabetic order, and the complete name. If the name is too long for one line, it continues on the next line.

**Record trace - IFCID 106 - Miscellaneous Installation Parameters**

The field labels shown in the following sample layout of “Record Trace - IFCID 106 - Miscellaneous Installation Parameters” are described in the following section.
### IFCID 106 - Miscellaneous Installation Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENABLE DB2 AUTH.</td>
<td>YES</td>
</tr>
<tr>
<td>AUTH CACHE SIZE.</td>
<td>3072</td>
</tr>
<tr>
<td>ACCEL MODELING.</td>
<td>YES</td>
</tr>
<tr>
<td>OPT HINTS ALLOWED.</td>
<td>NO</td>
</tr>
<tr>
<td>RIODPOOL SIZE (KB).</td>
<td>8000</td>
</tr>
<tr>
<td>MAX DEG OF PARALLEL.</td>
<td>0</td>
</tr>
<tr>
<td>USE X LOCK</td>
<td>NO</td>
</tr>
<tr>
<td>NPAGES THRESHOLD</td>
<td>0</td>
</tr>
<tr>
<td>MAX EXT SERV TASK.</td>
<td>20</td>
</tr>
<tr>
<td>MAX NOT FOUND-HSH.</td>
<td>100</td>
</tr>
<tr>
<td>EVAL UNCOMMITTED</td>
<td>NO</td>
</tr>
<tr>
<td>SUPPRESS SORT ERR.</td>
<td>YES</td>
</tr>
<tr>
<td>STAR JOIN THRESH.</td>
<td>10</td>
</tr>
<tr>
<td>LONG RUNNING READ.</td>
<td>10</td>
</tr>
<tr>
<td>CUR MAIN TYPE.</td>
<td>SYSTEM</td>
</tr>
<tr>
<td>FREE CACHED SMTS.</td>
<td>NO</td>
</tr>
<tr>
<td>MAX DATA CACHING.</td>
<td>200</td>
</tr>
<tr>
<td>MAX STORED PROCS.</td>
<td>2000</td>
</tr>
<tr>
<td>MAX TEMP STORAGE.</td>
<td>0</td>
</tr>
<tr>
<td>MAX CONC AUTOBIND.</td>
<td>10</td>
</tr>
<tr>
<td>PLANNMT                     .</td>
<td>OFF</td>
</tr>
<tr>
<td>SEPARATE SECURITY</td>
<td>NO</td>
</tr>
<tr>
<td>MAX TEMP RIO.</td>
<td>0</td>
</tr>
<tr>
<td>SKIP UNCOMM.ID.</td>
<td>NO</td>
</tr>
<tr>
<td>DDL TIMEOUT FACT.</td>
<td>1</td>
</tr>
<tr>
<td>MAX UTIL PARALL.</td>
<td>99</td>
</tr>
<tr>
<td>MULT INDEX ACCESS.</td>
<td>YES</td>
</tr>
<tr>
<td>UTIL OBJ CONVERS.</td>
<td>NONE</td>
</tr>
<tr>
<td>OBJ CREATE FORMAT.</td>
<td>BASIC</td>
</tr>
<tr>
<td>TEMPLATE TIME.</td>
<td>UTC</td>
</tr>
<tr>
<td>WB DB AGT THRESH.</td>
<td>0</td>
</tr>
<tr>
<td>WB DB SYS THRESH.</td>
<td>90</td>
</tr>
<tr>
<td>SIMULATED CPUS.</td>
<td>0</td>
</tr>
<tr>
<td>UT SORT OSALLOC.</td>
<td>YES</td>
</tr>
<tr>
<td>UT DB2 SORT USE</td>
<td>NO</td>
</tr>
<tr>
<td>BFPT COMPATIBILITY</td>
<td>CURRENT</td>
</tr>
<tr>
<td>FLASHPROC PRRC.</td>
<td>REQUIRED</td>
</tr>
<tr>
<td>FLASHPROC COPY.</td>
<td>NO</td>
</tr>
<tr>
<td>FLASHPROC LOAD.</td>
<td>NO</td>
</tr>
<tr>
<td>FLASHPROC REB IX.</td>
<td>NO</td>
</tr>
<tr>
<td>FLASHPROC REORG TS.</td>
<td>NO</td>
</tr>
<tr>
<td>MAX REAL-AUX STOR.</td>
<td>0</td>
</tr>
<tr>
<td>SEPAR WORK FILES.</td>
<td>NO</td>
</tr>
<tr>
<td>RETRY STOPPED OBJ.</td>
<td>NO</td>
</tr>
<tr>
<td>ALTERNATE CPYPOOL.</td>
<td>NO</td>
</tr>
<tr>
<td>COPY FAST REPL.</td>
<td>PREFERRED</td>
</tr>
<tr>
<td>CACHE DYN STABL.</td>
<td>BOTH</td>
</tr>
<tr>
<td>INDEX MEMORY PARALL.</td>
<td>AUTO</td>
</tr>
<tr>
<td>STATDPKB.</td>
<td>YES</td>
</tr>
<tr>
<td>ZHYPERLINK</td>
<td>DATABASE</td>
</tr>
</tbody>
</table>

...List of Long Names
FCOPY DEFTEMP: ODS5.ADB...SN...NDS...OBJU...TATI.
ENCRIPTION KEY... N/P

---

**Notes:**
- ENABLE DB2 AUTH: YES
- AUTH CACHE SIZE: 3072
- ACCEL MODELING: YES
- OPT HINTS ALLOWED: NO
- RIODPOOL SIZE (KB): 8000
- MAX DEG OF PARALLEL: 0
- USE X LOCK: NO
- NPAGES THRESHOLD: 0
- MAX EXT SERV TASK: 20
- MAX NOT FOUND-HSH: 100
- EVAL UNCOMMITTED: NO
- SUPPRESS SORT ERR: YES
- STAR JOIN THRESH: 10
- LONG RUNNING READ: 10
- CUR MAIN TYPE: SYSTEM
- FREE CACHED SMTS: NO
- MAX DATA CACHING: 200
- MAX STORED PROCS: 2000
- MAX TEMP STORAGE: 0
- MAX CONC AUTOBIND: 10
- PLANNMT: OFF
- SEPARATE SECURITY: NO
- MAX TEMP RIO: 0
- SKIP UNCOMM.ID: NO
- DDL TIMEOUT FACT: 1
- MAX UTIL PARALL: 99
- MULT INDEX ACCESS: YES
- UTIL OBJ CONVERS: NONE
- OBJ CREATE FORMAT: BASIC
- TEMPLATE TIME: UTC
- WB DB AGT THRESH: 0
- WB DB SYS THRESH: 90
- SIMULATED CPUS: 0
- UT SORT OSALLOC: YES
- UT DB2 SORT USE: NO
- BFPT COMPATIBILITY: CURRENT
- FLASHPROC PRRC: REQUIRED
- FLASHPROC COPY: NO
- FLASHPROC LOAD: NO
- FLASHPROC REB IX: NO
- FLASHPROC REORG TS: NO
- MAX REAL-AUX STOR: 0
- SEPAR WORK FILES: NO
- RETRY STOPPED OBJ: NO
- ALTERNATE CPYPOOL: NO
- COPY FAST REPL: PREFERRED
- CACHE DYN STABL: BOTH
- INDEX MEMORY PARALL: AUTO
- STATDPKB: YES
- ZHYPERLINK: DATABASE

---

3832 IBM Db2 Performance Expert on z/OS
## IFCID 106 - Miscellaneous Installation Parameters

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDM POOL SIZE</td>
<td>The size (in kilobytes) of the environmental descriptor manager (EDM) pool.</td>
</tr>
<tr>
<td></td>
<td>This can be the value calculated by the CLIST, based on input from previous</td>
</tr>
<tr>
<td></td>
<td>panels, or the value entered in the Override column at installation time.</td>
</tr>
<tr>
<td></td>
<td>Install parameter EDMPOOL STORAGE SIZE on panel DSNTIPC, or ZPARM EDMPOOL</td>
</tr>
<tr>
<td></td>
<td>in DSN6SPRM.</td>
</tr>
<tr>
<td>Field Name: QWP4EDPL</td>
<td></td>
</tr>
</tbody>
</table>

## IRLM PROCEDURE

The name of the IRLM procedure invoked by MVS if AUTO START is YES.

The name cannot be the same as the subsystem name given for SUBSYSTEM NAME.

Install parameter PROC NAME on panel DSNTIPI, or ZPARM IRLMPRC in DSN6SPRM.

Field Name: QWP4IPRC

## TAB OWNER

The owner of the application registration table and the object registration table.

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Install parameter REGISTRATION OWNER on panel DSNTIPZ, or ZPARM RGFCOLID in DSN6SPRM.

Field Name: QWP4REGC

## INST DD CTRL SUPT

Indicates whether data definition support has been installed.
IFCID 106 - Miscellaneous Installation Parameters

Install parameter INSTALL DD CONTROL SUPT on panel DSNTIPZ, or ZPARM RGFINSTL in DSN6SPRM.

Field Name: QWP4REGI

IRLM MODULE NAME

The IRLM subsystem name defined to MVS.

This is used for communication between DB2 and the IRLM. It is included in the MVS subsystem table IEFSSN xx, where xx is the value of SUBSYSTEM MEMBER on installation panel DSNTIPM.

If the IRLM for IMS is installed, the DB2 IRLM name is different because two IRLMs on the same MVS system must have unique names.

Install parameter SUBSYSTEM NAME on panel DSNTIPI, or ZPARM IRLMSID in DSN6SPRM.

Field Name: QWP4ISID

APPL TABLE

The name of the application registration table.

Install parameter APPL REGISTRATION TABLE on panel DSNTIPZ or ZPARM RGFNMPRT in DSN6SPRM.

Field Name: QWP4REGA

CTRL ALL APPLIC

Indicates that the DB2 system is completely controlled by a set of closed applications identified in the application registration table.

Closed applications require their DB2 objects to be managed solely through the plans or packages registered in the application registration table.

Install parameter CONTROL ALL APPLICATIONS on panel DSNTIPZ, or ZPARM RGFDEDPL in DSN6SPRM.

Field Name: QWP4REGD

IRLM START TIME

The IRLM wait time in seconds.

DB2 autostart abends if IRLM does not start within this time.

Install parameter TIME TO AUTOSTART on panel DSNTIPI, or ZPARM IRLMSWT in DSN6SPRM.

Field Name: QWP4ISWT

OBJ TABLE

The name of the object registration table.

Install parameter OBJT REGISTRATION TABLE on panel DSNTIPZ, or ZPARM RGFNMORT in DSN6SPRM.

Field Name: QWP4REGO

REQ FULL NAMES

Indicates whether registered objects require fully qualified names.

Install parameter REQUIRE FULL NAMES on panel DSNTIPZ, or ZPARM RGFFULLQ in DSN6SPRM.
Field Name: QWP4REGQ

IRLM INIT TIME

The number of seconds DB2 waits before querying whether IRLM has completed initialization.

DB2 parameter SPRMISWI in DSNMSPRM.

Field Name: QWP4ISWI

INSTALL SYSADM

One of two authorization IDs with SYSADM authority. SYSADM users can access to DB2 in all cases.

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Install parameter SYSTEM ADMIN 1 on panel DSNTIPP, or ZPARM SYSADM in DSN6SPRM.

Field Name: QWP4SADM

UNREGIST DDL DFLT

The action taken for DDL that names an unregistered object.

Options are REJECT, ACCEPT, or APPL, which rejects the DDL when the current application is not registered.

Install parameter UNREGISTERED DDL DEFAULT on panel DSNTIPZ, or ZPARM RGFDEFLT in DSN6SPRM.

Field Name: QWP4SADM

IRLM AUTOSTART

Indicates whether IRLM is started automatically by DB2.

Install parameter AUTO START on panel DSNTIPI, or ZPARM IRLMAUT in DSN6SPRM.

Field Name: QWP4AUT

SYSADM ID 2

One of two authorization IDs with SYSADM authority. SYSADM users can access to DB2 in all cases.

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Install parameter SYSTEM ADMIN 2 on panel DSNTIPP, or ZPARM SYSADM2 in DSN6SPRM.

Field Name: QWP4ADM2

UTILITY FACTOR

Shows how much longer utilities can wait for a resource than SQL applications can.

This is the number of RESOURCE TIMEOUT units that a utility or utility command can wait for a lock or for all claims on a resource of a particular claim class to be released. The default value is 6, meaning a utility can wait 6 times longer than an SQL application for a resource.
IFCID 106 - Miscellaneous Installation Parameters

Install parameter UTILITY TIMEOUT on panel DSNTIPI, or ZPARM UTIMOUT in DSN6SPRM.

Field Name: QWP4UTO

IRLM TIMEOUT

The number of seconds before a timeout is detected.
This is an integer multiple of DEADLOCK TIME on panel DSNTIPJ.
Timeout means that a lock request has waited for a resource (or for claims on a resource for a particular claim class to be released) longer than this time.
For data sharing, the actual timeout period is longer than the timeout value.

Install parameter RESOURCE TIMEOUT on panel DSNTIPI, or ZPARM IRLMRWT in DSN6SPRM.

Field Name: QWP4TOUT

DEFAULT USERID

The authorization ID used if RACF is not available for batch access and USER= is not specified in the job statement.
This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Install parameter UNKNOWN AUTHID on panel DSNTIPP, or ZPARM DEFLTID in DSN6SPRM.

Field Name: QWP4DFID

EXPLAIN AUTOBIND

Indicates whether EXPLAIN processing occurs during automatic rebind.
YES means EXPLAIN processing happens during automatic rebind of a plan or package that has EXPLAIN(YES) as a bind option. If the PLAN_TABLE does not exist, automatic rebind continues, but there is no EXPLAIN output. Explain processing does not happen for a plan or package with EXPLAIN(NO).

Install parameter EXPLAIN PROCESSING on panel DSNTIPO, or ZPARM ABEXP in DSN6SPRM.

Field Name: QWP4ABX

MAXIMUM DATASETS

The maximum number of data sets that can be open at one time.
The practical limit can be less than the MVS limit of 32727, depending on available storage below the line.

Install parameter DSMAX on panel DSNTIPC, or ZPARM DSMAX in DSN6SPRM.

Field Name: QWP4DSMX

DATABASE NAME

The name of the database that contains the registration tables.
IFCID 106 - Miscellaneous Installation Parameters

Install parameter REGISTRATION DATABASE on panel DSNTIPZ, or ZPARM RGFDNBANAM in DSN6SPRM.

Field Name: QWP4REGN

ENABLE DATA CAPT

Indicates whether change data capture is enabled.

Install parameter DPROP SUPPORT on panel DSNTIPO. ZPARM name is CHGDC in DSN6SPRM.

Field Name: QWP4CDC

ASYNC DRAIN START

The percentage below 100% DSMAX that open data sets can reach before an asynchronous drain is started. The default is 1, meaning that asynchronous drain starts when the number of open data sets reaches 99% of DSMAX.

DB2 defers closing and deallocating the table spaces or indexes until the number of open data sets reaches one of the following limits:
- The MVS limit for the number of concurrently open data sets.
- 99% (default) of the value that you specified for DSMAX.

When one of these limits is reached, DB2 closes a number of data sets not in use equal to 3% (default) of the value DSMAX. Thus, DSMAX controls not only the limit of open data sets, but also the number of data sets that are closed when that limit is reached.

DB2 parameter SPRMTDD in DSN6SPRM.

Field Name: QWP4TDDN

SYSOPER ID

One of two authorization IDs with SYSOPR authority. SYSOPR users can access DB2 even if the DB2 catalog is unavailable.

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Install parameter SYSTEM OPERATOR 1 on panel DSNTIPP, or ZPARM SYSOPR1 in DSN6SPRM.

Field Name: QWP4OPR1

SITE TYPE

Shows whether this system is at a local site or a recovery site.

LOCALSITE
- This is the site of the current system. Multiple image copies are made and are operational here. This is the default.

RECOVERYSITE
- This an alternative site for recovery purposes.

The RECOVER utility uses this parameter to determine what site the current system is on and recovers everything from the copies of data registered at that site.

The RECOVER and MERGECOPY utilities use this to determine whether COPYDDN or RECOVERDDN is allowed with NEWCOPY NO.
IFCID 106 - Miscellaneous Installation Parameters

Install parameter SITE TYPE on panel DSNTIPO, or ZPARM SITETYP in DSN6SPRM.

**Field Name:** QWP4MSTY

**SYNC DRAIN STOP**

The percentage of maximum open data sets until the asynchronous drain operations are stopped.

DB2 parameter SPRMMDD in DSN6SPRM.

**Field Name:** QWP4MDDN

**SYSPER ID 2**

One of two authorization IDs with SYSPR authority. SYSPR users can access DB2 even if the DB2 catalog is unavailable.

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Install parameter SYSTEM OPERATOR 2 on panel DSNTIPP, or ZPARM SYSPR2 in DSN6SPRM.

**Field Name:** QWP4OPR2

**TRACKER SITE**

Indicates whether this subsystem is a remote tracker site for another DB2 subsystem.

When YES, this is a tracker site.

A DB2 tracker site is a separate DB2 subsystem or data sharing group that exists solely for the purpose of keeping shadow copies of your primary site's data. No independent work can be run on the tracker site.

Install parameter TRACKER TYPE on panel DSNTIPO, or ZPARM TRKRSTYPE in DSN6SPRM.

**Field Name:** QWP4TRKR

**ENFORCE DPROP**

Shows whether DataPropagator NonRelational (DPROP) is used to propagate SQL changes made to tables defined with DATA CAPTURE CHANGES.

1. No changes are propagated.
2. DPROP propagates SQL changes, and those changes made to tables defined with DATA CAPTURE CHANGES are only allowed when monitor trace class 6 is active, DPROP is installed, and the DB2 application is running in an IMS environment. If any of these conditions are not met, no changes to the DB2 table are permitted.
3. Data propagation occurs when monitor trace class 6 is active, DPROP is installed, and the DB2 application is running in an IMS environment. In this instance, an application that is not running in an IMS environment can update DB2 tables defined with DATA CAPTURE CHANGES. However, these changes are not propagated to IMS.

**ANY** Allows subsystems to propagate some data with DPROP and other data with a different propagation program.
Tables that should only be updated by DB2 applications running in an IMS environment can be protected using the following methods:

- Use the ENABLE parameter on BIND to specify a specific attachment facility through which updates to data propagation tables can be made.
- Define a validation procedure for data propagation tables to define which plans can update those tables.
- Allow update authority for data propagation tables to a group of authorization IDs that can only run in IMS.

Install parameter DPROP SUPPORT on panel DSNTIPO, or ZPARM EDPROP and CHGDC in DSN6SPRM.

Field Name: QWP4ENF

**DDCS ESCAPE CHAR**

The escape character used in the application registration table (ART) or object registration table (ORT).

Sets of names in the ART and ORT can be represented by patterns that use the underscore (_) and percent sign (%) characters in the same way as in an SQL LIKE predicate.

Install parameter ART/ORt ESCAPE CHARACTER on panel DSNTIPZ, or ZPARM RGFESCP in DSN6SPRM.

Field Name: QWP4ESC

**WAIT RETAIN LOCKS**

Indicates whether a request is suspended until an incompatible retained lock becomes available.

This value is only significant in a data sharing environment. It indicates how long a transaction should wait for a lock on a resource if another DB2 in the data sharing group has failed and is holding an incompatible lock on that resource. Locks held by failed DB2 members are called retained locks.

This value is a multiplier that is applied to the connection's normal timeout value. For example, if the retained lock multiplier is 2, then the timeout period for a call attachment connection that is waiting for a retained lock is twice the normal CAF timeout period. The default is 0, meaning applications do not wait for incompatible retained locks, the lock request is immediately rejected and the application receives a "resource unavailable" SQLCODE.

Install parameter RETAINED LOCK TIMEOUT on panel DSNTIPI, or ZPARM RETLWAIT in DSN6SPRM.

Field Name: QWP4WAIT

**IMS/BMP TIMEOUT**

The number of RESOURCE TIMEOUT units that an IMS BMP connection waits for a lock to be released.

The default value is 4, meaning that an IMS BMP connection can wait 4 times the resource timeout value for a resource.

Install parameter IMS BMP TIMEOUT on panel DSNTIPI, or ZPARM BMPTOUT in DSN6SPRM.

Field Name: QWP4WBMP
BIND NEW PACKAGE

Shows whether BIND or BINDADD authority is required to BIND a new version of an existing package.

When BINDADD (default), only users with BINDADD system privilege can create a new package.

BIND users with BIND privilege for a package or collection can create a new version of an existing package when they bind it. This also allows users with PACKADM authority to add a new package or a new version of a package to a collection.

Install parameter BIND NEW PACKAGE on panel DSNTIPP, or ZPARM BINDNV in DSN6SPRM.

Field Name: QWP4BNV

AUTO BIND

Indicates whether autobind is enabled. Values are:

YES  Allows automatic rebind operations to be performed when a plan/package:
   • Was marked “invalid”.
   • Was bound on DB2 Vn, but is now running on DB2 Vn-1
   • After use on DB2 Vn-1 (as previously described), is later used again on DB2 Vn

NO   Prevent DB2 from performing any automatic rebind operations under any circumstances.

COEXIST  Allows automatic rebind operation to be performed in a DB2 Data Sharing coexistence environment when the plan/package:
   • Is marked “invalid” or
   • Was last bound in DB2 Vn and is running on DB2 Vn-1

Install parameter AUTO BIND on panel DSNTIPO, or ZPARM ABIND in DSN6SPRM.

Field Name: QWP4ABN

IMS/DLI TIMEOUT

The number of RESOURCE TIMEOUT units that a DL/I batch connection waits for a lock to be released.

The default value is 6, meaning that an IMS BMP connection can wait 4 times the resource timeout value for a resource.

Install parameter DL/I BATCH TIMEOUT on panel DSNTIPI, or ZPARM DLITOUT in DSN6SPRM.

Field Name: QWP4WDLI

ENABLE DB2 AUTH

Shows whether DB2 performs authorization checking.

When all authorization checking by DB2 is disabled, the GRANT statement is also disabled (granting every privilege to PUBLIC); this is not recommended.
Install parameter USE PROTECTION on panel DSNTIPP, or ZPARM AUTH in DSN6SPRM.

**Field Name:** QWP4AUTH

**MAX APPL LOCKS**

The maximum number of page or row locks that a single application can hold concurrently on all table spaces.

This includes locks on data pages, index pages, and rows that the program acquires when it accesses table spaces.

The limit applies to all table spaces defined with the LOCKSIZE PAGE, LOCKSIZE ROW, or LOCKSIZE ANY options. 0 means that there is no limit to the number of page and row locks a program can acquire.

DB2 assumes that 250 bytes of storage are required for each lock. If NO is specified for CROSS MEMORY, the value of this field has to take into account the available lock space. If referential constraints between tables is defined, the value of this field might need to be increased.

Install parameter LOCKS PER USER on panel DSNTIPJ, or ZPARM NUMLKUS in DSN6SPRM.

**Field Name:** QWP4LKUS

**CACHE DYNAMIC SQL**

Indicates whether prepared dynamic SQL statements are saved for later use by eligible application processes in the EDM pool.

Install parameter CACHE DYNAMIC SQL on panel DSNTIP8, or ZPARM CACHEDYN in DSN6SPRM.

**Field Name:** QWP4CDYN

**AUTH CACHE SIZE**

The size of the authorization cache to be used if no CACHESIZE is specified on the BIND PLAN subcommand.

The size of the cache is 32 bytes of overhead + (8 bytes of storage X number of concurrent users).

0 means authorization caching is not used.

Install parameter PLAN AUTH CACHE on panel DSNTIPP, or ZPARM AUTHCACH in DSN6SPRM.

**Field Name:** QWP4AUCA

**REP READ U LOCK**

Indicates whether the U (UPDATE) lock is used when using repeatable read (RR) or read stability (RS) isolation to access a table.

When YES, the U lock is used for an updated cursor with repeatable read or read stability.

When NO, the S lock is used for an updated cursor with repeatable read or read stability. If the cursor in the running applications includes the clause FOR UPDATE OF, but updates are infrequent, S locks generally provide better performance.

Install parameter U LOCK FOR RR/RS on panel DSNTIPI, or ZPARM RRULOCK in DSN6SPRM.
**IFCID 106 - Miscellaneous Installation Parameters**

**Field Name: QWP4RRU**

**MAX KEPT DYN STMT**

Shows the total number of prepared dynamic SQL statements that are saved past a commit point.

0 means that prepared dynamic SQL statements are not saved past commit points.

Install parameter MAX KEPT DYN STMTS on panel DSNTIPE, or ZPARM MAXKEEPD in DSN6SPRM.

**Field Name: QWP4MXKD**

**ACCEL MODELING**

The ACCELMODEL subsystem parameter determines whether to enable modeling of query workload for evaluating potential savings for both the accumulated elapsed time and CPU time if the plan is executed on an accelerator.

Only queries that are deemed eligible for execution on an accelerator by DB2 will be included in accelerator-related fields of Accounting trace IFCID 3:

- **No** Specifies that no modeling is to be performed. This is the default setting.
- **Yes** Specifies that modeling is to be performed. Consider acceleration eligibility for an SQL statement and update the new Accounting fields accordingly.

To enable modeling, the IBM DB2 Analytics Accelerator for z/OS special register CURRENT QUERY ACCELERATION and ZPARM QUERY_ACCELERATION (set by the CURRENT QUERY ACCEL) must be set to NONE for accelerator modeling. All other values for the special register and ZPARM will take the existing logic of IBM DB2 Analytics Accelerator for z/OS. This means that existing queries that already execute on the accelerator with CURRENT QUERY ACCELERATION = ENABLE, ENABLE WITH FAILBACK, ELIGIBLE, or ALL will not be part of the accelerator-related Accounting fields.

**Field Name: QWP4ACMO**

**MAX TSPACE LOCK**

The default (SYSTEM) for the LOCKMAX clause of the SQL statements CREATE TABLESPACE and ALTER TABLESPACE.

Install parameter LOCKS PER TABLE(SPACE) on panel DSNTIPJ, or ZPARM NUMLKTS in DSN6SPRM.

**Field Name: QWP4LKTS**

**CURRENT DEGREE**

Shows the default for the CURRENT DEGREE special register when no degree is explicitly set with SET CURRENT DEGREE.

The default disables query parallelism.

Install parameter CURRENT DEGREE on panel DSNTIP8, or ZPARM CDSSRDEF in DSN6SPRM.

**Field Name: QWP4CDEG**
OPT HINTS ALLOWED

Shows whether DB2 can use optimization hints from the PLAN_TABLE to influence the access paths used for certain queries.

Install parameter OPTIMIZATION HINTS on panel DSNTIP8, or ZPARM OPTHINTS in DSN6SPRM.

Field Name: QWP4HINT

SORT POOL SIZE

Indicates the amount of storage needed for the sort pool.

This can be the value calculated by the CLIST, based on input from previous panels, or the value entered in the Override column at installation time.

Install parameter SORT POOL SIZE on panel DSNTIPC, or ZPARM SRTPPOOL in DSN6SPRM.

Field Name: QWP4SPOL

STATIC DESCRIBE

Shows whether DB2 builds a DESCRIBE SQLDA when binding static SQL statements.

A DESCRIBE cannot be issued against a static SQL statement except:

• In a distributed environment, where DB2 for z/OS is the server and the requester supports extended dynamic SQL. In this instance, a DESCRIBE on an SQL statement in the extended dynamic package appears to DB2 as a DESCRIBE on a static SQL statement in the DB2 package.

• When an application uses a stored procedure result set, the application must allocate a cursor for that result set. The application can do this using a DESCRIBE CURSOR statement. The SQL statement actually described is the one with the cursor declared in the stored procedure. If that statement is static, a static SQL statement must be described.

When NO (default), DB2 does not generate a DESCRIBE SQLDA at BIND time for static SQL statements. If a DESCRIBE request is received at execution time, DB2 generates an error. However, if the describe request comes from a DESCRIBE CURSOR statement, DB2 satisfies the request but is only able to provide data type and length information. Column names are not provided.

When YES, DB2 generates a DESCRIBE SQLDA at BIND time so that DESCRIBE requests for static SQL can be satisfied during execution.

Note: You must rebind packages after this value has been set to YES.

This option increases the size of some packages because the DESCRIBE SQLDA is now stored with each statically-bound SQL SELECT statement.

Install parameter DESCRIBE FOR STATIC on panel DSNTIP4, or ZPARM DESCSTAT in DSN6SPRM.

Field Name: QWP4DSST

RIDPOOL SIZE (KB)

The amount of storage needed for the RID pool.
This can be the value calculated by the CLIST, based on input from previous panels, or the value entered in the Override column at installation time.

When 0, DB2 does not use access paths or join methods that depend on RID pool storage.

Install parameter RID POOL SIZE on panel DSNTIPC, or ZPARM MAXRBLK in DSN6SPRM.

Field Name: QWP4RMAX

**PACK AUTH CACHE**

The amount of storage allocated for caching authorization information for all packages on this DB2 member.

32 KB hold about 375 collection-ID.package-IDs. The cache is stored in the DSN1DBM1 address space.

Install parameter PACKAGE AUTH CACHE on panel DSNTPP, or ZPARM CACHEPAC in DSN6SPRM.

Field Name: QWP4PAC

**CONTR THREAD STOR**

In DB2 12 this field is a serviceability field.

Indicates whether DB2 returns unused thread storage at commit. Possible values are:

**YES** DB2 checks threads at commit points and periodically returns unused storage to the system.

**NO** DB2 does not check threads at commit points and returns acquired storage on deallocation.

Install parameter CONTRACT THREAD STG on panel DSNTIPE, or ZPARM CONTSTOR in DSN6SPRM.

Field Name: QWP4CONT

**MAX DEG OF PARALL**

Indicates the upper limit on the degree of parallelism for a parallel group.

This field has a value of 0. This means PARAMDEG is not set and DB2 can set a default maximum degree of parallelism based on the system configuration.

Install parameter MAX DEGREE on panel DSNTIP8, or ZPARM PARAMDEG in DSN6SPRM.

Field Name: QWP4MDEG

**RTN AUTH W/O CAT**

The amount of storage allocated for caching authorization information for all routines on this DB2 member.

Routines include stored procedures and user-defined functions.

32 KB hold about 380 schema.routine.type entries.

Install parameter ROUTINE AUTH CACHE on panel DSNTPP, or ZPARM CACHERAC in DSN6SPRM.

Field Name: QWP4RAC
USE X LOCK

The locking method used when performing a searched UPDATE or DELETE.

When NO, DB2 uses an S or U lock when scanning for qualifying rows.
For any qualifying rows or pages the lock is upgraded to an X lock before performing the update or delete. For nonqualifying rows or pages the lock is released if using ISOLATION(CS). For ISOLATION(RS), or ISOLATION(RR), an S lock is retained on the rows or pages until the next commit point. This option is used to achieve higher rates of concurrency.

When YES, DB2 gets an X lock on qualifying rows or pages. For ISOLATION(CS), the lock is released if the rows or pages are not updated or deleted. For ISOLATION(RS) or ISOLATION(RR), an X lock is retained until the next commit point. This is beneficial in a data sharing environment when most or all searched updates and deletes use an index. The downside is that if searched updates or deletes result in a tablespace scan, the likelihood of timeouts and deadlocks greatly increases.

Install parameter X LOCK FOR SEARCHED U/D on panel DSNTIPI, or ZP ARM XLKUPDLT in DSN6SPRM.

Field Name: QWP4XLUD

STAR JOIN ENABL

Star join enable indicator. Possible values are:

-1 (DISABLE)
Star join is disabled. This is the default.

0 (ENABLE)
Star join is enabled when the join meets the conditions described in the DB2 administration information for performance.

1
Star join is enabled without comparing the ratio of the fact-table cardinality to the cardinality of the largest dimension table. The table with the largest cardinality is the fact table.

n
This is the star join fact table and the largest dimension table ratio. The lowest ratio of the cardinality of the fact table compared to the cardinality of the largest dimension table for which star join is used. 2 < N <= 32768.

Install parameter STAR JOIN QUERIES on panel DSNTIP8, or ZP ARM STARJOIN in DSN6SPRM.

Background and Tuning Information

This parameter allows you to set the star join ratio to increase or decrease the dimension table and fact table ratio rule according to application needs.

This parameter also allows you to disable star join if needed for performance reasons. The default is to allow star join if star join detection is successful.

Star join technique is only used when these conditions exist:
- At least two dimensions exist.
- The join predicates are between the fact table and the dimension tables only. (No join predicates lie between the dimension tables.)
- The join predicates are equijoin predicates.
- No correlated subqueries cross dimensions.
IFCID 106 - Miscellaneous Installation Parameters

- No cycles within the dimensions exist. This means that no predicate can reference more than one candidate dimension table with respect to the same column of the fact table.
- No outer join exists.
- The data type and length of the join predicates are the same.
- The fact table is larger than the dimension table.

Field Name: QWP4SJRT

NPAGES THRESHOLD

This parameter allows you to specify the optimizer threshold for qualifying a table as small.

-1 Every table qualifies as small.
0 No table qualifies as small (this is the default).
1 Only tables with zero pages qualify as small.
2 Tables with less than two pages qualify as small.
10 Tables with less than ten pages qualify as small.
502 Tables with less than 502 pages, and tables that have not had statistics collected qualify as small. For example, when NPAGES = -1.

DB2 parameter NPGTHRSH in DSN6SPRM.

Background and Tuning Information

Tables can be populated using insert just prior to their use by queries and then cleared immediately on completion of the queries. These tables are permanent even though the data they contain is transient.

This can cause problems when RUNSTATS is run overnight, or at other times when these tables are empty. This gives the optimizer the false indication that these tables contain no data when in fact, the tables will contain data when the query executes. This causes the optimizer to pick an inefficient access path. Usually the optimizer chooses to do a table scan, which would be the most efficient access path if the table were truly empty. Because the table is not empty when the query executes, it would be more efficient to use matching index access.

With this parameter, you can force the optimizer to treat tables containing no data as small tables. For these tables, the optimizer will:

- Select a matching index access rather than a table space scan and non-matching index access.
- Select the index with the most matching columns when more than one index qualifies for matching index access.
- Select indexes with the same number of matching columns on cost.

Field Name: QWP4NPAG

DBADM CREATE VIEW

Shows whether a DB2 administrator can create a view or alias for another user. Possible values are YES or NO. The default is NO.

Install parameter DBADM CREATE AUTH on panel DSNTIPP. ZPARM DBACRVW in macro DSN6SPRM.

Field Name: QWP4CRVW
MAX # LE TOKENS

The maximum number of LE tokens active at any time. When zero, no tokens are available.

A token is used each time one of the following is used: trigonometry functions, degrees, radians, rand, exp, power, log functions, upper, lower, translate.

Install parameter MAXIMUM LE TOKENS on panel DSNTIP7, or ZPARM LEMAX in DSN6SPRM.

Field Name: QWP4LEM

MAX EXT SERV TASK

Maximum number of extended service tasks.

Field Name: QWP4EST

PROJ Z INS THRESH

Project z insertion threshold.

Field Name: QWP4ZTN

MAX NOT FOUND-HSH

The maximum number of NOT FOUND hash records.

Field Name: QWP4KNFC

FIELD PROCs T BLK

The number of field procedures for the DESCRIBE TABLE block.

ZPARM SPRMFDP.

Field Name: QWP4FDP

MANAGE THREAD STO

In DB2 12 this field is a serviceability field.

Shows whether DB2 uses storage management to optimize the amount of working storage consumed by individual threads.

Install parameter MANAGE THREAD STORAGE on panel DSNTIPE, or ZPARM MINSTOR in DSN6SPRM.

For best performance, this parameter should be NO, meaning DB2 does not manage thread storage.

When YES, DB2 uses best fit algorithm to manage and assign thread storage. This can help on systems that have many long-running threads and that are constrained on DBM1 address space.

Field Name: QWP4MSTG

EVAL UNCOMMITTED

Shows whether stage 1 predicate evaluation during table access can proceed upon uncommitted data or not.

This applies to isolation levels of Read Stability and Cursor Stability only.

When NO (default), predicate evaluation occurs only on committed data (or on the application's own uncommitted changes). NO ensures that all qualifying data is always included in the answer set.
When YES, predicate evaluation can occur upon uncommitted data. Only committed data is returned to the query. However, a decision can be made to omit a row from the answer set based on uncommitted data. Later, undo processing (statement rollback or statement failure) could cause the data to revert to a state that satisfies the predicate.

When YES, DB2 can request fewer locks than in previous versions when processing isolation level Read Stability and Cursor Stability queries. The number of locks avoided is related to the access path of the query, the number of rows evaluated when processing the stage 1 predicate of the query, and the number of those rows that are overflow rows. Specifically, for isolation level Read Stability and Cursor Stability queries, locks are avoided for rows that do not satisfy the stage 1 predicate, provided they are not overflow rows. Table access includes table space scans and index-to-data access, including ridlist-to-data access. For isolation Cursor Stability ridlist production, all row/page locking is avoided.

Install parameter EVALUATE UNCOMMITTED on panel DSNTIP8, or ZPARM EVALUNC in DSN6SPRM.

Field Name: QWP4EVUN

STATISTICS ROLLUP

Shows whether RUNSTATS utility aggregates the partition level statistics, even though some parts may not contain data.

This should be YES for DB2 systems that have large partitioned table spaces, index spaces, or both. This enables the aggregation of part level statistics and helps the optimizer to choose a better access path.

Install parameter STATISTICS ROLLUP on panel DSNTIPO, or ZPARM STATROLL in DSN6SPRM.

Field Name: QWP4STRL

STATISTICS HIST

Shows which inserts and updates are recorded in catalog history tables. The report can show the following values:

N / NONE
Changes in the catalog are not recorded. This is the default.

A / ALL
All inserts and updates in the catalog are recorded.

P / ACCESSPATH
All inserts and updates to access path related catalog statistics are recorded.

S / SPACE
All inserts and updates to space related catalog statistics are recorded.

Install parameter STATISTICS HISTORY on panel DSNTIPO, or ZPARM STATHIST in DSN6SPRM.

Field Name: QWP4STHT

SUPPRESS SOFT ERR
Shows whether the recording of errors, such as invalid decimal data and arithmetic exceptions, in the operating system data set SYS1.LOGREC is suppressed.

When YES, these exceptions are not recorded in the LOGREC data set.

Install parameter SUPPRESS SOFT ERRORS on panel DSNTIPM or ZPARM SUPERRS in DSN6SPRM.

**Field Name:** QWP4SAE

**REAL TIME STATS**

The time interval that DB2 waits before it attempts to write out page set statistics to the real-time statistics tables. This value is between 1 and 65535 minutes.

Install parameter REAL TIME STATS on panel DSNTIPO, or ZPARM STATSINT in DSN6SPRM.

**Field Name:** QWP4INTE

**EDM STATMNT CACHE**

The size of the statement cache that can be used by the Environmental Descriptor Manager (EDM). This value is used at DB2 startup time as the minimum value. You can increase and subsequently decrease this value with the SET SYSPARM command. This value cannot be decreased below the value that is specified at DB2 startup. The CLIST calculates a statement cache size. This storage pool is located above the 2 GB bar.

The value used at DB2 startup time is either calculated by the CLIST based on input from other installation information or an override value.

For record trace, this value is shown in bytes. For other reports, the value is shown in kilobytes.

Install parameter EDM STATEMENT CACHE on panel DSNTIPC, or ZPARM EDMSTMTC in DSN6SPRM.

**Field Name:** QWP4ESTC

**STAR JOIN THRESH**

The minimum number of tables in the star schema query block, including the fact table, dimensions tables, and snowflake tables. This value is considered only if the subsystem parameter STARJOIN qualifies the query for star join.

Possible values are:

0   Star join is disabled. This is the default.
1, 2, or 3   Star join is always considered.
4 through 255   Star join is considered if the query block has at least the specified number of tables.
256 and greater   Star join is never considered.

DB2 parameter SJTABLES in DSN6SPRM.
Although star join can reduce bind time significantly it does not provide optimal performance in all cases. Performance of star join depends on a number of factors such as the available indexes on the fact table, the cluster ratio of the indexes, and the selectivity of rows through local and join predicates. Follow these general guidelines for setting the value of SJTABLES:

- If you have star schema queries with less than 10 tables and you want to make the star join method applicable to all qualified queries, set the value of SJTABLES to a low number, such as 5.
- If you have some star schema queries that are not necessarily suitable for star join but want to use star join for relatively large queries, use the default. The star join method will be considered for all qualified queries that have 10 or more tables.
- If you have star schema queries but normally do not want to use star join, you could increase SJTABLES, say to 15. This will greatly cut the bind time for large queries and avoid a potential bind time SQL return code -101 for large qualified queries.

**Field Name:** QWP4SJTB

**ZOSMETRICS**

YES indicates that gathering of z/OS metrics using the RMF interface is enabled. ZPARM ZOSMETRICS in DSN6SPRM.

**Field Name:** QWP4MITE

**EDM DBD CACHE**

The minimum size of the DBD cache that can be used by the Environmental Descriptor Manager (EDM). This value is used at DB2 startup time as the minimum value. You can increase and subsequently decrease the value with the SET SYSPARM command. This value cannot be decreased below the value that is specified at DB2 startup. This storage pool is located above the 2 GB bar. The CLIST calculates the DBD cache size.

The value used at DB2 startup time is either calculated by the CLIST based on input from other installation information or an override value.

Install parameter EDM DBD CACHE on panel DSNTIPC, or ZPARM EDMDBDC in DSN6SPRM.

**Field Name:** QWP4EDBC

**LONG RUNNING READ**

Shows the number of minutes that a read claim can be held by an agent before DB2 reports it as a long-running reader. Valid values are 0 (default) through 1439.

Install parameter LONG-RUNNING READER on installation panel DSNTIPE, or ZPARM LRDRTHLD in DSN6SYSP.

**Field Name:** QWP4LRTH

**MAX OPEN CURSORS**

Shows the maximum number of cursors, including allocated cursors, that are open at a given DB2 site per thread. RDS keeps a total of currently open cursors. If an application attempts to open a thread after the maximum is reached, the statement will fail.
In a data sharing group, this parameter is shown at member scope.

Install parameter MAX OPEN CURSORS on panel DSNTIPX, or ZPARM MAX_NUM_CUR in DSN6SPRM.

Field Name: QWP4MXNC

EDM SKEL POOLSIZE

The minimum size of the EDM pool for skeleton package and skeleton cursor tables. For record trace, this value is shown in bytes. For other reports, the value is shown in kilobytes.

Install parameter EDM SKELETON POOL SIZE on panel DSNTIPC or ZPARM EDM_SKELETON_POOL in DSN6SPRM.

Field Name: QWP4SKLC

CUR MAINT TYPE

Shows the default special register for the CURRENT MAINTAINED TABLE TYPES FOR OPTIMIZATION statement when no value is explicitly set. Possible values are:

- ALL
- NONE
- SYSTEM (default)
- USER

The default allows query rewrite using system-maintained materialized query tables (SYSTEM) when CURRENT REFRESH AGE is set to ANY. When USER, query rewrite is done using user-maintained materialized query tables when CURRENT REFRESH AGE is set to ANY. ALL means that query rewrite uses both system-maintained and user-maintained materialized query tables.

Install parameter CURRENT MAINT TYPES on panel DSNTIP8, or ZPARM MAINTYPE in DSN6SPRM.

Field Name: QWP4MNTY

PAD IDX BY DEFLT

Shows whether new indexes are be padded by default.

- YES indicates that a new index is padded unless the NOT Padded option is specified on the CREATE INDEX statement.
- The default value, NO, indicates that a new index is not padded unless the PADDED option is specified on the CREATE INDEX statement.

Install parameter PAD INDEXES BY DEFAULT on installation panel DSNTIPE, or ZPARM PADIX in DSN6SPRM.

Field Name: QWP4PDIX

MIN DIVIDE SCALE

The minimum scale for the result of a decimal division. The values for this parameter are none (the default), 3, or 6. If 3 or 6 is specified, this parameter overrides the DECDIV3 parameter.

Field Name: QWP4MDSC

FREE CACHED STMTS
Indicates whether DB2 can free statements from the local dynamic statement cache to relieve storage constraints below the 2 GB bar. This parameter applies only for packages or plans that are bound with KEEPDYNAMIC(YES). Possible values are:

0  DB2 cannot free statements from the local cache
1  DB2 can free statements from the local cache

DB2 parameter CACHEDYN_FREELOCAL in DSN6SPRM.

Field Name: QWP4FRLC

TEMP UNIT NAME

Shows the device type or unit name for allocating temporary data sets. It is the direct access or disk unit name used for the precompiler, compiler, assembler, sort, linkage editor, and utility work-files in the tailored jobs and CLISTs.

It can be any device type acceptable to the DYNALLOC parameter of the SORT or OPTION options for DFSORT.

The default is SYSDA.

Install parameter TEMPORARY UNIT NAME on DSNTIPA2, or ZPARM VOLTDEVT in DSN6SPRM.

Field Name: QWP4VDTY

CUR REFRESH AGE

Shows the default for the CURRENT REFRESH AGE special register deferred materialized query tables.

Install parameter CURRENT REFRESH AGE on panel DSNTIP8, or ZPARM REFSHAGE in DSN6SPRM.

Field Name: QWP4RFSH

MAX DATA CACHING

The maximum amount of virtual memory in megabytes (MB) that is allocated for data caching.

Install parameter MAX DATA CACHING on panel DSNTIP8, or ZPARM MXDTCACH in DSN6SPRM.

Field Name: QWP4MXDC

ONL ZPARM TYPE

The type of DB2 system parameter changed by the last SET SYSPARM statement.

Field Name: QWP4OZTP

RESTORE/RECOVER

If YES, the system-level backup that is the recovery base, is from a dump on tape. Otherwise NO is shown.

Install parameter RESTORE/RECOVER on installation panel DSNTIP6, or ZPARM RESTORE_RECOVER_FROMDUMP in DSN6SPRM.

Field Name: QWP4RRFD

MAX STORED PROCS
Shows the maximum number of stored procedures per thread. If an application attempts to call a stored procedure after this is reached, the statement will fail. In a data sharing group, this parameter is shown as member scope.

Install parameter MAX STORED PROCES on panel DSNTIPX, or ZPARM MAX_ST_PROC in DSN6SPRM.

Field Name: QWP4MXSP

ONL ZParm USER ID

The user ID that made the last online change to DB2 system settings.

Field Name: QWP4OZUS

INDEX I/O PARALL

In DB2 12 this field is a serviceability field.

The enablement of the index I/O parallelism ZPARM.

Field Name: QWP4IIOP

MAX TEMP STORAGE

The maximum amount of temporary storage in megabytes (MB) for each agent.

Install parameter MAX TEMP STORAGE on panel DSNTIP6 or ZPARM MAXTEMPS in DSN6SPRM.

Field Name: QWP4WFAL

ONL ZParm CORID

The correlation ID of the online application that made the last change to DB2 system settings.

Field Name: QWP4OZCI

REVOKE DEP PRIVIL

Include dependent privileges on REVOKE. Possible values are:

Y  If INCLUDING DEPENDENT PRIVILEGES is enforced.
N  If NOT INCLUDING DEPENDENT PRIVILEGES is enforced.
S  If specified in a REVOKE statement.

Field Name: QWP4RVDPR

MAX CONC AUTOBIND

The maximum number of package requests that can be processed simultaneously.

DB2 parameter MAX_CONCURRENT_PKG_OPS in DSN6SPRM.

Field Name: QWP4MXAB

ONL ZParm TIME

Time of the last online change made to DB2 system settings.

Field Name: QWP4OZTM

PLANMGMNT
IFCID 106 - Miscellaneous Installation Parameters

Shows if and how access path information is stored in the repository. Possible values are:

O  On
F  Off
B  Basic
E  Extended

Field Name: QWP4PMGT

ADM SCHED JCLPROC

The name of the JCL procedure for starting the DB2 administrative scheduler task address space.

DB2 parameter ADMTPROC in DSN6SPRM.

Field Name: QWP4ADMT

SYS-LEVEL BACKUP

Shows if RECOVER uses system level backups as the recovery base.

Install parameter SYSTEM-LEVEL BACKUPS on installation panel DSNTIP6, or ZPARM SYSTEM_LEVEL_BACKUPS in DSN6SPRM.

Field Name: QWP4SLBU

PLANMGMTSCOPE

Controls which queries are populated in the access path repository (ZPARM parameter PLANMGMTSCOPE). Possible values are:

A  ALL: Includes static and dynamic SQL queries.
S  STATIC: Includes static SQL queries only. This is the default.
D  DYNAMIC: Includes dynamic SQL queries only.

Field Name: QWP4PMSC

DUMP CLASS NAME

The name of the DFSMSHSM dump class used by the restore system utility to restore from a system-level backup that has been dumped to tape.

Install parameter DUMP CLASS NAME on installation panel DSNTIP6, or ZPARM UTILS_DUMP_CLASS_NAME in DSN6SPRM.

Field Name: QWP4RSDC

MAX TAPE UNITS

The maximum number of tape units or tape drives that the restore system utility can use to restore from a system-level backup that has been dumped to tape.

A value of 0 is displayed for NOLIMIT.

Install parameter MAXIMUM TAPE UNITS on installation panel DSNTIP6, or ZPARM RESTORE_TAPEUNITS in DSN6SPRM.

Field Name: QWP4RSMT

SEPARATE SECURITY

Separate security tasks. Possible values are:
Y      SYSADM/SYSCTRL cannot GRANT/REVOKE
N      SYSADM/SYSCTRL can GRANT/REVOKE

Field Name: QWP4SEPSD

SECADM1 ID
Security administrator 1.
Field Name: QWP4SECA1

SECADM1 TYPE
Security administrator 1 type. Possible values are:
' '      Blank indicates that the authorization ID (AUTH ID) is used.
'L'      Indicates that ROLE is used.

This field corresponds to field SEC ADMIN 1 TYPE on installation panel
DSNTIP1, or ZPARM SECADM1_TYPE in DSN6SPRM.
Field Name: QWP4SECA1_TYPE

MAX TEMP RID
The maximum number of RID blocks of temporary storage in the Workfile
database that a single RID list can use at any point in time. This field
corresponds to field MAX TEMP RID on installation panel DSNTIP9. The
ZPARM name is MAXTEMPS_RID.

It can have the following values:
• -1 if MAXTEMPS_RID=NONE
• 0 if MAXTEMPS_RID=NOLIMIT
• 1 to 329166 otherwise
Field Name: QWP4WFRD

SECADM2 ID
Security administrator 2.
Field Name: QWP4SECA2

SECADM2 TYPE
Security administrator 2 type. Possible values are:
'blank'  Indicates that the authorization ID (AUTH ID) is used.
'L'      Indicates that ROLE is used.

This field corresponds to field SEC ADMIN 2 TYPE on installation panel
DSNTIP1, or ZPARM SECADM2_TYPE in DSN6SPRM.
Field Name: QWP4SECA2_TYPE

SKIP UNCOMM INS
YES indicates that uncommitted inserts are treated as if they have not yet
been executed. The ZPARM name is SKIPUNCI.
Field Name: QWP4SKUI

GET ACCEL ARCHIVE
Determines the default value that is to be used for the CURRENT
GET_ACCEL_ARCHIVE special register:
IFCID 106 - Miscellaneous Installation Parameters

NO Indicates that if a table is archived in an accelerator server, and a query references that table, the query does not use the data that is archived.

YES Indicates that if a table is archived in an accelerator server, and a query references that table, the query uses the data that is archived.

ZPARM name GET_ACCEL_ARCHIVE in macro DSN6SPRM.

Field Name: QWP4CGAA

LMT CONV PART TAB

Shows whether to include all columns in the partitioning key during conversion from index-controlled partitioning to table-controlled partitioning:

NO Includes all columns

YES Includes trailing columns only if they affect partitioning

This field corresponds to field EXCLUDE PART KEY ELEMENTS on installation panel DSNTIP71. The ZPARM name is IX_TB_PART_CONV_EXCLUDE in DSN6SPRM.

Field Name: QWP4XPKE

DDL TIMEOUT FACT

Shows the time out factor of the SQL data definition. The time out value is the product of this value and the IRLMRWT value.

ZPARM name DDLTOX in DSN6SPRM.

Field Name: QWP4DDLTO

CUR QUERY ACCEL

Determines the default value that is to be used for the CURRENT QUERY ACCELERATION special register. Possible values are:

NONE Indicates that no query acceleration is done. This is the default value.

ENABLE Indicates that queries are accelerated only if DB2 determines that it is advantageous to do so. If there is an accelerator failure while a query is running, or the accelerator returns an error, DB2 returns a negative SQLCODE to the application.

ENABLE_WITH_FAILBACK Indicates that queries are accelerated only if DB2 determines that it is advantageous to do so. If the accelerator returns an error during the PREPARE or first OPEN for the query, DB2 executes the query without the accelerator. If the accelerator returns an error during a FETCH or a subsequent OPEN, DB2 returns the error to the user, and does not execute the query.

ELIGIBLE Indicates that queries are accelerated if they are eligible for acceleration. DB2 does not use cost information to determine whether to accelerate the queries. Queries that are not eligible for acceleration are executed by DB2. If there is an accelerator failure
while a query is running, or the accelerator returns an error, DB2 returns a negative SQLCODE to the application.

**ALL**
Indicates that queries are accelerated if they are eligible for acceleration. DB2 does not use cost information to determine whether to accelerate the queries. Queries that are not eligible for acceleration are not executed by DB2, and an SQL error is returned. If there is an accelerator failure while a query is running, or the accelerator returns an error, DB2 returns a negative SQLCODE to the application.

ZPARM name QUERY_ACCELERATION in DSN6SPRM.

**Field Name:** QWP4CQAC

**REORG SORT NPSI**
Specifies the default method of building a non-partitioned secondary index during the REORG tablespace part. This setting is used when the SORTNPSI keyword is not specified in a utility control statement.

Possible values are:
- Auto
- Disable
- Enable

This field corresponds to field REORG PART SORT NPSI in installation panel DSNTIP61. The ZPARM name is REORG_PART_SORT_NPSI in DSN6SPRM.

**Field Name:** QWP4RPSN

**MAX UTIL PARALL**
The maximum degree of utility parallelism.

**Field Name:** QWP4UMD

**ACCEL STARTUP OPT**
Specifies whether to enable accelerator servers. Possible values are:

**AUTO**
Enable and start accelerator servers.

**COMMAND**
Enable but do not start accelerator servers.

**NO**
Do not enable accelerator servers.

This field corresponds to field ACCEL STARTUP on installation panel DSNTIP81. ZPARM name is ACCEL in DSN6SPRM.

**Field Name:** QWP4ACCS

**REORG IGN FREESP**
YES indicates that REORG tablespace does not use the PCTFREE and FREEPAGE values when it reloads data rows into a partition-by-growth (PBG) table space if:
- A subset of the partitions is reorganized.
- The associated table contains LOB columns that cause a REORG AUX NO REQUEST to fail.
IFCID 106 - Miscellaneous Installation Parameters

This field corresponds to field REORG IGNORE FREESPACES in installation panel DSNTIP61. ZPARM name is REORG_IGNORE_FREESPACES in DSN6SPRM.

Field Name: QWP4RIFS

MULT INDEX ACCESS

Specifies whether to enable or disable multiple index access for queries that have subquery predicates:

NO  Disables multiple index access for queries.
YES  Enables multiple index access for queries.

The ZPARM name is SUBQ_MIDX IN DSN6SPRM.

Field Name: QWP4SSEQ

QUERY ACCEL OPT

Specifies additional types of SQL queries that are eligible for acceleration.

NONE
Indicates that no additional types of SQL queries are eligible. Therefore, the types of queries that are described in the other available values for this parameter are not eligible for acceleration. This is the default value.

1
Indicates that queries that include data that is encoded with the EBCDIC mixed or graphic encoding schemes are eligible for acceleration.

2
Indicates that an INSERT with SELECT statement is eligible for acceleration. However, only the SELECT operation of the query is processed by the accelerator server.

3
Indicates that queries that contain built-in functions for which DB2 processes each byte of the input string, rather than each character of the input string, can run on an accelerator server.

4
The queries that reference an expression with a DATE data type that uses a LOCAL format are not blocked from executing on IBM DB2 Analytics Accelerator for z/OS. IBM DB2 Analytics Accelerator for z/OS will use the dd/mm/yyyy format to interpret the input and output date value. Specify option 4 only when you also specify LOCAL as the setting for the DSNHDECFP.DATE parameter and your LOCAL date exit defines the specific dd/mm/yyyy date format. Otherwise, queries may return unpredictable results.

5
Allow OFFLOAD of SYSTEM_TIME temporal queries.

6
Allow OFFLOAD of queries that reference timestamp columns with a precision of up to 12.

7
OFFLOAD uses YYYYMMDD date format.

ZPARM name QUERY_ACCEL_OPTIONS in macro DSN6SPRM.

Field Name: QWP4QACO

REORG TABSPC LIST

Specifies the default value for the REORG TABLESPACE PARALLEL option.
• Parallel
• Serial

The ZPARM name is REORG_LIST_PROCESSING in DSN6SPRM.

Field Name: QWP4RLPR

OPT 1 ROW-NO SORT

Specifies whether DB2 explicitly blocks sort operations when the OPTIMIZE FOR 1 ROW clause is specified on a query:

NO = DISABLE

Means that when OPTIMIZE FOR 1 ROW is specified, DB2 avoids access paths that involve sorts. If an access path that avoids a sort exists, it is possible, although unlikely, that an access path that involves a sort is chosen instead. This behavior is used in DB2 9 and earlier releases.

YES = ENABLE

Means that when OPTIMIZE FOR 1 ROW is specified, DB2 chooses access paths that avoid sorts whenever such a path is available.

ZPARM name is OPT1ROWBLOCKSORT in DSN6SPRM.

Field Name: QWP4O1RBS

AUTH EXIT CHECK

Specifies whether the DB2 authorization ID or the RACF primary authorization ID is to be used for authorization checks, when the access control authorization exit is active:

Primary

DB2 provides:

• The ACEE of the package owner to perform statement authorization checks during AUTOMATIC REBIND, BIND, and REBIND processing
• The ACEE of the package owner, routine definer, or routine invoker, as determined by the dynamic rules behavior for dynamic SQL authorization checking, when a DYNAMICRULES BIND option value other than run is in effect.

The access control authorization exit uses the ACEE for the XAPLUCHK authorization ID field to perform the authorization. The authorization ID in XAPLUCHK must be defined as a RACF user and must have the privileges required to execute the SQL statements in the package.

DB2

DB2 provides the ACEE of the primary authorization ID for performing all authorization checks. The primary authorization ID must have the privileges required to execute the SQL statements in the package. This field corresponds to field "RACF AUTH CHECK" on installation panel DSNTIPP. ZPARM name is RACF_AUTHCHECK in DSN6SPRM.

Field Name: QWP4RACK

REORG MAPPING DB

The default database in which REORG TABLESPACE SHRLEVEL change implicitly creates the mapping table. This field corresponds to field
**IFCID 106 - Miscellaneous Installation Parameters**

RECORD MAPPING DB on installation panel DSNTIP61. The Z Parm name RECORD_MAPPING_TABLE in DSN6SPRM.

**Field Name:** QWP4RMDB

**UTIL OBJ CONVER**

This field can have the following values:

- **NONE (QWP4UTOC1=0 and QWP4UTOC2=0)**
  
  No conversion is performed. This option is the default setting of this parameter. NONE is allowed regardless of the OBJECT CREATE FORMAT setting.

- **BASIC (QWP4UTOC1=1 and QWP4UTOC2=0)**
  
  Existing table spaces and indexes that use extended 10-byte page format are converted to basic 6-byte page format. BASIC is allowed only if the OBJECT CREATE FORMAT field is also set to BASIC.

- **EXTENDED (QWP4UTOC1=0 and QWP4UTOC2=1)**
  
  Existing table spaces and indexes that use 6-byte page format are converted to extended 10-byte page format. EXTENDED is allowed only if the OBJECT CREATE FORMAT field is also set to EXTENDED.

- **NO BASIC (QWP4UTOC1=1 and QWP4UTOC2=1)**
  
  Prevents the conversion of table spaces and indexes in extended page format to basic page format and disallows a utility that accepts the RBALRSN_CONVERSION utility keyword from running on an object in basic page format unless it converts it to extended page format. This setting is permitted only when OBJECT_CREATE_FORMAT=EXTENDED is set.

The Z Parm name is UTILITY_OBJECT_CONVERSION in DSN6SPRM.

**Field Name:** RT0106OC

**AUTHEX CACHE REF**

Specifies whether the package authorization cache, routine authorization cache, and dynamic statement cache entries are refreshed when an access control authorization exit is active, and the user profile is changed in RACF. Possible values are:

- All
- None

This field corresponds to field AUTH EXIT CACHE REFR in installation panel DSNTIPP. Z Parm name is AUTHEXIT_CACHEREFRESH in DSN6SPRM.

**Field Name:** QWP4AECR

**REORG DROP PARTS**

If YES, REORG completes, REORG drops empty, and trailing partitions are set in a PARTITION-BY-GROWTH table space.

This field corresponds to field REORG DROP PBG PARTS on INSTALLATION panel DSNTIP61. The Z Parm name is REORG_DROP_PBG_PARTS in DSN6SPRM.

**Field Name:** QWP4RPBG

**OBJ CREATE FORMAT**
ICCID 106 - Miscellaneous Installation Parameters

Creates new table spaces and indexes in the following log record format:

**EXTENDED**

- Creates new table spaces and indexes in extended log record format.

**BASIC**

- Creates new table spaces and indexes in basic log record format.

Field Name: QWP4OBCF

**PKG RELEASE COMMIT**

YES indicates that the following operations on a package that are bound with RELEASE(DEALLOCATE) are permitted while the package is active and allocated by DB2:

- BIND and REBIND requests, including AUTOMATIC REBIND
- Data definition language changes to objects that are statically referenced by the package

The ZPARM name is PKGREL_COMMIT in DSN6SPRM.

Field Name: QWP4PKRC

**REORG KEEP DICT**

Indicates that KEEPDICTIONARY is used when a REORG converts a table space from basic row format (BRF) to reordered row format (RRF).

Field Name: QWP4HKEEPD

**TEMPLATE TIME**

Specifies the default setting for the TIME option of the template utility control statement. Possible values are:

- UTC (utility control)
- Local

This field corresponds to field TEMPLATE TIME on installation panel DSNTIP6. The ZPARM name is TEMPLATE_TIME in DSN6SPRM.

Field Name: QWP4TPTM

**MAX IN-MEM SORT**

The maximum amount of storage in kilobytes to allocate for sorting the results of each query that contains the order by clause, the group by clause, or both. This field corresponds to field MAX IN-MEMORY SORT SIZE in installation panel DSNTIPC. The ZPARM name is MAXSORT_IN_MEMORY in DSN6SPRM.

Field Name: QWP4MIMTS

**STATIST FEEDBACK**

Specifies the scope of SQL statements for which DB2 is to recommend statistics. Possible values are:

- All
- Dynamic
- None
- Static

This value corresponds to field STATISTICS FEEDBACK on installation panel DSNTIPO. The ZPARM name is STATFDBK_SCOPE in DSN6SPRM.
IFCID 106 - Miscellaneous Installation Parameters

Field Name: QWP4SFBS

MAX PARA DEG DPSI

The maximum degree of parallelism for a parallel group in which a data-partitioned secondary index is used to control parallelism. This field corresponds to field MAX DEGREE FOR DPSI on installation panel DSNTIP81. The ZPARM name is PARAMDEG_DPSI in DSN6SPRM.

Field Name: QWP4DEGD

APPL COMPAT

Specifies the DB2 level for downward compatibility with applications. The ZPARM name is APPLCOMPAT in DSN6SPRM.

Field Name: QWP4APCO_VAR

PCTFREE UPDATE

Specifies the default percentage of each page that DB2 leaves as free space in a table space when a table in this table space is populated. This value applies only to table spaces whose definitions do not include PCTFREE and for UPDATE.

This value corresponds to field PERCENT FREE FOR UPDATE on installation panel DSNTIP71. The ZPARM name is PCTFREE_UPD in DSN6SPRM.

Field Name: QWP4PFUP

WF DB AGNT THRESH

Specifies the percentage of space that is used in the Workfile Database by a single agent when DB2 issues a warning message.

This value corresponds to field AGENT LEVEL THRESHOLD on installation panel DSNTIP91. The ZPARM name is WFSTGUSE_AGENT_THRESHOLD in DSN6SPRM.

Field Name: QWP4WFSAT

LIKE BLANK INSIGN

YES indicates that blanks are not significant when DB2 applies the LIKE predicate to a string. Blanks are significant in DB2 10.

This setting corresponds to field LIKE BLANK INSIGNIFICANT on installation panel DSNTIP41. The ZPARM name is LIKE_BLANK_INSIGNIFICANT in DSN6SPRM.

Field Name: QWP4LBIN

IDX CLEANUP THRDS

The maximum number of threads that can be created to clean up pseudo-deleted index entries on a data sharing member of a subsystem. This field corresponds to field INDEX CLEANUP THREADS on installation panel DSNTIPE1. The ZPARM name is INDEX_CLEANUP_THREADS in DSN6SPRM.

Field Name: QWP4IXCU

WF DB SYS THRESH
Specifies the percentage of space that is used in the Workfile Database by all agents in a DB2 subsystem or data sharing member when DB2 issues a warning message.

This value corresponds to field SYSTEM_LEVEL_THRESHOLD on installation panel DSNTIP91. The ZPARM name is WFSTGUSE_SYSTEM_THRESHOLD in DSN6SPRM.

**Field Name:** QWP4WFSST

### D_STMT_CACHE_STOR

Specifies the number of gigabytes of storage that DB2 allocates for hashing entries in the dynamic statement cache. This parameter can avoid storage shortages for long-running threads. The storage is allocated above the bar.

The ZPARM name is CACHE_DEP_TRACK_STOR_LIM in DSN6SPRM.

**Field Name:** QWP4CDTSL

### SPT01_INLINE_LENGTH

The maximum length in bytes of LOB columns in the SPT01 directory space that are maintained in the base table. The ZPARM name is SPT01_INLINE_LENGTH in DSN6SPRM. The default value is 0. When NOINLINE is specified, the value is set to -1.

**Field Name:** QWP4S1IL

### SIMULATED_CPUS

The number of CPUs that are online.

**Field Name:** QWP4NCPU

### MSEC_OF_TASK/SRB

Microseconds of task or SRB (service request block) execution time for each service unit (SU).

**Field Name:** QWP4CPUM

### COMPRESS_SPT01

Enables the compression of SPT01.

**Field Name:** QWP4CS01

### UT_SORT_DS_ALLOC

In DB2 12 this field is a serviceability field.

YES indicates that utilities invoke a SORT use and a space prediction algorithm for dynamically allocated SORT work data sets. The ZPARM name is UTSORTAL in DSN6SPRM.

**Field Name:** QWP4SRAL

### MAX_ZL_DICT_ENTR

The maximum number of ZIVLEMPEL dictionary entries.

**Field Name:** QWP4MDE

### I/O_SCHEDULING

Determines whether the I/O scheduling feature is activated. DB2 parameter SPRMIOP in DSN6SPRM.

**Field Name:** QWP4IOP
IFCID 106 - Miscellaneous Installation Parameters

UT DB2 SORT USE
In DB2 12 this field is a serviceability field.
Enables the use of DB2 SORT.
Field Name: QWP4DB2SRT

ENABLE DB CHECK
Enable database checking.
Field Name: QWP4DBCK

IGN SORTNUM STMT
Ignores SORTNUM clause in utility control statements. The ZPARM name is IGNSORTN in DSN6SPRM.
Field Name: QWP4IGSN

UT TEMP STORCLASS
Specifies the name of the SMS storage class that DB2 uses for defining temporary shadow data sets. A blank value indicates that the temporary shadow data sets are defined in the same storage class as the production page set. This field corresponds to field "UTIL TEMP STORCLASS" on installation panel DSNTIP6. The ZPARM name is UTIL_TEMP_STORCLASS in DSN6SPRM.
Field Name: QWP4CHEC

BIF COMPATIBILITY
The BIF_COMPATIBILITY subsystem parameter specifies whether the built-in functions and specifications are to return results in the DB2 10 format or revert to the pre-Version 10 format. It can have the following values:
- CURRENT
- V9
- V9_TRIM
- V9_DECIMAL_VARCHAR (default for migration)
- N/P (default for new installation)
This field corresponds to field BIF_COMPATIBILITY on installation panel DSNTIPX.
ZPARM name BIF_COMPATIBILITY in DSN6SPRM.
Field Name: QWP4_BIF_COMPAT

FAST REPLICA
The FASTREPLICATION type for check utilities:
- N=NONE
- P=PREFERRED
- R=REQUIRED
This field corresponds to field "Fast replication" in installation panel DSNTIP6. The ZPARM name is CHECK_FASTREPLICATION in DSN6SPRM.
Field Name: QWP4CFRP

FLASHCOPY PPRC
Specifies the behavior for DFSMSdss FLASHCOPY requests when the target disk storage volume is the primary device in a peer-to-peer remote copy (metro mirror) relationship (DB2 field: QWP4FCPPRC). This field corresponds to field "FLASHCOPY PPRC" on installation panel DSNTIP6. The ZPARM name is FLASHCOPY_PPRC.

Field Name: QWP4FCPPRC

CAT DAT DATACLASS

The SMS data class for DB2 catalog data sets. This field corresponds to column SMS data class in field "Directory and catalog data" on installation panel DSNTIPA3. The ZPARM name is CATDDACL in DSN6SPRM.

Field Name: QWP4CDDC

FAST RESTORE

Specifies how the Recover utility directs DFSMSdss copy to restore an image copy that was created with FLASHCOPY. This field corresponds to field "Fast restore" on installation panel DSNTIP6. The ZPARM name is REC_FASTREPLICATION.

Field Name: QWP4RFRP

FLASHCOPY COPY

YES indicates that the Copy utility uses the subsystem parameter settings for FLASHCOPY and FCCOPYDDN when those keywords are not present in the utility control statement. The ZPARM name is FLASHCOPY_COPY in DSN6SPRM.

Field Name: QWP4FCCP

CAT DAT MGMTCLASS

The SMS management class for DB2 catalog data sets. This field corresponds to column SMS MGMT class in field "Directory and catalog data" on installation panel DSNTIPA3. The ZPARM name is CATDMGCL in DSN6SPRM.

Field Name: QWP4CDMC

RESTRICT ALT COL DCC

A value of YES prevents the use of ALTER table ALTER column with SET DATA TYPE, SET DEFAULT, and DROP DEFAULT when data capture changes is enabled on the target table. The ZPARM name is RESTRICT_ALT_COL_FOR_DCC in DSN6SPRM.

Field Name: QWP4RACD

FLASHCOPY LOAD

YES indicates that the load utility uses the subsystem parameter settings for FLASHCOPY, FCCOPYDD, and FCAUXOBS when those keywords are not present in the utility control statement. ZPARM NAME: FLASHCOPY_LOAD IN DSN6SPRM.

Field Name: QWP4FCLD

CAT DAT STORCLASS
The SMS storage class for DB2 catalog data sets. This field corresponds to column SMS STOR class in field "Directory and catalog data" on installation panel DSNTIPA3. The ZPARM name is CATDSTCL in DSN6SPRM.

Field Name: QWP4CDSC

SET CHECK PENDING

In DB2 12 this field is a serviceability field.

YES sets the object in check-pending status when the check utility detects an inconsistency. This field corresponds to field "Set check pending" on installation panel DSNTIP61. The ZPARM name is CHECK_SETCHKP in DSN6SPRM.

Field Name: QWP4CSCP

FLASHCOPY REB IX

YES indicates that the Rebuild Index utility uses the subsystem parameter settings for FLASHCOPY and FCCOPYDDN when those keywords are not present in the utility control statement (DB2 field: QWP4FCRBI). The ZPARM name is FLASHCOPY_REBUILD_INDEX in DSN6SPRM.

Field Name: QWP4FCRBI

CAT IDX DATACLASS

The SMS data class for DB2 catalog index data sets. This field corresponds to column SMS data class in field "Directory and catalog indexes" on installation panel DSNTIPA3. The ZPARM name is CATXDAACL in DSN6SPRM.

Field Name: QWP4CXDC

DISABLE EDM RTS

Hexadecimal (X'01'). YES disables the use of EDM real-time Statistics. The ZPARM name is DISABLE_EDMR in DSN6SPRM.

Field Name: QWP4DEDR

FLASHCPY REORG TS

YES indicates that the Reorg Tablespace utility uses the subsystem parameter settings for FLASHCOPY, FCCOPYDDN, and FCAUXOBJ5 when these keywords are not present in the utility control statement. The ZPARM name is FLASHCOPY_REORG_TS in DSN6SPRM.

Field Name: QWP4FCROT

CAT IDX MGMTCLASS

The SMS management class for DB2 catalog index data sets. This field corresponds to column SMS MGMT class in field "Directory and catalog indexes" on installation panel DSNTIPA3. The ZPARM name is CATXMGCL in DSN6SPRM.

Field Name: QWP4CXMC

DRDA RESOLV ALIAS

YES means that in SQL statements, DB2 replaces aliases that refer to three-part names with qualified object names before it sends the statements to the remote location. This substitution is done in the following cases:

- When PREPARE or EXECUTE IMMEDIATE is performed
• When REMOTE BIND of a package is performed.

ZPARM name DRDA_RESOLVE_ALIAS in DSN6SPRM.

Field Name: QWP4RSLV

FLASHCPY REORG IX

YES indicates that the Rebuild Index utility uses the subsystem parameter settings for FLASHCOPY and FCCOPYDDN when those keywords are not present in the utility control statement (DB2 field: QWP4FCRBI). The ZPARM name is FLASHCOPY_REBUILD_INDEX in DSN6SPRM.

Field Name: QWP4FCRBI

CAT IDX STORCLASS

The SMS storage class for DB2 catalog index data sets. This field corresponds to column SMS STOR class in field "Directory and catalog indexes" on installation panel DSNTIPA3. The ZPARM name is CATXSTCL in DSN6SPRM.

Field Name: QWP4CXSC

MANAGE REAL STOR

Specifies whether DB2 manages real storage consumption. This field corresponds to field MANAGE REAL STORAGE on installation panel DSNTIPE. The ZPARM name is REALSTORAGE_MANAGEMENT in DSN6SPRM.

Field Name: QWP4STMN

MAX REAL+AUX STOR

The maximum amount of real plus auxiliary storage that can be used.

A value of 0 is displayed for NOLIMIT.

The ZPARM name is REALSTORAGE_MAX in DSN6SPRM.

Field Name: QWP4RSMX

PARALL EFFICIENCY

The parallelism efficiency factor.

Note: This field has value of 0 if the System Management Facilities (SMF) trace contains the hexadecimal value X’8000’.

This field corresponds to field PARALLELISM EFFICIENCY on installation panel DSNTIP8. The ZPARM name is PARA_EFF in DSN6SPRM.

Field Name: QWP4PAEF

REORDERD ROW FORM

In DB2 12 this field is a serviceability field.

A value of YES shows that reordered row format is enabled.

This field corresponds to field REORDERED ROW FORMAT on installation panel DSNTIP7. The ZPARM name is RRF in DSN6SPRM.

Field Name: QWP4RRF

SEPAR WORK FILES
YES directs processing of declared temporary tables only to DB2-managed table spaces that are defined with SECQTY>0 (DB2 field: QWP4WFDBSEP). It directs all other processing to DB2-managed table spaces that are defined with SECQTY=0 or to user-managed table spaces. This field corresponds to field "Separate Work Files" in installation panel DSNTIP9. The ZPARM name is WFDBSEP in DSN6SPRM.

**Field Name:** QWP4WFDBSEP

### PREVENT ALTER LMT

Determines whether DB2 disallows altering the limit key by using an ALTER TABLE statement for index-controlled partitioned table spaces. This alter operation places the table space in REORG-pending (REORP) restrictive status, and the data is not available until the affected partitions are reorganized. Use PREVENT_ALTERTB_LIMITKEY to avoid this data unavailability.

- **NO** Specifies that you can alter a limit key by using an ALTER TABLE statement for index-controlled partitioned table spaces. NO is the default.

- **YES** Specifies that it is not permitted to alter a limit key by using an ALTER TABLE statement for index-controlled partitioned table spaces. An ALTER TABLE statement must not attempt to alter the limit key for an index-controlled partitioned table.

Install parameter PREVENT ALTER LIMITKEY on panel DSNTIP71, or ZPARM: PREVENT_ALTERTB_LIMITKEY in DSN6SPRM.

**Field Name:** QWP4PALK

### PREVENT IDX PART

Determines whether DB2 does not allow the creation of new index-controlled partitioned tables. This subsystem parameter ensures that new partitioned tables use table-controlled partitioning, which is the preferred partitioning method for non-universal table spaces.

- **NO** Specifies that new index-controlled partitioned tables can be created. NO is the default value.

- **YES** Specifies that new partitioned table spaces must use table-controlled partitioning. A CREATE INDEX statement must not attempt to create an index-controlled partitioned table.

Install parameter PREVENT INDEX PART CREATE on panel DSNTIP71, or ZPARM: PREVENT_NEW_IDXCTRL_PART in DSN6SPRM.

**Field Name:** QWP4PCIP

### RETRY STOPPED OBJ

Specifies whether DB2 should immediately reject requests for a stopped object or retry them, up to the IRLM timeout limit, if the object is restarted.

- **NO** This is the default. It indicates that DB2 immediately rejects requests for a stopped object.

- **YES** DB2 retries such requests, up to the IRLM timeout setting, if the stopped object is restarted.

Install parameter RETRY STOPPED OBJECTS on panel DSNTIP72, or ZPARM RETRY_STOPPED_OBJECTS in DSN6SPRM.
Field Name: QWP4RSO

EMPTY XML ELEMENT
Indicates whether empty XML elements are serialized:
NO  Serialization of empty XML elements is not defined.
YES  Empty XML elements are serialized using a start-element tag followed by an end-element tag.

ZPARM name is XML_RESTRICT_EMPTY_TAG in DSN6SPRM.

Field Name: QWP4NOET

RENAME TABLE
Specifies whether the RENAME TABLE statement should extend to tables that are referenced in a view definition or the definition of an SQL table function:
YES  ALLOW_DEP_VIEW_SQLTUDF
NO  DISALLOW_DEP_VIEW_SQLTUDF

Install parameter RENAME TABLE on panel DSNTIP72, or ZPARM RENAMETABLE in DSN6SPRM.

Field Name: QWP4ERTS

ALTERNATE COPYPOOL
Specifies an optional alternate SMS copy pool for the DB2 BACKUP SYSTEM utility.

This field corresponds to field ALTERNATE COPYPOOL on INSTALLATION panel DSNTIP62. The ZPARM name is ALTERNATE_CP in DSN6SPRM.

Field Name: QWP4BSACP

DB BAK STG GRP
Specifies an optional backup SMS storage group to be used by the DB2 BACKUP SYSTEM utility for the DB copy pool.

This field corresponds to field DB BACKUP STG GROUP on INSTALLATION panel DSNTIP62. The ZPARM name is UTIL_DBBSG in DSN6SPRM.

Field Name: QWP4UDBSG

LOG BAK STG GRP
Specifies an optional backup SMS storage group to be used by the DB2 BACKUP SYSTEM utility for the LOG copy pool.

This field corresponds to field LOG BACKUP STG GRP on INSTALLATION panel DSNTIP62. The ZPARM name is UTIL_LGBSG in DSN6SPRM.

Field Name: QWP4ULBSG

COPY FAST REPLIC
Specifies whether FlashCopy fast replication is preferred, required, or should not be used.
This field corresponds to field COPY FAST REPLICATION on INSTALLATION panel DSNTIP61. The ZPARM name is COPY_FASTREPLICATION in DSN6SPRM.

**Field Name:** QWP4CYFR

**PAGE NUMBERING**

Specifies whether range-partitioned table spaces and associated indexes will be created to use absolute page numbers across partitions or relative page numbers.

- **A** Absolute page numbers
- **R** Relative page numbers

Install parameter PAGE SET PAGE NUMBERING on panel DSNTIP71, or ZPARM PAGESET_PAGENUM in DSN6SPRM.

**Field Name:** QWP4PSPN

**COMPRESS_DIRLOB**

Specifies whether DB2 compresses large object (LOB) table spaces in the DB2 directory the next time that the table spaces are reorganized.

- **0** indicates NO
- **1** indicates YES

This value corresponds to field COMPRESS DB2 DIR LOBS on installation panel DSNTIPA2. ZPARM name: COMPRESS_DIRLOB in DSN6SPRM.

**Field Name:** QWP4CDRL

**CACHE DYN STABIL**

Specifies when dynamic SQL statements can be captured for stabilization. When a statement is stabilized, the current SQLID, statement text, and runtime structures are written to catalog tables. If a dynamic SQL statement is not present in the dynamic SQL statement cache, DB2 will load the runtime structures from catalog table rather than performing a full prepare. This extends the stability and reliability of performance of a dynamic SQL. It can have the following values:

**CAPTURE**

Statements may be stabilized through the -START DYNQUERY command using both MONITOR(NO) and MONITOR(YES). DB2 will not load stabilized statements from SYSDYNQRY.

**LOAD**

Statements may not be stabilized via any means. The -START DYNQUERY command will fail, and any MONITOR(YES) commands in progress will not stabilize statements, even if stabilization criteria are matched. During long prepare, DB2 will attempt to load stabilized statements from SYSDYNQRY with which to run.

**BOTH**

Statements may be stabilized through the -START DYNQUERY command via both MONITOR(NO) and MONITOR(YES). During long prepare, DB2 will attempt to load stabilized statements from SYSDYNQRY with which to run. BOTH is the default setting.

**NONE**

Statements may not be stabilized via any means. The -START DYNQUERY command will fail, and any MONITOR(YES)
commands in progress will not stabilize statements, even if stabilization criteria are matched. DB2 will not load stabilized statements from SYSDYNQRY.

This field corresponds to field CACHE DYN STABILITY on installation panel DSNTIP8. The ZPARM name is CACHEDYN_STABILIZATION in DSNTIP8.

Field Name: QWP4CDST

SELECT FOR UNLOAD

Shows the AUTH_COMPATIBILITY ZPARM values (DB2 field: QWP4AUTCSU):

1 The unload utility checks whether the user has the SELECT privilege on the target table.
0 The unload utility checks whether the user has the UNLOAD privilege on the target table.

Field Name: QWP4ACSU

DDL MATERIALIZATION

Specifies when DB2 materializes changes to the definition of an object. This value corresponds to field DDL_MATERIALIZATION on installation panel DSNTIP71. ZPARM name is DDL_MATERIALIZATION in DSN6SPRM.

Field Name: QWP4DDLM

INDEX MEMORY CTRL

Shows the amount of memory that DB2 should allocate for fast traversing of DB2 indexes:

-1 = AUTO
  Specifies that DB2 sets the upper limit of the storage to 20% of the currently allocated buffer pools.

0 = DISABLE
  Specifies that DB2 returns any existing storage allocated for fast index traversal and does not allocate any further storage for this purpose.

500 - 200000
  Indicates the storage limit for fast index traversal.

The ZPARM name is INDEX_MEMORY_CONTROL in DSN6SPRM.

Field Name: QWP4JXMC

HSM MSG DS HLQ

Shows the high level qualifier (HLQ) for data sets (DS) to be allocated by the DB2 BACKUP SYSTEM and RESTORE SYSTEM utilities to receive messages from the Data Facility Hierarchical Storage Manager (DFHSM) and the IBM Data Facility Data Set Services (DFDSS) (DB2 field: QWP4UHMDH).

This value corresponds to field HSM MESSAGE DS HLQ on installation panel DSNTIP62. ZPARM name: UTILS_HSM_MSGDS_HLQ in DSN6SPRM.

Field Name: QWP4UHMDH

DFLT INSERT ALG
Specifies the default algorithm for inserting data into table spaces. This value corresponds to the field DEFAULT INSERT ALGORITHM on installation panel DSNTIP71. The ZPARM name DEFAULT_INSERT_ALGORITHM is in DSN6SPRM.

Field Name: QWP4DINA

STATFDBK PROFILE

Specifies whether Statistics recommendations that are identified during query optimization cause DB2 to modify to Statistics profiles.

- 0 indicates NO
- 1 indicates YES

This value corresponds to field STATS PROFILE FEEDBACK on installation panel DSNTIP8. ZPARM name: STATFDBK_PROFILE in DSN6SPRM.

Field Name: QWP4SFPR

MAT NODET SQLTUDF

DB2 materializes the result of a user-defined SQL table function that is defined as not deterministic.

- 0=NO
- 1=YES

ZPARM name is MATERIALIZE_NODET_SQLTUDF in DSN6SPRM.

Field Name: QWP4MNSU

ZHYPERLINK

The scope of zHyperLink I/O usage for this Db2 subsystem. Valid values are:

- DISABLED
  zHyperLink I/O not used by this subsystem.
- ENABLED
  All eligible I/Os will use zHyperLink if possible.
- DATABASE
  zHyperLink will only be used for eligible I/O on database objects.
- ACTIVELOG
  zHyperLink will only be used for eligible I/O on active log objects.

Field Name: QWP4ZHYPL

ENCRYPTION KEY

If non-blank, the name of a ICSF key to be used for encrypting archive log data sets, directory data sets, catalog data sets and user-defined indexes on the Db2 catalog. A blank value shows as N/P in the report.

Field Name: QWP4ENKL

IFCID 106 - Stored Procedures Parameters:

This topic shows detailed information about “Record Trace - IFCID 106 - Stored Procedures Parameters”.

Record trace - IFCID 106 - Stored Procedures Parameters

The field labels shown in the following sample layout of “Record Trace - IFCID 106 - Stored Procedures Parameters” are described in the following section.
IFCID 106 - Stored Procedures Parameters

**MVS PROCEDURE NAME**

The name of the MVS JCL procedure used to start the DB2 stored procedures address space.

Install parameter DB2 PROC NAME on panel DSNTIPX, or ZPARM STORPROC in DSN6SYSP.

**Field Name:** QWP1SPPN

**ALLOWABLE ABENDS**

The number of times a stored procedure is allowed to terminate abnormally, after which SQL CALL statements for the stored procedure are rejected.

Install parameter MAX ABEND COUNT on panel DSNTIPX, or ZPARM STORMXAB in DSN6SYSP.

**Field Name:** QWP1SPAB

**TIMEOUT VALUE**

The number of seconds before DB2 stops waiting for an SQL CALL statement to be assigned to one of the TCBs in the DB2 stored procedures address space.

Install parameter TIMEOUT VALUE on panel DSNTIPX, or ZPARM STORXTIME in DSN6SYSP.

**Field Name:** QWP1SPTO

**IFCID 106 - System Initialization Parameters:**

This topic shows detailed information about “Record Trace - IFCID 106 - System Initialization Parameters”.

When this block contains names that are too long for the space available, they are truncated. The full name is shown in the list of long names, which is printed at the end of this block. When present, the list shows the parameter identifier, in alphabetic order, and the complete name. If the name is too long for one line, it continues on the next.

**Record trace - IFCID 106 - System Initialization Parameters**

The field labels shown in the following sample layout of “Record Trace - IFCID 106 - System Initialization Parameters” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHECKFREQ</td>
<td>Checkpoint frequency</td>
</tr>
<tr>
<td>TDROUTESCODES</td>
<td>Troubleshooting route codes</td>
</tr>
<tr>
<td>BKGROUNDDIS</td>
<td>Background disposition</td>
</tr>
<tr>
<td>RLFMAXLIMIT</td>
<td>RLF maximum limit</td>
</tr>
<tr>
<td>RLFMAXLOC</td>
<td>RLF maximum location</td>
</tr>
<tr>
<td>RLFMAXSCOPE</td>
<td>RLF maximum scope</td>
</tr>
<tr>
<td>RLFAUTO</td>
<td>RLF auto parameter</td>
</tr>
<tr>
<td>EXTENDEDSECURITY</td>
<td>Extended security</td>
</tr>
<tr>
<td>WLMENVIRONMENT</td>
<td>WLM environment</td>
</tr>
<tr>
<td>ROLUPPARA</td>
<td>Rollup parallel threads</td>
</tr>
<tr>
<td>LEVELIDCHECKS</td>
<td>Level ID checks</td>
</tr>
<tr>
<td>BP4K</td>
<td>BP 4K block</td>
</tr>
<tr>
<td>BP8K</td>
<td>BP 8K block</td>
</tr>
<tr>
<td>BP16K</td>
<td>BP 16K block</td>
</tr>
<tr>
<td>BP32X</td>
<td>BP 32X block</td>
</tr>
<tr>
<td>BPUINDEX</td>
<td>BP user index</td>
</tr>
<tr>
<td>BPIMMLLOB</td>
<td>BP implicit lob</td>
</tr>
</tbody>
</table>

**SYSTEM INITIALIZATION PARAMETERS**

- **CHECKFREQ**
  - Specifies the frequency of checkpointing.
- **TDROUTESCODES**
  - Specifies the route codes for troubleshooting.
- **BKGROUNDDIS**
  - Specifies the disposition of background threads.
- **RLFMAXLIMIT**
  - Specifies the maximum limit for RLF.
- **RLFMAXLOC**
  - Specifies the maximum location for RLF.
- **RLFMAXSCOPE**
  - Specifies the maximum scope for RLF.
- **RLFAUTO**
  - Specifies the auto parameter for RLF.
- **EXTENDEDSECURITY**
  - Specifies extended security.
- **WLMENVIRONMENT**
  - Specifies the WLM environment.
- **ROLUPPARA**
  - Specifies rollup parallel threads.
- **LEVELIDCHECKS**
  - Specifies level ID checks.
- **BP4K**
  - Specifies BP 4K block.
- **BP8K**
  - Specifies BP 8K block.
- **BP16K**
  - Specifies BP 16K block.
- **BP32X**
  - Specifies BP 32X block.
- **BPUINDEX**
  - Specifies BP user index.
- **BPIMMLLOB**
  - Specifies BP implicit lob.
CHECKPOINT FREQUENCY

Checkpoint frequency. This shows either the number of minutes (1 through 60) or the number of DB2 log records between the start of successive checkpoints. DB2 starts a new checkpoint when this value is reached.

You can use the SET LOG command to change the number of log records between checkpoints dynamically. Valid values are 1-60 when specifying a time value and 200-16000000 when specifying a number of records.

Install parameter CHECKPOINT FREQ on panel DSNTIPL, ZPARM CHKFREQ in DSN6SYSP.

Field Name: QWP1LOGL

TRACETAB SIZE(4K)

Shows the size of the RES trace table in 4 KB blocks. A value of 16 means 64 KB have been allocated for this table.

This is the default destination for the global trace records in DB2. Most trace records require 32-byte entries; events with more than three data items require 64-byte entries.

Install parameter TRACE SIZE on panel DSNTIPN, or ZPARM TRACTBL in DSN6SYSP.

Field Name: QWP1TRSZ

GLOBAL CLASSES

Shows whether the global trace is started automatically when DB2 is started.

When YES, the global trace starts for the default classes (classes 1, 2, and 3) whenever DB2 is started, and additional data consistency checks are made whenever a data page or index page is modified. When ALL, the global trace is automatically started for all classes.

The global trace is used to diagnose problems in DB2 but it also impacts DB2 performance. If you have production systems requiring high performance, you might consider turning off global trace. If you do this, be aware that this presents a serviceability exposure. In the event of a system failure, IBM service personnel will ask you to turn on global trace and attempt to recreate the problem.

Install parameter TRACE AUTO START on panel DSNTIPN, or ZPARM TRACSTR in DSN6SYSP.

Field Name: QWP1TRST

WTO ROUTE CODES

The MVS console routing codes.

These codes are assigned to messages that are not solicited from a specific console. Up to 16 comma-separated codes can be shown.
IFCID 106 - System Initialization Parameters

Install parameter WTO ROUTE CODES on panel DSNTIPO, or ZPARM ROUTCDE in DSN6SYSP.

Field Name: QWP1SMRC

LOCAL TRACETAB SZ

The size of the local trace tables in multiples of 4 KB. ZPARM name TRACLOC in DSN6SYSP.

Field Name: QWP1TLSZ

STATS CLASSES

Shows whether a Statistics trace was started automatically at DB2 startup time.

The classes started are shown separated by commas.

DB2 sends collected trace data to SMF. The SMFPRM xx member of SYS1.PARMLIB must be set to allow SMF to write the records.

Install parameter SMF STATISTICS on panel DSNTIPN, or ZPARM SMFSTAT in DSN6SYSP.

Field Name: QWP1SMFS

BACKGROUND IDS

The maximum allowed number of concurrent connections for batch jobs and utilities. This includes:

- All batch jobs using QMF.
- All batch jobs using the DSN command processor.
- All tasks connected to DB2 through call attach facility (CAF) running in batch. This can include:
  - Batch jobs using QMF
  - APPC applications
  - TCP/IP FTP connections

When the number of batch jobs reaches this limit, further requests are rejected.

Install parameter MAX BATCH CONNECT on panel DSNTIPE, or ZPARM IDBACK in DSN6SYSP.

Field Name: QWP1IDB

MONITOR BUF SIZE

The default number of bytes allocated for the monitor trace buffer.

Install parameter MONITOR SIZE on panel DSNTIPN, or ZPARM MONSIZE in DSN6SYSP.

Field Name: QWP1MONS

ACCOUNT CLASSES

Shows whether DB2 sends accounting data to SMF automatically when DB2 is started. Numeric values show what classes are sent. When YES, the default class (class 1) is sent. When ALL, accounting classes one through five are started.

The SMFPRM xx member of SYS1.PARMLIB must also be set to allow SMF to write the records.
IFCID 106 - System Initialization Parameters

Install parameter SMF ACCOUNTING on panel DSNTIPN, or ZPARM SMFACCT in DSN6SYSP.

Field Name: QWP1SMFA

FOREGROUND IDS

The maximum number of concurrent TSO foreground connections (QMF, DSN, DB2I, and SPUFI).

Each of the following is a separate user:

- Each TSO foreground user executing a DSN command.
- Each TSO foreground user connected to DB2 through the call attachment facility (CAF). This can include QMF users running in TSO foreground or user-written CAF applications running in TSO foreground.

When the number of TSO users attempting to access DB2 exceeds this limit, connection requests are rejected.

There is no subsystem parameter to control the maximum concurrent connections for IMS and CICS. These are controlled by using IMS and CICS facilities. For CICS attachment, the maximum number of connections to DB2 can be controlled using the resource control table (RCT) TYPE=INIT THRDMAX value.

Install parameter MAX TSO CONNECT on panel DSNTIPE, or ZPARM IDFORE in DSN6SYSP.

Field Name: QWP1IDF

STATS INTERVAL

The time interval, in minutes, between statistics collections. Statistics records are written approximately at the end of this interval.

Install parameter STATISTICS TIME on panel DSNTIPN, or ZPARM STATTIME in DSN6SYSP.

Field Name: QWP1STIM

AUDIT CLASSES

Shows whether the audit trace is started automatically when DB2 is started.

When YES, the audit trace is started for the default class (class 1) whenever DB2 is started. When ALL, an audit trace is automatically started for all classes.

Install parameter AUDIT TRACE on panel DSNTIPN, or ZPARM AUDITST in DSN6SYSP.

Field Name: QWP1AUDT

RLIMIT TABLE ID

The default resource limit specification table (RLST) suffix.

This suffix is used when the resource limit facility (governor) is automatically started or when the governor is started without specifying a suffix.

Install parameter RLST NAME SUFFIX on panel DSNTIPO4, or ZPARM RLFTBL in DSN6SYSP.
Prior to DB2 12: Install parameter RLST NAME SUFFIX on panel DSNTIPO4, or ZP ARM RLFTBL in DSN6SYSP.

Field Name: QWP1RLFT

PSEUDOCLOSE CHKPT

The number of consecutive DB2 checkpoints that a page set or partition can remain in read/write mode since it was last updated. When this limit or the RO SWITCH TIME is reached, DB2 changes the page set or partition to read-only.

This can improve performance for recovery, logging, and data-sharing processing.

Install parameter RO SWITCH CHKPTS on panel DSNTIPL, or ZP ARM PCLOSEN in DSN6SYSP.

Field Name: QWP1FREQ

MONITOR CLASSES

Shows whether the monitor trace is started automatically when DB2 is started. When YES, the default (trace class 1) is started. Numeric values show which classes are started. When ALL, monitor trace classes 1 through 8 are started.

Install parameter MONITOR TRACE on panel DSNTIPN, or ZP ARM MON in DSN6SYSP.

Field Name: QWP1MON

RLIMIT TAB AUTHID

The authorization ID used for the resource limit facility (governor).

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Install parameter RESOURCE AUTHID on panel DSNTIPP, or ZP ARM RLFAUTH in DSN6SYSP.

Field Name: QWP1RLFA

PSEUDOCLOSE MIN

The number of minutes that a page set or partition can remain in read-write mode since it was last updated. When this limit or the RO SWITCH CHKPTS is reached, DB2 changes the page set or partition to read-only.

This can improve performance for recovery, logging, and data-sharing processing.

Install parameter RO SWITCH TIME on panel DSNTIPL, or ZP ARM PCLOSET in DSN6SYSP.

Field Name: QWP1TMR

REM THRDS(ACTIVE)

The maximum number of database access threads (DBATs) that can be active concurrently.

When this limit has been reached, DB2 uses the value of DDF THREADS on panel DSNTIPR to decide how to handle a new allocation request.
When DDF THREADS is ACTIVE and MAX REMOTE CONNECTED has not been reached, the allocation request is allowed but any further processing for the connection is queued waiting for an active database access thread to terminate.

When DDF THREADS is INACTIVE and MAX REMOTE CONNECTED has not been reached, the allocation request is allowed and is processed when DB2 can assign an unused database access thread slot to the connection.

The total number of threads accessing data concurrently is the sum of MAX USERS and MAX REMOTE ACTIVE. The maximum allowable value for this sum is 2000.

Install parameter MAX REMOTE ACTIVE on panel DSNTIPE, or ZPARM MAXDBAT in DSN6SYSP.

Field Name: QWP1RMT

RLF DYNAMIC ERROR

Shows whether the resource limit facility (governor) is automatically started when DB2 is started.

Install parameter RLF AUTO START on panel DSNTIPO4, or ZPARM RLF in DSN6SYSP.

Field Name: QWP1RLF

CONCURR THREADS

The maximum number of allied threads (threads started at the local subsystem) that can be allocated concurrently.

Separate threads are created for each occurrence of the following:

- TSO user (whether running a DSN command or a DB2 request from QMF)
- Batch job (whether running a DSN command or a DB2 utility)
- IMS region that can access DB2
- Active CICS transaction that can access DB2
- Task connected to DB2 through the call attachment facility.

Install parameter MAX USERS on panel DSNTIPE, or ZPARM CTHREAD in DSN6SYSP.

Field Name: QWP1CT

REM THRDS(CONN)

The maximum allowed number of concurrent remote connections.

When this limit is reached, any new connection request is rejected.

Install parameter MAX REMOTE CONNECTED on panel DSNTIPE, or ZPARM CONDBAT in DSN6SYSP.

Field Name: QWP1CDB

UR LOG THRESHOLD

Shows the number of log records that are to be written by an uncommitted unit of recovery (UR) before DB2 issues a warning message to the console. This provides notification of a long-running UR. Long-running URs might result in a lengthy DB2 restart or a lengthy recovery situation for critical
tables. Log records are specified in 1-K (1000 log records) increments. A value of 0 indicates that no write check is to be performed.

Install parameter UR LOG WRITE CHECK on panel DSNTIPL, ZPARM URLGWTH in DSN6SYSP.

**Field Name:** QWP1LWCK

**LIMIT BACKOUT**

Shows whether some backward log processing should be postponed.

When NO, DB2 backward log processing processes all inflight units of recovery (URs) and URs for abending transactions.

When YES, DB2 postpones backout processing for some units of work until the command RECOVER POSTPONED is issued.

AUTO (default) postpones some backout processing but automatically starts the backout processing when DB2 restarts and begins accepting new work.

When YES or AUTO, backout processing runs concurrently with new work. Page sets or partitions with backout work pending are unavailable until their backout work is complete.

Install parameter LIMIT BACKOUT on panel DSNTIPL, or ZPARM LBACKOUT in DSN6SYSP.

**Field Name:** QWP1LMB

**EXTENDED SECURITY**

Extended security options.

When YES (strongly recommended), detailed reason codes are returned to a DRDA level 3 client when a DDF connection request fails because of security errors. When using SNA protocols, the requester must have included a product that supports the extended security sense codes, such as DB2 Connect version 5 and subsequent releases.

RACF users can change their passwords using the DRDA change password function. This support is only for DRDA level 3 requesters that have implemented support for changing passwords.

YES allows properly enabled DRDA clients to determine the cause of security failures without requiring DB2 operator support.

When NO, generic error codes are returned to the clients and RACF users are prevented from changing their passwords.

Install parameter EXTENDED SECURITY on panel DSNTIPR, or ZPARM EXTSEC in DSN6SYSP.

**Field Name:** QWP1SCER

**UR CHECK FREQ**

Shows the number of checkpoint cycles to complete before DB2 issues a warning message to the console and writes an IFCID 313 record for an uncommitted, indoubt, or inflight unit of recovery (UR). The default is 0, which disables this option.

Install parameter UR CHECK FREQ on panel DSNTIPL, or ZPARM URCHKTH in DSN6SYSP.

**Field Name:** QWP1URCK
BACKOUT DURATION

Indicates how much of the log to process for backout when LIMIT BACKOUT = YES or AUTO.

During restart, backward log processing continues until both of the following events occur:

- All inflight and inabort URs with update activity against the catalog or directory are backed out.
- The number of log records processed is equal to the number specified in BACKOUT DURATION times the value of CHECKPOINT FREQ. If the checkpoint frequency is specified in minutes, the number of records processed is the default of 50000 records multiplied by the value of CHECKPOINT FREQ.

In-flight and in-abort URs that are not completely backed out during restart are converted to postponed-abort status. Page sets or partitions with postponed-backout work are put into restart pending (RESTP). This state blocks all access to the object other than access by the command RECOVER POSTPONED or by automatic backout processing performed by DB2 when LIMITED BACKOUT = AUTO.

A table space might be in restart pending mode, without the associated index spaces also in restart pending mode. This happens if a postponed abort UR makes updates only to non-indexed fields of a table in a table space. In this case, the indexes are accessible to SQL (for index-only queries), even though the table space is inaccessible.

Install parameter BACKOUT DURATION on panel DSNTIPL, or ZP ARM BACKODUR in DSN6SYSP.

Field Name: QWP1BDUR

WLM ENVIRONMENT

Workload manager environment.

Install parameter WLM ENVIRONMENT on panel DSNTIPX, or ZP ARM WLMENV in DSN6SYSP.

Field Name: QWP1WLME

ROLLUP PARAL THRD

Indicates whether DB2 generates a trace record at the originating task level that summarizes accounting information for all parallel tasks.

DB2 parameter PTASKROL in DSN6SYSP.

Field Name: QWP1PROL

UNIT PRICE TRACK

Specifies whether DB2 performs detailed tracking for measured usage pricing. You can select the following values:

YES  DB2 does detailed measured usage tracking if SMF type 89 records are activated. When SMF89 is set to YES, DB2 invokes a z/OS service on every entry into or exit out of DB2 to ensure accurate tracking.

NO (the default value)  DB2 does not do detailed measured usage tracking. If the SMF type 89 record is activated, only high-level tracking is recorded in
the SMF type 89 record. Selecting NO reduces CPU usage, but also increases the amount of time spent in DB2 as measured by SMF 89.

**Note:** Select SMF89 YES only if you use measured usage pricing.

DB2 parameter SMF89.

**Field Name:** QWP1SM89

**OTC LIC ACCEPTED**

Indicates that the one-time charge (OTC) license terms are accepted for this DB2 installation.

DB2 parameter OTC_LICENSE.

**Field Name:** QWP1OLAC

**LEVEL ID CHECKPS**

Shows how often, in checkpoints, the level ID of a page set or partition is updated. When zero (0), down-level detection is disabled. When five (5), down-level is enabled.

Use the following criteria to decide on a suitable value for this parameter:

- **How often are backup and restore methods used outside of the DB2 control (such as DSN1COPY or DFDSS dump and restore)?** If rarely used, there is no need to update the level ID frequently.

- **How many page sets are open for update at the same time?** If DB2 updates level IDs frequently, there is extra protection against down-level page sets. However, a performance degradation can occur if the level IDs for many page sets must be set at every checkpoint.

- **How often does the subsystem take checkpoints?** If the DB2 subsystem takes frequent system checkpoints, set the level ID frequency to a higher value.

Install parameter LEVELID UPDATE FREQ on panel DSNTIPL, or ZPARM DLDFREQ in DSN6SYSP.

**Field Name:** QWP1DFRQ

**USER LOB VAL STOR**

The maximum amount of storage (KB) each user can use for LOB values.

Install parameter USER LOB VALUE STORAGE on panel DSNTIP7, or ZPARM LOBVALA in DSN6SYSP.

**Field Name:** QWP1LVA

**USER XML VAL (KB)**

The maximum amount of memory in kilobytes (KB) for each user for storing XML values.

ZPARM XMLVALA in DSN6SYSP.

**Field Name:** QWP1XVA

**DEF 4K BP U.DATA**

The name of the 4 KB buffer pool for user table spaces.

Install parameter DEFAULT BUFFER POOL FOR USER DATA on installation panel DSNTIPL, or ZPARM TBSBPOOL in DSN6SYSP.

**Field Name:** QWP1TBPL
SYS LOB VAL STOR
The maximum amount of storage (MB) each system can use for LOB values.
Install parameter SYSTEM LOB VALUE STORAGE on panel DSNTIP7, or ZPARM LOBVALS in DSN6SYSP.
Field Name: QWP1LV

SYS XML VAL (MB)
The maximum amount of memory in megabytes (MB) for each system for storing XML values.
ZPARM XMLVALS in DSN6SYSP.
Field Name: QWP1XVS

DEF 8K BP U.DATA
The default 8 KB buffer pool for:
• Table spaces with an 8 KB page size in implicitly created databases
• Explicitly created table spaces with an 8 KB page size, but without a buffer pool clause that is specified in the create table space statement.
Install parameter DEFAULT 8-KB BUFFER POOL FOR USER DATA on panel DSNTIP1 or ZPARM TBSBP8K in DSN6SYSP.
Field Name: QWP1TP8

LOB INLINE LENGTH
Default inline length for any new storing large object (LOB) column in a Universal Table Space on the DB2 subsystem. The valid values are from 0 to 32680 inclusive (in bytes). The default value for this ZPARM is 0, which indicates that no inline attribute is required for any LOB column (BLOB, CLOB or DBCLOB) created on this subsystem.
Field Name: QWP1LBIL

RANDOM XML DOCID
Specifies whether DB2 generates document ID elements sequentially or randomly. Possible values are:

YES  Sequentially
NO   Randomly
ZPARM name XML_RANDOMIZE_DOCID in DSN6SYSP.
Field Name: QWP1XRDI

DEF 16K BP U.DATA
The default 16 KB buffer pool for:
• Table spaces with a 16 KB page size in implicitly created databases
• Explicitly created table spaces with a 16 KB page size, but without a buffer pool clause that is specified in the create table space statement.
Install parameter DEFAULT 16-KB BUFFER POOL FOR USER DATA on panel DSNTIP1 or ZPARM TBSBP16K in DSN6SYSP.
Field Name: QWP1TP16

EXTRA BLOCKS SRV
The maximum number of extra DRDA query blocks DB2 returns to a DRDA client.

The default is 100.

This controls the total amount of data that can be transmitted on any given network exchange. It does not limit the size of the SQL query answer set.

Install parameter EXTRA BLOCKS SRV on panel DSNTIP5, ZPARM EXTRASRV in DSN6SYSP.

**Field Name:** QWP1EXBS

**SYNCVAL W/IN HOUR**

Shows whether DB2 statistics recording is synchronized with some part of the hour. The installation can specify that the DB2 statistics recording interval be synchronized with the beginning of the hour (00 minutes past the hour) or any number of minutes past the hour up to 59. Possible values are: 0-59, which indicate the synchronization point. When NO or N/A is shown, synchronization is disabled, this is the default.

If STATISTICS TIME INTERVAL IN MINUTES (STATIME) is greater than 60, NO or N/A is shown.

Install parameter STATISTICS SYNC on panel DSNTIPN, or ZPARM SYNCVAL in DSN6SYSP.

**Field Name:** QWP1SYNV

**DEF 32K BP U.DATA**

The default 32 KB buffer pool for:
- Table spaces with a 32 KB page size in implicitly created databases
- Explicitly created table spaces with a 32 KB page size, but without a buffer pool clause that is specified in the create table space statement.

Install parameter DEFAULT 32-KB BUFFER POOL FOR USER DATA on panel DSNTIP1 or ZPARM TBSBP32K in DSN6SYSP.

**Field Name:** QWP1TP32

**EXTRA BLOCKS REQ**

The maximum number of extra DRDA query blocks DB2 requests from a remote DRDA server.

The default is 100.

This controls the total amount of data that can be transmitted on any given network exchange. It does not limit the size of the SQL query answer set.

Install parameter EXTRA BLOCKS REQ on panel DSNTIP5, ZPARM EXTRAREQ in DSN6SYSP.

**Field Name:** QWP1EXBR

**SYNCHR FLAG**

Interval synchronization flag, shows whether the synchronization is enabled. The default is NO. When YES, the DB2 statistics are synchronized to the value shown in INTERVAL SYNCHR W/IN HOUR.

**Field Name:** QWP1SYFL

**DEF BP USER INDEX**
The name of the 4 KB buffer pool used for indexes on user data.

Install parameter DEFAULT BUFFER POOL FOR USER INDEXES on installation panel DSNTIP1, or ZPARM IDXBPPOOL in DSN6SYSP.

**Field Name:** QWP1IXPL

**DDF/RRSAF ACCUM**

Shows whether DB2 accounting data for DDF and RRSAF threads is accumulated by end user.

When NO, DB2 writes an accounting record when a DDF thread is made inactive, or when signon occurs for an RRSAF thread. A value in the range 2 through 65535 shows the number of times an end-user identifier should occur before DB2 writes an accounting record. An end-user identifier is the concatenation of the end-user user ID, end-user transaction name, and the end-user workstation name.

These values can be set by DDF threads using SERVER CONNECT and SET CLIENT calls, and by RRSAF threads using the RRSAF SIGN, AUTH SIGNON, and CONTEXT SIGNON functions.

An accounting record might be written prior to the number of end user occurrences in the following instances:

- When an internal storage threshold is reached for the accounting RRSAF signon call.
- When the thread deallocates, the accumulated accounting data for all end users on this thread is written (one record per end user).
- When this parameter is dynamically changed to deactivate accounting accumulation. In this instance, the next end-UR (for DDF thread) or signon (for a RRSAF thread) causes DB2 to write the accumulated accounting data for all end users on this thread (one record per end user).

Install parameter DDF/RRSAF ACCUM on installation panel DSNTIPN, or ZPARM ACCUMACC in DSN6SYSP.

**Field Name:** QWP1ACCU

**TS ALLOCATION**

Shows the amount of space in KB for primary and secondary space allocation for DB2-defined data sets for table spaces created without the USING clause. 0 indicates that DB2 uses standard defaults.

Install parameter TABLE SPACE ALLOCATION on panel DSNTIP7, or ZPARM TSQTY in DSN6SYSP.

**Field Name:** QWP1TSQT

**DEF BP IMPL LOB**

The name of the buffer pool that is used for implicitly created LOB table spaces. This field corresponds to field default buffer pool for USER LOB DATA on installation panel DSNTIP1. The ZPARM name is TBSBPLOB in DSN6SYSP.

**Field Name:** QWP1TPLB

**DSET STATS TIME**
The time interval, in minutes, before DB2 resets data set statistics collected for the online performance monitors. Online performance monitors can request DB2 data set statistics for the current interval with an IFI READS request for IFCID 199.

Install parameter DATASET STATS TIME on panel DSNTIPN, or ZPARM DSSTIME in DSN6SYSP.

Field Name: QWP1DTIM

IX ALLOCATION

Shows the amount of space in KB for primary and secondary space allocation for DB2-defined data sets for index spaces created without the USING clause. 0 indicates that DB2 uses standard defaults.

Install parameter INDEX SPACE ALLOCATION on panel DSNTIP7, or ZPARM IXQTY in DSN6SYSP.

Field Name: QWP1IXQT

DEF BP IMPL XML

The name of the buffer pool that is used for XML table spaces. This field corresponds to field default buffer pool for USER XML DATA on installation panel DSNTIP1. The ZPARM name is TBSBPXML in DSN6SYSP.

Field Name: QWP1TPXM

UNICODE IFCIDS

Shows whether output from IFC records should include Unicode information. Only a subset of the character fields (identified in the IFCID record definition by a %U in the comment area to the right of the field declaration in the DSNDQWxx copy files) are encoded in Unicode. The remaining fields maintain the same encoding of previous releases.

Install parameter UNICODE IFCIDS on panel DSNTIPN, or ZPARM UIFCIDS in DSN6SYSP.

Field Name: QWP1_UNICODE

OPT EXTENT SIZING

Indicates whether DB2 uses sliding secondary quantity for DB2 managed data sets to optimize extent sizing.

Install parameter OPTIMIZE EXTENT SIZING on panel DSNTIP7, or ZPARM MGEXTSZ in DSN6SYSP.

Field Name: QWP1MESZ

VARY DS CTRL INTV

Indicates whether DB2 optimizes VSAM CONTROL INTERVAL to page size for data set allocation.

Install parameter VARY DS CONTROL INTERVAL on panel DSNTIP7, or ZPARM DSVCI in DSN6SYSP.

Field Name: QWP1VVCI

DEL CF STRUCTS

Shows whether to:

• Delete change-data (CD) structures during restart
IFCID 106 - System Initialization Parameters

- Attempt to delete coupling-facility (CF) structures, including shared communications area (SCA) structures, internal resource lock manager (IRLM lock) structures, and allocated group buffer pools.

This field corresponds to field DEL CF STRUCTS on installation panel DSNTIPK.

ZPARM name DEL_CFSTRUCTS_ON_RESTART in DSN6SYSP.

Field Name: QWP1DCFS

DEF PART SEGSIZE

The default segment size to be used for a partitioned table space when the CREATE TABLESPACE statement does not include the SEGSIZE parameter.

This field corresponds to field DEFAULT PARTITION SEGSIZE on installation panel DSNTIP7. The ZPARM name is DPSEGSZ in DSN6SYSP.

Field Name: QWP1DPSS

AGGREGATION FLDS

Shows the aggregation fields used for DDF and RRSAF accounting rollup.

Values are defined as follows:

0  End user ID, transaction name, and workstation name
1  End user ID
2  End user transaction name
3  End user workstation name
4  End user ID and transaction name
5  End user ID and workstation name
6  End user transaction name and workstation name

This value is ignored if DDF or RRSAF accounting are not used. DB2 writes individual accounting threads for threads that do not have all aggregation fields populated that are specified by this parameter.

Install parameter AGGREGATION FIELDS on installation panel DSNTIPN, or ZPARM ACCUMUID in DSN6SYSP.

Field Name: QWP1ACID

USE DATA COMPRESS

Shows whether data compression in table spaces in implicitly defined databases is used.

Install parameter USE DATA COMPRESSION on panel DSNTIP7 or ZPARM IMPTSCMP in DSN6SYSP.

Field Name: QWP1CITS

DSSIZE IMPL TS

Shows the maximum DSSIZE in gigabytes that DB2 uses for creating each partition of an implicitly created base table space.

This field corresponds to field DEFAULT DSSIZE on installation panel DSNTIP7. The ZPARM name is IMPDSSIZE in DSN6SPRM.

Field Name: QWP1DSSZ

DEFINE DATA SETS
Defines the underlying data sets when a table space (TS) that is contained in an implicitly created database is created.

Install parameter DEFINE DATA SETS on panel DSNTIP7 or ZPARM IMPDSDEF in DSN6SYSP.

Field Name: QWP1DIDS

COMPRESS SMF RECS

Shows the COMPRESS DEST(SMF) TRACE records. This field corresponds to field COMPRESS SMF RECS on installation panel DSNTIPN. ZPARM name: SMFCOMP in DSN6SYSP.

Field Name: QWP1CSMF

TRACKMOD IMPL TS

Shows whether you have specified the TRACKMOD option on ALTER TABLESPACE for an implicitly created table space.

This field corresponds to field TRACK MODIFIED PAGES on installation panel DSNTIP7. The ZPARM name is IMPTKMOD in DSN6SPRM.

Field Name: QWP1TKMD

PARAMETER MODULE

Shows the name of the active subsystem parameter module.

This field corresponds to field PARAMETER MODULE on installation panel DSNTIP03.

Field Name: QWP1ZPNM

MAX OPEN FILE REF

The maximum number of concurrently open data sets for processing LOB file references.

Install parameter MAX OPEN FILE REFS on panel DSNTIPE or ZPARM MAXOFILR in DSN6SYSP.

Field Name: QWP1MOFR

RESERV Z/OS SPACE

The amount of space reserved for MVS functions.

Field Name: QWP1DB1M

ACCESS CONTROL

Shows the name of the default access control exit module.

This field corresponds to field ACCESS CONTROL on installation panel DSNTIPO3. The ZPARM name is ACCESS_CNTL_MODULE in DSN6SYSP.

Field Name: QWP1DXAC

CHECKPOINT TYPE

Shows the LOG checkpoint type. It can have the following values:

SINGLE

Either records or minutes.
IFCID 106 - System Initialization Parameters

**Both**
Both records and minutes, as specified by Records Between Checkpoint (QWP1LOGR) and Mins Between Checkpoint (QWP1LOGM).

ZPARM CHKTYPE in DSN6SYSP.

**Field Name:** QWP1LOGT

**Reserve CRIT Space**
The amount of space reserved for critical work that must be completed.

**Field Name:** QWP1CRIT

**Identify/Auth**
Shows the name of the default identify or authorization exit module.

This field corresponds to field IDENTIFY/AUTH on installation panel DSNTIPO3. The ZPARM name is IDAUTH_MODULE in DSN6SYSP.

**Field Name:** QWP1DATH

**Records/Checkpoint**
Shows the number of records between log checkpoints if the LOG checkpoint type is BOTH (records and minutes).

This field corresponds to field RECORDS/CHECKPOINT on installation panel DSNTIMAL, or ZPARM name CHKLOGR in DSN6SYSP.

**Field Name:** QWP1LOGR

**Reserve SOS Space**
The amount of space above z/OS and critical (QWP1DB1M + QWP1CRIT) that DB2 tries to leave available.

**Field Name:** QWP1SOS

**Signon**
Shows the name of the default signon exit module.

This field corresponds to field SIGNON on installation panel DSNTIPO3. The ZPARM name is SIGNON_MODULE in DSN6SYSP.

**Field Name:** QWP1DSGN

**Minutes/Checkpoint**
Shows the number of minutes between log checkpoints if the LOG checkpoint type is BOTH (records and minutes).

This field corresponds to field MINUTES/CHECKPOINT on installation panel DSNTIMAL, or ZPARM name CHKMINS in DSN6SYSP.

**Field Name:** QWP1LOGM

**Profile Autostart**
Specifies whether START PROFILE command processing is automatically initiated as part of DB2 startup (DB2 field: QWP1PFASY):

- 0 indicates NO
- 1 indicates YES

This field corresponds to field PROFILE AUTOSTART on installation panel DSNTIFO. ZPARM name: PROFILE_AUTOSTART in DSN6SYSP.
Field Name: QWP1PFASY

QWP1LVL

This field is for IBM service use.

Field Name: QWP1LVL

QWP1LVL

Level of this block. It is used to detect parameters or code that is out of sync.

Field Name: QWP1LVL

QWP1DON'T

Indicates whether the resource limit facility (RLF) is started automatically by DB2.

Field Name: QWP1DON'T

IFCID 106 - VSAM Catalog Name Qualifier:

This topic shows detailed information about “Record Trace - IFCID 106 - VSAM Catalog Name Qualifier”.

Record trace - IFCID 106 - VSAM Catalog Name Qualifier

The field labels shown in the following sample layout of “Record Trace - IFCID 106 - VSAM Catalog Name Qualifier” are described in the following section.

VSAM CATALOG NAME QUALIFIER
DSNB51

Qualifiers

The high-order qualifier name of all DB2 system data sets.

Field Name: QWP6CATN

IFCID 107 - Open/Close:

This topic shows detailed information about “Record Trace - IFCID 107 - Open/Close”.

Record trace - IFCID 107 - Open/Close

The field labels shown in the following sample layout of “Record Trace - IFCID 107 - Open/Close” are described in the following section.

DBID: 5 DATABASE NAME: DSNDB07
OBID: 24 OBJECT NAME: DSNDSX02

DBID

The decimal identifier of the database.

Field Name: QW0107DB

DATABASE NAME

The name of the database.

Field Name: QW0107DN

OBID
IFCID 107 - Open/Close

The decimal identifier of the object. Examples of objects are table space and index space.

Field Name: QW0107OB

OBJECT NAME

The name of the object. Examples of objects are table space and index space.

Field Name: QW0107TN

IFCID 108 - Bind Start:

This topic shows detailed information about “Record Trace - IFCID 108 - Bind Start”.

Record trace - IFCID 108 - Bind Start

The field labels shown in the following sample layout of “Record Trace - IFCID 108 - Bind Start” are described in the following section.

LOCATION

The package location.

Field Name: QW0108NL

SQLERROR

Indicates whether a package is created if SQL errors are encountered:

CONTIN A package is created even if SQL errors are encountered.

NOPACK A package is not created if SQL errors are encountered.

Field Name: QW0108E

REBIND PLAN(*)

Indicates whether a plan is rebound.

Field Name: QW0108S

ISOLATION

The isolation level for plans and packages:

RR Repeatable read

CS Cursor stability

RS Read stability

UR Uncommitted read

For packages only:
DF  Default (at run time, assumes the isolation level of the current plan)

Field Name: QW0108I

RELEASE
Indicates when to release the locks:

  COMMIT  Release locks at commit time.

  DEALLOC  Release locks at deallocation time.

For packages only:

  DEFAULT  Release locks at run time, which is the default.

Field Name: QW0108R

COLLECT ID
The collection identifier of the package.

Field Name: QW0108NC

DEGREE
The degree bind option:

  ANY    Degree(any)

  1      Degree(1)

Field Name: QW0108PL

EXPLAIN
Indicates whether EXPLAIN was specified.

Field Name: QW0108X

TYPE
The type of bind.

Field Name: QW0108T

QUALIFIER
The qualifier used for unqualified object names.

Field Name: QW0108QL

PACKAGE ID
The package identifier.

Field Name: QW0108NI

SQLRULES
The SQL rules option.

Field Name: QW0108SR

OWNER
The plan or package owner.

Field Name: QW0108OW
ACTION
Indicates whether the plan or package replaces an existing plan or package with the same name or is new. This field only applies to BIND activities.
Field Name: QW0108A

CACHE SIZE
The authorization cache size. A value of 0 indicates that DB2 determines the size.
Field Name: QW0108CA

TOKEN
The consistency token of the package.
Field Name: QW0108NT

DISCONNECT
The disconnect option:
EXPL  Explicit
AUTO  Automatic
COND  Conditional
Field Name: QW0108DC

OBJECT TYPE
The type of object bound or rebound.
Field Name: QW0108TY

VALIDATION
The time of validation:
RUN   Validate at run time.
BIND  Validate at bind time.
Field Name: QW0108V

REOPT
Indicates whether reoptimization was requested:
YES  REOPT(VARS) was specified to reoptimize the access path of the SQL statement at run time.
NO   NOREOPT(VARS) was specified to optimize the access path of the SQL statement only at bind time.
Field Name: QW0108RO

PLAN NAME
The plan name. 'BLANK' indicates that a test bind was performed.
Field Name: QW0108PN

DYNAMICRULES
The value of the DYNAMICRULES option on the BIND/REBIND command:
RUN
Run-time rules apply to a dynamic SQL statement for authorization checking and object qualification at run time.

BIND
Bind-time rules apply to a dynamic SQL statement for authorization checking and object qualification at run time.

N/P
DYNAMICRULES was not specified.

Field Name: QW0108DY

CURRENTDATA
Controls the data currency for ambiguous cursors:

NO
Data currency is not required for ambiguous cursors. Blocking for ambiguous cursors is allowed.

YES
Data currency is required for ambiguous cursors. Blocking for ambiguous cursors is inhibited.

ALL
Data currency is required for all cursors. Applicable to packages only.

Field Name: QW0108F

ACQUIRE
Indicates when to acquire the locks:

ALLOC
Acquire the locks when the plan is allocated.

USE
Acquire the locks when the application first accesses them.

Field Name: QW0108Q

KEEPDYNAMIC
Indicates whether DB2 keeps (KEEPDYNAMIC(YES)) or discards (KEEPDYNAMIC(NO)) prepared SQL statements at commit points.

Field Name: QW0108KD

DBPROTOCOL
Database protocol option. Possible values are:

DRDA
DRDA protocol

PRIVATE
DB2 private protocol

Field Name: QW0108PR

DEFERPREPARE
Indicates whether preparation of dynamic SQL statements was deferred. Possible values are:

YES
Dynamic SQL statement preparation was deferred.

NO
Dynamic SQL statements were prepared immediately.

Field Name: QW0108DP

OPT_HINT_IDENT
Query optimization hint identifier, the default is blanks.

Field Name: QW0108OH
IMMEDWRITE

Indicates how DB2 updates group buffer pool dependent pages. This is only valid in a data-sharing environment.

Group buffer pool dependent pages can be written out to DASD or SYSTEM pagesets. Values shown are:

**NO**  DB2 uses normal write activity for updates, this is the default. Pages are written out at, or before phase 2 commit, or at the end of an abort for transactions that have rolled back.

**PH1**  Pages are written out at, or before phase 1 commit.

If a transaction subsequently rolls back, the pages are updated in the group buffer pool at the end of the rollback, and are written out at the end of the abort.

**YES**  Pages are written out to the coupling facility as soon as the buffer update commits. Pages are written out regardless of whether the update occurs during forward progress or rollback of the transaction.

This option can affect DB2 performance due to coupling facility overhead.

**N/P**  The DB2 subsystem is not part of a data sharing group.

**Field Name:** QW0108WI

VERSION

The version.

**Field Name:** QW0108VN

IFCID 109 - Bind End:

This topic shows detailed information about “Record Trace - IFCID 109 - Bind End”.

**Record trace - IFCID 109 - Bind End**

The field labels shown in the following sample layout of “Record Trace - IFCID 109 - Bind End” are described in the following section.

**RETURN**

The bind return code:

- **0**  Successful bind/rebind
- **4**  Warning
- **8**  Error

**Field Name:** QW0109RC

IFCID 110 - Bind Free Start:

This topic shows detailed information about “Record Trace - IFCID 110 - Bind Free Start”.

**Field Name:** QW0108WI
Record trace - IFCID 110 - Bind Free Start

The field labels shown in the following sample layout of “Record Trace - IFCID 110 - Bind Free Start” are described in the following section.

BIND FREE --> 'BLANK'
START    NETWORKID: DEIBMIPS LUNAME: IPSAU85C LUNSEQ: 1
PLAN : N/P    FREE PLAN(*): N
OBJTYPE : PACKAGE    TOKEN: X'171BC6E10959E230'
LOCATION: PMO5D85C
COLL-ID : DB2PM
PKG-ID : DGO@BTCH
VERSION : R110_LeVe

PLAN
The name of the plan used in a bind.
Field Name: QW0110PN

FREE PLAN(*)
Indicates whether the command FREE PLAN(*) or FREE PACKAGE(*) was entered:
Y    FREE PLAN(*) was entered.
N    FREE PACKAGE(*) was entered.
Field Name: QW0110S

OBJTYPE
The type of object bound or rebound.
Field Name: QW0110TY

LOCATION
The package location.
Field Name: QW0110PL

COLL-ID
The collection identifier of the package.
Field Name: QW0110PC

PKG-ID
The package identifier.
Field Name: QW0110PI

TOKEN
The consistency token of the package.
Field Name: QW0110PT

VERSION
The version.
Field Name: QW0110VN

IFCID 111 - Bind Free End:
This topic shows detailed information about “Record Trace - IFCID 111 - Bind Free End”.

Chapter 6. Batch reporting  3895
Record trace - IFCID 111 - Bind Free End

The field labels shown in the following sample layout of “Record Trace - IFCID 111 - Bind Free End” are described in the following section.

RETURN 0

RETURN

The bind return code:

0   Successful free plan
4   Warning
8   Error

Field Name: QW0111RC

IFCID 112 - Thread Allocate:

This topic shows detailed information about “Record Trace - IFCID 112 - Thread Allocate”.

Record trace - IFCID 112 - Thread Allocate

The field labels shown in the following sample layout of “Record Trace - IFCID 112 - Thread Allocate” are described in the following section.

THREAD -- NETWORKID: DEIBMIPS LUNAME: IPSAU851 LUWSEQ: 1
ALLOCATE PLAN NAME: DSNBIND ACQUIRE: ALLOCATION
ISOLATION: CS RELEASE: DEALLOCATION
DYNAMICRULES: RUN REOPT: NO
KEEPDYNAMIC: NO PREPARE: NO
DBPROTOCOL: PRIVATE
HINTID: 'BLANK'
IMMEDWRITE: NO

PLAN NAME

The plan name for the thread.

Field Name: QW0112PN

ACQUIRE

Indicates when to acquire locks:

ALLOCATION

Acquire the locks when the plan is allocated.

USE

Acquire the locks when the application first accesses them.

Field Name: QW0112Q

ISOLATION

The isolation level:

RR  Repeatable read
CS  Cursor stability
RS  Read stability
UR  Uncommitted read

Field Name: QW0112I

RELEASE
Indicates when to release locks:

**COMMIT**  Release locks at commit time.

**DEALLOCATION**  Release locks at deallocation time.

**Field Name:** QW0112R

**DYNAMICRULES**

The value of the DYNAMICRULES option on the BIND/REBIND command:

**RUN**  Run-time rules apply to a dynamic SQL statement for authorization checking and object qualification at run time.

**BIND**  Bind-time rules apply to a dynamic SQL statement for authorization checking and object qualification at run time.

**N/P**  DYNAMICRULES was not specified.

**Field Name:** QW0112DY

**REOPT**

Indicates whether reoptimization was requested:

**YES**  REOPT(VARS) was specified to reoptimize the access path of the SQL statement at run time.

**NO**  NOREOPT(VARS) was specified to optimize the access path of the SQL statement only at bind time.

**Field Name:** QW0112RO

**KEEPDYNAMIC**

Indicates whether DB2 keeps (KEEPDYNAMIC(YES)) or discards (KEEPDYNAMIC(NO)) prepared SQL statements at commit points.

**Field Name:** QW0112KD

**DBPROTOCOL**

Database protocol option. Possible values are:

**DRDA**

**PRIVATE**

**Field Name:** QW0112PR

**PREPARE**

Indicates whether preparation of dynamic SQL statements was deferred. Possible values are:

**YES**  Dynamic SQL statement preparation was deferred.

**NO**  Dynamic SQL statements were prepared immediately.

**Field Name:** QW0112DP

**HINTID**

Query optimization hint identifier, the default is blanks.

**Field Name:** QW0112OH

**IMMEDWRITE**
Indicates how DB2 updates group buffer pool dependent pages. This is only valid in a data-sharing environment.

Group buffer pool dependent pages can be written out to DASD or SYSTEM pagesets. Values shown are:

**NO**  DB2 uses normal write activity for updates, this is the default. Pages are written out at, or before phase 2 commit, or at the end of an abort for transactions that have rolled back.

**PH1**  Pages are written out at, or before phase 1 commit.

If a transaction subsequently rolls back, the pages are updated in the group buffer pool at the end of the rollback, and are written out at the end of the abort.

**YES**  Pages are written out to the coupling facility as soon as the buffer update commits. Pages are written out regardless of whether the update occurs during forward progress or rollback of the transaction.

This option can affect DB2 performance due to coupling facility overhead.

**N/P**  The DB2 subsystem is not part of a data sharing group.

**Field Name:** QW0112WI

### IFCID 113 - Agent Allocate:

This topic shows detailed information about “Record Trace - IFCID 113 - Agent Allocate”.

### Record trace - IFCID 113 - Agent Allocate

The field labels shown in the following sample layout of “Record Trace - IFCID 113 - Agent Allocate” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALLOCATE</td>
<td>Allocate</td>
</tr>
<tr>
<td>PLAN NAME</td>
<td>Plan name</td>
</tr>
<tr>
<td>ACQUIRE</td>
<td>Acquire</td>
</tr>
<tr>
<td>ISOLATION</td>
<td>Isolation</td>
</tr>
<tr>
<td>DYNAMICRULES</td>
<td>Dynamic rules</td>
</tr>
<tr>
<td>KEEPDYNAMIC</td>
<td>Keep dynamic</td>
</tr>
<tr>
<td>DBPROTOCOL</td>
<td>DB protocol</td>
</tr>
<tr>
<td>HINTID</td>
<td>Hint id</td>
</tr>
<tr>
<td>IMMEDWRITE</td>
<td>Immediate write</td>
</tr>
</tbody>
</table>

### PLAN NAME

The plan name for the thread.

**Field Name:** QW0113PN

### ACQUIRE

Indicates when to acquire locks:

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALLOCATION</td>
<td>Allocation</td>
</tr>
<tr>
<td>USE</td>
<td>Use</td>
</tr>
</tbody>
</table>

### ISOLATION

The isolation level:
RR     Repeatable read
CS     Cursor stability
RS     Read stability
UR     Uncommitted read

Field Name: QW0113I

RELEASE
Indicates when to release locks:

COMMIT Release locks at commit time.

DEALLOCATION
Release locks at deallocation time.

Field Name: QW0113R

DYNAMICRULES
The value of the DYNAMICRULES option on the BIND/REBIND command:

RUN     Run-time rules apply to a dynamic SQL statement for authorization checking and object qualification at run time.
BIND    Bind-time rules apply to a dynamic SQL statement for authorization checking and object qualification at run time.
N/P     DYNAMICRULES was not specified.

Field Name: QW0113DY

REOPT
Indicates whether reoptimization was requested:

YES     REOPT(VARS) was specified to reoptimize the access path of the SQL statement at run time.
NO      NOREOPT(VARS) was specified to optimize the access path of the SQL statement only at bind time.

Field Name: QW0113RO

KEEPDYNAMIC
Indicates whether DB2 keeps (KEEPDYNAMIC(YES)) or discards (KEEPDYNAMIC(NO)) prepared SQL statements at commit points.

Field Name: QW0113KD

DBPROTOCOL
Database protocol option. Possible values are:

DRDA
PRIVATE

Field Name: QW0113PR

PREPARE
Indicates whether preparation of dynamic SQL statements was deferred. Possible values are:

YES     Dynamic SQL statement preparation was deferred.
Dynamic SQL statements were prepared immediately.

Field Name: QW0113DP

**HINTID**

Query optimization hint identifier, the default is blanks.

Field Name: QW0113OH

**IMMEDWRITE**

Indicates how DB2 updates group buffer pool dependent pages. This is only valid in a data-sharing environment.

Group buffer pool dependent pages can be written out to DASD or SYSTEM pagesets. Values shown are:

- **NO**: DB2 uses normal write activity for updates, this is the default. Pages are written out at, or before phase 2 commit, or at the end of an abort for transactions that have rolled back.
- **PH1**: Pages are written out at, or before phase 1 commit.
  - If a transaction subsequently rolls back, the pages are updated in the group buffer pool at the end of the rollback, and are written out at the end of the abort.
- **YES**: Pages are written out to the coupling facility as soon as the buffer update commits. Pages are written out regardless of whether the update occurs during forward progress or rollback of the transaction.
  - This option can affect DB2 performance due to coupling facility overhead.
- **N/P**: The DB2 subsystem is not part of a data sharing group.

Field Name: QW0113WI

**IFCID 113 - Agent Allocate**

Field Name: QW0113DP

**HINTID**

Query optimization hint identifier, the default is blanks.

Field Name: QW0113OH

**IMMEDWRITE**

Indicates how DB2 updates group buffer pool dependent pages. This is only valid in a data-sharing environment.

Group buffer pool dependent pages can be written out to DASD or SYSTEM pagesets. Values shown are:

- **NO**: DB2 uses normal write activity for updates, this is the default. Pages are written out at, or before phase 2 commit, or at the end of an abort for transactions that have rolled back.
- **PH1**: Pages are written out at, or before phase 1 commit.
  - If a transaction subsequently rolls back, the pages are updated in the group buffer pool at the end of the rollback, and are written out at the end of the abort.
- **YES**: Pages are written out to the coupling facility as soon as the buffer update commits. Pages are written out regardless of whether the update occurs during forward progress or rollback of the transaction.
  - This option can affect DB2 performance due to coupling facility overhead.
- **N/P**: The DB2 subsystem is not part of a data sharing group.

Field Name: QW0113WI

**IFCID 114 - Archive Wait Start**

This topic shows detailed information about “Record Trace - IFCID 114 - Archive Wait Start”.

**Record trace - IFCID 114 - Archive Wait Start**

The field labels shown in the following sample layout of “Record Trace - IFCID 114 - Archive Wait Start” are described in the following section.

| DSID | 00000002 | ACE | 2 |
| DSID | 00000002 | ACE | 2 |

**DSID**

The data set identifier of the log manager.

Field Name: QW0114DI

**ACE**

The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.

Field Name: QW0114AC
IFCID 115 - Archive Wait End DASD:

This topic shows detailed information about “Record Trace - IFCID 115 - Archive Wait End DASD”.

Record trace - IFCID 115 - Archive Wait End DASD

The field labels shown in the following sample layout of “Record Trace - IFCID 115 - Archive Wait End DASD” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RET</td>
<td>The return code.</td>
</tr>
<tr>
<td>ACE</td>
<td>The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.</td>
</tr>
</tbody>
</table>

IFCID 116 - Archive Wait End Tape:

This topic shows detailed information about “Record Trace - IFCID 116 - Archive Wait End Tape”.

Record trace - IFCID 116 - Archive Wait End Tape

The field labels shown in the following sample layout of “Record Trace - IFCID 116 - Archive Wait End Tape” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RET</td>
<td>The return code.</td>
</tr>
<tr>
<td>ACE</td>
<td>The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.</td>
</tr>
</tbody>
</table>

IFCID 117 - Archive Read Start:

This topic shows detailed information about “Record Trace - IFCID 117 - Archive Read Start”.
IFCID 117 - Archive Read Start

The field labels shown in the following sample layout of “Record Trace - IFCID 117 - Archive Read Start” are described in the following section.

REQ

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RARC</td>
<td></td>
</tr>
<tr>
<td>QW0117BR</td>
<td>1</td>
</tr>
<tr>
<td>QW0117RR</td>
<td>3</td>
</tr>
<tr>
<td>QW0117SH</td>
<td>5</td>
</tr>
</tbody>
</table>

REQ

The request type:

- **RARC**: Read archive request
- **SARC**: Schedule archive read

Field Name: QW0117RT

IFCID 118 - Archive Read End:

This topic shows detailed information about “Record Trace - IFCID 118 - Archive Read End”.

Record trace - IFCID 118 - Archive Read End

The field labels shown in the following sample layout of “Record Trace - IFCID 118 - Archive Read End” are described in the following section.

RETURN

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETURN</td>
<td>1</td>
</tr>
<tr>
<td>QW0118RC</td>
<td>2</td>
</tr>
<tr>
<td>QW0118SH</td>
<td>4</td>
</tr>
</tbody>
</table>

RETURN

The return code.

Field Name: QW0118RT

IFCID 119 - BSDS Write Start:

This topic shows detailed information about “Record Trace - IFCID 119 - BSDS Write Start”.

Record trace - IFCID 119 - BSDS Write Start

The field labels shown in the following sample layout of “Record Trace - IFCID 119 - BSDS Write Start” are described in the following section.

DSID

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSID</td>
<td></td>
</tr>
<tr>
<td>BSDS0001</td>
<td></td>
</tr>
</tbody>
</table>

DSID

The data set identifier.

Field Name: QW0119DI

ACE

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE</td>
<td></td>
</tr>
</tbody>
</table>

ACE

The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.

Field Name: QW0119AC
IFCID 120 - BSDS Write End:

This topic shows detailed information about “Record Trace - IFCID 120 - BSDS Write End”.

Record trace - IFCID 120 - BSDS Write End

The field labels shown in the following sample layout of “Record Trace - IFCID 120 - BSDS Write End” are described in the following section.

RETURN

The return code.

Field Name: QW0120RT

ACE

The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.

Field Name: QW0120AC

IFCID 121 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 121 - IBM Service Record”.

This record is for IBM service use.

IFCID 122 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 122 - IBM Service Record”.

This record is for IBM service use.

IFCID 123 - SRV Record:

This topic shows detailed information about “Record Trace - IFCID 123 - SRV Record”.

Record trace - IFCID 123 - SRV Record

The field labels shown in the following sample layout of “Record Trace - IFCID 123 - SRV Record” are described in the following section.

LENGTH

The length of the area.

Field Name: QW0123LN

IFCID

The IFCID of the original entry.
IFCID 123 - SRV Record

Field Name: QW0123ID

IFCID 124 - SQL Statement Record:

This topic shows detailed information about “Record Trace - IFCID 124 - SQL Statement Record”.

Record trace - IFCID 124 - SQL Statement Record

The field labels shown in the following sample layout of “Record Trace - IFCID 124 - SQL Statement Record” are described in the following section.

CONNECTION TYPE

The connection type. ‘BLANK’ indicates that there is no connection type.

Field Name: QW01246Y

ACE TOKEN

The ACE token in hexadecimal.

Field Name: QW01246A

THREAD ASID

The ASID of the thread in hexadecimal.

Field Name: QW01246S

ASCB TOKEN

The ASCB token in hexadecimal.

Field Name: QW01246C

APPL REQ COUNT

The number of calls to DB2 in decimal.

Field Name: QW01246Q

AGENT NAME

When an agent is running a stored procedure, trigger, or user-defined function, this is the unqualified name of the routine. Otherwise, this field is blank.

Field Name: QW0124SP

THREAD STATUS

The status of the thread.

Field Name: QW01246I

TCB TOKEN

The TCB token in hexadecimal.

Field Name: QW01246T

THREAD TYPE

The type of thread.
The type of thread.
Field Name: QW01246D

AGENT TYPE
The type of the agent.
Field Name: QW0124AF

STATEMENT TYPE
The statement type.
Field Name: QW0124TK

STATEMENT IDENTIFIER
The statement ID (former Cached Dynamic SQL Identifier).
Field Name: QW0124ST

LOCATION
The name of the location where the thread executes the package.
Field Name: QW0124LN

COLLECTION
The collection name.
Field Name: QW0124CI

PACKAGE
The package identifier.
Field Name: QW0124PN

TOKEN
The consistency token.
Field Name: QW0124CN

NETWORKID
The network identifier.
Field Name: QW0124NI

LUNAME
The logical unit name.
Field Name: QW0124LM

UNIQUENESS VALUE
The instance number.
Field Name: QW0124UV

LUWSEQ
The LUW sequence number.
Field Name: QW0124CC

ENDUSER
The user ID at the end user's workstation.
IFCID 124 - SQL Statement Record

Field Name: QW0124EI

WSNAME

The workstation name of the end user.

Field Name: QW0124EW

TRANSACT

The transaction name of the end user.

Field Name: QW0124ET

IFCID 125 - RID Pool Processing:

This topic shows detailed information about “Record Trace - IFCID 125 - RID Pool Processing”.

This record is written when performance class 8 is ON. Monitor privilege is required for reading via IFI. The record contains standard information and one section for each index used to obtain candidate record identifiers (RIDs).

Record trace - IFCID 125 - RID Pool Processing

The field labels shown in the following sample layout of “Record Trace - IFCID 125 - RID Pool Processing” are described in the following section.

<table>
<thead>
<tr>
<th>125 RID POOL PROCESSING</th>
<th>NETWORKID: NATIVE</th>
<th>LUNAME: DSNDDBC2</th>
<th>LUWSEQ: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLLECTION:</td>
<td>DSNTEP3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLAN NAME:</td>
<td>DSNTEP3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROGRAM NAME:</td>
<td>DSNTEP3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSISTENCY TOKEN:</td>
<td>X'1A2160C900F63D5F'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USED:</td>
<td>YES</td>
<td>NOT USED:</td>
<td>N/A</td>
</tr>
<tr>
<td>LEGS REORDERED:</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADAPT IDX PROCESS:</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RIDS IN FINAL LIST:</td>
<td>22390</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DBID:</td>
<td>MIX2DB</td>
<td>INDEX RIDS:</td>
<td>132405</td>
</tr>
<tr>
<td>OBID:</td>
<td>6</td>
<td>THRESHOLD:</td>
<td>150000</td>
</tr>
<tr>
<td>ESTIMATE RIDS IN IDX</td>
<td>600000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESTIMATE RIDS IN KEYRANGE:</td>
<td>132363</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSN TERMINATED:</td>
<td>F</td>
<td>RSN NOT PROBED:</td>
<td></td>
</tr>
<tr>
<td>RSN REORDERED:</td>
<td>P</td>
<td>RSN MRKED FULL:</td>
<td>G</td>
</tr>
</tbody>
</table>

COLLECTION

Package collection identifier for this query.

Field Name: QW0125PC

PLAN NAME

Plan name for this query.

Field Name: QW0125PL

PROG NAME

Program name for this query.

Field Name: QW0125PN

STATEMENT NUMB

Statement number for this query.

Field Name: QW0125SN

CONSISTENCY TOKEN
Consistency token for this query.

Field Name: QW0125TS

**USED**

Indicates whether multiple index access paths are used, or whether RID pool processing is invoked.

Field Name: QW0125AT

**NOT USED**

Indicates why multiple index access paths are not used, or whether RID pool processing is not invoked.

Field Name: QW0125MR or QW0125NS

QW0125MR or QW0125NS (but not both) may be used as the basis to print the value in the report. If QW0125NS is set to “S”, it takes precedence.

**LEGS REORDERED**

Indicates that the legs of a multiple index access path are reordered. It can have the following values:

- Yes
- No

Field Name: QW0125RE

**ADAPT IDX PROCESS**

Indicates whether adaptive index processing was done. It can have the following values:

- Yes
- No

Field Name: QW0125AD

**RIDS IN FINAL LIST**

The number of record identifiers in the final index list. It indicates how many RID sections are printed. Each RID section contains one set of DBID, INDEX RID, OBID, and THRESHOLD data.

This field can also contain NO STORAGE, or MAX EXCEEDED.

Field Name: QW0125NR

**DBID**

The database ID. Deduced from the DB2 fields QW0125DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0125DB is shown, or N/A when this value is 0.

Field Name: RT0125DB

**INDEX RIDS**

The number of record identifiers in the index. This field can also contain one of the following values:

- NO RETRIEVAL
- NO STORAGE
- LIMIT EXCEEDED
- N/P
Field Name: QW0125RI

OBID

The object ID. Deduced from the DB2 fields QW0125OB, QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0125OB is shown, or N/A when this value is 0.

Field Name: RT0125OB

THRESHOLD

The highest value of RIDs allowed for this index.

Field Name: QW0125TH

ESTIMATE RIDS IN IDX

The index probing estimate of the total number of record identifiers (RIDs) in the index (set to MAX BIGINT for full leg).

Field Name: QW0125TI

ESTIMATE RIDS IN KEYRANGE

The index probing estimate of the number of record identifiers (RIDs) within the key range, adjusted for filter factor.

Field Name: QW0125QI

RSN TERMINATED

The reason why a leg of a multiple index access path was terminated:

F     The leg was marked FULL.
T     The leg had less than 32 record identifiers (RIDs).

Field Name: QW0125_TRSN

This field may be left blank.

RSN NOT PROBED

The reason why a leg of a multiple index access path was not probed:

A     All legs fetched all record identifiers (RIDs).
B     This leg fetched all RIDs (< 1 RIDblock).
E     Probing failed.
F     A leg was marked FULL.
K     Probing is not done because a high or low key is missing.
M     A mix of R, I, or U entries is not reordered.
O     Access Path Selection (APS) indicated not to probe.
S     An earlier leg of index intersection (AND) processing was likely to have performed a high degree of filtering.
V     A leg was likely to have performed a high degree of filtering.

Field Name: QW0125_PRSN

This field may be left blank.
The reason why a leg of a multiple index access path was reordered:

P  Probing was performed.
V  The leg was likely to have performed a high degree of filtering.

Field Name: QW0125_ORSN
This field may be left blank.

RSN MRKED FULL
The reason why a leg of a multiple index access path was marked FULL:

G  AGGRESSIVE termination of a leg was done.
L  The predicate contained a non-filtering LIKE clause.
M  Neither index union (OR) processing nor index intersection (AND) processing was done, and the estimated number of RIDS was greater than the RID list logical limit.
P  Index union (OR) processing was done, and the estimated number of record identifiers (RIDs) was greater than 30% of the table, or index intersection (AND) processing was done, and the estimated number of RIDS was greater than 50% of the table.
R  The predicate was a range predicate (non-LIKE).
T  Index intersection (AND) processing was done. It was greater than or equal to 35%, and the most selective leg was processed first.

Field Name: QW0125_FRSN
This field may be left blank.

IFCID 126 - Log Buffer Write:
This topic shows detailed information about “Record Trace - IFCID 126 - Log Buffer Write”.

Record trace - IFCID 126 - Log Buffer Write
The field labels shown in the following sample layout of “Record Trace - IFCID 126 - Log Buffer Write” are described in the following section.

IFCID 127 - Page Wait I/O In Prog (Start):
This topic shows detailed information about “Record Trace - IFCID 127 - Page Wait I/O In Prog (Start)”.

Record trace - IFCID 127 - Page Wait I/O In Prog (Start)
The field labels shown in the following sample layout of “Record Trace - IFCID 127 - Page Wait I/O In Prog (Start)” are described in the following section.
DBID
The database ID. Deduced from the DB2 fields QW0127DB, QW0105DN or QW0107DN.
When present, the database name is shown, otherwise the decimal identifier from QW0127DB is shown, or N/A when this value is 0.
Field Name: RT0127DB

OBID / PSID
For classic segmented table spaces, this value shows the table OBID. For partitioned table spaces, it is the PSID of the table space. Deduced from the DB2 fields QW0127OB, QW0105TN, or QW0107TN.
When present, the name of the object is shown, otherwise the decimal identifier from QW0127OB is shown, or N/A when this value is 0.
Field Name: RT0127OB

PAGE NUMBER
The number of the page being read or written.
Field Name: QW0127PN

PAGE NUMBERING
Indicates how page numbers are shown for partitioned tables:
REL Indicates that relative page numbers are shown in the partition.
ABS Indicates that absolute page numbers are shown in the partition.
N/A Not applicable.
Field Name: QW0127P1

PARTITION
Shows the partition number or 0 if non-partitioned.
Field Name: QW0127PT

TYPE OF I/O
The type of I/O process.
Field Name: QW0127F

POOL ID
The buffer pool internal identifier. The values 0 through 49 are the identifiers for BP0 through BP49. The values 80 through 89 are the identifiers for BP32K through BP32K9.
Field Name: QW0127BP

ACE
The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.
Field Name: QW0127AC

TABLE SPACE TYPE
The type of the table space:
IFCID 128 - Page Wait I/O In Prog (Start)

L Non-EA large table
N Non-large table
V EA-enabled large table

Field Name: QW0127FG

IFCID 128 - Page Wait I/O In Prog (End):

This topic shows detailed information about “Record Trace - IFCID 128 - Page Wait I/O In Prog (End)”.

Record trace - IFCID 128 - Page Wait I/O In Prog (End)

The field labels shown in the following sample layout of “Record Trace - IFCID 128 - Page Wait I/O In Prog (End)” are described in the following section.

DBID: TDKURDB
OBID: TDKURTS1
PAGE NUMBER: X'00000000'
PAGE NUMBERING: ABS
PARTITION: 1
TYPE OF I/O: FORCE WRITE
ACE: 1
STATUS FL: NOT CANCELED
TABLE_SPACE_TYPE: L

DBID

The database ID. Deduced from the DB2 fields QW0128DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0128DB is shown, or N/A when this value is 0.

Field Name: RT0128DB

OBID / PSID

For classic segmented table spaces, this value shows the table OBID. For partitioned table spaces, it is the PSID of the table space. Deduced from the DB2 fields QW0128OB, QW0105TN, or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0128OB is shown, or N/A when this value is 0.

Field Name: RT0128OB

PAGE NUMBER

The number of the page being read or written.

Field Name: QW0128PN

PAGE NUMBERING

Indicates how page numbers are shown for partitioned tables:

REL Indicates that relative page numbers are shown in the partition.
ABS Indicates that absolute page numbers are shown in the partition.
N/A Not applicable.

Field Name: QW0128P1

PARTITION

Shows the partition number or 0 if non-partitioned.

Field Name: QW0128PT

TYPE OF I/O

Chapter 6. Batch reporting 3911
IFCID 128 - Page Wait I/O In Prog (End)

The type of I/O process.

Field Name: QW0128F

ACE

The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.

Field Name: QW0128AC

STATUS FL

The status flag indicating whether the I/O process was canceled.

Field Name: QW0128S

TABLE SPACE TYPE

The type of the table space:

L  Non-EA large table
N  Non-large table
V  EA-enabled large table

Field Name: QW0128FG

IFCID 129 - CI-S Obtained via IFI Reads:

This topic shows detailed information about “Record Trace - IFCID 129 - CI-S Obtained via IFI Reads”.

Record trace - IFCID 129 - CI-S Obtained via IFI Reads

The field labels shown in the following sample layout of “Record Trace - IFCID 129 - CI-S Obtained via IFI Reads” are described in the following section.

IFCID 140 - Audit Auth Failures:

This topic shows detailed information about “Record Trace - IFCID 140 - Audit Auth Failures”.

Record trace - IFCID 140 - Audit Auth Failures

The field labels shown in the following sample layout of “Record Trace - IFCID 140 - Audit Auth Failures” are described in the following section.
RID OF ROW: ‘BLANK’ SECLABEL OF ROW: ‘BLANK’
AUTH ID TYPE: PRIMARY OR SECONDARY AUTH ID

AUTH CHECKED
The authorization ID being checked.
Field Name: QW0140UR

REASON
The user-defined reason code from the access control authorization exit routine.
Field Name: QW0140RS

STATMNT LENGTH
Is the length of the failing SQL statement plus 4. It is zero (0) if no SQL statement exists.
Field Name: QW0140LL

PRIV CHECKED
The privilege that was checked. Possible values are provided in the DB2 macro DSNDQW02.
Field Name: QW0140PR

RETCOD
The return code from the access control authorization exit routine.
Field Name: QW0140RC

OBJECT
The object type. N/P is printed if there is no object type. Possible values are:
- ACEE
- APPLICATION PLAN
- BUFFERPOOL
- COLLECTION
- DATABASE
- DISTINCT TYPE
- FUNCTION
- JAR
- PACKAGE
- PROCEDURE
- ROW
- SCHEMA
- SEQUENCE
- STORAGE GROUP
- TABLE OR VIEW
- TABLESPACE
- USER AUTH
  System privileges, such as SYSADM or SYSOPR
Field Name: QW0140OB
OPTIONS

The options used in the host to check the SQL statement. The bits of this field are used as indicators. If all bits are 0, the statement is not an SQL statement. The values are:

Bit 1  Host language character string delimiter
       0    Apostrophe
       1    Quote

Bit 2  Decimal point symbol
       0    Period
       1    Comma

Bit 3  SQL character string delimiter
       0    Apostrophe
       1    Quote

Bit 4  Mixed character string indicator
       0    No
       1    Yes

Bit 5  Host language options indicator
       0    Do not use host language options
       1    Use host language options

Bits 6 to 8  Host language indicator
             001  Assembler
             010  Cobol
             011  PL/I
             100  None - Dynamic SQL
             101  Fortran
             110  Cobol2
             111  Null - See bits 17 to 24 for the language

Bits 9 to 16  Character set being used
              00000000  Alphanumeric
              00000001  Katakana

Bits 17 to 24  Alternate host language field
              B    Assembler
              C    Cobol
              P    PL/I
              F    Fortran
IFCID 140 - Audit Auth Failures

2 Cobol2
D C

**Bits 25 to 28**
Time option

0000 None
1000 Local
0100 JIS
0010 ISO/EUR
0001 USA

**Bits 29 to 32**
Date option

0000 None
1000 Local
0100 EUR
0010 ISO/JIS
0001 USA

**Bit 33** Decimal

0 No
1 Yes

**Bits 34 to 40**
Unused

**Bits 41 to 48**
Remote option

00000001 SQL(ALL)
00000010 SQL(DB2)

**Bits 49 to 56**
SQL flag option

00000000 No SQLFLAG option
00000001 SQLFLAG(SAA)

**Field Name:** QW0140HO

**SOURCE OBJECT**
The source object name.

**Field Name:** QW0140SN

**SOURCE OWNER**
The source object owner.

**Field Name:** QW0140SC
IFCID 140 - Audit Auth Failures

TARGET OBJECT
The target object name.
Field Name: QW0140TN

TARGET OWNER
The target object owner.
Field Name: QW0140TC

SQL_STMT
The SQL statement text. Long SQL text can be truncated.
Field Name: QW0140SQ

ACEE_U_TOKEN
Shows the ACEE U_TOKEN, if it is available. If it is not available, the first word of this field contains one of the following values:
0   The U_TOKEN cannot be accessed
-1  An abend occurred during the attempt to access the ACEE.
Field Name: QW0140UT

RID OF ROW
Shows the RID of the row that is updated or deleted if the table has multilevel security.
Field Name: QW0140ID

SECLABEL OF ROW
Shows the security label of the row, for a table with multilevel security.
Field Name: QW0140RL

AUTH ID TYPE
The authorization ID type. Possible values are:
L     A ROLE is used.
blank The user ID of the primary or the secondary authorization ID is used.
N/P   A blank is shown in the performance database.
N/A   A blank is shown in the performance database.
Field Name: QW0140AT

IFCID 141 - Audit DDL Grant/Revoke:
This topic shows detailed information about “Record Trace - IFCID 141 - Audit DDL Grant/Revoke”.

Record trace - IFCID 141 - Audit DDL Grant/Revoke
The field labels shown in the following sample layout of “Record Trace - IFCID 141 - Audit DDL Grant/Revoke” are described in the following section.
GRANTOR/REVOKER

The authorization ID of the user (grantor/revoker) who received access. Possible values are:

- **L**: A ROLE is used.
- **blank**: The user ID of the primary or the secondary authorization ID is used.
- **N/P**: A blank is shown in the performance database.
- **N/A**: A blank is shown in the performance database.

**Field Name**: QW0141OR

REASON

The reason why access was granted.

In the Audit report set this field is only valid for GRANTS. It indicates the authorization level of the grantor. For REVOKEs and unsuccessful GRANTS, N/A is printed.

Possible values are:
- PACKADMA (abbreviation for PACKADM ON ALL COLLECTIONS)
- DBCTRL
- DBADM
- SECADM
- ACCCTRL (abbreviation for ACCESSCTRL)
- SYSCTRL
- DBMAINT
- SYSOPR
- PACKADMS (abbreviation for PACKADM ON A SPECIFIC COLLECTION-ID)
- SYSADM

**Field Name**: QW0141RE

RETURN

The SQL return code.

**Field Name**: QW0141CO

OBJECT

The object type. Possible values are:

**BUFFERPOOL**
Buffer Pool

**COLLECTION**
Collection

**DATABASE**
Database
DISTINCT TYPE
  Distinct Type

FUNCTION
  Function

PACKAGE
  Package

SCHEMA
  Schema

PROCEDURE
  Procedure

APPLICATION PLAN
  Application Plan

TABLESPACE
  Table Space

STORAGE GROUP
  Storage Group

TABLE OR VIEW
  Table or View

USER AUTH
  System privileges, such as SYSADM or SYSOPR

Field Name: QW01410B

OPTIONS
  The options used in the host to check the SQL statement. The bits of this field are used as indicators. If all bits are 0, the statement is not an SQL statement. The values are:

  Bit 1  Host language character string delimiter
         0    Apostrophe
         1    Quote

  Bit 2  Decimal point symbol
         0    Period
         1    Comma

  Bit 3  SQL character string delimiter
         0    Apostrophe
         1    Quote

  Bit 4  Mixed character string indicator
         0    No
         1    Yes

  Bit 5  Host language options indicator
         0    Do not use host language options
         1    Use host language options

  Bits 6 to 8  Host language indicator
Bits 9 to 16
Character set being used

00000000 Alphanumeric
00000001 Katakana

Bits 17 to 24
Alternate host language field
B  Assembler
C  Cobol
P  PL/I
F  Fortran
2  Cobol2
D  C

Bits 25 to 28
Time Option
0000 None
1000 Local
0100 JIS
0010 ISO/EUR
0001 USA

Bits 29 to 32
Date Option
0000 None
1000 Local
0100 EUR
0010 ISO/JIS
0001 USA

Bit 33 Decimal
0  No
1  Yes

Bits 34 to 40
Unused
IFCID 141 - Audit DDL Grant/Revoke

Bits 41 to 48
Remote option
00000001  SQL(ALL)
00000010  SQL(DB2)

Bits 49 to 56
SQL flag option
00000000  No SQLFLAG option
00000001  SQLFLAG(SAA)

Field Name: QW0141HO

GRANTOR TYPE/REVOKER TYPE

The authorization ID of the owner. Possible values are:

A ROLE or ROLE
A role is used.

PRIMARY OR SECONDARY AUTH ID or PRIM/SECOND AUTHID
The user ID of the primary or the secondary authorization ID is used.

N/P or N/A
The field is not present or not applicable. String NONE is shown in the performance database.

N/A  A blank is shown in the performance database.

Field Name: QW0141OT

SQL STMT

The SQL statement text. Long SQL text can be truncated.

Field Name: QW0141TX

IFCID 142 - Audit DDL Create/Alter/Drop:

This topic shows detailed information about “Record Trace - IFCID 142 - Audit DDL Create/Alter/Drop”.

Audit DDL reports on SQL CREATE, ALTER, and DROP statements executed against an auditable object.

The SQL statement types are AUDIT DDL CREATE, AUDIT DDL ALTER, or AUDIT DDL DROP. These statements are all reported in the same format.

Record trace - IFCID 142 - Audit DDL Create/Alter/Drop

The field labels shown in the following sample layout of “Record Trace - IFCID 142 - Audit DDL Create/Alter/Drop” are described in the following section.

AUDIT DDL  NETWORKID: DEIBMIPS LUNAME: IPSAU851 LUWSEQ: 1
UNKNOWN  TABLE NAME : AUDTB1
TABLE OWNER : PRL
TABLE CREATOR: PRL
TABLE OWNER TYPE:N/A
OPTIONS: X'0400000000000000'
DATABASE: 264
TABLE OBID: 3
SECLABEL OF MLS TABLE: N/P
MULTILEVEL SECURITY: N/P
ROW/CLMN ACCESS CTRL: B
SQL STMT:
CREATE TABLE PRL.AUDTB1 (IDCOLUMN INTEGER
GENERATED ALWAYS AS IDENTITY, NNAME VARCHAR
(50) NOT NULL, VNAME CHAR(10) NOT NULL,
ANZAHL INTEGER NOT NULL) AUDIT ALL IN

TABLE NAME
The table name being created, altered, or dropped.
Field Name: QW0142TN

TABLE OWNER
The table owner (same as table qualifier).
Field Name: QW0142OW

TABLE CREATOR
The table creator.
Field Name: QW0142CR

TABLE OWNER TYPE
The type of the table owner (grantor or revoker). Possible values are:
L A ROLE is used.
blank The user ID of the primary or the secondary authorization ID is used.
N/P A blank is shown in the performance database.
N/A A blank is shown in the performance database.
Field Name: QW0142OR

OPTIONS
The options used in the host to check the SQL statement. The bits of this field are used as indicators. If all bits are 0, the statement is not an SQL statement. The values are:

Bit 1 Host language character string delimiter
0 Apostrophe
1 Quote

Bit 2 Decimal point symbol
0 Period
1 Comma

Bit 3 SQL character string delimiter
0 Apostrophe
1 Quote

Bit 4 Mixed character string indicator
0 No
**IFCID 142 - Audit DDL Create/Alter/Drop**

1 Yes

**Bit 5**  Host language options indicator
0 Do not use host language options
1 Use host language options

**Bits 6 to 8**  Host language indicator
001 Assembler
010 Cobol
011 PL/I
100 None - Dynamic SQL
101 Fortran
110 Cobol2
111 Null - See bits 17 to 24 for the language

**Bits 9 to 16**  Character set being used
00000000 Alphanumeric
00000001 Katakana

**Bits 17 to 24**  Alternate host language field
B Assembler
C Cobol
P PL/I
F Fortran
2 Cobol2
D C

**Bits 25 to 28**  Time Option
0000 None
1000 Local
0100 JIS
0010 ISO/EUR
0001 USA

**Bits 29 to 32**  Date Option
0000 None
1000 Local
0100 EUR
0010 ISO/JIS
0001 USA

**Bit 33** Decimal

0 No
1 Yes

**Bits 34 to 40**
Unused

**Bits 41 to 48**
Remote option

00000001 SQL(ALL)
00000010 SQL(DB2)

**Bits 49 to 56**
SQL flag option

00000000 No SQLFLAG option
00000001 SQLFLAG(SAA)

**Field Name:** QW0142HO

**DATABASE**

The database ID. Deduced from the DB2 fields QW0142DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0142DB is shown, or N/A when this value is 0.

**Field Name:** RT0142DB

**TABLE OBID**

The object ID. Deduced from the DB2 fields QW0142OB, QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0142OB is shown, or N/A when this value is 0.

**Field Name:** RT0142OB

**SECLABEL OF MLS TABLE**

The security label that is used when the table is defined.

**Field Name:** QW0142SL

**MULTILEVEL SECURITY**

The Multilevel Security (MLS) table can contain the following values:

**YES** For a Create or Drop operation of a table that has multilevel security, or for an Alter operation of a table to add a security label column.

**NO** For an Alter operation of a table that has multilevel security.

**NON MLS TABLE**

The table does not have multilevel security.
IFCID 142 - Audit DDL Create/Alter/Drop

N/P Not present. A blank is shown in the performance database.
N/A A blank is shown in the performance database.

Field Name: QW0142ML

ROW/CLMN ACCESS CTRL

The access control field contains data about ROW-LEVEL and COLUMN-LEVEL (R/C) ACCESS CONTROL in DDL. It can have the following values:

'R' (ROW)
Activates row-level access control.

'C' (COLUMN)
Activates column-level access control.

'B' (BOTH)
Activates row-level and column-level access control.

' ' (NONE)
Activates no access control.

Field Name: QW0142RC

SQL STMT

The SQL statement text. Long SQL text can be truncated.

Field Name: QW0142TX

IFCID 143 - Audit First Write:

This topic shows detailed information about “Record Trace - IFCID 143 - Audit First Write”.

Record trace - IFCID 143 - Audit First Write

The field labels shown in the following sample layout of “Record Trace - IFCID 143 - Audit First Write” are described in the following section.

DATABASE: DSNBD23A  LOGRBA: X'0000000000000000'
PAGE SET: 4  TABLE OBID: 14

DATABASE
The database ID. Deduced from the DB2 fields QW0143DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0143DB is shown, or N/A when this value is 0.

Field Name: RT0143DB

LOGRBA
The identifier of the unit of recovery.

Field Name: QW0143UR

PAGESET
The page set name or decimal identifier.

Field Name: RT0143PS

TABLE OBID
IFCID 143 - Audit First Write

The object ID. Deduced from the DB2 fields QW0143OB, QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0143OB is shown or N/A when this value is 0.

Field Name: RT0143OB

IFCID 144 - Audit First Read:

This topic shows detailed information about “Record Trace - IFCID 144 - Audit First Read”.

Record trace - IFCID 144 - Audit First Read

The field labels shown in the following sample layout of “Record Trace - IFCID 144 - Audit First Read” are described in the following section.

DATABASE: DSND006
LOGRBA: X’000000000000’
PAGE SET: DSNDX01
TABLE OBID: 5

DATABASE

The database ID. Deduced from the DB2 fields QW0144DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0144DB is shown, or N/A when this value is 0.

Field Name: RT0144DB

LOGRBA

The identifier of the unit of recovery.

Field Name: QW0144UR

PAGESET

The page set name or decimal identifier.

Field Name: QW0144PS

IFCID 145 - Audit DML Statement:

This topic shows detailed information about “Record Trace - IFCID 145 - Audit DML Statement”.

Record trace - IFCID 145 - Audit DML Statement

The field labels shown in the following sample layout of “Record Trace - IFCID 145 - Audit DML Statement” are described in the following section.

*** AUDIT LOG RECORD ***

SECTION 1 - AUDIT INFORMATION:

LOCATION NAME: DB0B
PKG COLLECT ID: DSNTEP2
PROGRAM NAME: DSNTEP2
STMT TIME : X'10CABFE7169A11C0'
TYPE : SELECT - QUERY
SQL CODE : 0
STMT # : 1829
HOST OPTIONS : X'0400000000000000'
STMT ID : 50
OBID/OBID # : 1
MASK/PERM # : 2

LOCATION NAME (LONG): DB0B
PKG COLLECT ID (LONG): DSNTEP2
PROGRAM NAME (LONG): DSNTEP2

SECTION 2 - AUDIT OBJECTS:

Chapter 6. Batch reporting 3925
IFCID 145 - Audit DML Statement

DATABASE: 353  TABLE OBID: 3

SECTION 3 - ROW/COLUMN ACCESS CTRL OBJECTS:

SCHEMA NAME: DB0BSECA
OBJECT NAME: INCOME_BRANCH

SCHEMA NAME: DB0BSECA
OBJECT NAME: RA01_CUSTOMERS

SECTION 4 - SQL STATEMENT TEXT:

SELECT * FROM DB2R5.CUSTOMER

LOCATION NAME
The location name.
Field Name: QW0145LN

PKG COLLECT ID
The package collection identifier.
Field Name: QW0145PC

PROGRAM NAME
The program name.
Field Name: QW0145PN

STMT TIME
The hexadecimal value of the precompiler timestamp.
Field Name: QW0145TS

TYPE
The SQL statement type.
Field Name: QW0145ST

ISOLATION
The isolation level of the DML statement:
RR  Repeatable read
CS  Cursor stability
RS  Read stability
UR  Uncommitted read
XR  Repeatable read with X lock
XS  Read stability with X lock
Field Name: QW0145IS

HOST OPTIONS
The options used in the host to check the SQL statement. The bits of this field are used as indicators. If all bits are 0, the statement is not an SQL statement. The values are:

Bit 1  Host language character string delimiter
  0    Apostrophe
  1    Quote

Bit 2  Decimal point symbol

3926  IBM Db2 Performance Expert on z/OS
0     Period
1     Comma

**Bit 3**  SQL character string delimiter
0     Apostrophe
1     Quote

**Bit 4**  Mixed character string indicator
0     No
1     Yes

**Bit 5**  Host language options indicator
0     Do not use host language options
1     Use host language options

**Bits 6 to 8**  Host language indicator
001     Assembler
010     Cobol
011     PL/I
100     None - Dynamic SQL
101     Fortran
110     Cobol2
111     Null - See bits 17 to 24 for the language

**Bits 9 to 16**  Character set being used
00000000     Alphanumeric
00000001     Katakana

**Bits 17 to 24**  Alternate host language field
B     Assembler
C     Cobol
P     PL/I
F     Fortran
2     Cobol2
D     C

**Bits 25 to 28**  Time Option
0000     None
1000     Local
0100     JIS
IFCID 145 - Audit DML Statement

0010  ISO/EUR
0001  USA

Bits 29 to 32
Date Option
0000  None
1000  Local
0100  EUR
0010  ISO/JIS
0001  USA

Bit 33  Decimal
0  No
1  Yes

Bits 34 to 40
Unused

Bits 41 to 48
Remote option
00000001
  SQL(ALL)
00000010
  SQL(DB2)

Bits 49 to 56
SQL flag option
00000000
  No SQLFLAG option
00000001
  SQLFLAG(SAA)

Field Name: QW0145HO

SQL CODE
The SQLCODE of the SQL statement.

Field Name: QW0145SC

STMT #
The precompiler statement number.

Field Name: QW0145SN

STMT ID
The SQL unique statement ID.

Field Name: QW0145SI

DBID/OBID #
The number of unique non-zero DBID and OBID in the audited statement.

Field Name: QW0145OB_NUM

MASK/PERM #
The number of masks or permissions enforced in the audited statement.

Field Name: QW0145AC_NUM

LOCATION NAME (LONG)
The location name.
Field Name: QW0145LN

PKG COLLECT ID (LONG)
The package collection identifier.
Field Name: QW0145PC

PROGRAM NAME (LONG)
The program name.
Field Name: QW0145PN

DATABASE
The audit log table DBID in hexadecimal.
Field Name: QW0145DB

TABLE OBID
The audit log table OBID in hexadecimal.
Field Name: QW0145OB

SCHEMA NAME
The name of the access control schema.
Field Name: QW0145AS

OBJECT NAME
The name of the access control object.
Field Name: QW0145AO

SECTION 4 - SQL STATEMENT TEXT (NO LABEL)
The SQL statement text associated with the BIND. If SQL text is not present, N/P is printed. Long SQL text can be truncated.
Field Name: QW0145RT

IFCID 146 - User Record:

This topic shows detailed information about “Record Trace - IFCID 146 - User Record”.

When present, the IFCID 146 record is printed in the standard hexadecimal dump format. The character format is on the right.

IFCID 147 - Thread Summary:  This record only contains data from an Online Monitor trace data set.

IFCID 147 - Data Sharing Accounting Data:

This topic shows detailed information about “Record Trace - IFCID 147 - Data Sharing Accounting Data”.

Chapter 6. Batch reporting  3929
IFCID 147 - Data Sharing Accounting Data

Record trace - IFCID 147 - Data Sharing Accounting Data

The field labels shown in the following sample layout of “Record Trace - IFCID 147 - Data Sharing Accounting Data” are described in the following section.

DATA SHARING ACCOUNTING DATA
MEMBER NAMES: N/P

MEMBER NAMES

For an assisting task, the name of the parallelism coordinator. For a coordinating task, the name of each assisting member.

Field Name: QWDAXCQO

IFCID 147 - Distributed Header Data:

This topic shows detailed information about “Record Trace - IFCID 147 - Distributed Header Data”.

Place text here

Record trace - IFCID 147 - Distributed Header Data

The field labels shown in the following sample layout of “Record Trace - IFCID 147 - Distributed Header Data” are described in the following section.

DISTRIBUTED HEADER DATA
REQUESTING LOCATION : REQUESTLOCATION1
AR NAME : SRVNAMPARAMETER1
REQUESTING TIMESTAMP : N/P PRDID : PRD VID R0 M1

REQUESTING LOCATION

The location name of the requester. If the thread is an allied thread (no distributed requests) or the thread is an allied-distributed thread (this location is the requester), OMEGAMON XE for DB2 PE sets this field equal to the local location. If the thread is a database access thread (this location is a server).

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup. For parallel query rollup records, the value will be derived from the parent record.

Field Name: QWHDRQNM

AR NAME

The application requester name.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup. For parallel query rollup records, the value will be derived from the parent record.

Field Name: QWHDSVNM

REQUESTING TIMESTAMP

The timestamp for database access thread (DBAT) records.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup. For parallel query rollup records, the value will be derived from the parent record.

Field Name: QWHDTSTP
PRIDID

Shows the product identifier (ID) of the requester. It can have the following values:

- **DB2** For DB2 UDB for z/OS
- **SQL/DS** For DB2 UDB for VSE and VM
- **JDBC DRIVER** For Universal JDBC driver
- **COMMON SER** For DB2 UDB for Linux, UNIX, Windows
- **DB2/400** For DB2 UDB for iSeries

Otherwise, it shows the first 3 characters of the product ID, or N/P if the record was written at the application requester location.

For DDF/RRSAF rollup records, the field will contain a value derived from the last thread to rollup. For parallel query rollup records, the value will be derived from the parent record.

**Field Name:** QWHDPRID

**IFCID 147 - Instrumentation Accounting Data:**

This topic shows detailed information about “Record Trace - IFCID 147 - Instrumentation Accounting Data”.

**Note:** This report has the same layout as IFCID 003, for details refer to “IFCID 003 - Instrumentation Accounting Data” on page 3679.

**IFCID 147 - Instrumentation Accounting Data Overflow:**

This topic shows detailed information about “Record Trace - IFCID 147 - Instrumentation Accounting Data Overflow”.

**Note:** This report has the same layout as IFCID 003, for details refer to “IFCID 003 - Instrumentation Accounting Data Overflow” on page 3694.

**Record trace - IFCID 147 - Instrumentation Accounting Data Overflow**

The field labels shown in the following sample layout of “Record Trace - IFCID 147 - Instrumentation Accounting Data Overflow” are described in the following section.

```
INSTRUMENTATION ACCOUNTING DATA OVERFLOW

ARCH.LOG(QUES) SUSP TIME  0.000000  ARCH.LOG(QUES) SUSP EVENTS  0
ACUM. READ SUSP TIME       0.000000  ACUM. READ SUSP EVENTS     0
DRAIN LOCK SUSP TIME       0.000000  DRAIN LOCK SUSP EVENTS      0
CLAIM RELEASE SUSP TIME    0.000000  CLAIM RELEASE SUSP EVENTS   0
I/O SERVICE TASK SUSP TIME 0.000000  I/O SERVICE TASK SUSP EVENTS 0
SYSLGRNG SUSP TIME          0.000000  SYSLGRNG SUSP EVENTS        0
DS MANAGER SUSP TIME        0.000000  DS MANAGER SUSP EVENTS      0
OTHER SERVICE SUSP TIME     0.000000  OTHER SERVICE SUSP EVENTS   0
COMMIT PHI WRITE I/O TIME   0.000000  COMMIT PHI WRITE I/O EVENTS 0
ASYNCH. IXL REG. TIME      0.000000  ASYNCH. IXL EVENTS          0
LOB COMPRESSION SUSP TIME   0.000000  LOB COMPRESSION SUSP EVENTS 0
FAST INSERT PIPE WAIT TIME  0.000000  FAST INSERT PIPE WAIT EVENTS 0
SYNC READ DASD CACHE HIT WAIT TIME 0.000000  SYNC READ WAIT DASD CACHE HIT EVENTS 0
```

**ARCH.LOG(QUES) SUSP TIME**
The accumulated waiting time due to the processing of ARCHIVE LOG MODE(QUIESCE) commands.
This time does not represent the time required to perform the entire command.

**Field Name:** QWAXALOG

This is an *exception* field.

**ARCH.LOG(QUIES) SUSP EVENTS**
The number of ARCHIVE LOG MODE (QUIESCE) commands issued.

**Field Name:** QWAXALCT

**ACCUM. READ SUSP TIME**
The accumulated wait time for:
- Archive Log reads
- Active Log reads
- Active Log prefetch reads
- Fast Log apply log reads

**Field Name:** QWAXAWAR

**WAIT TRACE READ EVENTS**
**DB2 V8:** The number of wait trace events processed for archive reads, active reads, and active log prefetch reads.

**Field Name:** QWAXANAR

**DRAIN LOCK SUSP TIME**
The accumulated waiting time for a drain lock. This is the time the requester is suspended while waiting to acquire the drain lock.

**Field Name:** QWAXAWDR

This is an *exception* field.

**DRAIN LOCK SUSP EVENTS**
The number of wait trace events processed for waits for drain locks.

**Field Name:** QWAXARND

**CLAIM RELEASE SUSP TIME**
The accumulated waiting time for a drain waiting for claims to be released. After the drain lock is acquired, the drainer must wait for claim holders to release the object.

**Field Name:** QWAXAWCL

This is an *exception* field.

**CLAIM RELEASE SUSP EVENTS**
The number of wait trace events processed for waits for claims to be released.

**Field Name:** QWAXARNC

**I/O SERVICE TASK SUSP TIME**
Accumulated waiting time for a synchronous execution unit switch to the DB2 OPEN/CLOSE data set service for the HSM recall service.
This value is an average.

**Field Name:** QWAXOCSE

**I/O SERVICE TASK SUSP EVENTS**

Number of wait trace events processed of waits for synchronous execution unit switching to the Open/Close service.

**Field Name:** QWAXOCNS

**SYSLGRNG SUSP TIME**

Accumulated wait time for a synchronous execution unit switch to the DB2 SYSLGRNG recording service. This service is sometimes used for Level ID checking for downlevel detection.

This value is an average.

**Field Name:** QWAXSLS

**DS MANAGER SUSP TIME**

Accumulated wait time for a synchronous execution unit switch to the DB2 data space manager services. This includes DEFINE DATA SET, EXTEND DATA SET, DELETE DATA SET, RESET DATA SET, and VSAM CATALOG ACCESS.

This value is an average.

**Field Name:** QWAXDSN

**OTHER SERVICE SUSP TIME**

Could be due to a VSAM catalog update. In the distributed environment, it includes the waiting time for the response from the server system. Performance trace for IFCID 46 to 50, 170, and 171 provide more detailed information for analysis.

**Field Name:** QWAXOTS

**COMMIT PH1 WRITE I/O TIME**

The accumulated time waiting for phase 1 commit write I/O. An example for this suspension is LOB Table Space with LOG NO Phase 1 commit database synchronous write I/O processing.

**Field Name:** QWAXAWF
COMMIT PH1 WRITE I/O EVENTS
The total number of wait trace events for commit phase 1 I/O.

Field Name: ADFCSUSC

ASYNC. IXL REQ. TIME
The accumulated wait time for IXLCACHE and IXLFCOMP requests.

Field Name: QWAXIXLT

ASYNC. IXL EVENTS
Number of wait trace events processed for asynchronous IXLCACHE or IXLFCOMP invocations.

Field Name: QWAXIXLE

LOB COMPRESSION SUSP TIME
The accumulated time waiting for a compression of DB2 large objects (LOB) (DB2 field QWAX_LOBCOMP_WAIT).

Field Name: QWAX_LOBCOMP_WAIT

LOB COMPRESSION SUSP EVENTS
The number of wait trace events processed for DB2 large object (LOB) compressions.

Field Name: QWAX_LOBCOMP_COUNT

FAST INSERT PIPE WAIT TIME
The accumulated wait time for a pipe while this package was executed (DB2 field QPAC_PIPE_WAIT).

Field Name: QPAC_PIPE_WAIT

FAST INSERT PIPE WAIT EVENTS
The number of wait trace events that were processed for waits for a pipe while this package was executed (DB2 field QPAC_PIPEWAIT_COUNT).

Field Name: QPAC_PIPEWAIT_COUNT

SYNC READ DASD CACHE HIT WAIT TIME
The amount of time spent waiting for synchronous database reads where the requested pages were found in the DASD subsystem’s cache.

Field Name: QWACAWTD

SYNC READ WAIT DASD CACHE HIT EVENTS
The number of times the thread waited for synchronous database reads where the requested pages were found in the DASD subsystem’s cache.

Field Name: QWACAWCD

IFCID 147 - Logging:
This topic shows detailed information about “Record Trace - IFCID 147 - Logging”.

Record trace - IFCID 147 - Logging
The field labels shown in the following sample layout of “Record Trace - IFCID 147 - Logging” are described in the following section.

LOGGING
LOG RECORDS WRITTEN 0  BYTES LOGGED 0
LOG RECORDS WRITTEN

The number of log records written.

**Field Name:** QWACLRNL

BYTES LOGGED

The number of log record bytes written. This field is calculated from DB2 fields QWACLRAB x QWACLRNL.

**Field Name:** RT0147BW

IFCID 147 - Monitor Detail Data:

This topic shows detailed information about “Record Trace - IFCID 147 - Monitor Detail Data”.

Record trace - IFCID 147 - Monitor Detail Data

The field labels shown in the following sample layout of “Record Trace - IFCID 147 - Monitor Detail Data” are described in the following section.

API BEGIN ELAPSED TIME

The API begin elapsed time in the format day, hour, minute, second, and milliogth of a second. If the value is 0, N/P is printed.

**Field Name:** QW0148AB

API ENDING ELAPSED TIME

The API ending elapsed time in the format day, hour, minute, second, and milliogth of a second. If the value is 0, N/P is printed.

**Field Name:** QW0148AE

API BEGIN CPU TIME

The API beginning CPU time in the format minute, second, and milliogth of a second. If the value is 0, N/P is printed.

**Field Name:** QW0148AE

API ENDING CPU TIME

The API ending CPU time in the format minute, second, and milliogth of a second. If the value is 0, N/P is printed.

**Field Name:** QW0148UB

Chapter 6. Batch reporting 3935
IFCID 147 - Monitor Detail Data

The API ending CPU time in the format minute, second, and millionth of a second. If the value is 0, N/P is printed.

Field Name: QW0148UE

API BEGIN SRB TIME

The API beginning SRB time in the format minute, second, and millionth of a second. If the value is 0, N/P is printed.

Field Name: QW0148SB

API ENDING SRB TIME

The API ending SRB time in the format minute, second, and millionth of a second. If the value is 0, N/P is printed.

Field Name: QW0148SE

IFI BEGIN ELAPSED TIME

The IFI begin elapsed time in the format day, hour, minute, second, and millionth of a second. If the value is 0, N/P is printed.

Field Name: QW148IAB

IFI ENDING ELAPSED TIME

The IFI ending elapsed time in the format day, hour, minute, second, and millionth of a second. If the value is 0, N/P is printed.

Field Name: QW148IAE

IFI BEGIN CPU TIME

The IFI beginning CPU time in the format minute, second, and millionth of a second. If the value is 0, N/P is printed.

Field Name: QW148IUB

IFI ENDING CPU TIME

The IFI ending CPU time in the format minute, second, and millionth of a second. If the value is 0, N/P is printed.

Field Name: QW148IUE

BEGIN/RESUME CPU TIME

The start or resume CPU time for a stored procedure, user-defined function, or trigger.

Field Name: QW148ATC

TCB TIME BEFORE ENCLAVE

The accumulated TCB time that is used when running under the control of a trigger. This does not include the time that is used while running in user-defined functions or stored procedures that are called from the trigger. This CPU time does not include the CPU time that is consumed on an IBM specialty engine.

Field Name: QWACTRITT

This is an exception field.

BEGIN/RESUME TOD TIME
The start or resume TOD time for a stored procedure, user-defined function, or trigger.

Field Name: QW148AOD

LOCK - I/O - LATCH BEGIN TIME
The beginning time of the I/O including lock and latch use in the format day, hour, minute, second, and millionth of a second. If the value is 0, N/P is printed.

Field Name: QW0148LB

LOCK - I/O - LATCH ENDING TIME
The ending time of the I/O including lock and latch use in the format day, hour, minute, second, and millionth of a second. If the value is 0, N/P is printed.

Field Name: QW0148LE

END-OF-TASK CPU TIME
The CPU time from DSN3EOT0 in the format minute, second, and millionth of a second. If the value is 0, N/P is printed.

Field Name: QW0148EO

ACCOUNTING ENTRY CPU TIME
The CPU time at entry to a monitoring or accounting class 2 or class 3 wait, in the format minute, second, and millionth of a second. If the value is 0, N/P is printed.

Field Name: QW0148LW

EU SWITCH BEGIN ELAPSED TIME
The beginning of the elapsed time of the wait for the execution unit switch.
If the value is 0, N/P is printed.

Field Name: QW0148EB

EU SWITCH ENDING ELAPSED TIME
The end of the elapsed time of the wait for the execution unit switch. If the value is 0, N/P is printed.

Field Name: QW0148EE

ARCH LOG(QUIESCE) BEGIN TIME
The beginning of the elapsed time of the wait for the ARCHIVE LOG MODE (QUIESCE) command. If the value is 0, N/P is printed.

Field Name: QW0148RB

ARCH LOG(QUIESCE) ENDING TIME
The end of the elapsed time of the wait for the ARCHIVE LOG MODE (QUIESCE) command. The end time minus begin time should be the total time the agent is suspended due to the ARCHIVE LOG MODE (QUIESCE) command. If the value is 0, N/P is printed.

Field Name: QW0148RE

ACE TOKEN
IFCID 147 - Monitor Detail Data

The hexadecimal address of the agent control element. Indicates the thread reported here. If the value is 0, N/P is printed.

Field Name: QW0148AC

APPL REQUEST COUNT

The number of attachment facility calls to DB2.

Field Name: QW0148RQ

ASCB TOKEN

The ASCB token in hexadecimal. If the value is 0, N/P is printed.

Field Name: QW0148MA

LATCH TOKEN

The latch token. If the value is 0, N/P is printed.

Field Name: QW0148LA

TCB TOKEN

The TCB token. If the value is 0, N/P is printed.

Field Name: QW0148MT

AGENT ASID

The ASID of the thread.

Field Name: QW0148AS

STATUS INDICATOR 1

Indicates whether the thread is at plan or signon/identify level.

Field Name: QW0148CD

CONNECTION TYPE

The connection type.

Field Name: QW0148TY

LATEST IFCID

The latest IFCID processed.

Field Name: QW0148IL

STATUS INDICATOR 2

Indicates whether the agent is in end-of-task processing.

Field Name: QW0148ES

DBID

The database ID. Deduced from the DB2 fields QW0148DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0148DB is shown, or N/A when this value is 0.

Field Name: RT0148DB

PREVIOUS IFCID

The previous IFCID processed.
Field Name: QW0148IP

STATUS INDICATOR 3
Indicates whether the create thread request is queued.

Field Name: QW0148CQ

OBID
The object ID. Deduced from the DB2 fields QW0148OB, QW0105TN or QW0107TN.

If present, the name of the object is shown, otherwise the decimal identifier from QW0148OB is shown, or N/A if this value is 0.

Field Name: RT0148OB

LATCH CLASS
The latch class in hexadecimal.

Field Name: QW0148LC

TSO CONNECTION TYPE
The TSO connection type.

Field Name: QW0148TS

THREAD TYPE
The type of thread being processed.

Field Name: QW0148DD

THREAD STATUS
The status of the thread being processed.

Field Name: QW0148AI

STATUS INDICATOR 5
Indicates whether the agent is queued for end-of-task processing.

Field Name: QW0148EQ

THREAD TOKEN
The thread token. This token uniquely identifies a specific thread and also appears in the display thread command response.

Field Name: QW148TTK

LUWSEQ
The LUW sequence number.

Field Name: QW0148CC

STATUS INDICATOR 6
Indicates whether the thread is running a stored procedure in DB2.

Field Name: QW0148SN

NESTING.LVL
Nesting level of the stored procedure, user-defined function or trigger, in the range 1 through 16.

Field Name: QW148ALV
IFCID 147 - Monitor Detail Data

STATUS INDICATOR 7
Indicates whether the thread is queued waiting for a stored procedure to be scheduled.
Field Name: QW0148SQ

NESTING ACTIVITY
Nesting activity of the stored procedure, user-define function or trigger, if any.
Field Name: QW148AFG

CONS.TOKEN
The consistency token.
Field Name: QW0148CN

NETWORKID
The network identifier.
Field Name: QW0148NI

LUNAME
The logical unit name.
Field Name: QW0148LM

UNIQUENESS VALUE
The instance number.
Field Name: QW0148UV

ENCL.TOKEN
The enclave token, if under enclave, otherwise zero.
Field Name: QW148ETK

LOCATION
The name of the location where the thread executes the package.
Field Name: QW0148LN

COLLECTION
The collection name.
Field Name: QW0148CI

PACKAGE
The package identifier.
Field Name: QW0148PN

STORED PROCEDURE NAME
The stored procedure name.
Field Name: QW0148SP

SCHEMA NAME
Schema name, under which a stored procedure, user-define function or trigger is executing.
### Field Name: QW148SCH

**TOKEN**

The consistency token.

### Field Name: QW0148CN

**IFCID 147 - Thread Correlation Data:**

This topic shows detailed information about “Record Trace - IFCID 147 - Thread Correlation Data”.

### Record trace - IFCID 147 - Thread Correlation Data

The field labels shown in the following sample layout of “Record Trace - IFCID 147 - Thread Correlation Data” are described in the following section.

```plaintext
! *** Long name section: ! ORGANIZATION AUTHID : EDVA ! PRIMARY AUTHID : EDVA ! END USER ID : EDVA ! *** End of long names

! AUTHORIZATION ID : EDVA ! PLAN NAME : DSNREXX ! ACCOUNTING TOKEN: N/A ! END USER ID : EDVA ! END USER WST : DB2CALL

---

<table>
<thead>
<tr>
<th>ORIGINAL AUTHID</th>
<th>PRIMARY AUTHID</th>
<th>END USER ID</th>
<th>AUTHORIZATION ID</th>
<th>PLAN NAME</th>
<th>ACCOUNTING TOKEN</th>
<th>END USER WST</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDVA</td>
<td>EDVA</td>
<td>EDVA</td>
<td>EDVA</td>
<td>DSNREXX</td>
<td>N/A</td>
<td>DB2CALL</td>
</tr>
</tbody>
</table>

---

**ORIGINAL AUTHID**

The original authorization ID. Possible values are:

- For TSO: the logon ID
- For batch: the user ID on the job statement
- For IMS (message-driven regions): the signon ID, LTERM, ASXBUSR, or FSB name
- For IMS (control regions): the user ID on the job statement, or the RACF started procedure entry if RACF is used
- For CICS: the user ID, TERM ID, TRAN ID, or as specified in the resource control table
- For MVS operator commands and DB2 system internal agents: SYSOPR
- For a distributed application server (AS):
  - If the application requester (AR) is a DB2 system, then this is the same value that was assigned at the AR.
  - If the application requester is not a DB2 system, then this is the user ID used to make the initial connection with the application server.

### Field Name: QWHCOPID

**PRIMARY AUTHID**

The primary authorization ID from a connection or signon. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it differs from the original primary authorization ID (ORIGAUTH). Distributed authorization ID translation can also change the primary authorization ID.

### Field Name: QWHCAID

**END USER ID**
The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information.

Field Name: QWHCEUID

AUTHORIZATION ID

The primary authorization ID from a connection or signon. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it differs from the original primary authorization ID (ORIGAUTH). Distributed authorization ID translation can also change the primary authorization ID.

Field Name: QWHCAID

CONNECTION NAME

The connection name. Possible values are:
- For batch: BATCH
- For TSO: TSO
- For QMF: DB2CALL
- For utilities: UTILITY
- For DB2 private protocol this is the DB2 subsystem ID
- For IMS: the IMS ID
- For CICS, this is the CICS ID
- For DRDA connections from non-DB2 requesters: SERVER

Field Name: QWHCCN

This is an exception field.

CORRELATION VALUE

Correlation ID value:

FOR BATCH
   Job name

FOR TSO
   Logon ID

FOR IMS/VS
   PST#.PSBNAME

FOR CICS
   CONNECTION_TYPE.THREAD_TYPE.THREAD_#.TRAN-ID

FOR RRSAF
   CORRELATION-ID VALUE FROM SIGNON FUNCTION

For threads using the DB2 private protocol or DRDA from a DB2 requester
   This field contains the correlation-id name of the thread at the requesting location.

For threads using DRDA from a non-DB2 requester
   This field contains the first 12 characters in the DDM external name (EXTNAM) parameter of the DDM EXCSAT command received as part of the SQL connect.

Field Name: QWHCCV
PLAN NAME
   The plan name. It is blank for a DB2 command thread; otherwise:
   
   DSNESPRR
      For SPUFI with repeatable read.
   
   DSNESPCS
      For SPUFI with cursor stability.
   
   DSNUTIL
      For utilities.
   
   DSNTEP2
      For DSNTEP2.
   
   DSNBIND
      For binding.
   
   The application plan name
      For IMS.
   
   The application plan name
      For CICS.
   
   A blank plan name
      For IMS and CICS commands.
   
   DSQPLAN
      For QMF.
   
   The first 8 bytes of the application name
      For DRDA connections to the common servers.

Field Name: QWHCPLAN
   This is an exception field.

ORIGINAL AUTH ID
   The original authorization ID. Possible values are:
   
   • For TSO: the logon ID
   • For batch: the user ID on the job statement
   • For IMS (message-driven regions): the signon ID, LTERM, ASXBUSR, or PSB name
   • For IMS (control regions): the user ID on the job statement, or the RACF started procedure entry if RACF is used
   • For CICS: the user ID, TERM ID, TRAN ID, or as specified in the resource control table
   • For MVS operator commands and DB2 system internal agents: SYSOPR
   • For a distributed application server (AS):
      – If the application requestor (AR) is a DB2 system, then this is the same value that was assigned at the AR.
      – If the application requestor is not a DB2 system, then this is the user ID used to make the initial connection with the application server.

Field Name: QWHCOPID

CONNECTION TYPE
   The connecting system type code (in hexadecimal). This field can have a null value. Utilities, for example, do not have a connecting system type.
IFCID 147 - Thread Correlation Data

Field Name: QWHCATYP

ACCOUNTING_TOKEN

Accounting correlation token.
This field applies only if CONNECTION_TYPE equals CICS ATTACH or RRSAF ATTACH, otherwise N/A is shown.
If connection type is CICS ATTACH, the first eight bytes identify the network name (right padded with blanks), the second eight bytes identify the LU name (right padded with blanks), the final six bytes are the uniqueness value.
If the connection type is RRSAF ATTACH, the field is the value of the parameter accounting token in the RRSAF signon function.
This field is shown as both a character and a hexadecimal string.

Field Name: QWHCTOKN

TOKEN_IN_HEX

Accounting correlation token.
This field applies only if CONNECTION_TYPE equals CICS ATTACH or RRSAF ATTACH, otherwise N/A is shown.
If connection type is CICS ATTACH, the first eight bytes identify the network name (right padded with blanks), the second eight bytes identify the LU name (right padded with blanks), the final six bytes are the uniqueness value.
If the connection type is RRSAF ATTACH, the field is the value of the parameter accounting token in the RRSAF signon function.
This field is shown as both a character and a hexadecimal string.

Field Name: QWHCEUID

END_USER_ID

The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information.

Field Name: QWHCEUTX

TRANSACTION

The transaction or application name that is run.

Field Name: QWHCEUTX

JOBSTEP_NAME

If the thread that is currently running is a TCB, this value is the step name in the JCL that is running the batch job.

Field Name: QWHCJOBSTEP

END_USER_WST

The end user's workstation name.

Field Name: QWHCEUWN

IFCID 149 - Resource Locking: This record only contains data from an Online Monitor trace data set.
Note: This report has the same layout as IFCID 150, for details refer to “IFCID 150 - Thread Locking.”

IFCID 150 - Thread Locking: This record only contains data from an Online Monitor trace data set.

IFCID 150 - Global Interest Data:

This topic shows detailed information about “Record Trace - IFCID 150 - Global Interest Data”.

Record trace - IFCID 150 - Global Interest Data

The field labels shown in the following sample layout of “Record Trace - IFCID 150 - Global Interest Data” are described in the following section.

GLOBAL INTEREST DATA
A BLOCK IS HELD : NO
RESULTANT REQUESTED STATE: SHARED AND INTENTION EXCLUSIVE, LOWER LEVEL PLOCKS ACQUIRED
SUBSYSTEM NAME : SYS00006
RESULTANT HELD STATE : SHARED AND INTENTION EXCLUSIVE, LOWER LEVEL PLOCKS ACQUIRED

A BLOCK IS HELD
Indicates if a P-lock is held. It can have one of the following values:
• YES
• NO
• N/P

Field Name: QW01505P

RESULTANT REQUESTED STATE
The result of the requested lock state. It can have one of the following values:
• UNPROTECTED SHARE
• INTENTION SHARE
• INTENTION EXCLUSIVE
• SHARE
• UPDATE
• SHARE AND INTENTION EXCLUSIVE
• NON-SHARED UPDATE
• EXCLUSIVE
• INTENTION SHARE, LOWER LEVEL PLOCKS ACQUIRED
• INTENTION EXCLUSIVE, LOWER LEVEL PLOCKS ACQUIRED
• SHARED AND INTENTION EXCLUSIVE, LOWER LEVEL PLOCKS ACQUIRED

Field Name: QW01505R

SUBSYSTEM NAME
The name of the subsystem.

Field Name: QW01505S

RESULTANT HELD STATE
The result of the requested P-lock held state. It can have one of the following values:
• UNPROTECTED SHARE
IFCID 150 - Global Interest Data

- INTENTION SHARE
- INTENTION EXCLUSIVE
- SHARE
- UPDATE
- SHARE AND INTENTION EXCLUSIVE
- NON-SHARED UPDATE
- EXCLUSIVE
- INTENTION SHARE, LOWER LEVEL PLOCKS ACQUIRED
- INTENTION EXCLUSIVE, LOWER LEVEL PLOCKS ACQUIRED
- SHARED AND INTENTION EXCLUSIVE, LOWER LEVEL PLOCKS ACQUIRED

Field Name: QW01505H

IFCID 150 - Held Lock Data:

This topic shows detailed information about “Record Trace - IFCID 150 - Held Lock Data”.

Record trace - IFCID 150 - Held Lock Data

The field labels shown in the following sample layout of “Record Trace - IFCID 150 - Held Lock Data” are described in the following section.

HELD LOCK DATA
LOCK REQUEST TOKEN : X'0C000002'
ACE TOKEN : X'000000B9'
LOCK DURATION : X'00'
QW0150RW: X'0C000002'
QW0150UC: X'00000000'
QW0150SC: (1) 0 (2) 0 (3) 0 (4) 0 (5) 0 (6) 0 (7) 0 (8) 0

LOCK REQUEST TOKEN
The lock request token in hexadecimal.

Field Name: QW0150R3

LOCK STATE
The lock state.

Field Name: QW0150ST

SUBSYSTEM NAME
The name of the subsystem.

Field Name: QW0150N4

ACE TOKEN
The hexadecimal address of the agent control element indicating the holder of this lock.

Field Name: QW0150A3

LOCK TYPE
The type of lock.

Field Name: QW0150TL

FUNCTION
The lock function.
Field Name: QW0150F4

**LOCK DURATION**

The duration for which the lock is held:

**MANUAL**  Varies depending on the ISOLATION parameter

**MANUAL+1**
Temporary change of consistency level from CS to RR during bind and DDL

**COMMlT**  Until commit

**COMMIT+1**
Past commit; applies to locks needed to maintain the position for a cursor opened WITH HOLD

**ALLOCATION**
Until deallocation

**PLAN**  For the duration of the plan

**FREE ALL LOCKS**
Until all locks are freed

Field Name: QW0150D4

IFCID 150 - Lock Resource Data:

This topic shows detailed information about “Record Trace - IFCID 150 - Lock Resource Data”.

**Record trace - IFCID 150 - Lock Resource Data**

The field labels shown in the following sample layout of “Record Trace - IFCID 150 - Lock Resource Data” are described in the following section.

<table>
<thead>
<tr>
<th>LOCK RES TYPE</th>
<th>OBID: 25290</th>
<th>OBID: 51968</th>
<th>RESOURCE ID: X'00000313123456'</th>
</tr>
</thead>
<tbody>
<tr>
<td>HASH TOKEN</td>
<td>X'00000002'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LOCK RES TYPE**

The locked resource type.

**Note:** For data sharing, SKELETON CURSOR TABLE LOCKING and SKELETON PACKAGE TABLE LOCK are LP-locks (an LP-lock has an L-lock component and a P-lock component).

Field Name: QW0150KT

**DBID**

The database ID. This field is not applicable if the value in LOCK RES TYPE is SKELETON CURSOR TABLE LOCKING, SKELETON PACKAGE TABLE LOCK, COLLECTION, or ALTER BUFFER POOL.

Deduced from the DB2 fields QW0150DB, QW0105DN, or QW0107DN.

If present, the database name is shown, otherwise the decimal identifier from QW0150DB is shown, or N/A if this value is 0.

Field Name: RT0150DB

**OBID**
IFCID 150 - Lock Resource Data

The object ID of the table space or pageset involved in the lock. This field is not applicable if the value in LOCK RES TYPE is SKELETON CURSOR TABLE LOCKING, SKELETON PACKAGE TABLE LOCK, or COLLECTION.

Deduced from the DB2 fields QW0149KP, QW0105TN, QW0107TN, QW0149KP, QW0105OB or QW0107OB.

If present, then name of the object is shown. Otherwise the decimal identifier from QW0150KP is shown, or N/A if this value is 0.

Field Name: RT0150OB

RESOURCE ID

The hexadecimal identifier of the small resource. If LOCK RES TYPE is:

- **DATA SET LOCKING (PARTITION)**
  Last byte is the partition number
- **DATA PAGE LOCKING**
  First 3 bytes are the page number
- **INDEX PAGE LOCKING**
  First 3 bytes are the page number
- **HASH ANCHOR LOCK**
  First 3 bytes are the page number and the last byte is the anchor point ID
- **CS-READ DRAIN**
  Last byte is the partition number (optional)
- **RR-READ DRAIN**
  Last byte is the partition number (optional)
- **WRITE DRAIN**
  Last byte is the partition number (optional)
- **ROW LOCK**
  First 3 bytes are the page number and the last byte is the row ID of the record
- **INDEX END OF FILE LOCK**
  Last byte is the partition number (optional)

Note:

- In large partitioned table spaces, the page number covers 4 bytes instead of 3.
- If table spaces use relative page numbers, the resource ID covers 7 bytes. It contains the partition number in the first 2 bytes, the page number in the next 4 bytes, and the record ID in the seventh byte.

This field is not applicable if the value in LOCK RES TYPE is SKELETON CURSOR TABLE LOCKING, SKELETON PACKAGE TABLE LOCK, COLLECTION, ALTER BUFFER POOL, or PAGESET LOCK. If the value is UTILITY SERIALIZATION LOCK or BINDLOCK, N/A is printed.

Field Name: QW0150KR

HASH TOKEN

The hash token of the resource name.

Field Name: QW0150LH
IFCID 150 - Retained Lock Data:

This topic shows detailed information about “Record Trace - IFCID 150 - Retained Lock Data”.

Record trace - IFCID 150 - Retained Lock Data

The field labels shown in the following sample layout of “Record Trace - IFCID 150 - Retained Lock Data” are described in the following section.

```
RETAI NED LOCK DATA
LOCK REQUEST TOKEN : X'00000003'
LOCK STATE : X'08'
SUBSYSTEM NAME : SUBSYS23

LOCK REQUEST TOKEN
The lock request token in hexadecimal.
Field Name: QW0150T4

LOCK STATE
The lock state in hexadecimal.
Field Name: QW0150R4

SUBSYSTEM NAME
The name of the subsystem.
Field Name: QW0150N4

IFCID 150 - Suspend Lock Data:

This topic shows detailed information about “Record Trace - IFCID 150 - Suspend Lock Data”.

Record trace - IFCID 150 - Suspend Lock Data

The field labels shown in the following sample layout of “Record Trace - IFCID 150 - Suspend Lock Data” are described in the following section.

```
SUSPEND LOCK DATA
LOCK REQUEST TOKEN : X'000000FF'
ACE TOKEN : X'00000068'
LOCK TYPE : RETAINED
LOCK DURATION : FREE

QW0150SC: (1) 0 (2) 0 (3) 0 (4) 0 (5) 0 (6) 0 (7) 0 (8) 0

LOCK REQUEST TOKEN
The lock request token in hexadecimal.
Field Name: QW0150R3

LOCK STATE
The lock state.
Field Name: QW0150ST

SUBSYSTEM NAME
The name of the subsystem.
Field Name: QW0150N4

ACE TOKEN
The hexadecimal address of the agent control element indicating the holder of this lock.
**IFCID 150 - Suspend Lock Data**

** Field Name: QW0150A3  
LOCK TYPE  
The type of lock.  
Field Name: QW0150TL  
FUNCTION  
The lock function.  
Field Name: QW0150F4  
LOCK DURATION  
The duration for which the lock is held:  
MANUAL  
Varies depending on the ISOLATION parameter  
MANUAL+1  
Temporary change of consistency level from CS to RR during bind and DDL  
COMMIT  
Until commit  
COMMIT+1  
Past commit; applies to locks needed to maintain the position for a cursor opened WITH HOLD  
ALLOCATION  
Until deallocation  
PLAN  
For the duration of the plan  
FREE ALL LOCKS  
Until all locks are freed  
Field Name: QW0150D4

**IFCID 151 - User Record:**

This topic shows detailed information about “Record Trace - IFCID 151 - User Record”.

When present, data is shown in hexadecimal dump format.

**IFCID 152 - User Record:**

This topic shows detailed information about “Record Trace - IFCID 152 - User Record”.

When present, data is shown in hexadecimal dump format.

**IFCID 153 - User Record:**

This topic shows detailed information about “Record Trace - IFCID 153 - User Record”.

When present, data is shown in hexadecimal dump format.
IFCID 154 - User Record:

This topic shows detailed information about “Record Trace - IFCID 154 - User Record”.

When present, data is shown in hexadecimal dump format.

IFCID 155 - User Record:

This topic shows detailed information about “Record Trace - IFCID 155 - User Record”.

When present, data is shown in hexadecimal dump format.

IFCID 156 - User Record:

This topic shows detailed information about “Record Trace - IFCID 156 - User Record”.

When present, data is shown in hexadecimal dump format.

IFCID 157 - DRDS RDS Interface:

This topic shows detailed information about “Record Trace - IFCID 157 - DRDS RDS Interface”.

Record trace - IFCID 157 - DRDS RDS Interface

The field labels shown in the following sample layout of “Record Trace - IFCID 157 - DRDS RDS Interface” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVENT</td>
<td>The type of event.</td>
</tr>
<tr>
<td>REQUEST</td>
<td>The type of request. This field shows N/P if the value in EVENT is RETURN.</td>
</tr>
<tr>
<td>PGM</td>
<td>The program name. This field shows N/P if the value in EVENT is RETURN.</td>
</tr>
<tr>
<td>CALL</td>
<td>The type of call. This field shows N/P if the value in EVENT is RETURN.</td>
</tr>
<tr>
<td>PLAN SECTN</td>
<td></td>
</tr>
</tbody>
</table>

Field Name: QW0157E

Field Name: QW0157O

Field Name: QW0157PN

Field Name: QW0157CT
IFCID 157 - DRDS RDS Interface

The section number in the plan. This field shows N/P if the value in EVENT is RETURN.

Field Name: QW0157SN

SERVING LOCATION

The name of the server location. This field shows N/P if the value in EVENT is RETURN.

Field Name: QW0157LN

IFCID 158 - DRDS CNV Interface:

This topic shows detailed information about “Record Trace - IFCID 158 - DRDS CNV Interface”.

Record trace - IFCID 158 - DRDS CNV Interface

The field labels shown in the following sample layout of “Record Trace - IFCID 158 - DRDS CNV Interface” are described in the following section.

<table>
<thead>
<tr>
<th>DRDS CNV</th>
<th>INTERFACE</th>
<th>NETWORKID: DEIBMIPS</th>
<th>LUNAME: IPSAR721</th>
<th>LUWSEQ: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVENT: RETURN</td>
<td>CALL TYPE : N/P</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROGRAM : N/P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EVENT

The type of event.

Field Name: QW0158E

CALL TYPE

The type of call. This field shows N/P if the value in EVENT is RETURN.

Field Name: QW0158CT

PGM

The name of the program. This field shows N/P if the value in EVENT is RETURN.

Field Name: QW0158PN

PLAN SECTN

The section number within the plan. This field shows N/P if the value in EVENT is RETURN.

Field Name: QW0158SN

IFCID 159 - DRDS Req Site Data:

This topic shows detailed information about “Record Trace - IFCID 159 - DRDS Req Site Data”.

Record trace - IFCID 159 - DRDS Req Site Data

The field labels shown in the following sample layout of “Record Trace - IFCID 159 - DRDS Req Site Data” are described in the following section.
DRDS REQ  'BLANK'
SITE DATA  NETWORKID: DEIBMIPS LUNAME: IPSAR721 LUWSEQ:  1
EVENT : WAIT RESP
SERVLOC: N/P
CONVID : X'00000002'  GPR15 :  8

EVENT

The type of event.

Field Name: QW0159E

SERVLOC

The name of the server location. This field shows N/P if the value in
EVENT is WAIT RESP.

Field Name: QW0159LN

CONVID

The conversation identification number.

Field Name: QW0159CI

GPR15

The return code in general purpose register 15. This field shows N/P if the
value in EVENT is CREATE CONV.

Field Name: QW015915

IFCID 160 - DC Requester:

This topic shows detailed information about “Record Trace - IFCID 160 - DC
Requester”.

Record trace - IFCID 160 - DC Requester

The field labels shown in the following sample layout of “Record Trace - IFCID 160
- DC Requester” are described in the following section.

EVENT: ALLOCATE CONVERSATION  MSGTYPE: N/P  MSG RESPONSE: N/P  MSG LGTH: N/P
MSGCLASS: N/P  MSGND N/P  MSGTIME 03/23/08 04:59:49.649239
QW0160ID X'21'  QW0160CI X'00BF3128'  QW0160VI X'01000003'  QW0160SI X'0073F4923DC3D965'
QW0160LM X'E2E8E2C1C4D4D3D4'  QW0160VT X'4D000000060E2CED'  QW0160DA X'0000000000000000'

EVENT

The type of event.

Field Name: QW0160E

MSGTYPE

The message type. This field is only applicable if the value in EVENT is
RECEIVE RESPONSE MESSAGE or SEND REQUEST MESSAGE.

Field Name: QW0160T

MSG RESPONSE

The message response. This field is only applicable if the value in EVENT
is RECEIVE RESPONSE MESSAGE or SEND REQUEST MESSAGE.

Field Name: QW0160R

MSG LGTH
IFCID 160 - DC Requester

The message length. This field is only applicable if the value in EVENT is RESET CONVERSATION, RECEIVE RESPONSE MESSAGE, or SEND REQUEST MESSAGE.

Field Name: QW0160ML

MSGCLASS

The message class. This field is only applicable if the value in EVENT is RESET CONVERSATION, RECEIVE RESPONSE MESSAGE, SEND REQUEST MESSAGE, or WAIT FOR RESPONSE MESSAGE.

Field Name: QW0160MC

MSGNO

The message number. This field is only applicable if the value in EVENT is RESET CONVERSATION, RECEIVE RESPONSE MESSAGE, SEND REQUEST MESSAGE, or WAIT FOR RESPONSE MESSAGE.

Field Name: QW0160MN

MSGTIME

The timestamp at the start of the VTAM request.

Field Name: QW0160MS

IFCID 161 - DC Server:

This topic shows detailed information about “Record Trace - IFCID 161 - DC Server”.

Record trace - IFCID 161 - DC Server

The field labels shown in the following sample layout of “Record Trace - IFCID 161 - DC Server” are described in the following section.

EVENT: RECEIVE REQUEST MESSAGE

MSGTYPE: REQUEST

MSG RESPONSE: DATA

MSG LGTH: 756

MSGCLASS: 4

MSGNO: 0

MSGTIME 03/13/08 23:18:23.315984

QW01610D X'11'

QW01611C X'103E112B'

QW01611V X'10000000'

QW01611S X'002367363C9EA2'

QW01611M X'C3C2D409C4C24D40'

QW01611Y X'0000000000000000'

QW01611A X'0000000000000000'

EVENT

The type of event.

Field Name: QW0161E

MSGTYPE

The message type. This field is only applicable if the value in EVENT is RECEIVE REQUEST MESSAGE or SEND RESPONSE MESSAGE.

Field Name: QW0161T

MSG RESPONSE

The message response. This field is only applicable if the value in EVENT is RECEIVE REQUEST MESSAGE or SEND RESPONSE MESSAGE.

Field Name: QW0161R

MSG LGTH

The message length. This field is only applicable if the value in EVENT is RECEIVE REQUEST MESSAGE or SEND RESPONSE MESSAGE.

Field Name: QW0161ML

MSGCLASS
The message class. This field is only applicable if the value in EVENT is RECEIVE REQUEST MESSAGE or SEND RESPONSE MESSAGE.

**Field Name:** QW0161MC

**MSGNO**

The message number. This field is only applicable if the value in EVENT is RECEIVE REQUEST MESSAGE or SEND RESPONSE MESSAGE.

**Field Name:** QW0161MN

**MSGTIME**

Message timestamp. This field is only applicable if the value in EVENT is RECEIVE REQUEST MESSAGE or SEND RESPONSE MESSAGE.

**Field Name:** QW0161MS

**IFCID 161 - DTM Request:**

This topic shows detailed information about “Record Trace - IFCID 161 - DTM Request”.

**Record trace - IFCID 161 - DTM Request**

The field labels shown in the following sample layout of “Record Trace - IFCID 161 - DTM Request” are described in the following section.

DTM REQUEST  NETWORKID: G91E81D0  LUNAME: D179    LUWSEQ: 6
REQUESTING LOCATION: 9.30.129.208
REQUESTING TIMESTAMP: N/P
AR NAME: gixxer  PRDID: CLNT/SER V8 R1 M4
ACCTKN X'C7F9F1C5F8F1C4F04BC4F1F7F9000F92022652404040'
EVENT: DEALLOCATION INITIATED
LOCATION TYPE: N/P

**EVENT**

The type of event.

**Field Name:** QW0162E

**LOCATION TYPE**

The type of location.

**Field Name:** QW0162LT

**LOCATION NAME**

The name of the DB2 location where this event occurred.

**Field Name:** QW0162LN

**IFCID 162 - DTM Request:**

**IFCID 163 - DTM Respond:**

This topic shows detailed information about “Record Trace - IFCID 163 - DTM Respond”.

**Record trace - IFCID 163 - DTM Respond**

The field labels shown in the following sample layout of “Record Trace - IFCID 163 - DTM Respond” are described in the following section.

**EVENT:** DBAT CREATED AT SERVER
EVENT

The event type.

Field Name: QW0163E

IFCID 164 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 164 - IBM Service Record”.

This record is for IBM service use.

IFCID 165 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 165 - IBM Service Record”.

This record is for IBM service use.

Record trace - IFCID 165 - IBM Service Record

The field labels shown in the following sample layout of “Record Trace - IFCID 165 - IBM Service Record” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>QW0165MN</td>
<td>'X'1122334455667788'</td>
</tr>
<tr>
<td>QW0165MC</td>
<td>'X'C7C5E3C1C4C9D5C6'</td>
</tr>
<tr>
<td>QW0165MQ</td>
<td>'X'1234567890ABCDEF'</td>
</tr>
<tr>
<td>QW0165CI</td>
<td>N/A</td>
</tr>
<tr>
<td>QW0165IPV6</td>
<td>'X'404040C7D9C1D5E34040404040404040'</td>
</tr>
<tr>
<td>QW0165MN</td>
<td>This field is for IBM service only.</td>
</tr>
<tr>
<td>QW0165RC</td>
<td>This field is for IBM service only.</td>
</tr>
<tr>
<td>QW0165MC</td>
<td>This field is for IBM service only.</td>
</tr>
<tr>
<td>QW0165FO</td>
<td>This field is for IBM service only.</td>
</tr>
<tr>
<td>QW0165MQ</td>
<td>This field is for IBM service only.</td>
</tr>
<tr>
<td>QW0165RP</td>
<td>This field is for IBM service only.</td>
</tr>
<tr>
<td>QW0165CI</td>
<td>This field is for IBM service only.</td>
</tr>
</tbody>
</table>
This field is for IBM service only.
Field Name: QW0165CI

QW0165RS
This field is for IBM service only.
Field Name: QW0165RS

QW0165IPV6
This field is for IBM service only.
Field Name: QW0165IPV6

IFCID 166 - IBM Service Record:
This topic shows detailed information about “Record Trace - IFCID 166 - IBM Service Record”.
This record is for IBM service use.

IFCID 167 - Conv Alloc Req Queued:
This topic shows detailed information about “Record Trace - IFCID 167 - Conv Alloc Req Queued”.

Record trace - IFCID 167 - Conv Alloc Req Queued
The field labels shown in the following sample layout of “Record Trace - IFCID 167 - Conv Alloc Req Queued” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONVID</td>
<td>X'00000000'</td>
</tr>
<tr>
<td>LU NAME</td>
<td>LUNAME12</td>
</tr>
<tr>
<td>CONV ALLOC</td>
<td>24</td>
</tr>
<tr>
<td>MODE NAME</td>
<td>MODENAME</td>
</tr>
<tr>
<td>CONV QUEUED</td>
<td>15</td>
</tr>
<tr>
<td>CONV LIMIT</td>
<td>25</td>
</tr>
</tbody>
</table>

CONVID
The conversation identifier.
Field Name: QW0167CI

LU NAME
The logical unit name.
Field Name: QW0167LU

CONV ALLOC
The conversation allocated.
Field Name: QW0167CA

MODE NAME
The mode name.
Field Name: QW0167MO

CONV QUEUED
The conversation queued.
Field Name: QW0167CQ

CONV LIMIT
IFCID 167 - Conv Alloc Req Queued

The conversation limit.

Field Name: QW0167CL

IFCID 168 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 168 - IBM Service Record”.

This record is for IBM service use.

IFCID 169 - DIST Authid Translation:

This topic shows detailed information about “Record Trace - IFCID 169 - DIST Authid Translation”.

Record trace - IFCID 169 - DIST Authid Translation

The field labels shown in the following sample layout of “Record Trace - IFCID 169 - DIST Authid Translation” are described in the following section.

IDENTIFIER TYPE : TRUSTED CONTEXT SYSTEM AUTHID
TRANSL TYPE: INBOUND
RESPOND LINKNAME: RESPLNK1
RESPOND LOC : RESPLCATION0001
SYST AUTHID : REQAUTH1
TRANS AUTHID: TRLAUTH1

IDENTIFIER TYPE

Identifier type of the source ID. Possible values are:

A AUTHID
L LOCATION ALIAS
D DATABASE ALIAS
S TRUSTED CONTEXT SYSTEM AUTHID

Field Name: QW0169ID

TRANSL TYPE

The type of translation:

INBOUND

The responding DB2 site translates the AUTHID after receiving the data.

OUTBOUND

The requesting DB2 site translates the AUTHID before sending the data.

Field Name: QW0169TY

RESPOND LINKNAME

The logical unit name.

If the value of TRANSLATION TYPE is INBOUND, this is the VTAM LU name of the requester location or row in SYSIBM.SYSIPNAMES.

If the value of TRANSLATION TYPE is OUTBOUND, this is the VTAM LU name of the remote server or

Field Name: QW0169LU
RESPOND LOC

If the value of TRANSLATION TYPE is INBOUND, this is the service location name regardless of whether the server is another DB2. If the value of TRANSLATION TYPE is OUTBOUND, this field contains one of the following values:

- The name of the requesting DB2 location
- <LUNAME>
- NNN.NNN.NNN.NNN

Field Name: QW0169LO

SYST AUTHID

Either authorization ID or location or alias before translation. Depending on the translation type OUTBOUND and identifier type TRUSTED CONTEXT, this field contains the original value of the authorization ID or the system authorization ID.

Field Name: QW0169AU

TRANS AUTHID

The new value of the authorization ID, location, or alias. Depending on the translation type OUTBOUND and identifier type TRUSTED CONTEXT, this field contains the value of the authorization ID or the translated system authorization ID.

Field Name: QW0169NE

IFCID 170 - Suspend of Agent:

This topic shows detailed information about “Record Trace - IFCID 170 - Suspend of Agent”.

Record trace - IFCID 170 - Suspend of Agent

The field labels shown in the following sample layout of “Record Trace - IFCID 170 - Suspend of Agent” are described in the following section.

ACE:

| 1 | QW0170ID X’01’ | QW0170FC X’05’ |

ACE

Indicates the requester. The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.

Field Name: QW0170AC

IFCID 171 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 171 - IBM Service Record”.

This record is for IBM service use.

IFCID 172 - Deadlock Data: This topic shows the records available for deadlock data.
IFCID 172 - Deadlock Header

IFCID 172 - Deadlock Header:

This topic shows detailed information about “Record Trace - IFCID 172 - Deadlock Header”.

This record is written every time that DB2 takes action to resolve a deadlock. This record details all of the units of work involved in the deadlock, the resource for which they were contending, and the attributes of their requests. One record is written for each locked resource in the deadlock.

Statistics class 3 or performance class 6 trace must be active.

DB2 can resolve a deadlock either by rolling back a unit of work for one of the agents involved, or by requesting a process to terminate.

There is no correlation between the number of IFCID 172 records written and the number of deadlocks counted by IFCIDs 2 and 3. Deadlocks can be broken without intervention by DB2, as an example when a process times out. Also, multiple IFCID 172 records can be written for a single deadlock.

Record trace - IFCID 172 - Deadlock Header

The field labels shown in the following sample layout of “Record Trace - IFCID 172 - Deadlock Header” are described in the following section.

**INTERVAL COUNT**

The deadlock interval counter.

Field Name: QW0172IT

**WAITERS INVOLVED**

The number of waiters involved in the deadlock.

Field Name: QW0172NR

**TIME DETECTED**

The date and time when the deadlock was detected.

Field Name: QW0172TD

IFCID 172 - Unit of Work - Resource:

This topic shows detailed information about “Record Trace - IFCID 172 - Unit of Work - Resource”.

The content of the LOCK RES TYPE field determines which other fields are printed in this record.

Blocker and waiter information is shown for each resource involved in the deadlock.

Record trace - IFCID 172 - Unit of Work - Resource

The field labels shown in the following sample layout of “Record Trace - IFCID 172 - Unit of Work - Resource” are described in the following section.
LOCK RES TYPE

The locked resource type.

Note: For data sharing, SKELETON CURSOR TABLE LOCKING and SKELETON PACKAGE TABLE LOCK are LP-locks (an LP-lock has an L-lock component and a P-lock component).

Field Name: QW0172FR

DBID

The database ID. This field is not applicable if the value in LOCK RES TYPE is SKELETON CURSOR TABLE LOCKING, SKELETON PACKAGE TABLE LOCK, or COLLECTION. Deduced from the DB2 fields QW0172DB, QW0105DN, or QW0107DN.

If present, the database name is shown, otherwise the decimal identifier from QW0172DB is shown, or N/A if this value is 0.

Field Name: RT0172DB

OBID

The object ID of the resource involved in the lock. This field is not applicable if the value in LOCK RES TYPE is SKELETON CURSOR TABLE LOCKING, SKELETON PACKAGE TABLE LOCK, or COLLECTION.

Deduced from the DB2 fields QW0172KP, QW0105TN, QW0107TN, QW0172KP, QW0105OB, or QW0107OB.

If present, then name of the object is shown. Otherwise the decimal identifier from QW0172KP is shown, or N/A if this value is 0.

Field Name: RT0172OB

RESOURCE ID

The hexadecimal identifier of the small resource. If LOCK RES TYPE is:

DATA PAGE LOCKING
First 3 bytes are the page number

DATA SET LOCKING (PARTITION)
Last byte is the partition number

INDEX PAGE LOCKING
First 3 bytes are the page number

HASH ANCHOR LOCK
First 3 bytes are the page number and the last byte is the anchor point ID

CS-READ DRAIN
Last byte is the partition number (optional)

RR-READ DRAIN
Last byte is the partition number (optional)

WRITE DRAIN
Last byte is the partition number (optional)
ROW LOCK
First 3 bytes are the page number and the last byte is the row ID of the record

INDEX END OF FILE LOCK
Last byte is the partition number (optional)

Note:
• In large partitioned table spaces, the page number covers 4 bytes instead of 3.
• If table spaces use relative page numbers, the resource ID covers 7 bytes. It contains the partition number in the first 2 bytes, the page number in the next 4 bytes, and the record ID in the seventh byte.

This field is not applicable if the value in LOCK RES TYPE is SKELETON CURSOR TABLE LOCKING, SKELETON PACKAGE TABLE LOCK, COLLECTION, or ALTER BUFFER POOL. If the value is UTILITY SERIALIZATION LOCK or BINDLOCK, N/A is printed.

Field Name: QW0172KR
LOCK HASH VALUE
The hash value of the locked resource.

Field Name: QW0172LH

IFCID 172 - Unit of Work - Blocker:
This topic shows detailed information about “Record Trace - IFCID 172 - Unit of Work - Blocker”.

A blocker is a thread that prevents its victim from acquiring its lock. The blocker might be a holder of the lock, or it might be another waiter (that came in before the victim) that is incompatible with the holder's lock.

Note: If the fields PLAN NAME, CORR ID, CONN, and NETWORKID show an asterisk (*), the blocking request was released by the requester or was timed out between the detection and reporting of the deadlock.

Record trace - IFCID 172 - Unit of Work - Blocker
The field labels shown in the following sample layout of “Record Trace - IFCID 172 - Unit of Work - Blocker” are described in the following section.

PRIMAUTH
The authorization ID of the thread holding the resource.

Field Name: QW0172HB

PLAN NAME
The plan name of the blocker.

Field Name: QW0172HP
CORR ID
The correlation name of the blocker.

Field Name: QW0172HR

CONN ID
The connection ID of the blocker.

Field Name: QW0172HN

NETWORKID
Provides the following information:
• The logical unit of work identifier of the blocker. The data shown is only valid for distributed threads.
• The logical unit name of the blocker. The data shown is only valid for distributed threads.
• The uniqueness value of the blocker. The data shown is only valid for distributed threads.

Field Name: QW0172HL

LUNAME
Provides the following information:
• The logical unit of work identifier of the blocker. The data shown is only valid for distributed threads.
• The logical unit name of the blocker. The data shown is only valid for distributed threads.
• The uniqueness value of the blocker. The data shown is only valid for distributed threads.

Field Name: QW0172HL

OWNING WORK UNIT
The owning unit of work of the blocker.

Field Name: QW0172HO

UNIQUENESS VALUE
Provides the following information:
• The logical unit of work identifier of the blocker. The data shown is only valid for distributed threads.
• The logical unit name of the blocker. The data shown is only valid for distributed threads.
• The uniqueness value of the blocker. The data shown is only valid for distributed threads.

Field Name: QW0172HL

MEMBER
The DB2 member name.

Field Name: QW0172HI

DURATION
The lock duration of the thread blocking the resource.

Field Name: QW0172HD
IFCID 172 - Unit of Work - Blocker

STATE
The lock state of the thread holding the resource.
Field Name: QW0172HS

ACE
The owning unit of work of the blocker.
Field Name: QW0172HO

TRANSACTION
The transaction or application name that is run.
Field Name: QWHCEUTX

WS_NAME
The end user's workstation name.
Field Name: QWHCEUWN

END_USER
The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information.
Field Name: QWHCEUID

PROGRAM NAME
The name of the program that is in control at the time of the deadlock. It need not be the program that acquired the lock.
Field Name: QW0172Q1

LOCATION
Location of the program that is in control at the time of the deadlock. It need not be the program that acquired the lock.
Field Name: QW0172Q3

PCKG/COLL ID
Package collection ID of the program that is in control at the time of the deadlock. It need not be the program that acquired the lock.
Field Name: QW0172Q2

CONS_TOKEN
Consistency token of the program that is in control at the time of the deadlock. It need not be the program that acquired the lock.
Field Name: QW0172Q4

STMT ID
Shows the cached statement ID for the thread holding the resource. This field contains zero (0) if the client does not supply this information.
Field Name: QW0172H9

STMT ID
The holder statement ID.
Field Name: QW0172HZ
TYPE

The holder statement information.

Field Name: QW0172HY

STATUS

The status of the blocker.

WAIT  The blocker is waiting for the resource.

HOLD  The blocker is holding the resource.

Field Name: QW0172H2

IFCID 172 - Unit of Work - Blocker:

This topic shows detailed information about “Record Trace - IFCID 172 - Unit of Work - Waiter”.

Record trace - IFCID 172 - Unit of Work - Waiter

The field labels shown in the following sample layout of “Record Trace - IFCID 172 - Unit of Work - Waiter” are described in the following section.

WAITER

PRIMAUTH : 'BLANK'  PLAN NAME : WAITPLAN  CORR ID : WAITCORRID01  CONN ID : WAITCONN
NETWORKID : LUWID 1  LUNAME : XXXXXXXX  OWNING WORK UNIT: 51683  UNIQUENESS VALUE: X'E7E7E7E7E7'
MEMBER : WAITMEM2  DURATION : PLAN  STATE : SHARED  ACE : 3
TRANSACTION : WAITER TRANSACTION NAME  WS_NAME : WAITER WORKSTATION  END_USER : 'BLANK'
PROGRAM NAME: PGM000W1  LOCATION : LOCATION000000W1  PCKG/COLL ID: COLLECTIONID0000W1
DB2 ASID : 59073  REQ WORK UNIT: 51683  EB PTR : X'E6E409F1'  REQ FUNCTION: CHANGE
WORTH : X'11'  QW0172W6: X'10'

PRIMAUTH

The authorization ID of the thread waiting for the resource.

Field Name: QW0172WB

PLAN NAME

The plan name of the waiter.

Field Name: QW0172WP

CORR ID

The correlation ID of the waiter.

Field Name: QW0172WR

CONN ID

The connection ID of the waiter.

Field Name: QW0172WN

NETWORKID

Provides the following information:

- The logical unit of work identifier of the waiter. The data shown is only valid for distributed threads.
- The logical unit name of the waiter. The data shown is only valid for distributed threads.
- The uniqueness value of the waiter. The data shown is only valid for distributed threads.
Field Name: QW0172WL

**LUNAME**

Provides the following information:
- The logical unit of work identifier of the waiter. The data shown is only valid for distributed threads.
- The logical unit name of the waiter. The data shown is only valid for distributed threads.
- The uniqueness value of the waiter. The data shown is only valid for distributed threads.

Field Name: QW0172WL

**OWNING WORK UNIT**

The owning unit of work of the waiter.

Field Name: QW0172WO

**UNIQUENESS VALUE**

Provides the following information:
- The logical unit of work identifier of the waiter. The data shown is only valid for distributed threads.
- The logical unit name of the waiter. The data shown is only valid for distributed threads.
- The uniqueness value of the waiter. The data shown is only valid for distributed threads.

Field Name: QW0172WL

**MEMBER**

The waiter's DB2 member name.

Field Name: QW0172WI

**DURATION**

The lock duration of the thread waiting for the resource.

- **MANUAL** Varies depending on the ISOLATION parameter (QW0172DR=x'20')
- **MANUAL+1** Temporary change of consistency level from CS to RR during bind and DDL (QW0172DR=x'21')
- **COMMIT** Until commit (QW0172DR=x'40')
- **COMMIT+1** Past commit; applies to locks needed to maintain the position for a cursor opened WITH HOLD (QW0172DR=x'41')
- **ALLOCATION** Until deallocation (QW0172DR=x'60')
- **PLAN** For the duration of the plan (QW0172DR=x'80')
- **UTIL** For the duration of the utility execution (QW0172DR=x'81')
- **INTEREST** Duration used for P-locks (QW0172DR=x'FE')
- **FREE ALL** Until all locks are freed (QW0172DR=x'FF')
N/A Not applicable for NOTIFY SUSPEND

Field Name: QW0172WD

STATE
The lock state of the thread waiting for the resource.
Field Name: QW0172WS

ACE
The owning unit of work of the waiter.
Field Name: QW0172WO

TRANSACTION
The transaction or application name that is run.
Field Name: QWHCEUTX

WS_NAME
The end user’s workstation name.
Field Name: QWHCEUWN

END_USER
The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information.
Field Name: QWHCEUID

PROGRAM NAME
The name of the program that is in control at the time of the deadlock. It need not be the program that acquired the lock.
Field Name: QW0172Q5

LOCATION
Package collection ID of the program that is in control at the time of the deadlock. It need not be the program that acquired the lock.
Field Name: QW0172Q6

PCKG/COLL ID
Location of the program that is in control at the time of the deadlock. It need not be the program that acquired the lock.
Field Name: QW0172Q7

CONS_TOKEN
Consistency token of the program that is in control at the time of the deadlock. It need not be the program that acquired the lock.
Field Name: QW0172Q8

STMT ID
Shows the cached statement ID for the thread waiting for the resource. This field contains zero (0) if the client does not supply this information.
Field Name: QW0172W9

STMT ID
The waiter statement ID.

Field Name: QW0172WZ

TYPE

The waiter statement information.

Field Name: QW0172WY

DB2S ASIC

The DB2S ASIC of the waiter. A unique number allocated to the requesting work unit of the waiter. The EB pointer of the waiter.

Field Name: QW0172AS

REQ WORK UNIT

The waiter's requesting work unit.

Field Name: QW0172UW

EB PTR

The EB pointer of the waiter.

Field Name: QW0172WE

REQ FUNCTION

The function requested by the waiter.

Field Name: QW0172WF

WORTH

The worth value DB2 assigns to the waiter.

Field Name: QW0172WA

IFCID 173 - Class 2 Time:

This topic shows detailed information about “Record Trace - IFCID 173 - Class 2 Time”.

When present, data for this IFCID is printed in dump format, otherwise NO DATA is printed.

Record trace - IFCID 173 - Class 2 Time

The field labels shown in the following sample layout of “Record Trace - IFCID 173 - Class 2 Time” are described in the following section.

AUTH ID

The authorization ID.

Field Name: QW0173ID

PACKAGE COLL ID

The package collection ID.
Field Name: QW0173PC

PACKAGE NAME
The package name.
Field Name: QW0173PK

CURSOR NAME
The cursor name, if there is a cursor.
Field Name: QW0173CN

PLAN NAME
The plan name.
Field Name: QW0173PL

SECTION NUMBER
The section number in the plan.
Field Name: QW0173SN

STATEMENT NUMBER
The statement number in the plan.
Field Name: QW0173ST

CACHED STMNT ID
The cached statement ID. Zero (0) indicates that this information is not supplied.
Field Name: QW0173CS

IFCID 174 - Arch Log CMD Sus Start:

This topic shows detailed information about “Record Trace - IFCID 174 - Arch Log CMD Sus Start”.

Record trace - IFCID 174 - Arch Log CMD Sus Start

The field labels shown in the following sample layout of “Record Trace - IFCID 174 - Arch Log CMD Sus Start” are described in the following section.

ACE: 1
QW0174EB X’0243918B’ QW0174UR X’0242C168’

ACE
The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.
Field Name: QW0174AC

IFCID 175 - Arch Log CMD Sus End:

This topic shows detailed information about “Record Trace - IFCID 175 - Arch Log CMD Sus End”.

Chapter 6. Batch reporting 3969
Record trace - IFCID 175 - Arch Log CMD Sus End

The field labels shown in the following sample layout of “Record Trace - IFCID 175 - Arch Log CMD Sus End” are described in the following section.

ACE:

ACE

The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.

Field Name: QW0175AC

IFCID 177 - Package Allocation:

This topic shows detailed information about “Record Trace - IFCID 177 - Package Allocation”.

Record trace - IFCID 177 - Package Allocation

The field labels shown in the following sample layout of “Record Trace - IFCID 177 - Package Allocation” are described in the following section.

PACKAGE NETWORKID: G91E81D0 LUNAME: D179 LUWSEQ: 2
ALLOCATION REQUESTING LOCATION: 9.30.129.208
REQUESTING TIMESTAMP: N/P
AR NAME: gixxer PROID: CLNT/SER V8 R1 M4
ACCTKN X'C7F9F1C5F8F1C4F04BC4F1F7F9000F92022652404040'
LOCATION : DSND81B
COLLECTION ID : AIXPGMS
PACKAGE ID : SQLEMBT
CONSISTENCY TOKEN: X'5A4276344E644C54'
VERSION NAME : N/P
DYNAMICRULES : RUN
PLAN : DISTSERV
ISOLATION : CS
ACQUIRE : USE
RELEASE : COMMIT
REOPTIMIZATION : NO
DEFERPREPARE : NO
KEEPDYNAMIC : NO
DBPROTOCOL : DRDA
OPT_HINT_IDENT : 'BLANK'
IMMEDWRITE : NO

LOCATION

The location of the package. This field shows 'BLANK' if the local location is not defined.

Field Name: QW0177LO

COLLECTION ID

The collection name.

Field Name: QW0177CO

PACKAGE ID

The package identifier.

Field Name: QW0177PI

CONSISTENCY TOKEN
The consistency token (timestamp) of the program.

Field Name: QW0177CT

VERSION NAME

The version. This field shows N/P if the record does not contain a valid version.

Field Name: QW0177VN

DYNAMICRULES

The value of the DYNAMICRULES option on the BIND/REBIND command:

- **RUN**  Runtime rules apply to a dynamic SQL statement for authorization checking and object qualification at run time.
- **BIND** Bind-time rules apply to a dynamic SQL statement for authorization checking and object qualification at run time.

N/P in this field indicates that DYNAMICRULES was not specified.

Field Name: QW0177DY

PLAN

The name of the plan under which the package is running.

Field Name: QW0177PL

ISOLATION

The isolation level of the package:

- **RR**  Repeatable read
- **CS**  Cursor stability
- **RS**  Read stability
- **UR**  Uncommitted read

Field Name: QW0177IS

ACQUIRE

The acquire level of the package.

Field Name: QW0177AQ

RELEASE

The release level of the package.

Field Name: QW0177RL

REOPTIMIZATION

Indicates whether reoptimization was requested:

- **YES**  REOPT(VARS) was specified to reoptimize the access path of the SQL statement at run time.
- **NO**  NOREOPT(VARS) was specified to optimize the access path of the SQL statement only at bind time.

Field Name: QW0177RO

DEFERPREPARE
Indicates whether the preparation of dynamic SQL statements was deferred:

**YES**  
DEFER(PREPARE) was specified to defer the preparation of the dynamic SQL statements that refer to remote objects until run time.

**NO**  
NODEFER(PREPARE) was specified to prepare the dynamic SQL statements at bind time.

**Field Name:** QW0177DP

**KEEPDYNAMIC**
Indicates whether DB2 keeps (KEEPDYNAMIC(YES)) or discards (KEEPDYNAMIC(NO)) prepared SQL statements at commit points.

**Field Name:** QW0177KD

**DBPROTOCOL**
Protocol. Possible values are:
- **DRDA**
- **PRIVATE**

**Field Name:** QW0177PR

**OPT_HINT_IDENT**
Query optimization hint identifier, the default is blanks.

**Field Name:** QW0177OH

**IMMEDWRITE**
Indicates how DB2 updates group buffer pool dependent pages. This is only valid in a data-sharing environment.

Group buffer pool dependent pages can be written out to DASD or SYSTEM pagesets. Values shown are:

**NO**  
DB2 uses normal write activity for updates, this is the default. Pages are written out at, or before phase 2 commit, or at the end of an abort for transactions that have rolled back.

**PH1**  
Pages are written out at, or before phase 1 commit.

If a transaction subsequently rolls back, the pages are updated in the group buffer pool at the end of the rollback, and are written out at the end of the abort.

**YES**  
Pages are written out to the coupling facility as soon as the buffer update commits. Pages are written out regardless of whether the update occurs during forward progress or rollback of the transaction.

This option can affect DB2 performance due to coupling facility overhead.

**N/P**  
The DB2 subsystem is not part of a data sharing group.

**Field Name:** QW0177WI

**IFCID 178 - IBM Service Record:**

This topic shows detailed information about “Record Trace - IFCID 178 - IBM Service Record”.

3972  IBM Db2 Performance Expert on z/OS
This record is for IBM service use.

**IFCID 179 - IBM Service Record:**

This topic shows detailed information about “Record Trace - IFCID 179 - IBM Service Record”.

This record is for IBM service use.

**IFCID 180 - DC Communication Buffers:**

This topic shows detailed information about “Record Trace - IFCID 180 - DC Communication Buffers”.

The format of this record depends on the format of the network protocol.

**Record trace - IFCID 180 - DC Communication Buffers**

The field labels shown in the following sample layout of “Record Trace - IFCID 180 - DC Communication Buffers” are described in the following section.

### If SNA:

```
TYPE OF EVENT : SENT AN FMH-5 TO ALLOCATE A CONVERSATION
NETWORK PROTOCOL: SNA    CONVERSATION ID : X'00000010'    SESSION : X'1000000000000000'
MSG LENGTH : 52
MSG/FMH-5 : TRACEXXXX1XXXXXXXXX2XXXXXXXXX3XXXXXXXXX4XXXXXXXXXZ
```

### If TCP/IP V4:

```
TYPE OF EVENT : RECEIVED DISTRIBUTED DATA MESSAGE
NETWORK PROTOCOL: TCP/IP V4    SOCKET DESCRIPTOR: X'00000010'    IP ADDRESS: X'1000000000000000D3D4E7E7E7E7E7E9'
LOCAL PORT : X'A7A7'    PARTNER PORT : X'A7A7'
MSG LENGTH : 52
MSG/FMH-5 : TRACEXXXX1XXXXXXXXX2XXXXXXXXX3XXXXXXXXX4XXXXXXXXXZ
```

### If TCP/IP V6:

```
TYPE OF EVENT : RECEIVED A DISTRIBUTED DATA MESSAGE
NETWORK PROTOCOL: TCP/IP V6    SOCKET DESCRIPTOR: X'00000010'    IP ADDRESS: X'1000000000000000D3D4E7E7E7E7E7E9'
LOCAL PORT : X'A7A7'    PARTNER PORT : X'A7A7'
MSG LENGTH : 52
MSG/FMH-5 : TRACEXXXX1XXXXXXXXX2XXXXXXXXX3XXXXXXXXX4XXXXXXXXXZ
```

**TYPE OF EVENT**

The type of event:

- **R** A distributed data message was received.
- **S** A distributed data message was sent.
- **F** An FMH-5 on an incoming conversation was received (only possible for VTAM conversations).
- **A** An FMH-5 to allocate a conversation was sent (only possible for VTAM conversations).

**Field Name:** QW0180E

**NETWORK PROTOCOL**

The type of network protocol:

- SNA
- TCP/IP IPV4
- TCP/IP IPV6

Chapter 6. Batch reporting 3973
**Field Name:** QW0180NP

**SESSION ID or IP ADDRESS(V4), LOCAL PORT(V4), PARTNER PORT(V4)**

For SNA: this field contains the session ID. For TCP/IP: If QWHSRN is lower than 91, this field contains the 32-bit IPV4 IP address, followed by the 16-bit local port number, followed by the 16-bit partner port number.

**Field Name:** QW0180SI

**IPADDRESS (V6)**

The IP address for TCP/IP:
- If QWHSRN is lower than or equal to 91, this field contains the IP address in internal form.
- If QW0180NP is equal to '01'B, this field contains an IPV4 IP address, which can be mapped.
- If QW0180NP is equal to '10'B, this field contains a 128-bit IPV6 IP address.

**Field Name:** QW0180IP

**MODE**

For SNA: the entry name of the log mode.

**Field Name:** QW0180LM

**LOCAL PORT (V6)**

The local port.

**Field Name:** QW0180LP

**PARTNER PORT (V6)**

The partner port.

**Field Name:** QW0180PP

**MSG LENGTH**

The length of the variable length area mapped by QW0180DS.

**Field Name:** QW0180DL

**MSG/FMH-5**

The variable length message or FMH-5 data. (The password in the FMH-5 or the TCP/IP message is changed to blanks.)

**Field Name:** QW0180DS

**IFCID 181 - IBM Service Record:**

This topic shows detailed information about “Record Trace - IFCID 181 - IBM Service Record”.

This record is for IBM service use.

**IFCID 182 - IBM Service Record:**

This topic shows detailed information about “Record Trace - IFCID 182 - IBM Service Record”.

This record is for IBM service use.
IFCID 183 - DRDS RDS/SCC Interface:

This topic shows detailed information about “Record Trace - IFCID 183 - DRDS RDS/SCC Interface”.

This record provides information about the type of request being processed at the requester.

This record is produced only for DRDA requests.

Record trace - IFCID 183 - DRDS RDS/SCC Interface

The field labels shown in the following sample layout of “Record Trace - IFCID 183 - DRDS RDS/SCC Interface” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVENT TYPE</td>
<td>The type of event.</td>
</tr>
<tr>
<td>FUNCTION</td>
<td>The type of function.</td>
</tr>
<tr>
<td>LOCATION</td>
<td>The location name of the application server.</td>
</tr>
<tr>
<td>COLLECTION</td>
<td>The collection name.</td>
</tr>
<tr>
<td>PACKAGE ID</td>
<td>The package ID.</td>
</tr>
<tr>
<td>SQL STATEMENT TYPE</td>
<td>The SQL statement type:</td>
</tr>
<tr>
<td>NETWORKID</td>
<td>DEIBMIPS</td>
</tr>
<tr>
<td>LUNAME</td>
<td>IPSAR721</td>
</tr>
<tr>
<td>LUWSEQ</td>
<td>1</td>
</tr>
<tr>
<td>EVENT : RETURN TO RDS/SCC</td>
<td></td>
</tr>
<tr>
<td>FUNCTION : CONNECT RESET FOR BIND</td>
<td></td>
</tr>
<tr>
<td>LOCATION : LOCATIONNAME0002</td>
<td></td>
</tr>
<tr>
<td>COLLECTION : COLLECTIONNAME0002</td>
<td></td>
</tr>
<tr>
<td>PACKAGE ID : PROGNAM2</td>
<td></td>
</tr>
<tr>
<td>SQL STATEMENT NUMBER : 0</td>
<td></td>
</tr>
<tr>
<td>SQL STATEMENT TYPE : 80</td>
<td></td>
</tr>
<tr>
<td>RETURN CODE : 77</td>
<td></td>
</tr>
</tbody>
</table>

EVENT TYPE

Field Name: QW0183E

FUNCTION

Field Name: QW0183FN

LOCATION

Field Name: QW0183LN

COLLECTION

Field Name: QW0183CO

PACKAGE ID

Field Name: QW0183PN

SQL STATEMENT TYPE

Field Name: QW0183SCO
### IFCID 183 - DRDS RDS/SCC Interface

<table>
<thead>
<tr>
<th>Line</th>
<th>SQL Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>017</td>
<td>DESCRIBE</td>
</tr>
<tr>
<td>018</td>
<td>EXPLAIN</td>
</tr>
<tr>
<td>231</td>
<td>SELECT</td>
</tr>
<tr>
<td>232</td>
<td>INSERT</td>
</tr>
<tr>
<td>233</td>
<td>DELETE</td>
</tr>
<tr>
<td>234</td>
<td>UPDATE</td>
</tr>
<tr>
<td>239</td>
<td>SELECT</td>
</tr>
<tr>
<td>259</td>
<td>SET CURRENT SQLID</td>
</tr>
<tr>
<td>268</td>
<td>GRANT</td>
</tr>
<tr>
<td>271</td>
<td>REVOKE</td>
</tr>
<tr>
<td>276</td>
<td>REMOTE SQL</td>
</tr>
<tr>
<td>277</td>
<td>ROLLBACK</td>
</tr>
<tr>
<td>278</td>
<td>LOCK</td>
</tr>
<tr>
<td>308</td>
<td>CREATE VIEW</td>
</tr>
<tr>
<td>310</td>
<td>COMMIT</td>
</tr>
<tr>
<td>666</td>
<td>INTOOPEN</td>
</tr>
<tr>
<td>710</td>
<td>CREATE DATABASE</td>
</tr>
<tr>
<td>716</td>
<td>CREATE TABLESPACE</td>
</tr>
<tr>
<td>719</td>
<td>CREATE STOGROUP</td>
</tr>
<tr>
<td>721</td>
<td>CREATE TABLE</td>
</tr>
<tr>
<td>726</td>
<td>CREATE INDEX</td>
</tr>
<tr>
<td>728</td>
<td>CREATE SYNONYM</td>
</tr>
<tr>
<td>729</td>
<td>DROP VIEW</td>
</tr>
<tr>
<td>730</td>
<td>DROP SYNONYM</td>
</tr>
<tr>
<td>731</td>
<td>DROP INDEX</td>
</tr>
<tr>
<td>732</td>
<td>DROP TABLE</td>
</tr>
<tr>
<td>733</td>
<td>DROP TABLESPACE</td>
</tr>
<tr>
<td>734</td>
<td>DROP DATABASE</td>
</tr>
<tr>
<td>735</td>
<td>DROP STOGROUP</td>
</tr>
<tr>
<td>736</td>
<td>ALTER STOGROUP</td>
</tr>
<tr>
<td>738</td>
<td>ALTER TABLESPACE</td>
</tr>
<tr>
<td>739</td>
<td>ALTER INDEX</td>
</tr>
<tr>
<td>740</td>
<td>ALTER TABLE</td>
</tr>
<tr>
<td>741</td>
<td>COMMENT ON</td>
</tr>
<tr>
<td>742</td>
<td>LABEL ON</td>
</tr>
<tr>
<td>745</td>
<td>SET CURRENT PACKAGESET</td>
</tr>
<tr>
<td>746</td>
<td>SET HOST VAR</td>
</tr>
</tbody>
</table>
IFCID 183 - DRDS RDS/SCC Interface

747 CONNECT TO
748 CONNECT RESET
749 CONNECT
750 IMPLICIT CONNECT
755 CREATE ALIAS
759 DROP ALIAS
761 DROP PACKAGE/PROGRAM
763 ALTER DATABASE
768 SET CURRENT DEGREE
769 CONNECT TO TYPE 2
770 CONN RESET TYPE 2
771 CONNECT TYPE 2
772 SET CONNECTION
773 RELEASE LOCATION
774 RELEASE CURRENT
775 RELEASE ALL
776 RELEASE ALL SQL
777 RELEASE ALL PRIV.
781 SET CURRENT RULES
782 CALL

Field Name: QW0183ST

SQL STATEMENT NUMBER

The SQL statement number.

Field Name: QW0183SN

RETURN CODE

The return code.

Field Name: QW0183RC

IFCID 184 - DC Communication Buffers:

This topic shows detailed information about “Record Trace - IFCID 184 - DC Communication Buffers”.

Record trace - IFCID 184 - DC Communication Buffers

The field labels shown in the following sample layout of “Record Trace - IFCID 184 - DC Communication Buffers” are described in the following section.

TYPE OF EVENT

The type of event can be one of the following:
IFCID 184 - DC Communication Buffers

- MSG RECEIVED
- MSG SENT
- MSG CONTINUED

Field Name: QW0184E

NETWORK PROTOCOL
The partner port.
Field Name: QW0184PP

SOCKET DESCRIPTOR
The descriptor of the TCP/IP socket in hexadecimal.
Field Name: QW0184SD

IP ADDRESS
The IP Address or Port in hexadecimal.
Field Name: QW0184SI

LOCAL PORT
The local port.
Field Name: QW0184LP

PARTNER PORT
The partner port.
Field Name: QW0184PP

MESSAGE LENGTH
The length of the message.
Field Name: QW0184DL

MESSAGE TEXT
The text of the message.
Field Name: QW0184DS

IFCID 185 - READs Data Capture Start:
This topic shows detailed information about “Record Trace - IFCID 185 - READs Data Capture Start”.

When present, data is printed in hexadecimal dump format, otherwise NO DATA is printed.

IFCID 186 - IBM Service Record:
This topic shows detailed information about “Record Trace - IFCID 186 - IBM Service Record”.

This record is for IBM service use.

IFCID 188 - READs Data Capture End:
This topic shows detailed information about “Record Trace - IFCID 188 - READs Data Capture End”.
Record trace - IFCID 188 - READs Data Capture End

The field labels shown in the following sample layout of “Record Trace - IFCID 188 - READs Data Capture End” are described in the following section.

REQUEST TYPE

The type of request from the WQALCDCD field of the IFI qualification area.

Field Name: QW0188TP

READS REQUEST FLAG

The reads request flag. If the value is x'40', reads were required because more data was available than would fit in the user return area. If this occurs frequently, consider increasing the size of the user return area.

Field Name: QW0188FL

DESCRIBES

The number of data capture describes.

Field Name: QW0188MB

LONGEST LOG READ

The portion of the log read that took the longest amount of time.

Field Name: QW0188PL

BEGIN REQUEST RBA

The beginning RBA of the requested log range.

Field Name: QW0188BT

DESCRIBE ELAPSED

The elapsed time of the data capture describe.

Field Name: QW0188BR

LOG READS RETURNED

The total number of log records from which data rows are returned for this single READs request.

Field Name: QW0188RD

END REQUEST RBA

The end RBA of the requested log range.

Field Name: QW0188ER

LOG READS PERFORMED

The number of log reads performed.

Field Name: QW0188LR

TABLES RETURNED

The number of data capture tables returned.
IFCID 188 - READs Data Capture End

Field Name: QW0188TB

LOG READ ELAPSED
The elapsed time of the longest log read.

Field Name: QW0188LL

LOG RECS RETURNED
The total number of log records retrieved by one or more reads requests for IFCID 185 for a single SQL change. If the value in this field is less than the value in LOG RECS CAPTURED, then additional log records must be retrieved to obtain all log records involved in the SQL change.

Field Name: QW0188RR

DATA ROWS RETURNED
The number of data rows returned.

Field Name: QW0188DR

LOG EXTRACT ELAPSED
The log extraction elapsed time for IFCID 185 requests.

Field Name: QW0188LT

LOG RECS CAPTURED
The total number of log records captured on the log for this particular SQL change.

Field Name: QW0188LC

DATA DESCRIPTOR
The number of data descriptions returned.

Field Name: QW0188DD

IFCID 190 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 190 - IBM Service Record”.

This record is for IBM service use.

IFCID 191 - DDM Level 6B Objects: This record can contain six types of data section. One header section and one 6B DSS section are always present. The other sections are only printed if they are present.

IFCID 191 - Command and/or Reply Section:

This topic shows detailed information about “Record Trace - IFCID 191 - Command and/or Reply Section”.

Record trace - IFCID 191 - Command and/or Reply Section

The field labels shown in the following sample layout of “Record Trace - IFCID 191 - Command and/or Reply Section” are described in the following section.
EYECATCHER

The type of data in this section:

DRDACMND
Command data

DRDARPLY
Reply data

DRDAHCMND
Command data

DRDAHRPY
Reply data

DRDARDTA
Reply data

DRDACDTA
Command data

Field Name: QW0191RE

PARSE STATUS

The parse status:

DRDASUCC
The parse is successful.

DRDAFAIL
The parse is unsuccessful.

Field Name: QW0191PS

CODE POINT

The code point.

Field Name: QW0191C3

RELATIVE NUMBER

The relative number of the data stream structure carrier.

Field Name: QW0191NM

RPY/RQS/OBJ

Offset to the start of RPY/RQS/OBJ DSS within the IFCID 191 record.

Field Name: QW0191OF

PARSE FAIL

Offset relative to the IFCID 191 record point at which parse failed.

Field Name: QW0191FO

FD SECTION

Offset relative to the IFCID 191 record to the LATE DESCRIPTOR section.

Field Name: QW0191D1

RT SECTION

Offset relative to the IFCID 191 record to the RDTA DATA section.

Field Name: QW0191D2
IFCID 191 - Command and/or Reply Section

LT SECTION
Offset relative to the IFCID 191 record to the FD LIDLST section.

Field Name: QW0191D3

EA SECTION
Offset relative to the IFCID 191 record to the ZEDA DATA section.

Field Name: QW0191D4

IFCID 191 - DB2 ZEDA:

This topic shows detailed information about “Record Trace - IFCID 191 - DB2 ZEDA”.

DB2 ZEDA is available if the pointer EA SECTION is set on the COMMAND AND/OR REPLY section.

Record trace - IFCID 191 - DB2 ZEDA

The field labels shown in the following sample layout of “Record Trace - IFCID 191 - DB2 ZEDA” are described in the following section.

EYECATCHER

The type of data in this section:

DRDACMND
Command data

DRDARPLY
Reply data

DRDAHCMD
Command data

DRDAHRPY
Reply data

DRDARDTA
Reply data

DRDACDTA
Command data

Field Name: QW0191RE

IFCID 191 - Header Section:

This topic shows detailed information about “Record Trace - IFCID 191 - Header Section”.

IBM Db2 Performance Expert on z/OS
Record trace - IFCID 191 - Header Section

The field labels shown in the following sample layout of “Record Trace - IFCID 191 - Header Section” are described in the following section.

LOCATION
The name of the remote location.
Field Name: QW0191LN

VERSION
The version number for all sections.
Field Name: QW0191VS

OBJ LEN.
The length of the failed object.
Field Name: QW0191FL

REASON
The reason code.
Field Name: QW0191RS

RECORD
The sequence number for this IFCID 191 record out of the total number of IFCID 191 records.
Field Name: QW0191NO

OF TOTAL
The total number of IFCID 191 records.
Field Name: QW0191TO

MODULE
The module name.
Field Name: QW0191MN

SOURCE
The source ID in the module.
Field Name: QW0191MI

ERROR TOKEN
The unique error token.
Field Name: QW0191TK

DDM COMMAND CODE POINT
The DDM command code point.
Field Name: QW0191C1
IFCID 191 - Header Section

The DB2 parse state:

P1 Application requester parse
P2 Application server parse

Field Name: QW0191PA

RN RECEIVED
The number of relay messages received.
Field Name: QW0191RN

OBJDSS RECEIVED
The number of object data stream structures received.
Field Name: QW0191ON

DSS TOTAL
The total number of data stream structures.
Field Name: QW0191DN

ERROR TYPE
The type of error:

0 SQLSTATE is SQLCA generated
1 Reply message sent

Field Name: QW0191ER

DIMENSION
The dimension of PARSE TRACE ARRAY.
Field Name: QW0191TN

PARSE TRACE ARRAY
The last five top level parse traces. These are shown in the format STATE, EVENTS.
Field Name: QW0191PT

IFCID 191 - Late Descriptor Section:
This topic shows detailed information about “Record Trace - IFCID 191 - Late Descriptor Section”.

Record trace - IFCID 191 - Late Descriptor Section
The field labels shown in the following sample layout of “Record Trace - IFCID 191 - Late Descriptor Section” are described in the following section.

LATE DESCRIPTORS PROCESSED
The number of late environmental descriptors processed.
Field Name: QW0191LD

SQLDTAGRP TRIPLETS
The total number of data stream structures.
Field Name: QW0191GN

L1

SQLDTAGRP local ID extracted.

Field Name: QW0191L1

L2

SQLCADTA local ID extracted.

Field Name: QW0191L2

L3

SQLDTA local ID extracted.

Field Name: QW0191L3

L4

SQLDTARD local ID extracted.

Field Name: QW0191L4

GEOMETRY STATUS

The FD:OCA geometry status. This field is a bit mask. The hexadecimal value of the field is printed.

- If bit 0 is on, the status of SQLDTAGRP is OK.
- If bit 1 is on, the status of SQLCADTA is OK.
- If bit 2 is on, the status of SQLDTA is OK.
- If bit 3 is on, the status of SQLDTARD is OK.

Field Name: QW0191GO

IFCID 191 - 6B DSS Section:

This topic shows detailed information about “Record Trace - IFCID 191 - 6B DSS Section”.

Record trace - IFCID 191 - 6B DSS Section

The field labels shown in the following sample layout of “Record Trace - IFCID 191 - 6B DSS Section” are described in the following section.

6B DSS DATA

EYECA TCHER  DRDAOBJ  TYPE  X‘3000’

-------------------------------------------------------------------------------------------------------------------------

0000 00422412 003100010 07780005 0101330C 70509100 00002501 017FFF07 78000502 ! ................ &j......
0020 01000000 00500000 07780005 0301E406 71F05400 01000D14 7A000000 05C1C1C1 ! ;".,"&........U..U"......AA
0040 C1C1001C 24150976 00000000 1A000409 71E05400 01000000 0671F0E9 0000 ! AA......"........".......0"....0"....

EYECA TCHER

The type of data in this section:

DRDACMND

Command data

DRDARPLY

Reply data

DRDAHCMD

Command data
IFCID 191 - 6B DSS Section

DRDAHRPY
  Reply data

DRDARDTA
  Reply data

DRDACDTA
  Command data

Field Name: QW0191RE

IFCID 192 - DDM Level 6A Header Errors: DDM level 6A header errors show the data from IFCID 192.

IFCID 192 - Current 6A Header:

This topic shows detailed information about “Record Trace - IFCID 192 - Current 6A Header”.

OFFSET
  Offset into the data stream of the current DDM level 6A header (that is, the invalid DDM header).

Field Name: QW0192CO

GDS LENGTH
  Generalized data stream (GDS) length field.

Field Name: QW0192CL

DDM CONST
  The DDM constant.

Field Name: QW0192CI

FLAG
  The DDM flag byte.

Field Name: QW0192CF

REQ CORR
  The DDM request correlator.

Field Name: QW0192CC

IFCID 192 - DDM Level 6A Header Errors:

This topic shows detailed information about “Record Trace - IFCID 192 - DDM Level 6A Header Errors”.

Record trace - IFCID 192 - DDM Level 6A Header Errors

The field labels shown in the following sample layout of “Record Trace - IFCID 192 - DDM Level 6A Header Errors” are described in the following section.
REMOTE LOCATION

The name of the remote location.

Field Name: QW0192LN

VERSION NUMBER

The version number for the IFCID 192 records.

Field Name: QW0192VN

CSECT

The CSECT that detected the error.

Field Name: QW0192CS

ERROR TYPE

The DDM error type returned.

Field Name: QW0192ER

SEVERITY

The DDM severity code returned.

Field Name: QW0192SV

ERROR CODE

The DDM error code returned. For DDM protocol errors, this is the DDM PRCCNVCD value. For DDM syntax errors, this is the DDM SYNERRCD value.

Field Name: QW0192CD

IFCID 192 - Previous 6A Header:

This topic shows detailed information about “Record Trace - IFCID 192 - Previous 6A Header”.

OFFSET

Offset into the data stream of the current DDM level 6A header (that is, the last valid DDM header).

Field Name: QW0192PO

GDS LENGTH

Generalized data stream (GDS) length field.

Field Name: QW0192PL

DDM CONST

The DDM constant.

Field Name: QW0192PI

FLAG

The DDM flag byte.

Field Name: QW0192PF
IFCID 192 - Previous 6A Header

REQ CORR
The DDM request correlator.
Field Name: QW0192PC

IFCID 193 - UOW/SQLCODE Mismatch:

This topic shows detailed information about “Record Trace - IFCID 193 - UOW/SQLCODE Mismatch”.

Record trace - IFCID 193 - UOW/SQLCODE Mismatch

The field labels shown in the following sample layout of “Record Trace - IFCID 193 - UOW/SQLCODE Mismatch” are described in the following section.

REMOTE LOCATION
The location name of the server.
Field Name: QW0193LN

VERSION
The version number of this trace record.
Field Name: QW0193VS

CSECT
The CSECT that detected the error.
Field Name: QW0193CS

SQLCODE
The SQL code returned by the server.
Field Name: QW0193SC

COMMAND SENT
The command sent to the server.
Field Name: QW0193CO

UOW DISPOSITION
The unit of work (UOW) disposition reported by the server.
Field Name: QW0193UW

IFCID 194 - Invalid SNA FMH-5 Received:

This topic shows detailed information about “Record Trace - IFCID 194 - Invalid SNA FMH-5 Received”.

Record trace - IFCID 194 - Invalid SNA FMH-5 Received

The field labels shown in the following sample layout of “Record Trace - IFCID 194 - Invalid SNA FMH-5 Received” are described in the following section.
REMOTE LOCATION
The name of the remote location.
Field Name: QW0194LN

VERSION NUMBER
The version number of this trace record.
Field Name: QW0194VN

CSECT
The CSECT that detected the error.
Field Name: QW0194CS

SNA SENSE CODE
The SNA sense code describing the error.
Field Name: QW0194SN

FMH5 DATA
The invalid SNA FMH-5 record.
Field Name: QW0194DS

IFCID 195 - SQLDA Discrepancy:
This topic shows detailed information about “Record Trace - IFCID 195 - SQLDA Discrepancy”.

Record trace - IFCID 195 - SQLDA Discrepancy
The field labels shown in the following sample layout of “Record Trace - IFCID 195 - SQLDA Discrepancy” are described in the following section.

REMOTE LOCATION: xxxxxxxxxxxxxxxx VERSION: 99999
MODULE: xxxxxxxx ID: 99999 FIELD IN ERROR: xxxxxxxx
COLUMN: 9999999999 EXISTING SQLDA: 9999999999
NEW SQLDA: 9999999999

REMOTE LOCATION
The name of the remote location.
Field Name: QW0195LN

VERSION
The version number of this trace record.
Field Name: QW0195VI

MODULE
The name of the module.
Field Name: QW0195MN

ID
The source ID in the module.
IFCID 195 - SQLDA Discrepancy

Field Name: QW0195UI

FIELD IN ERROR
The field in error:
SQLD   The number of entries in SQLD
SQLTYPE   Data type
SQLLEN   Data length
SQLDATA   CCSID

Field Name: QW0195FD

COLUMN
The column number for the field in error.

Field Name: QW0195NO

EXISTING SQLDA
The contents in the existing SQLDA field.

Field Name: QW0195SE

NEW SQLDA
The contents in the new SQLDA field.

Field Name: QW0195SN

IFCID 196 - Timeout Data:    IFCID 196 provides information on a lock request that resulted in the timeout of its DB2 task because one or more other tasks were holding incompatible locks on the requested resource. DB2 always obtains (GETMAIN) storage for this record even if the user did not activate Statistics trace class 3 or performance trace class 6.

IFCID 196 - Holder:

This topic shows detailed information about “Record Trace - IFCID 196 - Holder”.

The header label is “H O L D E R” when the task holds the lock. The header label is “W A I T E R” when the task is a higher priority waiter of the lock.

Record trace - IFCID 196 - Holder

The field labels shown in the following sample layout of “Record Trace - IFCID 196 - Holder” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMAUTH</td>
<td>Authorization ID of the thread holding the resource.</td>
</tr>
<tr>
<td>PLAN NAME</td>
<td></td>
</tr>
</tbody>
</table>

IBM Db2 Performance Expert on z/OS
The holder’s plan name or, if there is contention with a retained lock, the word SYSTEM.

**Field Name:** QW0196HP

**CORR ID**

The holder’s correlation ID or, if there is contention with a retained lock, the word SYSTEM.

**Field Name:** QW0196HR

**CONN**

The holder’s connection ID or, if there is contention with a retained lock, the word SYSTEM.

**Field Name:** QW0196HN

**LUWID - NETWORKID, LUNAME, INSTANCE**

This field contains an asterisk (*) if the lock holder is not a database access thread (DBAT). It provides the input for the:

- Holder’s network ID or, if there is contention with a retained lock, the word SYSTEM.
- Holder’s LU name or, if there is contention with a retained lock, the word SYSTEM.
- Holder’s LUW instance or, if there is contention with a retained lock, the word SYSTEM.

**Note:** This field is only valid for distributed threads.

**Field Name:** QW0196HL

**OWNING WORK UNIT**

The holder’s owning work unit. This value is printed in hexadecimal.

If there is contention with a retained lock, this field is set to X'00'.

**Field Name:** QW0196HO

**LOCK STATE**

The holder’s lock state.

**Field Name:** QW0196HS

**LOCK DURATION**

The lock duration of the holder:

- **MANUAL**
  - Varies depending on the ISOLATION parameter (QW0196HD=x'20')

- **MANUAL+1**
  - Temporary change of consistency level from CS to RR during bind and DDL (QW0196HD=x'21')

- **COMMIT**
  - Until commit (QW0196HD=x'40')

- **COMMIT+1**
  - Past commit; applies to locks needed to maintain the position for a cursor opened WITH HOLD (QW0196HD=x'41')
IFCID 196 - Holder

**ALLOCATION**
Until deallocation (QW0196HD=x'60')

**PLAN**
For the duration of the plan (QW0196HD=x'80')

**UTIL**
For the duration of the utility execution (QW0196HD=x'81')

**INTEREST**
Duration used for P-locks (QW0196HD=x'FE')

**FREE ALL**
Until all locks are freed (QW0196HD=x'FF')

x'00'
Contention with a retained lock (QW0196HD=x'00x')

**Field Name:** QW0196HD

**MEMBER**
The holder’s DB2 member name. For non-data sharing environments, N/P is shown in this field.

**Field Name:** QW0196HI

**TRANSACT**
The transaction or application name that is run.

**Field Name:** QWHCEUTX

**WS_NAME**
The end user’s workstation name.

**Field Name:** QWHCEUWN

**END_USER**
The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information.

**Field Name:** QWHCEUID

**STMT ID**
The cached statement ID for the statement holding the resource. A value of zero indicates that the client did not supply this information.

**Field Name:** QW0196H9

**STMT TYPE**

**STATIC**
The statement is of type static.

**DYNAMIC**
The statement is of type dynamic.

**Field Name:** QW0196HY

*IFCID 196 - Timeout Header:*

This topic shows detailed information about “Record Trace - IFCID 196 - Timeout Header”. 

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3992  IBM Db2 Performance Expert on z/OS
Record trace - IFCID 196 - Timeout Header

The field labels shown in the following sample layout of “Record Trace - IFCID 196 - Timeout Header” are described in the following section.

NUMBER OF HOLDERS/WAITERS

The number of agents causing the timeout.

Field Name: QW0196NU

LOCK HASH VALUE

The hash value of the locked resource.

Field Name: QW0196RH

LOCK RES TYPE

The locked resource type.

Note: For data sharing, SKELETON CURSOR TABLE LOCKING and SKELETON PACKAGE TABLE LOCK are LP-locks (an LP-lock has an L-lock component and a P-lock component).

Field Name: QW0196RN

DBID

The database ID. This field is not applicable if the value in LOCK RES TYPE is SKELETON CURSOR TABLE LOCKING, SKELETON PACKAGE TABLE LOCK, COLLECTION, or ALTER BUFFER POOL.

Deducted from the DB2 fields QW0196KD, QW0105DN or QW0107DN.

If present, the database name is shown, otherwise the decimal identifier from QW0196KD is shown or N/A if this value is 0.

Field Name: RT0196DB

OBID

The object ID. This field is not applicable if the value in LOCK RES TYPE is SKELETON CURSOR TABLE LOCKING, SKELETON PACKAGE TABLE LOCK, COLLECTION, or ALTER BUFFER POOL.

Deducted from the DB2 fields QW0196KP, QW0105TN or QW0107TN.

If present, the object name is shown, otherwise the decimal identifier from QW0196KP is shown or N/A if this value is 0.

Field Name: RT0196OB

RESOURCE ID

The hexadecimal identifier of the small resource. If LOCK RES TYPE is:

DATA PAGE LOCKING
First 3 bytes are the page number

DATA SET LOCKING (PARTITION)
Last byte is the partition number
INDEX PAGE LOCKING
   First 3 bytes are the page number

HASH ANCHOR LOCK
   First 3 bytes are the page number and the last byte is the anchor point ID

CS-READ DRAIN
   Last byte is the partition number (optional)

RR-READ DRAIN
   Last byte is the partition number (optional)

WRITE DRAIN
   Last byte is the partition number (optional)

ROW LOCK
   First 3 bytes are the page number and the last byte is the row ID of the record

INDEX END OF FILE LOCK
   Last byte is the partition number (optional)

Note:
   • In large partitioned table spaces, the page number covers 4 bytes instead of 3.
   • If table spaces use relative page numbers, the resource ID covers 7 bytes.
      It contains the partition number in the first 2 bytes, the page number in the next 4 bytes, and the record ID in the seventh byte.

This field is not applicable if the value in LOCK RES TYPE is SKELETON CURSOR TABLE LOCKING, SKELETON PACKAGE TABLE LOCK, COLLECTION, TABLE LOCK, or ALTER BUFFER POOL. If the value is UTILITY SERIALIZATION LOCK or BINDLOCK, N/A is printed.

Field Name: QW0196KR

REQUESTED FUNCTION
   The victim's type of request.

Field Name: QW0196WU

REQUESTED STATE
   The victim's lock state.

Field Name: QW0196WS

REQUESTED DURATION
   The victim's lock duration.

Field Name: QW0196WD

REQUESTED FLAGS
   The victim's lock flag.

Field Name: QW0196WF

REQUESTED OWNING WORK UNIT
   The victim's owning work unit.

Field Name: QW0196WO
ZPARM INTERVAL
The timeout interval of the ZPARM value.
Field Name: QW0196TI

INTERVAL COUNTER
The timeout counter for this thread.
Field Name: QW0196TC

WTR STMT ID
The cached statement ID for the statement waiting for the resource. A value of zero indicates that the client did not supply this information.
Field Name: QW0196W9

WTR STMT TYPE
The waiter statement information. Possible values are:
STATIC
The statement is of type static.
DYNAMIC
The statement is of type dynamic.
Field Name: QW0196WY

IFCID 197 - DB2 Messages:
This topic shows detailed information about “Record Trace - IFCID 197 - DB2 Messages”.

This IFCID enables monitoring of DB2 messages. If this trace is enabled, all console messages will be written to IFCID 197 records. This record is written when performance trace class 18 is on.

Note: Not all messages are written to the message log. DISPLAY commands, for example, are filtered out and are not shown in the log.

Record trace - IFCID 197 - DB2 Messages
The field labels shown in the following sample layout of “Record Trace - IFCID 197 - DB2 Messages” are described in the following section.

MESSAGE ID
The message ID.
Field Name: QW0197ID

MESSAGE Text
The message text can consist of up to 2500 bytes.
Field Name: QW0197TX
IFCID 198 - Buffer Manager Page Access:

This topic shows detailed information about “Record Trace - IFCID 198 - Buffer Manager Page Access”.

Record trace - IFCID 198 - Buffer Manager Page Access

The field labels shown in the following sample layout of “Record Trace - IFCID 198 - Buffer Manager Page Access” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBID</td>
<td>DB2PM</td>
</tr>
<tr>
<td>PSID</td>
<td>PROCESS</td>
</tr>
<tr>
<td>BPID</td>
<td>X'00'</td>
</tr>
<tr>
<td>FUNCTION</td>
<td>GET PAGE</td>
</tr>
<tr>
<td>PAGE STATUS</td>
<td>PAGE HIT IN BUFFERPOOL</td>
</tr>
<tr>
<td>ACCESS</td>
<td>RANDOM</td>
</tr>
<tr>
<td>ACE</td>
<td>1</td>
</tr>
<tr>
<td>PAGE REFRESH</td>
<td>N/A</td>
</tr>
<tr>
<td>PARTITION</td>
<td>0 PAGE NUMBERING: N/A</td>
</tr>
</tbody>
</table>

DBID

The database ID. Deduced from the DB2 fields QW0198DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0198DB is shown or N/A if this value is 0.

Field Name: RT0198OB

PSID

The page set object identifier. When present, this is the page set object name, otherwise the decimal identifier from QW0198OB is shown.

Field Name: RT0198PS

BPID

The buffer pool identifier.

Field Name: QW0198BP

FUNCTION

The page request function code.

Field Name: QW0198FC

PAGE STATUS

The page status in the buffer pool.

Field Name: QW0198PS

ACCESS

The page access type. This is only applicable if the value in FUNCTION is GET PAGE or RELEASE PAGE.

Field Name: QW0198AT

PAGE

The page number.

Field Name: QW0198PN

ACE

The relative number of the agent control element address in the ACE cross-reference table. This table is printed at the end of each location for every trace specified.
Field Name: QW0198AC

PAGE REFRESH

Page refresh status in case of a missed page in the virtual buffer pool. Possible values:
- FROM GROUP BUFFER POOL
- FROM DASD

Field Name: QW0198PR

PARTITION

The partition number. This field contains 0 if the request is non-partitioned.

Field Name: QW0198PT

PAGE NUMBERING

Indicates how page numbers are shown:
- REL Indicates that relative page numbers are shown in the partition.
- ABS Indicates that absolute page numbers are shown in the partition.
- N/A Not applicable.

Field Name: QW0198P1

IFCID 199 - Buffer Pool Statistics at Data Set Level:

This topic shows detailed information about “Record Trace - IFCID 199 - Buffer Pool Statistics at Data Set Level”.

Record trace - IFCID 199 - Buffer Pool Statistics at Data Set Level

The field labels shown in the following sample layout of “Record Trace - IFCID 199 - Buffer Pool Statistics at Data Set Level” are described in the following section.

INTERVAL STATIME COMPLETED: 02/09/19 08:51:48.206479
-------------------------------------------------------------------------------------------------------------------------
DBID: 452  DBNAME : 452  GBP DEPENDENT : NO  LAST IN SEQUENCE NO
BPID: BP0  OBID: 2  OBNAME : 2  TYPE OF DATASET: DATA
PARTITION : 1  DEPENDENT : NO  LAST STATISTICS: 02/09/19 08:14:50.720136
SYNC.I/O FOR WRITE AND READ  ASYNC.I/O FOR WRITE, READ, CASTOUT  BUFFER POOL CACHED PAGES
AVG. DELAY I/O (USEC) 40  AVG. DELAY I/O (USEC) 17  VPOOL CACHE CURR. 1759
MAX. DELAY I/O (USEC) 979  MAX. DELAY I/O (USEC) 1575  VPOOL CACHE CHANGED 0
TOTAL I/O PAGES 7727  TOTAL I/O PAGES 2876545  TOTAL 1/0 COUNT 1798520
VPOOL CACHE CHANGED 0
TOTAL 1/0 COUNT 1798520
CURRENT GETPAGES 60177764

INTERVAL STATIME COMPLETED

Stores the clock value at the end of the statistics interval.

Field Name: QW0199TS

DBID

Internal identifier of the database where the tablespace or indexspace resides.

The ID can be used to match column DBID of table SYSIBM.SYSDATABASE in the DB2 catalog.
IFCID 199 - Buffer Pool Statistics at Data Set Level

Be aware the value in the catalog may have changed since the time the DB2 trace record was written.

**Field Name:** QW0199DB

**DBNAME**

Internal identifier of the database where the tablespace or indexspace resides.

The ID can be used to match column DBID of table SYSIBM.SYSDATABASE in the DB2 catalog.

Be aware the value in the catalog may have changed since the time the DB2 trace record was written.

**Field Name:** QW0199DB

**GBP DEPENDENT**

Indicates whether the pageset is group buffer pool dependent. This is possible only if DB2 has been set up for data sharing.

**Field Name:** QW0199GD

**LAST IN SEQUENCE**

Indicates if this is the last IFCID 0199 record.

**Field Name:** QW0199LS

**OBID**

The internal identifier of the pageset. This can be either a table space or an index space.

For a table space the ID can be used to match column 'PSID' in SYSIBM.SYSTABLESPACE of the catalog.

For an index space the ID can be used to match column 'ISOBID' in SYSIBM.SYSINDEXES.

Be aware the value in the catalog may have changed since the time the DB2 trace record was written.

**Field Name:** QW0199OB

**OBNAME**

The internal identifier of the pageset. This can be either a table space or an index space.

For a table space the ID can be used to match column 'PSID' in SYSIBM.SYSTABLESPACE of the catalog.

For an index space the ID can be used to match column 'ISOBID' in SYSIBM.SYSINDEXES.

Be aware the value in the catalog may have changed since the time the DB2 trace record was written.

**Field Name:** QW0199OB

**TYPE OF DATASET**

Indicates whether the data set is a data table or an index space.

**Field Name:** QW0199ID

**BPID**
Identifies the buffer pool to which the information in this section refers:

- Values 0 through 49 are identifiers for BP0 through BP49.
- Values 80 through 89 are identifiers for BP32K through BP32K9.
- Values 100 through 109 are identifiers for BP8K through BP8K9.
- Values 120 through 129 are identifiers for BP16K through BP16K9.

**Field Name:** QW0199BP

**SHADOW COPY**
Indicates if it is a shadow data set.

**Field Name:** QW0199SD

**PARTITION**
For a partitioned table space or index space, this is the partition number. For a nonpartitioned table space or index space, this is the data set number.

**Field Name:** QW0199DN

**LAST STATISTICS**
The timestamp of the last time this data set was externalized in the data set Statistics record. If this is the first time, this data set appears in the Statistics record, this timestamp represents the time when the data set was opened.

**Field Name:** QW0199SC

**SYNC.I/O FOR WRITE AND READ – AVG. DELAY I/O (USEC)**
Average synchronous I/O delay for pages in the pageset, in microseconds.

**Field Name:** QW0199S1

**SYNC.I/O FOR WRITE AND READ – MAX. DELAY I/O (USEC)**
Maximum synchronous I/O delay for pages in the pageset, in microseconds.

**Field Name:** QW0199S2

**SYNC.I/O FOR WRITE AND READ - TOTAL I/O PAGES**
The number of synchronous I/Os for the pageset in the reported interval.

**Field Name:** QW0199SP

**ASYNC.I/O FOR WRITE, READ, CASTOUT – AVG. DELAY I/O (USEC)**
Average asynchronous I/O delay for pages in the pageset, in microseconds.

**Field Name:** QW0199A1

**ASYNC.I/O FOR WRITE, READ, CASTOUT – AVG. DELAY I/O (USEC)**
Average asynchronous I/O delay for pages in the pageset, in microseconds.

**Field Name:** QW0199A2

**ASYNC.I/ASYNC.I/O FOR WRITE, READ, CASTOUT - TOTAL I/O PAGES**
Number of pages read or written asynchronously for the pageset in the reported interval.

**Field Name:** QW0199AP

**ASYNC.I/ASYNC.I/O FOR WRITE, READ, CASTOUT - TOTAL I/O COUNT**
IFCID 199 - Buffer Pool Statistics at Data Set Level

The number of asynchronous I/Os for the pageset during the reported interval.
Field Name: QW0199AC

BUFFER POOL CACHED PAGES - VPOOL CACHE CURR.
Number of pageset pages in the virtual buffer pool.
Field Name: QW0199VP

BUFFER POOL CACHED PAGES - VPOOL CACHED CHANGED
Number of changed page set pages in the virtual buffer pool.
Field Name: QW0199VD

ZHYPERLINK READ – AVG. DELAY I/O (USEC)
Average delay for zHyperLink read I/O for pages in the pageset, in microseconds.
Field Name: QW0199Z1

ZHYPERLINK READ – MAX. DELAY I/O (USEC)
Maximum delay for zHyperLink read I/O for pages in the pageset, in microseconds.
Field Name: QW0199Z2

ZHYPERLINK READ – TOTAL I/O PAGES
The number of pages in the pageset read using zHyperLink during the reported interval.
Field Name: QW0199ZP

CURRENT GETPAGES
The current number of Getpage requests.
Field Name: QW0199GP

IFCID 201 - Alter Buffer Pool:

This topic shows detailed information about “Record Trace - IFCID 201 - Alter Buffer Pool”.

This IFCID records the status of a buffer pool before and after an ALTER BUFFERPOOL command.

Record trace - IFCID 201 - Alter Buffer Pool

The field labels shown in the following sample layout of “Record Trace - IFCID 201 - Alter Buffer Pool” are described in the following section.

BUFFERPOOL ID: 25 NAME: BP25 ALTER COMMAND: ALTER RETURN CODE: 0 REASON CODE: 0

OLD STATUS                  NEW STATUS
-----------------------------------------------
VPOOL SIZE : 0              VPOOL SIZE : 10
VPOOL SEQ THRESH : 80       VPOOL SEQ THRESH : 80
VPOOL DWT THRESH : 30       VPOOL DWT THRESH : 30
VPOOL VMT THRESH :          VPOOL VMT THRESH :
PERCENTAGE : 5              PERCENTAGE : 5
BUFFERS : 0                 BUFFERS : 0
VPOOL PLL SEQ THRESH : 50   VPOOL PLL SEQ THRESH : 50
ASSISTAN. SEQ THRESH : 0    ASSISTAN. SEQ THRESH : 0
PAGE STEAL METHOD : LRU    PAGE STEAL METHOD : LRU
AUTOSIZE : NO               AUTOSIZE : NO
FRAMESIZE : 4K              FRAMESIZE : 4K
VPOOL SIZE MIN : 0          VPOOL SIZE MIN : 0
BUFFERPOOL ID

The buffer pool internal identifier. The values 0 through 49 are the identifiers for BP0 through BP49. The values 80 through 89 are the identifiers for BP32K through BP32K9.

Field Name: QW0201BP

NAME

Buffer pool name.

Field Name: QDBPNM

ALTER COMMAND

This field indicates how the buffer pool was altered. Possible values:

ALTER

The ALTER BUFFERPOOL command was used.

AUTOSIZE

The AUTOMATIC AUTOSIZING (AUTOSIZE(YES) option on ALTER BUFFERPOOL was previously specified.

Field Name: QW0201CD

RETURN CODE

The return code for the ALTER BUFFERPOOL command.

Field Name: QW0201RT

REASON CODE

The reason code returned from an unsuccessful ALTER BUFFERPOOL command.

Field Name: QW0201RE

VPOOL SIZE (OLD)

The size of the old virtual pool.

Field Name: QW0201OP

VPOOL SIZE (NEW)

The size of the new virtual buffer pool.

Field Name: QW0201NP

VPOOL SEQ THRESH

The old and new virtual pool sequential steal threshold.

Old status taken from the DB2 field QW0201OT.

New status taken from the DB2 field QW0201NT.

Field Name: RT0201VS

VPOOL DWT THRESH

The old and new virtual pool deferred write threshold (DWT).

Old status taken from the DB2 field QW0201OD.

New status taken from the DB2 field QW0201ND.
IFCID 201 - Alter Buffer Pool

Field Name: RT0201VD

**VPOOL VDWT THRESH - PERCENTAGE**

The vertical deferred write threshold for the virtual buffer pool expressed as percentage.

Old status taken from the DB2 field QW0201OV.
New status taken from the DB2 field QW0201NV.

Field Name: RT0201PC

**VPOOL VDWT THRESH - BUFFERS**

The vertical deferred write threshold for the virtual buffer pool expressed as an absolute number of buffers. It is only used if VERTICAL DEFERRED WRITE THRESHOLD (PERCENTAGE) is 0.

Old status taken from the DB2 field QW0201OJ.
New status taken from the DB2 field QW0201NJ.

Field Name: RT0201BU

**VPOOL PLL SEQ THRESH**

The old and new virtual pool parallel sequential threshold.

Old status taken from the DB2 field QW0201OQ.
New status taken from the DB2 field QW0201NQ.

Field Name: RT0201VP

**ASSISTAN. SEQ THRESH**

The assisting parallel sequential threshold before and after the ALTER BUFFERPOOL command was issued.

Old status taken from the DB2 field QW0201OX.
New status taken from the DB2 field QW0201NX.

Field Name: RT0201AS

**PAGE STEAL METHOD**

Identifies the page stealing algorithm (PGSTEAL) that is used for the virtual buffer pool. It controls when and whether performance-critical objects in buffer pools are removed from buffer pools when the space is needed by other objects. Possible values are:

**LRU**  Least recently used (LRU) objects are removed first. This means it takes away pages that are not used so that more recently used pages can remain in the virtual buffer pool. This is used by default.

**FIFO**  First-In-First-Out (FIFO) means that the oldest objects are removed first. This results in a small decrease in the cost of a Getpage operation. It can reduce internal DB2 latch contention in environments that require very high concurrency.

**NONE**  Objects are not removed from buffer pool (no page stealing). This setting provides the highest availability for business-critical objects.

Old status taken from the DB2 field QW0201OK.
New status taken from the DB2 field QW0201NK.
Field Name: RT0201PS

AUTOSIZE
The old and new status of the AUTOSIZE attribute.
Old status taken from the DB2 field QW0201OZ.
New status taken from the DB2 field QW0201NZ.

Field Name: RT0201AT

FRAMESIZE (OLD)
The size of the old frame (4 KB, 1 MB, or 2 GB).

Field Name: QW0201OC

FRAMESIZE (NEW)
The new frame size (4 KB, 1 MB, or 2 GB).

Field Name: QW0201NC

VPOOL SIZE MIN (OLD)
The minimum size of the old virtual pool.

Field Name: QW0201OA

VPOOL SIZE MIN (NEW)
The minimum size of the new virtual pool.

Field Name: QW0201NA

VPOOL SIZE MAX (OLD)
The maximum size of the old virtual pool.

Field Name: QW0201OB

VPOOL SIZE MAX (NEW)
The maximum size of the new virtual pool.

Field Name: QW0201NB

SIM POOL SIZE (OLD)
The old number of simulated buffers specified for the simulated buffer pool.

Field Name: QW0201OS

SIM POOL SIZE (NEW)
The new number of simulated buffers specified for the simulated buffer pool.

Field Name: QW0201NS

SIM POOL SEQ THRESH (OLD)
The old sequential steal threshold for the simulated buffer pool, expressed as a percentage of the total simulated buffer pool size.

Field Name: QW0201OH

SIM POOL SEQ THRESH (NEW)
The new sequential steal threshold for the simulated buffer pool, expressed as a percentage of the total simulated buffer pool size.
IFCID 201 - Alter Buffer Pool

Field Name: QW0201NH

IFCID 202 - Buffer Pool Attributes:

This topic shows detailed information about “Record Trace - IFCID 202 - Buffer Pool Attributes”.

Record trace - IFCID 202 - Buffer Pool Attributes

The field labels shown in the following sample layout of “Record Trace - IFCID 202 - Buffer Pool Attributes” are described in the following section.

BUFFEROOOPOOL ID : BP0  VPOOL SIZE : 5000  VPOOL VDWT THRESH BUF : 0
PSTEAL METHOD : LRU  VPOOL SEQ THRESH : 80  VPOOL VDWT THRESH (%) : 5
PGFIX ATTRIB : NO  PARALLEL SEQ THRESH : 50  VPOOL DWT THRESH : 30
AUTOSIZE : NO  ASS PAR SEQ THRESH : 0
FRAMESIZE : 4K  VPOOL SIZE MIN : 0  VPOOL SIZE MAX : 0
SIM POOL SIZE : 200  SIM POOL SEQ THRESH : 50

QDBPSLA : 49879

BUFFEROOOPOOL ID

Buffer pool name.

Field Name: QDBPNM

VPOOL SIZE

The size of the virtual buffer pool.

Old status taken from the DB2 field QW0201OP.
New status taken from the DB2 field QW0201NP.

Field Name: QDBPVPSZ

VPOOL VDWT THRESH BUF

The vertical deferred write threshold (VDWQT), shown as the number of buffers in the virtual buffer pool that might be occupied by updated pages from a single page set.

Field Name: QDBPVDQB

PSTEAL METHOD

Identifies the page stealing algorithm (PGSTEAL) that is used for the virtual buffer pool. It controls when and whether performance-critical objects in buffer pools are removed from buffer pools when the space is needed by other objects. Possible values are:

LRU  Least recently used (LRU) objects are removed first. This means it takes away pages that are not used so that more recently used pages can remain in the virtual buffer pool. This is used by default.

FIFO  First-In-First-Out (FIFO) means that the oldest objects are removed first. This results in a small decrease in the cost of a Getpage operation. It can reduce internal DB2 latch contention in environments that require very high concurrency.

NONE  Objects are not removed from buffer pool (no page stealing). This setting provides the highest availability for business-critical objects.

Field Name: QDBPPGST
VPOOL SEQ THRESH

Virtual pool sequential threshold (VPSEQT). This threshold is a percentage of the virtual buffer pool that might be occupied by sequentially accessed pages. The pages can be in the state updated, in use, or available. Therefore, each page might count regarding exceeding any other buffer pool threshold.

The default value for VPSEQT is 80%. You can change this value to a value from 0% to 100% by using the VPSEQT option of the ALTER BUFFERPOOL command.

VPSEQT is checked before stealing a buffer for a sequentially accessed page instead of accessing the page in the virtual buffer pool. If the threshold is exceeded, DB2 tries to steal a buffer that holds a sequentially accessed page rather than one that holds a randomly accessed page.

If you set VPSEQT to 0%, sequential pages cannot occupy space in the virtual buffer pool. In this case, prefetch is disabled, and sequentially accessed pages are discarded when they are released. You can, however, set the value for HPSEQT to a value above zero and the value for VPSEQT to zero. If you set VPSEQT to 100%, sequential pages can monopolize the entire virtual buffer pool.

Field Name: QDBPVPSH

VPOOL VDWT THRESH (%)

Vertical deferred write threshold (VDWQT). This threshold is similar to the deferred write threshold but it applies to the number of updated pages for one single page set in the buffer pool. If the percentage or number of updated pages for the data set exceeds the threshold, writes up to 128 pages are scheduled for that data set.

VDWQT can be specified in one of the following ways:

1. As a percentage of the virtual buffer pool that might be occupied by updated pages from one single page set. The default value for this threshold is 5%. You can change the percentage to any value from 0% to 90%.

2. As the total number of buffers in the virtual buffer pool that might be occupied by updated pages from one single page set. You can specify the number of buffers from 0 to 9999. If you want to use the number of buffers as your threshold, you must set the percentage threshold to 0.

Field Name: QDBPVDQT

PFGIX ATTRIB

Indicates whether a page is fixed in real storage when it is first used. It can have one of the following values: YES or NO.

Field Name: QDBPPFIX

PARALLEL SEQ THRESH

Virtual buffer pool parallel sequential threshold (VPSEQT). This threshold is a part of the virtual buffer pool that might support parallel operations. It is measured as a percentage of the sequential steal threshold (VPSEQT). Setting VPSEQT to zero disables parallel operation.

The default value for this threshold is 50% of the sequential steal threshold (VPSEQT). You can change the default value to any value from 0% to 100% by using the VPPSEQT option on the ALTER BUFFERPOOL command.
Field Name: QDBPPSQT

VPOOL DWT THRESH

This threshold is a percentage of the virtual buffer pool that might be occupied by unavailable pages, including updated pages and pages in use.

The default value for QWQT is 30%. You can change this value to any value from 0% to 90% using the DWQT option of the ALTER BUFFERPOOL command.

DB2 checks QWQT when an update to a page is complete. If the percentage of unavailable pages in the virtual buffer pool exceeds QWQT, write operations are scheduled for up to 128 pages per data set to decrease the number of unavailable buffers to 10% below QWQT. For example, if QWQT is 50%, the number of unavailable buffers is reduced to 40%.

When the limit of QWQT is reached, data sets containing the oldest updated pages are written asynchronously. DB2 continues to write pages until the ratio goes below the QWQT.

Field Name: QDBPDWQT

AUTOSIZE

Indicates if the AUTOSIZE option is activated on the ALTER BUFFERPOOL command.

Field Name: QDBPASIZ

ASS PAR SEQ THRESH

Virtual buffer pool assisting parallel sequential threshold (VPXPSEQT). This threshold is a part of the virtual buffer pool that might support parallel operations initiated from another DB2 in the data sharing group. It is measured as a percentage of VPPSEQT.

Setting VPXPSEQT to zero (default) prevents DB2 from supporting sysplex query parallelism at run time for queries that use this buffer pool.

You can change the default value to any value from 0% to 100% using the VPXPSEQT option of the ALTER BUFFERPOOL command.

Field Name: QDBPXSEQT

FRAMESIZE

The frame size.

Field Name: QDBPFRAM

VPOOL SIZE MIN

The minimum size of the virtual pool.

Field Name: QDBPVPMI

VPOOL SIZE MAX

The maximum size of the virtual pool.

Field Name: QDBPVPMAX

SIM POOL SIZE

The number of simulated buffers allocated in the simulated buffer pool.

Field Name: QDBPSPSSZ
SIM POOL SEQ THRESH

The sequential steal threshold for the simulated buffer pool, expressed as a percentage of the total simulated buffer pool size.

Field Name: QDBPSPST

QDBPSLA (Prior to DB2 11)

This field is for IBM service.

Field Name: QDBPSLA

IFCID 203 - DDF Heuristic COMMIT/ROLLBK:

This topic shows detailed information about “Record Trace - IFCID 203 - DDF Heuristic COMMIT/ROLLBK”.

This record reports a heuristic decision that has forced a COMMIT or ROLLBACK for a distributed indoubt thread. The record is produced when a RECOVER INDOUBT command is issued and a remote participant in a distributed thread reports a heuristic rollback or commit during the resynchronization process.

Record trace - IFCID 203 - DDF Heuristic COMMIT/ROLLBK

The field labels shown in the following sample layout of “Record Trace - IFCID 203 - DDF Heuristic COMMIT/ROLLBK” are described in the following section.

DECISION SOURCE: LOCAL  DECISION REPORTED: COMMIT  REMOTE DECISION LOCATION: 'BLANK'

AFFECTED THREAD:  NETID: USIBMSS  LUNAME: SY00CD82  INSTANCE: X'A73916396F69'  LUW SEQ: 1  URID: X'0000154E0AA4'

COORDINATOR LOCATION: M05EC00C
PARTICIPANT LOCATIONS: N/P

DECISION SOURCE

The source of the decision.
Field Name: QW0203LR

DECISION REPORTED

The decision that was reported.
Field Name: QW0203CA

REMOTE DECISION LOCATION

The location, LU name, or IP address ( NNN.NNN.NNN ) of the location that sent the decision.
Field Name: QW0203LO

NETID

The NETID portion of logical unit of work ID (LUWID).
Field Name: QW0203NT

LUNAME

The LU name portion of the logical unit of work ID (LUWID).
Field Name: QW0203LU

INSTANCE

The instance number portion of the logical unit of work ID (LUWID).
Field Name: QW0203IN

LUW SEQ

The LUW sequence number (commit count) portion of the logical unit of work ID (LUWID).

Field Name: QW0203CM

URID

The recovery log RBA (URID) for the thread.

Field Name: QW0203UR

COORDINATOR LOCATION

The location name, LU name, or IP address (NNN.NNN.NNN) of the coordinator.

Field Name: QW0203CO

PARTICIPANT LOCATIONS

The location name of the participants in this unit of work that were accessed directly by this DB2 subsystem.

Field Name: QW0203PA

IFCID 204 - DDF Partner Cold Start:

This topic shows detailed information about “Record Trace - IFCID 204 - DDF Partner Cold Start”.

This record is written when DB2 tries to reconnect to a remote system that requests a cold start. A cold start means that the remote system has no memory of the work that was in progress when the previous connection failed. This record is only produced when DB2 has memory of threads whose outcome must be resolved.

Record trace - IFCID 204 - DDF Partner Cold Start

The field labels shown in the following sample layout of “Record Trace - IFCID 204 - DDF Partner Cold Start” are described in the following section.

LOCATION: SY00DDB2
OLD RECOVERY LOG: SY00DDB2
NEW RECOVERY LOG: SY00DDB2
AFFECTED THREADS:
NETID: USIBMUSY LUNAME: SY10DDB2 INSTANCE: X’4729F420E443’ LUW SEQ: 4
TOKEN: 1 URID: X’000000000000’ ROLE: COORDINATOR STATUS: COMMITTED

LOCATION

The location, LU name, or IP address (NNN.NNN.NNN) of the remote partner that had the cold start.

Field Name: QW0204LO

OLD RECOVERY LOG

The partner's recovery log name before the cold start.

Field Name: QW0204OR

NEW RECOVERY LOG

The partner's recovery log name after the cold start.

Field Name: QW0204NR

NETID
The NETID portion of the logical unit of work ID (LUWID).

**Field Name:** QW0204NT

**LUNAME**

The LU name portion of the logical unit of work ID (LUWID).

**Field Name:** QW0204LU

**INSTANCE**

The instance number portion of the logical unit of work ID (LUWID).

**Field Name:** QW0204IN

**LUW SEQ**

The LUW sequence number (commit count) portion of the logical unit of work ID (LUWID).

**Field Name:** QW0204CM

**TOKEN**

The local token representing the logical unit of work ID (LUWID).

**Field Name:** QW0204TK

**URID**

The recovery log RBA (URID) for the thread.

**Field Name:** QW0204UR

**ROLE**

The role of DB2 in the LUW.

**Field Name:** QW0204RL

**STATUS**

The status of the local DB2 thread.

**Field Name:** QW0204TS

**IFCID 205 - DDF Warm Start Log Name Error Information:** This topic shows the data available for IFCID 205.

*IFCID 205 - As Remembered by DB2:*

This topic shows detailed information about “Record Trace - IFCID 205 - As Remembered by DB2”.

**Record trace - IFCID 205 - As Remembered by DB2**

The field labels shown in the following sample layout of “Record Trace - IFCID 205 - As Remembered by DB2” are described in the following section.

**AS REMEMBERED BY DB2**

**PROTOCOL:** PRESUMED ROLLBACK PS HEADER USE: FLAGS LUNAME EXCHANGE: YES

**PROTOCOL**

The protocol used previously as remembered by DB2.

**Field Name:** QW0205DP

**PS HEADER USE**

Indicates how the PS header was previously used as remembered by DB2.
IFCID 205 - As Remembered by DB2

Field Name: QW0205DF

LUNAME EXCHANGE
Indicates whether the LU name of the conversation correlator was exchanged in the sync point protocol previously used as remembered by DB2.

Field Name: QW0205DC

IFCID 205 - As Remembered by Partner:
This topic shows detailed information about “Record Trace - IFCID 205 - As Remembered by Partner”.

Record trace - IFCID 205 - As Remembered by Partner
The field labels shown in the following sample layout of “Record Trace - IFCID 205 - As Remembered by Partner” are described in the following section.

PROTOCOL
The protocol used previously as remembered by the partner.

Field Name: QW0205PP

PS HEADER USE
Indicates how the PS header was previously used as remembered by the partner.

Field Name: QW0205PF

LUNAME EXCHANGE
Indicates whether the LU name of the conversation correlator was exchanged in the sync point protocol previously used as remembered by the partner.

Field Name: QW0205PC

IFCID 205 - DDF Warm Start Log Name Error:
This topic shows detailed information about “Record Trace - IFCID 205 - DDF Warm Start Log Name Error”.

This record is written when a remote site uses a recovery log name that is different to the last log name used.

Record trace - IFCID 205 - DDF Warm Start Log Name Error
The field labels shown in the following sample layout of “Record Trace - IFCID 205 - DDF Warm Start Log Name Error” are described in the following section.

LOCATION: USIBMSYTD2  OUR RECOVERY LOG : LOG NUMBER 1
OUR LOG AS REMEMBERED : LOG NUMBER 2
PARTNER WARM START LOG: LOG NUMBER 3
PARTNER PREVIOUS LOG : LOG NUMBER 4

LOCATION
The location or LU name of the remote partner that had the warm start.

Field Name: QW0205LO
OUR RECOVERY LOG
The name of the local DB2 subsystem's recovery log.

Field Name: QW0205OR

OUR LOG AS REMEMBERED
The name of the local DB2 subsystem's recovery log as remembered by the partner. This field shows 'BLANK' unless the exchange of log names was initiated by the partner.

Field Name: QW0205NR

PARTNER WARM START LOG
The name of the partner's warm start recovery log.

Field Name: QW0205WR

PARTNER PREVIOUS LOG
The name of the partner's previous recovery log.

Field Name: QW0205PR

IFCID 206 - DDF Protocol Error:
This topic shows detailed information about “Record Trace - IFCID 206 - DDF Protocol Error”.

Record trace - IFCID 206 - DDF Protocol Error
The field labels shown in the following sample layout of “Record Trace - IFCID 206 - DDF Protocol Error” are described in the following section.
DB2 ROLE
The role of DB2 in the logical unit of work (LUW).
Field Name: QW0206RL

DETECTING SITE
The site which detected the error.
Field Name: QW0206DT

NETID
The NETID portion of the logical unit of work ID (LUWID).
Field Name: QW0206NT

LU NAME
The LU name portion of the logical unit of work ID (LUWID).
Field Name: QW0206LU

INSTANCE
The instance number portion of the logical unit of work ID (LUWID).
Field Name: QW0206IN

COMMIT COUNT
The LUW sequence number (commit count) portion of the logical unit of work ID (LUWID).
Field Name: QW0206CM

TOKEN
The local token representing the logical unit of work ID (LUWID).
Field Name: QW0206TK

URID
The recovery log RBA (URID) for the thread.
Field Name: QW0206UR

SENT
The last message sent by this DB2 site during the compare states exchange.
Field Name: QW0206MS

RCVD
The last message received by this DB2 site during the compare states exchange.
Field Name: QW0206MR

VTAM RPL
The VTAM RPL associated with the last compare states message received during the compare states exchange.
Field Name: QW0206VR

EXT
The VTAM RPL extension which describes the LU 6.2 verb indicators for the last message received.
Field Name: QW0206VX

IFICID 207 - DDF Heuristic Damage:

This topic shows detailed information about “Record Trace - IFCID 207 - DDF
Heuristic Damage”.

This record reports when heuristic damage is detected during the two-phase
commit resynchronization. Heuristic damage occurs when a user forces an indoubt
unit of work to commit or roll back and the user’s choice conflicts with the
outcome chosen by the coordinator of the unit of work.

Record trace - IFCID 207 - DDF Heuristic Damage

The field labels shown in the following sample layout of “Record Trace - IFCID 207
- DDF Heuristic Damage” are described in the following section.

WHERE OCCURRED
The location, LU name, or IP address (NNN.NNN.NNN) of the location
where heuristic damage occurred.

Field Name: QW0207HN

LOCAL LOCATION
The name of this location (the location writing this IFCID).

Field Name: QW0207TN

UPSTREAM COORDINATOR
The location, LU name, or IP address (NNN.NNN.NNN) of the upstream
coordinator of this location. This field shows ‘BLANK’ if this location has
no upstream coordinator.

Field Name: QW0207UN

CICS/IMS COORDINATOR
The connection name of the local CICS or IMS coordinator. This field
shows ‘BLANK’ if no local CICS or IMS coordinator exists.

Field Name: QW0207CO

NETID
The NETID portion of the logical unit of work ID (LUWID).

Field Name: QW0207NT

LUNAME
The LU name portion of the logical unit of work ID (LUWID).

Field Name: QW0207LU

INSTANCE
IFCID 207 - DDF Heuristic Damage

The instance number portion of the logical unit of work ID (LUWID).
Field Name: QW0207IN

LUW SEQ
The LUW sequence number (commit count) portion of the logical unit of work ID (LUWID).
Field Name: QW0207CM

TOKEN
The local token representing the logical unit of work ID (LUWID).
Field Name: QW0207TK

URID
The recovery log RBA (URID) for the thread.
Field Name: QW0207UI

ROLE
The role of DB2 in the LUW.
Field Name: QW0207RL

DAMAGE SITE ACTION
The action taken by the site with the heuristic damage.
Field Name: QW0207HA

LOCAL SITE ACTION
The action taken by the local site.
Field Name: QW0207TA

UPSTREAM SITE ACTION
The action taken by the upstream coordinator if one exists.
Field Name: QW0207UA

DAMAGE SITE RECOVERY LOG
The recovery log name of the site where the heuristic damage occurred.
Field Name: QW0207HR

LOCAL SITE RECOVERY LOG
The recovery log name of the local location.
Field Name: QW0207TR

UPSTREAM SITE RECOVERY LOG
The recovery log name of the upstream coordinator (if an upstream coordinator exists).
Field Name: QW0207UR

IFCID 208 - DDF Syncpoint Protocol Error:

This topic shows detailed information about “Record Trace - IFCID 208 - DDF Syncpoint Protocol Error”.
Record trace - IFCID 208 - DDF Syncpoint Protocol Error

The field labels shown in the following sample layout of “Record Trace - IFCID 208 - DDF Syncpoint Protocol Error” are described in the following section.

REMOTE LOCATION: M05EC00C

FIELD NAME: QW0208LO

LAST OPERATION: RECEIVE

FIELD NAME: QW0208SR

FIELD NAME: QW0208RL

DETECTING SITE: LOCAL

FIELD NAME: QW0208DT

LOCAL THREAD STATUS: INDOUBT

FIELD NAME: QW0208TS

ASSUMED REMOTE THREAD STATUS: ROLLED BACK?

FIELD NAME: QW0208PS

NETID

FIELD NAME: QW0208NT

LUNAME

FIELD NAME: QW0208LU

REMOTE LOCATION

The location name or LU name of the remote partner involved in the protocol error.

FIELD NAME: QW0208LO

LAST OPERATION

Indicates whether the last network operation was a send or receive.

FIELD NAME: QW0208SR

DB2 ROLE

The role of DB2 in the LUW.

FIELD NAME: QW0208RL

DETECTING SITE

The site which detected the error.

FIELD NAME: QW0208DT

LOCAL THREAD STATUS

The status of the local DB2 thread.

FIELD NAME: QW0208TS

ASSUMED REMOTE THREAD STATUS

The assumed status of the remote thread.

FIELD NAME: QW0208PS

NETID

The NETID portion of the logical unit of work ID (LUWID).

FIELD NAME: QW0208NT

LUNAME

The LU name portion of the logical unit of work ID (LUWID).

FIELD NAME: QW0208LU

Chapter 6. Batch reporting 4015
IFCID 208 - DDF Syncpoint Protocol Error

INSTANCE
The instance number portion of the logical unit of work ID (LUWID).
Field Name: QW0208IN

COMMIT COUNT
The LUW sequence number (commit count) portion of the logical unit of work ID (LUWID).
Field Name: QW0208CM

TOKEN
The local token representing the logical unit of work ID (LUWID).
Field Name: QW0208TK

URID
The recovery log RBA (URID) for the thread.
Field Name: QW0208UR

SENT
The last message sent by this DB2 site during sync point processing.
Field Name: QW0208MS

RCVD
The last message received by this DB2 site during sync point processing.
Field Name: QW0208MR

VTAM RPL
The VTAM RPL associated with the last compare states message received during the compare states exchange.
Field Name: QW0208VR

EXT
The VTAM RPL extension which describes the LU 6.2 verb indicators for the last message received.
Field Name: QW0208VX

IFCID 209 - DDF Syncpoint Comm Failure:
This topic shows detailed information about “Record Trace - IFCID 209 - DDF Syncpoint Comm Failure”.

This record is written when a communication failure occurs after phase 1 of the SNA commit process. The thread that experiences the communication failure might still be indoubt at the participant location.

Record trace - IFCID 209 - DDF Syncpoint Comm Failure
The field labels shown in the following sample layout of “Record Trace - IFCID 209 - DDF Syncpoint Comm Failure” are described in the following section.
REMOTE PARTNER LOCATION
The location, LU name, or IP address (NNN.NNN.NNN) of the remote partner involved in the communication error.

Field Name: QW0209LO

NETID
The NETID portion of the logical unit of work ID (LUWID).

Field Name: QW0209NT

LUNAME
The LU name portion of the logical unit of work ID (LUWID).

Field Name: QW0209LU

INSTANCE
The instance number portion of the logical unit of work ID (LUWID).

Field Name: QW0209IN

LUW SEQ
The LUW sequence number (commit count) portion of the logical unit of work ID (LUWID).

Field Name: QW0209CM

TOKEN
The local token representing the logical unit of work ID (LUWID).

Field Name: QW0209TK

URID
The recovery log RBA (URID) for the thread.

Field Name: QW0209UR

ROLE
The role of DB2 in the logical unit of work (LUW).

Field Name: QW0209RL

LOCAL THREAD STATUS
The status of the local DB2 thread.

Field Name: QW0209TS

IFCID 210 - Warm Start Log Name Change:
This topic shows detailed information about “Record Trace - IFCID 210 - Warm Start Log Name Change”.

This record is written when a remote site warm starts with a recovery log name that is different from its previous recovery log name. DB2 has no threads that require resolution, so the new recovery log name is accepted.

Record trace - IFCID 210 - Warm Start Log Name Change
The field labels shown in the following sample layout of “Record Trace - IFCID 210 - Warm Start Log Name Change” are described in the following section.
IFCID 210 - Warm Start Log Name Change

LOCATION: SYD2       WARM START RECOVERY LOG: CURRENT RECOVERY LOG
PREVIOUS RECOVERY LOG : PREVIOUS RECOVERY LOG

LOCATION
The location, LU name, or IP address (NNN.NNN.NNN) of the remote partner that sent the warm start indication.
Field Name: QW0210LO

WARM START RECOVERY LOG
The name of the partner's warm start recovery log.
Field Name: QW0210WR

PREVIOUS RECOVERY LOG
The name of the partner's previous recovery log.
Field Name: QW0210PR

IFCID 211 - Claim Data:

This topic shows detailed information about “Record Trace - IFCID 211 - Claim Data”.

This record contains information about making and releasing a claim. One record is written for each request to make a claim or release a claim.

Record trace - IFCID 211 - Claim Data

The field labels shown in the following sample layout of “Record Trace - IFCID 211 - Claim Data” are described in the following section.

DBID: DSN0806  PSID: DSN0101  PARTITION NO.: 0  CLAIM REQUEST TYPE: ACQUIRE  CLAIM CLASS: RR READ
CLAIM DURATION: HELD UNTIL COMMIT  CLAIM RESULT: LOGICAL CLAIM NEEDED
REASON IF CLAIM UNSUCCESSFUL: RESOURCE IS STOPPED

DBID
The database identifier of the object of the claim request. This field contains 0 if the request is for a release of all claims.
Field Name: QW0211DB

PSID
The page set identifier of the object of the claim request. This field contains 0 if the request is for a release of all claims.
Field Name: QW0211PS

PARTITION NO.
The partition number of the object of the claim request. This field contains 0 if the request is for a release of all claims or if the table space or index space is not partitioned (and the claim request is at the page set level rather than the logical partition level).
Field Name: QW0211PT

CLAIM REQUEST TYPE
The claim request type.
Field Name: QW0211RQ

CLAIM CLASS
The claim class.

Field Name: QW0211CC

CLAIM DURATION

The claim duration. This field shows 'BLANK' if the claim is released.

Field Name: QW0211DU

CLAIM RESULT

The result of the claim request.

Field Name: QW0211RC

REASON IF CLAIM UNSUCCESSFUL

The reason for an unsuccessful claim. This field is only printed if the value in CLAIM RESULT is UNSUCCESSFUL.

Field Name: QW0211RS

IFCID 212 - Drain Data:

This topic shows detailed information about “Record Trace - IFCID 212 - Drain Data”.

This record contains information about requesting and releasing a drain or a pseudo drain. One record is written for each drain or release request on a claim class. Another record is written for a drain that is only waiting for the claimers to release claims and not acquiring a drain lock (pseudo drain).

Record trace - IFCID 212 - Drain Data

The field labels shown in the following sample layout of “Record Trace - IFCID 212 - Drain Data” are described in the following section.

<table>
<thead>
<tr>
<th>DBID</th>
<th>CATD3DB1</th>
<th>PSID</th>
<th>CATD3TS2</th>
<th>PARTITION NO.</th>
<th>2</th>
<th>DRAIN REQUEST TYPE: DRAIN</th>
<th>CLAIM CLASS: WRITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRNAIN LOCK MODE: EXCLUSIVE</td>
<td>DRAIN RESULT:</td>
<td>SUCCESSFUL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DBID

The database identifier of the object of the drain request. This field contains 0 if the request is for a release of all drains.

Field Name: QW0212DB

PSID

The page set identifier of the object of the drain request. This field contains 0 if the request is for a release of all drains.

Field Name: QW0212PS

PARTITION NO.

The partition number of the object of the drain request. This field contains 0 if the request is for a release of all drains or if the table space or index space is non-partitioned (and the drain request is at the page set level rather than the logical partition level).

Field Name: QW0212PT

DRAIN REQUEST TYPE

The drain request type.
IFCID 212 - Drain Data

Field Name: QW0212RQ

CLAIM CLASS
The claim class.
Field Name: QW0212CC

DRAIN LOCK MODE
The mode of the drain lock requested. This field shows 'BLANK' if the drain is released or no lock is requested.
Field Name: QW0212MO

DRAIN RESULT
The result of the drain request.
Field Name: QW0212RC

REASON IF DRAIN UNSUCCESSFUL
The reason for an unsuccessful drain. This field is only printed if the value in CLAIM RESULT is UNSUCCESSFUL.
Field Name: QW0212RS

IFCID 213 - Drain Lock Wait Start:

This topic shows detailed information about “Record Trace - IFCID 213 - Drain Lock Wait Start”.

This record contains information about the beginning of a wait for a drain lock. For drain locks, this record is written instead of IFCID 44.

Record trace - IFCID 213 - Drain Lock Wait Start

The field labels shown in the following sample layout of “Record Trace - IFCID 213 - Drain Lock Wait Start” are described in the following section.

<table>
<thead>
<tr>
<th>LOCK HASH VALUE: X'00000000'</th>
<th>LOCK NAME LENGTH: 8</th>
<th>LOCK QUALIFIER: X'0020'</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCK RES TYPE: CS-READ DRAIN LOCK</td>
<td>DBID: 1</td>
<td>OBID: 2</td>
</tr>
<tr>
<td>IRLM FUNCTION: LOCK</td>
<td>STATE: X'00'</td>
<td>DURATION: X'00'</td>
</tr>
<tr>
<td>REASON SUSP: LATCH CONTENTION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QW0213FL</td>
<td>X'00'</td>
<td></td>
</tr>
</tbody>
</table>

LOCK HASH VALUE
The hash value of the locked resource.
Field Name: QW0213LH

LOCK NAME LENGTH
The length of the lock name.
Field Name: QW0213LK

LOCK QUALIFIER
The lock qualifier.
Field Name: QW0213KQ

LOCK RES TYPE
The locked resource type or the type of locking operation.
Field Name: QW0213KT
DBID
The database ID of the object of the claim request.
Field Name: QW0213DB

PSID
The page set identifier of the object of the claim request.
Field Name: QW0213PS

PARTITION NO.
The partition number of the object of the lock request. This field contains 0 if the table space or index space is not partitioned (and the lock request is at the page set level rather than the logical partition level).
Field Name: QW0213PT

IRLM FUNCTION
The IRLM function.
Field Name: QW0213FC

STATE
The lock state.
Field Name: QW0213ST

REASON SUSP
The reason for the suspension.
Field Name: QW0213WS

IFCID 214 - Drain Lock Wait End:

This topic shows detailed information about “Record Trace - IFCID 214 - Drain Lock Wait End”.

This record contains information about the end of a wait for a drain lock. For drain locks, this record is written instead of IFCID 45.

Record trace - IFCID 214 - Drain Lock Wait End

The field labels shown in the following sample layout of “Record Trace - IFCID 214 - Drain Lock Wait End” are described in the following section.

```
DRAIN LOCK <-- NETWORKID: DEIBMIPS LUNAME: IPSAQ811 LUNSEQ: 1
WAIT END    REASON FOR RESUME: NORMAL RESUME
REASON FOR SUSPEND: X'80'
IRLM LATCH CONTENTION: YES
IRLM QUEUED REQUEST: NO
LOCAL RESOURCE CONTENTION: NO
GLOBAL RESOURCE CONTENTION: NO
INTER-SYSTEM MESSAGE SENDING: NO
GLOBAL CONTENTION EXTENT: X'20'
XES GLOBAL CONTENTION: NO
IRLM GLOBAL CONTENTION: NO
FALSE CONTENTION: NO
QW0214W4 NO QW0214W6 NO QW0214W8 NO
QW0214X1 NO QW0214X2 NO QW0214X5 NO
QW0214X6 NO QW0214X7 NO QW0214X8 NO
```
IFCID 214 - Drain Lock Wait End

REASON FOR RESUME
The reason for the lock resume.
Field Name: QW0214R

REASON FOR SUSPEND
The reason for the suspension. The nonserviceability values are:
Field Name: QW0214SR

IRLM LATCH CONTENTION
Indicates whether IRLM latch contention occurred.
Field Name: QW0214W1

IRLM QUEUED REQUEST
Indicates whether IRLM queued request occurred.
Field Name: QW0214W2

LOCAL RESOURCE CONTENTION
Indicates whether local resource contention occurred.
Field Name: QW0214W3

GLOBAL RESOURCE CONTENTION
Indicates whether intersystem communication was required to resolve an IRLM request.
Field Name: QW0214W5

INTER-SYSTEM MESSAGE SENDING
Indicates whether any intersystem messages were sent.
Field Name: QW0214W7

GLOBAL CONTENTION EXTENT
The extent of global contention. This is applicable only if the value in GLOBAL RESOURCE CONTENTION is YES. The nonserviceability values are:
Field Name: QW0214XR

XES GLOBAL CONTENTION
Indicates whether XES global resource contention occurred.
Field Name: QW0214X3

IRLM GLOBAL CONTENTION
Indicates whether IRLM global resource contention occurred.
Indicates whether there was IRLM or XES global resource contention.
Field Name: QW0214X4

IFCID 215 - Claim Count 0 Wait Start:
This topic shows detailed information about “Record Trace - IFCID 215 - Claim Count 0 Wait Start”. 
This IFCID records the beginning of a wait for the number of pending claims to reach 0.

**Record trace - IFCID 215 - Claim Count 0 Wait Start**

The field labels shown in the following sample layout of “Record Trace - IFCID 215 - Claim Count 0 Wait Start” are described in the following section.

<table>
<thead>
<tr>
<th>Field Label</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLAIM CNT 0--&gt;&gt; 'BLANK'</td>
<td>The database identifier of the object of the drain request. Field Name: QW0215DB</td>
</tr>
<tr>
<td>WAIT START</td>
<td>The page set identifier of the object of the drain request. Field Name: QW0215PS</td>
</tr>
<tr>
<td>NETWORKID: DEIBMIPS</td>
<td>The partition number of the object of the drain request. Field Name: QW0215PT</td>
</tr>
<tr>
<td>LUNAME: IPSAQ811</td>
<td></td>
</tr>
<tr>
<td>LUWSEQ: 1</td>
<td></td>
</tr>
<tr>
<td>DBID: 1</td>
<td></td>
</tr>
<tr>
<td>PSID: 2</td>
<td></td>
</tr>
<tr>
<td>PARTITION NO.: 3</td>
<td></td>
</tr>
<tr>
<td>CLAIM CLASS: RR READ</td>
<td>The claim class. Field Name: QW0215CC</td>
</tr>
<tr>
<td>CLAIM COUNT: 20</td>
<td>The number of claims pending for this resource. Field Name: QW0215CT</td>
</tr>
</tbody>
</table>

**IFCID 216 - Claim Count 0 Wait End:**

This topic shows detailed information about “Record Trace - IFCID 216 - Claim Count 0 Wait End”.

This IFCID records the end of a wait for a claim count to reach 0.

**Record trace - IFCID 216 - Claim Count 0 Wait End**

The field labels shown in the following sample layout of “Record Trace - IFCID 216 - Claim Count 0 Wait End” are described in the following section.

<table>
<thead>
<tr>
<th>Field Label</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLAIM CNT 0--&gt;&gt; 'BLANK'</td>
<td>The database identifier of the object of the drain request. Field Name: QW0216DB</td>
</tr>
<tr>
<td>WAIT END</td>
<td>The page set identifier of the object of the drain request. Field Name: QW0216PS</td>
</tr>
<tr>
<td>NETWORKID: DEIBMIPS</td>
<td>The partition number of the object of the drain request. Field Name: QW0216PT</td>
</tr>
<tr>
<td>LUNAME: IPSAQ811</td>
<td></td>
</tr>
<tr>
<td>LUWSEQ: 1</td>
<td></td>
</tr>
<tr>
<td>DBID: 1</td>
<td></td>
</tr>
<tr>
<td>PSID: 2</td>
<td></td>
</tr>
<tr>
<td>PARTITION NO.: 3</td>
<td></td>
</tr>
<tr>
<td>CLAIM CLASS: RR READ</td>
<td>The claim class. Field Name: QW0216CC</td>
</tr>
<tr>
<td>REASON FOR RESUME: TIMEOUT</td>
<td>The number of claims pending for this resource. Field Name: QW0216CT</td>
</tr>
</tbody>
</table>
IFCID 216 - Claim Count 0 Wait End

PSID
The page set identifier of the object of the drain request.
Field Name: QW0216PS

PARTITION NO.
The partition number of the object of the drain request. This field contains 0 if the object is a non-partitioned table space or non-partitioned index being drained at the page set level.
Field Name: QW0216PT

CLAIM CLASS
The claim class.
Field Name: QW0216CC

REASON FOR RESUME
The reason for the resume.
Field Name: QW0216R

IFCID 217 - Storage Pools: This record only contains data for IFCID 217.

IFCID 217 - Agent Local Storage Pool Sizes:
This topic shows detailed information about “Record Trace - IFCID 217 - Agent Local Storage Pool Sizes”.

Record trace - IFCID 217 - Agent Local Storage Pool Sizes
The field labels shown in the following sample layout of “Record Trace - IFCID 217 - Agent Local Storage Pool Sizes” are described in the following section.

AGENT LOCAL STORAGE POOL SIZES
TOTAL POOL STORAGE : 0
CONNECTION NAME : DA61
WORKSTATION NAME : N/P
FIXED STORAGE POOL : NO
AUTHORIZATION ID : ‘BLANK’

STORAGE CLASS : 21
CORRELATION ID : 010.CS16K5
TRANSACTION NAME : N/P
VARIA STORAGE POOL: YES
OWNING ASID : 261

USERID : N/P

QW02173H: X’0000020050A4DA30’
QW02173F: B’01100000’
QW02173C: N/A

TOTAL POOL STORAGE
Total storage in the agent local pool.
Field Name: QW02173T

STORAGE CLASS
Storage class for agent local pools.
Field Name: QW02173L

CONNECTION NAME
The connection name. Possible values are:
• For batch: BATCH
• For TSO: TSO
• For QMF: DB2CALL
• For utilities: UTILITY
• For DB2 private protocol this is the DB2 subsystem ID
• For IMS: the IMS ID
• For CICS, this is the CICS ID
• For DRDA connections from non-DB2 requesters: SERVER

Field Name: QW0217QN

CORRELATION ID
Correlation identifier.
Field Name: QW0217QR

PLAN NAME
The plan name. It is blank for a DB2 command thread; otherwise:

DSNESPRR
For SPUFI with repeatable read.

DSNESPCS
For SPUFI with cursor stability.

DSNUTIL
For utilities.

DSNTEP2
For DSNTEP2.

DSNBIND
For binding.

The application plan name
For IMS.

The application plan name
For CICS.

A blank plan name
For IMS and CICS commands.

DSQPLAN
For QMF.

The first 8 bytes of the application name
For DRDA connections to the common servers.

Field Name: QW0217QP

WORKSTATION NAME
The end user's workstation name.
Field Name: QW0217QW

TRANSACTION NAME
The transaction or application name that is run.
Field Name: QW0217QX

MVS SUBPOOL
MVS subpool.
Field Name: QW0217BP

FIXED STORAGE POOL
Indicates if the storage pool is fixed.
Field Name: QW02173X
VARIA STORAGE POOL

Indicates if the storage pool is variable.

Field Name: QW02173R

AUTHORIZATION ID

The primary authorization ID from a connection or signon. The connection authorization exit and the signon authorization exit can change the primary authorization ID so that it differs from the original primary authorization ID (ORIGAUTH). Distributed authorization ID translation can also change the primary authorization ID.

Field Name: QW0217QC

USERID

The user ID of the workstation end user. This user ID can be different from the authorization ID used to connect to DB2. This field contains blanks if the client does not supply this information.

Field Name: QW0217QD

QW02173H

This field is for IBM service.

Field Name: QW02173H

QW02173F

Storage pool flags:
- Fixed storage pool
- Variable storage pool
- More agent storage pool data in one or more ifcid 0217 records after this one.
- This is the last ifcid 0217 record in this sequence of agent storage pool data.
- This is a parent task for parallelism.
- This is a child task for parallelism.

Field Name: QW02173F

QW02173C

This field is for IBM service.

Field Name: QW02173C

IFCID 217 - DBM1 Storage Pool Sizes:

This topic shows detailed information about “Record Trace - IFCID 217 - DBM1 Storage Pool Sizes”.

Record trace - IFCID 217 - DBM1 Storage Pool Sizes

The field labels shown in the following sample layout of “Record Trace - IFCID 217 - DBM1 Storage Pool Sizes” are described in the following section.
TOTAL POOL STORAGE

Total amount of DBM1 storage available for pools.

Field Name: QW0217ST

STORAGE CLASS

Storage class.

Field Name: QW0217CL

MVS SUBPOOL

MVS subpool.

Field Name: QW0217BP

DESCRIPTION

Storage pool description.

Field Name: QW0217DE

FIXED STORAGE POOL

Indicates if the storage pool is fixed.

Field Name: QW02173X

VARIA STORAGE POOL

Indicates if the storage pool is variable.

Field Name: QW02173R

QW0217PH

Contains QW0217PH.

Field Name: QW0217PH

QW0217FL

Storage pool flags.

Fixed storage pool
Variable storage pool

More DBM1 local data follows, in one or more ifcid 0217 records after this one.

This is the last ifcid 0217 record in this sequence of local DBM1 data. ifcid 0217 records with agent local storage pool data follow.

Field Name: QW0217FL

IFCID 217 - Storage Manager Pool Statistics:

This topic shows detailed information about “Record Trace - IFCID 217 - Storage Manager Pool Statistics”.

Record trace - IFCID 217 - Storage Manager Pool Statistics

The field labels shown in the following sample layout of “Record Trace - IFCID 217 - Storage Manager Pool Statistics” are described in the following section.

Storage Manager Pool Statistics

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QW0217ST</td>
<td>Total amount of DBM1 storage available for pools.</td>
</tr>
<tr>
<td>QW0217CL</td>
<td>Storage class.</td>
</tr>
<tr>
<td>QW0217BP</td>
<td>MVS subpool.</td>
</tr>
<tr>
<td>QW0217DE</td>
<td>Storage pool description.</td>
</tr>
<tr>
<td>QW02173X</td>
<td>Indicates if the storage pool is fixed.</td>
</tr>
<tr>
<td>QW02173R</td>
<td>Indicates if the storage pool is variable.</td>
</tr>
<tr>
<td>QW0217PH</td>
<td>Contains QW0217PH.</td>
</tr>
<tr>
<td>QW0217FL</td>
<td>Storage pool flags.</td>
</tr>
</tbody>
</table>

DB2 V10 TOKEN : 0

Chapter 6. Batch reporting 4027
**IFCID 217 - Storage Manager Pool Statistics**

**DB2 V10 TOKEN**

The size of the common storage area (CSA) above the 16 MB line.

Field Name: QW0217TK

**IFCID 218 - Lock Avoidance Summary:**

This topic shows detailed information about “Record Trace - IFCID 218 - Lock Avoidance Summary”.

This record indicates whether a successful lock avoidance test occurred during a given unit of work. The record is externalized at the agent at each commit or rollback.

**Record trace - IFCID 218 - Lock Avoidance Summary**

The field labels shown in the following sample layout of “Record Trace - IFCID 218 - Lock Avoidance Summary” are described in the following section.

LOCK AVOID DURING UNIT OF WORK: YES NO
PAGE SET SUBRECORDS: 4
DBID: INSQDB PSID: EVENTS LOCK AVOID DURING UNIT OF WORK: YES
DBID: DSNDB06 PSID: SYSDBAUT LOCK AVOID DURING UNIT OF WORK: NO

**LOCK AVOID DURING UNIT OF WORK**

Indicates whether there was a successful lock avoidance test during this unit of work.

Field Name: QW0218CT

**NO. PAGE SET SUBRECORDS**

The number of page set subrecords contained in this record. The fields DBID, PSID, and LOCK AVOID DURING UNIT OF WORK are repeated for each page set that has a lock avoidance test.

Field Name: QW0218N

**DBID**

The database ID.

Field Name: QW0218PD

**PSID**

The page set ID.

Field Name: QW0218PP

**LOCK AVOID DURING UNIT OF WORK**

Indicates whether there was a successful lock avoidance test for this page set during this unit of work.

Field Name: QW0218PC

**IFCID 219 - Utility LISTDEF List Information:**

This topic shows detailed information about “Record Trace - IFCID 219 - Utility LISTDEF List Information”.

Field Name: QW0219PC
Record trace - IFCID 219 - Utility LISTDEF List Information

The field labels shown in the following sample layout of “Record Trace - IFCID 219 - Utility LISTDEF List Information” are described in the following section.

LIST NAME: LOCATION_NUMBER001 LIST TYPE: T LIST SIZE: 69287

LIST NAME
Name of list definition information.
Field Name: QW0219LN

LIST TYPE
Type of LISTDEF information:
T Table space list.
I Index space list.
M Mixed list.
Field Name: QW0219LT

LIST SIZE
Number of entries in the LISTDEF.
Field Name: QW0219LS

IFCID 220 - Utility Data Set Information:

This topic shows detailed information about “Record Trace - IFCID 220 - Utility Data Set Information”.

This record is written when a data set is closed.

Record trace - IFCID 220 - Utility Data Set Information

The field labels shown in the following sample layout of “Record Trace - IFCID 220 - Utility Data Set Information” are described in the following section.

DD NAME
Data definition.
Field Name: QW0220DD

DATA SET NAME
Data set name.
Field Name: QW0220DN

TEMPLATE NAME
Template name.
Field Name: QW0220TN

NO. READS
Number of READ operations.
Field Name: QW0220RD

Chapter 6. Batch reporting  4029
IFCID 220 - Utility Data Set Information

NO. WRITES
Number of WRITE operations.
Field Name: QW0220WR

NO. CHECKS
Number of checks.
Field Name: QW0220CH

NO. EOVS
Number of End of Volumes.
Field Name: QW0220EV

I/O WAIT TIME
I/O wait time in milliseconds.
Field Name: QW0220WT

OPEN TIME STAMP
Time the data set was opened.
Field Name: QW0220OT

DEVICE TYPE
Device type:
D  DASD.
T  Tape.
Field Name: QW0220DT

IFCID 221 - Parallel Group Execution: This topic shows the data available for IFCID 221.

IFCID 221 - Buffer Pool Constrained Data (Section Type C):
This topic shows detailed information about “Record Trace - IFCID 221 - Buffer Pool Constrained Data (Section Type C)”.

Record trace - IFCID 221 - Buffer Pool Constrained Data (Section Type C)
The field labels shown in the following sample layout of “Record Trace - IFCID 221 - Buffer Pool Constrained Data (Section Type C)” are described in the following section.

BUFFERPOOL CONSTRAINED DATA
LENGTH: X’0010’
DBID  PSID  TYPE  BPID  WITH_SECT_E
0 0  W  7  0
0 0  W  7  0

LENGTH
The total length of all entries.
Field Name: QW0221CL

DBID
The database identifier.
IFCID 221 - Buffer Pool Constrained Data (Section Type C)

Field Name: QW0221DB

PSID
The page set identifier.
Field Name: QW0221PS

TYPE
The type of page set:
T Table space
I Index
W Work file
Field Name: QW0221TY

BPID
The buffer pool identifier.
Field Name: QW0221BP

WITH_SECT.E
The number of detail buffer pool constrained data sections to follow in section type E.
Field Name: QW0221DN

IFCID 221 - Detail Buffer Pool Constrained Data (Section Type E):
This topic shows detailed information about “Record Trace - IFCID 221 - Detail Buffer Pool Constrained Data (Section Type E)”.

LENGTH
The total length of all entries.
Field Name: QW0221CL

DB2_MEMBER
The name of the DB2 member.
Field Name: QW0221MN

CONSTRANDED
Indicates whether the DB2 member is constrained.
Field Name: QW0221CS

IFCID 221 - Parallel Data:
This topic shows detailed information about “Record Trace - IFCID 221 - Parallel Data”.

Record trace - IFCID 221 - Parallel Data
The field labels shown in the following sample layout of “Record Trace - IFCID 221 - Parallel Data” are described in the following section.
PLANNED(BIND) DEGREE: 16448  
REP.SECTION TYPE : N/P  
PARALL.GROUP NO: 16448  
PLANNED(RUN) DEGREE: 16448  
ACTUAL(RUN) DEGREE: 16448  
REP.SECTIONS : 16448  
NUMBER OF MEMBERS : 1077952576  
REASON : X '40'  
RECORD 16448 OF 16448  
HI/LO PARTITION TYPE: LOGICAL

### LOCATION NAME

The location name or RDB name.

**Field Name:** QW0221LN

### PKG COLLECTION ID

The package collection ID.

**Field Name:** QW0221PC

### PROGRAM NAME

The program name.

**Field Name:** QW0221PN

### STMT.NO

The statement number. It is the same as the QUERYNO in the PLAN_TABLE, if the PLAN_TABLE exists.

**Field Name:** QW0221SN

### QUERYBLOCK NUMBER

The query block number. It is the same as the QBLOCKNO in the PLAN_TABLE, if the PLAN_TABLE exists.

**Field Name:** QW0221QN

### CONS.TOKEN

The timestamp (consistency token).

**Field Name:** QW0221TS

### PLANNED(BIND) DEGREE

The planned degree of parallelism at bind time. Parallelism decisions are made at bind time. However, the value in this field is 0 if the statement has host variables, because host variables cause the parallelism decision to be made at run time. See field PLANNED(RUN) DEGREE.

**Field Name:** QW0221PD

### REP.SECTION TYPE

The type of the repeating section.

**Field Name:** QW0221TP

### PARALL.GROUP NO

The parallel group number.

**Field Name:** QW0221GN

### PLANNED(RUN) DEGREE

The planned degree of parallelism at run time. The value in this field is equal to the value in PLANNED(BIND) DEGREE unless the statement contains host variables.

**Field Name:** QW0221RD

### ACTUAL(RUN) DEGREE
The actual degree of parallelism at run time, taking into account only those DB2 members that have enough buffer pool storage.

Field Name: QW0221AD

REP.SECTIONS
The number of repeating sections contained in this record.

Field Name: QW0221N

TYPE OF PARALLELISM
The type of parallelism:

- CP CPU query parallelism
- I/O I/O query parallelism
- SYS Sysplex query parallelism

Field Name: QW0221MO

NUMBER OF MEMBERS
The number of DB2 members on which a query was executed during sysplex query parallel processing.

Field Name: QW0221XC

REASON
The reason for deriving the planned (runtime) degree of parallelism:

- NORMAL The planned runtime degree is derived from the planned bind time degree.
- HOSTVAR Host variable partitioning.
- NO ESA No ESA sort support.
- CURSOR The cursor might be used for an update or deletion.
- EMPTY The parallel group is empty.
- MVS/ESA MVS/ESA enclave services are not available.

Field Name: QW0221RN

RECORD
The position of this record in the series of IFCID 221 records.

Field Name: QW0221TR

OF
The total number of IFCID 221 records in this series.

Field Name: QW0221NR

HI/LO PARTITION TYPE
Type of partition for low and high pages in the partition range. Possible values are:

- LOGICAL Logical low and high pages.
IFCID 221 - Parallel Data

PHYSICAL
Physical low and high pages.

Field Name: QW0221ZZ

IFCID 221 - Section Type D:

This topic shows detailed information about “Record Trace - IFCID 221 - Section Type D”.

Record trace - IFCID 221 - Section Type D

The field labels shown in the following sample layout of “Record Trace - IFCID 221 - Section Type D” are described in the following section.

LOW PAGE RANGE
If the partitioning scheme uses a page range, the low page number of the page range.

Field Name: QW0221PL

STATUS
The status of this partition range:

NORMAL  A parallel task is created for this partition range.
EMPTY    No parallel task is created for this page range.

Field Name: QW0221AN

LOW KEY RANGE
If the partitioning scheme uses a key range, the first 240 bytes of the low boundary key range.

Field Name: QW0221KL

HIGH PAGE RANGE
If the partitioning scheme uses a page range, the high page number of the page range.

Field Name: QW0221PH

HIGH KEY RANGE
If the partitioning scheme uses a key range, the first 240 bytes of the high boundary key range.

Field Name: QW0221KH
IFCID 222 - Parallel Group Elapsed Time:

This topic shows detailed information about “Record Trace - IFCID 222 - Parallel Group Elapsed Time”.

This record contains parallel group elapsed time information.

Record trace - IFCID 222 - Parallel Group Elapsed Time

The field labels shown in the following sample layout of “Record Trace - IFCID 222 - Parallel Group Elapsed Time” are described in the following section.

RECORD

The position of this record in the series of IFCID 222 records.

Field Name: QW0222TR

OF

The total number of IFCID 222 records in this series.

Field Name: QW0222NR

LOCATION

The location name or RDB name.

Field Name: QW0222LN

PACKAGE

The package collection ID.

Field Name: QW0222PC

PROGRAM

The program name.

Field Name: QW0222PN

CON.TOKEN

The timestamp (consistency token).

Field Name: QW0222TS

STATEMENT NO

The statement number.

Field Name: QW0222SN

QUERY BLOCK NO

The query block number.

Field Name: QW0222QN
IFCID 222 - Parallel Group Elapsed Time

**PARALLEL GROUP NO**

The parallel group number.

**Field Name:** QW0222GN

**REPEAT.GRPS**

The number of repeat groups in the section.

**Field Name:** QW0222RN

**PIPE CREATION**

The time of pipe creation in DB2 timestamp format.

**Field Name:** QW0222PS

**PIPE TERMINATION**

The time of pipe termination in DB2 timestamp format.

The elapsed time between pipe creation and pipe termination in DB2 timestamp format.

**Field Name:** QW0222PE

**SUB-PIPE CREATION**

The time of subpipe creation in DB2 timestamp format.

**Field Name:** QW0222SS

**SUB-PIPE ELAPSED**

The elapsed time between subpipe creation and subpipe termination in DB2 timestamp format.

The time of subpipe termination in DB2 timestamp format.

**Field Name:** QW0222SE

**TASK TOKEN**

The task token associated with the subpipe.

**Field Name:** QW0222TK

**MEMBER**

The name of the DB2 member that supplies the data.

**Field Name:** QW0222SM

**IFCID 223 - Lock Avoidance Detail:**

This topic shows detailed information about “Record Trace - IFCID 223 - Lock Avoidance Detail”.

This record shows lock avoidance information for each successful test.

**Record trace - IFCID 223 - Lock Avoidance Detail**

The field labels shown in the following sample layout of “Record Trace - IFCID 223 - Lock Avoidance Detail” are described in the following section.

- **LOCK RES TYPE:** ROW LOCK
- **DBID:** DSNDB06  **OBID:** SYSUSER
- **TABLE_SPACE_TYPE:** N
- **RESOURCE ID:** X'000008313'
PARTITION: 0  PAGE NUMBERING: ABS
QW0223U X'008500331ACA3460'
QW0223O X'008500331ACA33A0'
QW0223CL X'00'

LOCK RES TYPE
The resource type being accessed.
Field Name: QW0223KT

DBID
The database ID.
Field Name: QW0223KD

OBID
Object id of the page set or table record.
Field Name: QW0223KP

TABLE_SPACE_TYPE
The type of the table space:
L Non-EA large table
N Non-large table
R Partitioned by range (PBR) universal table spaces (UTS) that use relative page numbers
V EA-enabled large table
Field Name: QW0223TY

RESOURCE ID
The ID of the small resource.
Field Name: QW0223KR

PARTITION
Shows the partition number or 0 if non-partitioned.
Field Name: QW0223PT

PAGE NUMBERING
Indicates how page numbers are shown for partitioned tables:
REL Indicates that relative page numbers are shown in the partition.
ABS Indicates that absolute page numbers are shown in the partition.
N/A Not applicable.
Field Name: QW0223P1

IFCID 224 - Select Procedure Bypassed:
This topic shows detailed information about “Record Trace - IFCID 224 - Select Procedure Bypassed”.

This record is written at the end of a unit of work. It records the total columns for which an invalid select procedure was encountered. Invalid select procedures are bypassed by DB2 and can cause performance degradation.
Record trace - IFCID 224 - Select Procedure Bypassed

The field labels shown in the following sample layout of “Record Trace - IFCID 224 - Select Procedure Bypassed” are described in the following section.

SPROC BYPASSED ‘BLANK’
NETWORKID: DEIBMIPS LUNAME: IPSAR721 LUWSEQ: 1
PACKAGE : PLANNAM2
COLLECTION: COLLECTIONNAME0002
COLUMNS : 128

COLUMNS
The select procedure bypass column count. This is the total number of columns (rows * columns) for which a select procedure was bypassed because the select procedure was invalidated by applying service to DB2.

Field Name: QW0224CL

PACKAGE
Package name.

Field Name: QW0224PN

COLLECTION ID
Collection identifier.

Field Name: QW0224CI

IFCID 225 - Storage MGR Pool Summary: This topic shows the data available for IFCID 225.

IFCID 225 - Address Space Summary - DBM1:
This topic shows detailed information about “Record Trace - IFCID 225 - Address Space Summary - DBM1”.

Note: This report has the same layout as “IFCID 225 - Address Space Summary - DIST.”

IFCID 225 - Address Space Summary - DIST:
This topic shows detailed information about “Record Trace - IFCID 225 - Address Space Summary - DIST”.

Record trace - IFCID 225 - Address Space Summary - DIST
The field labels shown in the following sample layout of “Record Trace - IFCID 225 - Address Space Summary - DIST” are described in the following section.

ADDRESS SPACE SUMMARY - DIST
EXTENDED REGION SIZE (MAX) : 1587544064 24-BIT LOW PRIVATE : 221184
24-BIT HIGH PRIVATE : 4500560 31-BIT EXTENDED LOW PRIVATE : 69603328
31-BIT EXTENDED HIGH PRIVATE : 38600704 CURR HIGH ADDR 24-BIT PRIV REGION : X'0000300'
CURR HIGH ADDR 31-BIT PRIV REGION : X'270E9000' 31-BIT RESERVED FOR MUST COMPLETE : 158754406
31-BIT RESERVED FOR MVS : 25827760 STORAGE CUSHION WARNING TO CONTRACT: 158754406
TOTAL 31-BIT VARIABLE POOL : 4341760 TOTAL 31-BIT STACK IN USE : 3997696
TOTAL 31-BIT FIXED POOL : 86016 AMOUNT OF AVAILABLE 31-BIT : 1479335936
TOTAL 31-BIT GETMAINED : 1002384 SYSTEM AGENT STACK STORAGE IN USE: 1234567
TOTAL 64-BIT VARIABLE POOL : 10162176 TOTAL 64-BIT FIXED : 7503872
TOTAL 64-BIT GETMAINED : 438127168 TOTAL 64-BIT PRIVATE FOR STOR MANAG: 1925120
REAL 4K FRAMES IN USE : 20577 AUXILIARY SLOTS IN USE : 41227
64-BIT REAL 4K FRAMES IN USE : 12129
4K AUX SLOTS IN USE : 27055
ABOVE VALUE W/O BP STORAGE : 10000
ABOVE VALUE W/O BP STORAGE : 27055
HIGH 64-BIT REAL 4K FRAMES IN USE : 43047
HIGH 4-K AUX SLOTS IN USE : 27059
QW0225CTLP (S) : OFF
QW0225CTLS (S) : OFF

EXTENDED REGION SIZE (MAX)

The maximum amount of MVS private storage available above the 16 MB line.

Field Name: QW0225RG

24-BIT LOW PRIVATE

The amount of private MVS storage below the 16 MB line. This storage is obtained from bottom upward, usually for unauthorized programs.

Field Name: QW0225LO

24-BIT HIGH PRIVATE

The amount of private MVS storage below the 16 MB line. This storage is obtained from top downward, usually for authorized programs.

Field Name: QW0225HI

31-BIT EXTENDED LOW PRIVATE

The amount of private MVS storage above the 16 MB line. This storage is obtained from bottom upward, usually for unauthorized programs.

Field Name: QW0225EL

31-BIT EXTENDED HIGH PRIVATE

The amount of private MVS storage above the 16 MB line. This storage is obtained from top downward, usually for authorized programs.

Field Name: QW0225EH

CURR HIGH ADDR 24-BIT PRIV REGION

The current high address of the 24-bit private region.

Field Name: QW0225TP

CURR HIGH ADDR 31-BIT PRIV REGION

The current high address of the 31-bit private region.

Field Name: QW0225EP

31-BIT RESERVED FOR MUST COMPLETE

Storage reserved for operation that must complete before DB2 is allowed to stop.

Field Name: QW0225CR

31-BIT RESERVED FOR MVS

The amount of storage available for operating system activity.

Field Name: QW0225MV

STORAGE CUSHION WARNING TO CONTRACT

The amount of free storage, in megabytes, available in the DBM1 data space.

Field Name: QW0225SO
TOTAL 31-BIT GETMAINED STACK
Total GETMAINED storage allocated for program stack use.

Field Name: QW0225GS

TOTAL 31-BIT STACK IN USE
The amount of stack storage that is in use.

Field Name: QW0225SU

TOTAL 31-BIT VARIABLE POOL
Total storage used by all variable pools. This includes storage used by:
- System agents
- Local agents
- RID pool
- Pipe manager subpool
- Local dynamic statement cache control blocks
- Local dynamic statement cache statement pool
- Buffer and data manager trace tables
- A list of objects in restricted state including the new PRO state. If consumption of this storage pool is high, review restrictive exception state of database objects and check whether they can be resolved or reduced.

Field Name: QW0225VR

TOTAL 31-BIT FIXED POOL
Total amount of fixed storage.

Field Name: QW0225FX

TOTAL 31-BIT GETMAINED
Total storage acquired by GETMAIN. This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space looksaside buffer, and data space buffer pool control blocks.

This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Field Name: QW0225GM

AMOUNT OF AVAILABLE 31-BIT
The total amount of storage available for storage manager pools.

Field Name: QW0225AV

SYSTEM AGENT STACK STORAGE IN USE
The amount of 31-bit stack storage that is in use for system agents. This is a subset of QW0225SU.

Field Name: QW0225SS

TOTAL 64-BIT VARIABLE POOL
Amount of variable storage available above the 2 GB bar.

Field Name: QW0225VA
TOTAL 64-BIT FIXED
The total amount of fixed storage above the 2 GB bar.
Field Name: QW0225FA

TOTAL 64-BIT GETMAINED
Total storage acquired by GETMAIN. This includes space for the compression dictionary, and statement and DBD cache that can be used by the Environmental Descriptor Manager (EDM).
This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.
Field Name: QW0225GA

TOTAL 64-BIT PRIVATE FOR STOR MANAG
Total 64-bit storage allocated for storage manager control structures.
Field Name: QW0225SM

REAL 4K FRAMES IN USE
Number of real-storage frames (4K) in use for 31- and 64-bit private pools.
Field Name: QW0225RL

AUXILIARY SLOTS IN USE
Number of auxiliary slots (4K) in use for 31- and 64-bit private pools.
Field Name: QW0225AX

64-BIT REAL 4K FRAMES IN USE
The number of real 4K frames in use for 64-bit private pools.
Note: This value is available from z/OS V1.11.
Field Name: QW0225HVPAGESINREAL

64-BIT 4K AUX SLOTS IN USE
The number of auxiliary 4K slots in use for 64-bit private pools.
Note: This value is available from z/OS V1.11.
Field Name: QW0225HVAUXSLOTS

ABOVE VALUE W/O BP STORAGE
Number of real-storage frames (4K) in use for 64-bit private pools. This is a subset of QW0225HVPagesInReal and does not include buffer pool storage.
Note: This field is available in z/OS 1.10 (and maintenance) or later.
Field Name: QW0225PRISTG_REAL

ABOVE VALUE W/O BP STORAGE
Number of auxiliary slots (4K) in use for 64-bit private pools. This does not include buffer pool storage. This field only includes auxiliary slots occupied by pages that are paged out.
Note: This field is available in z/OS 1.10 (and maintenance) or later.
IFCID 225 - Address Space Summary - DIST

Field Name: QW0225PRISTG_AUX

HWM 64-BIT REAL 4K FRAMES IN USE

The number of real 4K frames in use for 64-bit private pools.

Note: This value is available from z/OS V1.11.

Field Name: QW0225HVGPAGESINREAL

HWM 64-BIT AUX SLOTS IN USE

High water mark for the number of auxiliary 4K slots in use for 64-bit private pools.

Note: This value is available from z/OS V1.11.

Field Name: QW0225HVGAUXSLOTS

QW0225CTLP (S)

This field is for IBM service.

Field Name: QW0225CTLP

QW0225CTLS (S)

This field is for IBM service.

Field Name: QW0225CTLS

IFCID 225 - IRLM Pool Statistics:

This topic shows detailed information about “Record Trace - IFCID 225 - IRLM Pool Statistics”.

Record trace - IFCID 225 - IRLM Pool Statistics

The field labels shown in the following sample layout of “Record Trace - IFCID 225 - IRLM Pool Statistics” are described in the following section.

IRLM POOL STATISTICS

ABOVE THE BAR VALUES:
ATB CSA CURRENT : 0 ATB CSA HIGH WATER MARK : 0
ATB PRIVATE CURRENT : 5 ATB PRIVATE HIGH WATER MARK : 5
ATB PRIVATE MAX AVAILABILITY : 1844

BELOW THE BAR VALUES:
BTB PRIVATE CURRENT : 5773596 BTB PRIVATE HIGH WATER MARK : 5773596
BTB PRIVATE MAX AVAILABILITY : 5773596

ECSA:
ECSA CURRENT : 1856551 ECSA HIGH WATER MARK : 2015271

ATB CSA CURRENT

The total amount of 64-bit common storage that is currently in use by IRLM pools.

Field Name: QW0225I_ABCSA

ATB CSA HIGH WATER MARK

The high-water mark of 64-bit common storage allocated by IRLM pools.

Field Name: QW0225I_ABCSH

ATB PRIVATE CURRENT

The total amount of 64-bit private storage in use by IRLM pools.
Field Name: QW0225I_ABPVT

**ATB PRIVATE HIGH WATER MARK**

The high-water mark of 64-bit private storage allocated by IRLM pools.

Field Name: QW0225I_ABPVH

**ATB PRIVATE MAX AVAILABILITY**

The threshold of virtual 64-bit private storage available for normal IRLM execution. Only requests for storage by "must complete" tasks will be granted if this threshold is exceeded.

Field Name: QW0225I_APMAX

**BTB PRIVATE CURRENT**

The total amount of 31-bit private storage currently in use by IRLM pools.

Field Name: QW0225I_BBPVT

**BTB PRIVATE HIGH WATER MARK**

The high-water mark of 31-bit private storage allocated by IRLM pools.

Field Name: QW0225I_BBPVH

**BTB PRIVATE MAX AVAILABILITY**

The threshold of 31-bit private storage available for normal IRLM execution. Only requests for storage by "must complete" tasks will be granted if this threshold is exceeded.

Field Name: QW0225I_BPMAX

**ECSA CURRENT**

The total amount of Extended Common Service Area (ECSA) storage in use by IRLM pools.

Field Name: QW0225I_BBECSA

**ECSA HIGH WATER MARK**

The high-water mark of ECSA storage allocated by IRLM pools.

Field Name: QW0225I_BBECSAH

**IFCID 225 - Statement Cache / XPROC Detail:**

This topic shows detailed information about “Record Trace - IFCID 225 - Statement Cache / XPROC Detail”.

**Record trace - IFCID 225 - Statement Cache / XPROC Detail**

The field labels shown in the following sample layout of “Record Trace - IFCID 225 - Statement Cache / XPROC Detail” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALLOCATED STOR FOR DYN SQL STMTS</td>
<td>N/A</td>
</tr>
<tr>
<td>ALLOCATED STOR FOR STATIC SQL STMTS</td>
<td>N/A</td>
</tr>
<tr>
<td>ALLOCATED STOR FOR STMT DEPENDENCIES</td>
<td>47001</td>
</tr>
<tr>
<td>TOTAL 31-BIT XPROC DYNAMIC SQL</td>
<td>860160</td>
</tr>
<tr>
<td>TOTAL 31-BIT XPROC STATIC SQL</td>
<td>0</td>
</tr>
<tr>
<td>STATEMENTS IN 64-BIT AGENT LOCAL POOLS (ALP)</td>
<td>0</td>
</tr>
<tr>
<td>ALLOCATED STMT CACHE IN 64-BIT ALP</td>
<td>0</td>
</tr>
</tbody>
</table>

Chapter 6. Batch reporting  4043
ALLOCATED STOR FOR DYN SQL STMTS

The total shareable storage allocated for dynamic SQL statements used by active threads.

Field Name: QW0225SC8

REQUESTED STOR FOR DYN SQL STMTS

The total shareable storage requested for dynamic SQL statements used by active threads.

Field Name: QW0225LS8

ALLOCATED STOR FOR STATIC SQL STMTS

The total shareable storage allocated for static SQL statements.

Field Name: QW0225SX8

HWM REQUESTED STOR FOR DYN SQL STMTS

A statistics interval high-water mark of requested shareable storage for dynamic SQL statements used by active threads.

Field Name: QW0225HS8

ALLOCATED STOR FOR STMT DEPENDENCIES

The amount of storage allocated above the 2 GB bar to support object dependencies on statements that are in the Dynamic Statement Cache.

Field Name: QW0225DMH

TOTAL 31-BIT XPROC DYNAMIC SQL

The amount of storage allocated for the local cache storage pool below the bar.

Note: For DB2 10, the storage is allocated for executable code sequences of dynamic SQL statements.

Field Name: QW0225SC

ALLOCATED 31-BIT XPROC DYNAMIC SQL

The amount of storage used for thread copies in the local cache storage pool below the bar. This is a subset of the total allocated storage for thread copies QW0225SC.

Note: For DB2 10, the storage is used for executable code sequences of dynamic SQL statements.

Field Name: QW0225LS

TOTAL 31-BIT XPROC STATIC SQL

The amount of storage allocated below the bar for executable code sequences of static SQL statements.

Field Name: QW0225SX

HWM ALLOCATED 31-BIT XPROC DYNAMIC SQL

A statistics interval high-water mark of allocated storage for thread copies in the local cache storage pool below the bar.
Note: For DB2 10, the high water mark is related to executable code sequences of dynamic SQL statements.

Field Name: QW0225HS

STATEMENTS IN 64-BIT AGENT LOCAL POOLS (ALP)
The number of dynamic SQL local cache statements used by active threads. This value is related to shared agent local variable pools above the bar.

Field Name: QW0225LC

HWM STMT COUNT IN 64-BIT ALP AT HIGH STOR TIME
The number of dynamic SQL local cache statements used by active threads at high storage time. This value is related to shared agent local variable pools above the bar.

Field Name: QW0225HC

ALLOCATED STMT CACHE IN 64-BIT ALP
The total non-shareable storage requested for dynamic SQL statements used by active threads. This value is related to shared agent local variable pools above the bar.

Field Name: QW0225L2

HWM ALLOCATED STMT CACHE 64-BIT ALP
This value is related to shared agent local variable pools above the bar.

Field Name: QW0225H2

TIMESTAMP OF HWM AFTER LAST 225 REC
The timestamp at high-water storage.

Field Name: QW0225HT

TOTAL 64-BIT STMT CACHE BLKS 2G
The total statement cache storage blocks above the bar (64-bit shared variable pool).

Field Name: QW0225S2

QW0225F1
This field is for IBM service.

Field Name: QW0225F1

QW0225F2
This field is for IBM service.

Field Name: QW0225F2

IFCID 225 - Shared/Common Storage Summary:
This topic shows detailed information about “Record Trace - IFCID 225 - Shared/Common Storage Summary”.

Record trace - IFCID 225 - Shared/Common Storage Summary
The field labels shown in the following sample layout of “Record Trace - IFCID 225 - Shared/Common Storage Summary” are described in the following section.
31-BIT COMMON FIXED POOL STORAGE

The amount of storage allocated for 31-bit common fixed pool storage.

Field Name: QW0225FC

31-BIT COMMON VARIABLE POOL STORAGE

The amount of storage allocated for 31-bit common variable pool storage.

Field Name: QW0225VC

31-BIT COMMON GETMAINED STORAGE

The amount of storage allocated for 31-bit common getmained storage.

Field Name: QW0225GC

EXTENDED CSA SIZE

The size of the common storage area (CSA) above the 16 MB line.

Field Name: QW0225EC

64-BIT COMMON FIXED POOL STORAGE

The amount of storage allocated for 64-bit common fixed pool storage.

Field Name: QW0225FCG

64-BIT COMMON VARIABLE POOL STORAGE

The amount of storage allocated for 64-bit common variable pool storage.

Field Name: QW0225VCG

64-BIT COMMON GETMAINED STORAGE

The amount of storage allocated for 64-bit common getmained storage.

Field Name: QW0225GCG

64-BIT COMMON STORAGE-STOR MGR CTRL

The amount of storage allocated for 64-bit common storage for storage manager control structures.
Field Name: QW0225SMC

64-BIT SHARED VARIABLE POOL STORAGE
The amount of virtual shared variable storage above the 2 GB bar.

Field Name: QW0225SV

64-BIT SHARED FIXED POOL STORAGE
The amount of total fixed virtual shared storage above the 2 GB bar.

Field Name: QW0225SF

64-BIT SHARED GETMAINED STORAGE
The amount of virtual shared storage acquired by GETMAIN above the 2 GB bar.

Field Name: QW0225SG

64-BIT SHARED STORAGE-STOR MGR CTRL
The amount of 64-bit shared storage allocated for storage manager control structures.

Field Name: QW0225SMS

64-BIT SHARED SYSTEM AGENT STACK (AS)
The amount of 64-bit shared storage allocated for system agent stack use.

Field Name: QW0225GSG_SYS

64-BIT SHARED SYSTEM AS IN USE
The amount of 64-bit shared system agent stack that is in use.

Field Name: QW0225SUG_SYS

64-BIT SHARED NON-SYSTEM AS
The amount of 64-bit shared storage allocated for non-system agent stack use.

Field Name: QW0225GSG

64-BIT SHARED NON-SYSTEM AS IN USE
The amount of 64-bit shared non-system agent stack that is in use.

Field Name: QW0225SUG

SHARED MEMORY OBJECTS
The number of shared memory objects allocated for this MVS LPAR.

Field Name: QW0225SHRNMB

64-BIT SHARED MEMORY PAGES
The number of 64-bit shared memory pages allocated for this MVS LPAR (this count includes hidden pages).

Field Name: QW0225SHRPAGES

HWM FOR 64-BIT SHARED BYTES
High water mark for number of 64-bit shared bytes for this MVS LPAR.

Field Name: QW0225SHRGBYTES

64-BIT SHARED PAGES BACKED IN REAL

Chapter 6. Batch reporting
The number of 64-bit shared pages backed in real storage (4K pages) for this MVS LPAR.

Field Name: QW0225SHRINREAL

AUX SLOTS USED FOR 64-BIT SHARED STOR
The number of auxiliary slots used for 64-bit shared storage for this MVS LPAR.

Field Name: QW0225SHRAUXSLOTS

64-BIT PAGES PAGED IN FROM AUX STOR
The number of 64-bit shared pages paged in from auxiliary storage for this MVS LPAR.

Field Name: QW0225SHRPAGEINS

64-BIT PAGES PAGED OUT TO AUX STOR
The number of 64-bit shared pages paged out to auxiliary storage for this MVS LPAR.

Field Name: QW0225SHRPAGEOUTS

64-BIT SHARED STG REAL 4K FRMS IN USE
The number of real-storage frames (4K) in use for 64-bit shared storage. This does not include shared stack storage. This is recorded at the subsystem level.

Note: This field is available in z/OS 1.10 (and maintenance) or later.

Field Name: QW0225SHRSTG_REAL

64-BIT SHARED STG 4K AUX SLOTS IN USE
The number of auxiliary slots (4K) in use for 64-bit shared storage. This does not include shared stack storage. This is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out.

Note: This field is available in z/OS 1.10 (and maintenance) or later.

Field Name: QW0225SHRSTG_AUX

64-BIT STACK STG REAL 4K FRMS IN USE
The number of real-storage frames (4K) in use for 64-bit shared stack storage. This is recorded at the subsystem level.

Note: This field is available in z/OS 1.10 (and maintenance) or later.

Field Name: QW0225SHRSTKSTG_REAL

64-BIT STACK STG 4K AUX SLOTS IN USE
The number of auxiliary slots (4K) in use for 64-bit shared stack storage. This is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out.

Note: This field is available in z/OS 1.10 (and maintenance) or later.

Field Name: QW0225SHRSTKSTG_AUX

64-BIT COMMON STG REAL 4K FRMS IN USE
The number of real-storage frames (4K) in use for 64-bit common storage. This is recorded at the subsystem level.

**Note:** This field is available in z/OS 1.10 (and maintenance) or later.

**Field Name:** QW0225COMSTG_REAL

### 64-BIT COMMON STG 4K AUX SLOTS IN USE

The number of auxiliary slots (4K) in use for 64-bit common storage. This is recorded at the subsystem level. This field only includes auxiliary slots occupied by pages that are paged out.

**Note:** This field is available in z/OS 1.10 (and maintenance) or later.

**Field Name:** QW0225COMSTG_AUX

### LOG MGR WRITE BUFFER FRAMES IN REAL

The number of real-storage frames (4K) in the 64-bit common area in use for Log Manager write buffers.

**Field Name:** QW0225_LMWRITE_REAL

### LOG MANAGER CONTROL FRAMES IN REAL

The number of real-storage frames (4K) in the 64-bit common area in use for Log Manager control blocks.

**Field Name:** QW0225_LMCTRL_REAL

### LOG MGR WRITE BUFFER FRAMES IN AUX

The number of auxiliary slots (4K) in the 64-bit common area in use for Log Manager write buffers.

**Field Name:** QW0225_LMWRITE_AUX

### LOG MANAGER CONTROL FRAMES IN AUX

The number of auxiliary slots (4K) in the 64-bit common area in use for Log Manager control blocks.

**Field Name:** QW0225_LMCTRL_AUX

**QW0225_ECSA_CONV**

This field is for IBM service.

**Field Name:** QW0225_ECSA_CONV

**QW0225LFAREA**

This field is for IBM service (DB2 Field: QW0225LFAREA).

**Field Name:** QW0225LFAREA

**QW0225_RS**

This field is for IBM service (DB2 field: QW0225_RS).

**Field Name:** QW0225_RS

*IFCID 225 - Storage Pool Details:*

This topic shows detailed information about “Record Trace - IFCID 225 - Storage Pool Details”.

Chapter 6. Batch reporting 4049
IFCID 225 - Storage Pool Details

Record trace - IFCID 225 - Storage Pool Details

The field labels shown in the following sample layout of “Record Trace - IFCID 225 - Storage Pool Details” are described in the following section.

STORAGE POOL DETAILS

31-BIT DBM1 PRIVATE VARIABLE POOLS:

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGENT LOCAL STORAGE</td>
<td>2162688</td>
</tr>
<tr>
<td>BUFFER MANAGER STORAGE BLOCKS</td>
<td>651264</td>
</tr>
</tbody>
</table>

64-BIT POOLS:

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHARED AGENT LOCAL (VARIABLE POOL)</td>
<td>27615232</td>
</tr>
<tr>
<td>RID POOL STORAGE (FIXED POOL)</td>
<td>0</td>
</tr>
<tr>
<td>ARRAY VARIABLE STORAGE</td>
<td>0</td>
</tr>
</tbody>
</table>

SYSTEM AGENT STORAGE

Storage used by system agents.

Field Name: QW0225AS

BUFFER MANAGER STORAGE BLOCKS

Storage used for page set control blocks.

Field Name: QW0225BB

SHARED AGENT LOCAL (VARIABLE POOL)

The amount of storage allocated for agent-related 64-bit local storage (DB2 field: QW0225ALG).

Field Name: QW0225ALG

SHARED SYSTEM AGENT (VARIABLE POOL)

The amount of 64-bit storage used by system agents (DB2 field: QW0225ASG).

Field Name: QW0225ASG

RID POOL STORAGE (FIXED POOL)

Storage for RID list processing such as list prefetch, index ANDing, and ORing.

Field Name: QW0225RP

COMPRESSION DICT (DBM1 PRIVATE)

Storage space allocated for the compression dictionary.

AGENT LOCAL STORAGE

The amount of storage allocated for agent-related local storage. This storage is used for operations such as sort.

Background and Tuning Information

Sorting requires a large amount of virtual storage because there can be multiple copies of the data being sorted at a given time.

DB2 Sort uses two kinds of storage pool for various internal control structures and data records, an agent-related local storage pool and a global sort pool. To take advantage of the 64-bit addressability for larger storage pool, some high level sort control structures are kept in agent-related storage below the 2 GB bar, which contain 64-bit pointers to areas in the global sort pool above the 2 GB bar. The sort pool above 2 GB contains sort tree nodes and data buffers.

Field Name: QW0225AL
Field Name: QW0225CD

ARRAY VARIABLE STORAGE
The amount of storage in use for array variables.
Field Name: QW0225AR

IFCID 225 - Thread Information:
This topic shows detailed information about “Record Trace - IFCID 225 - Thread Information”.

Record trace - IFCID 225 - Thread Information
The field labels shown in the following sample layout of “Record Trace - IFCID 225 - Thread Information” are described in the following section.

ACTIVE THREADS
The number of active allied threads.
Field Name: QW0225AT

ACTIVE AND DISCONNECTED DBATS
The number of active and disconnected DBAT threads.
Field Name: QW0225DB

CASTOUT ENGINES
Number of engines available for data-sharing castout processing.
Field Name: QW0225CE

DEFERRED WRITE ENGINES
Number of engines used for deferred write operations.
Field Name: QW0225DW

GBP WRITE ENGINES
Number of engines for group buffer pool writes.
Field Name: QW0225GW

PREFETCH ENGINES
Number of engines used for sequential, list, and dynamic prefetch.
Field Name: QW0225PF

P-LOCK/NOTIFY EXIT ENGINES
Number of data sharing P-Lock engines and Notify Exit engines.
Field Name: QW0225PL

PARALLEL CHILD THREADS
The number of active parallel child threads.
Field Name: QW0225PT
IFCID 226 - Page Latch Contention Start

IFCID 226 - Page Latch Contention Start:

This topic shows detailed information about “Record Trace - IFCID 226 - Page Latch Contention Start”.

This IFCID records the beginning of an agent suspend to wait for a page latch that is currently held by another agent.

Record trace - IFCID 226 - Page Latch Contention Start

The field labels shown in the following sample layout of “Record Trace - IFCID 226 - Page Latch Contention Start” are described in the following section.

DBID: DSN0DB7  PSID: DSN4K00
PAGE NUMBER: X'000001'  LATCH TYPE: X
PARTITION: 0  PAGE NUMBERING: ABS
TABLE_SPACE_TYPE: N
BUFFERPOOL ID: 7  ACE TOKEN: 1

DBID
The database ID. Deduced from the DB2 fields QW0226DB, QW0105DN or QW0107DN.
When present, the database name is shown, otherwise the decimal identifier from QW0226DB is shown or N/A when this value is 0.
Field Name: RT0226DB

PSID
The page set object identifier. When present, this is the page set object name, otherwise the decimal identifier from QW0226OB is shown.
Field Name: RT0226OB

PAGE NUMBER
The number of the page being read or written. If the value in TABLE_SPACE_TYPE is L or V, the page number covers 4 bytes instead of 3.
Field Name: QW0226PN

LATCH TYPE
The type of latch.
Field Name: QW0226F

PARTITION
Shows the partition number or 0 if non-partitioned.
Field Name: QW0226PT

PAGE NUMBERING
Indicates how page numbers are shown for partitioned tables:
REL Indicates that relative page numbers are shown in the partition.
ABS Indicates that absolute page numbers are shown in the partition.
N/A Not applicable.
Field Name: QW0226P1

TABLE SPACE TYPE
The type of the table space:

- **L**  Non-EA large table
- **N**  Non-large table
- **R**  Partitioned by range (PBR) universal table spaces (UTS) that use relative page numbers
- **V**  EA-enabled large table

**Field Name:** QW0226FG

**BUFFERPOOL ID**

The buffer pool internal identifier. The values 0 through 49 are the identifiers for BP0 through BP49. The values 80 through 89 are the identifiers for BP32K through BP32K9.

**Field Name:** QW0226BP

**ACE TOKEN**

The agent control element token of the requester.

**Field Name:** QW0226AC

**IFCID 227 - Page Latch Contention End**

This topic shows detailed information about “Record Trace - IFCID 227 - Page Latch Contention End”.

This IFCID records the end of an agent suspend wait for a page latch that was currently held by another agent.

**Record trace - IFCID 227 - Page Latch Contention End**

The field labels shown in the following sample layout of “Record Trace - IFCID 227 - Page Latch Contention End” are described in the following section.

- **DBID:** DSNDB07
- **PSID:** DSN4K00
- **PAGE NUMBER:** X'000001'
- **CANCEL STATUS:** N
- **PARTITION:** 1
- **PAGE NUMBERING:** ABS
- **ACE TOKEN:** 1
- **TABLE_SPACE_TYPE:** N

**DBID**

The database ID. Deduced from the DB2 fields QW0227DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0227DB is shown or N/A when this value is 0.

**Field Name:** RT0227DB

**PSID**

The page set object identifier. When present this is the page set object name, otherwise it is the decimal identifier from QW0227OB.

**Field Name:** RT0227OB

**PAGE NUMBER**

The number of the page being read or written. If the value in TABLE_SPACE_TYPE is L or V, the page number covers 4 bytes instead of 3.
IFCID 227 - Page Latch Contention End

Field Name: QW0227PN

CANCEL STATUS
Indicates whether the latch requester was canceled.
Field Name: QW0227F

PARTITION
Shows the partition number or 0 if non-partitioned.
Field Name: QW0227PT

PAGE NUMBERING
Indicates how page numbers are shown for partitioned tables:
REL Indicates that relative page numbers are shown in the partition.
ABS Indicates that absolute page numbers are shown in the partition.
N/A Not applicable.
Field Name: QW0227P1

ACE TOKEN
The agent control element token of the requester.
Field Name: QW0227AC

TABLE SPACE TYPE
The type of the table space:
L Non-EA large table
N Non-large table
V EA-enabled large table
Field Name: QW0227FG

IFCID 228 - Archive Deallocation Start:

This topic shows detailed information about “Record Trace - IFCID 228 - Archive Deallocation Start”.

Record trace - IFCID 228 - Archive Deallocation Start
The field labels shown in the following sample layout of “Record Trace - IFCID 228 - Archive Deallocation Start” are described in the following section.
QW0228DV 1 QW0228DI 'C6D9C5C4F1404040'

IFCID 229 - Archive Deallocation End:

This topic shows detailed information about “Record Trace - IFCID 229 - Archive Deallocation End”.

Record trace - IFCID 229 - Archive Deallocation End
The field labels shown in the following sample layout of “Record Trace - IFCID 229 - Archive Deallocation End” are described in the following section.
QW0229DV 1 QW0229CC 'BLANK'
IFCID 230 - Group Buffer Pool Attributes:

This topic shows detailed information about “Record Trace - IFCID 230 - Group Buffer Pool Attributes”.

Each repeating section contains information about each group buffer pool to which this DB2 data sharing member is currently connected.

Record trace - IFCID 230 - Group Buffer Pool Attributes

The field labels shown in the following sample layout of “Record Trace - IFCID 230 - Group Buffer Pool Attributes” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP BUFFERPOOL ID</td>
<td>Group buffer pool name.</td>
</tr>
<tr>
<td>ERROR FLAGS</td>
<td>Indicates whether errors occurred during data collection:</td>
</tr>
<tr>
<td>ALLOCATED GBPOOL SIZE (4K)</td>
<td>The allocated size of the group buffer pool in 4 KB blocks.</td>
</tr>
<tr>
<td>CURRENT DIR TO DATA RATIO</td>
<td>The current directory entry to data entry ratio.</td>
</tr>
<tr>
<td>CLASS CASTOUT THRESH (%)</td>
<td>The threshold at which the class castout is to be initiated. It is expressed as a percentage of the size of the group buffer pool.</td>
</tr>
<tr>
<td>ACTUAL # OF DIR ENTRIES</td>
<td>The actual number of allocated directory entries.</td>
</tr>
<tr>
<td>ACTUAL # OF DATA ENTRIES</td>
<td>The actual number of allocated data entries.</td>
</tr>
<tr>
<td>DIRECTORY-ENTRY-RECLAIM</td>
<td>The number of directory entries reclaimed.</td>
</tr>
<tr>
<td>DATA-ENTRY-RECLAIM</td>
<td>The number of data entries reclaimed.</td>
</tr>
<tr>
<td>GROUP BUFFERPOOL ID</td>
<td>Group buffer pool name.</td>
</tr>
<tr>
<td>ERROR FLAGS</td>
<td>Indicates whether errors occurred during data collection:</td>
</tr>
<tr>
<td>ALLOCATED GBPOOL SIZE (4K)</td>
<td>The allocated size of the group buffer pool in 4 KB blocks.</td>
</tr>
<tr>
<td>CURRENT DIR TO DATA RATIO</td>
<td>The current directory entry to data entry ratio.</td>
</tr>
<tr>
<td>CLASS CASTOUT THRESH (%)</td>
<td>The threshold at which the class castout is to be initiated. It is expressed as a percentage of the size of the group buffer pool.</td>
</tr>
<tr>
<td>ACTUAL # OF DIR ENTRIES</td>
<td>The actual number of allocated directory entries.</td>
</tr>
</tbody>
</table>
IFCID 230 - Group Buffer Pool Attributes

Field Name: QBGBGDR

PENDING DIR TO DATA RATIO
The pending directory entry to data entry ratio.

Field Name: QBGBGR2

CLASS CASTOUT THRESH (PGS)
The threshold at which the castout is to be initiated for the group buffer pool. It is expressed as a percentage of the size of the group buffer pool.
For ALTER GROUPBUFFERPOOL commands, it reports the value specified in the GBPOOLT keyword.

Field Name: QBGBGGR

ACTUAL # OF DATA ENTRIES
The actual number of allocated data entries.

Field Name: QBGBGDT

GBP CHECKPOINT INTERVAL (MIN)
The time interval, in minutes, between successive group buffer pool checkpoints.
For ALTER GROUPBUFFERPOOL commands, it reports the value specified in the GBPCHKPT keyword.

Field Name: QBGBGCK

GBP CASTOUT THRESH (%)
The threshold at which the castout is to be initiated for the group buffer pool. It is expressed as a percentage of the size of the group buffer pool.
For ALTER GROUPBUFFERPOOL commands, it reports the value specified in the GBPOOLT keyword.

Field Name: QBGBGGT

DIRECTORY-ENTRY-RECLAIM
The number of times that a page name assignment required that a coupling facility directory entry be reclaimed (stolen).

Field Name: QBGBDRR

DATA-ENTRY-RECLAIM
The number of times that a page name assignment required that a coupling facility data entry be reclaimed (stolen).

Field Name: QBGBDTR

AUTOREC
Indicates whether automatic recovery takes place in the event of a structure failure or a loss of connectivity. When automatic recovery is active, all members of the group are recovered to the group buffer pool.

Field Name: QBGBGAS

TOTAL-CHANGED
The number of allocated data entries that are currently in changed state. This is a snapshot value and is not cumulative.
Field Name: QBGBTCC

XI-DIRECTORY-ENTRY-RECLAIM

The number of times that a directory entry was stolen and one or more XI signals had to be sent because the page in the directory was cached in one or more DB2 buffer pools.

Field Name: QBGBRXI

GBP CACHE

GBP cache attribute. Possible values are:

YES  GBP is used for both data caching and cross-invalidation.

NO  GBP is used for cross-invalidation only.

Field Name: QBGBGCS

MODE

Simplex or duplex mode indicator.

Field Name: QBGBDUP

SEC-GBP ALLOC

The allocated size of the secondary GBP when the GBP is DUPERX.

This field is not shown when MODE is SIMPLEX.

Field Name: QBGBGSZ2

SEC-GBP ALLOC DIRECTORIES

Number of allocated directory entries in the secondary GBP when MODE is DUPLEX.

Field Name: QBGBGDR2

SEC-GBP DATA ENTERIES

The allocated data entries in the secondary GBP when MODE is DUPERX.

Field Name: QBGBGDT2

IFCID 231 - Parallel Group Task Time:

This topic shows detailed information about “Record Trace - IFCID 231 - Parallel Group Task Time”.

Place text here

Record trace - IFCID 231 - Parallel Group Task Time

The field labels shown in the following sample layout of “Record Trace - IFCID 231 - Parallel Group Task Time” are described in the following section.
IFCID 231 - Parallel Group Task Time

**STATEMENT NO**

The statement number. If the PLAN_TABLE exists, this is the same as QUERYNO in the PLAN_TABLE.

**Field Name:** QW0231SN

**QUERY BLOCK NO**

The query block number. If the PLAN_TABLE exists, this is the same as QBLOCKNO in the PLAN_TABLE.

**Field Name:** QW0231QN

**PARALLEL GROUP NO**

The parallel group number. If the PLAN_TABLE exists, this is the same as ACCESS_PGROUP_ID in the PLAN_TABLE.

**Field Name:** QW0231GN

**REPEAT.GRPS**

The number of repeat groups in the section.

**Field Name:** QW0231RN

**RECORD**

The position of this record in the series of IFCID 222 records.

**Field Name:** QW0231TR

**OF**

The total number of IFCID 231 records in this series.

**Field Name:** QW0231NR

**GROUP CREATION**

The time of group creation in DB2 timestamp format.

**Field Name:** QW0231CT

**GROUP TERMINATION**

The time of group termination in DB2 timestamp format.

**Field Name:** QW0231ET

**GROUP ELAPSED**

The elapsed time between group creation and group termination in DB2 timestamp format.

**Field Name:** RT0231GE

**TASK SEQ. NUMBER**

The task sequence number.

**Field Name:** QW0231TQ

**TASK TOKEN**

The task token.

**Field Name:** QW0231TK

**TASK CREATION**

The time of task creation in DB2 timestamp format.
Field Name: QW0231TC

TASK ELAPSED

The elapsed time between task creation and task termination in DB2 timestamp format. If this value is negative, N/C is printed.

Field Name: RT0231EL

TASK TERMINATION

The time of task termination in DB2 timestamp format.

Field Name: QW0231TT

CPU TIME

Task CPU execution time.

Field Name: QW0231TX

MEMBER

The name of the DB2 member on which the task was executed.

Field Name: QW0231TM

CPU SU CONS

The CPU service units that the task consumed.

Field Name: QW0231SU

IFCID 233 - Call User Routine:

This topic shows detailed information about “Record Trace - IFCID 233 - Call User Routine”.

IFCID 233 signals the start or end of a call to a user routine (stored procedure or user-defined function) at a DB2 server.

This record is written when performance trace class 3 is active. MONITOR1 PRIVILEGE is required for reading via IFI.

This record traces the caller’s information.

Record trace - IFCID 233 - Call User Routine

The field labels shown in the following sample layout of “Record Trace - IFCID 233 - Call User Routine” are described in the following section.
IFCID 233 - Call User Routine

The package collection identifier.
Field Name: QW0233PC

PROGRAM NAME
The program name.
Field Name: QW0233PN

SCHEMA NAME
The name of the schema associated with this routine.
Field Name: QW0233SC

ROUTINE NAME
The specific name of the routine.
Field Name: QW0233PR

VERSION NAME
The name of the version.
Field Name: QW0233VER

ROUTINE TYPE
The routine type can have the following values:

PROCEDURE
The routine is a stored procedure

FUNCTION
The routine is a User-Defined Function
Field Name: QW0233TY

CONSISTENCY TOKEN
The consistency token.
Field Name: QW0233TS

ENTRY/EXIT TYPE
The entry or exit event type can have the following values:

ENTERING
The agent is entering a routine.

RETURNED
The agent has returned from a routine.
Field Name: QW0233EX

NESTING LEVEL
The nesting level of the routine.
Field Name: QW0233NL

STATEMENT NO
The statement number of the statement executed.
Field Name: QW0233SN

TYPE
The statement type. Possible values are DYNAMIC or STATIC.
Field Name: QW0233STY

ROUTINE ID
The routine identifier.
Field Name: QW0233RID

STATEMENT ID
The unique identifier of the currently executing statement. It is shown as an integer and in hexadecimal format.
Field Name: QW0233SID

CONV INTO HEX
The unique identifier of the currently executing statement. It is shown as an integer and in hexadecimal format.
Field Name: QW0233SID

IFCID 234 - Calling Agent Auth IDs:
This topic shows detailed information about “Record Trace - IFCID 234 - Calling Agent Auth IDs”.
This IFCID returns the authorization ID information for the calling agent.

Record trace - IFCID 234 - Calling Agent Auth IDs
The field labels shown in the following sample layout of “Record Trace - IFCID 234 - Calling Agent Auth IDs” are described in the following section.

PRIM AUTHID: USERID01
SQL AUTHID: SQLAUTHID01
SEC AUTHID: SQLAUTHID02
SEC AUTHID: SQLAUTHID03

IFCID 236 - DDF SNA XLN Protocol Error:
This topic shows detailed information about “Record Trace - IFCID 236 - DDF SNA XLN Protocol Error”.

Record trace - IFCID 236 - DDF SNA XLN Protocol Error
The field labels shown in the following sample layout of “Record Trace - IFCID 236 - DDF SNA XLN Protocol Error” are described in the following section.
REMOTE LOCATION
The location name or LU name of the remote partner involved in the protocol error.
Field Name: QW0236LO

LAST OPERATION
Indicates whether the last network operation was a send or receive.
Field Name: QW0236SR

SENT
The last message sent by this DB2 site during the XLN exchange.
Field Name: QW0236MS

RCVD
The last message received by this DB2 site during the XLN exchange.
Field Name: QW0236MR

VTAM RPL
The VTAM RPL associated with the last XLN message received during the exchange log names (XLN).
Field Name: QW0236VR

EXT
The VTAM RPL extension which describes the LU 6.2 verb indicators for the last message received.
Field Name: QW0236VX

IFCID 237 - Set Current Degree:
This topic shows detailed information about “Record Trace - IFCID 237 - Set Current Degree”.

This record is generated when an SQL SET CURRENT DEGREE statement is executed.

Record trace - IFCID 237 - Set Current Degree

The field labels shown in the following sample layout of “Record Trace - IFCID 237 - Set Current Degree” are described in the following section.

PREV DEGREE: 1     NEW DEGREE: ANY     STATUS: SUCCESSFUL

PREV DEGREE
The previous (current) degree.
Field Name: QW0237OI
NEW DEGREE

The new (attempted) degree.

Field Name: QW0237NI

STATUS

The status of the statement.

Field Name: QW0237ST

IFCID 238 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 238 - IBM Service Record”.

This record is for IBM service use.

IFCID 239 - Overflow Package/DBRM: This topic shows the data available for IFCID 239.

IFCID 239 - Buffer Manager Accounting Data:

This topic shows detailed information about “Record Trace - IFCID 239 - Buffer Manager Accounting Data”.

Record trace - IFCID 239 - Buffer Manager Accounting Data

The field labels shown in the following sample layout of “Record Trace - IFCID 239 - Buffer Manager Accounting Data” are described in the following section.

<table>
<thead>
<tr>
<th>BUFFER MANAGEMENT DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUFFER POOL ID</td>
</tr>
<tr>
<td>GETPAGES</td>
</tr>
<tr>
<td>GETPAGES FAILED</td>
</tr>
<tr>
<td>BUFFER UPDATES</td>
</tr>
<tr>
<td>SYNCHRON. WRITE</td>
</tr>
<tr>
<td>ZHYPERLINK READ</td>
</tr>
<tr>
<td>DASD CACHE READ HITS</td>
</tr>
</tbody>
</table>

BUFFER POOL ID

The buffer pool ID used by this thread.

Field Name: QBACPID

SYNCHRON. READ

The number of synchronous read I/O operations. DB2 increments this counter for each media manager synchronous physical read. Asynchronous I/O requests are not counted.

Field Name: QBACRIO

GETPAGES

The number of Getpage requests. This counter is incremented by successful Getpage requests for queries processed in parallel for each thread and for all successful and unsuccessful Getpage requests for queries that are not processed in parallel.

Background and Tuning Information
Reducing the number of Getpages can improve DB2 performance by reducing the number of synchronous page reads. With fewer Getpages, the requested page is more likely to be returned from the buffer pool. CPU usage is also reduced.

Check the ratio of Getpages to SQL DML statements, as a rule of thumb, try and keep this ratio below six for a typical online transaction SQL.

You might need to modify the database and query design, for example:

- Add indexes to tables to reduce the number of pages scanned.
- Reassess the number of tables used and denormalize them, if necessary.

As an example, a large table with many columns can result in several pages being fetched to satisfy a simple query requesting just a few columns. Splitting such a table into several tables with fewer columns, tailored to queries, will result in fewer pages returned for each query.

- Use correlated rather than non-correlated queries to force the use of an index.

**Field Name:** QBACGET

This is an *exception* field.

**SEQ. PREFETCH**

The number of SEQUENTIAL PREFETCH requests. This is incremented for each PREFETCH request. Each request can result in an I/O read. If it does, up to 64 pages can be read for SQL and up to 128 pages for utilities. For SQL, depending on the buffer pool size, a request does not result in an I/O if all the requested pages are already in the buffer pool.

DB2 can use sequential prefetch if the data is accessed in sequential order even though sequential prefetch was not requested at bind time. This is known as sequential detection and is not included in the sequential prefetch count. Sequential detection is included in dynamic prefetch requests field.

**Background and Tuning Information**

Table space scans and nonmatching index scans generally use sequential prefetch.

**Field Name:** QBACSEQ

This is an *exception* field.

**GETPAGES FAILED**

The number of times that a page requested for a query processed in parallel was unavailable because an I/O was in progress or the page was not found in the buffer pool. The agent does not wait, but control returns to the agent.

This counter is used only when queries are processed in parallel.

**Background and Tuning Information**

If this value is close to zero, most pages are already in the buffer pool, and wait time for synchronous I/O is small.

This counter can be high when, for example, there is a cluster index scan and the data is not truly clustered by the index key. In this instance, data pages are not accessed in their true order and the cluster ratio is not valid. Use the Runstats utility to update it.
The value of this field is also used to determine how many sequential prefetches of one page were scheduled.

**Field Name:** QBACNGT

**LIST PREFETCH**

The number of LIST PREFETCH requests.

**Special Considerations:**
1. List prefetch allows DB2 to access data pages efficiently even if the needed data pages are not contiguous. It can be used with single index access and is always used with multiple index access.
2. List prefetch is always used to access data from the inner table during a hybrid join.
3. Data pages are read in quantities equal to the sequential prefetch quantity, which depends on the buffer pool size and is usually 64 pages.
4. During bind time DB2 does not use list prefetch if the estimated number of RIDs to be processed would take more than 50% of the RID pool. During execution time, list prefetch processing terminates if DB2 detects that more than 25% of the rows in the table need to be accessed. If list prefetch is terminated, it is indicated in IFCID 125.

**Field Name:** QBACLPF

This is an *exception* field.

**BUFFER UPDATES**

The number of times a buffer update occurs. This is incremented every time a page is updated and is ready to be written to DASD. If the same page is updated twice, for example, the number is incremented by 2.

This number is kept for all types of pages including data pages and work-file pages.

**Background and Tuning Information**

A nonzero value indicates any of the following activities:
- SQL INSERT, UPDATE, or DELETE
- Merge scan join
- Internal sort activity on the work files

Check the access path to determine whether sort activity can be minimized or avoided.

**Field Name:** QBACSWS

This is an *exception* field.

**DYNAMIC PREFETCH**

The number of (dynamic) PREFETCH requests. This is triggered by sequential detection. This includes prefetches for segmented table spaces.

**Background and Tuning Information**

Dynamic prefetch is typically used for a SELECT or UPDATE that is run repeatedly, accessing the index for each access.

If sequential prefetch, list prefetch, and dynamic prefetch reads have large values, check whether the access path can be improved.
IFCID 239 - Buffer Manager Accounting Data

Field Name: QBACDPF
This is an exception field.

SYNCHRON.WRITE
The number of immediate (synchronous) write I/O operations.

Background and Tuning Information
Although an immediate write is rare, a small nonzero value is acceptable. A large value indicates that the system needs tuning.

Field Name: QBACIMW
This is an exception field.

PAGES READ ASYN-PAR
The number of asynchronous pages read by prefetch that the agent triggered.

Background and Tuning Information
This is used to determine the buffer pool hit ratio: (Getpage requests - Synchronous reads - Asynchronous pages read) / Getpage requests.

Field Name: QBACSIO
This is an exception field.

ZHYPERLINK READ
The number of DASD reads done using zHyperLink.

Field Name: QBACSYI

ZHYPERLINK CPU TIME
The amount of CPU time used for successful zHyperLink reads. zHyperLink I/O is synchronous with respect to the CPU, thus CPU time accumulates from the beginning of the I/O until it completes.

Field Name: QBACSYIT

DASD CACHE READ HITS
The number of I/Os where the requested pages were found in the DASD subsystem cache. These I/Os could have potentially been successful if zHyperLink was used to do the I/O.

Field Name: QBACIOC

IFCID 239 - General Package Overflow Accounting Data:

This topic shows detailed information about “Record Trace - IFCID 239 - General Package Overflow Accounting Data”.

Record trace - IFCID 239 - General Package Overflow Accounting Data

The field labels shown in the following sample layout of “Record Trace - IFCID 239 - General Package Overflow Accounting Data” are described in the following section.

GENERAL PACKAGE OVERFLOW ACCOUNTING DATA
NUMBER OF PACKAGES  1  FIRST SECTION  2  LAST SECTION  3

NUMBER OF PACKAGES
The number of packages.
IFCID 239 - General Package Overflow Accounting Data

Field Name: QPKGPKGN

FIRST SECTION
The number of the first section in this record.

Field Name: QPKGPKNF

LAST SECTION
The number of the last section in this record.

Field Name: QPKGPKNL

IFCID 239 - Locking Data:

This topic shows detailed information about “Record Trace - IFCID 239 - Locking Data”.

Record Trace - IFCID 239 - Locking Data

The field labels shown in the following sample layout of “Record Trace - IFCID 239 - Locking Data” are described in the following section.

<table>
<thead>
<tr>
<th>Label</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEADLOCKS</td>
<td>1</td>
</tr>
<tr>
<td>TIMEDOUTS</td>
<td>3</td>
</tr>
<tr>
<td>ESCALATIONS(SHR)</td>
<td>4</td>
</tr>
<tr>
<td>ESCALATIONS(EXC)</td>
<td>5</td>
</tr>
<tr>
<td>MAXIMUM PAGE/ROW LOCKS HELD</td>
<td>6</td>
</tr>
<tr>
<td>LOCK REQUEST</td>
<td>12</td>
</tr>
<tr>
<td>LOCK SUSPENSIONS</td>
<td>13</td>
</tr>
<tr>
<td>IRLM LATCH SUSPENS.</td>
<td>14</td>
</tr>
<tr>
<td>OTHER SUSPENSIONS</td>
<td>15</td>
</tr>
<tr>
<td>OTHER REQUEST</td>
<td>16</td>
</tr>
<tr>
<td>CLAIM REQUESTS</td>
<td>17</td>
</tr>
<tr>
<td>CLAIM REQUESTS FAIL</td>
<td>18</td>
</tr>
<tr>
<td>DRain REQUESTS</td>
<td>19</td>
</tr>
<tr>
<td>DRain REQUESTS FAIL</td>
<td>20</td>
</tr>
</tbody>
</table>

DEADLOCKS
The number of times deadlocks were detected. This number should be low, ideally 0.

Background and Tuning Information

Deadlocks occur when two or more application processes each hold locks on resources that the others need, without which they cannot proceed. Ensure that all applications accessing the same tables access them in the same order.

To improve concurrency:
• Use row level locking instead of page level locking to minimize deadlocks.
• For small tables use page level locking with MAXROWS 1.

To minimize deadlocks:
• Delay updates to just before commit.
• Use SELECT with the FOR UPDATE clause to use U lock.
• Adjust the deadlock detection cycle parameter DEADLOK in the IRLM procedure.

This field is incremented once for each deadlock encountered. There is no correlation between this field and the deadlock events reported in the Locking report set or the number of IFCID 172 records written. This field reports all deadlocks, regardless of how they were resolved. The locking report and record trace IFCID 172 show only those deadlocks that were resolved by DB2.

Field Name: QTXADEA

This is an exception field.

LOCK REQUEST
The number of requests to lock a resource.

**Field Name:** QTXALOCK

This is an *exception* field.

**LOCK SUSPENSIONS**

The number of times a lock could not be obtained and the unit of work was suspended.

**Background and Tuning Information**

This number should be low, ideally 0.

The number of lock suspensions is a function of the lock requests. Lock suspensions (or conflicts) can happen on either LOCK REQUEST or CHANGE REQUEST.

Suspensions are highly dependent on the application and table space locking protocols.

**Field Name:** QTXASLOC

This is an *exception* field.

**CLAIM REQUESTS**

The number of claim requests.

**Field Name:** QTXACLNO

This is an *exception* field.

**TIMEOUTS**

The number of times a unit of work was suspended for a time exceeding the timeout value. This number should be low, ideally 0.

**Field Name:** QTXATIM

This is an *exception* field.

**UNLOCK REQUEST**

The number of requests to unlock a resource.

This value can be less than the number of lock requests because DB2 can release several locks with a single unlock request.

**Field Name:** QTXAUNLK

**IRLM LATCH SUSPENS.**

The number of latch suspensions.

**Field Name:** QTXASLAT

**CLAIM REQ. FAILED**

The number of unsuccessful claim requests.

**Field Name:** QTXACLUN

**ESCALATIONS(SHR)**

The number of times the maximum page locks per table space are exceeded, and the table space lock escalates from a page lock (IS) to a table space lock (S) for this thread. You can specify the number of locks allowed per table space with the LOCKS PER TABLE(SPACE) parameter on the DB2 install panel DSNTIPJ.
Background and Tuning Information

Escalations can cause unpredictable response times. Lock escalations should only happen when an application process updates or references (if repeatable read is used) more pages than normal.

Field Name: QTXALES
This is an exception field.

QUERY REQUEST
The number of query requests.
Field Name: QTXAQR
This is an exception field.

OTHER SUSPENSIONS
The number of suspensions caused by something other than lock or latch.
Field Name: QTXASOTH
This is an exception field.

DRAIN REQUESTS
The number of drain requests.
Field Name: QTXADRNO
This is an exception field.

ESCALATIONS(EXC)
The number of times the maximum page locks per table space are exceeded and the table space lock escalates from a page lock (IX) to a table space lock (X).

Background and Tuning Information

Escalations can cause unpredictable response times. Lock escalations should only happen when an application process updates or references (if repeatable read is used) more pages than it normally does.

A useful rule of thumb is to compare the number of escalations (shared and exclusive) to the successful escalations (those that did not cause deadlocks and timeouts). If this value, or the number Lock escalations - shared and if the number of timeouts or deadlocks is also not 0, the timeout or deadlock is probably caused by the escalation.

If many escalations cause deadlocks and timeouts, the recommendation is to change the escalation threshold value. Use of ANY is extremely useful to prevent unnecessary and expensive page locks, for example locking all pages in a table space.

Lock escalations, shared or exclusive, should not be expected in a transaction environment.
Field Name: QTXALEX
This is an exception field.

CHANGE REQUEST
The number of change requests.
Field Name: QTXACHG
IFCID 239 - Locking Data

This is an exception field.

DRAIN REQ. FAILED
The number of unsuccessful drain requests.

Field Name: QTXADRUN
This is an exception field.

MAXIMUM PAGE/ROW LOCKS HELD
The maximum number of page or row locks concurrently held against all table spaces by a single application during its execution. This count is a high-water mark. It cannot exceed the LOCKS PER USER parameter on panel DSNTIPJ.

Field Name: QTXANPL
This is an exception field.

OTHER REQUEST
The number of requests to IRLM to perform a function other than LOCK, UNLOCK, QUERY, or CHANGE.

Field Name: QTXAIRLM
This is an exception field.

IFCID 239 - Package/DBRM Accounting Data:

This topic shows detailed information about “Record Trace - IFCID 239 - Package/DBRM Accounting Data”.

Record trace - IFCID 239 - Package/DBRM Accounting Data

The field labels shown in the following sample layout of “Record Trace - IFCID 239 - Package/DBRM Accounting Data” are described in the following section.

LOCATION:
The location name.
If this field is blank in trace or report, the package or DBRM was executed locally. If it is not blank, all times represent the time spent locally to execute the remote package for this APPL_DIR requester.

This field is invalid (N/P) if summary rollup data is present.

**Field Name:** QPACLOCN

This is an *exception* field.

**COLLECTION**

The package collection ID. This field does not apply to DBRMs. If the program name cannot be identified, this field is not present in report or trace.

This field is invalid if summary rollup data is present. It can have the following value in:

- Accounting trace and report: N/P
- The Accounting FILE and SAVE PROGRAM table: blank

**Field Name:** QPACCOLN

This is an *exception* field.

**PACKAGE ID**

The program name (package ID or DBRM name).

In the case of rollup data (Accounting data of DDF/RRSAF threads and parallel tasks accumulated by DB2), the following value is shown:*ROLSUM*.

**Field Name:** QPACP Kidd

This is an *exception* field.

**TOKEN**

The program (package or DBRM) consistency token.

This field is invalid (0) if summary rollup data is present.

**Field Name:** QPACCONT

**SECTION NMB**

The number of this particular data section in the series.

**Field Name:** QPACRECN

**TYPE**

The program type. It can be DBRM (field name QPACDBRM) or package (field name QPACPACK).

**Field Name:** QPACFLGS

**SCHEMA NAME**

Schema name of the nested activity.

If the package is defined for a trigger, stored procedure, or user-defined function, then this field contains the name of the schema to which the nested activity belongs. It can have the following value in:

- Accounting Trace and Report: N/P
- The Accounting FILE and SAVE PROGRAM tables: blank
**ICID 239 - Package/DBRM Accounting Data**

This field is invalid if summary rollup data is present.

**Field Name: QPACASCH**

**SQL STMTS**
The number of SQL statements issued in this package or DBRM.
This number may not be equal to the total number of SQL statements in the QXST data section because QXST does not count all SQL statements. For example, it does not count commit or rollback statements.

**Note:** This field is shown for the following field labels in Accounting trace:
- SQL STMT - TOTAL
- SQL STMT - AVERAGE:

**Field Name: QPACSQLC**
This is an *exception* field.

**USED BY STOR.PROC**
Indicates whether this package was loaded by a stored procedure.
This field is invalid if unique or summary rollup data is present.

**Field Name: QPACINSP**

**NON-ZERO CLASS 8**
Indicates if Class 8 data is in this record.

**Field Name: QPACCLS8**

**ACTIVITY NAME**
The name of the nested activity.
This field contains the name of the nested activity if the package is defined for a:
- Trigger
- Stored procedure
- User-defined function (UDF)
- Native SQL procedure
- Non-inline UDF
In a data block that reports totals it is set to ALL NAMES.
This field is invalid if summary rollup data is present.
It can have the following value in:
- Accounting Trace and Report: N/P
- The Accounting FILE and SAVE PROGRAM tables: blank

**Field Name: QPACAANM**

**SUCC AUTH CHECK**
Indicates whether a successful package EXECUTE authorization check was made and DB2 catalog access was avoided.
This field is invalid if unique or summary rollup data is present.

**Field Name: QPACPAC**

**LAST EXECUTED**
This package or DBRM is either currently executing or is the most recently executed package or DBRM. This field is invalid if unique or summary rollup data is present.

**Field Name:** QPACCRNT

**NON-ZERO CLASS 7**

There is nonzero accounting class 7 data in this QPAC data instance.

**Field Name:** QPACCLS7

**ACTIVITY TYPE**

The type of activity. The following values indicate how the package was loaded:

**ALL TYPES**

In a data block that reports totals it is set to ALL TYPES.

**STORED PROC**

When running an external procedure

**TRIGGER**

When running a trigger

**UDF**

When running a user-defined function

**NATIVE SQL PROC**

When running a native SQL procedure

**NATIVE UDF**

When running a native UDF procedure (a non-inline user-defined function)

**NONNESTED**

Indicates that none of the above values is true

**MULTIPLE**

Indicates that packages with the same key but with different activity types were running

**N/P**

Invalidated in case of rollup summary

The nested activity values that are shown in column NEST_ACTIVITY_TYPE of the table DB2PMFACCT_PROGRAM are:

<table>
<thead>
<tr>
<th>Character</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>For Stored Procedure</td>
</tr>
<tr>
<td>T</td>
<td>For Trigger</td>
</tr>
<tr>
<td>U</td>
<td>For UDF</td>
</tr>
<tr>
<td>Q</td>
<td>For native SQL procedure</td>
</tr>
<tr>
<td>D</td>
<td>For Native UDF</td>
</tr>
<tr>
<td>N</td>
<td>For nonnested (other)</td>
</tr>
<tr>
<td>blank</td>
<td>For invalidated in case of rollup summary</td>
</tr>
</tbody>
</table>

This field is invalid if unique or summary rollup data is present.

**Field Name:** QPACAASFG

**PACKAGE SWITCH**

The number of times package was invoked from a different package. For the first package run by an application, the initial call counts as a package
switch. If this package called a nested package (such as a trigger, UDF, or stored procedure), a switch will not be counted upon return from such a package.

**Field Name:** QPACSWITCH

**ROLLED NBR THREADS**

This value can be one of the following:

- In general, the number of threads to roll data into this QPAC data section. Non-rollup QPACs have a value of 1 and rollup QPACs have a value of 1 or more. This number is used as a divisor for calculating averages for package class 7, 8, or 10 times and events.
- If REPORT ORDER (ACTNAME) is specified, the number of threads to roll data into this QPAC data section of a special activity type depends on the following:
  - If IFCID 233 or 380 is available, the number of threads to roll data into this QPAC data section for stored procedures (SP) is counted based on the available IFCID. If both IFCIDs are available, IFCID 380 is the preferred one for SP reporting. Subprograms called by these SPs are not taken into account.
  - If IFCID 233 or 381 is available, the number of threads to roll data into this QPAC data section for user-defined functions (UDF) is counted based on the available IFCID. If both IFCIDs are available, IFCID 381 is the preferred one for UDF reporting. Subprograms called by these UDFs are not taken into account.
  - If neither IFCID 233, 380, nor 381, is collected, the total number of threads to roll data into this QPAC data section is counted. The sum also includes the number of subprograms.

**Field Name:** QPACRLNU

**CLASS 7: BEGINNING STORE CLOCK TIME**

The store clock time at entry to DB2 for the most recent execution of this package or DBRM.

This field is invalid if unique or summary rollup data is present.

**Field Name:** QPACSCB

**CLASS 7: ENDING STORE CLOCK TIME**

The store clock time at exit from DB2 after the most recent execution of this package or DBRM.

This field is invalid if unique or summary rollup data is present.

**Field Name:** QPACSCE

**CLASS 7: BEGINNING TCB CPU TIME**

The CPU time at entry to DB2 for the most recent execution of this package or DBRM. This time does not include the CPU time consumed on an IBM specialty engine.

This field is invalid if unique or summary rollup data is present.

**Field Name:** QPACBJST

**CLASS 7: ENDING TCB CPU TIME**
The CPU time at exit from DB2 for the most recent execution of this package or DBRM. This time does not include CPU consumed on an IBM specialty engine.

This field is invalid if unique or summary rollup data is present.

Field Name: QPACEJST

CLASS 7: TOTAL ELAPSED TIME
The total elapsed time for executing the package or DBRM.

Field Name: QPACSCCT

CLASS 7: DB2 ENTRY/EXIT
The number of DB2 entries or exits processed during the execution of the package or DBRM.

In Accounting reports this is shown twice; as a total and as an average.

Field Name: QPACARNA

CLASS 7: TOTAL TCB TIME
The class 7 CPU time for all executions of the package or DBRM. This time does not include the:
- Class 7 time for parallel tasks
- CPU time that is consumed on an IBM specialty engine

Field Name: QPACTJST

This is an exception field.

CLASS 7: SE CPU TIME
The total CPU time for all executions of this package or DBRM that was consumed on an IBM specialty engine (SE).

Note: All CPU times of an IBM specialty engine that are reported in DB2 trace records are already normalized by DB2 to the speed of the general purpose processor.

Field Name: QPACCLS7_ZIIP

CLASS 8: LOCK/LATCH SUSP TIME
The accumulated lock elapsed wait time that occurred while executing this package.

Background and Tuning Information
OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when performance data was gathered.

If the suspension time is high, investigate locking activity.

Field Name: QPACAWTL

This is an exception field.

CLASS 8: LOCK/LATCH SUSP EVENTS
The number of wait trace events processed for waits for lock while executing this package.

Field Name: QPACARNL

CLASS 8: WAIT TIME LOCAL LOCKS
The accumulated latch elapsed wait time for latch suspensions that occurred while executing this package.

Field Name: QPACAWLH

CLASS 8: LOCAL LOCK WAIT TRACE EVENTS

The number of wait trace events processed for page latch contention while executing this package.

Field Name: QPACANLH

CLASS 8: DB2 LATCH SUSP TIME

The accumulated lock elapsed wait time that occurred while executing this package.

Background and Tuning Information

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when performance data was gathered.

If the suspension time is high, investigate locking activity.

Field Name: QPACAWTL

This is an exception field.

CLASS 8: LATCH WAIT TRACE EVENTS

The number of wait trace events processed for waits for lock while executing this package.

Field Name: QPACARNL

CLASS 8: SYNCHRONOUS I/O SUSP TIME

The accumulated elapsed wait time for I/O suspensions under this thread during the execution of the package or DBRM.

Background and Tuning Information

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when its performance data was gathered.

Field Name: QPACAWTI

This is an exception field.

CLASS 8: SYNCHRONOUS I/O SUSP EVENTS

The number of wait trace events processed for I/O.

Field Name: QPACARNE

CLASS 8: OTHER READ SUSP TIME

The accumulated waiting time for a read I/O performed under a thread other than this one during the execution of the package or DBRM.

Background and Tuning Information

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when performance data was gathered.

This field includes waits caused by sequential prefetch, list prefetch, dynamic prefetch, and synchronous read I/O performed by other threads.

If the value in this field is high, the problem could be an I/O bound query using prefetch or an I/O contention. The application is accessing data from
a busy data set, volume, or control unit and is continually being suspended. Consult the DBA and MVS systems programmer.

Field Name: QPACAWTR
This is an exception field.

CLASS 8: OTHER READ SUSP EVENTS
The number of suspensions due to read I/O.

Field Name: QPACARNR

CLASS 8: OTHER WRITE SUSP TIME
The accumulated waiting time due to a write I/O performed for another thread during the execution of a package or DBRM.

Background and Tuning Information
If the value in this field is high, the problem could be I/O contention. The application is accessing data from a busy data set, volume, or control unit and is continually being suspended. Consult the DBA and MVS systems programmer to resolve possible data set placement problems.

Field Name: QPACAWTW
This is an exception field.

CLASS 8: OTHER WRITE SUSP EVENTS
The number of suspensions due to write I/O.

Field Name: QPACARNW

CLASS 8: SERV.TASK SWITCH SUSP TIME
The accumulated waiting time due to a synchronous execution unit switch to DB2 services from this thread during the execution of the package or DBRM.

Background and Tuning Information
OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when its performance data was gathered.

This value includes the waits because of an OPEN/CLOSE data set, SYSLOGNG update, DATASPACE MANAGER services, DEFINE, EXTEND, and DELETE data set, AUTONOMOUS PROCEDURE, and DDF Requester waiting for Server reply and VSAM Catalog update.

Field Name: QPACAWTE
This is an exception field.

CLASS 8: SERV.TASK SWITCH SUSP EVENTS
The number of wait trace events processed for DB2 service tasks.

Field Name: QPACARNS

CLASS 8: ARCH.LOG(QUIES) SUSP TIME
The accumulated waiting time caused by processing ARCHIVE LOG(QUIESCE) commands during the execution of the package or DBRM. This number represents the amount of time that an individual thread was suspended because of the command, not the time it took for the entire command to complete.
Background and Tuning Information

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when its performance data was gathered.

Avoid issuing the -ARCHIVE LOG QUIESCE command during peak periods.

Field Name: QPACALOG

CLASS 8: ARCH.LOG(QUIES) SUSP EVENTS
The number of ARCHIVE LOG MODE (QUIESCE) commands issued.
Field Name: QPACALCT

CLASS 8: DRAIN LOCK SUSP TIME
The accumulated waiting time due to a drain lock.
Field Name: QPACAWDR

CLASS 8: DRAIN LOCK SUSP EVENTS
The number of wait trace events processed for waits for drain locks.
Field Name: QPACARND

CLASS 8: CLAIM RELEASE SUSP TIME
The accumulated waiting time for a drain waiting for claims to be released during the execution of the package or DBRM.

Background and Tuning Information

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when its performance data was gathered.

Field Name: QPACAWCL

CLASS 8: CLAIM RELEASE SUSP EVENTS
The number of wait trace events processed for waits for claims to be released.
Field Name: QPACARNC

CLASS 8: PAGE LATCH SUSP TIME
The accumulated waiting time caused by a page latch contention.
Field Name: QPACAWTP

CLASS 8: PAGE LATCH SUSP EVENTS
The number of page latch wait trace events processed.
Field Name: QPACARNH

CLASS 8: NOTIFY MESSAGES SUSP TIME
The accumulated elapsed waiting time due to suspensions caused by sending notify messages to other members in the data sharing group. Messages are sent, for example, when database descriptors are changed due to DDL.

This value is only calculated if accounting class 8 is active and DB2 is a member of a DB2 data sharing group.

Field Name: QPACAWTG
CLASS 8: NOTIFY MESSAGES EVENTS
The number of wait trace events processed for sending notify messages to other members in the data sharing group.
Field Name: QPACARNG

CLASS 8: GLOBAL CONTENT. PARENT SUSP TIME
The accumulated wait time due to global contention for parent L-Locks.
Parent L-Locks are any of the following L-Lock types: database, tablespace, table, or partition.
Field Name: QPACAWTJ

CLASS 8: GLOBAL CONTENT. PARENT EVENTS
The number of wait trace entry/exit events processed for waits for global lock contention for parent L-Locks.
Field Name: QPACARNJ

CLASS 8: UDF EXECUTED
The number of user-defined functions scheduled.
Field Name: QPACUDNU

CLASS 8: STORED PROCEDURE EXECUTED
The number of stored procedures scheduled.
Field Name: QPACSPNS

CLASS 8: TCP/IP LOB XML TIME
The number of wait trace events that were processed for waits for TCP/IP LOB and XML materialization while this package or DBRM was running.
Field Name: QPACALBC

CLASS 8: TCP/IP LOB XML EVENTS
The accumulated wait time for TCP/IP LOB and XML materialization while running this package or DBRM.
Field Name: QPACALBW

ACCELERATOR SUSP TIME
The accumulated wait time for requests to an accelerator while executing this package.
Field Name: QPACAAACW

ACCELERATOR EVENTS
The number of wait trace events processed for requests to an accelerator while executing this package.
Field Name: QPACAACC

PARALLEL QUERY SYNC WAIT TIME
The accumulated time waiting for parallel query processing to synchronize between parent and child tasks.
Field Name: QPAC_PQS_WAIT

PARALLEL QUERY SYNC WAIT EVENTS
IFCID 239 - Package/DBRM Accounting Data

The number of times the parallel query processing suspended because it was waiting for the synchronization of the parent/child.

Field Name: QPAC_PQS_COUNT

FAST INSERT PIPE WAIT TIME

The accumulated wait time for a pipe while this package was executed (DB2 field QPAC_PIPE_WAIT).

Field Name: QPAC_PIPE_WAIT

FAST INSERT PIPE WAIT EVENTS

The number of wait trace events that were processed for waits for a pipe while this package was executed (DB2 field QPAC_PIPEWAIT_COUNT).

Field Name: QPAC_PIPEWAIT_COUNT

IFCID 239 - RDS Package Accounting:

This topic shows detailed information about “Record Trace - IFCID 239 - RDS Package Accounting”.

Record trace - IFCID 239 - RDS Package Accounting

The field labels shown in the following sample layout of “Record Trace - IFCID 239 - RDS Package Accounting” are described in the following section.

<table>
<thead>
<tr>
<th>RDS PACKAGE ACCOUNTING</th>
<th>SELECTS</th>
<th>INSERTS</th>
<th>UPDATES</th>
<th>DELETES</th>
<th>PREPARES</th>
<th>OPENS</th>
<th>CLOSES</th>
<th>LOCK TABLES</th>
<th>SQL CALLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELECTS</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>10</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>INSERTS</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>10</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>UPDATES</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>10</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>DELETES</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>10</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>DESCRIBES</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>10</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>FETCHS</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>10</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>

SELECTS

The number of SQL SELECT statements executed.

Field Name: QPSELECT

This is an exception field.

INSERTS

The number of INSERT statements executed.

Field Name: QPINSRT

This is an exception field.

UPDATES

The number of UPDATE statements executed.

Field Name: QPUPDTE

This is an exception field.

DELETES

The number of DELETE statements executed.

Field Name: QPDELET

This is an exception field.

DESCRIBES

The number of data capture describes.

Field Name: QPDESC
IFCID 239 - RDS Package Accounting

PREPARES
The number of full prepare requests.
Field Name: QPPREP

OPENS
The number of full open requests.
Field Name: QPOPEN

CLOSES
The number of close requests.
Field Name: QPCLOSE

FETCHS
The number of fetch requests.
Field Name: QPFETCH

LOCK TABLES
The number of lock tables.
Field Name: QPLOCK

SQL CALLS
The number of SQL calls.
Field Name: QPCALL

IFCID 239 - Resource Limit Facility:
This topic shows detailed information about “Record Trace - IFCID 239 - Resource Limit Facility”.

Record trace - IFCID 239 - Resource Limit Facility
The field labels shown in the following sample layout of “Record Trace - IFCID 239 - Resource Limit Facility” are described in the following section.

RES LIMIT SCOPE
Indicates how the resource limit was established. A value of 0 shows that the resource limit facility was not started.
Field Name: QTXAPREC

RLF TABLE ID
The identifier of the resource limit specification table.
Field Name: QTXARLID

LIMIT IN CPU 16 MICROSEC
The CPU time limit, in microseconds, set by the resource limit facility.
Field Name: QTXACLMT

RES LIMIT TYPE
Indicates how the type of resource limit was established: infinite, zero, or limit.

**Note:** Label QTXAFLG1 presents the first flag byte in hexadecimal:
- X'80' Infinite limit
- X'40' No run or zero limit

**Field Name:** QTXAFLG1

**LIMIT IN SERVICE UNITS**

The maximum number of CPU service units to be used. Normally, the value is not 0 if the RES LIMIT TYPE is LIMIT. A value of 0 indicates no limit.

**Field Name:** QTXASLMT

**HIGHEST CPU 16 MICROSEC USED**

The highest CPU time used by a single DB2 call, in microseconds. Note that there can be many DB2 calls for one SQL statement.

**Field Name:** QTXACHUS

**QTXAFLG1 (S)**

Indicates how the type of resource limit was established: infinite, zero, or limit.

**Note:** Label QTXAFLG1 presents the first flag byte in hexadecimal:
- X'80' Infinite limit
- X'40' No run or zero limit

**Field Name:** QTXAFLG1

**IFCID 247 - SQLDA Data and Input Host Variable Data:**

This topic shows detailed information about “Record Trace - IFCID 247 - SQLDA Data and Input Host Variable Data”.

IFCID 247 records SQLDA data and INPUT HOST VARIABLE data are related to a user application program. Each host variable is traced individually as it is moved from the user application area to the DB2 address space.

For dynamic SQL statements of length 5000 or less, you can use these records in combination with records from IFCID 064 and IFCID 063 to determine which statements are associated with which host variables. To do this, you need to match the statement number in this record to the statement number in an IFCID 064 record. An IFCID 063 Record that follows the IFCID 064 record that has the same CORRELATION ID and ACE values contains the SQL statement associated with the host variables.

**Record trace - IFCID 247 - SQLDA Data and Input Host Variable Data**

The field labels shown in the following sample layout of “Record Trace - IFCID 247 - SQLDA Data and Input Host Variable Data” are described in the following section.
LOCATION NAME
Location name.
Field Name: QW0247LN

COLLECTION ID
Package collection identifier.
Field Name: QW0247PC

PROGRAM NAME
Program name.
Field Name: QW0247PN

STATEMENT NUMBER
Statement number.
Field Name: QW0247SN

CONSISTENCY TOKEN
The consistency token.
Field Name: QW0247TS

LENGTH EACH SQLDA ENTRY
Length of each SQLDA entry.
Field Name: QW0247LE

NUMBER ENTRIES IN SQLDA
Number of entries in the SQL data area.
Field Name: QW0247NE

FORMAT SQLDA
The format of the SQLDA. Possible values are:

0 - COMPRESSED
Is a compressed form of the SQLDA.

1 - COMPLETE
Is a complete SQLDA containing the data type, address, and address of the indicator variable for each host variable.

2 - FIXED LENGTH
Is a variable length character format containing the length of the string and text.

? - UNKNOWN
Is shown, if none of the above field names is used.
Field Name: QW0247FE

SQLDA NAME
SQLDA name, if Format 1 SQLDA. The first two bytes are the length of the NAME and are not shown.

Field Name: QW0247NA

SQLDA ENTRY NUMBER
SQLDA entry number.

Field Name: QW0247NO

DATA TYPE
Is derived as described in DB2 SQL Reference, based on the SQLTYPE:

- 384, 385
  - DATE
- 388, 389
  - TIME
- 392, 393
  - TIMESTAMP
- 448, 449
  - VARYING LENGTH CHARACTER STRING
- 452, 453
  - FIXED-LENGTH CHARACTER STRING
- 456, 457
  - LONG VARYING CHARACTER STRING
- 480, 481
  - FLOATING POINT
- 484, 485
  - PACKED DECIMAL
- 496, 497
  - LARGE INTEGER
- 500, 501
  - SMALL INTEGER

Note:
• Any other SQLTYPES are shown as: NON DISPLAYABLE DATA
• Values are shown in DB2 internal format.

Field Name: QW0247TY

LENGTH
Length of data for this entry. If the field type is decimal (484 or 485), the length is not applicable.

Field Name: QW0247LD

ADDRESS TO DATA
The address of the host variable in the application address space.

Field Name: QW0247PT
**IFCID 247 - SQLDA Data and Input Host Variable Data**

**PRECISION (IF DEC)**
If the field type is decimal (484 or 485), this is the precision.

**Field Name:** QW0247LP

**SCALE (ID DEC)**
If the field is decimal (484 or 485), this is the scale.

**Field Name:** QW0247LS

**ADDRESS TO NULL INDICATOR**
The address of the indicator variable, if the value in QW0247TY is odd (NULLABLE).

**Field Name:** QW0247IN

**NULL INDICATOR**
Null indicator values:
- YES, if X'00'
- NO, if X'FF'

**Field Name:** QW0247NL

**LENGTH OF DATA AREA**

**Field Name:** QW0247LL

**SQLDA DATA**

**Field Name:** QW0247DA

**IFCID 248 - IBM Service Record:**
This topic shows detailed information about “Record Trace - IFCID 248 - IBM Service Record”.

This record is for IBM service use.

**IFCID 249 - EDM Pool Invalidate DBD:**
This topic shows detailed information about “Record Trace - IFCID 249 - EDM Pool Invalidate DBD”.

This record traces DBD invalidations. A DBD is invalidated in the data sharing environment when one DB2 subsystem changes a DBD that needed, it is read, resulting in multiple copies of the DBD in the EDM pool.

**Record trace - IFCID 249 - EDM Pool Invalidate DBD**
The field labels shown in the following sample layout of “Record Trace - IFCID 249 - EDM Pool Invalidate DBD” are described in the following section.

**DBID** : USIBMSYSTDB2
**DATABASE NAME** : DSNDB01
**DB2 MEMBER NAME** : AAAAAAAA

**DBID**
The database ID. Deduced from the DB2 fields QW0249ID, and QW0105DN or QW0107DN.
IFCID 249 - EDM Pool Invalidate DBD

When present, the database name is shown, otherwise the decimal identifier from QW0249ID is shown or N/A when this value is 0.

Field Name: RT0249DB

DATABASE NAME

The database name.

Field Name: QW0249NM

DB2 MEMBER NAME

The name of the DB2 member causing the invalidation.

Field Name: QW0249MC

IFCID 250 - Connect/Rebuild Connect/Disconnect Group Bpool:

This topic shows detailed information about “Record Trace - IFCID 250 - Connect/Rebuild Connect/Disconnect Group Bpool”.

This record is written for a group buffer pool (coupling facility cache structure) connect, rebuild, or disconnect event.

The DESCRIPTION column indicates what event occurred. The format of this record and data shown depends on the event being reported.

Record trace - IFCID 250 - Connect/Rebuild Connect/Disconnect Group Bpool

The field labels shown in the following sample layout of “Record Trace - IFCID 250 - Connect/Rebuild Connect/Disconnect Group Bpool” are described in the following section.

<table>
<thead>
<tr>
<th>FIELD NAME</th>
<th>DATA TYPE</th>
<th>SIZE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRUCTURE NAME</td>
<td>CHAR</td>
<td>384</td>
<td>Group structure name</td>
</tr>
<tr>
<td>GROUP BP NAME</td>
<td>VARCHAR</td>
<td>1468</td>
<td>Group buffer pool name</td>
</tr>
<tr>
<td>RETURN CODE</td>
<td>CHAR</td>
<td>1024</td>
<td>Return code</td>
</tr>
<tr>
<td>REASON CODE</td>
<td>CHAR</td>
<td>293</td>
<td>Reason code</td>
</tr>
<tr>
<td>DATA ELEMENT</td>
<td>CHAR</td>
<td>384</td>
<td>Data element</td>
</tr>
<tr>
<td>CONNECT TYPE</td>
<td>CHAR</td>
<td>384</td>
<td>Connect type</td>
</tr>
<tr>
<td>NEW CONNECTION</td>
<td>CHAR</td>
<td>384</td>
<td>New connection</td>
</tr>
<tr>
<td>EXCLUSION LIST HONORED</td>
<td>CHAR</td>
<td>384</td>
<td>Exclusion list honored</td>
</tr>
<tr>
<td>SAF RETURN CODE</td>
<td>CHAR</td>
<td>384</td>
<td>SAF return code</td>
</tr>
<tr>
<td>SAF REASON CODE</td>
<td>CHAR</td>
<td>384</td>
<td>SAF reason code</td>
</tr>
</tbody>
</table>

IFCID 250 - Connect & Rebuild Connect Failure (Authorization) Record

<table>
<thead>
<tr>
<th>FIELD NAME</th>
<th>DATA TYPE</th>
<th>SIZE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRUCTURE NAME</td>
<td>CHAR</td>
<td>384</td>
<td>Group structure name</td>
</tr>
<tr>
<td>GROUP BP NAME</td>
<td>VARCHAR</td>
<td>1468</td>
<td>Group buffer pool name</td>
</tr>
<tr>
<td>RETURN CODE</td>
<td>CHAR</td>
<td>1024</td>
<td>Return code</td>
</tr>
<tr>
<td>REASON CODE</td>
<td>CHAR</td>
<td>293</td>
<td>Reason code</td>
</tr>
<tr>
<td>SAF RETURN CODE</td>
<td>CHAR</td>
<td>384</td>
<td>SAF return code</td>
</tr>
<tr>
<td>SAF REASON CODE</td>
<td>CHAR</td>
<td>384</td>
<td>SAF reason code</td>
</tr>
</tbody>
</table>

IFCID 250 - Connect & Rebuild Connect Failure (No Suitable Coupling Facility) Record

<table>
<thead>
<tr>
<th>FIELD NAME</th>
<th>DATA TYPE</th>
<th>SIZE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRUCTURE NAME</td>
<td>CHAR</td>
<td>384</td>
<td>Group structure name</td>
</tr>
<tr>
<td>GROUP BP NAME</td>
<td>VARCHAR</td>
<td>1468</td>
<td>Group buffer pool name</td>
</tr>
<tr>
<td>RETURN CODE</td>
<td>CHAR</td>
<td>1024</td>
<td>Return code</td>
</tr>
<tr>
<td>REASON CODE</td>
<td>CHAR</td>
<td>293</td>
<td>Reason code</td>
</tr>
<tr>
<td>MIN CONTROL SPACE</td>
<td>CHAR</td>
<td>384</td>
<td>Minimum control space</td>
</tr>
<tr>
<td>TOTAL SPACE</td>
<td>CHAR</td>
<td>384</td>
<td>Total space</td>
</tr>
<tr>
<td>TOTAL CONTROL SPACE</td>
<td>CHAR</td>
<td>384</td>
<td>Total control space</td>
</tr>
<tr>
<td>TOTAL FREE SPACE</td>
<td>CHAR</td>
<td>384</td>
<td>Total free space</td>
</tr>
<tr>
<td>FREE CONTROL SPACE</td>
<td>CHAR</td>
<td>384</td>
<td>Free control space</td>
</tr>
<tr>
<td>STORAGE SIZE</td>
<td>CHAR</td>
<td>384</td>
<td>Storage size</td>
</tr>
<tr>
<td>MAXIMUM ELEMENT</td>
<td>CHAR</td>
<td>384</td>
<td>Maximum element</td>
</tr>
<tr>
<td>MAXIMUMICASTOUT</td>
<td>CHAR</td>
<td>384</td>
<td>Maximum cast out</td>
</tr>
</tbody>
</table>

IFCID 250 - Disconnect

<table>
<thead>
<tr>
<th>FIELD NAME</th>
<th>DATA TYPE</th>
<th>SIZE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRUCTURE NAME</td>
<td>CHAR</td>
<td>384</td>
<td>Group structure name</td>
</tr>
<tr>
<td>GROUP BP NAME</td>
<td>VARCHAR</td>
<td>1468</td>
<td>Group buffer pool name</td>
</tr>
<tr>
<td>RETURN CODE</td>
<td>CHAR</td>
<td>1024</td>
<td>Return code</td>
</tr>
<tr>
<td>REASON CODE</td>
<td>CHAR</td>
<td>293</td>
<td>Reason code</td>
</tr>
</tbody>
</table>

STRUCTURE NAME

The name of the coupling facility structure.

Field Name: QW0250SN
GROUP BP NAME
The group buffer pool name.
Field Name: QW0250GN

RETURN CODE
The return code.
The reason code.
Field Name: QW0250RC

STRUCTURE SIZE
The structure size, that is, the number of 4 KB blocks. The actual size might be less than the requested size due to insufficient space in the preference list facilities.
Field Name: QW0250SZ

DIRECTORY ENTRIES
The number of allocated directory entries.
Field Name: QW0250DR

ALLOCATION
Indicates whether this connect caused a structure allocation.
Field Name: QW0250CA

MAX NUMBER CASTOUT
The maximum number of castout classes.
Field Name: QW0250CO

DATA ELEMENTS
The number of data elements allocated. For DB2 group buffer pools, the size of the data elements is 4 KB. Each data entry consists of one or more data elements.
Field Name: QW0250DT

MAX STRUCTURE SIZE
The maximum structure size saved at the time the structure was allocated. The maximum structure size is obtained from the active policy at the time the structure is allocated.
Field Name: QW0250SM

CONNECT TYPE
The type of connection.
Field Name: QW0250CD

EXCLUSION LIST HONORED
Indicates whether the exclusion list was honored.
This field is only applicable if the value in ALLOCATION is YES. Otherwise, N/A is printed in this field.
Field Name: QW0250F2

SAF RETURN CODE
IFCID 250 - Connect/Rebuild Connect/Disconnect Group Bpool

The system authorization facility (SAF) return code.

Field Name: QW0250X1

SAF REASON CODE
The SAF reason code.
Field Name: QW0250X2

COUPLING FACILITY NAME
The coupling facility name.
Field Name: QW0250ZN

COUPLING FACILITY REASON
The reason why the coupling facility was not suitable.
Field Name: QW0250ZR

MIN CONTROL SPACE
The minimum control space required (in 4 KB blocks) to allocate the structure for which connect was requested.
Field Name: QW0250ZM

TOTAL SPACE
The total space in the coupling facility in 4 KB blocks, including control and noncontrol space.
Field Name: QW0250ZG

TOTAL CONTROL SPACE
The total control space in the coupling facility in 4 KB blocks.
Field Name: QW0250ZH

TOTAL FREE SPACE
The total free space in 4 KB blocks, including control and noncontrol space.
Field Name: QW0250ZI

FREE CONTROL SPACE
The free control space in 4 KB blocks.
Field Name: QW0250ZJ

STORAGE SIZE
The storage increment size in 4 KB blocks.
Field Name: QW0250ZK

MAXIMUM ELEMENT
The maximum element characteristic. DB2 always requests a 4 KB element size. Therefore, this field should always equal 4.
Field Name: QW0250ZL

MAXIMUM CASTOUT
The maximum number of castout classes for a structure using this coupling facility.
Field Name: QW0250ZO
DISCONNECT TYPE

The type of disconnect.

Field Name: QW0250DD

IFCID 251 - Buffer Manager PSET/Part P-Lock Request:

This topic shows detailed information about “Record Trace - IFCID 251 - Buffer Manager PSET/Part P-Lock Request”.

Record trace - IFCID 251 - Buffer Manager PSET/Part P-Lock Request

The field labels shown in the following sample layout of “Record Trace - IFCID 251 - Buffer Manager PSET/Part P-Lock Request” are described in the following section.

Field Name: QW0251KT

DBID

The database ID. Deduced from the DB2 fields QW0251KD, and QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0251KD is shown or N/A when this value is 0.

Field Name: RT0251DB

OBID

The object ID. Deduced from the DB2 fields QW0251KP, QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0251KP is shown or N/A if this value is 0.

Field Name: RT0251OB

PARTITION NMBR.

The partition number. If this is a non-partitioned page set, 0 is printed in this field.

Field Name: QW0251KR

BP ID

The internal buffer pool ID (0-49 and 80-89).

Field Name: QW0251KU

IRLM FUNC CODE

The IRLM function code.

Field Name: QW0251IF
OBJECT TYPE

The object type.

Field Name: QW0251OB

REQUESTED STATE

The requested lock state if the value in IRLM FUNC CODE is LOCK or CHANGE. If the value is CHANGE FROM P-LOCK EXIT, then this is the P-lock state requested by the other member causing the P-lock exit of this member. In this case, this field is 0 if the request from the other member was not in conflict with the state of this member.

Field Name: QW0251ST

CONDITIONAL

Indicates whether the request was conditional.

Field Name: QW0251C1

RESTART

Indicates whether there was a restart lock request.

If the lock is currently retained on behalf of this DB2, a restart request causes the lock to be changed from retained to active. If the lock is not retained, the lock grant process is as normal.

Field Name: QW0251C6

MODIFY

Indicates whether this is a modify lock.

Field Name: QW0251C7

DATABASE NAME

The database name.

Field Name: QW0251DN

PAGESET NAME

The page set name.

Field Name: QW0251PN

DB2 MEMBER NAME

The DB2 member name that depends on the value in IRLM FUNC CODE:

- When CHANGE FROM P-LOCK EXIT this is the name of the database in conflict with the P-lock state currently held by this member.
- If it is not CHANGE FROM P-LOCK EXIT and the P-lock was rejected, this is the name of the database in conflict with this request

Field Name: QW0251DB

HELD STATE

Old and new P-lock held state. Old state taken from the DB2 field QW0251OS. New state taken from the DB2 field QW0251NS.

Field Name: RT251HS

CACHED STATE
Old and new P-lock cached state. Old state taken from the DB2 field QW0251OC. New state taken from the DB2 field QW0251NC.

**Field Name**: RT251CS

**IFCID 252 - IBM Service Record:**

This topic shows detailed information about “Record Trace - IFCID 252 - IBM Service Record”.

This record is for IBM service use.

**IFCID 254 - Coupling Facility Cache Structure Statistics:**

This topic shows detailed information about “Record Trace - IFCID 254 - Coupling Facility Cache Structure Statistics”.

**Record trace - IFCID 254 - Coupling Facility Cache Structure Statistics**

The field labels shown in the following sample layout of “Record Trace - IFCID 254 - Coupling Facility Cache Structure Statistics” are described in the following section.

<table>
<thead>
<tr>
<th>GROUP BUFFER POOL NAME</th>
<th>GBP0</th>
<th>EXPLICIT XI COUNTER</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>READ HIT</td>
<td>0</td>
<td>CHANGED PAGE WRITE HIT</td>
<td>0</td>
</tr>
<tr>
<td>READ MISS DIRECTORY HIT</td>
<td>0</td>
<td>CLEAN PAGE WRITE HIT</td>
<td>0</td>
</tr>
<tr>
<td>READ MISS ASSIGNMENT SUPPRESSED</td>
<td>0</td>
<td>WRITE MISS CACHE FULL</td>
<td>0</td>
</tr>
<tr>
<td>READ MISS NAME Assigned</td>
<td>0</td>
<td>DIRECTORY ENTRY RECLAIM</td>
<td>0</td>
</tr>
<tr>
<td>READ MISS CACHE FULL</td>
<td>0</td>
<td>DATE ENTRY RECLAIM</td>
<td>0</td>
</tr>
<tr>
<td>SEC-GBP changed Page WRITE HIT</td>
<td>0</td>
<td>SEC-GBP directory ENTRY</td>
<td>0</td>
</tr>
<tr>
<td>SEC-GBP WRITE MISS CACHE FULL</td>
<td>0</td>
<td>SEC-GBP DATA ENTRY</td>
<td>0</td>
</tr>
</tbody>
</table>

**GROUP BUFFER POOL NAME**

The name of the group buffer pool.

**Field Name**: QW0254GN

**EXPLICIT XI COUNTER**

The number of times a request was made to the group coupling facility to explicitly cross invalidate a page and a number of XI signals were sent because the page was cached in one or more DB2 buffer pools.

**Field Name**: QW0254CI

**READ HIT**

The number of coupling facility read requests in which data was returned.

**Field Name**: QW0254RH

**CHANGED PAGE WRITE HIT**

The number of coupling facility write requests for changed pages that has successfully completed.

**Field Name**: QW0254WH

**XI DIRECTORY ENTRY RECLAIM**

The number of times that a directory entry was stolen and XI signals had to be sent because the page for the directory entry was cached in one or more DB2 buffer pools.

**Field Name**: QW0254XR

**READ MISS DIRECTORY HIT**
IFCID 254 - Coupling Facility Cache Structure Statistics

The number of coupling facility read requests for a page in which data was not returned but the page name was already assigned in the coupling facility directory (SES did not have to assign a directory entry for the page).

Field Name: QW0254RD

CLEAN PAGE WRITE HIT
The number of facility write requests for clean pages successfully completed.

Field Name: QW0254WC

CASTOUT
The number of castout operations performed.

Field Name: QW0254CC

READ MISS ASSIGNMENT SUPPRESSED
The number of times that a coupling facility read request specified a page for which no directory entry exists and no directory entry is created. DB2 does not create a directory entry if it does not need to register the page to the coupling facility for cross invalidation (XI); that is when no other DB2 member in the group has R/W interest in the page set/partition.

Field Name: QW0254RS

WRITE MISS CACHE FULL
The number of coupling facility write requests that could not complete due to a lack of coupling facility storage resources.

Field Name: QW0254WF

DIRECTORY ENTRY
The number of allocated directory entries (not cumulative).

Field Name: QW0254DE

READ MISS NAME ASSIGNED
The number of times that a coupling facility read request specified a page for which a directory entry was created.

Field Name: QW0254RN

DIRECTORY ENTRY RECLAIM
The number of times that a page name assignment required a coupling facility directory entry to be reclaimed (stolen).

Field Name: QW0254DR

DATA ENTRY
The number of allocated data entries (not cumulative).

Field Name: QW0254TE

READ MISS CACHE FULL
The number of times that a coupling facility read request specified a page for which no directory entry exists and no directory entry is created due to the lack of storage in the group buffer pool. A non-zero value in this field
indicates that the backing coupling facility cache structure size might be too small to support the current workload.

Field Name: QW0254RF

**DATA ENTRY RECLAIM**

The number of times that a page name assignment required a coupling facility data entry to be reclaimed (stolen).

Field Name: QW0254TR

**TOTAL CHANGED**

The snapshot value of the current number of changed pages.

Field Name: QW0254TC

**SEC-GBP CHANGED PAGE WRITE HIT**

The number of successful coupling facility write requests for changed pages.

Field Name: QW02542W

**SEC-GBP WRITE MISS CACHE FULL**

The number of unsuccessful coupling facility write requests because of insufficient coupling facility storage resources.

Field Name: QW02542F

**SEC-GBP DIRECTORY ENTRY**

The number of allocated directory entries. This is a snapshot value.

Field Name: QW02542D

**SEC-GBP DATA ENTRY**

The number of allocated data entries. This is a snapshot value.

The number of allocated data entries that are currently in *changed* state. This is a snapshot value.

Field Name: QW02542C

**IFCID 255 - Buffer Refresh Due to XI:**

This topic shows detailed information about “Record Trace - IFCID 255 - Buffer Refresh Due to XI”.

This record is written when a buffer refresh was caused by the cross invalidation (XI) of a data page in the group buffer pool. Cross invalidation occurs when a DB2 member of a data sharing group updates a data page and writes the newly changed page to the group buffer pool. All DB2 members that have this data page cached in their buffer pools are notified that the page was invalidated. If a member needs that data page, it must be refreshed.

**Record trace - IFCID 255 - Buffer Refresh Due to XI**

The field labels shown in the following sample layout of “Record Trace - IFCID 255 - Buffer Refresh Due to XI” are described in the following section.
### DBID
The database ID. Deduced from the DB2 fields QW0255DB, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0225DB is shown or N/A when this value is 0.

**Field Name:** RT0255DB

### PIECE NUMBER
The data set number of the page set.

**Field Name:** QW0255PN

### OBID
The object ID. Deduced from the DB2 fields QW0255OB, QW0105TN or QW0107TN.

When present, the name of the object is shown, otherwise the decimal identifier from QW0142OB is shown or N/A if this value is 0.

**Field Name:** RT0255OB

### PAGE NUMBER
The relative page number within the data set.

**Field Name:** QW0255PG

### BPID
The internal buffer pool ID.

**Field Name:** QW0255BP

### ACE TOKEN
Ace token of the requester. This address ties the coupling facility read requests for prefetch to the allied agent or database access thread.

**Field Name:** QW0255AC

### TYPE
Indicates whether the buffer refresh was synchronous or asynchronous.

**Field Name:** QW0255AS

### FROM
Indicates whether data was returned from the group buffer pool or DASD.

**Field Name:** QW0255DR

### IFCID 256 - Alter Group Buffer Pool:

This topic shows detailed information about “Record Trace - IFCID 256 - Alter Group Buffer Pool”.

This record shows the old and the new status of the altered group buffer pool.
Record trace - IFCID 256 - Alter Group Buffer Pool

The field labels shown in the following sample layout of “Record Trace - IFCID 256 - Alter Group Buffer Pool” are described in the following section.

<table>
<thead>
<tr>
<th>BUFFER POOL</th>
<th>GROUP BUFFER POOL ID: GBP0</th>
<th>OLD</th>
<th>NEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECTORY TO DATA RATIO</td>
<td></td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>CLASS CASTOUT THRESHOLD (%)</td>
<td></td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>CLASS CASTOUT THRESHOLD (PAGES)</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>GBP CASTOUT THRESHOLD (%)</td>
<td></td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>GBP CHECKPOINT INTERVAL (MIN)</td>
<td></td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>GBP CACHE SETTING</td>
<td></td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>AUTOREC</td>
<td></td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

GROUP BUFFER POOL ID

The DB2 group buffer pool ID.

Field Name: QW0256GB

DIRECTORY TO DATA RATIO

The directory entry to data entry ratio. This is the value specified in the RATIO keyword of the ALTER GROUPBUFFERPOOL command.

New status deduced from the DB2 field QW0256NR.

Old status deduced from the DB2 field QW0256OR.

Field Name: RT0256DR

CLASS CASTOUT THRESHOLD (%)

The threshold at which the class castout is to be initiated. It is expressed as a percentage of the group buffer pool size. This is the value specified in the CLASST keyword of the ALTER GROUPBUFFERPOOL command.

New status deduced from the DB2 field QW0256NC.

Old status deduced from the DB2 field QW0256OC.

Field Name: RT0256CT

CLASS CASTOUT THRESHOLD (PAGES) (OLD)

The old class castout threshold based on the number of pages.

Field Name: QW0256ON

CLASS CASTOUT THRESHOLD (PAGES) (NEW)

The new class castout threshold based on the number of pages.

Field Name: QW0256NN

GBP CASTOUT THRESHOLD (%)

The threshold at which the castout is to be initiated for the group buffer pool. This is the value specified in the GBPOOLT keyword of the ALTER GROUPBUFFERPOOL command.

New status deduced from the DB2 field QW0256NG.

Old status deduced from the DB2 field QW0256OG.

Field Name: RT0256GT

GBP CHECKPOINT INTERVAL (MIN)
The time interval (in minutes) between successive group buffer pool checkpoints. This is the value specified in the GBPCHKPT keyword of the ALTER GROUPBUFFERPOOL command.

New status deduced from the DB2 field QW0256NK.
Old status deduced from the DB2 field QW0256OK.

Field Name: RT0256CI

GBP CACHE SETTING

GBPCACHE value before and after the ALTER GROUPBUFFERPOOL command was issued. This field specifies whether DB2 should write changed pages for the group buffer pool dependant pageset or partitions directly to DASD and use the group buffer pool only for sending XI signals.

New status deduced from the DB2 field QW0256NB.
Old status deduced from the DB2 field QW0256OB.

Field Name: RT0256CS

AUTOREC

A flag indicating how the AUTOREC option of the ALTER GROUPBUFFERPOOL command has been set. It specifies whether DB2 should automatically recover if GBP fails. The old value specifies the AUTOREC value before the ALTER GBP command was issued. The new value specifies the AUTOREC value after the ALTER GBP command was issued.

New status deduced from the DB2 field QW0256NA.
Old status deduced from the DB2 field QW0256OA.

Field Name: RT0256AR

IFCID 257 - IRLM Notify Req Detail:

This topic shows detailed information about “Record Trace - IFCID 257 - IRLM Notify Req Detail”.

This record shows the inter-DB2 notify message sending detail. IRLM notify requests are used to communicate among members of a DB2 data sharing group.

Record trace - IFCID 257 - IRLM Notify Req Detail

The field labels shown in the following sample layout of “Record Trace - IFCID 257 - IRLM Notify Req Detail” are described in the following section.
Note: For data sharing, SKELETON CURSOR TABLE LOCKING and SKELETON PACKAGE TABLE LOCK are LP-locks (an LP-lock has an L-lock component and a P-lock component).

**Field Name:** QW0021KT

**DBID**

The database ID. This field is not applicable if the value in LOCK RES TYPE is:

- SKELETON CURSOR TABLE LOCKING
- UTILITY SERIALIZATION LOCK
- SKELETON PACKAGE TABLE LOCK
- COLLECTION
- BINDLOCK
- ALTER BUFFER POOL
- GROUP BUFFERPOOL START/STOP LOCK
- GROUP BUFFER POOL LEV CASTOUT P-LOCK
- CATMAINT MIGRATION LOCK
- CATMAINT CONVERT CATALOG LOCK
- CATMAINT CONVERT DIRECTORY LOCK

**Field Name:** QW0021KD

**OBID**

The object ID. This field is not applicable if the value in LOCK RES TYPE is:

- SKELETON CURSOR TABLE LOCKING
- UTILITY SERIALIZATION LOCK
- SKELETON PACKAGE TABLE LOCK
- COLLECTION
- BINDLOCK
- ALTER BUFFER POOL
- GROUP BUFFERPOOL START/STOP LOCK
- DDF CDB P-LOCK
- GROUP BUFFER POOL LEV CASTOUT P-LOCK
- DBD P-LOCK
- CATMAINT MIGRATION LOCK
- CATMAINT CONVERT CATALOG LOCK
- CATMAINT CONVERT DIRECTORY LOCK

**Field Name:** QW0021KP

**RESOURCE ID**

The hexadecimal identifier of the small resource. If LOCK RES TYPE is:

**DATA PAGE LOCKING**

First 3 bytes are the page number

**PARTITION LOCKING**

Last byte is the partition number

**INDEX PAGE LOCKING**

First 3 bytes are the page number

**HASH ANCHOR LOCK**

First 3 bytes are the page number and the last byte is the anchor point ID

**CS-READ DRAIN**

Last byte is the partition number (optional)

**RR-READ DRAIN**

Last byte is the partition number (optional)
WRITE DRAIN
Last byte is the partition number (optional)

ROW LOCK
First 3 bytes are the page number and the last byte is the row ID of the record

INDEX END OF FILE LOCK
Last byte is the partition number (optional)

PAGE SET/PARTITION P-LOCK
First byte is the 1-based partition number (optional)

PAGE P-LOCK
First byte is the 1-based partition number (optional) and the last 3 bytes are the relative page number

PAGE SET/PARTITION LEV CASTOUT P-LOCK
First byte is the 1-based partition number (optional)

Note:
• In large partitioned table spaces, the page number covers 4 bytes instead of 3.
• If table spaces use relative page numbers, the resource ID covers 7 bytes. It contains the partition number in the first 2 bytes, the page number in the next 4 bytes, and the record ID in the seventh byte.

For all other lock resource types, the resource ID is not applicable.

Field Name: QW0021KR

STATE
The lock state. This field is only applicable if the value in OPERATION is SEND. Otherwise, N/A is printed in this field.

Field Name: QW0257ST

NUMBER OF HOLDERS
The number of lock holders notified. This field is only applicable if the value in OPERATION is SEND. Otherwise, N/A is printed in this field.

Field Name: QW0257NU

OPERATION
The notify operation.

Field Name: QW0257OP

REQUEST
Indicates whether the request was synchronous or asynchronous. This field is only applicable if the value in OPERATION is SEND. Otherwise, N/A is printed in this field.

Field Name: QW0257FL

IFCID 258 - Data Set Extend Activity:

This topic shows detailed information about “Record Trace - IFCID 258 - Data Set Extend Activity”.

This record is written every time a data set is extended.
Record trace - IFCID 258 - Data Set Extend Activity

The field labels shown in the following sample layout of “Record Trace - IFCID 258 - Data Set Extend Activity” are described in the following section.

**DATA SET NAME**

Data set name.

Field Name: QW0258DS

**TIMESTAMP**

The timestamp when the Data Set Extend Activity is completed. It shows the date and time in DB2 timestamp format.

Field Name: QW0258TS

**DATABASE NAME**

Database name.

Field Name: QW0258DN

**DBID**

Database identifier.

Field Name: QW0258DB

**TABLESPACE NAME**

Table or index space name.

Field Name: QW0258TN

**PSID**

Page set identifier.

Field Name: QW0258PS

**PRIMARY QUANTITY**

Primary allocation quantity in 4 KB units.

Field Name: QW0258PQ

**SEC. QUANTITY**

Secondary allocation quantity in 4 KB units.

Field Name: QW0258SQ

**HIGH ALLOC BEFORE**

High allocated space before the extend in 4KB units.

Field Name: QW0258HB

**HIGH ALLOC AFTER**

High allocated space after the extend in 4 KB units.

Field Name: QW0258HA

**MAX DS SIZE**

Chapter 6. Batch reporting 4099
Maximum size for the data set in 4 KB units.

Field Name: QW0258MS

EXTENTS BEFORE

Number of extends before the reported extend.

Field Name: QW0258XB

EXTENTS AFTER

Number of extends after the reported extend.

Field Name: QW0258XA

MAX EXTENTS

The maximum number of extents for the VSAM data set.

Field Name: QW0258XM

VOLUMES BEFORE

Number of volumes before the extend.

Field Name: QW0258VB

VOLUMES AFTER

Number of volumes before the extend.

Field Name: QW0258VA

MAX VOLUMES

The maximum number of volumes in the VSAM data set.

Field Name: QW0258VM

IFCID 259 - Buffer Manager Pg P-Lock Req:

This topic shows detailed information about “Record Trace - IFCID 259 - Buffer Manager Pg P-Lock Req”.

Record trace - IFCID 259 - Buffer Manager Pg P-Lock Req

The field labels shown in the following sample layout of “Record Trace - IFCID 259 - Buffer Manager Pg P-Lock Req” are described in the following section.

P-LOCK TYPE: PAGE
DBID: TPCC1
DBID: TOOLW000
PARTITION NMBR: 0
BP ID: X'00'

IRLM FUNC CODE: LOCK
OBJECT TYPE: TABLESPACE
MODIFY: NO
PAGE NMBR: 23

DB2 MEMBER NAME: 'BLANK'
CONDITIONAL: YES
RESTART: NO
REQUESTED STATE: SHARED
NEW HELD STATE: NOT HELD
OLD HELD STATE: NOT HELD

QW0259EV X'03'
QW0259KT X'00000000'
QW0259RC X'00000000'
QW0259RS X'40000000'
QW0259PC X'0000'

P-LOCK TYPE

The P-lock type. This field can only have one value: PAGE.

Field Name: QW0259KT

DBID

The database ID. Deduced from the DB2 fields QW0259KD, QW0105DN or QW0107DN.

When present, the database name is shown, otherwise the decimal identifier from QW0259KD is shown or N/A if this value is 0.

Field Name: RT0259DB
OBID
The database ID. Deduced from the DB2 fields QW0259KP, QW0105TN or QW0107TN.

When present, the object identifier is shown, otherwise the decimal identifier from QW0259KP is shown or N/A if this value is 0.
Field Name: RT0259OB

PARTITION NMBR
The partition number. If this is a nonpartitioned page set, 0 is printed in this field.
Field Name: QW0259KR

BP ID
The internal buffer pool ID (0-49 and 80-89).
Field Name: QW0259KU

IRLM FUNC CODE
The IRLM function code.
Field Name: QW0259IF

OBJECT TYPE
The object type.
Field Name: QW0259OB

MODIFY
Indicates whether this is a modify lock.
Field Name: QW0259C7

PAGE NMBR
The relative page number.
Field Name: QW0259KQ

DB2 MEMBER NAME
The DB2 member name that depends on the value in IRLM FUNC CODE:
- When CHANGE FROM P-LOCK EXIT this is the name of the database in conflict with the P-lock state currently held by this member.
- If it is not CHANGE FROM P-LOCK EXIT and the P-lock was rejected, this is the name of the database in conflict with this request
Field Name: QW0259DB

CONDITIONAL
Indicates whether the request was conditional.
Field Name: QW0259C1

RESTART
Indicates whether there was a restart lock request.
If the lock is currently retained on behalf of this DB2, a restart request causes the lock to be changed from retained to active. If the lock is not retained, the lock grant process is as normal.
Field Name: QW0259C6

REQUESTED STATE

The requested lock state if the value in IRLM FUNC CODE is LOCK or CHANGE. If the value is CHANGE FROM P-LOCK EXIT, then this is the P-lock state requested by the other member causing the P-lock exit of this member.

Field Name: QW0259ST

OLD HELD STATE

The previously held P-LOCK state.

Field Name: QW0259PS

NEW HELD STATE

The newly held P-LOCK state.

Field Name: QW0259NS

IFCID 260 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 260 - IBM Service Record”.

This record is for IBM service use.

IFCID 261 - Group Buffer Pool Checkpoint:

This topic shows detailed information about “Record Trace - IFCID 261 - Group Buffer Pool Checkpoint”.

Record trace - IFCID 261 - Group Buffer Pool Checkpoint

The field labels shown in the following sample layout of “Record Trace - IFCID 261 - Group Buffer Pool Checkpoint” are described in the following section.

<table>
<thead>
<tr>
<th>BUFFERPOOL ID</th>
<th>CASTOUT P-LOCKS</th>
<th>INIT BY SPECIAL CASTOUT</th>
<th>INIT W/O SENDING MSG</th>
<th>NEW MINIMUM LRSN</th>
<th>OLD MINIMUM LRSN</th>
<th>READ DIRECTORY INFO</th>
<th>START TIME</th>
<th>ELAPSED TIME</th>
<th>LRSN</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>X'ADE8EE38F414'</td>
<td>X'ADE91D00AD07'</td>
<td>1</td>
<td>12/13/08</td>
<td>12:06:06</td>
<td>X'ADE91B349E86'</td>
</tr>
</tbody>
</table>

BUFFERPOOL ID

The internal identifier of the buffer pool. The values 0 through 49 are the identifiers for BP0 through BP49. The values 80 through 89 are the identifiers for BP32K through BP32K9.

Field Name: QW0261BP

CASTOUT P-LOCKS

The number of page sets or partition castout P-locks obtained by the GBP checkpoint process.

Field Name: QW0261PD

NEW RECOVERY LRSN

The global recovery record sequence number (LRSN) for this GBP checkpoint.

Field Name: QW0261NL
START TIME

The date and time at which GBP checkpoint processing started. The RECORD TIME field shows when processing ended.

Field Name: QW0261TS

INIT BY SPECIAL CASTOUT

The number of page sets and partitions for which a castout had to be initiated by a special castout process because the castout owner did not exist for the page set or partition.

Field Name: QW0261PS

OLD RECOVERY LRSN

The global recovery log record sequence number (LRSN) of the GBP checkpoint prior to this one.

Field Name: QW0261OL

ELAPSED TIME

The duration of the GBP checkpoint process. Calculated by QW0261TS - QWHSSSTCK.

Field Name: RT0261ET

INIT W/O SENDING MSG

The number of page sets and partitions for which a castout was locally initiated without a message being sent.

Field Name: QW0261PL

NEW MINIMUM LRSN

The minimum restart/replay point for this GBP checkpoint.

Field Name: QW0261NM

READ DIRECTORY INFO

The number of coupling facility requests to read directory information.

Field Name: QW0261RD

INIT BY SENDING MSG

The number of page sets and partitions for which a castout was initiated by sending a message to the castout owner.

Field Name: QW0261PN

OLD MINIMUM LRSN

The minimum restart/replay point of the GBP checkpoint prior to this one.

Field Name: QW0261OM

DIRECTORY ENTRIES

The number of directory entries for changed pages processed.

Field Name: QW0261DP

IFCID 262 - GBPOOLT Castout Threshold Processing:

This topic shows detailed information about “Record Trace - IFCID 262 - GBPOOLT Castout Threshold Processing”.

Chapter 6. Batch reporting 4103
GBPOOLT castout threshold processing shows the data from IFCID 262. This IFCID contains statistics related to the GBPOOLT castout threshold processing for a GBP. It is only written if the GBPOOLT threshold has been reached.

This record is only written in a data sharing environment.

**Record trace - IFCID 262 - GBPOOLT Castout Threshold Processing**

The field labels shown in the following sample layout of “Record Trace - IFCID 262 - GBPOOLT Castout Threshold Processing” are described in the following section.

**BUFFERPOOL ID**

The internal identifier of the buffer pool. The values 0 through 49 are the identifiers for BP0 through BP49. The values 80 through 89 are the identifiers for BP32K through BP32K9.

Field Name: QW0262BP

**READ CASTOUT CLASS**

The number of coupling facility read castout class requests.

Field Name: QW0262RC

**CASTOUT P-LOCKS**

The number of page set or partitions castout P-locks obtained by the GBPOOLT process.

Field Name: QW0262PD

**START TIME**

The date and time at which the GBP castout started. The RECORD TIME field shows when processing ended.

Field Name: QW0262TS

**READ CASTOUT STATISTICS**

The number of coupling facility requests to cast out statistics.

Field Name: QW0262RS

**CHANGED PAGES CASTOUT**

The number of changed page names that were passed to the page set and partition castout owner for castout.

Field Name: QW0262CP

**ELAPSED TIME**

The duration of the GBP castout process. Calculated by QW0262TS - QWHSSTCK.

Field Name: RT0262ET

**INIT BY SENDING MSG**

The number of page sets and partitions for which castout was initiated by sending a notify message to the castout owner.
Field Name: QW0262PN

CHANGED PAGES IN GBP

The number of changed pages in group buffer pool.

Field Name: QW0262DP

FIRST CASTOUT CLASS

The first castout class processed.

Field Name: QW0262FC

INIT W/O SENDING MSG

The number of changed pages and partitions for which castout was locally initiated without a message being sent to the castout owner.

Field Name: QW0262PL

CHANGED PAGES GBPOOLT

The number of changed pages required to reach the GBPOOLT.

Field Name: QW0262GT

LAST CASTOUT CLASS

The last castout class processed. Sometimes the value in this field is smaller than the one in the FIRST CASTOUT CLASS field. This can happen if DB2 wraps around at the end of the castout class numbers.

Field Name: QW0262LC

IFCID 263 - Page Set and Partition Castout Detail:

This topic shows detailed information about “Record Trace - IFCID 263 - Page Set and Partition Castout Detail”.

This record shows page set and partition castout statistics. It is written by the page set or partition castout owner after the castout engine completed servicing the castout request.

This record is only written in a data sharing environment.

Record trace - IFCID 263 - Page Set and Partition Castout Detail

The field labels shown in the following sample layout of “Record Trace - IFCID 263 - Page Set and Partition Castout Detail” are described in the following section.

<table>
<thead>
<tr>
<th>BUFFERPOOL ID</th>
<th>CASTOUT REASON</th>
<th>GROUP BUFFER POOL CHECKPOINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>GROUP BP CHECKPOINT</td>
<td>12/11/08 11:24:20.123456</td>
</tr>
<tr>
<td>DATABASE ID</td>
<td>PAGE SET OBJECT ID</td>
<td>68 START TIME 00:00:00.123456</td>
</tr>
<tr>
<td>PARTITION NUMBER</td>
<td>PRIVATE BUFFER</td>
<td>32 ELAPSED TIME 00:00:00.123456</td>
</tr>
<tr>
<td>CASTOUT DATA REQUESTS</td>
<td>UNLOCK FOR CASTOUT</td>
<td>1 READ CASTOUT CLASS 8</td>
</tr>
<tr>
<td>DELETE NAME REQUESTS</td>
<td>WRITE I/O REQUESTS</td>
<td>1 SEC-GBP DEL NAME LIST 3</td>
</tr>
<tr>
<td>TIME DEL-NAME GBP</td>
<td>DEL-NAME GBP</td>
<td>12345</td>
</tr>
<tr>
<td>TIME DEL-NAME SEC-GBP</td>
<td>DEL-NAME SEC-GBP</td>
<td>12345</td>
</tr>
<tr>
<td>QW0263FL</td>
<td>QC 'C1' QW026351</td>
<td>XX QW026352 XX</td>
</tr>
</tbody>
</table>

BUFFEROOL ID

The internal identifier of the buffer pool. The values 0 through 49 are the identifiers for BP0 through BP49. The values 80 through 89 are the identifiers for BP32K through BP32K9.

Field Name: QW0263BP

CASTOUT REASON

Chapter 6. Batch reporting 4105
The reason why the castout was invoked.
- CLASS THRESHOLD
- GROUP BUFFER POOLT THRESHOLD
- GROUP BUFFER POOL CHECKPOINT
- GROUP BUFFER REBUILD
- SYNCHRONOUS CASTOUT
- CONVERTED TO NON-GBP-DEPENDENT OR ASYNCH. CASTOUT

Field Name: QW0263RS

DATABASE ID
The ID of the database.
Field Name: QW0263DB

PAGE SET OBJECT ID
The ID of the page set object.
Field Name: QW0263PS

START TIME
The date and time at which castout processing started.
Field Name: QW0263TS

PARTITION NUMBER
The partition number. It is 0 if this is a non-partitioned page set.
Field Name: QW0263PT

PRIVATE BUFFER
The number of private buffer allocated to this engine (in 4K increments).
Field Name: QW0263PB

ELAPSED TIME
The duration of the castout process. The RECORD TIME field shows when this process ended. Calculated by QW0263TS - QWHSTCK.
Field Name: RT0263ET

CASTOUT DATA REQUESTS
The number of coupling facility requests to cast out data.
Field Name: QW0263CD

UNLOCK FOR CASTOUT
The number of coupling facility requests to unlock for a castout.
Field Name: QW0263UN

READ CASTOUT CLASS
The number of coupling facility requests to read a castout class.
Field Name: QW0263RC

DELETE NAME REQUESTS
The number of coupling facility requests to delete a name.
Field Name: QW0263DN
WRITE I/O REQUESTS

The number of write I/O requests.

Field Name: QW0263IO

GBP DEL NAME LIST

The number of IXLCACHE delete_name_list requests to the secondary group buffer pool when the GBP MODE is DUPLEX.

Field Name: QW02632D

TIME DEL-NAME GBP

Duration of DELETE_NAME to primary GBP.

Field Name: QW0263TD

DEL-NAME GBP

The number of times a DELETE_NAME request was reissued to the primary GBP.

Field Name: QW0263RD

TIME DEL-NAME SEC-GBP

Duration of DELETE_NAME to the secondary GBP.

Field Name: QW02632T

DEL-NAME SEC-GBP

The number of times a DELETE_NAME request was reissued to the secondary GBP for duplexing.

Field Name: QW02632R

IFCID 265 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 265 - IBM Service Record”.

This record is for IBM service use.

IFCID 266 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 266 - IBM Service Record”.

This record is for IBM service use.

IFCID 267 - CF Rebuild/Alter/Start:

This topic shows detailed information about “Record Trace - IFCID 267 - CF Rebuild/Alter/Start”.

This record shows the start of a coupling facility (CF) rebuild or alter, which is indicated by the OPERATION field. A rebuild or alter is reported in the same format.
Record trace - IFCID 267 - CF Rebuild/Alter/Start

The field labels shown in the following sample layout of “Record Trace - IFCID 267 - CF Rebuild/Alter/Start” are described in the following section.

OPERATION

The operation for the DB2 data sharing coupling facility structures:

F  The rebuild due to the coupling facility structure failure or loss of connectivity to the coupling facility.

O  The MVS rebuild initiated by the MVS operator command SETXCF START, REBUILD

M  The rebuild caused by the maximum number of lock structure users being reached.

A  The dynamic expansion or contraction initiated by the MVS operator command SETXCF START, ALTER

D  Rebuild started to establish DUPLEX

P  Duplexing being stopped, falling back to primary.

W  Duplexing being stopped, switching to secondary.

S  Dynamic expand/contract initiated by MVS SETXCF START,ALTER operator command against a secondary group buffer pool.

Field Name: QW0267RS

STRUCTURE NAME

The name of the CF structure.

Field Name: QW0267NM

REQUESTED SIZE

The requested size of the CF structure in 4 KB increments. This field is valid only if the value in the REASON is ALTER COMMAND.

Field Name: QW0267SZ

IFCID 268 - CF Rebuild/Alter End:

This topic shows detailed information about “Record Trace - IFCID 268 - CF Rebuild/Alter End”.

This record shows the end of a coupling facility (CF) alter or rebuild. This end record matches the start record, IFCID 267.

Record trace - IFCID 268 - CF Rebuild/Alter End

The field labels shown in the following sample layout of “Record Trace - IFCID 268 - CF Rebuild/Alter End” are described in the following section.
The operation for the DB2 data sharing coupling facility structures:

F  The rebuild due to the coupling facility structure failure or loss of connectivity to the coupling facility.
O  The MVS rebuild initiated by the MVS operator command SETXCF START, REBUILD
M  The rebuild caused by the maximum number of lock structure users being reached.
A  The dynamic expansion or contraction by the MVS operator command SETXCF START, REBUILD
D  Rebuild started to establish DUPLEX
P  Duplexing being stopped, falling back to primary.
W  Duplexing being stopped, switching to secondary.
S  Dynamic expand/contract initiated by MVS SETXCF START,ALTER operator command against a secondary group buffer pool.

Field Name: QW0268FC

The date and time of the start of the rebuild.

Field Name: QW0268BT

The result of the operation:

O  The operation completed successfully.
N  The expansion or contraction completed successfully, however, the allocated size is smaller than the requested size.
S  The rebuild, expansion, or contraction was stopped.

Field Name: QW0268RC

The reason why the rebuild, expansion, or contraction was stopped:

C  Duplexing rebuild stopped because of insufficient connectivity due to a change in the set of connectors
F  Structure failed before the operation completed
G  An MVS service failed before the operation completed
I  New structure does not provide connectivity which is better than or equivalent to the current structure
J  The structure alter request could not complete due to a rebuild initiated for the structure
K  Rebuild process was stopped because of failure on connect to the new structure
L  Lost connectivity to the structure
N  New structure does not provide better connectivity than the current structure for a LossConn rebuild
O  Operator requested to stop
P  Duplexing was stopped by new CFRM policy
R  Resource manager requested to stop
S  Invalid ratio specified
T  Rebuild process was stopped because the new lock structure is full
U  Rebuild process was stopped because of failure of a required IRLM in the group
W  Rebuild stopped due to successful group function level change--complete rebuild is not required
X  Rebuild stopped due to unsuccessful completion of group function level change

This field is only valid if the value in OPERATION RESULT is S.

Field Name: QW0268RS

DIRECTORY COUNT

If the structure was altered, this is the current directory count of the directory entries. If the GBP was rebuilt, this field is not used. For the SCA and lock structure, this is a serviceability field.

Field Name: QW0268DN

STRUCTURE NAME

The name of the CF structure.

Field Name: QW0268NM

ELEMENT COUNT

If the structure was altered, this is the current count of the elements. For an GBP with a 8 KB page size, the element count equals the data entry count. For a GBP with a 16 KB page size, the element count is eight times the data entry count. If the GBP was rebuilt, this field is not used. For the SCA and lock structure, this is a serviceability field.

Field Name: QW0268TN

MINIMUM SIZE

If the structure was altered, this is the current minimum structure in increments of 4 KB. If the GBP was rebuilt, this is number of pages cast out by this member.

Field Name: QW0268MS

CURRENT SIZE

If the structure was altered, this is the current structure size in increments of 4 KB. If the GBP was rebuild, this is number of pages written to the new structure by this member.
Field Name: QW0268CS

IFCID 269 - Trusted/Context Trace:

This topic shows detailed information about “Record Trace - IFCID 269 - Trusted/Context Trace”.

This record is produced, if a trusted connection is established or reused.

Record trace - IFCID 269 - Trusted/Context Trace

The field labels shown in the following sample layout of “Record Trace - IFCID 269 - Trusted/Context Trace” are described in the following section.

<table>
<thead>
<tr>
<th>CONNECTION TYPE: ESTABLISHED</th>
<th>STATUS: FAILED</th>
<th>SQLCODE: 20360</th>
<th>OBJECT OWNER: N/P</th>
</tr>
</thead>
</table>

**CONNECTION TYPE**

The type of trusted connection. Possible values are:

**ESTABLISHED or ESTABLISH TRUSTED CONNECTION**

If a trusted connection is established.

**REUSED or REUSE TRUSTED CONNECTION**

If a trusted connection is reused.

Field Name: QW0269TY

**STATUS**

The status of the trusted connection:

**SUCCESS**

If a trusted connection was established or reused successfully.

**FAILED or FAILURE**

If a trusted connection failed, when it was tried to be established or reused.

If the status is neither SUCCESS nor FAILURE, the value itself is shown.

Field Name: QW0269ST

**SQLCODE**

The SQL code returned after running the SQL statement.

Field Name: QW0269SQ

**OBJECT OWNER**

The owner of the objects that are created using the trusted context:
IFCID 269 - Trusted/Context Trace

ROLE
The role.

AUTHID
The AUTHORIZATION ID.
Field Name: QW0269OT

SECURITY LABEL
The security label.
Field Name: QW0269SL

TRUSTED CONTEXT NAME
The trusted context name.
Field Name: QW0269TC

SYSTEM AUTHID USED
The system authorization ID that is used to establish the trusted connection.
Field Name: QW0269SA

ROLE ASSOCIATED
The default role associated with the context.
Field Name: QW0269RC

TCP/IP ADDRESS
The actual communication TCP/IP address used for connection.
Field Name: QW0269AD

SERVAUTH NAME
The SERVAUTH name of the TCP/IP security zone.
Field Name: QW0269SR

ENCRYPTION
The encryption value to be associated with the encryption trust attribute for a trusted context. Possible values are:
- NONE
- LOW
- HIGH
Field Name: QW0269EC

JOB NAME
The job name for a local application.
Field Name: QW0269JN

REUSE AUTHID
The authorization ID under which a trusted connection is reused.
Field Name: QW0269RA

USER ROLE
The user role.
IFCID 269 - Trusted/Context Trace

**PROFILE NAME**

The RACF profile name that contains the authorization IDs that can use the connection in the trusted context.

**FIELD NAME:** QW0269RU

**IFCID 270 - Trusted/Context Trace:**

This topic shows detailed information about “Record Trace - IFCID 270 - Trusted/Context Trace”.

This record is produced, if a trusted connection is created or altered.

**Record trace - IFCID 270 - Trusted/Context Trace**

The field labels shown in the following sample layout of “Record Trace - IFCID 270 - Trusted/Context Trace” are described in the following section.

```
STATEMENT TYPE: CREATE  SQLCODE: 11  SQL STMT LENGTH: 12
SQL STATEMENT : CREATE MYTAB
```

**STATEMENT TYPE**

The type of trusted context. Possible values are:

- CREATE TRUSTED CONTEXT or CREATE
  - If a trusted context is created.
- ALTER TRUSTED CONTEXT or ALTER
  - If a trusted context is altered.

**FIELD NAME:** QW0270TY

**SQLCODE**

The SQL return code from the CREATE or ALTER TRUSTED CONTEXT statement.

**FIELD NAME:** QW0270SQ

**SQL STMT LENGTH**

The length of the SQL statement.

**FIELD NAME:** QW0270SL

**SQL STATEMENT**

The SQL statement (truncated at 4000 bytes).

**FIELD NAME:** QW0270SS

**IFCID 271 - Row Level and Column Level Access Control:**

This topic shows detailed information about “Record Trace - IFCID 271 - Row Level and Column Level Access Control”.

This IFCID records the following events:

- When a row permission or column mask is created.
- When a row permission or column mask is dropped.
- When a row permission or column mask is altered.
IFCID 271 - Row Level and Column Level Access Control

Record trace - IFCID 271 - Row Level and Column Level Access Control

The field labels shown in the following sample layout of “Record Trace - IFCID 271 - Row Level and Column Level Access Control” are described in the following section.

<table>
<thead>
<tr>
<th>STATEMENT TYPE: CREATE</th>
<th>OBJECT ......: ROW PERMISSION SQLCODE ......: -1</th>
<th>STMT LENGTH ..: 78</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL STATEMENT: THIS IS A SQL STATEMENT TEXT TO VERIFY ITS CORRECT PRESENTATION IN BATCH AUDIT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TYPE**

Identifies the SQL statement type:
- CREATE or C
  Creates row permission or column mask.
- DROP or D
  Drops row permission or column mask.
- ALTER or A
  Alters row permission or column mask.

Otherwise, a hexadecimal value is shown.

Field Name: QW0271TY

**OBJECT**

Identifies the object type:
- Row permission (R)
- Column mask (M)

Otherwise, a hexadecimal value is shown.

Field Name: QW0271OB

**SQLCODE**

The SQL code from the execution of the CREATE, DROP, or ALTER statement.

Field Name: QW0271SQ

**STMT LENGTH**

The length of the SQL statement.

Field Name: QW0271SL

**SQL STATEMENT**

The SQL statement text associated with the table access. The maximum length is 4000 bytes. Long SQL text can be truncated.

Field Name: QW0271SS

IFCID 272 - Associate Locators:

This topic shows detailed information about “Record Trace - IFCID 272 - Associate Locators”.

Record trace - IFCID 272 - Associate Locators

The field labels shown in the following sample layout of “Record Trace - IFCID 272 - Associate Locators” are described in the following section.
LOCATION
The location name where the stored procedure executes.

Field Name: QW0272LN

PKG COLLECTION ID
The Package collection identificator. This is BLANK when the statement executes without a package.

Field Name: QW0272PC

PROGRAM NAME
The program name.

Field Name: QW0272PG

STO PROC LOCATION
The location of the stored procedure.

Field Name: QW0272LP

STO PROC QUALIFIER
The qualifier of the stored procedure.

Field Name: QW0272QN

STO PROC NAME
The name of the stored procedure.

Field Name: QW0272PN

STATEMENT NUMBER
The statement number of ASSOCIATE LOCATORS statement.

Field Name: QW0272SN

NUMBER OF LOCATORS
The number of locators referenced in the ASSOCIATE LOCATORS statement.

Field Name: QW0272NL

CONSISTENCY TOKEN
The consistency token.

Field Name: QW0272TS

IFCID 273 - Allocate Cursor:
This topic shows detailed information about “Record Trace - IFCID 273 - Allocate Cursor”.

Chapter 6. Batch reporting  4115
Record trace - IFCID 273 - Allocate Cursor

The field labels shown in the following sample layout of “Record Trace - IFCID 273 - Allocate Cursor” are described in the following section.

LOCATION NAME
The location name where the stored procedure executes.
Field Name: QW0273LN

PKG COLLECTION ID
The Package collection identificator. This is BLANK when the statement executes without a package.
Field Name: QW0273PC

PROGRAM NAME
The program name.
Field Name: QW0273PG

STO PROC LOCATION
The location of the stored procedure.
Field Name: QW0273LP

STO PROC QUALIFIER
The qualifier of the stored procedure.
Field Name: QW0273QN

STO PROC NAME
The name of the stored procedure.
Field Name: QW0273PN

ALLOCATED CURSOR
The name of the ALLOCATE CURSOR statement.
Field Name: QW0273CN

REAL CURSOR NAME
The name of cursor in the stored procedure.
Field Name: QW0273RN

STATEMENT NUMBER
The statement number of ALLOCATE CURSOR statement.
From QW0273SN or QW0273TS.

**Field Name:** RT0325SN

**LOCATOR VALUE**

The value of the locator associated with the result set for which this cursor is defined.

**Field Name:** QW0273LV

**CONSISTENCY TOKEN**

The consistency token.

**Field Name:** QW0273TS

**QUERY COMMAND ID**

The ID of the query command.

**Field Name:** QW0273CID

**QUERY INSTANCE ID**

The ID of the query instance.

**Field Name:** QW0273QID

**IFCID 305 - Table Check Constraint:**

This topic shows detailed information about “Record Trace - IFCID 305 - Table Check Constraint”.

**Record Trace - IFCID 305 - Table Check Constraint**

The field trace shown in the following sample layout of “Record Trace - IFCID 305 - Table Check Constraint” are described in the following section.

<table>
<thead>
<tr>
<th>EDVA</th>
<th>EDVA</th>
<th>DSNTEP2</th>
<th>BATCH</th>
<th>D08B6272D5C</th>
<th>EDVA</th>
<th>BATCH</th>
<th>D08B6272D5C</th>
<th>EDVA</th>
<th>BATCH</th>
<th>D08B6272D5C</th>
<th>EDVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSO</td>
<td>N/P</td>
<td>10:05:31.62662556</td>
<td>17</td>
<td>1</td>
<td>305</td>
<td>TABLE CHECK CONSTRAINT</td>
<td>TSO</td>
<td>N/P</td>
<td>15:35:09.09492137</td>
<td>85</td>
<td>2</td>
</tr>
</tbody>
</table>

**NAME**

The check constraint name.

**Field Name:** QW0305CN

**TEXT**

The first 30 characters of the check constraint text.

**Field Name:** QW0305CT

---

**Chapter 6. Batch reporting** 4117
IFCID 305 - Table Check Constraint

DBID
The DBID of the database for the table on which the check constraint is defined.
Field Name: QW0305DB

OBID
The OBID of the table on which the check constraint is defined.
Field Name: QW0305OB

OPERATION
The operation that is utilizing the check constraint function:
CREATE  A check constraint is defined with a CREATE TABLE operation.
ALTER ADD  A check constraint is defined with an ALTER TABLE operation.
ALTER ADD ENFORCE  A check constraint is enforced during an ALTER TABLE operation.
ALTER DROP  A check constraint is removed with an ALTER TABLE operation.
ENFORCE  A check constraint is enforced. DB2 checks that a row does not violate a check constraint.
Field Name: QW0305OP

RESULT
The result of the enforced check constraint:
REJ  The check constraint was rejected due to a check constraint violation.
OK  No check constraint was violated.
Field Name: QW0305RS

RECORD IDENTIFIER
The record identifier (RID) of the record that failed the check constraint. This field is only valid if the value in RESULT is REJ.
Field Name: QW0305ID

TABLE_SPACE_TYPE
The type of the table space:
L  Non-EA large table
N  Non-large table
R  Partitioned by range (PBR) universal table spaces (UTS) that use relative page numbers
V  EA-enabled large table
Field Name: QW0305TY

PARTITION
Shows the partition number if TABLE_SPACE_TYPE is R.
**IFCID 305 - Table Check Constraint**

**Field Name: QW0305PT**

**CHARACTERS**

The first 30 characters of the rejected record (shown in text and hexadecimal format) that failed the check constraint condition. This field is only valid if the value in RESULT is REJ. Otherwise, N/A is printed in this field.

**Field Name: QW0305RR**

**IFCID 311 - Global Temp Table Usage:**

This topic shows detailed information about “Record Trace - IFCID 311 - Global Temp Table Usage”.

**Record trace - IFCID 311 - Global Temp Table Usage**

The field labels shown in the following sample layout of “Record Trace - IFCID 311 - Global Temp Table Usage” are described in the following section.

```
<table>
<thead>
<tr>
<th>TEMP TAB CREATOR</th>
<th>TEMP TAB NAME</th>
<th>PACK LOCATION NAME</th>
<th>PROGRAM NAME</th>
<th>CURSOR NAME</th>
<th>PACK COLLECTION ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>'BLANK'</td>
<td>TTAB1</td>
<td>'BLANK'</td>
<td>DSNTEP3</td>
<td>N/A</td>
<td>DSNTEP3</td>
</tr>
<tr>
<td>PACKAGE VERSION</td>
<td>WORKFILE TYPE</td>
<td>OPERATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/P</td>
<td>RC</td>
<td>TYPE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURSOR HOLD STATUS</td>
<td>WORKFILE TYPE</td>
<td>OPERATION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td>TT</td>
<td>TYPE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SERVICEABILITY FIELDS: --------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QW0311CA:</td>
<td>QW0311TA:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QW0311CL:</td>
<td>NTD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

**TEMP TAB CREATOR**

The creator of the global temporary table.

**Field Name: QW0311QN**

**TEMP TABLE NAME**

The name of the global temporary table.

**Field Name: QW0311TN**

**PACK LOCATION NAME**

The package location name for the query that uses the global temporary table.

**Field Name: QW0311LN**

**PROGRAM NAME**

The program name for the query that uses the global temporary table.

**Field Name: QW0311PN**

**CURSOR NAME**

The cursor name for fetches. This field is only applicable if the value in WORKFILE TYPE is RC. Otherwise, N/A is printed.

**Field Name: QW0311CN**

**PACK COLLECTION ID**

The package collection identifier for the query that uses the global temporary table.

**Field Name: QW0311PC**

**PACK VERSION**

The package version for the query that uses the global temporary table.
IFCID 311 - Global Temp Table Usage

Field Name: QW31PVF

CURSOR HOLD STATUS

The cursor hold status:

HO      The cursor is held through commit.
'B'BLANK'  The cursor is not held through commit.

Field Name: QW0311HO

WORKFILE TYPE

The work-file type:

TT      Temporary table
C       Cursor on a temporary table
TR     Transition table
CT     Cursor on transition table.

Field Name: QW0311TY

OPERATION

The operation using the global temporary table:

AT      Alter the temporary table.
CI      Create the temporary table instantiation. A work file is created for the temporary table.
OC      Open the cursor on a temporary table.
D       Delete work files for temporary table.
DA     Delete all rows from the temporary table, but leave the work-file structures intact.
CC     Close cursor on the temporary table.

Field Name: QW0311OP

QW0311CA

This field is for IBM service use.

Field Name: QW0311CA

QW0311TA

This field is for IBM service use.

Field Name: QW0311TA

IFCID 313 - Uncommitted Unit of Recovery:

This topic shows detailed information about “Record Trace - IFCID 313 - Uncommitted Unit of Recovery”.

Uncommitted unit of recovery (UR) shows data from IFCID 313. It reflects the same information given in the DB2 messages DSNR035I and DSNR036I.
Record trace - IFCID 313 - Uncommitted Unit of Recovery

The field labels shown in the following sample layout of “Record Trace - IFCID 313 - Uncommitted Unit of Recovery” are described in the following section.

UNCOMMITTED URID

The ID of the uncommitted unit of recovery.

Field Name: QW0313ID

CHKPTS TAKEN

For inflight units of recovery (UR), the number of checkpoints taken since the beginning of the UR. For indoubt URs, this field is set to -1.

Field Name: QW0313CK

TYPE OF UR/UW

The type of uncommitted unit of recovery (UR/UW):

FL  Inflight UR
DU  Indoubt UR
RR  Repeatable read

Field Name: QW0313TY

LUWID - NETWORKID, LUNAME, INSTANCE, COMMIT COUNT

The logical unit of work ID (LUWID) identifies the thread within the network. It consists of the:

• Fully qualified network name
• Logical unit name
• Logical unit of work (LUW) instance number
• Logical unit of work (LUW) sequence number which identifies the last COMMIT scope, in which the logical unit participated

Field Name: QW0313LU

CONNECTION ID

The connection ID.

Field Name: QW0313CN

CORRELATION ID

The correlation ID.

Field Name: QW0313CR

MESSAGE NUMBER

The number of the DB2 message reflecting the information in this IFCID.

Field Name: QW0313MG

Chapter 6. Batch reporting  4121
IFCID 313 - Uncommitted Unit of Recovery

PLAN NAME
Plan Name from URE, if the UR is active, from RURE, if the UR is inactive (indoubt).

Field Name: QW0313PN

LOG RECS WRTN
Shows one of the following:
- The number of log records written
- The total number of minutes that the reader has been running

Field Name: QW0313LW

THRESHOLD TYPE
The type of threshold reached:
- C Checkpoints
- L Log records

Field Name: QW0313TH

AUTHORIZATION ID
Authorization ID from URE, if the UR is active, from RURE, if the UR is inactive (indoubt).

Field Name: QW0313AI

END USER USERID
End-user ID from CCB, if the UR is active. End user information is not available for indoubt URs.

Field Name: QW0313EU

TRANSACTION
End-user transaction name from CCB, if the UR is active. End user information is not available for indoubt URs.

Field Name: QW0313ET

WORKSTATION
End-user workstation name from CCB if the UR is active. End user information is not available for indoubt URs.

Field Name: QW0313EW

IFCID 314 - Authorization Exit Parameters:

This topic shows detailed information about “Record Trace - IFCID 314 - Authorization Exit Parameters”.

It is generated after the authorization exit is called and shows the contents of the parameter list.

This record can be useful when debugging an authorization exit.

Record trace - IFCID 314 - Authorization Exit Parameters

The field labels shown in the following sample layout of “Record Trace - IFCID 314 - Authorization Exit Parameters” are described in the following section.
ADDRESS EXPL: X'000000AA'

Field Name: QW0314EL

EXIT RETURN CODE

The return code from the exit:

0 Access allowed.
4 Check the DB2 authorization.
8 Access denied.
12 Unable to determine authorization. Do not call the exit again.

Field Name: QW0314RC

STO CLOCK BEFORE EXIT CALL

The store clock value before the exit was called.

Field Name: QW0314BC

ADDRESS WORK AREA

The address of the work area.

Field Name: QW0314WA

EXIT REASON CODE

The reason code from the user-defined exit.

Field Name: QW0314RS

STO CLOCK AFTER EXIT CALL

The store clock value after the exit was called.

Field Name: QW0314AC

AUTH ID

The authorization ID that is checked by DB2.

Field Name: QW0314UN

UNQUALIFIED OBJECT NAME

The unqualified object name.

Field Name: QW0314BN

OBJECT OWNER

The object owner or qualifier.
IFCID 314 - Authorization Exit Parameters

Field Name: QW0314ON

RELATED INFO 1

Shows other related information in field 1.

Field Name: QW03141N

RELATED INFO 2

Shows other related information in field 2.

Field Name: QW03142N

LENGTH WORK AREA

The length of the work area.

Field Name: QW0314WL

ACEE UTOKEN

Shows the ACEE UTOKEN, if it is available. If it is not available, the first word of this field contains one of the following values:

0       The UTOKEN cannot be accessed
-1      An abend occurred during the attempt to access the ACEE.

Field Name: QW0314UT

PARAMETER LIST

The list of parameters specific to the exit.

Field Name: QW0314PL

IFCID 316 - SQL Statement Statistics:

This topic shows detailed information about “Record Trace - IFCID 316 - SQL Statement Statistics”.

IFCID 316 reports on the contents of the prepared SQL statement cache. This record is only written when an IFI application requests IFCID 316 through the READS interface.

It provides one record for each qualifying SQL statement in the cache. These multiple records are placed in the output area provided by the IFI application. The IFI application can specify qualification criteria for which statements should be reported.

Record trace - IFCID 316 - SQL Statement Statistics

The field labels shown in the following sample layout of “Record Trace - IFCID 316 - SQL Statement Statistics” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATEMENT NAME</td>
<td>X'006507868453644A9A0000000C'</td>
</tr>
<tr>
<td>LITERAL REPLACEMENT</td>
<td>NO</td>
</tr>
<tr>
<td>STATUS</td>
<td>INVALIDATED BY DROP OR ALTER</td>
</tr>
<tr>
<td>STATEMENT IDENTIFIER</td>
<td>593</td>
</tr>
<tr>
<td>STATEMENT EXECUTIONS</td>
<td>1</td>
</tr>
<tr>
<td>SYNCH BUFFER READS</td>
<td>0</td>
</tr>
<tr>
<td>GETPAGE OPERATIONS</td>
<td>2</td>
</tr>
<tr>
<td>SYNCH BUFFER WRITES</td>
<td>0</td>
</tr>
<tr>
<td>PARALLEL GROUPS CREATED</td>
<td>0</td>
</tr>
<tr>
<td>TABLESPACE SCANS</td>
<td>0</td>
</tr>
<tr>
<td>ROWS PROCESSED</td>
<td>1</td>
</tr>
<tr>
<td>INDEX SCANS</td>
<td>0</td>
</tr>
<tr>
<td>TIME STATISTICS COLLECTION START</td>
<td>12/20/10 16:34:52.484040</td>
</tr>
<tr>
<td>TIME STATEMENT STORED IN CACHE</td>
<td>12/22/10 11:36:42.874097</td>
</tr>
<tr>
<td>TIME STATEMENT UPDATED IN CACHE</td>
<td>12/22/10 11:36:42.874778</td>
</tr>
<tr>
<td>STATEMENT COPIES</td>
<td>0</td>
</tr>
<tr>
<td>IN STORE CLOCK FORMAT</td>
<td>X'C71000FE018F1F1A'</td>
</tr>
<tr>
<td>IN STORE CLOCK FORMAT</td>
<td>X'201012221136427477B'</td>
</tr>
<tr>
<td>ACCUMULATED CPU TIME</td>
<td>0.000210</td>
</tr>
<tr>
<td>ACCUMULATED ELAPSED TIME</td>
<td>0.000218</td>
</tr>
</tbody>
</table>
**STATEMENT NAME**

The name of the statement generated by DB2.

**Field Name:** QW0316NM

**STATEMENT IDENTIFIER**

The unique identifier of the statement. A number is generated to uniquely identify a statement in the prepared statement cache.

**Field Name:** QW0316TK

**LITERAL REPLACEMENT**

Indicates the cache literal replacement. Possible values are:

**NO**  
No literal replacement was done.

**REPLACE**  
Literals were replaced in the statement.

**DUPLICATE**  
Literals were replaced in the statement, but the cached statement is
a duplicate of another statement in the cache. A match with the other statement in the cache failed only because the literal reuse criteria were not met.

Field Name: QW0316LR

LINE NUMBER

The precompiler line number of the initial PREPARE statement.

Field Name: QW0316LX

STATUS

The status of the statement. If any of the following flags are set, the statement has actually been removed from the cache but current users might still have an active copy. DB2 will continue to track the statement until the use-count and copy-count are zero.

It can be one of the following:

- INVALIDATED BY DROP OR ALTER
- INVALIDATED BY REVOKE
- REMOVED FROM CACHE BY LRU
- INVALIDATED BY UTILITIES

Field Name: QW0316FL

ELIGIBLE FOR ACCELERATOR

The statement is eligible for the execution on an accelerator (DB2 field: QW0316ELI).

Field Name: 316ELI

TIME STATISTICS COLLECTION START

Shows the time stamp when the statistics collection began.

Field Name: QW0316TS

TIME STATEMENT STORED IN CACHE

The date and time when the statement was inserted into the cache (in DB2 timestamp format).

Field Name: QW0316TM

IN STORE CLOCK FORMAT

The date or time when the statement was inserted into the cache (in store clock format) (DB2 field: QW0316TM2).

Field Name: RT316TM2

TIME STATEMENT UPDATED IN CACHE

The date and time when the statement was updated, in internal format (DB2 field: QW0316UT2).

Field Name: RT316UT2

IN STORE CLOCK FORMAT

The date or time when the statement statistic was updated (in store clock format) (DB2 field: QW0316UT1).

Field Name: RT316UT1
STATEMENT COPIES
The number of copies of the statement owned by all threads in the system.

Note: This includes QW0316US and any copies owned by plans or packages bound with KEEP_DYNAMIC(YES) that were not used in their current unit of work. These users prepared the statement in a previous unit of work and still have it in a prepared state.

Field Name: QW0316CP

STATEMENT EXECUTIONS
The number of statement executions.

Note: For a cursor statement, this is the number of OPENS.

Field Name: QW0316NE

SYNCH BUFFER READS
The number of synchronous buffer read operations performed for the statement.

Field Name: QW0316NB

SYNCH BUFFER WRITES
The number of synchronous buffer write-operations performed for statement.

Field Name: QW0316NW

CURRENT USERS
Number of current users of the SQL statement.

Note: These users have prepared or executed the statement during their current unit of work.

Field Name: QW0316US

GETPAGE OPERATIONS
The number of Getpage operations performed for a statement.

Field Name: QW0316NG

TABLESPACE SCANS
The number of scan operations for table spaces that are performed for a statement.

Field Name: QW0316NT

PARALLEL GROUPS CREATED
The number of parallel groups that are created for a statement.

Field Name: QW0316NL

ROWS EXAMINED
The number of rows that are examined for the statement.

Field Name: QW0316NR

ROWS PROCESSED
IFCID 316 - SQL Statement Statistics

The number of rows that are processed for the statement. For example, the number of rows returned for a SELECT statement, or the number of rows affected by an INSERT, UPDATE, or DELETE statement.

Field Name: QW0316NP

SORTS
The number of sort operations performed for a statement.

Field Name: QW0316NS

INDEX SCANS
The number of index scans performed for a statement.

Field Name: QW0316NI

ACCUMULATED CPU TIME
The accumulated CPU time.

Field Name: QW0316CT

ACCUMULATED ELAPSED TIME
Shows the accumulated elapsed time used for a statement.

Field Name: QW0316AE

STABILIZED STMT ID
The ID of the dynamic statement that could be stabilized by the catalog (DB2 field: QW0316_SDQ_STMTID).

Field Name: Q316SDQI

HASH-ID VERSION
The version of the hash ID of the dynamic query (DB2 field: QW0316_QUERY_HASH_VER).

Field Name: Q316QHVE

HASH-ID
The hash ID of a stabilized dynamic query.

Field Name: Q316QHID

STABILIZATION GROUP NAME
The name of the stabilization group. This is the group ID of the stabilization dynamic query (DB2 field: QW0316_STBLGRP).

Field Name: Q316STBG

RL NOT USED LIMIT EXCEEDED
The number of times that a RID list was not used, because the number of:
- RIDs would have exceeded one or more internal DB2 limits
- RID blocks exceeded the value set by the MAXTEMPS_RID system parameter.

Field Name: QW0316RT

RL NOT USED NO STOR AVAIL
The number of times that a RID list was not used because there was not enough storage. This also applies if the work file storage was not available.
Field Name: QW0316RS

RL OV - NO POOL STOR AVAIL

The number of times a RID list was overflowed to a work file because no RID pool storage was available to hold the list of RIDs (DB2 field: QW0316WFRIDS).

Field Name: RT316IDS

RL OV - RIDS EXCEED LIMIT

The number of times a RID list was overflowed to a work file because the number of RIDs exceeded one or more internal limits (DB2 field: QW0316WFRIDT).

Field Name: RT316IDT

HJA - NO POOL STOR AVAIL

The number of times a RID list append for a hybrid join was interrupted because no RID pool storage was available to hold the list of RIDs (DB2 field: QW0316HJINCS). For example, the number of times DB2 interrupted the RID phase and switched to the data phase.

Field Name: RT316NCS

HJA - RIDS EXCEED LIMIT

The number of times a RID list append for a hybrid join was interrupted because the number of RIDs exceeded one or more internal limits (DB2 field: QW0316HJINCT). For example, it shows the number of times DB2 interrupted the RID phase and switched to the data phase.

Field Name: RT316NCT

RL RETRIEVAL IA SKIPPED

The number of times a RID list retrieval for multiple index access was skipped because DB2 predetermined the outcome of index ANDing or ORing (DB2 field: QW0316RSMIAP).

Field Name: RT316IAP

READ BY OTHER THREAD

The accumulated wait time for a read activity that is performed by another thread.

Field Name: QW0316W5

SYNCH EXECUTION UNIT SWITCH

The accumulated wait time for a synchronous execution unit switch.

Field Name: QW0316W3

WRITE BY OTHER THREAD

The accumulated wait time for a write activity that is performed by another thread.

Field Name: QW0316W6

SYNCHRONOUS I/O

The accumulated wait time for a synchronous I/O.
Note: This wait time and the following wait times are only collected if a CLASS 3 accounting trace is started.

Field Name: QW0316W1

GLOBAL LOCKS
The accumulated wait time for global locks.
Field Name: QW0316W4

LOCK AND LATCH REQ
The accumulated wait time for lock and latch requests.
Field Name: QW0316W2

LATCH REQUEST
The accumulated wait time for lock requests.
Field Name: QW0316W7

PAGE LATCH
The accumulated wait time for page latches.
Field Name: QW0316W8

DRAIN LOCK
The accumulated wait time for drain locks.
Field Name: QW0316W9

DRAIN WAITING FOR CLAIM REL
The accumulated wait time for drains when waiting for claims to be released.
Field Name: QW0316WA

LOG WRITER
The accumulated wait time for log writers.
Field Name: QW0316WB

WAIT CHILD L-LOCKS
The accumulated wait time for child L-locks for the statement.
Field Name: QW0316WC

WAIT OTHER L-LOCKS
The accumulated wait time for other L-locks for the statement.
Field Name: QW0316WD

WAIT P/P P-LOCKS
The accumulated wait time for P/P P-locks for the statement.
Field Name: QW0316WE

WAIT PAGE P-LOCKS
The accumulated wait time for page P-locks for the statement.
Field Name: QW0316WF

WAIT OTHER P-LOCKS
The accumulated wait time for other P-locks for the statement.

Field Name: QW0316WG

**WAIT PIPE**

The accumulated wait time for pipe wait (DB2 field: QW0316_PIPE_WAIT).

Field Name: Q316PIPW

**WAIT PARALLEL QUERIES**

The accumulated time waiting for parallel queries to synchronize between parent and child tasks (DB2 field: QW0316_PQS_WAIT).

Field Name: Q316PQSW

**CURRENT DATA BIND OPTION**

The CURRENTDATA bind option. It can be one of the following:

- YES
- NO

Field Name: QW0316X7

**CURSOR WITH HOLD**

Shows if the position for a cursor opened WITH HOLD. It can be one of the following:

- YES
- NO

Field Name: QW0316XC

**CURRENT PRECISION SPEC REG**

Shows the CURRENT PRECISION special register. It can be one of the following:

- DEC31
- DEC15

Field Name: QW0316XB

**DYNAMIC RULES BIND OPTION**

Shows the dynamic rules bind option. It can be one of the following:

- BIND
- RUN

Field Name: QW0316X8

**CURRENT DEGREE SPECIAL REG**

Shows value of the CURRENT DEGREE special register. It can be one of the following:

- ANY
- 1

Field Name: QW0316X9

**ISOLATION BIND OPTION**

The value of the ISOLATION bind option that is in effect for the initial PREPARE statement. It can be one of the following:

- UNCOMMITTED READ
IFCID 316 - SQL Statement Statistics

- CURSOR STABILITY
- READ STABILITY
- REPEATABLE READ

Note: This value does not reflect if it is specified in a WITH clause.

Field Name: QW0316X6

CURRENT RULES SPECIAL REG

Shows the value of the CURRENT RULES special register. It can be one of the following:
- DB2
- SQL

Field Name: QW0316XA

DSG MEMBER

The data sharing DB2 member that cached the SQL statement (DB2 field: QW0316MBR).

Field Name: RT316MBR

TRANSACTION NAME

The text of the transaction name.

Field Name: QW0316T2

SIGNON USER ID

The End User ID is provided during RRS signon or resignon for initial prepare.

Field Name: QW0316XE

WORKSTATION ID

The Workstation ID is provided during RRS signon or resignon for initial prepare.

Field Name: QW0316XF

PROGRAM NAME

The text of the program name.

Field Name: QW0316T1

USER ID

The user ID.

Field Name: QW0316T3

USER GROUP

The name of the user group. The user group is the current SQLID of the user who started the initial PREPARE statement.

Field Name: QW0316X4

OBJECT QUALIFIER

The qualifier that is used for unqualified table names.

Field Name: QW0316X5
REFERENCED TABLE QUALIFIER

The qualifier of the referenced table name.
Field Name: QW0316QD

REFERENCED TABLE NAME

The name of the referenced table.
Field Name: QW0316TD

USER PROVIDED ID STRING

The identification (ID) string provided by the user.
Field Name: QW0316UI

CURRENT SCHEMA

The special register text of the current schema.
Field Name: QW0316SC

LENGTH OF SQL STATEMENT

The length of the entire statement.
Field Name: QW0316LN

SQL STATEMENT - FIRST 60 BYTES

The first 60 bytes of the SQL statement text.
Field Name: QW0316TX

ACCELERATOR NAME

The accelerator name (DB2 field: QW0316ANM).
Field Name: 316ANM

TIME STATEMENT STORED IN CACHE

The date or time when the statement was inserted into the cache (in DB2 timestamp format) (DB2 field: QW0316ATM).
Field Name: 316ATM

STATEMENT IDENTIFIER

The statement identifier, for correlation with IFCID 316 data section 1 (DB2 field: QW0316AID).
Field Name: 316AID

MEMBER NAME

The member name in case of a data sharing group (DSG). It is used for correlation with IFCID data section 1 (if DSG) (DB2 field: QW0316AMBR).
Field Name: 316AMBR

ACCELERATOR EXECUTIONS

The number of executions on this accelerator (DB2 field: QW0316AEXEC).
Field Name: 316AEXEC

ACCUMULATED # ROWS RETURNED

Shows the accumulated number of rows returned for the SELECT statement (DB2 field: QW0316AROW).
Field Name: 316AROW

**ACCUMULATED CPU TIME**

Shows the accumulated CPU time spent in the accelerator when processing the query request for the statement.

This value reflects parallel processing such that the CPU value may exceed the accumulated elapsed time (DB2 field: QW0316ACPU).

For completed queries, this is the CPU time from the initial request to the last row being returned to DB2. For in-process queries, this is the time from the initial request to the current point in time. The counter includes the CPU time spent in the accelerator and also the CPU time spent in the Netezza® backend (on the coordinator node and all worker nodes).

Field Name: 316ACPU

**ACCUMULATED # BYTES RETURNED**

Shows the accumulated number of bytes returned for the SELECT statement (DB2 field: QW0316ABYT).

For completed queries, this is the total number of bytes returned and produced by the accelerator (this is not necessarily the total number of bytes returned to DB2 in case DB2 does not fetch all the data).

For in-process queries, this is the number of bytes that have been sent so far (and more bytes may still be coming).

This value is always set to 0 for DML statements (INSERT, UPDATE, DELETE) because no such wait times occurs.

Field Name: 316ABYT

**ACCUMULATED ELAPSED TIME**

Shows the accumulated elapsed time spent in the accelerator processing the query request for the statement (DB2 field: QW0316AELA).

For completed queries, this is the time from the initial request to the last row that is returned to DB2. For in-process queries, this is the time from the initial request to the current point in time.

Field Name: 316AELA

**ACCUMULATED EXECUTION TIME**

Shows the accumulated execution time spent in processing the query request for the statement (DB2 field: QW0316AEXE).

For completed queries, this is the time spent since starting the query execution until the query execution has finished. Subsequent processing and transfer of the result set is not included, but there may be an overlapping time window in which result set processing (fetching) and query execution takes place.
For in-process queries, it is the time measured from starting query execution inside the accelerator up to the current point in time or until query execution has finished and only result set processing and transfer remains (whichever occurs earlier).

This time is measured for the actual execution time spent for the query. Compared to the total elapsed time (QW0316AELA and QW0401AELA), it does not include any preprocessing done in the accelerator (such as PREPARE), and it does not include time spent, such as in spill-to-disk or other things, related to the final query result processing.

Field Name: 316AEXE

ACCUMULATED QUEUE WAIT TIME

Shows the accumulated queue wait time for the statement (DB2 field: QW0316AWAT).

For completed queries, this is the time that the query has spent in queues, waiting to be processed.

For in-process queries, the value is only available once the query execution itself has finished and only result processing remains. Until then, the value will be (nearly) 0.

Field Name: 316AWAT

WAIT TIME FOR DB2

Shows the total time the accelerator waited for DB2 to request query results (DB2 field: QW0316ATWDB2).

For completed queries, this is from the time when the first row of the result set was produced by the accelerator until the last row was sent to DB2. For in-process queries, it is 0 (if the accelerator has not yet computed a result row) or the time from computing the first row to the current point in time (if at least one result row is available).

This value is always set to 0 for DML statements (INSERT, UPDATE, DELETE) because these wait times do not occur for DML statements.

Field Name: 316ATWDB

WAIT TIME FOR 1ST ROW

Shows the time waited for first row of query result to be available (DB2 field: QW0316ATW1R).

For completed queries, this is the time from receiving the query in the accelerator until the first row of the result set was computed. For in-process queries, this is the time from receiving the query in the accelerator to the current point in time (if no result rows are available yet) or until the first row of the result set was computed (if at least one result row is available).

This value is always set to 0 for DML statements (INSERT, UPDATE, DELETE) because no such wait times occurs.

Field Name: 316ATW1R

IFCID 317 - SQL Statement String:

This topic shows detailed information about “Record Trace - IFCID 317 - SQL Statement String”.

IFCID 317 - SQL Statement String

Record trace - IFCID 317 - SQL Statement String

The field labels shown in the following sample layout of “Record Trace - IFCID 317 - SQL Statement String” are described in the following section.

SQL STATEMENT NAME

The name of the SQL statement.
Field Name: QW0317NM

SQL STATEMENT IDENTIFIER

The identifier of the SQL statement in hexadecimal.
Field Name: QW0317ID

SQL STATEMENT LENGTH

The length of the SQL statement.
Field Name: QW0317LN

SQL STATEMENT TEXT

The text of the SQL statement.
Field Name: QW0317TX

ATTRIBUTE STRING LENGTH

The length of the attribute string.
Field Name: QW03172LN

ATTRIBUTE STRING TEXT

The text of the attribute string.
Field Name: QW03172TX

IFCID 319 - Audit Security Record:

This topic shows detailed information about “Record Trace - IFCID 319 - Audit Security Record”.

When a local DB2 receives a non-RACF identity that represents a user, it maps that name to a local user ID for use in connection processing. This record traces the mapping. This record provides an audit trail for security processing.

Record trace - IFCID 319 - Audit Security Record

The field labels shown in the following sample layout of “Record Trace - IFCID 319 - Audit Security Record” are described in the following section.

REQ COMMUNICATION ADDR

Requesting communication address. For SNA, this field shows the LU name, for TCP/IP, this shows the dotted decimal IP address.

Field Name: QW0319AD

COMMUNICATION ADDR TYPE

Type of communication address: SNA or TCP/IP.

Field Name: QW0319CT

CLIENT PRODUCT ID

The identification of the client product.

Field Name: QW0319CP

DERIVED LOCAL USERID

Local user ID mapped by DB2.

Field Name: QW0319US

SECURITY TYPE

The type of security identity. Possible values are:

- KERBEROS
- ENCRYPTED

Field Name: QW0319TY

SECURITY MECHANISM

The security mechanism used. Possible values are:

- User ID (UID) and encrypted password (PW)
- Encrypted UID and PW
- Encrypted UID, PW, and new PW
- Encrypted UID and data
- Encrypted UID, PW, and data
- Encrypted UID, PW, new PW, and data
- Encrypted UID only

Field Name: QW0319SM

FLAGS - USER REGISTRY NAME

This flag shows if the caller passed the user registry name.

Field Name: QW0319UR

FLAGS - AES IS USED

This flag shows if Advanced Encryption Standard (AES) is used for encryption.

Field Name: QW0319AE
IFCID 319 - Audit Security Record

FLAGS - SERVER ENCRYPT COMP
This flag shows whether the remote connection is compatible with the Db2 system parameter TCPALVER=SERVER_ENCRYPT.

Field Name: QW0319SC

FLAGS - SECURE CONNECTION
This flag shows whether the remote connection was secure.

Field Name: QW0319SE

IPV6 ADDRESS
If the type of the communication address is TCP/IP, it is the 16 byte hexadecimal (HLHLHLHLHLHLHLHLHLHLHLHLHLHLHLHL) IP address of the internal 128 bit format, where:

• H represents the high order half byte value
• L represents the low order half byte value

Field Name: QW0319IPA

PRINCIPAL NAME LENGTH
Length of principal name.

Field Name: QW0319L1

PRINCIPAL NAME
The requesting principal name. This can be up to 256 characters and can contain lowercase characters.

Field Name: QW0319D1

PORT-INTERNAL FORMAT
If the type of the communication address is TCP/IP, this field shows the 16 bit port number in internal format.

Field Name: QW0319PRT

IFCID 321 - Force-at-Commit Begin:

This topic shows detailed information about “Record Trace - IFCID 321 - Force-at-Commit Begin”.

Record trace - IFCID 321 - Force-at-Commit Begin

The field labels shown in the following sample layout of “Record Trace - IFCID 321 - Force-at-Commit Begin” are described in the following section.

TARGET LOCATION FOR WRITE
The target location for write.

Field Name: QW0321LO

IFCID 322 - Force-at-Commit End:

This topic shows detailed information about “Record Trace - IFCID 322 - Force-at-Commit End”. 
Record trace - IFCID 322 - Force-at-Commit End

The field labels shown in the following sample layout of “Record Trace - IFCID 322 - Force-at-Commit End” are described in the following section.

**PAGES_WRITTEN**

The number of pages written.

Field Name: QW0322NP

IFCID 324 - Function Resolution:

This topic shows detailed information about “Record Trace - IFCID 324 - Function Resolution”.

Record trace - IFCID 324 - Function Resolution

The field labels shown in the following sample layout of “Record Trace - IFCID 324 - Function Resolution” are described in the following section.

<table>
<thead>
<tr>
<th>QUERYNO</th>
<th>1853</th>
<th>PLANNAME</th>
<th>PLAN01</th>
<th>APP</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIND_TIME</td>
<td>MM/DD/YY HH:MM:SS.MS</td>
<td>VERSION</td>
<td>VBR1.000</td>
<td></td>
</tr>
<tr>
<td>CONSIS_TOKEN</td>
<td>X' C3B405E2E30602FF1'</td>
<td>GRP_MBR</td>
<td>'BLANK'</td>
<td></td>
</tr>
<tr>
<td>COLLECTION_ID</td>
<td>COLLID01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROGNAME</td>
<td>PROGRAM001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURRENT_PATH</td>
<td>&quot;SYSIBM&quot;,&quot;SYSFUN&quot;,&quot;SYSPROC&quot;,&quot;ABCDE&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**QUERYNO**

The query number.

Field Name: QW0324QN

**PLANNAME**

The plan name.

Field Name: QW0324PN

**COLLECTION_ID**

The collection ID.

Field Name: QW0324CI

**APPLNAME**

The name of the application.

Field Name: QW0324AL

**PROGNAME**

The program name.

Field Name: QW0324PG

**CONSIS_TOKEN**

The consistency token.

Field Name: QW0324CT

**GRP_MBR**

The group member name.

Field Name: QW0324GM

**BIND_TIME**
The time stamp of the bind time.

Field Name: QW0324TS

VERSION

The version.

Field Name: QW0324VN

CURRENT_PATH

The current path.

Field Name: QW0324CP

FUNCT_SCHEMA

A short SQL identifier, either ordinary or delimited, following the concept of qualified names consistent with the ANSI/ISO SQL92 standard.

Field Name: QW0324FS

FUNCT_NAME

The name of a function without a qualifier.

Field Name: QW0324FN

SPECIFIC_NAME

Identifies the particular function. The specific name must identify a specific function name in the explicitly or implicitly specified schema.

Field Name: QW0324FI

FUNCT_TYPE

The classification of the function:

SU Scalar UDF
TU Table UDF

Field Name: QW0324FY

VIEW_CREATOR

The name of the view creator if the function is referenced in a view definition.

Field Name: QW0324CV

VIEW_NAME

The name of the view if the function is referenced in a view definition.

Field Name: QW0324NV

QUERY_BLOCKNO

A number that identifies the query block number being explained.

Field Name: QW0324QB

FUNCT_TEXT

Contains the text of the function reference, function name, and parameters. It can be up to 254 characters long.

Field Name: QW0324FT
IFCID 325 - Trigger Activation:

This topic shows detailed information about “Record Trace - IFCID 325 - Trigger Activation”.

Record trace - IFCID 325 - Trigger Activation

The field labels shown in the following sample layout of “Record Trace - IFCID 325 - Trigger Activation” are described in the following section.

**STATEMENT NO:**
The statement number of the SQL statement that activated the trigger.

**Field Name:** QW0325SN

**SQL STATEMENT**
Triggering SQL statement. Possible values are:

- D: DELETE
- I: INSERT
- U: UPDATE

**Field Name:** QW0325SS

**COLLECTION ID**
The collection ID of the package containing the statement that activated the trigger.

**Field Name:** QW0325CO

**PROG NAME**
Program or package containing the statement that activated the trigger.

**Field Name:** QW0325PR

**TRIGGER NAME**
Trigger name.

**Field Name:** QW0325NM

**EXT.TRIGGER NAME**
External trigger name.

**Field Name:** QW0325TX

**SCHEMA NAME**
IFCID 325 - Trigger Activation

Schema name of the trigger.
Field Name: QW0325SC

TIMESTAMP
Trigger timestamp.
Field Name: QW0325TS

ACTIVATION TIME
Possible values are:
A Trigger activation time is AFTER.
B Trigger activation time is BEFORE.
Field Name: QW0325AC

ENTRY/EXIT TYPE
Possible values are:
E Trigger is starting.
X Trigger is ending.
Field Name: QW0325ET

GRANULARITY
Possible values are:
R Trigger granularity is FOR EACH ROW.
S Trigger granularity is FOR EACH STATEMENT.
Field Name: QW0325GR

EVALUATION
Triggered action condition evaluation. Possible values are:
T Triggered action tested TRUE
F Triggered action tested FALSE
N No triggered action condition.
Field Name: QW0325CN

NESTING LEVEL
Nesting level of the trigger.
Field Name: QW0325NL

SQLCA CONTENTS
This section contains the SQLCA fields. It is only printed if the value in the ENTRY/EXIT TYPE field is RETURNED.
Field Name: QW0325SQ

IFCID 329 - IXL Suspensions:
This topic shows detailed information about “Record Trace - IFCID 329 - IXL Suspensions”.

4142 IBM Db2 Performance Expert on z/OS
## Record trace - IFCID 329 - IXL Suspensions

The field labels shown in the following sample layout of “Record Trace - IFCID 329 - IXL Suspensions” are described in the following section.

### GBP NAME

Name of the group buffer pool.

**Field Name:** QW0329GB

### REQUEST TYPE

The request type can be one of the following:

- READ-DIRINFO (IXLCACHE)
- READ-COCLASS (IXLCACHE)
- CASTOUT-DATA (IXLCACHE)
- DELETE-NAME (IXLCACHE)
- RESET-REFBIT (IXLCACHE)
- FORCE (IXLFORCE)
- CONNECT (IXLCONN)
- DISCONNECT (IXLDISC)
- PROCESS-REFLIST (IXLCACHE)
- READ-DATA (IXLCACHE)
- READ-STGSTATS (IXLCACHE)
- READ-COSTATS (IXLCACHE)
- UNLOCK-CASTOUT (IXLCACHE)
- SET-RECLVCTR (IXLCACHE)
- WRITE-DATA (IXLCACHE)
- X-INVALIDATE (IXLCACHE)
- REGISTER-PAGE-LIST (IXLCACHE)
- WRITE-DATA TO SECONDARY (IXLCACHE)
- DELETE-NAME-LIST TO SECONDARY (IXLCACHE)
- DELETE-NAME TO SECONDARY (IXLCACHE)
- READ-STGSTATS TO SECONDARY (IXLCACHE)

**Field Name:** QW0329RT

### ASYNC. WAIT TIME

Asynchronous wait time in microseconds.

**Field Name:** QW0329ST

## IFCID 330 - Active Log Space Shortage:

This topic shows detailed information about “Record Trace - IFCID 330 - Active Log Space Shortage”.

This record is written of each group buffer pool present. Each repeating section contains information about each group buffer pool to which this DB2 data sharing member is currently connected.
IFCID 330 - Active Log Space Shortage

Record trace - IFCID 330 - Active Log Space Shortage

The field labels shown in the following sample layout of “Record Trace - IFCID 330 - Active Log Space Shortage” are described in the following section.

ACTIVE LOG COPY NUMBER: X

LAST LOG DATA SET USAGE: 999%

ACTIVE LOG COPY NUMBER

Active log copy number (1 or 2).

Field Name: QW0330CP

LAST LOG DATA SET USAGE

Percentage of the last available active log data set for this log copy that is used.

Field Name: QW0330PC

IFCID 331 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 331 - IBM Service Record”.

This record is for IBM service use.

IFCID 332 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 332 - IBM Service Record”.

This record is for IBM service use.

IFCID 333 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 333 - IBM Service Record”.

This record is for IBM service use.

IFCID 335 - System Event Stalled:

This topic shows detailed information about “Record Trace - IFCID 335 - System Event Stalled”.

This IFCID records information about stalled system events. These records include the checkpoint process or a log offload task.

Record trace - IFCID 335 - System Event Stalled

The field labels shown in the following sample layout of “Record Trace - IFCID 335 - System Event Stalled” are described in the following section.

STALLED SYST EVT : OFFLOAD

TIMESTAMP : 11-11-11 12:44:54.324520

LOG RBA PRIO EVT : QWERTY

CURRENT LOG RBA : YTREWQ

STALLED SYST EVT

The stalled system event can be:

CKPT    System checkpoint processor

OFLD    Log offload task
Field Name: QW0335SE

TIMESTAMP
The timestamp of the previous event.
Field Name: QW0335TS

LOG RBA PRIO EVT
The log RBA of the previous event.
Field Name: QW0335PR

CURRENT LOG RBA
The current, highest-written log RBA.
Field Name: QW0335CR

IFCID 337 - Lock Escalation Occurrences:
This topic shows detailed information about “Record Trace - IFCID 337 - Lock Escalation Occurrences”.
When performance trace class 6 or statistics trace class 3 is on, a record is written each time a lock escalation occurs.

Record trace - IFCID 337 - Lock Escalation Occurrences
The field labels shown in the following sample layout of “Record Trace - IFCID 337 - Lock Escalation Occurrences” are described in the following section.

DATABASE ID
Database name.
Field Name: QW0337DB

PAGESET/TABLE ID
Page set name or table OBID.
Field Name: QW0337OB

STATEMENT NUMBER
Statement number.
Field Name: QW0337SN

LOCK STATE
New state to which the lock was escalated. This is not shown if selective partition locking is used.
Field Name: QW0337LS

LOWER LOCK TYPE
Type of lower level lock used. This can be:
- Page lock
- Row lock
IFCID 337 - Lock Escalation Occurrences

- LOB lock

Field Name: QW0337LL

NUMBER LOWER LOCKS

Number of held lower-level locks that were released by escalation.

Field Name: QW0337LH

WAITERS STMT ID

The waiter statement ID.

Field Name: QW0337SI

WAITER TYPE

The waiter statement information. Possible values:

- STATIC
  The statement is of type static.

- DYNAMIC
  The statement is of type dynamic.

- NONE (NO ID, NO TYPE)
  No statement ID, no type.

Field Name: QW0337TY

COLLECTION ID

Collection identifier.

Field Name: QW0337CN

PACKAGE NAME

The package name.

Field Name: QW0337PK

IFCID 342 - WF/TEMP DB Usage:

This topic shows detailed information about “Record Trace - IFCID 342 - WF/TEMP DB Usage”.

Record trace - IFCID 342 - WF/TEMP DB Usage

The field labels shown in the following sample layout of “Record Trace - IFCID 342 - WF/TEMP DB Usage” are described in the following section.

WF/TEMP DB USAGE

DATABASE TYPE: WFDB
PSID OF SPACE: X'0010'

DBID OF DB: X'0010'

AGENT TOKEN: X'000003EA'
CURRENT NO TABLE BLOCKS: 100

MAX NO TABLE BLOCKS: 1000

PARENT TOKEN: '000003EB'
CURRENT NO INDEX BLOCKS: 101

MAX NO INDEX BLOCKS: 1000

DATABASE TYPE

The database type.

Field Name: QW0342TY
DBID OF DB
The database ID (DBID).
Field Name: QW0342DB

PSID OF SPACE
The page set object identifier (PSID) of the database.
Field Name: QW0342PS

AGENT TOKEN
The agent token.
Field Name: QW0342AT

CURRENT NO TABLE BLOCKS
The current space for tables that is used by the agent in the database (in KB).
Field Name: QW0342CT

MAX NO TABLE BLOCKS
The maximum space for tables that is used by the agent in the database (in KB).
Field Name: QW0342MT

PARENT TOKEN
The parent token.
Field Name: QW0342PT

CURRENT NO INDEX BLOCKS
The current space for indexes on the tables used by the agent in the database (in KB).
Field Name: QW0342CI

MAX NO INDEX BLOCKS
The maximum space for indexes on the tables used by the agent in the database (in KB).
Field Name: QW0342MI

IFCID 343 - MAXTEMPS Limit/Exceeded:
This topic shows detailed information about “Record Trace - IFCID 343 - MAXTEMPS Limit/Exceeded”.

This record is written if the MAXTEMPS zparm limit for an agent is exceeded.

Record trace - IFCID 343 - MAXTEMPS Limit/Exceeded
The field labels shown in the following sample layout of “Record Trace - IFCID 343 - MAXTEMPS Limit/Exceeded” are described in the following section.
IFCID 343 - MAXTEMPS Limit/Exceeded

The authorization ID for the agent.
Field Name: QW0343ID

PACKAGE COLLECTION ID
The package collection ID for the agent.
Field Name: QW0343PC

PACKAGE NAME
The package name for the agent.
Field Name: QW0343PK

PLAN NAME
The plan name for the agent.
Field Name: QW0343PL

MAX TEMP STORAGE
The MAXTEMP zparm value for the agent (KB).
Field Name: QW0343MS

CURRENT WORKFILE SIZE
The current total system wide usage of WORKFILE storage (KB).
Field Name: QW0343CU

MAX WORKFILE SIZE
The maximum total system wide usage of WORKFILE storage (KB).
Field Name: QW0343MU

IFCID 345 - Trace Data / SP/UDF:
This topic shows detailed information about “Record Trace - IFCID 345 - Trace Data / SP/UDF”.

Record trace - IFCID 345 - Trace Data / SP/UDF
The field labels shown in the following sample layout of “Record Trace - IFCID 345 - Trace Data / SP/UDF” are described in the following section.

TRACE BUFFER LENGTH
Length of the trace buffer.
Field Name: QW0345TR_LEN

TRACE BUFFER
Trace buffer.
Field Name: QW0345TR

IFCID 346 - Package/DBRM Detail:
This topic shows detailed information about “Record Trace - IFCID 346 - Package/DBRM Detail”. 
Record trace - IFCID 346 - Package/DBRM Detail

The field labels shown in the following sample layout of “Record Trace - IFCID 346 - Package/DBRM Detail” are described in the following section.

LOCATION: The location name.

If this field is blank in trace or report, the package or DBRM was executed locally. If it is not blank, all times represent the time spent locally to execute the remote package for this APPL_DIR requester.

This field is invalid (N/P) if summary rollup data is present.

Field Name: QPACLOCN

This is an exception field.

COLLECTION: The package collection ID. This field does not apply to DBRMs. If the program name cannot be identified, this field is not present in report or trace.

This field is invalid if summary rollup data is present. It can have the following value in:

- Accounting trace and report: N/P
- The Accounting FILE and SAVE PROGRAM table: blank

Field Name: QPACCOLN

This is an exception field.

PACKAGE ID: The program name (package ID or DBRM name).

In the case of rollup data (Accounting data of DDF/RRSAF threads and parallel tasks accumulated by DB2), the following value is shown *ROLSUM*.

Field Name: QPACPKID
This is an exception field.

TOKEN
The program (package or DBRM) consistency token.
This field is invalid (0) if summary rollup data is present.

Field Name: QPACCONT

SECTION NMB
The number of this particular data section in the series.

Field Name: QPACRECN

TYPE
The program type. It can be DBRM (field name QPACDBRM) or package
(field name QPACPACK).

Field Name: QPACFLGS

SCHEMA NAME
Schema name of the nested activity.
If the package is defined for a trigger, stored procedure, or user-defined
function, then this field contains the name of the schema to which the
nested activity belongs. It can have the following value in:
• Accounting Trace and Report: N/P
• The Accounting FILE and SAVE PROGRAM tables: blank
This field is invalid if summary rollup data is present.

Field Name: QPACASCH

SQL STMTS
The number of SQL statements issued in this package or DBRM.
This number may not be equal to the total number of SQL statements in
the QXST data section because QXST does not count all SQL statements.
For example, it does not count commit or rollback statements.

Note: This field is shown for the following field labels in Accounting trace:
• SQL STMT - TOTAL
• SQL STMT - AVERAGE:

Field Name: QPACSQLC
This is an exception field.

USED BY STOR.PROC
Indicates whether this package was loaded by a stored procedure.
This field is invalid if unique or summary rollup data is present.

Field Name: QPACINSP

NON-ZERO CLASS 8
Indicates if Class 8 data is in this record.

Field Name: QPACCLS8

ACTIVITY NAME
The name of the nested activity.
This field contains the name of the nested activity if the package is defined for a:

- Trigger
- Stored procedure
- User-defined function (UDF)
- Native SQL procedure
- Non-inline UDF

In a data block that reports totals it is set to ALL NAMES.
This field is invalid if summary rollup data is present.
It can have the following value in:

- Accounting Trace and Report: N/P
- The Accounting FILE and SAVE PROGRAM tables: blank

Field Name: QPACAANM

SUCC AUTH CHECK
Indicates whether a successful package EXECUTE authorization check was made and DB2 catalog access was avoided.
This field is invalid if unique or summary rollup data is present.
Field Name: QPACPAC

LAST EXECUTED
This package or DBRM is either currently executing or is the most recently executed package or DBRM. This field is invalid if unique or summary rollup data is present.
Field Name: QPACCRNT

NON-ZERO CLASS 7
There is nonzero accounting class 7 data in this QPAC data instance.
Field Name: QPACCLS7

ACTIVITY TYPE
The type of activity. The following values indicate how the package was loaded:

ALL TYPES
In a data block that reports totals it is set to ALL TYPES.

STORED PROC
When running an external procedure

TRIGGER
When running a trigger

UDF
When running a user-defined function

NATIVE SQL PROC
When running a native SQL procedure

NATIVE UDF
When running a native UDF procedure (a non-inline user-defined function)
NONNESTED
   Indicates that none of the above values is true

MULTIPLE
   Indicates that packages with the same key but with different activity types were running

N/P    Invalidated in case of rollup summary

The nested activity values that are shown in column NEST_ACTIVITY_TYPE of the table DB2PMFACCT_PROGRAM are:

S    For Stored Procedure
T    For Trigger
U    For UDF
Q    For native SQL procedure
D    For Native UDF
N    For nonnested (other)
blank    For invalidated in case of rollup summary

This field is invalid if unique or summary rollup data is present.

Field Name: QPACAAFG

PACKAGE SWITCH

The number of times package was invoked from a different package. For the first package run by an application, the initial call counts as a package switch. If this package called a nested package (such as a trigger, UDF, or stored procedure), a switch will not be counted upon return from such a package.

Field Name: QPACSWITCH

ROLLED NBR THREADS

This value can be one of the following:

- In general, the number of threads to roll data into this QPAC data section. Non-rollup QPACs have a value of 1 and rollup QPACs have a value of 1 or more. This number is used as a divisor for calculating averages for package class 7, 8, or 10 times and events.
- If REPORT ORDER (ACTNAME) is specified, the number of threads to roll data into this QPAC data section of a special activity type depends on the following:
  - If IFCID 233 or 380 is available, the number of threads to roll data into this QPAC data section for stored procedures (SP) is counted based on the available IFCID. If both IFCIDs are available, IFCID 380 is the preferred one for SP reporting. Subprograms called by these SPs are not taken into account.
  - If IFCID 233 or 381 is available, the number of threads to roll data into this QPAC data section for user-defined functions (UDF) is counted based on the available IFCID. If both IFCIDs are available, IFCID 381 is the preferred one for UDF reporting. Subprograms called by these UDFs are not taken into account.
  - If neither IFCID 233, 380, nor 381, is collected, the total number of threads to roll data into this QPAC data section is counted. The sum also includes the number of subprograms.
Field Name: QPACRLNU

ACE

ACE token. You can use this value to correlate this record with other monitor trace records.

Field Name: QW0346_ACE

HREF HREF

ACE token. You can use this value to correlate this record with other monitor trace records.

Field Name: HREF

CLASS 7: BEGINNING STORE CLOCK TIME

The store clock time at entry to DB2 for the most recent execution of this package or DBRM.

This field is invalid if unique or summary rollup data is present.

Field Name: QPACSCB

CLASS 7: ENDING STORE CLOCK TIME

The store clock time at exit from DB2 after the most recent execution of this package or DBRM.

This field is invalid if unique or summary rollup data is present.

Field Name: QPACSCE

CLASS 7: BEGINNING TCB CPU TIME

The CPU time at entry to DB2 for the most recent execution of this package or DBRM. This time does not include the CPU time consumed on an IBM specialty engine.

This field is invalid if unique or summary rollup data is present.

Field Name: QPACBJST

CLASS 7: ENDING TCB CPU TIME

The CPU time at exit from DB2 for the most recent execution of this package or DBRM. This time does not include CPU consumed on an IBM specialty engine.

This field is invalid if unique or summary rollup data is present.

Field Name: QPACEJST

CLASS 7: TOTAL ELAPSED TIME

The total elapsed time for executing the package or DBRM.

Field Name: QPACSCCT

CLASS 7: DB2 ENTRY/EXIT

The number of DB2 entries or exits processed during the execution of the package or DBRM.

In Accounting reports this is shown twice; as a total and as an average.

Field Name: QPACARNN

CLASS 7: TOTAL TCB TIME

Chapter 6. Batch reporting  4153
The class 7 CPU time for all executions of the package or DBRM. This time does not include the:

- Class 7 time for parallel tasks
- CPU time that is consumed on an IBM specialty engine

**Field Name:** QPACTJST

This is an *exception* field.

**CLASS 7: SE CPU TIME**

The total CPU time for all executions of this package or DBRM that was consumed on an IBM specialty engine (SE).

**Note:** All CPU times of an IBM specialty engine that are reported in DB2 trace records are already normalized by DB2 to the speed of the general purpose processor.

**Field Name:** QPACCLS7_ZIIP

**CLASS 8: LOCK/LATCH SUSP TIME**

The accumulated lock elapsed wait time that occurred while executing this package.

**Background and Tuning Information**

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when performance data was gathered.

If the suspension time is high, investigate locking activity.

**Field Name:** QPACAWTL

This is an *exception* field.

**CLASS 8: LOCK/LATCH SUSP EVENTS**

The number of wait trace events processed for waits for lock while executing this package.

**Field Name:** QPACARNL

**CLASS 8: WAIT TIME LOCAL LOCKS**

The accumulated latch elapsed wait time for latch suspensions that occurred while executing this package.

**Field Name:** QPACAWLH

**CLASS 8: LOCAL LOCK WAIT TRACE EVENTS**

The number of wait trace events processed for page latch contention while executing this package.

**Field Name:** QPACANLH

**CLASS 8: DB2 LATCH SUSP TIME**

The accumulated lock elapsed wait time that occurred while executing this package.

**Background and Tuning Information**

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when performance data was gathered.

If the suspension time is high, investigate locking activity.
Field Name: QPACAWTL
This is an exception field.

**CLASS 8: LATCH WAIT TRACE EVENTS**
The number of wait trace events processed for waits for lock while executing this package.

Field Name: QPACARNL

**CLASS 8: SYNCHRONOUS I/O SUSP TIME**
The accumulated elapsed wait time for I/O suspensions under this thread during the execution of the package or DBRM.

**Background and Tuning Information**
OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when its performance data was gathered.

Field Name: QPACAWTI
This is an exception field.

**CLASS 8: SYNCHRONOUS I/O SUSP EVENTS**
The number of wait trace events processed for I/O.

Field Name: QPACARNE

**CLASS 8: OTHER READ SUSP TIME**
The accumulated waiting time for a read I/O performed under a thread other than this one during the execution of the package or DBRM.

**Background and Tuning Information**
OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when performance data was gathered.

This field includes waits caused by sequential prefetch, list prefetch, dynamic prefetch, and synchronous read I/O performed by other threads.

If the value in this field is high, the problem could be an I/O bound query using prefetch or an I/O contention. The application is accessing data from a busy data set, volume, or control unit and is continually being suspended. Consult the DBA and MVS systems programmer.

Field Name: QPACAWTR
This is an exception field.

**CLASS 8: OTHER READ SUSP EVENTS**
The number of suspensions due to read I/O.

Field Name: QPACARNR

**CLASS 8: OTHER WRITE SUSP TIME**
The accumulated waiting time due to a write I/O performed for another thread during the execution of a package or DBRM.

**Background and Tuning Information**
If the value in this field is high, the problem could be I/O contention. The application is accessing data from a busy data set, volume, or control unit and is continually being suspended. Consult the DBA and MVS systems programmer to resolve possible data set placement problems.
Field Name: QPACAWTW
This is an exception field.

CLASS 8: OTHER WRITE SUSP EVENTS
The number of suspensions due to write I/O.
Field Name: QPACARNW

CLASS 8: SERV.TASK SWITCH SUSP TIME
The accumulated waiting time due to a synchronous execution unit switch to DB2 services from this thread during the execution of the package or DBRM.

Background and Tuning Information
OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when its performance data was gathered.
This value includes the waits because of an OPEN/CLOSE data set, SYSLGRNG update, DATASPACE MANAGER services, DEFINE, EXTEND, and DELETE data set, AUTONOMOUS PROCEDURE, and DDF Requester waiting for Server reply and VSAM Catalog update.
Field Name: QPACAWTE
This is an exception field.

CLASS 8: SERV.TASK SWITCH SUSP EVENTS
The number of wait trace events processed for DB2 service tasks.
Field Name: QPACARNS

CLASS 8: ARCH.LOG(QUIES) SUSP TIME
The accumulated waiting time caused by processing ARCHIVE LOG(QUIESCE) commands during the execution of the package or DBRM. This number represents the amount of time that an individual thread was suspended because of the command, not the time it took for the entire command to complete.

Background and Tuning Information
OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when its performance data was gathered.
Avoid issuing the -ARCHIVE LOG QUIESCE command during peak periods.
Field Name: QPACALOG

CLASS 8: ARCH.LOG(QUIES) SUSP EVENTS
The number of ARCHIVE LOG MODE (QUIESCE) commands issued.
Field Name: QPACALCT

CLASS 8: DRAIN LOCK SUSP TIME
The accumulated waiting time due to a drain lock.
Field Name: QPACAWDR

CLASS 8: DRAIN LOCK SUSP EVENTS
The number of wait trace events processed for waits for drain locks.
Field Name: QPACARND

CLASS 8: CLAIM RELEASE SUSP TIME

The accumulated waiting time for a drain waiting for claims to be released during the execution of the package or DBRM.

Background and Tuning Information

OMEGAMON XE for DB2 PE might adjust this value if the thread was suspended when its performance data was gathered.

Field Name: QPACAWCL

CLASS 8: CLAIM RELEASE SUSP EVENTS

The number of wait trace events processed for waits for claims to be released.

Field Name: QPACARNC

CLASS 8: PAGE LATCH SUSP TIME

The accumulated waiting time caused by a page latch contention.

Field Name: QPACAWTP

CLASS 8: PAGE LATCH SUSP EVENTS

The number of page latch wait trace events processed.

Field Name: QPACARNH

CLASS 8: NOTIFY MESSAGES SUSP TIME

The accumulated elapsed waiting time due to suspensions caused by sending notify messages to other members in the data sharing group. Messages are sent, for example, when database descriptors are changed due to DDL.

This value is only calculated if accounting class 8 is active and DB2 is a member of a DB2 data sharing group.

Field Name: QPACAWTG

CLASS 8: NOTIFY MESSAGES EVENTS

The number of wait trace entry/exit events processed for waits for notify messages to other members in the data sharing group.

Field Name: QPACARNG

CLASS 8: GLOBAL CONTENT. PARENT SUSP TIME

The accumulated wait time due to global contention for parent L-locks. Parent L-Locks are any of the following L-Lock types: database, tablespace, table, or partition.

Field Name: QPACAWTJ

CLASS 8: GLOBAL CONTENT. PARENT EVENTS

The number of wait trace entry/exit events processed for waits for global lock contention for parent L-Locks.

Field Name: QPACARNJ

CLASS 8: UDF EXECUTED

The number of user-defined functions scheduled.
Field Name: QPACUDNU

CLASS 8: STORED PROCEDURE EXECUTED
    The number of stored procedures scheduled.

Field Name: QPACSPNS

CLASS 8: TCP/IP LOB XML TIME
    The number of wait trace events that were processed for waits for TCP/IP
    LOB and XML materialization while this package or DBRM was running.

Field Name: QPACALBC

CLASS 8: TCP/IP LOB XML EVENTS
    The accumulated wait time for TCP/IP LOB and XML materialization
    while running this package or DBRM.

Field Name: QPACALBW

ACCELERATOR SUSP TIME
    The accumulated wait time for requests to an accelerator while executing
    this package.

Field Name: QPACAACW

ACCELERATOR EVENTS
    The number of wait trace events processed for requests to an accelerator
    while executing this package.

Field Name: QPACAACC

PARALLEL QUERY SYNC WAIT TIME
    The accumulated time waiting for parallel query processing to synchronize
    between parent and child tasks.

Field Name: QPAC_PQS_WAIT

PARALLEL QUERY SYNC WAIT EVENTS
    The number of times the parallel query processing suspended because it
    was waiting for the synchronization of the parent/child.

Field Name: QPAC_PQS_COUNT

FAST INSERT PIPE WAIT TIME
    The accumulated wait time for a pipe while this package was executed
    (DB2 field QPAC_PIPE_WAIT).

Field Name: QPAC_PIPE_WAIT

FAST INSERT PIPE WAIT EVENTS
    The number of wait trace events that were processed for waits for a pipe
    while this package was executed (DB2 field QPAC_PIPEWAIT_COUNT).

Field Name: QPACPIPEWAIT_COUNT

IFCID 350 - SQL Statement:

This topic shows detailed information about “Record Trace - IFCID 350 - SQL
Statement”.

4158 IBM Db2 Performance Expert on z/OS
IFCID 350 records the complete text of a parsed SQL statement. These records are written when a static or dynamic SQL statement is bound.

**Record trace - IFCID 350 - SQL Statement**

The field labels shown in the following sample layout of “Record Trace - IFCID 350 - SQL Statement” are described in the following section.

```
OPTIONS : X'04'   HOST LANG : N/A
SQL SEGMENT : PORTION  STMT ID : N/A
STMT TYPE : N/A   CCSID : N/A
SQL LENGTH: 0
SQL STATEMENT:
```

**OPTIONS**

Shows the parser options and host language.

*Field Name:* QW0350OT

**HOST LANG**

Determines the host language. It can have the following values:

- ASSEMBLER
- COBOL
- C
- FORTRAN
- PL/I
- COBOL II
- IBM COBOL
- C++

*Field Name:* QW0350HL

**SQL SEGMENT**

Shows the first, the last, the complete, or a portion of the SQL statement.

*Field Name:* QW0350FG

**STMT ID**

The statement identifier.

*Field Name:* QW0350SI

**STMT TYPE**

The statement type. Possible values are DYNAMIC, STATIC, or N/P.

*Field Name:* QW0350TY

**CCSID**

The coded character set identifier (CCSID).

*Field Name:* QW0350CC

**SQL LENGTH**

The total length of the SQL statement. The maximum length is 5000 bytes.

*Field Name:* QW0350TL

**SQL STATEMENT**

Shows the complete SQL statement that is being parsed or only a part of it.
IFCID 350 - SQL Statement

Note: Host variables in this field are represented by :h.

Field Name: QW0350SP

IFCID 351 - Wait TCPIP LOB:

This topic shows detailed information about “Record Trace - IFCID 351 - Wait TCPIP LOB”.

IFCID 0351 is generated at the beginning of the time that is spent waiting for TCP/IP to materialize a LOB. You can activate this trace by starting accounting trace class 3 or 8.

Record trace - IFCID 351 - Wait TCPIP LOB

The field labels shown in the following sample layout of “Record Trace - IFCID 351 - Wait TCPIP LOB” are described in the following section.

PRIMAUTH CONNECT
ORIGAUTH CORRNAME CONNTYPE
PLANNAME CORRNAMEB TCB CPU TIME
--------- -------------- ------- -------
FWAMINQP SERVER 130403052550 FWAMINQP cfpamst5.prod.fe java
FWAMINQP java ORDA 07:02:39.89253268 654661 1 351 WAIT TCPIP LOB NETWORKID: COABB4CC LUNAME: KBE9 LUWSEQ: 1
DISTSERV 'BLANK' 1.18259834 REQUESTING LOCATION: 192.168.180.204
REQUESTING TIMESTAMP: N/P
AR NAME: cfpamst5.prod.fe PRDID: CLNT/SER V8 R2 M0
ACCTKN X'C3F8C1FBC2F4C3C4B02C2C5F91304030525504040400'
REQUEST TYPE : GET
07:03:39.89253200 654661 1 351 WAIT TCPIP LOB java
1.18259834 REQUESTING LOCATION: 192.168.180.204
REQUESTING TIMESTAMP: N/P
AR NAME: cfpamst5.prod.fe PRDID: CLNT/SER V8 R2 M0
ACCTKN X'C3F8C1FBC2F4C3C4B02C2C5F91304030525504040400'
REQUEST TYPE : CLOSE
07:04:39.89253200 654661 1 351 WAIT TCPIP LOB java
1.18259834 REQUESTING LOCATION: 192.168.180.204
REQUESTING TIMESTAMP: N/P
AR NAME: cfpamst5.prod.fe PRDID: CLNT/SER V8 R2 M0
ACCTKN X'C3F8C1FBC2F4C3C4B02C2C5F91304030525504040400'
REQUEST TYPE : CLOSEALL

REQUEST TYPE

The request type. Possible values are:

GET Materialize a LOB/XML value into the database.

CLOSE Receive and discard a LOB/XML value from the network.

CLOSEALL Receive and discard all the LOB/XML values for this request.

Field Name: QW0351RT

IFCID 353 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 353 - IBM Service Record”.

This record is for IBM service use.

IFCID 354 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 354 - IBM Service Record”.

4160 IBM Db2 Performance Expert on z/OS
This record is for IBM service use.

**IFCID 357 - Beginning of an Index I/O Parallel INSERT:**

This topic shows detailed information about “Record Trace - IFCID 357 - Beginning of an Index I/O Parallel INSERT”.

IFCID 357 records the beginning of data insertion into an index, with I/O parallelism. This record is written when performance trace class 4 is active.

**Record trace - IFCID 357 - Beginning of an Index I/O Parallel INSERT**

The field labels shown in the following sample layout of “Record Trace - IFCID 357 - Beginning of an Index I/O Parallel INSERT” are described in the following section.

| DATABASE ID: | 0B123456 | TABLE OBID: | TB12345678 | IDX SPACE PG SET ID: | x'1234' |

**DATABASE ID**

The database identifier (ID) of the first index involved in the I/O parallel INSERT.

**Field Name:** QW0357DB

**TABLE OBID**

The object identifier (OBID) of the table involved in the INSERT.

**Field Name:** QW0357TB

**IDX SPACE PG SET ID**

The page set ID of the first index.

**Field Name:** QW0357PS

**IFCID 358 - End of an Index I/O Parallel INSERT:**

This topic shows detailed information about “Record Trace - IFCID 358 - End of an Index I/O Parallel INSERT”.

IFCID 358 records the end of data insertion into an index, with I/O parallelism. This record is written when performance trace class 4 is active.

**Record trace - IFCID 358 - End of an Index I/O Parallel INSERT**

The field labels shown in the following sample layout of “Record Trace - IFCID 358 - End of an Index I/O Parallel INSERT” are described in the following section.

| DATABASE ID: | 0B123456 | TABLE OBID: | TB12345678 | IDX SPACE PG SET ID: | x'1234' | PARALL. DEGREE: | 12345678 |

**DATABASE ID**

The database ID of the last index involved in the I/O parallel INSERT.

**Field Name:** QW0358DB

**TABLE OBID**

The object identifier (OBID) of the table involved in the INSERT.

**Field Name:** QW0358TB

**IDX SPACE PG SET ID**

The page set ID of the last index.
IFCID 358 - End of an Index I/O Parallel INSERT

Field Name: QW0358PS

PARALL. DEGREE

The degree of I/O parallelism on the INSERT.

Field Name: QW0358DE

IFCID 359 - Index Page Split:

This topic shows detailed information about “Record Trace - IFCID 359 - Index Page Split”.

IFCID 359 records information about index page splits. This record is written when performance trace class 4 is active.

Record trace - IFCID 359 - Index Page Split

The field labels shown in the following sample layout of “Record Trace - IFCID 359 - Index Page Split” are described in the following section.

DATABASE ID:

Field Name: QW0359DB

INDEX PAGE SET ID:

Field Name: QW0359OB

PARTITION NUMBER:

Field Name: QW0359PT

SPLITTING PAGE NUMBER:

Field Name: QW0359PG

FLAGS

Shows if the index depends on the group buffer pool (GBP).

Field Name: QW0359FL

TIMESTAMP BEGIN

The time stamp when index splitting started.

Field Name: QW0359TS

TIMESTAMP END

The time stamp when index splitting stopped.

Field Name: QW0359TE
IFCID 360 - Incrementally Rebound Queries:

This topic shows detailed information about “Record Trace - IFCID 360 - Incrementally Rebound Queries”.

IFCID 360 records information about queries that are incrementally rebound, because parallelism was chosen in packages that were created before DB2 10. This record is written when performance trace class 3 or 10 is on.

Record trace - IFCID 360 - Incrementally Rebound Queries

The field labels shown in the following sample layout of “Record Trace - IFCID 360 - Incrementally Rebound Queries” are described in the following section.

### PLAN NAME

The name of the plan.

**Field Name:** QW0360PLAN

### QUERY STMT NUMBER

The query statement number.

**Field Name:** QW0360STMTNO

### QUERY SECT NUMBER

The query section number.

**Field Name:** QW0360SECTN

### COLLECTION NAME

The name of the package collection ID.

**Field Name:** QW0360COLLIDN

### PACKAGE NAME

The name of the package.

**Field Name:** QW0360PKGIDN

### PKG CONSIST TOKEN

The package consistency token.

**Field Name:** QW0360CONTK

IFCID 361 - Audit Admin Authorities:

This topic shows detailed information about “Record Trace - IFCID 361 - Audit Admin Authorities”.

Record trace - IFCID 361 - Audit Admin Authorities

The field labels shown in the following sample layout of “Record Trace - IFCID 361 - Audit Admin Authorities” are described in the following section.
IFCID 361 - Audit Admin Authorities

TARGET OBJ QUALIF: ADMF001
TARGET OBJ NAME : N/P
OTHER OBJ NAME : N/P

SQL STATEMENT: GRANT DBADM TO OMVSADM

AUTHORITY TYPE

The authority type.
Possible values are:
- SYSDBADM (System DBADM)
- DBCTRL
- DBADM
- SECADM
- ACCSCTRL (ACCESSCTRL)
- SYSADMI (Installation SYSADM)
- SQLADM
- SYSCTRL
- DBMAINT
- SYSOPR
- PACKADM
- SYSOPRI (Installation SYSOPR)
- SYSADM
- DATAACCESS (DATAACCESS)
- USER

Field Name: QW0361AT

AUTHID TYPE

The authorization ID type. Possible values are:

AUTHORIZATION ID
Indicates that the authorization ID (AUTH ID) is used.

L Indicates that ROLE is used.

Field Name: QW0361IT

PRIVILEGE CHECKED

The privilege that was checked. Possible values are provided in the DB2 macro DSNRQW05.

Field Name: QW0361PR

OBJECT TYPE

The DB2 object type.
Possible values are:
- ACEE
- BUFFER (Bufferpool)
- COLLECT (Collection)
- DATABASE
- DISTTYPE (Distinct Type)
- FUNCTION
- SESSIONV (Session Variable)
Field Name: QW0361OT

AUTHORIZATION ID
The authorization ID or the role that has the authority.

Field Name: QW0361ID

SOURCE OBJ QUALIF
The source object qualifier or owner.

Field Name: QW0361SC

SOURCE OBJ NAME
The source object name.

Field Name: QW0361SN

TARGET OBJ QUALIF
The target object qualifier or owner.

Field Name: QW0361TC

TARGET OBJ NAME
The target object name.

Field Name: QW0361TN

OTHER OBJ NAME
The other object name or subsystem parameter.

Field Name: QW0361ON

SQL STATEMENT
The SQL statement (truncated at 4000 bytes).

Field Name: QW0361SQ

IFCID 362 - Start Trace and Stop Trace with Audit Policy:
This topic shows detailed information about “Record Trace - IFCID 362 - Start Trace and Stop Trace with Audit Policy”.

IFCID 362 - Start Trace and Stop Trace with Audit Policy

Record trace - IFCID 362 - Start Trace and Stop Trace with Audit Policy

The field labels shown in the following sample layout of “Record Trace - IFCID 362 - Start Trace and Stop Trace with Audit Policy” are described in the following section.

<table>
<thead>
<tr>
<th>STATUS</th>
<th>FAILED</th>
<th>TYPE</th>
<th>15138852</th>
<th>REASON CODE</th>
<th>x'00'</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2 START UP</td>
<td>N/P</td>
<td>DATABASE NAME</td>
<td>N/P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUDIT CATEGORIES:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHECKING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VALIDATE</td>
<td>x'00'</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBJMAINT</td>
<td>x'00'</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXECUTE</td>
<td>x'00'</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTENT</td>
<td>x'00'</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SECMAINT</td>
<td>x'00'</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUDIT POLICY NAME:</td>
<td>N/P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TABLE SCHEMA NAME:</td>
<td>N/P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TABLE NAME:</td>
<td>N/P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DBADM CAT VALUES:</td>
<td>N/P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLLECTION ID:</td>
<td>N/P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TABLE NAMES:</td>
<td>N/P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STATUS

Status.
Possible values are:
S Success
F Failed
Field Name: QW0362ST

TYPE

The type. It can have a value of 'S' for Start Trace.
Field Name: QW0362TY

REASON CODE

The reason code.
Field Name: QW0362RN

DB2 START UP

The DB2 start up.
Field Name: QW0362DS

DATABASE NAME

The database name.
Field Name: QW0362DB

CHECKING

The CHECKING category.
Field Name: QW0362CH

VALIDATE

The VALIDATE category.
Field Name: QW0362VA

OBJMAINT

The OBJMAINT category.
Field Name: QW0362OB
EXECUTE
The EXECUTE category.
Field Name: QW0362EX

CONTENT
The CONTEXT category.
Field Name: QW0362CX

SECMAINT
The SECMAINT category.
Field Name: QW0362SM

AUDIT POLICY NAME
The audit policy name.
Field Name: QW0362AP

TABLE SCHEMA NAME
The table schema name.
Field Name: QW0362TS

TABLE NAME
The table name.
Field Name: QW0362TB

SYSADM CAT VALUES
The SYSADMIN category values.
Field Name: QW0362SA

DBADM CAT VALUES
The DBADMIN category values.
Field Name: QW0362DA

COLLECTION ID
The collection ID.
Field Name: QW0362CO

TABLE NAMES
The list of table names traced up to 4K bytes. Each table name is mapped to field QW0362TN_Var.
Field Name: QW0362TN

IFCID 363 - Parallel Straw Model Performance Trace: IFCID 363 consists of the following data sections: QW0363 and QW0363E.

IFCID 363 - Data Section QW0363:
This topic shows detailed information about “Record Trace - IFCID 363 - Data Section QW0363”. 
Record trace - IFCID 363 - Data Section QW0363

The field labels shown in the following sample layout of "Record Trace - IFCID 363 - Data Section QW0363" are described in the following section.

### LOCATION NAME

The location name.

**Field Name:** QW0363LN

### PACKAGE NAME

The package name.

**Field Name:** QW0363PC

### PROGRAM NAME

The program name.

**Field Name:** QW0363PN

### CONSISTENCY TOKEN

The time stamp.

**Field Name:** QW0363TS

### STATEMENT NO

The statement number.

**Field Name:** QW0363SN

### QUERY BLOCK NO

The query block number.

**Field Name:** QW0363QN

### PAR. GROUP NO

The parallel group number.

**Field Name:** QW0363GN

### PLANNED DEGREE

The planned (bind time) degree.

**Field Name:** QW0363BD

### PARTITION KIND

The partition kind of the parallel.

**Field Name:** QW0363RK

### RECORDS ORDER

The record order: descending or ascending.

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECORD</td>
<td>1 OF 1</td>
</tr>
<tr>
<td>LOCATION NAME</td>
<td>STLECI</td>
</tr>
<tr>
<td>PACKAGE NAME</td>
<td>DSNTEP3</td>
</tr>
<tr>
<td>PROGRAM NAME</td>
<td>DSNTEP3</td>
</tr>
<tr>
<td>CONSISTENCY TOKEN</td>
<td>X'1846C1906E9322D'</td>
</tr>
<tr>
<td>STATEMENT NO</td>
<td>2189</td>
</tr>
<tr>
<td>QUERY BLOCK NO</td>
<td>1</td>
</tr>
<tr>
<td>PAR. GROUP NO</td>
<td>1</td>
</tr>
<tr>
<td>PLANNED DEGREE</td>
<td>2</td>
</tr>
<tr>
<td>PARTITION KIND</td>
<td>PAGE RANGE</td>
</tr>
<tr>
<td>RECORDS ORDER</td>
<td>N/P</td>
</tr>
<tr>
<td>IN MEM WORKFILE</td>
<td>N</td>
</tr>
<tr>
<td>INPUT RID IN WKF</td>
<td>N</td>
</tr>
<tr>
<td>OUTPUT RID IN WKF</td>
<td>N</td>
</tr>
<tr>
<td>TOTAL INPT ELEM #</td>
<td>4</td>
</tr>
<tr>
<td>TOTAL RECORDS #</td>
<td>0</td>
</tr>
<tr>
<td>ACTUAL USED WIOEs</td>
<td>4</td>
</tr>
<tr>
<td>PIPE DEGREE</td>
<td>2</td>
</tr>
<tr>
<td>PIPE CREATION</td>
<td>12/02/09 10:59:42.827082</td>
</tr>
<tr>
<td>PIPE TERMINATION</td>
<td>12/02/09 10:59:42.838217</td>
</tr>
<tr>
<td>PIPE ELAPSED</td>
<td>0.011135</td>
</tr>
</tbody>
</table>
Field Name: QW0363OD
IN MEM WORKFILE
  Record in memory work file.
  Field Name: QW0363IW
INPUT RID IN WKF
  Input RID in work file.
  Field Name: QW0363RI
OUTPUT RID IN WKF
  Output RID in work file.
  Field Name: QW0363RO
TOTAL INPT ELEM #
  The total number of elements.
  Field Name: QW0363NE
TOTAL RECORDS #
  The total number of records.
  Field Name: QW0363NR
ACTUAL USED WIOEs
  Number of actual elements.
  Field Name: QW0363AE
PIPE DEGREE
  The pipe degree.
  Field Name: QW0363PD
PIPE CREATION
  The start time of the pipe.
  Field Name: QW0363PS
PIPE TERMINATION
  The end time of the pipe.
  Field Name: QW0363PT
PIPE ELAPSED
  The time elapsed between the start and end time of the pipe.
  Field Name: RT0363PE

IFCID 363 - Data Section QW0363:

This topic shows detailed information about “Record Trace - IFCID 363 - Data Section QW0363E”.

WORKLOAD ELEMENT INDEX
  Identifies the number of the workload element (nth one).
  Field Name: QW0363IX
TASK NO
The task number of the subpipe index.
Field Name: QW0363PI

SUB-PIPE CREATION
The subpipe start time.
Field Name: QW0363PB

SUB-PIPE TERMINATION
The end time of the subpipe.
Field Name: QW0363PE

SUB-PIPE ELAPSED
The time elapsed between the start and end time of the subpipe.
Field Name: RT0363SE

LOW BOUND PAGE NO
The page number of low bound of logical partition.
Field Name: QW0363LP

HIGH BOUND PAGE NO
The page number of high bound of logical partition.
Field Name: QW0363HP

LOW KEY BUFFER DATA
The low key buffer.
Field Name: QW0363LB

HIGH KEY BUFFER DATA
The high key buffer.
Field Name: QW0363HB

NBR OF ROWS CONSUMED
The number of rows consumed.
Field Name: QW0363NI

NBR OF ROWS PRODUCED
The number of rows produced.
Field Name: QW0363NO

QW0363CN
This field is for IBM service.
Field Name: QW0363CN

QW0363BI
This field is for IBM service.
Field Name: QW0363BI

QW0363EI
This field is for IBM service.

**Field Name:** QW0363EI

**IFCID 365 - Remote Location Statistics:**

This topic shows detailed information about “Record Trace - IFCID 365 - Remote Location Statistics”.

IFCID 0365 records detailed statistics about the remote locations with which a DB2 subsystem communicates using the DRDA protocol. This record is written when Statistics trace class 7 is on. The DDF DATA BY LOCATION section is shown for each location with which the DB2 subsystem communicates.

**Record trace - IFCID 365 - Remote Location Statistics**

The field labels shown in the following sample layout of “Record Trace - IFCID 365 - Remote Location Statistics” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMOTE LOCATIONS STATISTICS</td>
<td></td>
</tr>
<tr>
<td>SECTIONS IN RECORD ............:</td>
<td>3</td>
</tr>
<tr>
<td>ANOTHER IFCID365 FOLLOWS ..:</td>
<td>NO</td>
</tr>
<tr>
<td>DDF DATA BY LOCATION</td>
<td></td>
</tr>
<tr>
<td>LOCATION NAME (SHORT)...........:</td>
<td>::FFFF:192.0.1.6</td>
</tr>
<tr>
<td>LOCATION NAME (LONG).............:</td>
<td>::FFFF:192.0.1.68</td>
</tr>
<tr>
<td>PRDID REMOTE LOCATION ...........:</td>
<td>JCC03610</td>
</tr>
<tr>
<td>INITIATED CONVERSATIONS...........:</td>
<td>0</td>
</tr>
<tr>
<td>INITIATED FROM REMOTE SITE........:</td>
<td>5</td>
</tr>
<tr>
<td>MESSAGES SENT TO REMOTE...........:</td>
<td>10815873</td>
</tr>
<tr>
<td>SQL STMTS SENT TO REMOTE..........:</td>
<td>0</td>
</tr>
<tr>
<td>BYTES SENT TO REMOTE.............:</td>
<td>2005200369</td>
</tr>
<tr>
<td>ROWS SENT TO REMOTE...............:</td>
<td>3612785</td>
</tr>
<tr>
<td>BLOCKS TRANSMITTED...............:</td>
<td>3684736</td>
</tr>
<tr>
<td>DEALLOCATED CONVERSATIONS..........:</td>
<td>0</td>
</tr>
<tr>
<td>MESSAGES RECV FR REMOTE..........:</td>
<td>10815887</td>
</tr>
<tr>
<td>SQL STMTS RECVD FROM REMOTE.......:</td>
<td>10540296</td>
</tr>
<tr>
<td>BYTES RECVD FROM REMOTE..........:</td>
<td>1711891973</td>
</tr>
<tr>
<td>ROWS RECVD FROM REMOTE............:</td>
<td>0</td>
</tr>
<tr>
<td>BLOCKS RECEIVED....................:</td>
<td>0</td>
</tr>
</tbody>
</table>

**SECTIONS IN RECORD**

Provides the number of QLST sections that are part of this IFCID 365 record.

**Field Name:** QW0365NO

**ANOTHER IFCID365 FOLLOWS**

This bitcounter indicates if another IFCID 365 is shown in the DB2 trace data.

**Field Name:** QW0365FL

**LOCATION NAME (SHORT)**

The name of the remote location.

**Field Name:** QLSTLOCN

**PRDID REMOTE LOCATION**

The product ID and version of the remote location.

**Field Name:** QLSTPRID

**LOCATION NAME (LONG)**

The name of the remote location.

**Field Name:** QLSTLOCN

**INITIATED CONVERSATIONS**
The number of conversations that were initiated from the requester location. This value is maintained at the requester location. This value is updated at the server location.

Field Name: QLSTCNVS

DEALLOCA TED CONVERSATIONS

The number of conversations that were deallocated from this site to the remote site.

Field Name: QLSTCNVT

INITIATED FROM REMOTE SITE

The number of conversations that were initiated at the server location.

Field Name: QLSTCNVI

MESSAGES SENT TO REMOTE

The number of messages sent to the remote location. This value is maintained at the remote location. This value is updated at the server location.

Field Name: QLSTMSGS

MESSAGES RECEIVED FROM REMOTE

The number of messages received by VTAM from the remote location. More messages might be sent from the server location than are received by the requester due to the manner in which distributed SQL statements are processed internally.

Field Name: QLSTMSGR

SQL STATEMENTS SENT TO REMOTE

The number of SQL statements sent to the remote server. This value is updated at the requester location.

Field Name: QLSTSQLS

SQL STATEMENTS RECEIVED FROM REMOTE

The number of SQL statements received from the requester location. This value is updated at the server location.

Field Name: QLSTSQLR

BYTES SENT TO REMOTE

The number of bytes of data sent to the requester location. This value is maintained at the server location.

Field Name: QLSTBYTS

BYTES RECEIVED FROM REMOTE

The number of bytes of data received from the requester location. This value is maintained at the remote location.

Field Name: QLSTBYTR
More bytes of data might be sent from the server location than are received by the requester due to the manner in which distributed SQL statements are processed internally.

Field Name: QLSTBYTR

ROWS SENT TO REMOTE

The number of data rows sent to the requester location (includes SQLDA). This value is updated at the server location.

Field Name: QLSTROWS

ROWS RETRIEVED FR REMOTE

The number of data rows received from the server location. This value is maintained at the requester location.

Note:

• This value does not include any SQLDA or SQLCA transmitted.
• Block fetch can significantly affect the number of rows sent across the network. When used with nonupdate cursors, block fetch groups as many rows as possible into the message buffer, and transmits the buffer over the network without requiring a VTAM message. Consequently, more rows of data might be sent from the server location than are received by the requester location.

This is especially true when DB2 private protocol is used because multiple blocks can be transmitted from the server with no intervening messages from the requester.

Field Name: QLSTROWR

BLOCKS TRANSMITTED

The number of blocks transmitted using block fetch. This value is maintained at the server location.

Field Name: QLSTBTBF

BLOCKS RECEIVED

The number of blocks received from the remote location using block fetch. This value is maintained at the requester location.

Field Name: QLSTBRBF

IFCID 366 - Incompatible Functions Executed:

This topic shows detailed information about “Record Trace - IFCID 366 - Incompatible Functions Executed”.

Record trace - IFCID 366 - Incompatible Functions Executed

The field labels shown in the following sample layout of “Record Trace - IFCID 366 - Incompatible Functions Executed” are described in the following section.

<table>
<thead>
<tr>
<th>COLLECTION ID</th>
<th>DSNTEP3</th>
<th>PROGRAM NAME</th>
<th>DSNTEP3</th>
<th>TYPE</th>
<th>1</th>
<th>REASON</th>
<th>V9 SYSBM.CHAR(DECIMAL-EXPR) FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>_STMT NBR QUERY</td>
<td>2819</td>
<td>SECTION</td>
<td>1</td>
<td>PLAN NAME QUERY: DSNTEP3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_STMT ID</td>
<td>2</td>
<td>_STMT TYPE</td>
<td>DYNAMIC</td>
<td>CONTOKEN (TS) : X'18CD6DAF04C72605'</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VERSION LENGTH</td>
<td>8</td>
<td>VERSION</td>
<td>VERSION1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
COLLECTION ID
The package collection ID.
Field Name: QW0366PC

PROGRAM NAME
The program name.
Field Name: QW0366PN

TYPE
The change indicator is incompatible. It can have the following values:

1. V9 SYSIBM.CHAR(decimal-expr) function
2. V9 SYSIBM.VARCHAR(decimal-expr) function. CAST (decimal as VARCHAR or CHAR)
3. Unsupported character string representation of a timestamp

1101. Insert into an XML column without XMLDOCUMENT function
1102. XPath evaluation error
1103. RLF governing
1104. Long CLIENT_ACCTNG Special Reg value
1105. Long CLIENT_APPLNAME Special Reg value
1106. Long CLIENT_USERID Special Reg value
1107. Long CLIENT_WRKSTNNAME Special Reg value
1108. Long client Special Reg value for RLF
1109. CAST(string AS TIMESTAMP)
1110. SPACE integer argument greater than 32764
1111. VARCHAR int argument greater than 32764

Note: REASON shows the description of the incompatible change indicator according to the DB2 macro. If the indicator is not known, N/A is shown in the report.

Field Name: QW0366FN

REASON
The change indicator is incompatible. It can have the following values:

1. V9 SYSIBM.CHAR(decimal-expr) function
2. V9 SYSIBM.VARCHAR(decimal-expr) function. CAST (decimal as VARCHAR or CHAR)
3. Unsupported character string representation of a timestamp

1101. Insert into an XML column without XMLDOCUMENT function
1102. XPath evaluation error
1103. RLF governing
1104. Long CLIENT_ACCTNG Special Reg value
1105. Long CLIENT_APPLNAME Special Reg value
**IFCID 366 - Incompatible Functions Executed**

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QW0366FN</td>
<td>The statement number of the query.</td>
</tr>
<tr>
<td>QW0366SN</td>
<td>The section number.</td>
</tr>
<tr>
<td>QW0366SE</td>
<td>The plan name of the query.</td>
</tr>
<tr>
<td>QW0366PL</td>
<td>The statement identifier.</td>
</tr>
<tr>
<td>QW0366SI</td>
<td>The statement information. It can be a DYNAMIC or STATIC statement.</td>
</tr>
<tr>
<td>QW0366TY</td>
<td>The consistency token is shown in hexadecimal format.</td>
</tr>
<tr>
<td>QW0366TS</td>
<td>The version length.</td>
</tr>
<tr>
<td>QW0366VL</td>
<td>The version.</td>
</tr>
</tbody>
</table>

**Note:** REASON shows the description of the incompatible change indicator according to the DB2 macro. If the indicator is not known, N/A is shown in the report.

**Field Name: QW0366FN**

**STMT NBR QUERY**

The statement number of the query.

**Field Name: QW0366SN**

**SECTION**

The section number.

**Field Name: QW0366SE**

**PLAN NAME QUERY**

The plan name of the query.

**Field Name: QW0366PL**

**STMT ID**

The statement identifier.

**Field Name: QW0366SI**

**STMT TYPE**

The statement information. It can be a DYNAMIC or STATIC statement.

**Field Name: QW0366TY**

**CONTOKEN (TS)**

The consistency token is shown in hexadecimal format.

**Field Name: QW0366TS**

**VERSION LENGTH**

The version length.

**Field Name: QW0366VL**

**VERSION**

The version.

**Field Name: QW0366VN**

**IFCID 376 - Incompatible Functions Executed:**

This topic shows detailed information about “Record Trace - IFCID 376 - Incompatible Functions Executed”.

Chapter 6. Batch reporting 4175
IFCID 376 - Incompatible Functions Executed

This trace record is written once for each unique dynamic cached statement and static statement. It is similar to IFCID 366, however IFCID 366 can be written more frequently.

Record trace - IFCID 376 - Incompatible Functions Executed

The field labels shown in the following sample layout of “Record Trace - IFCID 376 - Incompatible Functions Executed” are described in the following section.

<table>
<thead>
<tr>
<th>COLLECTION ID : NULLID</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM NAME : SYSLH200</td>
</tr>
<tr>
<td>TYPE : 1109 REASON : CAST(STRING AS TIMESTAMP)</td>
</tr>
<tr>
<td>STMT NBR QUERY : 0 SECTION : 1 PLAN NAME QUERY: DISTSERV</td>
</tr>
<tr>
<td>STMT ID : 29 STMT TYPE : DYNAMIC CONTOKEN (TS) : X '5359534C564C3031'</td>
</tr>
<tr>
<td>VERSION LENGTH : 0 VERSION : &quot;BLANK&quot;</td>
</tr>
</tbody>
</table>

-------------------------------------------------------------------------------------------------------------------------

COLLECTION ID

The package collection ID.

Field Name: QW0376PC

PROGRAM NAME

The program name.

Field Name: QW0376PN

TYPE

The change indicator is incompatible. It can have the following values:

1  V9 SYSIBM.CHAR(decimal-expr) function

2  V9 SYSIBM.VARCHAR(decimal-expr) function. CAST (decimal as VARCHAR or CHAR)

3  Unsupported character string representation of a timestamp

9  Ignore time zone in hostvar BIND in TMSTZ data type to TMS

1101 Insert into an XML column without XMLDOCUMENT function

1102 XPath evaluation error

1103 RLF governing

1104 Long CLIENT_ACCTNG Special Reg value

1105 Long CLIENT_APPLNAME Special Reg value

1106 Long CLIENT_USERID Special Reg value

1107 Long CLIENT_WRKSTNNAME Special Reg value

1108 Long client Special Reg value for RLF

1109 CAST(string AS TIMESTAMP)

1110 SPACE integer argument greater than 32764

1111 VARCHAR int argument greater than 32764

Note: REASON shows the description of the incompatible change indicator according to the DB2 macro. If the indicator is not known, N/A is shown in the report.

Field Name: QW0376FN
REASON

The change indicator is incompatible. It can have the following values:

1. V9 SYSIBM.CHAR(decimal-expr) function
2. V9 SYSIBM.VARCHAR(decimal-expr) function. CAST (decimal as VARCHAR or CHAR)
3. Unsupported character string representation of a timestamp
9. Ignore time zone in hostvar BIND in TMSTZ data type to TMS
1101. Insert into an XML column without XMLDOCUMENT function
1102. XPath evaluation error
1103. RLF governing
1104. Long CLIENT_ACCTNG Special Reg value
1105. Long CLIENT_APPLNAME Special Reg value
1106. Long CLIENT_USERID Special Reg value
1107. Long CLIENT_WRKSTNNAME Special Reg value
1108. Long client Special Reg value for RLF
1109. CAST(string AS TIMESTAMP)
1110. SPACE integer argument greater than 32764
1111. VARCHAR int argument greater than 32764

Note: REASON shows the description of the incompatible change indicator according to the DB2 macro. If the indicator is not known, N/A is shown in the report.

Field Name: QW0376FN

STMT NBR QUERY

The statement number of the query.

Field Name: QW0376SN

SECTION

The section number.

Field Name: QW0376SE

PLAN NAME QUERY

The plan name of the query.

Field Name: QW0376PL

STMT ID

The statement identifier.

Field Name: QW0376SI

STMT TYPE

The statement information. It can be a DYNAMIC or STATIC statement.

Field Name: QW0376TY

CONTOKEN (TS)
IFCID 376 - Incompatible Functions Executed

The consistency token is shown in hexadecimal format.

Field Name: QW0376TS

VERSION LENGTH
Length of version field QW0376VE.

Field Name: QW0376VL

VERSION
The version (max. 64-character string).

Field Name: QW0376VN

IFCID 369 - Aggregated Accounting Statistics:

This topic shows detailed information about “Record Trace - IFCID 369 - Aggregated Accounting Statistics”.

IFCID 369 contains aggregated Accounting data listed by connection type. It is shown at Statistics intervals, for more information refer to “Aggregated Accounting Statistics” on page 4329.

The following data sections provide information for each connection type that is listed in DATA SECTION 2 - CONNECTION TYPES:

- DATA SECTION 3: ACCOUNTING DATA - “IFCID 003 - Instrumentation Accounting Data” on page 3679
- DATA SECTION 4: ACCOUNTING DATA OVERFLOW - “IFCID 003 - Instrumentation Accounting Data Overflow” on page 3694

Record trace - IFCID 369 - Aggregated Accounting Statistics

The field labels shown in the following sample layout of “Record Trace - IFCID 369 - Aggregated Accounting Statistics” are described in the following section.

LOCATION: DDFD6Y0
GROUP: N/P
MEMBER: N/P
SUBSYSTEM: D6Y0
DB2 VERSION: V10

PRIMAUTH CONNECT CORNAME CONNPRMTR
ORIGAUTH CORRNMBR CONNTYPE

-------- -------- -------- --------
SYSSPR D6Y0 C9D72C42371F 'BLANK'
SYSSPR 'BLANK' 07:18:00.09381935 41903 1 369 AGGR ACCOUNTING NETWORKID: D6Y0 LUNAME: D6Y0 LUWSEQ: 1

TIMESTAMP WHEN ENABLED: 07/10/13 07:14:32.981817
TIMESTAMP WHEN DISABLED: 07/09/13 14:50:57.335291

-------------------------------------------------------------------------------------------------------------------------
DATA SECTION 2: CONNECTION TYPES

CONNECTION TYPE 1: UTILITY
CONNECTION TYPE 2: BATCH
CONNECTION TYPE 3: RRS/ATTACH
CONNECTION TYPE 4: DDF CONNECTION

DATA SECTION 3: ACCOUNTING DATA

ACCOUNTING DATA FOR TYPE: 1

CLASS 1 BEGINNING STORE CLOCK TIME 0/N/P ENDING STORE CLOCK TIME 01/02/00 00:00:00:19.770757
ELAPSED TIME 19.770758 MVS TCB TIME 1.138304
BEGINNING MVS TCB TIME 0.000000 ENDING MVS TCB TIME 1.138304
STORED PROC ELAPSED TIME 0.000000 CONVERSION FACTOR 0
STORED PROCEDURE TCB TIME 0.000000 PAR.TASKS: 97 PAR.TOKEN: X'00000000'
UDF ELAPSED TIME 0.000000 COMMITS: 5090 SVPT REQ.: 0
UDF TCB TIME 0.000000 ROLLBACKS: 1 SVPT RLB.: 0

4178 IBM Db2 Performance Expert on z/OS
<table>
<thead>
<tr>
<th>CLASS 1/2 STORED PROC 2 ZIP TCB TIME</th>
<th>0.000000</th>
<th>STORED PROC 2 ZIP TCB TIME</th>
<th>0.000000</th>
<th>STORED PROC CP ELAPSED TIME</th>
<th>0.000000</th>
<th>UDF NF SE CPU TIME</th>
<th>0.000000</th>
<th>UDF NF ELAPSED TIME</th>
<th>0.000000</th>
<th>UDF NF CP CPU TIME</th>
<th>0.000000</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS 2 DB2 ELAPSED TIME</td>
<td>5.573953</td>
<td>DB2 ENTRY/EXIT EVENTS</td>
<td>2512</td>
<td>TCB TIME</td>
<td>0.484220</td>
<td>NON-ZERO CLASS 2</td>
<td>YES</td>
<td>STORED PROC 2 ZIP TCB TIME</td>
<td>0.000000</td>
<td>STORED PROC 2 ZIP TCB TIME</td>
<td>0.000000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STORED PROCEDURE TCB TIME</td>
<td>0.000000</td>
<td>STORED PROCEDURE TCB TIME</td>
<td>0.000000</td>
<td>UDF SQNL ENTRY/EXIT EVENTS</td>
<td>0</td>
<td>UDF SQNL ENTRY/EXIT EVENTS</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CP CPU TIME</td>
<td>0.000000</td>
<td>CP CPU TIME</td>
<td>0.000000</td>
<td>TRIG ELAP TIME UNDER ENCLAVE</td>
<td>0.000000</td>
<td>TRIG ELAP TIME UNDER ENCLAVE</td>
<td>0.000000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TRIG TCB TIME UNDER ENCLAVE</td>
<td>0.000000</td>
<td>TRIG TCB TIME UNDER ENCLAVE</td>
<td>0.000000</td>
<td>TRIG TCB TIME UNDER ENCLAVE</td>
<td>0.000000</td>
<td>TRIG TCB TIME UNDER ENCLAVE</td>
<td>0.000000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TRIG ELAP TIME NOT UNDER ENCLAVE</td>
<td>0.000000</td>
<td>TRIG ELAP TIME NOT UNDER ENCLAVE</td>
<td>0.000000</td>
<td>TRIG ELAP TIME NOT UNDER ENCLAVE</td>
<td>0.000000</td>
<td>TRIG ELAP TIME NOT UNDER ENCLAVE</td>
<td>0.000000</td>
</tr>
<tr>
<td>CLASS 3 LOCK/LATCH(DB2+IRLM) SUSP TIME</td>
<td>N/A</td>
<td>LOCK/LATCH(DB2+IRLM) SUSP EVENTS</td>
<td>N/A</td>
<td>WAIT TIME LOCAL LOCKS</td>
<td>0.013750</td>
<td>LOCAL LOCK WAIT EVENTS</td>
<td>1B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**ACCOUNTING DATA FOR TYPE: 1**

**DATA SECTION 4: ACCOUNTING DATA OVERFLOW**

**ACCOUNTING DATA OVERFLOW FOR TYPE: 1**

**INSTRUCTION ACCOUNTING DATA OVERFLOW**

| 0.000000 | ARCH.LOG(QUIES) SUSP TIME | ARCH.LOG(QUIES) SUSP EVENTS | 0 |
| 0.000000 | ARCH.LOG(QUIES) SUSP TIME | ARCH.LOG(QUIES) SUSP EVENTS | 0 |
| 0.000000 | ACCEL. READ SUSP TIME | ACCEL. READ SUSP EVENTS | 0 |
| 0.000000 | DRAIN LOCK SUSP TIME | DRAIN LOCK SUSP EVENTS | 0 |
| 0.000000 | CLAIM RELEASE SUSP TIME | CLAIM RELEASE SUSP EVENTS | 0 |
| 0.000000 | I/O SERVICE TASK SUSP TIME | I/O SERVICE TASK SUSP EVENTS | 104 |
| 0.000000 | SYSLGRNG SUSP TIME | SYSLGRNG SUSP EVENTS | 16 |
| 0.197568 | DS MANAGER SUSP TIME | DS MANAGER SUSP EVENTS | 104 |
| 0.013491 | OTHER SERVICE SUSP TIME | OTHER SERVICE SUSP EVENTS | 24 |
| 0.000000 | ASYNCH. IXL READ, SUSP TIME | ASYNCH. IXL READ, SUSP EVENTS | 0 |
| 0.000000 | LOB COMPRESSION SUSP TIME | LOB COMPRESSION SUSP EVENTS | 0 |
IFCID 369 - Aggregated Accounting Statistics

| ARCH.LOG(QUIES) SUSP TIME | 0.000000 | ARCH.LOG(QUIES) SUSP EVENTS |

......

**TIMESTAMP WHEN ENABLED**

The timestamp shows when the IFCID 369 statistics collection was enabled.

Field Name: QW0369ST

**TIMESTAMP WHEN DISABLED**

The timestamp shows when the IFCID 369 statistics collection was disabled.

Field Name: QW0369SP

**CONNECTION TYPE I (for I = 1,..,6)**

The connection name for which Accounting data has been aggregated.

Field Name: QW0369CN

**IFCID 370 - Database Open Information:**

This topic shows detailed information about “Record Trace - IFCID 370 - Database Open Information”.

**Record trace - IFCID 370 - Database Open Information**

The field labels shown in the following sample layout of “Record Trace - IFCID 370 - Database Open Information” are described in the following section.

```
DATABASE OPEN INFORMATION
DATA SET NAME ....: DSN000B.DSNDBC.DSNDBO6.DSNAP01.10001.A001
ACE ADDRESS ......: X'160D0430'
PART NUMBER ......: X'00000001'
OPENED DATA SETS : 13

DATA SET NAME
The data set name.
Field Name: QW0370DN

FLAGS
The flags.
Field Name: QW0370FG

ACE ADDRESS
The address of the agent control element (ACE).
Field Name: QW0370AC

DATABASE ID
The database ID (DBID).
Field Name: QW0370DB

OBID
The page set OBID.
Field Name: QW0370OB

PART NUMBER
```

4180 IBM Db2 Performance Expert on z/OS
IFCID 370 - Database Open Information

The part number.
Field Name: QW0370PN

INSTANCE NUMBER
The instance number.
Field Name: QW0370IN

DSMAX
The maximum number of data sets (DSMAX).
Field Name: QW0370DM

OPENED DATA SETS
The number of opened data sets.
Field Name: QW0370DO

ALLOCATION TIME
The allocation time. It is based on the execution time of SVC 99 invoked by DSNB1OST.
Field Name: QW0370AL

OPEN TIME
The open time. It is based on the execution time of DSNB4ODS.
Field Name: QW0370OP

IFCID 371 - Database Close Information:

This topic shows detailed information about “Record Trace - IFCID 371 - Database Close Information”.

Record trace - IFCID 371 - Database Close Information

The field labels shown in the following sample layout of “Record Trace - IFCID 371 - Database Close Information” are described in the following section.

<table>
<thead>
<tr>
<th>DATABASE CLOSE INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA SET NAME ....: DSNCA10.DSNDBC.WRKDB01.WRKTS01.I0001.A001</td>
</tr>
<tr>
<td>ACE ADDRESS ....: X'16020430'</td>
</tr>
<tr>
<td>PART NUMBER ....: X'00000001'</td>
</tr>
<tr>
<td>OPENED DATA SETS : 47</td>
</tr>
<tr>
<td>DEALLOC TIME ....: 0.000424</td>
</tr>
<tr>
<td>CLOSE TIME ......: 0.002401</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FIELD NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA SET NAME</td>
</tr>
<tr>
<td>Field Name: QW0371DN</td>
</tr>
<tr>
<td>FLAGS</td>
</tr>
<tr>
<td>Field Name: QW0371DN</td>
</tr>
<tr>
<td>ACE ADDRESS</td>
</tr>
<tr>
<td>Field Name: QW0371AC</td>
</tr>
<tr>
<td>DATABASE ID</td>
</tr>
<tr>
<td>Field Name: QW0371DB</td>
</tr>
</tbody>
</table>

Chapter 6. Batch reporting  4181
IFCID 371 - Database Close Information

Field Name: QW0371DB

OBID

The page set OBID.

Field Name: QW0371OB

PART NUMBER

The part number.

Field Name: QW0371PN

INSTANCE NUMBER

The instance number.

Field Name: QW0371IN

DSMAX

The maximum number of data sets (DSMAX).

Field Name: QW0371DM

DEALLOCATION TIME

The deallocation time. It is based on the execution time of SVC 99 invoked by DSNB1CST.

Field Name: QW0371DA

CLOSE TIME

The close time. It is based on the execution time of DSNB4CDS.

Field Name: QW0371CL

OPENED DATA SETS

The number of opened data sets.

Field Name: QW0371DO

IFCID 377 - Pseudo Delete Daemon Cleanup:

This topic shows detailed information about “Record Trace - IFCID 377 - Pseudo Delete Daemon Cleanup”.

IFCID 0377 records automatic cleanup of pseudo-deleted index entries by the index pseudo-delete daemon. This record is not associated with a trace class.

Record trace - IFCID 377 - Pseudo Delete Daemon Cleanup

The field labels shown in the following sample layout of “Record Trace - IFCID 377 - Pseudo Delete Daemon Cleanup” are described in the following section.
DATABASE ID

The database ID of the index for which entries are cleaned up.

Field Name: QW0377DB

INDEX PAGE NUMBER

The page number of the index page that was cleaned up.

Field Name: QW0377PG

PARTITION NUMBER

The index partition number.

Field Name: QW0377PT

INDEX PAGE SET ID

The page set ID of the index.

Field Name: QW0377OB

PD ENTRIES REMOVED

The number of pseudo-deleted entries that were removed.

Field Name: QW0377NU

FLAG

The reason for the page removal:

- A page is deleted from an index (DB2 field: QW0377DL)
- A page is cleaned up (DB2 field: QW0377CL)

Field Name: RW0377DL

IFCID 378 - Accel. Call Event Begin:

This topic shows detailed information about “Record Trace - IFCID 378 - Accel. Call Event Begin”.

Record trace - IFCID 378 - Accel. Call Event Begin

The field labels shown in the following sample layout of “Record Trace - IFCID 378 - Accel. Call Event Begin” are described in the following section.

ACCELERATOR NAME: VMNPS14

ACCELERATOR NAME

The name of the accelerator.

Field Name: QW0378ACN
IFCID 379 - Accel. Call Event End

IFCID 379 - Accel. Call Event End:

This topic shows detailed information about “Record Trace - IFCID 379 - Accel. Call Event End”.

Record trace - IFCID 379 - Accel. Call Event End

The field labels shown in the following sample layout of “Record Trace - IFCID 379 - Accel. Call Event End” are described in the following section.

ACCELERATOR NAME: VMNPS14

ACCELERATOR NAME

The name of the accelerator.

Field Name: QW0379ACN

IFCID 380 - Stored Procedure Detail Record:

This topic shows detailed information about “Record Trace - IFCID 380 - Stored Procedure Detail Record”.

IFCID 380 (Stored procedure detail record) and IFCID 381 (UDF detail record) have the same mapping structure.

Both records are written at the beginning and the end of a stored procedure or UDF.

The first data section of IFCID 380 shows fields provided with IFCID 233. The second data section starting with CURRENT TOTAL NESTED CLASS 1 CP TIME shows additional fields for IFCID 380 and IFCID 381.

Record trace - IFCID 380 - Stored Procedure Detail Record

The field labels shown in the following sample layout of “Record Trace - IFCID 380 - Stored Procedure Detail Record” are described in the following section.

LOCATION NAME

The location name.
Field Name: QW0233LN

COLLECTION ID
The package collection identifier.
Field Name: QW0233PC

PROGRAM NAME
The program name.
Field Name: QW0233PN

SCHEMA NAME
The name of the schema associated with this routine.
Field Name: QW0233SC

ROUTINE NAME
The specific name of the routine.
Field Name: QW0233SC

VERSION NAME
The name of the version.
Field Name: QW0233PR

ROUTINE TYPE
The routine type can have the following values:

PROCEDURE
The routine is a stored procedure

FUNCTION
The routine is a User-Defined Function
Field Name: QW0233TY

CONSISTENCY TOKEN
The consistency token.
Field Name: QW0233TS

ENTRY/EXIT TYPE
The entry or exit event type can have the following values:

ENTERING
The agent is entering a routine.

RETURNED
The agent has returned from a routine.
Field Name: QW0233EX

NESTING LEVEL
The nesting level of the routine.
Field Name: QW0233NL

STATEMENT NO
The statement number of the statement executed.
Field Name: QW0233SN
IFCID 380 - Stored Procedure Detail Record

TYPE
The statement type. Possible values are DYNAMIC or STATIC.
Field Name: QW0233STY

ROUTINE ID
The routine identifier.
Field Name: QW0233RID

STATEMENT ID
The unique identifier of the currently executing statement. It is shown as an integer and in hexadecimal format.
Field Name: QW0233SID

CONV INTO HEX
The unique identifier of the currently executing statement. It is shown as an integer and in hexadecimal format.
Field Name: QW0233SID

CURRENT TOTAL NESTED CLASS 1 CP TIME
The current, total, nested class 1 CP time. This does not include time spent executing on an IBM specialty engine.
Field Name: QW0380_CLS1CP

CURRENT TOTAL NESTED CLASS 1 SE TIME
The current, total, nested class 1 specialty engine time.
Field Name: QW0380_CLS1SE

CURRENT TOTAL NESTED CLASS 2 CP TIME
The current, total, nested class 2 CP time. This is time in the DB2 processing SQL statements. This time also includes in DB2 time needed to connect and disconnect the SP task for non-SQL procedure stored procedures. This does not include time spent executing on an IBM specialty engine.
Field Name: QW0380_CLS2CP

CURRENT TOTAL NESTED CLASS 2 SE TIME
The current, total, nested class 2 specialty engine time. This is the time in DB2 processing SQL statements.
Field Name: QW0380_CLS2SE

CURRENT TOTAL NESTED ELAPSED CLASS 2 TIME
The current, total, nested elapsed class 2 time. This is the time in DB2 processing SQL statements. This time also includes in DB2 time needed to connect and disconnect the SP task for non-SQL procedure stored procedures.
Field Name: QW0380_CLS2ELAP

IFCID 381 - UDF Detail Record:
This topic shows detailed information about “Record Trace - IFCID 381 - UDF Detail Record”.

4186 IBM Db2 Performance Expert on z/OS
IFCID 380 (Stored procedure detail record) and IFCID 381 (UDF detail record) have the same mapping structure.

Both records are written at the beginning and the end of a stored procedure or UDF.

The first data section of IFCID 380 shows fields provided with IFCID 233. The second data section starting with CURRENT TOTAL NESTED CLASS 1 CP TIME shows additional fields for IFCID 380 and IFCID 381.

Record trace - IFCID 381 - UDF Detail Record

The field labels shown in the following sample layout of "Record Trace - IFCID 381 - UDF Detail Record" are described in the following section.

LOCATION NAME
The location name.

Field Name: QW0233LN

COLLECTION ID
The package collection identifier.

Field Name: QW0233PC

PROGRAM NAME
The program name.

Field Name: QW0233PN

SCHEMA NAME
The name of the schema associated with this routine.

Field Name: QW0233SC

ROUTINE NAME
The specific name of the routine.

Field Name: QW0233PR

VERSION NAME
The name of the version.

Field Name: QW0233VER

ROUTINE TYPE
The routine type can have the following values:

**PROCEDURE**
The routine is a stored procedure

**FUNCTION**
The routine is a User-Defined Function

**Field Name:** QW0233TY

**CONSISTENCY TOKEN**
The consistency token.

**Field Name:** QW0233TS

**ENTRY/EXIT TYPE**
The entry or exit event type can have the following values:

**ENTERING**
The agent is entering a routine.

**RETURNED**
The agent has returned from a routine.

**Field Name:** QW0233EX

**NESTING LEVEL**
The nesting level of the routine.

**Field Name:** QW0233NL

**STATEMENT NO**
The statement number of the statement executed.

**Field Name:** QW0233SN

**TYPE**
The statement type. Possible values are DYNAMIC or STATIC.

**Field Name:** QW0233STY

**ROUTINE ID**
The routine identifier.

**Field Name:** QW0233RID

**STATEMENT ID**
The unique identifier of the currently executing statement. It is shown as an integer and in hexadecimal format.

**Field Name:** QW0233SID

**CONV INTO HEX**
The unique identifier of the currently executing statement. It is shown as an integer and in hexadecimal format.

**Field Name:** QW0233SID

**CURRENT TOTAL NESTED CLASS 1 CP TIME**
The current, total, nested class 1 CP time. This does not include time spent executing on an IBM specialty engine.

**Field Name:** QW0380_CLS1CP
CURRENT TOTAL NESTED CLASS 1 SE TIME

The current, total, nested class 1 specialty engine time.

**Field Name:** QW0380_CLS1SE

CURRENT TOTAL NESTED CLASS 2 CP TIME

The current, total, nested class 2 CP time. This is time in the DB2 processing SQL statements. This time also includes in DB2 time needed to connect and disconnect the SP task for non-SQL procedure stored procedures. This does not include time spent executing on an IBM specialty engine.

**Field Name:** QW0380_CLS2CP

CURRENT TOTAL NESTED CLASS 2 SE TIME

The current, total, nested class 2 specialty engine time. This is the time in DB2 processing SQL statements.

**Field Name:** QW0380_CLS2SE

CURRENT TOTAL NESTED ELAPSED CLASS 2 TIME

The current, total, nested elapsed class 2 time. This is the time in DB2 processing SQL statements. This time also includes in DB2 time needed to connect and disconnect the SP task for non-SQL procedure stored procedures.

**Field Name:** QW0380_CLS2ELAP

IFCID 384 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 384 - IBM Service Record”.

This record is for IBM service use.

IFCID 385 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 385 - IBM Service Record”.

This record is for IBM service use.

IFCID 386 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 386 - IBM Service Record”.

This record is for IBM service use.

IFCID 389 - FTB Indexes:

This topic shows detailed information about “Record Trace - IFCID 389 - FTB Indexes”.

IFCID 389 traces indexes with structures for fast index traversal (FTB). This record is written when the Statistics class 8 trace is on.
### NUMBER OF INDEXES

The number of indexes with fast traversal blocks.

**Field Name**: QW0389NU

**DBID**

The database ID.

**Field Name**: QW0389DB

**PSID**

The index page set ID.

**Field Name**: QW0389OB

**PARTITION NO**

The partition number.

**Field Name**: QW0389PT

**INDEX LEVELS**

The number of index levels in the fast traversal block.

**Field Name**: QW0389LV

**FTB SIZE**

Indicates the size of the fast traversal block (FTB), in bytes.

**Field Name**: QW0389SZ

---

**IFCID 390 - IBM Service Record:**

This topic shows detailed information about “Record Trace - IFCID 390 - IBM Service Record”.

This record is for IBM service use.

**IFCID 391 - IBM Service Record:**

This topic shows detailed information about “Record Trace - IFCID 391 - IBM Service Record”.

This record is for IBM service use.
IFCID 397 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 397 - IBM Service Record”.

This record is for IBM service use.

IFCID 398 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 398 - IBM Service Record”.

This record is for IBM service use.

IFCID 399 - IBM Service Record:

This topic shows detailed information about “Record Trace - IFCID 399 - IBM Service Record”.

This record is for IBM service use.

IFCID 401 - Static Statements in EDM Pool:

This topic shows detailed information about “Record Trace - IFCID 401 - Static Statements in EDM Pool”.

IFCID 401 has READS and READA capability. It supports threshold value filtering.

Record trace - IFCID 401 - Static Statements in EDM Pool

The field labels shown in the following sample layout of “Record Trace - IFCID 401 - Static Statements in EDM Pool” are described in the following section.

<table>
<thead>
<tr>
<th>Package Name</th>
<th>CTS2HI2Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection ID</td>
<td>OMTES2</td>
</tr>
<tr>
<td>Date/Time When Inserted</td>
<td>X‘20110418104541179034’</td>
</tr>
<tr>
<td>Date/Time When Updated</td>
<td>X‘20110418112535104180’</td>
</tr>
<tr>
<td>Consistency Token</td>
<td>X’7B444D487324109’</td>
</tr>
<tr>
<td>Statement Identifier</td>
<td>132285</td>
</tr>
<tr>
<td>Eligible for Accelerator</td>
<td>YES</td>
</tr>
<tr>
<td>Nbr of Executions</td>
<td>50</td>
</tr>
<tr>
<td>Nbr of GetPages</td>
<td>0</td>
</tr>
<tr>
<td>Nbr of Sync Buffer Reads</td>
<td>0</td>
</tr>
<tr>
<td>Nbr of Rows Processed</td>
<td>0</td>
</tr>
<tr>
<td>Nbr of Sorts</td>
<td>0</td>
</tr>
<tr>
<td>Nbr of Index Scans</td>
<td>0</td>
</tr>
<tr>
<td>Nbr of Tablespace Scans</td>
<td>0</td>
</tr>
<tr>
<td>Nbr of Buffer Writes</td>
<td>0</td>
</tr>
<tr>
<td>Nbr of Par. Grops Created</td>
<td>0</td>
</tr>
<tr>
<td>Accumulated Time Values Section</td>
<td></td>
</tr>
<tr>
<td>In-dB2 Elapsed</td>
<td>N/P</td>
</tr>
<tr>
<td>Wait for Sync I/O</td>
<td>N/P</td>
</tr>
<tr>
<td>Wait for Lock/Latch</td>
<td>N/P</td>
</tr>
<tr>
<td>Sync Exec Unit Switch</td>
<td>N/P</td>
</tr>
<tr>
<td>Wait for Global Locks</td>
<td>N/P</td>
</tr>
<tr>
<td>Wait for Read by Other Thr</td>
<td>N/P</td>
</tr>
<tr>
<td>Wait for Write by Other Thr</td>
<td>N/P</td>
</tr>
<tr>
<td>Wait for Lock Req</td>
<td>N/P</td>
</tr>
<tr>
<td>Wait for Page Lock</td>
<td>N/P</td>
</tr>
<tr>
<td>Wait for Drain Lock</td>
<td>N/P</td>
</tr>
<tr>
<td>Wait for Claim Release</td>
<td>N/P</td>
</tr>
<tr>
<td>Wait for Log Writer</td>
<td>N/P</td>
</tr>
<tr>
<td>Wait Other L-Locks</td>
<td>0.100000</td>
</tr>
<tr>
<td>Wait Other L-Locks</td>
<td>N/P</td>
</tr>
<tr>
<td>Wait Page P-Locks</td>
<td>0.100000</td>
</tr>
<tr>
<td>Wait Other P-Locks</td>
<td>0.100000</td>
</tr>
<tr>
<td>Fast Insert Pipe Wait Time</td>
<td>N/P</td>
</tr>
<tr>
<td>Parent Child Wait Time</td>
<td>N/P</td>
</tr>
<tr>
<td>RID List Section</td>
<td></td>
</tr>
<tr>
<td>(HJA=Hybrid Join Append, IA=Index Access, OV=Overflow, RL=RID List)</td>
<td></td>
</tr>
<tr>
<td>Rl Not Used Limit Exceeded</td>
<td>0</td>
</tr>
<tr>
<td>Rl Not Used No Stor Avail</td>
<td>0</td>
</tr>
<tr>
<td>Rl Ov - No Pool Stor Avail</td>
<td>0</td>
</tr>
<tr>
<td>Rl Ov - Rids Exceed Limit</td>
<td>0</td>
</tr>
<tr>
<td>Hja - No Pool Stor Avail</td>
<td>0</td>
</tr>
<tr>
<td>Hja - Rids Exceed Limit</td>
<td>0</td>
</tr>
<tr>
<td>Rl Retrieval Ia Skipped</td>
<td>0</td>
</tr>
<tr>
<td>Accelerator Data</td>
<td></td>
</tr>
<tr>
<td>Accelerator Name</td>
<td>SIM35</td>
</tr>
<tr>
<td>Statement Identifier</td>
<td>985622</td>
</tr>
<tr>
<td>Accelerator Executions</td>
<td>1</td>
</tr>
<tr>
<td>Accumulated # Rows Returned</td>
<td>24</td>
</tr>
</tbody>
</table>
IFCID 401 - Static Statements in EDM Pool

Accumulated CPU Time: 0.000004
Accumulated # Bytes Returned: 150797
Accumulated Elapsed Time: 0.005998
Accumulated Execution Time: 0.138040
Accumulated Queue Wait Time: 0.000000
Wait Time for 1st Row: 0.048265

PACKAGE NAME
The package name.
Field Name: QW0401PK

COLLECTION ID
The collection ID.
Field Name: QW0401CL

DATE/TIME WHEN INSERTED
The date or time when the statement was inserted into the EDM Pool.
Field Name: QW0401TM

STORE CLOCK FORMAT
The date or time when the statement was inserted into the EDM pool (in store clock format) (DB2 field: QW0401TM2).
Field Name: RT401TM2

DATE/TIME WHEN UPDATED
The date or time when statement statistics were updated (in external format) (DB2 field: QW0401UT2).
Field Name: RT401UT2

STORE CLOCK FORMAT
The date or time when statement statistics were updated (in store clock format) (DB2 field: QW0401UT1).
Field Name: RT401UT1

CONSISTENCY TOKEN
The consistency token of the package.
Field Name: QW0401CT

STATEMENT IDENTIFIER
The statement identifier.
Field Name: QW0401ID

ELIGIBLE FOR ACCELERATOR
The statement is eligible for the execution on an accelerator (DB2 field: QW0401ELI).
Field Name: 401ELI

NBR OF EXECUTIONS
The number of executions.
Field Name: QW0401EX

NBR OF SYNC BUFFER READS
The number of synchronous buffer reads.
Field Name: QW0401SR
NBR OF GETPAGES
The number of Getpages.
Field Name: QW0401GP

NBR OF ROWS EXAMINED
The number of rows examined.
Field Name: QW0401ER

NBR OF ROWS PROCESSED
The number of rows processed.
Field Name: QW0401PR

NBR OF SORTS
The number of sorts.
Field Name: QW0401ST

NBR OF INDEX SCANS
The number of index scans.
Field Name: QW0401IX

NBR OF TABLESPACE SCANS
The number of tablespace scans.
Field Name: QW0401TB

NBR OF BUFFER WRITES
The number of buffer writes.
Field Name: QW0401WT

NBR OF PAR. GRPS CREATED
The number of parallel groups created.
Field Name: QW0401PG

IN-DB2 ELAPSED
Accumulated in-DB2 elapsed time.
Field Name: QW0401ET

IN-DB2 CPU
The accumulated in-DB2 CPU time. This time includes CPU consumed on an IBM specialty engine.
Field Name: QW0401CP

WAIT FOR SYNC I/O
The accumulated wait time for synchronous I/O.
Field Name: QW0401SI

WAIT FOR LOCK/LATCH
The accumulated wait time for locks.
Field Name: QW0401LK

SYNC EXEC UNIT SWITCH
IFCID 401 - Static Statements in EDM Pool

The accumulated wait time for synchronous execution unit switch.

**Field Name:** QW0401EU

**WT FOR GLOBAL LOCKS**

The accumulated wait time for global locks.

**Field Name:** QW0401GL

**WT FOR READ BY OTHER THR**

The accumulated wait time for a read activity done by another thread.

**Field Name:** QW0401OR

**WT FOR WRTE BY OTHER THR**

The accumulated wait time for a write activity done by another thread.

**Field Name:** QW0401OW

**WAIT FOR LATCH REQ**

The accumulated wait time for a latch request.

**Field Name:** QW0401LH

**WAIT FOR PAGE LATCH**

The accumulated wait time for a page latch.

**Field Name:** QW0401PL

**WAIT FOR DRAIN LOCK**

The accumulated wait time for a drain lock.

**Field Name:** QW0401DL

**WAIT FOR CLAIM RELEASE**

The accumulated wait time for a drain lock that is waiting for claims to be released.

**Field Name:** QW0401CM

**WAIT FOR LOG WRITER**

The accumulated wait time for a log writer.

**Field Name:** QW0401LW

**WAIT CHILD L-LOCKS**

The accumulated wait time for child L-locks for the statement.

**Field Name:** QW0401WC

**WAIT OTHER L-LOCKS**

The accumulated wait time for other L-locks for the statement.

**Field Name:** QW0401WD

**WAIT P/P P-LOCKS**

The accumulated wait time for P/P P-locks for the statement.

**Field Name:** QW0401WE

**WAIT PAGE P-LOCKS**

The accumulated wait time for page P-locks for the statement.
Field Name: QW0401WF

WAIT OTHER P-LOCKS
The accumulated wait time for other P-locks for the statement.

Field Name: QW0401WG

FAST INSERT PIPE WAIT TIME
The accumulated wait time for pipe wait.

Field Name: QW0401WH

PARENT CHILD WAIT TIME
The accumulated time waiting for parallel queries to synchronize between parent and child tasks.

Field Name: QW0401WPQS

RL NOT USED LIMIT EXCEEDED
The number of times RID list was not used because the number of:
• RIDs would have exceeded the DB2 limits
• RID blocks exceeded the value set by the MAXTEMPS_RID system parameter

Field Name: QW0401RL

RL NOT USED NO STOR AVAL
The number of time a RID list was not used because there is not enough storage available to hold the list of RIDs. This also applies if the work file storage was not available.

Field Name: QW0401RS

RL OV - NO POOL STOR AVAL
The number of times a RID list was overflowed to a work file because no RID pool storage was available to hold the list of RIDs (DB2 field: QW0401WFRIDS).

Field Name: RT401IDS

RL OV - RIDS EXCEED LIMIT
The number of times a RID list was overflowed to a work file because the number of RIDs exceeded one or more internal limits (DB2 field: QW0401WFRIDT).

Field Name: RT401IDT

HJA - NO POOL STOR AVAL
The number of times a RID list append for a hybrid join was interrupted because no RID pool storage was available to hold the list of RIDs. It shows the number of times DB2 interrupted the RID phase and switched to the data phase (DB2 field: QW0401HJINCS).

Field Name: RT401NCS

HJA - RIDS EXCEED LIMIT
The number of times a RID list append for a hybrid join was interrupted because the number of RIDs exceeded one or more internal limits. It shows
IFCID 401 - Static Statements in EDM Pool

the number of times DB2 interrupted the RID phase and switched to the data phase (DB2 field: QW0401HJINCT).

Field Name: RT401NCT

RL RETRIEVAL IA SKIPPED

The number of times a RID list retrieval for multiple index access was skipped because DB2 predetermined the outcome of index ANDing or ORing (DB2 field: QW0401RSMIAP).

Field Name: RT401IAP

ACCELERATOR NAME

The accelerator name (DB2 field: QW0401ANM).

Field Name: 401ANM

STATEMENT IDENTIFIER

The statement identifier, for correlation with IFCID 401 data section 1 (DB2 field: QW0401AID).

Field Name: 401AID

ACCELERATOR EXECUTIONS

The number of executions on this accelerator (DB2 field: QW0401AEXEC).

Field Name: 401AEXEC

ACCUMULATED # ROWS RETURNED

Shows the accumulated number of rows returned for the SELECT statement (DB2 field: QW0401AROW).

For completed queries, this is the total number of rows returned that were computed by the accelerator (this is not necessarily the number of rows returned to DB2 in case DB2 does not fetch all rows).

For in-process queries, this is the number of rows that have been sent so far (and more rows may still be coming).

This value is always set to 0 for DML statements (INSERT, UPDATE, DELETE) because these wait times do not occur for DML statements.

Field Name: 401AROW

ACCUMULATED CPU TIME

Shows the accumulated CPU time spent in the accelerator when processing the query request for the statement.

This value reflects parallel processing such that the CPU value may exceed the accumulated elapsed time (DB2 field: QW0401ACPU).

For completed queries, this is the CPU time from the initial request to the last row being returned to DB2. For in-process queries, this is the time from the initial request to the current point in time. The counter includes the CPU time spent in the accelerator and also the CPU time spent in the Netezza backend (on the coordinator node and all worker nodes).

Field Name: 401ACPU

ACCUMULATED # BYTES RETURNED

Shows the accumulated number of bytes returned for the SELECT statement (DB2 field: QW0401ABYT).
For completed queries, this is the total number of bytes returned and produced by the accelerator (this is not necessarily the total number of bytes returned to DB2 in case DB2 does not fetch all the data).

For in-process queries, this is the number of bytes that have been sent so far (and more bytes may still be coming).

This value is always set to 0 for DML statements (INSERT, UPDATE, DELETE) because no such wait times occurs.

Field Name: 401ABYT

ACCUMULATED ELAPSED TIME

Shows the accumulated elapsed time spend in the accelerator processing the query request for the statement (DB2 field: QW0401AELA).

For completed queries, this is the time from the initial request to the last row that is returned to DB2. For in-process queries, this is the time from the initial request to the current point in time.

Field Name: 401AELA

ACCUMULATED EXECUTION TIME

Shows the accumulated execution time spent in processing the query request for the statement (DB2 field: QW0401AEXE).

For completed queries, this is the time spent since starting the query execution until the query execution has finished. Subsequent processing and transfer of the result set is not included, but there may be an overlapping time window in which result set processing (fetching) and query execution takes place.

For in-process queries, it is the time measured from starting query execution inside the accelerator up to the current point in time or until query execution has finished and only result set processing and transfer remains (whichever occurs earlier).

This time is measured for the actual execution time spent for the query. Compared to the total elapsed time (QW0316AELA and QW0401AELA), it does not include any preprocessing done in the accelerator (such as PREPARE), and it does not include time spent, such as in spill-to-disk or other things, related to the final query result processing.

Field Name: 401AEXE

ACCUMULATED QUEUE WAIT TIME

Shows the accumulated queue wait time for the statement (DB2 field: QW0401AWAT).

For completed queries, this is the time that the query has spent in queues, waiting to be processed.

For in-process queries, the value is only available once the query execution itself has finished and only result processing remains. Until then, the value will be (nearly) 0.

Field Name: 401AWAT

WAIT TIME FOR DB2

Shows the total time the accelerator waited for DB2 to request query results (DB2 field: QW0401ATWDB2).
For completed queries, this is from the time when the first row of the result set was produced by the accelerator until the last row was sent to DB2. For in-process queries, it is 0 (if the accelerator has not yet computed a result row) or the time from computing the first row to the current point in time (if at least one result row is available).

This value is always set to 0 for DML statements (INSERT, UPDATE, DELETE) because these wait times do not occur for DML statements.

**Field Name:** 401ATWDB

**WAIT TIME FOR 1ST ROW**

Shows the time waited for first row of query result to be available (DB2 field: QW0401ATW1R).

For completed queries, this is the time from receiving the query in the accelerator until the first row of the result set was computed. For in-process queries, this is the time from receiving the query in the accelerator to the current point in time (if no result rows are available yet) or until the first row of the result set was computed (if at least one result row is available).

This value is always set to 0 for DML statements (INSERT, UPDATE, DELETE) because no such wait times occurs.

**Field Name:** 401ATW1R

**IFCID 402 - System Profile - Monitoring Statistics:**

This topic shows detailed information about “Record Trace - IFCID 402 - System Profile - Monitoring Statistics”.

IFCID 402 records information about any profile warnings or exception conditions that occurred during a Statistics interval. Each trace record can contain information for up to 500 unique profiles. Multiple trace records are written if profile thresholds are exceeded for more than 500 unique profiles during a given Statistics interval.

This record is written when Statistics class 4 is on.

**Record trace - IFCID 402 - System Profile - Monitoring Statistics**

The field labels shown in the following sample layout of “Record Trace - IFCID 402 - System Profile - Monitoring Statistics” are described in the following section.

<table>
<thead>
<tr>
<th>PROFILE ID</th>
<th>PROFILE ID</th>
<th>PROFILE ID</th>
<th>PROFILE ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
</tr>
<tr>
<td>C79FBDEB52B</td>
<td>N/P</td>
<td>C79FBDEB52B</td>
<td>N/P</td>
</tr>
<tr>
<td>'BLANK'</td>
<td>N/P</td>
<td>21:08:00.02150456</td>
<td>N/P</td>
</tr>
<tr>
<td>N/P</td>
<td>N/P</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>N/P</td>
<td>N/P</td>
<td>1</td>
<td>402</td>
</tr>
<tr>
<td>N/P</td>
<td>N/P</td>
<td>SYSTEM PROFILE</td>
<td>NETWORKID: VAIA</td>
</tr>
<tr>
<td>N/P</td>
<td>N/P</td>
<td>LUWSEQ: 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MONITORING STA</td>
<td></td>
</tr>
</tbody>
</table>

**PROFILE ID**

The profile ID.

**Field Name:** QW0402PI

**THR EXC TSH EXCEEDED**

---

**IFCID 401 - Static Statements in EDM Pool**

For completed queries, this is from the time when the first row of the result set was produced by the accelerator until the last row was sent to DB2. For in-process queries, it is 0 (if the accelerator has not yet computed a result row) or the time from computing the first row to the current point in time (if at least one result row is available).

This value is always set to 0 for DML statements (INSERT, UPDATE, DELETE) because these wait times do not occur for DML statements.
The accumulated counter of thread exception threshold that was exceeded.

**Field Name:** QW0402TE

**THR QUEUED/SUSP WHEN EXC TSH WAS EXCEEDED**
The accumulated counter of the thread that was queued or suspended when the thread exception threshold was exceeded.

**Field Name:** QW0402TQ

**REQUEST FAILED WHEN THR EXC TSH WAS EXCEEDED**
The accumulated counter of the request that failed when the thread exception threshold was exceeded.

**Field Name:** QW0402TF

**THR WARNING TSH BEING EXCEEDED**
The accumulated counter of thread warning threshold that was exceeded.

**Field Name:** QW0402TW

**CONNECTION EXC TSH BEING EXCEEDED**
Accumulated counter of the connection exception threshold that was exceeded.

**Field Name:** QW0402CE

**CONNECTION WARN TSH BEING EXCEEDED**
The accumulated counter of the connection warning threshold that was exceeded.

**Field Name:** QW0402CW

**IDLE THR EXC TSH BEING EXCEEDED**
The accumulated counter of the idle thread exception threshold that was exceeded.

**Field Name:** QW0402OE

**IDLE THR WARN TSH BEING EXCEEDED**
The accumulated counter of the idle thread warning threshold that was exceeded.

**Field Name:** QW0402OW

**IFCID 404 - IBM Service Record:**
This topic shows detailed information about “Record Trace - IFCID 404 - IBM Service Record”.

This record is for IBM service use.

**Record trace - IFCID 404 - IBM Service Record**
The field labels shown in the following sample layout of “Record Trace - IFCID 404 - IBM Service Record” are described in the following section.
IFCID 413 - Beginning of Wait for Pipe Suspend

IFCID 413 - Beginning of Wait for Pipe Suspend:

This topic shows detailed information about “Record Trace - IFCID 413 - Beginning of Wait for Pipe Suspend”.

This IFCID records the beginning of a wait for a pipe suspend. If Accounting class 3 or Monitor class 3 is on, or if Accounting class 8, Monitor class 8, or Monitor class 29 is on, this IFCID signals the beginning of this wait. The time spent for this wait is reported in IFCID 3 when the wait ends. MONITOR1 privilege is required for reading using the instrumentation facility interface (IFI).

Record trace - IFCID 413 - Beginning of Wait for Pipe Suspend

The field labels shown in the following sample layout of “Record Trace - IFCID 413 - Beginning of Wait for Pipe Suspend” are described in the following section.

PRC NAME: PROC1
DB ID: 0
PAGESET ID: 0
PARTITION: 0
QW0413DMS: 0
QW0413CMT: 0
QW0413LMT: 0
QW0413FL: X'0000'

PRC NAME
The procedure name that started the pipe wait.
Field Name: QW0413PN

DB ID
The database ID that started the pipe wait.
Field Name: QW0413DB

PAGESET ID
The pageset ID that started the pipe wait.
Field Name: QW0413PS

PARTITION
The partition number that started the pipe wait.
Field Name: QW0413PT

IFCID 414 - End of Wait for Pipe Suspend:

This topic shows detailed information about “Record Trace - IFCID 414 - End of Wait for Pipe Suspend”.

This IFCID records the end of the wait for pipe suspend. If Accounting class 3 or Monitor class 3 is on, or if Accounting class 8, Monitor class 8, or Monitor class 29 is on, this IFCID signals the end of this wait. The time spent for this wait is reported in IFCID 3. MONITOR1 privilege is required for reading using the Instrumentation Facility Interface (IFI).

Record trace - IFCID 414 - End of Wait for Pipe Suspend

The field labels shown in the following sample layout of “Record Trace - IFCID 414 - End of Wait for Pipe Suspend” are described in the following section.

PIPE RESUME REASON: B
QW0414FL: X'0000'

PIPE RESUME REASON
The reason why the pipe resumed.
Field Name: QW0414R

IFCID 477 - FTB IDX ALLOC:

This topic shows detailed information about “Record Trace - IFCID 477 - FTB IDX ALLOC”.

IFCID 477 shows the allocation and deallocation of structures for fast index traversal (FTB). This record is written when the performance class 4 trace is on.

Record trace - IFCID 477 - FTB IDX ALLOC

The field labels shown in the following sample layout of “Record Trace - IFCID 477 - FTB IDX ALLOC” are described in the following section.

<table>
<thead>
<tr>
<th>CONNECT</th>
<th>INSTANCE</th>
<th>END USER</th>
<th>WS_NAME</th>
<th>TRANSCNT</th>
<th>DESTNO</th>
<th>ACE</th>
<th>IFC</th>
<th>DESCRIPTION</th>
<th>DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACTION

Shows the allocation and deallocation for fast index traversal. It can have the following values:

- Create
- Free

Field Name: QW0477FL

DBID

Shows the database ID.

Field Name: QW0477DB

PSID

Shows the index page set ID.

Field Name: QW0477OB

PARTITION NO

Shows the partition number.

Field Name: QW0477PT

INDEX LEVELS

Shows the number of index levels in the fast traversal block (FTB).

Field Name: QW0477LV

FTB SIZE

Shows the size of the fast traversal block (FTB) in bytes.

Field Name: QW0477SZ

IFCID 497 - Non Nested Statement ID Record:

This topic shows detailed information about “Record Trace - IFCID 497 - Non Nested Statement ID Record”.
IFCID 497 - Non Nested Statement ID Record

IFCID 497 (Non Nested Statement ID Record), IFCID 498 (UDF Statement ID Record), and IFCID 499 (Stored Procedure Statement ID Record) have the same mapping structure comprising two data sections.

Record trace - IFCID 497 - Non Nested Statement ID Record

The field labels shown in the following sample layout of “Record Trace - IFCID 497 - Non Nested Statement ID Record” are described in the following section.

IFCID 498 - UDF Statement ID Record:

This topic shows detailed information about “Record Trace - IFCID 498 - UDF Statement ID Record”.

IFCID 497 (Non Nested Statement ID Record), IFCID 498 (UDF Statement ID Record), and IFCID 499 (Stored Procedure Statement ID Record) have the same mapping structure comprising two data sections.

Record trace - IFCID 498 - UDF Statement ID Record

The field labels shown in the following sample layout of “Record Trace - IFCID 498 - UDF Statement ID Record” are described in the following section.
REASON IFCID WAS EXTERNALIZED

Identifies the reason why this IFCID was externalized.

Field Name: QW0499RS

STATEMENT ID

The unique statement identifier. It is shown as an integer and in hexadecimal format.

Field Name: QW0499SID

CONV INTO HEX

The unique statement identifier. It is shown as an integer and in hexadecimal format.

Field Name: QW0499SID

EXECUTIONS

The number of executions.

Field Name: QW0499NEC

TYPE

The statement type. Possible values are DYNAMIC or STATIC. In addition, the statement type of IFCID 499 can also have the values STATIC CALL or DYNAMIC CALL.

Field Name: QW0499STY

IFCID 499 - Stored Procedure Statement ID Record

This topic shows detailed information about “Record Trace - IFCID 499 - Stored Procedure Statement ID Record”.

IFCID 497 (Non Nested Statement ID Record), IFCID 498 (UDF Statement ID Record), and IFCID 499 (Stored Procedure Statement ID Record) have the same mapping structure comprising two data sections.

Record trace - IFCID 499 - Stored Procedure Statement ID Record

The field labels shown in the following sample layout of “Record Trace - IFCID 499 - Stored Procedure Statement ID Record” are described in the following section.
IFCID 499 - Stored Procedure Statement ID Record

Identifies the reason why this IFCID was externalized.

Field Name: QW0499RS

STATEMENT ID

The unique statement identifier. It is shown as an integer and in hexadecimal format.

Field Name: QW0499SID

CONV INTO HEX

The unique statement identifier. It is shown as an integer and in hexadecimal format.

Field Name: QW0499SID

EXECUTIONS

The number of executions.

Field Name: QW0499NEC

TYPE

The statement type. Possible values are DYNAMIC or STATIC. In addition, the statement type of IFCID 499 can also have the values STATIC CALL or DYNAMIC CALL.

Field Name: QW0499STY

The Record Trace File Data Set and Output Records

The record trace file data set is a sequential data set of formatted records suitable for loading into the performance database using the DB2 load utility and from which reports can be produced using a reporting facility such as Query Management Facility (QMF).

The output of the FILE subcommand is a sequential variable blocked data set. The content of the output data set is determined by the FILE command options you specify, and by the input SMF/GTF records processed.

This data set contains SQL statement records and RID pool records.

Descriptions of the Record Trace File data sets and the fields contained can be found in the RKO2SAMP library under the following names:

DGONDFMB
For Minibind (IFCID 022) records

DGONDFSQ
For SQL Statement (IFCID 063) records

DGONDFSE
For Sort End (IFCID 096) records

DGONDFRP
For RID Pool (IFCID 125) records

DGONDFDL
For Deadlock (IFCID 172) records

DGONDFTI
For Timeout (IFCID 196) records
SQL Activity Report Set

These topics provide information about the SQL activity reports.

Note:
1. Refer also to the sections of [Reporting User’s Guide] that deal with SQL Activity.
2. For an introduction to the SQL Activity report set and general SQL Activity information refer to the [Reporting User’s Guide].

Introduction to the SQL Activity Report Set

The SQL Activity report set consists of reports and traces and provides information on the SQL activity taking place during the processing of a DB2 application. The reports show the processing of an SQL statement and all the related DB2 activity, known as workload, related to that statement.

Also included in these reports are trigger and nesting level information. When the appropriate IFCID 003 is present, Accounting Trace is also reported.

In most situations, an SQL Activity trace gives details on either a DB2 thread or part of a reused thread between two signons. In CP query and sysplex query parallelism, an originating thread and multiple parallel threads are created to execute an SQL statement. Data from parallel threads can also be included in the originating thread if you specify an INPUTDD containing the relevant data in your JCL. The term thread is used to include the originating and the parallel threads. The trace is a collection of threads presented in logical unit of work ID (LUWID) sequence with an index to help you find a particular thread.

An SQL Activity report is an aggregation of threads ordered by the combination of OMEGAMON for Db2 PE identifiers you specify. If you specify no OMEGAMON for Db2 PE identifiers with ORDER, the default order of PRIMAUTH and PLANNAME is used. The report is a summary of all the work belonging to, and ordered by, those identifiers.

The following information is collected for each thread provided that the appropriate IFCIDs are available:

- Thread identification (OMEGAMON for Db2 PE identifiers, DB2 logical unit of work ID (LUWID), CICS logical unit of work ID (LUWID), ACE, thread start and stop time, thread type, and location)
- Programs (DBRMs and packages), stored procedures, cursors used, UDF, and triggers.
- SQL statements executed within the thread with their workload detail
- Events and time spent in DDF processing
- Time spent in signon processing
- Time spent creating and terminating threads
- Time spent in autobind processing
- Accounting information
You can control the level of summarization, the sorting of events, and the workload detail within a unit of reporting.

### Explanation of short and long fields

To improve the evaluation of SQL activities, DB2 supports both, short and long fields. If the field value exceeds the available field length (such as long values in the header information), the string is truncated, depending on the space available. Truncated values are then listed at the end of each logical report unit, together with their full values.

A "greater than" sign (>) indicates whether a value is truncated. When a value is truncated, the "greater than" sign (>) is printed instead of a colon (:) following the label name. The full value starts with a "greater than" sign followed by the label. For example:

```
Tname  > This value is truncated
...

>Tname : This value was truncated - now you see its full length
...
```

If truncated values are listed, the "greater than" sign (>) is shown at the end of each value, because there is no colon (:) as a delimiter between the label and the value. In lists the label is used as a column heading.

**Note:** The mapping between truncated and full values remains the same for multiple reports from the same input data. This mapping is not supported for multiple reports from different input data. The printing of abbreviations and full text can cause inaccurate results in Batch SQL Activity output.

Here are examples of SQL Activity layouts with truncated values:

**SQL Activity - Minibind:**

```
ACCESS_CREATOR  ACCESS_NAME  MATCHCOLS  INDEXONLY  PREFETCH_INDEX  OPERATION  MIXOSEQ
TDK_LONG>  IX_OMPE_FIRST_LONG>  0  YES  SEQUENTIAL  SCAN  1
...
>ACCESS_CREATOR : TDK_LONG_NAMED_COLLECTION_FOR_LONG_NAMED_OBJECTS
>ACCESS_NAME : IX_OMPE_FIRST_LONG_NAMED_TABLE_FOR_UNCOMMITTED_READ
```

**SQL Activity trace, where WSNAME and TRANSACT, and the OMEGAMON for Db2 PE identifiers, PRIMAUTH and ORIGAUTH, are truncated.**

```
LOCATION: OMPDBZ4
GROUP: DBZ4
MEMBER: S242
SUBSYSTEM: S242
DB2 VERSION: V10

PRIMAUTH> cccccccc CONNECT : BATCH CORRNAME: YCLO6287 CONNTYPE: TSO
ORIGAUTH> cccccccc PLANNAME: DSNTIA10 CORRNRBR: 'BLANK' THTYYPE: ALLIED
>ENDUSER : cccccccc WSNAME : dddddddd TRANSACT: eeeeeeeeeeeeeeeeeeeeeeeeeeeeee
```

**General SQL Activity Information**

Here you find information common to all SQL Activity reports and traces.
Explanation of short and long fields

To improve the evaluation of SQL activities, DB2 supports both, short and long fields. If the field value exceeds the available field length (such as long values in the header information), the string is truncated, depending on the space available. Truncated values are then listed at the end of each logical report unit, together with their full values.

A "greater than" sign (>) indicates whether a value is truncated. When a value is truncated, the "greater than" sign (>) is printed instead of a colon (:) following the label name. The full value starts with a "greater than" sign followed by the label.

For example:

```
Tname  > This value is truncated
...
> Tname : This value was truncated - now you see its full length
...
```

If truncated values are listed, the "greater than" sign (>) is shown at the end of each value, because there is no colon (:) as a delimiter between the label and the value. In lists the label is used as a column heading.

**Note:** The mapping between truncated and full values remains the same for multiple reports from the same input data. This mapping is not supported for multiple reports from different input data. The printing of abbreviations and full text can cause inaccurate results in Batch SQL Activity output.

Here are examples of SQL Activity layouts with truncated values:

- **SQL Activity - Minibind:**
  
<table>
<thead>
<tr>
<th>ACCESS_CREATOR</th>
<th>ACCESS_NAME</th>
<th>MATCHCOLS</th>
<th>INDEXONLY</th>
<th>PREFETCH_INDEX</th>
<th>OPERATION</th>
<th>MIXOPSEQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDK_LONG&gt;</td>
<td>IX_OMPE_FIRST_LONG&gt;</td>
<td>0</td>
<td>YES</td>
<td>SEQUENTIAL</td>
<td>SCAN</td>
<td>1</td>
</tr>
</tbody>
</table>
  ...

  > ACCESS_CREATOR : TDK_LONG.NAMED_COLLECTION.FOR_LONG.NAMED.OBJECTS
  > ACCESS_NAME : IX_OMPE_FIRST_LONG.NAMED_TABLE.FOR_UNCOMMITTED_READ
  
- **SQL Activity trace, where WSNAME and TRANSACT, and the OMEGAMON for Db2 PE identifiers, PRIMAUTH and ORIGAUTH, are truncated:**

  LOCATION: OMPDBZ4
  OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAM)  SQL ACTIVITY - TRACE  PAGE: 1-1
  REQUESTED FROM: NOT SPECIFIED
  TO: NOT SPECIFIED
  ACTUAL FROM: 12/17/15 08:54:37.74

<table>
<thead>
<tr>
<th>PRIMAUTH&gt;</th>
<th>ORIGAUTH&gt;</th>
<th>ENDUSER</th>
<th>WSNAME</th>
<th>TRANSACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>cccccccc</td>
<td>cccccccc</td>
<td>cccccccc</td>
<td>ddddddd</td>
<td>eeeeeeeeee</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

  **Summarization:**

  When you summarize statements, statements with similar characteristics are merged into a single record. As an example, if you were to summarize by statement number and you had 3 occurrences of statement 777, one of 778 and four of 779 in the same package, one for each statement number would be created.

  You can summarize the SQL events by any combination of:
SQL Activity Report

Cursor
Statements with the same cursor name in the same DBRM or package name are grouped into one record.

Occurrence
All SQL statement occurrences are shown as separate records. Statements are not merged. This is valid for traces only, and is the default. When summarization by occurrence is shown, the nesting level of the trigger or user-defined function is also shown.

Program
Statements with the same DBRM or package name are grouped into one record. This is the default for reports.

Statement number
Statements with the same statement number in the same DBRM or package name are grouped into one record.

Statement type
Statements of the same statement type are grouped into one record.

SQL Activity trace automatically includes a summary by thread and, if there is more than one thread per location, a summary by location.

Note:
1. The statement number is printed in a summary by cursor if an SQL statement does not include the cursor name, or if summarization by cursor is not appropriate for that statement. The following SQL statements are not summarized by cursor:
   - CALL
   - DELETE (noncursor or noncurrent of cursor)
   - DESCRIBE
   - INSERT
   - PREPARE
   - SQL COMMIT
   - SQL ROLLBACK
   - SQL statement at application requester using DRDA
   - UPDATE (noncursor or noncurrent of cursor).
   In a summary by cursor, these statements are organized by the statement number.

2. The statement type is printed in a summary by cursor and a summary by statement number if an SQL statement does not include the statement number or cursor name.

3. If DDL and DCL statements are present in a summary by cursor or a summary by statement number, they are organized by statement type.

SQL Activity prints all the SQL it receives. If some SQL cannot be summarized at the requested level, it is presented in the closest possible summary format.

Sorting:

This topic explains how to sort events in a summarized report or trace.

They can be sorted by:
- Average elapsed time
• Average TCB time
• Default
• Exits
• Exit time
• I/O requests
• I/O time
• Lock suspensions
• Lock suspension time
• Number of scans
• Pages scanned
• Records sorted
• Rows processed
• Sort workfiles

If DEFAULT is used, the sort order is dictated by the summarization, as follows:

**Cursor**
Sorted in alphabetical order within program

**Occurrence**
Sorted in timestamp order (trace default)

**Program**
Sorted in alphabetical order of package or DBRM name (report default)

**Statement number**
Sorted in numerical order within program

**Statement type**
Sorted in alphabetical order.

**Workload Detail:**

The workload figures are applied to the event being summarized.

Any combination of the following workload detail can be requested:

• Accounting, see 2 on page 4210
• All
• Data capture activity
• Exit activity
• I/O activity
• Locking activity
• Minibind, see 3 on page 4210
• None
• Scan, RID list, and query parallelism activity
• Sort activity
• UDF, see 4 on page 4210
• Vars
• Workload highlights

None is the default.
SQL Activity Report

Note:
1. The amount of processing required depend on the level of detail you request. IBM recommends that you do not specify WORKLOAD(ALL) with a large amount of input data unless absolutely necessary.
2. When IFCID 003 is included in the input, Accounting Trace activity is automatically included as part of the workload detail.
3. When IFCID 022 is included in the input, minbind activity is included automatically as part of the workload detail.
4. When IFCID 324 is included in the input, UDF activity is automatically included as part of the workload detail.

Headers Used in SQL Activity:

A header is printed at the top of every SQL Activity trace, report, and index page.

The following topics provide additional information:
- "SQL Activity Report Header" on page 4212
- "SQL Activity Trace Header" on page 4213
- "SQL Activity Trace Index Header" on page 4213

The report headers contain the standard OMEGAMON for Db2 PE header information and the following additional data:

SORTED BY
The event by which the report or trace is sorted, which can be the default or as specified in the SORTBY option.

WITH detail WORKLOAD
The workload details included in the report or trace as specified in the WORKLOAD option.

OMEGAMON for Db2 PE identifiers
The identifiers define the order of the SQL Activity data printed. If you specify no OMEGAMON for Db2 PE identifiers with ORDER, the default order of PRIMAUTH-PLANNAME is used.

TRACE #
Each trace occurrence and thread within the TRACE subcommand is numbered sequentially in the format x.yyyy, where:
- x can be 1 through 5, representing the five TRACE subcommands
- yyyyy can be 1 through 99 999, representing each thread being traced.

DB2 LUWID
The identifier of the logical unit of work. The following parts of this identifier are printed:
- The network ID
- The name of the logical unit, which is the name by which VTAM recognizes the DB2 subsystem
- The instance number

ACE ADDRESS
The agent control element absolute address in hexadecimal.

START TIME
The timestamp showing when the startup of the thread ended or, if the REQUESTED FROM time is after the thread begin, the REQUESTED FROM timestamp.
START ELAPSED
The thread start elapsed time, if calculable.

START REASON
The event that started the thread:
• CREATE THREAD
• CREATE DBAT
• NEW USER
• RESIGNON
• IN PROGRESS, no thread start IFCID present.

STOP TIME
The timestamp showing when the thread stopped or, if the REQUESTED TO time is after the thread end, the REQUESTED TO timestamp.

STOP ELAPSED
The thread stop elapsed time, if calculable.

STOP REASON
The event that stopped the thread:
• TERMINATE THREAD
• DEALLOCATE DBAT
• NEW USER
• RESIGNON
• ACCOUNTING FOUND—the thread terminated with the accounting record
• LOCATION CHANGED—the thread was terminated due to a location change
• END OF FILE—the thread was terminated because there were no records left to process.

START AET
The average thread start elapsed time.

STOP AET
The average thread stop elapsed time.

AUTOBIND AET
The average autobind elapsed time, if present.

ARCHIVE LOG AET
The average archive log (quiesce) elapsed time, if present.

Explanation of short and long fields

To improve the evaluation of SQL activities, DB2 supports both, short and long fields. If the field value exceeds the available field length (such as long values in the header information), the string is truncated, depending on the space available. Truncated values are then listed at the end of each logical report unit, together with their full values.

A "greater than" sign (>) indicates whether a value is truncated. When a value is truncated, the "greater than" sign (>) is printed instead of a colon (:) following the label name. The full value starts with a "greater than" sign followed by the label.
For example:
SQL Activity Report

This is an example of the SQL Activity report header.

SUMMARIZED BY PROGRAM

<table>
<thead>
<tr>
<th>EVENT</th>
<th>COUNT</th>
<th>TOTAL ELAPSED</th>
<th>TOTAL TCB</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSTAT</td>
<td>1</td>
<td>0.124457</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PACKAGE_TOUR_OFFER</td>
<td>1</td>
<td>0.078445</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The mapping between truncated and full values remains the same for multiple reports from the same input data. This mapping is not supported for multiple reports from different input data. The printing of abbreviations and full text can cause inaccurate results in Batch SQL Activity output.
SQL Activity Report

SQL Activity Trace Header:

This section introduces the header of the SQL Activity trace.

SQL Activity Trace Header

Here is an example of an SQL Activity trace header.

LOCATION: DSNAPC3  
GROUP: GROUP_1  
MEMBER: MEMBER_1  
SUBSYSTEM: APC3  
DB2 VERSION: V10  

SUMMARIZED BY OCCURRENCE  

PRIMAUTH: XXASP09  
CONNECT: BATCH  
CORNAME: XXASP09F  
CONNTYPE: TSO  

ORIGAUTH: XXASP09  
PLANNAME: LOCURHL  
CORRMBR: 'BLANK'  
THRTYPE: ALLIED  
ENUSER: 123456789012345678  
WSNAME: 123456789012345678  

The SQL Activity Report

This topic shows examples of SQL Activity reports and the commands used to generate them.

These example reports are summarized and sorted at the following levels:

- All
- Cursor
- Statement ID
- Statement number
- Statement type
- Program
- Thread

The SQL Activity report groups SQL Activity according to a combination of up to three OMEGAMON for Db2 PE identifiers. This grouping is applied to any SUMMARIZEBY, SORTBY, or WORKLOAD options you specify.

The ORDER subcommand specifies by which OMEGAMON for Db2 PE identifiers, and in which order, the SQL Activity is reported. If you specify no OMEGAMON for Db2 PE identifiers with ORDER, the default order of PRIMAUTH and PLANNAME is used.

Examples of an SQL Activity Report:

This topic shows examples of an SQL Activity report.

"Summarized by Statement Number" on page 4214 to "Summarized by Statement Type" on page 4216 show excerpts of an SQL Activity report summarized by all. The layout of the report is similar for each of the possible summary levels. The order is plan name within primary authorization ID, by default.
Summarized by Statement Number

This summary level presents totals for each statement number belonging to the selected combination of OMEGAMON for Db2 PE identifiers. The events are qualified by package name.

By default, the package names are sorted alphabetically and the statement numbers within packages are sorted numerically, in ascending order.

Note: Not every statement can be summarized by statement number. DDL, for example, has no statement numbers. An event name is chosen from the closest possible level of summarization, which is the statement type LOCK in this example.

The following command produces an SQL Activity report summarized by Statement Number:

```
SQLACTIVITY
REPORT
SUMMARIZE BY (STMTNO)
```

This is an example for an SQL Activity report summarized by statement number.

---

Summarized by Cursor

This summary level shows totals for each cursor name belonging to the selected combination of OMEGAMON for Db2 PE identifiers that are qualified by package name. By default, the package names and the events within each package are sorted alphabetically.

This is an example for an SQL Activity report summarized by cursor.

---

IBM Db2 Performance Expert on z/OS
SQL Activity Report

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQL ACTIVITY REPORT COMPLETE</td>
<td></td>
</tr>
</tbody>
</table>

**Summarized by Program**

This summary level presents totals for all programs belonging to the selected combination of OMEGAMON for Db2 PE identifiers. Package names are embedded in the summary details.

This is an example for an SQL Activity report summarized by program.

```
LOCATION: SYS1DSN2
OMEGamon XE FOR DB2 PERFORMANCE EXPERT (V5R6M0)
GROUP: DSN2
MEMBER: SE11
SUBSYSTEM: SE11
DB2 VERSION: V10
SUMMARIZED BY PROGRAM
PRIMAUTH: WRL EVENT
PLANNAME: PARALCPU COUNT AET/OCCUR TCB/OCCUR
TO: PARALCPU TOTAL TCB AET/EVENT TCB/EVENT
DETAIL

<table>
<thead>
<tr>
<th>PRIMAUTH-PLANNAME</th>
<th>COUNT</th>
<th>AET/OCCUR</th>
<th>TCB/OCCUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMODA11GANZLANGE.DSNADM.DSNADMCD.XE</td>
<td>1</td>
<td>0.000842</td>
<td>0.000058</td>
</tr>
<tr>
<td>SYS1DSN2.PARAL.PARALC01.XE</td>
<td>1</td>
<td>0.000014</td>
<td>0.000000</td>
</tr>
</tbody>
</table>
```

**Summarized by Statement ID**

This summary level groups statements by ID.

The following command produces an SQL Activity report summarized by ID:

```sql
SQLACTIVITY
REPORT
SUMMARIZE BY (STMTID)
```

This is an example for an SQL Activity report summarized by ID.

```
LOCATION: SYS0BZE
OMEGamon XE FOR DB2 PERFORMANCE EXPERT (V5R6M0)
GROUP: DSN2
MEMBER: SE11
SUBSYSTEM: SE11
DB2 VERSION: V10
SUMMARIZED BY STMTID
PRIMAUTH: BBE EVENT
PLANNAME: DISTSERV COUNT AET/OCCUR TCB/OCCUR
TO: DISTSERV TOTAL TCB AET/EVENT TCB/EVENT
DETAIL

<table>
<thead>
<tr>
<th>PRIMAUTH-PLANNAME</th>
<th>COUNT</th>
<th>AET/OCCUR</th>
<th>TCB/OCCUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMODA11GANZLANGE.DSNADM.DSNADMCD.XE</td>
<td>1</td>
<td>0.000842</td>
<td>0.000058</td>
</tr>
</tbody>
</table>
```

Chapter 6. Batch Reporting 4215
Summarized by Statement Type

This summary level shows totals for each cursor name belonging to the selected combination of OMEGAMON for Db2 PE identifiers that are qualified by package name. By default, the package names and the events within each package are sorted alphabetically.

This is an example for an SQL Activity report summarized by statement type.

Summarized by Thread

This summary level presents totals for each statement type executed by this combination of OMEGAMON for Db2 PE identifiers. By default, the events are sorted alphabetically. There is no further qualification at this level.

This is an example for an SQL Activity report summarized by thread.
Example of an SQL Activity Report with Workload:

The following examples show excerpts of an SQL Activity report with workload detail.

They are generated by the following command:

```
SQLACTIVITY REPORT
SUMMARIZE BY (ALL)
WORKLOAD (ALL)
```

Summarized by Statement Number, with All Workload

This page of the report shows the summary by statement number for primary authorization ID WRL and plan name DSNESPRR for location SYS1DSN2. It includes all workload contained in the input.

### Report Details

**Location:** SYS1DSN2  
**Workload:** DSNESM68  
**Statement Number:** 119  
**User:** CURSOR: C1  
**Start Time:** 01/30/15 11:36:56.45  
**Stop Time:** 01/30/15 11:37:03.28  
**Start Reason:** IN PROGRESS  
**Stop Reason:** END OF FILE

---

**SQL Activity Report**

<table>
<thead>
<tr>
<th>Event</th>
<th>Count</th>
<th>Total Elaps</th>
<th>Total TCB</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>X'4B7EAC08924'</td>
<td>1</td>
<td>6.823537</td>
<td>0.025761</td>
<td>STMTTYPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CREATE</td>
</tr>
</tbody>
</table>

---

**Location:** SYS1DSN2  
**Group:** DSN2  
**Member:** SE21  
**Subsystem:** SE21  
**DB2 Version:** V10  
**DB2 LUWID:** DEBIMPS.IPUAWDL2.X'C4B7EAC08924'  
**ACE Address:** X'1A558F8'  
**Start Time:** 01/30/15 11:36:56.45  
**Stop Time:** 01/30/15 11:37:03.28  
**Start Reason:** IN PROGRESS  
**Stop Reason:** END OF FILE

---

**Activity Report with WRL**

<table>
<thead>
<tr>
<th>Event</th>
<th>Planname</th>
<th>DB2</th>
<th>Workload</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td># 119</td>
<td>X'4B7EAC08924'</td>
<td>1</td>
<td>6.823537</td>
<td>0.025761</td>
</tr>
<tr>
<td># 193</td>
<td>X'C1217F'</td>
<td>1</td>
<td>6.823537</td>
<td>0.025761</td>
</tr>
</tbody>
</table>

---

**Database Activity Report**

<table>
<thead>
<tr>
<th>Database</th>
<th>Member</th>
<th>Type</th>
<th>Scan</th>
<th>Process</th>
<th>EXAMINE</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>INSERTS</th>
<th>UPDATES</th>
<th>DELETES</th>
<th>Scanned</th>
<th>Scans</th>
<th>Deletes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN0806</td>
<td>SE21</td>
<td>INOX</td>
<td>70</td>
<td>70</td>
<td>0</td>
<td>70</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>164</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>DSN0806</td>
<td>SE21</td>
<td>SYSOB</td>
<td>46</td>
<td>46</td>
<td>46</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>46</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>DSN0806</td>
<td>SE21</td>
<td>SEQD</td>
<td>116</td>
<td>116</td>
<td>46</td>
<td>70</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>210</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

---

**SQL Activity Report**

<table>
<thead>
<tr>
<th>Database</th>
<th>Member</th>
<th>Type</th>
<th>Scan</th>
<th>Process</th>
<th>EXAMINE</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>INSERTS</th>
<th>UPDATES</th>
<th>DELETES</th>
<th>Scanned</th>
<th>Scans</th>
<th>Deletes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSN0804</td>
<td>SE21</td>
<td>SEED</td>
<td>6</td>
<td>31</td>
<td>31</td>
<td>31</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>24</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>DSN0804</td>
<td>SE21</td>
<td>SEED</td>
<td>6</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>24</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

---

Chapter 6. Batch reporting 4217
SQL Activity Report

--- LOCK SUSPENSION ACTIVITY

--- RESOURCE NAME

MEMBER: DSNB04
PRIMAUTH: DB2

--- NBLOCK ACTIVITY

--- PLAN PROCESSES

--- DATABASE PAGE SET ACTIVITY

--- SUMMARY ACTIVITY

SUMMARIZED BY CURSOR, WITH ALL WORKLOAD

This page of the report shows the summary by cursor for primary authorization ID WRL and plan name DSNESPRR for location SYS1DSN2. It includes all workload contained in the input.

--- LOCK SUSPENSION ACTIVITY

--- RESOURCE NAME

MEMBER: DSNB04
PRIMAUTH: DB2

--- NBLOCK ACTIVITY

--- PLAN PROCESSES

--- DATABASE PAGE SET ACTIVITY

--- SUMMARY ACTIVITY

SUMMARIZED BY CURSOR, WITH ALL WORKLOAD

This page of the report shows the summary by program for primary authorization ID WRL and plan name DSNESPRR for location SYS1DSN2. It includes all workload contained in the input.
### SQL Activity Report

#### Summarized by Statement Type, with All Workload

This page of the report shows the summary by statement type for primary authorization ID WRL and plan name DSNESPRR for location SYS1DSN2. It includes all workload contained in the input.

**Location:** SYS1DSN2  
**Group:** DSN2  
**Member:** SE21  
**Subsystem:** SE21  
**DB2 Version:** V10

**Summary:**
- **DB2** Activity: Report
- **Requested From:** Not Specified
- **Actual From:** 01/10/15 07:05:37.58
- **To:** 01/30/15 07:05:37.61
- **Page:** 2-8

---

### Summary

**Location:** SYS1DSN2  
**Group:** DSN2  
**Member:** SE21  
**Subsystem:** SE21  
**DB2 Version:** V10

**Summary:**
- **DB2** Activity: Report
- **Requested From:** Not Specified
- **Actual From:** 01/10/15 07:05:37.58
- **To:** 01/30/15 07:05:37.61
- **Page:** 2-8

---

### Resource Suspension Activity

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Type</th>
<th>Request</th>
<th>Local Latch</th>
<th>IRLMQ</th>
<th>Notif</th>
<th>Other Count</th>
<th>AET Count</th>
<th>AET Count</th>
<th>AET Count</th>
<th>AET Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/P</td>
<td>N/P</td>
<td>CHANGE</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.09668</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>SE21</td>
<td>N/P</td>
<td>LOCK</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0.14444</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>SE21</td>
<td>N/P</td>
<td>LOCK</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0.59516</td>
<td>1</td>
<td>72.48444</td>
</tr>
<tr>
<td>SE21</td>
<td>N/P</td>
<td>LOCK</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0.07087</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>SE21</td>
<td>N/P</td>
<td>LOCK</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0.00026</td>
<td>0</td>
<td>N/C</td>
</tr>
</tbody>
</table>

---

### Lock & Row Locking

<table>
<thead>
<tr>
<th>Membership</th>
<th>Database</th>
<th>PageSet</th>
<th>Count</th>
<th>Lock</th>
<th>Maximum Page</th>
<th>Row Locks Held</th>
<th>Lock Escalation</th>
<th>Shared</th>
<th>Exclusive</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE21</td>
<td>DSNB04</td>
<td>DG071JSL</td>
<td>2</td>
<td>PAGE</td>
<td>1</td>
<td>X</td>
<td>SIMPL NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE21</td>
<td>DSNB04</td>
<td>DG071JSL</td>
<td>2</td>
<td>PAGE</td>
<td>1</td>
<td>X</td>
<td>SIMPL NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE21</td>
<td>DSNB06</td>
<td>SYSDATE</td>
<td>2</td>
<td>TABLE</td>
<td>0</td>
<td>IS</td>
<td>SIMPL NO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Scan Activity

<table>
<thead>
<tr>
<th>Database</th>
<th>PageSet</th>
<th>Scans</th>
<th>Process</th>
<th>Examine</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Inserts</th>
<th>Updates</th>
<th>Deletes</th>
<th>Scanned</th>
<th>Scans Deletes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE21</td>
<td>DG071JSL</td>
<td>2</td>
<td>11</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

---

### Workload Highlight

**Scans:** 8  
**Recs/Sort:** 3.00  
**I/O Reqs:** 1  
**Suspects:** 1  
**Exits:** 2  
**AMS:** 1  
**Workload:** 8  
**Prepare:** 2.00  
**Sort:** 1.374752  
**AM:** 0.094745  
**Continue:** 2  
**Reject:** 2  
**Degree Reduction:** 3  
**Lock Conversion:** 0  
**Total:** 2  
**DB2:** Activity: Report

---

### Summary:

This page of the report shows the summary by statement type for primary authorization ID WRL and plan name DSNESPRR for location SYS1DSN2. It includes all workload contained in the input.
The SQL Activity Trace

This topic contains examples of SQL Activity traces and the commands used to generate them.

These traces are summarized at different levels. They can be summarized at the following levels:

- All
- Cursor
- Occurrence
- Program
- Statement number
- Statement type

Note: The trace also automatically includes a summary by thread and, if there is more than one thread per location, a summary by location. Each summary begins on a new page of the trace.

Example of an SQL Activity Trace:

The following examples show excerpts of an SQL Activity trace summarized at all levels.

They are generated by the following command:

```
: ;
SQLACTIVITY
   TRACE
       SUMMARIZEBY (ALL)
```

SQL Activity Trace Summarized by All

This summary level shows totals for each cursor name belonging to the thread that is qualified by package name. By default, the package names and the events within each package are sorted alphabetically.

This is an example of an SQL Activity Trace Summarized by All
### SQL Activity Trace Summarized by Occurrence

Summary by occurrence shows individual SQL statement occurrences. In this thread the SQL statements belong to one package, the name of which is printed at the head of its work. When present, SQL text and DDF information is embedded in the events. Commits appear as standalone events. The events are, by default, sorted in timestamp sequence.

This is an example of an SQL Activity Trace Summarized by Occurrence.

---

**SQL Activity Report**

LOCATION: PM0DA21
GROUP: N/P
MEMBER: N/P
SUBSYSTEM: DA21
DB2 VERSION: V10

SUMMARIZED BY OCCURRENCE

<table>
<thead>
<tr>
<th>EVENT</th>
<th>TIMESTAMP</th>
<th>ELAP.TIME</th>
<th>TCB TIME</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREPARE</td>
<td>15:57:19.94</td>
<td>0.022793</td>
<td>1415</td>
<td>SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>PREPARE</td>
<td>15:57:20.12</td>
<td>0.014470</td>
<td>1900</td>
<td>SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>INSERT</td>
<td>15:57:20.12</td>
<td>0.000521</td>
<td>1924</td>
<td>SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>DESCRIBE</td>
<td>15:57:20.12</td>
<td>0.014470</td>
<td>1900</td>
<td>SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>DESCRIPT</td>
<td>15:57:20.13</td>
<td>0.021406</td>
<td>1924</td>
<td>SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>INF</td>
<td>15:57:20.15</td>
<td>0.000021</td>
<td>1924</td>
<td>SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>PREPARE</td>
<td>15:57:20.15</td>
<td>0.000021</td>
<td>1924</td>
<td>SQLST:00000 SQLCO: 0</td>
</tr>
</tbody>
</table>

**SQL Activity Trace Summarized by Occurrence**

---

**Chapter 6. Batch reporting** 4221
### SQL Activity Trace Summarized by Occurrence

This summary level presents totals for each program name belonging to the thread.

This is an example of an SQL Activity Trace Summarized by Occurrence.

#### SQL Activity Report

**Stop Time:** 01/30/15 17:16:27.85  **Stop Elapsed:** 0.012713  **Stop Reason:** TERMINATE THREAD

<table>
<thead>
<tr>
<th>NL</th>
<th>EVENT</th>
<th>TIMESTAMP</th>
<th>ELAP.TMI</th>
<th>tcb TIME</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TRIGGER</td>
<td>17:16:27.46</td>
<td>0.180439</td>
<td>0.001409</td>
<td><strong>PREPARE</strong>&lt;br&gt;STMT#: 1216 TRIGGER : SBTRIGR&lt;br&gt;SQLOLE: N/P SQLOCODE: 0&lt;br&gt;COLL: DSNTERP&lt;br&gt;PROGRAM: DSNTERP&lt;br&gt;SCHEMA: MBD19&lt;br&gt;EXT_NAME: SBTRIGR&lt;br&gt;ACT_TIME: AFTER&lt;br&gt;GRAN: STMT STMT: INSERT EVAL : TRUE</td>
</tr>
<tr>
<td>2</td>
<td>CALL</td>
<td>17:16:27.46</td>
<td>0.17896</td>
<td>0.000739</td>
<td><strong>PREPARE</strong>&lt;br&gt;STMT#: 0 PROCEDURE: POPULATE_SBDEALS&lt;br&gt;SQLOLE: N/P SQLOCODE: 0&lt;br&gt;SCHEDULE TIME: 0.058490 SCHEDULE TCB: 0.062429 SCHEMA: MBD19</td>
</tr>
<tr>
<td>2</td>
<td>OPEN</td>
<td>17:16:27.52</td>
<td>0.000468</td>
<td>0.000136</td>
<td><strong>PREPARE</strong>&lt;br&gt;STMT#: 44 CURSOR: CI&lt;br&gt;ISO(CS) SQLOLE: 00000 SQLOCODE: 0&lt;br&gt;REOPTIMIZED(NO)&lt;br&gt;UPDATE LOCKS: N/A</td>
</tr>
<tr>
<td>2</td>
<td>INSERT</td>
<td>17:16:27.64</td>
<td>0.000961</td>
<td>0.000698</td>
<td><strong>PREPARE</strong>&lt;br&gt;STMT#: 64 CURSOR: CI&lt;br&gt;ISO(CS) SQLOLE: 23500 SQLOCODE: -803&lt;br&gt;REOPTIMIZED(NO)&lt;br&gt;UPDATE LOCKS: N/A</td>
</tr>
<tr>
<td>2</td>
<td>CLOSE</td>
<td>17:16:27.64</td>
<td>0.00162</td>
<td>0.000668</td>
<td><strong>PREPARE</strong>&lt;br&gt;STMT#: 66 CURSOR: CI&lt;br&gt;SQLOLE: 00000 SQLOCODE: 0</td>
</tr>
<tr>
<td>2</td>
<td>CREATE</td>
<td>11:36:56.45</td>
<td>6.82357</td>
<td>0.025761</td>
<td><strong>TYPE:</strong> ROM PERMISSION <strong>NAME:</strong> DEATEST</td>
</tr>
</tbody>
</table>

#### Summary of Occurrence

**Location:** PMODA21  **Group:** N/P  **Member:** N/P  **Subsystem:** DA21  **DB Version:** V10

**OEMEON XE for DB2 Performance Expert (V5R4M0) Page:** 1

SQL Activity - Trace

Requested from: NOT SPECIFIED  To: NOT SPECIFIED

Actual from: 03/02/15 15:57:19.88

**Summary of Occurrence**

<table>
<thead>
<tr>
<th>PRIMAUTH: EDVA</th>
<th>CONNECT: BATCH</th>
<th>CORRNAME: EDVADL</th>
<th>CMI: TSO</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORIGAUTH: EDVA</td>
<td>PLANNM: DSNTPE2</td>
<td>CORRMBR: 'BLANK'</td>
<td>THID: ALLIED</td>
</tr>
<tr>
<td>ENDOWN: EDVA</td>
<td>WSNM: BATCH</td>
<td>TRANAC: EDVADL</td>
<td></td>
</tr>
</tbody>
</table>

**Trace # 1.1**

**Db2 Lujid:** DEIMIPS.IP4A21.X'CE9608EA9959'  **ACE Address:** X'1E4CCE60'

**Start Time:** 03/02/15 15:57:19.88  **Stop Elapsed:** 0.005397  **Stop Reason:** CREATE THREAD

**Stop Time:** 03/02/15 15:57:20.22  **Stop Elapsed:** 0.002567  **Stop Reason:** TERMINATE THREAD

---

4222 IBM Db2 Performance Expert on z/OS
SQL Activity Report

---

**Package**

PMODA21.DSNTEP2.DSNTEP2.L X '198749160FEF1016B'

**Variables**

VAR1.PM96278

**Actions Taken**

<table>
<thead>
<tr>
<th>Time</th>
<th>Action</th>
<th>SQL Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:57:19.04</td>
<td>Describe</td>
<td>STMT# 1415 SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>15:57:20.09</td>
<td>Prepare</td>
<td>STMT# 1846 CURSOR: C1 SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>15:57:20.12</td>
<td>Describe</td>
<td>STMT# 1900 SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>15:57:20.12</td>
<td>Prepare</td>
<td>STMT# 1924 SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>15:57:20.12</td>
<td>Describe</td>
<td>STMT# 5388 SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>15:57:20.12</td>
<td>Describe</td>
<td>STMT# 5390 SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>15:57:20.12</td>
<td>Prepare</td>
<td>STMT# 1846 CURSOR: C1 SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>15:57:20.13</td>
<td>Describe</td>
<td>STMT# 1900 SQLST:00000 SQLCO: 0</td>
</tr>
</tbody>
</table>

**DB2**

DESCRIBE 15:57:20.15 STMT# 1924 SQLST:00000 SQLCO: 0

**Package**

PMODA21.DSNTEP2.DSNTEP2.L X '198749160FEF1016B'

**Variables**

VAR1.PM96278

**Actions Taken**

<table>
<thead>
<tr>
<th>Time</th>
<th>Action</th>
<th>SQL Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:57:20.15</td>
<td>Describe</td>
<td>STMT# 5388 SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>15:57:20.15</td>
<td>Describe</td>
<td>STMT# 5390 SQLST:00000 SQLCO: 0</td>
</tr>
<tr>
<td>15:57:20.15</td>
<td>Prepare</td>
<td>STMT# 1846 CURSOR: C1 SQLST:00000 SQLCO: 0</td>
</tr>
</tbody>
</table>

**Summary of Occurrence**

<table>
<thead>
<tr>
<th>Event</th>
<th>Timestamp</th>
<th>Elapsed Time</th>
<th>TCB Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>NL</td>
<td>15:57:19.88</td>
<td>0.005397</td>
<td>0.0002567</td>
</tr>
</tbody>
</table>

**Trace**

**Location:** PMODA21

**Group:** N/P

**Member:** N/P

**Subsystem:** DA21

**DB2 Version:** V10

---

Chapter 6. Batch Reporting  4223
## SQL Activity Report

### TEXT: COMMIT

<table>
<thead>
<tr>
<th>DESCRIPTOR</th>
<th>STMT#</th>
<th>SQLST</th>
<th>SQLCO</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMIT</td>
<td>1900</td>
<td>00000</td>
<td>0</td>
</tr>
</tbody>
</table>

### DBRM DSNBEP2L

<table>
<thead>
<tr>
<th>DESCRIPTOR</th>
<th>STMT#</th>
<th>SQLST</th>
<th>SQLCO</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIBE</td>
<td>1924</td>
<td>00000</td>
<td>0</td>
</tr>
</tbody>
</table>

### LOCATION: PMODA21

<table>
<thead>
<tr>
<th>GROUP</th>
<th>MEMBER</th>
<th>SUBSYSTEM</th>
<th>DB2 VERSION</th>
<th>PAGE</th>
<th>REQUESTED FROM</th>
<th>ACTUAL FROM</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/P</td>
<td>N/P</td>
<td>DA21</td>
<td>V10</td>
<td>1-3</td>
<td>NOT SPECIFIED</td>
<td>03/02/15 15:57:19.88</td>
</tr>
</tbody>
</table>

### GROUP: N/P SQL ACTIVITY - TRACE REQUESTED FROM: NOT SPECIFIED ACTUAL FROM: 03/02/15 15:57:19.88

### MEMBER: N/P TO: NOT SPECIFIED

### SUBSYSTEM: DA21

### DB2 VERSION: V10

### SUMMARIZED BY OCCURRENCE

### TRACE # 1.1 DB2 LUWID: DEIBMIPS.IPSARA21.X'C9608BEA5959' ACE ADDRESS: X'1E4CE60'

<table>
<thead>
<tr>
<th>START TIME:</th>
<th>STOP TIME:</th>
<th>START ELAPSED:</th>
<th>STOP ELAPSED:</th>
</tr>
</thead>
<tbody>
<tr>
<td>03/02/15 15:57:19.88</td>
<td>03/02/15 15:57:20.22</td>
<td>0.005397</td>
<td>0.002567</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NL</th>
<th>EVENT</th>
<th>TIMESTAMP</th>
<th>ELAPSED TIME</th>
<th>TCB TIME</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PACKAGE</td>
<td>PMODA21.DSNTEP2.DSNBEP2L.X'198749160FEF1D1B'</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACQUIRE(USE)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REDOPT(N)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RELEASE(COMMIT)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ISO(CS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DYNAMICRULES(RUN)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PREPARE(NODEFER)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>KEEPDYNAMIC(NO)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PROTOCOL(DRDA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OPTHINT(N/P)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TEXT: DELETE FROM BRT.BRTTB001 WHERE DEC_17 = 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DESCRIPTOR</td>
<td>1900</td>
<td>SQLST:00000</td>
<td>SQLCO:0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DELETES</th>
<th>STMT#</th>
<th>SQLST</th>
<th>SQLCO</th>
</tr>
</thead>
<tbody>
<tr>
<td>DELETE</td>
<td>1924</td>
<td>0005397</td>
<td>0002567</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DESCRIPTOR</th>
<th>STMT#</th>
<th>SQLST</th>
<th>SQLCO</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREPARE</td>
<td>1900</td>
<td>000000</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MEMBER: N/P</th>
<th>TO: NOT SPECIFIED</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBSYSTEM: DA21</td>
<td></td>
</tr>
</tbody>
</table>

### SQL Activity Trace Summarized by Occurrence, sorted by ELAPSED TIME

This summary level sorts the SQL activity trace that belongs to the thread, by elapsed time. The section number field (SECT#) provides the section number of the Relational Data system Input parameter list (RDI).

This is an example of an SQL Activity Trace Summarized by Occurrence, sorted by ELAPSED TIME.
### SQL Activity Trace Summarized by Occurrence with All Workload

Summary by occurrence with all workload shows individual SQL statement occurrences. It also shows workload highlights, scan activity and minibind activity.

This is an example of an SQL Activity Trace Summarized by Occurrence with All Workload.

**SQL Activity Report**

**Location:** STLECl  
**Group:** DSNCAT  
**Member:** V7IA  
**Subsystem:** V7IA  
**DB2 Version:** V10  
**Actual From:** 03/11/15 11:36:09.68

---

**Create:**

<table>
<thead>
<tr>
<th>PRIMAUTH: EDVA</th>
<th>CONNECT: DB2CALL</th>
<th>CORRNAME: EDVADM2</th>
<th>CONNTYPE: DB2CALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORIGAUTH: EDVA</td>
<td>PLANNAME: DSNEEX</td>
<td>CORRMBR: 'BLANK'</td>
<td>THRDTYPE: ALLIED</td>
</tr>
<tr>
<td>ENDUSER: EDVA</td>
<td>WSNAME: DB2CALL</td>
<td>TRANSC: EDVADM2</td>
<td></td>
</tr>
</tbody>
</table>

**Start Time:** 03/11/15 11:36:09.68  
**Stop Time:** 03/11/15 11:36:09.68  
**Start Reason:** IN PROGRESS  
**Stop Reason:** END OF FILE

---

<table>
<thead>
<tr>
<th>Event</th>
<th>Timestamp</th>
<th>Elapsed Time</th>
<th>TCB Time</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>DELETE</td>
<td>11:36:09.68</td>
<td>0.000086</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSERT</td>
<td>11:36:09.68</td>
<td>0.000083</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**SQL Activity Trace Summarized by Occurrence with All Workload**

**Summary by occurrence with all workload shows individual SQL statement occurrences. It also shows workload highlights, scan activity and minibind activity.**

This is an example of an SQL Activity Trace Summarized by Occurrence with All Workload.

**Location:** STLECl  
**Group:** DSNCAT  
**Member:** V7IA  
**Subsystem:** V7IA  
**DB2 Version:** V10  
**Actual From:** 03/11/15 17:31:25.34

---

**Database:**

<table>
<thead>
<tr>
<th>Member</th>
<th>PageSet</th>
<th>SCANS</th>
<th>PROCESS</th>
<th>EXAMINE</th>
<th>STAGE 1</th>
<th>STAGE 2</th>
<th>INSERTS</th>
<th>UPDATES</th>
<th>DELETES</th>
<th>SCANNED</th>
<th>SCANS</th>
<th>DELETES</th>
</tr>
</thead>
<tbody>
<tr>
<td>V7IA</td>
<td>INDEX</td>
<td>1</td>
<td>25770M</td>
<td>858935K</td>
<td>0</td>
<td>16</td>
<td>25770M</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>V7IA</td>
<td>SEQO</td>
<td>2</td>
<td>25770M</td>
<td>21475M</td>
<td>0</td>
<td>21475M</td>
<td>25770M</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

---

**Minibind:**

<table>
<thead>
<tr>
<th>QUERYNO:</th>
<th>PLANNAME</th>
<th>DSNEP3</th>
<th>ORACLE</th>
<th>PLCCONGN</th>
<th>DSNE3P</th>
<th>CONSISTENCY_TOKEN</th>
<th>DB2CALL</th>
<th>WHEN_OPTIMIZE</th>
<th>BLANK</th>
<th>OPT_HINT</th>
<th>MANFRMD</th>
<th>OPTIMIZE_HINTS</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1358</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Bind Time:** 01/30/15 17:31:27.38  
**Version:** N/P

---

**Plan:**

<table>
<thead>
<tr>
<th>PLANO</th>
<th>METHOD:</th>
<th>FIRST TABLE ACCESSED</th>
<th>SORTN_UNIQ</th>
<th>NO</th>
<th>SORTN_UNIQ</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLANB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Object:**

<table>
<thead>
<tr>
<th>OBJECT</th>
<th>ACCESS TYPE: TABLE SPACE SCAN</th>
<th>R</th>
<th>SORTN_ORDERBY</th>
<th>NO</th>
<th>SORTN_ORDERBY</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORDER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Creator:**

<table>
<thead>
<tr>
<th>CREATOR</th>
<th>PAGE_RANGE</th>
<th>NO</th>
<th>SORTN_GROUPBY</th>
<th>NO</th>
<th>SORTN_GROUPBY</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Correlation Name:**

<table>
<thead>
<tr>
<th>CORRELATION_NAME</th>
<th>N/P</th>
<th>JOIN</th>
<th>0</th>
<th>ACCESS DEGREE</th>
<th>JOIN</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**TS Lock Mode:**

<table>
<thead>
<tr>
<th>TSLockMode</th>
<th>PARALLELISM Mode</th>
<th>NO</th>
<th>ACCESS</th>
<th>0</th>
<th>JOIN</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Prefetch:**

<table>
<thead>
<tr>
<th>Prefetch</th>
<th>SEQ</th>
<th>COLUMN</th>
<th>EVAL</th>
<th>N/P</th>
<th>PAGES FOR TABLE</th>
<th>111</th>
<th>TAB_CARDINALITY</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Access:**

<table>
<thead>
<tr>
<th>ACCESS</th>
<th>MATCHING</th>
<th>INDEXONLY</th>
<th>PREFETCH</th>
<th>INDEX</th>
<th>OPERATION</th>
<th>MIXED_PSE</th>
<th>N/P</th>
<th>N/P</th>
<th>16448</th>
<th>NO</th>
<th>SEQUENTIAL</th>
<th>INTERSECTION</th>
<th>16448</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16448</td>
<td></td>
<td></td>
<td></td>
<td>16448</td>
</tr>
</tbody>
</table>

---

Chapter 6. Batch Reporting 4225
### SQL Activity Trace Summarized by Program

This summary level presents totals for statement number belonging to the thread. The events are qualified by the package name.

From this level on, timestamps are not appropriate so the second column becomes a count of the occurrences of each event. SQL text is omitted.

By default, the package names are printed alphabetically and the statement numbers are sorted numerically within each package.

**Note:** Not every statement can be summarized by statement number. DCL, for example, has no statement number. An event name is chosen from the closest possible level of summarization, which is the statement type GRANT in this example.

This is an example of an SQL Activity Trace Summarized by Statement Number (STMTNO).

```sql
<table>
<thead>
<tr>
<th>EVENT</th>
<th>COUNT</th>
<th>TOT.ELAPS</th>
<th>TOTAL TCB</th>
<th>AET/EVENT</th>
<th>TCB/EVENT</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DBRM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># 1924</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

**SQL Activity Trace Summarized by Statement Number (STMTNO).**
**SQL Activity Report**

**SQL Activity Trace Summarized by Statement Type**

This summary level presents totals for each statement type executed by the thread. By default, the events are sorted alphabetically. There is no further qualification at this level.

This is an example of an SQL Activity Trace Summarized by Statement Type.

--- MINIBIND

<table>
<thead>
<tr>
<th>QUERYNO</th>
<th>PLANNAMEN</th>
<th>COST</th>
<th>PARALLELISM_DISABLED</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBLOCKNO</td>
<td>COLS</td>
<td>PROGNAME</td>
<td>CONSIDENCY_TOKEN</td>
<td>OPTIMIZE_HINTS_USED</td>
</tr>
<tr>
<td>UNITS</td>
<td>MILLI_SEC</td>
<td>I2345</td>
<td>N/P</td>
<td>N/P</td>
</tr>
<tr>
<td>BIND_TIME</td>
<td>01/30/15 03:28:55:211232</td>
<td>VERSION</td>
<td>N/P</td>
<td>N/P</td>
</tr>
</tbody>
</table>

---

**Chapter 6. Batch reporting**

4227
The SQL Activity Trace Index:

The SQL Activity trace index provides a page index to the threads traced during the execution of an SQLACTIVITY command. An SQL Activity trace index is produced for each TRACE subcommand and is printed on a new page at the end of the trace output.

Each thread on the trace is listed in timestamp order followed by various OMEGAMON for Db2 PE identifiers.

If a thread satisfies the selection criteria for more than one TRACE subcommand, it is presented on each relevant trace, and is indexed accordingly.

SQL Activity Trace Index

The following example represents the trace for location SYS1DSN2. From this page you can see the following:

- This trace is the result of the first TRACE subcommand.
- There are four threads.
- There were no dates or times specified on the TRACE subcommand or on the GLOBAL command.
- Both allied threads and DBATs are present. For allied threads, the requester location is the same as the local location (for example, the first entry shown in "SQL Activity Trace Index"). For DBATs, the requester location is different to the local location (for example, the second entry shown in "SQL Activity Trace Index").

<table>
<thead>
<tr>
<th>LOCATION:</th>
<th>GROUP:</th>
<th>MEMBER:</th>
<th>DB2 VERSION:</th>
<th>SUBSYSTEM:</th>
<th>REQUESTED FROM</th>
<th>ACTUAL FROM</th>
<th>TO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYS1DSN2</td>
<td>DSN2</td>
<td>SE2I</td>
<td>V10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SQL TRACE #</th>
<th>TRACE START</th>
<th>CONNECT</th>
<th>CORRNAME</th>
<th>CORRMNR</th>
<th>PRIMAUTH</th>
<th>ORIGAUTH</th>
<th>PLANNAME</th>
<th>ACTUAL FROM</th>
<th>TO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01/30/15 06:42:18.13 TSO</td>
<td>TSO</td>
<td>WRL</td>
<td>&quot;BLANK&quot;</td>
<td>WRL1</td>
<td>WRL1</td>
<td>DSNESPRR</td>
<td>01/30/15 06:45:39.34</td>
<td>01/30/15 06:55:33.00</td>
</tr>
<tr>
<td></td>
<td>01/30/15 06:42:18.13 TSO</td>
<td>TSO</td>
<td>WRL</td>
<td>&quot;BLANK&quot;</td>
<td>WRL1</td>
<td>WRL1</td>
<td>DSNESPRR</td>
<td>01/30/15 06:45:39.34</td>
<td>01/30/15 06:55:33.00</td>
</tr>
<tr>
<td></td>
<td>01/30/15 06:42:18.13 TSO</td>
<td>TSO</td>
<td>WRL</td>
<td>&quot;BLANK&quot;</td>
<td>WRL1</td>
<td>WRL1</td>
<td>DSNESPRR</td>
<td>01/30/15 06:45:39.34</td>
<td>01/30/15 06:55:33.00</td>
</tr>
<tr>
<td></td>
<td>01/30/15 06:42:18.13 TSO</td>
<td>TSO</td>
<td>WRL</td>
<td>&quot;BLANK&quot;</td>
<td>WRL1</td>
<td>WRL1</td>
<td>DSNESPRR</td>
<td>01/30/15 06:45:39.34</td>
<td>01/30/15 06:55:33.00</td>
</tr>
</tbody>
</table>

Field description

Here is a description of the field labels shown in the trace summary index:

**TRACE START**
The start time of the trace of the thread.

**OMEGAMON for Db2 PE identifiers**
The identifiers define the order of the SQL Activity data printed. If you specify no OMEGAMON for Db2 PE identifiers with ORDER, the default order of PRIMAUTH and PLANNAME is used.

**SERVER**
Reported in the same column as REQUESTER. All server locations involved are listed in alphabetical sequence below the requester location.

**TRACE NO**
The number of the thread, in the format x:yyyy, where x is the number of the TRACE subcommand and yyyy is the number of the thread reported as a result of that TRACE subcommand.
STARTS PAGE NO
The number of the page on which the beginning of the thread is reported. It is shown in the format x-yyyyy, where x is the location number and yyyyy is the page number within the location.

Note: If more than one summary level is selected, STARTS PAGE NO relates to the first summary printed for that thread.

SQL Activity Report and Trace Blocks
Here you find the blocks reported by SQL Activity report and trace.

Note: In query CP and sysplex query parallelism, the TCB time in the reports and traces only reflects the TCB time of the originating record. For the TCB time of the parallel records, refer to the query parallelism workload detail block described in “Query Parallelism” on page 4253.

SQL Detail Section:
This section shows the report and trace detail portions for each SQL statement type.

Field descriptions are shown in “Field Descriptions of SQL Activity Detail Report and Trace Details” on page 4231.

DDF information is included in all SQL Activity summaries, when present.

When an SQL statement type is not recognized, other is printed.

The report and details blocks are divided into columns. The column labels vary for report and trace and for the summarization used. The following column labels are used:

NL Nesting level of stored procedures, triggers and user-defined functions. This is valid for trace only. Values are summarized by occurrence.

EVENT The event being reported or traced, such as the cursor name in a summary by cursor or the program name in a summary by program.

COUNT The number of occurrences of this event.

TIMESTAMP The timestamp of the event begin.

TOT.ELAPS The total elapsed time of the event, that is the elapsed time for all statements within the event.

AET/EVENT The average elapsed time of the event.

TOTAL TCB The total TCB time of the event, that is the TCB time for all statements within the event.

TCB/EVENT The average TCB time of the event.

ELAP.TIME The elapsed time of the event.
TCB TIME
The TCB time of the event.

Report and Trace Details:
This section described the report and trace details for SQL activities.

SQL Activity Trace Package Detail
The first line of PACKAGE details shows the fully-qualified package name, if applicable. It consists of:
• The location name of the DB2 subsystem where the package was bound
• The name of the package collection
• The name of the program
• The consistency token generated by the DB2 precompiler, if present
• The version ID of the package, if present
To avoid duplication, the package name is not embedded in the detail when the events are sorted in default sequence. It is printed once at the head of its work.

For details of other fields shown for package, see “Field Descriptions of SQL Activity Detail Report and Trace Details” on page 4231.

Here is an example of an SQL Activity Trace Package Detail.

<table>
<thead>
<tr>
<th>NL</th>
<th>EVENT</th>
<th>TIMESTAM</th>
<th>ELAP.TIME</th>
<th>TCB TIME</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SQL Activity Trace Statement Detail
For field information, see “Field Descriptions of SQL Activity Detail Report and Trace Details” on page 4231.

Here is an example of an SQL Activity Trace Statement Detail for CLOSE.

<table>
<thead>
<tr>
<th>NL</th>
<th>EVENT</th>
<th>TIMESTAM</th>
<th>ELAP.TIME</th>
<th>TCB TIME</th>
<th>DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLOSE</td>
<td>15:45:32.71</td>
<td>0.000026</td>
<td>0.000026</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SQL Activity Trace Trigger Detail

For field information, see “Field Descriptions of SQL Activity Detail Report and Trace Details.”

Here is an example for an SQL Activity Trace Trigger Detail.

```
NL EVENT TIMESTAMP ELAP.TIME TCB TIME DETAIL
-------------- --------------- --------- --------- ---------------
....
....
1 TRIGGER 17:16:27.46 0.180439 0.001409 COLLID: DSNTEP3
           1216 TRIGGER : SBTRIGR
           SQLSTATE: N/P SQLCODE: 0
           EXT_NAME: SBTRIGR
           ACT_TIME: AFTER
           GRAN : STMT STMT : INSERT EVAL : TRUE
```

SQL Activity Trace Stored Procedure Detail and UDF Detail

For field information, see “Field Descriptions of SQL Activity Detail Report and Trace Details.”

Here is an example of an SQL Activity Trace Stored Procedure Detail.

```
NL EVENT TIMESTAMP ELAP.TIME TCB TIME DETAIL
-------------- --------------- --------- --------- ---------------
....
....
1 CALL 09:00:00.00 25:00.00000 25:00.000 STMT# 64 PROCEDURE: MANFREDS STOPROC01
        SQLSTATE: N/P SQLCODE: 0
        SCHEDULE TIME: N/P SCHEDULE TCB: N/P SCHEMA : MANF__01
```

Here is an example of an SQL Activity Trace UDF Detail.

```
NL EVENT TIMESTAMP ELAP.TIME TCB TIME DETAIL
-------------- --------------- --------- --------- ---------------
....
....
2 INVOKE 21:20:16.61 0.003687 STMT# 0 FUNCTION : UDFSBSZT2
         SQLSTATE: N/P SQLCODE: 0
         SCHEDULE TIME: N/P SCHEDULE TCB: N/P SCHEMA : USRT001
         PACKAGE: STLECL.USRT001.'X'000000000000000'
```

Field Descriptions of SQL Activity Detail Report and Trace Details:

The following list shows the fields displayed in the SQL Activity detail report and trace details, in alphabetical order.

**ACQUIRE**

The acquire level of the package showing USE or ALLOCATE.

**AET/OCCUR**

The average elapsed time for each occurrence.

**ACT_TIME**

Trigger activation time.

- **BEFORE**
- **AFTER**

**BUFFER WRITES**

The number of buffer writes.
SQL Activity Report

CHILD L LOCK
The accumulated wait time for global child L-locks.

CLAIM COUNT
The accumulated wait time for claim count.

CLOSE TYPE
The Close statement type. Possible values are:
- IMPLICIT
- EXPLICIT
- N/A
Otherwise the values are shown in hexadecimal.

COLLID
Collection identifier.

COMMENTS
The total number of the following statements for the requester:
- Rollback
- Commit phase 2
- Sync
The total number of the following statements for the server:
- Commit request received
- Backout request received

COUNT
The number of occurrences as derived from the statement type.

CURSOR
The name of the cursor, if applicable.

CURSOR_NAME
Allocate cursor name.

DBRM
The name of the program, if applicable.
To avoid duplication, the DBRM name is not embedded in the detail when
the events are sorted in default sequence. It is printed once at the head of
its work.

DRAIN LOCK
The accumulated wait time for drain lock.

DYNAMICRULES
The value of the DYNAMICRULES option on the BIND/REBIND
command:
- RUN run time rules apply to a dynamic SQL statement for authorization
  checking and object qualification at run time.
- BIND Bind-time rules apply to a dynamic SQL statement for
  authorization checking and object qualification at run time.
- N/P DYNAMICRULES was not specified.

ELAPSE TIME
Duration of trigger activity.

EVAL Triggered action condition. Possible values are:
- TRUE
• FALSE
• NONE

EXT_NAM
External trigger name.

FUNCTION
Function name.

GET PAGES
The number of Getpages.

GLOBAL LOCK
The accumulated wait time for global locks.

GRAN
Trigger granularity. Possible values are:
• ROW
• STMT

IMMEDWRITE
Indicates how DB2 updates group buffer pool dependent pages. This is only valid in a data sharing environment.

Group buffer pool dependent pages can be written to DASD or SYSTEM pagesets.

Values shown are:

NO  DB2 uses normal write activity for updates, this is the default. Pages are written out at, or before phase 2 commit, or at the end of an abort for transactions that have rolled back.

PH1  Pages are written out at, or before phase 1 commit.

If a transaction subsequently rolls back, the pages are updated in the group buffer pool at the end of the rollback and are written out at the end of the abort.

YES  Pages are written out to the coupling facility as soon as the buffer update commits. Pages are written out regardless of whether the update occurs during forward progress or rollback of the transaction.

This option can affect performance due to coupling facility overhead.

IMPLICIT COMMIT
The cursor attribute implicit commit, which closed the cursor. It can be YES or NO.

IN-DB2 CPU
The accumulated In-DB2 CPU time. This time includes CPU time that was consumed on an IBM specialty engine.

IN-DB2 ELAPSED
The accumulated In-DB2 elapsed time.

INDEX SCANS
The number of index scans.

ISOLATION or ISO
The isolation level of the statement:
• CS  Cursor stability
SQL Activity Report

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS</td>
<td>Read stability</td>
</tr>
<tr>
<td>RR</td>
<td>Repeatable read</td>
</tr>
<tr>
<td>UR</td>
<td>Uncommitted read</td>
</tr>
</tbody>
</table>

**KEEPDYNAMIC**
Indicates whether DB2 keeps (KEEPDYNAMIC(YES)) or discards (KEEPDYNAMIC(NO)) prepared SQL statements at commit points.

**KEEP UPDATE LOCKS; KEEP UPD. LOCKS**
Indicates whether X locks are used. X locks can only be used for SQL OPEN CURSOR statements and an isolation level of RS and RR.

**LATCH**
The accumulated wait for latch.

**LOCAL**
The number of statements that were distributed without going through VTAM.

**LOCKS**
The accumulated wait for locks.

**# LOCATORS**
The number of locators.

**# LOCATOR_VAL**
The number of locators.

**LOG WRITER**
The accumulated wait time for log writer.

**NAME**
The object name, without qualifier, in the DDL statement.

**NEW DEGREE**
The requested degree of parallelism regardless of whether the request is successful.

**NEW SQLID**
The requested SQL ID regardless of whether the request is successful.

**OPTHINT**
Value of optimization hints, if used.

**OTHER L LOCK**
The accumulated wait time for global other L-locks.

**OTHER P LOCK**
The accumulated wait time for global other P-locks.

**PACKAGE**
Package name (UDF only).

**PAGE LATCH**
The accumulated wait time for page latch.

**PAGE P LOCK**
The accumulated wait time for global page P-locks.

**PAGESET L LOCK**
The accumulated wait time for global Pageset or Partition L-locks.

**PARALLEL GRP CREATEs**
The number of parallel groups creates.
PARENT CHILD SYN
The accumulated time waiting for parallel queries to synchronize between parent and child tasks.

PIPE
The accumulated wait time for pipe.

PREPARE
Indicates whether the preparation of dynamic SQL statements was deferred:
DEFER
The preparation of the dynamic SQL statements that refer to remote objects was deferred until run time.
NODEFER
The dynamic SQL statements were prepared at bind time.

PREVIOUS DEGREE
The previous or current degree of parallelism.
If the statement executed successfully, this is the previous degree of parallelism. If it executed unsuccessfully, this is the current degree of parallelism.

PREVIOUS SQLID
The previous or current SQL ID.
If the request to change the SQL ID is successful, this is the user’s previous SQL ID. If it is unsuccessful, this is the user’s current SQL ID.

PROCEDURE
The unqualified stored procedure name.

PROC_LOC
Location of stored procedure.

PROC_NAME
Name of stored procedure.

PROC_QUALIF
Qualifier of stored procedure.

PROGRAM
Program or package name.

PROTOCOL
DB protocol:
DRDA
Convert three-part names to DRDA
PRIVATE
Three-part names use private protocol
NOT_SPEC
DB protocol was not specified.

READ-OTH. THREAD
The accumulated wait time for read activity by another thread.

RELEASE
The release level of the package, showing the option COMMIT or DEALLOCATE, if available.

REMOTE
The number of statements that went through VTAM.
REOPTIMIZED or REOPT
Indicates whether the access path of the SQL statement was reoptimized:

YES or Y
The access path was reoptimized at run time.

NO or N
The access path was only optimized at bind time.

RID-LIMIT EXC.
The number of times RID list was not used because the number of RIDs
would have exceeded DB2 limits.

RID-NO STORAGE
The number of times a RID list was not used because there is not enough
storage available to hold the list of RIDs.

ROWS EXAMINED
The number of rows examined.

ROWS PROCESSED
The number of rows processed.

SCHEDULE TCB
The TCB time for scheduling the stored procedure.

SCHEDULE TIME
The elapsed time for scheduling the stored procedure. This field also
includes the time for processing application logic, if any, up to the first
SQL statement within the stored procedure.

SCHEMA
Schema name.

SCROLL
Identifies the cursor scrollability. It can be one of the following:
• Scroll
• None-scroll

SECT#
The section number of the Relational Data system Input parameter list
(RDI).

SENSITIVE
The cursor sensitivity. It can be one of the following:
• Sensitive
• Insensitive
• Unspecified

SERVER
The server location in a distributed transaction. If there are multiple server
locations, an asterisk (*) is printed.

SORTS
The number of sorts.

SQLCODE or SQLCO
The return code from the SQL event. Obtained from the DB2 SQLCODE
which remaps the DB2 field.

SQLSTATE or SQLST
The SQL state.
The status of the statement:
- SUCCESSFUL
- FAILED
- SYSADM — Although authorization validation failed, the statement is successful because the user had SYSADM authority.

Triggering SQL statement.
- UPDATE
- INSERT
- DELETE

The number of the statement executed.

Note: For implicit connects, the statement number shown is the number of the SQL statement that caused the connect.

The statement identifier.

The statement type.

Note: In a summary by statement number, you find the statement number instead of the statement type.

The number of synchronous buffer reads.

The accumulated wait for synchronous I/O.

The cursor result table type. It can be one of the following:
- Static
- Dynamic
- Unspecified

The number of tablespace scans.

The average TCB time for each occurrence. It is the TCB time spent at the location being traced or reported on this line. For requester locations, it shows only the small amount of processing done at the requester.

Duration of trigger activity.

The text of the SQL statement, if present.

Note:
1. The text is only printed in a summary by occurrence if it is a dynamic SQL.
2. Text exceeding 5000 characters is truncated.
3. Host variables are presented as :H.
TIMESTAMP
   Trigger timestamp.

TRIGGER
   Trigger name.

TYPE
   The type of object in the DDL statement.

UNIT SWITCH
   The accumulated wait time for synchronous execution unit switches.

WRITE-OTH. THREAD
   The accumulated wait time for write activity by another thread.

Workload Detail:

Workload detail is available on all summary levels. The workload figures are applied to the event being summarized.

Any workload performed during thread creation is shown on the first SQL statement occurrence encountered in a thread.

Accounting:

The layout of the accounting section is identical to the accounting long report or trace, depending on whether an SQL Activity report or trace has been requested.

For explanations of the blocks and fields shown the accounting section, see "Accounting Report and Trace Blocks" on page 3215.

Data Capture Activity:

This block shows the average data capture activity performed by the event.

Data Capture Workload Block Example

Here is an example of the data capture workload block:

--- DATA CAPTURE

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIBES</td>
<td>3.14</td>
</tr>
<tr>
<td>MAX READ TIME</td>
<td>1.928397</td>
</tr>
<tr>
<td>DATA DESC RETURNED</td>
<td>3.77</td>
</tr>
<tr>
<td>AET/DESCRIBE</td>
<td>0.028367</td>
</tr>
<tr>
<td>RECS RETURNED</td>
<td>24.86</td>
</tr>
<tr>
<td>TABLES RETURNED</td>
<td>0.00</td>
</tr>
<tr>
<td>LOG READS</td>
<td>5.20</td>
</tr>
<tr>
<td>RECS CAPTURED</td>
<td>29.15</td>
</tr>
<tr>
<td>AET/EXTRACTION</td>
<td>1.044382</td>
</tr>
<tr>
<td>ROWS RETURNED</td>
<td>132.50</td>
</tr>
</tbody>
</table>

Field description

Here is a description of the field labels shown in the data capture workload block:

DESCRIBES
   The average number of data capture describes.

AET/DESCRIBE
   The average elapsed time of data capture describes.

LOG READS
   The average number of log reads performed.

AET/EXTRACTION
   The average elapsed time of log extraction.
MAX READ TIME
The longest elapsed time of a log read.

RECS RETURNED
The average number of log records returned.

RECS CAPTURED
The average number of records that were captured for this update. To perform all data capture updates, all captured log records need to be returned.

ROWS RETURNED
The average number of data rows returned.

DATA DESC RETURNED
The average number of data capture data descriptions returned.

TABLES RETURNED
The average number of data capture tables returned.

Exit Activity:
This block shows the exits performed by the event.

Exits Workload Block Example
Here is an example of an exits workload block.

<table>
<thead>
<tr>
<th>MEMBER</th>
<th>VALIDATION TOTAL</th>
<th>AET/EXIT</th>
<th>EDIT TOTAL</th>
<th>AET/EXIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE11</td>
<td>1</td>
<td>N/C</td>
<td>0</td>
<td>0.000060</td>
</tr>
</tbody>
</table>

Field description
Here is a description of the field labels shown in the exits workload block:

MEMBER
The name of the DB2 member within the DB2 data sharing group.

VALIDATION TOTAL
The number of results of a validation exit call written for every validation row.

VALIDATION AET/EXIT
The summarized elapsed validation time divided by the value in VALIDATION TOTAL.

EDIT TOTAL
The summary of results of an edit exit call to encode a record written for every row edited and the results of an edit exit call to decode a record written for every row decoded.

EDIT AET/EXIT
The summarized elapsed edit time divided by the value in EDIT TOTAL.

Function Resolution Activity:
This section shows the layout of a function resolutions block and its field descriptions.

SQL Activity Function Resolutions Workload Block
The following figure shows the layout of the function resolutions block.
SQL Activity - Function Resolution

--- FUNCTION RESOLUTION(S) ---

QUERYNO : 1383
PLANNAME : DSNTEP61 COLLECTION_ID : DSNTEP61
APPLNAME : xxxxxxxx PROGNAME : xxxxxxxx CONSIS_TOKEN : xxxxxxxxxxxxxxxx
BIND_TIME: 01/30/10 03:28:55.21 VERSION : xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx64
CURRENT_PATH : ............................

....................................................................................................................

FUNCT_SCHEMA : xxxxxxxx FUNCT_NAME : xxxxxxxxxxxxxxxx SPECIFIC_NAME : xxxxxxxxxxxxxxxx FUNCT_TYPE : xxxx
VIEW_CREATOR : NAME-111 VIEW_NAME : xxxxxxxxxxxxxxxx QUERY_BLOCKNO : 53
FUNCT_TEXT : ............................

.....................................................................................................................

Field description

Here is a description of the field labels shown in the function resolutions block:

QUERYNO
The query number.

PLANNAME
The plan name.

COLLECTION_ID
The collection ID.

APPLNAME
The name of the application.

PROGNAME
The program name.

CONSIS_TOKEN
The consistency token.

BIND_TIME
The time stamp of the bind time.

VERSION
The version ID.

CURRENT_PATH
The current path.

FUNCT_SCHEMA
A short SQL identifier, either ordinary or delimited, following the concept of qualified names consistent with the ANSI/ISO SQL92 standard.

FUNCT_NAME
The name of a function without a qualifier.

SPECIFIC_NAME
Identifies the particular function. The specific name must identify a specific function name in the explicitly or implicitly specified schema.

FUNCT_TYPE
The classification of the function:

SCALAR  Scalar UDF
**TABLE**  
Table UDF

**VIEW_CREATOR**  
The name of the view creator if the function is referenced in a view definition.

**VIEW_NAME**  
The name of the view if the function is referenced in a view definition.

**QUERY_BLOCKNO**  
A number that identifies the query block number being explained.

**FUNCT_TEXT**  
Contains the text of the function reference, function name, and parameters.  
It can be up to 254 characters long.

**I/O Activity:**

This block shows the I/O activity for each object performed by the event.

**I/O Activity Workload Block Example**

The following example shows the I/O activity workload block.

<table>
<thead>
<tr>
<th>DATABASE</th>
<th>PAGESET</th>
<th>MEMBER</th>
<th>BP</th>
<th>TOTAL</th>
<th>AET</th>
<th>TYPE</th>
<th>AET/WITH</th>
<th>%WITH PAGE/WITH</th>
<th>%WITHOUT</th>
<th>TOTAL</th>
<th>TYPE</th>
<th>CAST</th>
<th>AET</th>
<th>PAGE/WRITE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DBPARALL</td>
<td>TSPARALL</td>
<td>SE12</td>
<td>BP4</td>
<td>3</td>
<td>0.1296</td>
<td>3</td>
<td>SYNCH</td>
<td>0.129597</td>
<td>100.00</td>
<td>1.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SE12</td>
<td>BP0</td>
<td>102</td>
<td>0.0164</td>
<td>102</td>
<td>SYNCH</td>
<td>0.016358</td>
<td>100.00</td>
<td>1.00</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Field description**

Here is a description of the field labels shown in the I/O activity workload block:

**DATABASE**  
The database name. If the name is not available, the decimal DBID/OBID is printed.

**PAGESET**  
The page set name. If the name is not available, the decimal DBID/OBID is printed.

**MEMBER**  
The name of the DB2 member within the DB2 data sharing group. This field shows N/P in a non-data-sharing environment.

**BP**  
The buffer pool name.

**I/O REQUEST TOTAL**  
The total number of I/O requests.

**I/O REQUEST AET**  
The average elapsed time for each I/O request.

**READ REQUEST TOTAL**  
The number of read I/O requests of a specific type.

**READ REQUEST TYPE**  
The type of read request:

SYNCH  
Synchronous read request.
SEQPF
Sequential prefetch request

DYNPF
Dynamic prefetch request

LSTPF
List prefetch request

READ REQUEST AET/WITH
The average elapsed time for a read with I/O of a specific type.

READ REQUEST %WITH
The percentage of total read requests with I/O for a particular type.

READ REQUEST PAGE/WITH
The pages read for each read request with I/O of a particular type.

READ REQUEST %WITHOUT
The percentage of total read requests without I/O for a particular type. This can occur because all the pages requested by a prefetch read were already in the buffer pool.

WRITE REQUEST TOTAL
The number of write I/O requests.

WRITE REQUEST TYPE
The type of write request.

WRITE REQUEST CAST
Indicates whether the write operations were initiated due to a coupling facility castout.

WRITE REQUEST AET
The average elapsed time for each write.

WRITE REQUEST PAGE/WRITE
The number of pages written.

Lock Suspension Activity:

This block shows the lock suspension activity for each object performed by the event.

Lock Suspension Activity Workload Block Example

The field labels shown in the following sample layout of "Lock Suspension Activity Workload Block" are described in the following section.

<table>
<thead>
<tr>
<th>RESOURCE NAME</th>
<th>TYPE</th>
<th>REQUEST</th>
<th>LOCAL</th>
<th>SUSPEND</th>
<th>REASON</th>
<th>NOTIF</th>
<th>GROUP</th>
<th>NOTIFY</th>
<th>OTHER</th>
<th>COUNT</th>
<th>AET</th>
<th>AET</th>
<th>AET</th>
<th>AET</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBPARALL SE11</td>
<td>TSPAR ALL DATAPAGE</td>
<td>NOTIFY</td>
<td>0</td>
<td>0</td>
<td>24</td>
<td>24</td>
<td>0</td>
<td>24</td>
<td>0.74382</td>
<td>0</td>
<td>N/C</td>
<td>0</td>
<td>N/C</td>
<td></td>
</tr>
<tr>
<td>DBPARALL SE11</td>
<td>TSPAR ALL DATAPAGE</td>
<td>LOCK</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0.04096</td>
<td>0</td>
<td>N/C</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>DBPARALL SE12</td>
<td>TSPAR ALL DATAPAGE</td>
<td>LOCK</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0.06957</td>
<td>0</td>
<td>N/C</td>
<td>0</td>
<td>N/C</td>
</tr>
<tr>
<td>DBPARALL SE21</td>
<td>TSPAR ALL DATAPAGE</td>
<td>UNLOCK</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0.59858</td>
<td>0</td>
<td>N/C</td>
<td>0</td>
<td>N/C</td>
</tr>
</tbody>
</table>

The following list describes the fields in the lock suspension activity workload block:

Field  Description
RESOURCE NAME
The name of the resource on which the suspended request is made. The content of the field depends on the resource type:

- The plan name for SKCT
- The collection and package IDs for SKPT
- The collection ID for COLLECT
- The database name for DATABASE, CDB PLK, DBD PLCK
- The buffer pool ID for ALTERBUF, GBP S/S, P/P PLCK, PAGEPLCK, GBP CAST, P/P CAST
- The anchor point ID for HASH-ANC
- The row ID for ROW
- N/A for MASS, UTILITY, BINDLOCK, ALTERBUF, CATM MIG, CATM CAT, CATM DIR
- The database and page set names for all others

The database and page set names are translations obtained from the IFICIDs 105 and 107. If these records are unavailable, the decimal DBIDs and OBIDs are printed.

MEMBER
The name of the DB2 member within the DB2 data sharing group.

TYPE
The type of the locked resource. Possible values are shown in Table 261 on page 3461.

REQUEST
The type of request that has been suspended:

- LOCK  IRLM lock request
- UNLOCK  IRLM unlock request
- CHANGE  IRLM change request
- QUERY  IRLM query request
- NOTIFY  IRLM notify request
- DRAIN  Drain request
- LATCH  Latch request

SUSPEND REASON LOCAL
The number of suspensions due to local resource contentions.

SUSPEND REASON LATCH
The number of suspensions due to IRLM latch contentions.

SUSPEND REASON IRLMQ
The number of suspensions due to IRLM queued requests.

SUSPEND REASON GROUP
The number of suspensions due to global contention.
SQL Activity - Lock Suspension

**SUSPEND REASON NOTIFY**
The number of suspensions due to intersystem message sending.

**SUSPEND REASON OTHER**
The number of suspensions due to reasons other than those listed previously.

**Note:** For drain suspensions, the suspension reason is always “waiting for the claim count to reach zero” and is categorized as OTHER.

**NORML RESUME COUNT**
The number of suspensions that ended in the task, resuming normal processing after the lock request has completed.

**NORML RESUME AET**
The normal resume average elapsed time. This is the normal resume elapsed time divided by the NORML RESUME COUNT.

**TIMEO RESUME COUNT**
The number of suspensions that ended in a timeout.

**TIMEO RESUME AET**
The average elapsed timeout time. This is the elapsed timeout time divided by the TIMEO RESUME COUNT.

**DEADL RESUME COUNT**
The number of suspensions that ended in a deadlock.

**DEADL RESUME AET**
The average elapsed deadlock time. This is the elapsed deadlock time divided by the DEADL RESUME COUNT.

**Minibind Activity:**

The minibind activity block shows information about mini plans, which are generated by the optimizer at bind and SQL prepare time. This block is written once for each IFCID 022 encountered. The block consists of a header followed by one or more repeating sections.

One mini plan is generated for each table and for each subselect block in the query. This means that if your query uses subqueries, more than one mini plan record is written.

**Note:**
1. This block is shown for SQL Activity trace only.
2. When interpreting this record, relate table and mini plans by table name.
3. The order of the mini plans might not be the same as the order of the table as written in the SQL statement.
4. When you are not sure about the accessing order of the tables, use EXPLAIN to get the query block number and plan number.
5. This block also shows whether sequential prefetch is used.

If the IFCIDs 105 and 107 are present before IFCID 022, the DBID and OBID can be translated.
Explanation of short and long fields

To improve the evaluation of SQL activities, DB2 supports both, short and long fields. If the field value exceeds the available field length (such as long values in the header information), the string is truncated, depending on the space available. Truncated values are then listed at the end of each logical report unit, together with their full values.

A "greater than" sign (>) indicates whether a value is truncated. When a value is truncated, the "greater than" sign (>) is printed instead of a colon (:) following the label name. The full value starts with a "greater than" sign followed by the label. For example:

Tname  > This value is truncated
...
> Tname  : This value was truncated - now you see its full length
...

If truncated values are listed, the "greater than" sign (>) is shown at the end of each value, because there is no colon (:) as a delimiter between the label and the value. In lists the label is used as a column heading.

Note: The mapping between truncated and full values remains the same for multiple reports from the same input data. This mapping is not supported for multiple reports from different input data. The printing of abbreviations and full text can cause inaccurate results in Batch SQL Activity output.

Here are examples of SQL Activity layouts with truncated values:

• SQL Activity - Minibind:

• SQL Activity trace, where WSNAME and TRANSACT, and the OMEGAMON for Db2 PE identifiers, PRIMAUTH and ORIGAUTH, are truncated.

Minibind Workload Block Example

Here is an example of the minibind workload block.
### Field description

Here is a description of the field labels shown in the minibind workload block.

**QUERYNO**

The number identifying the statement to be prepared.

**PLANNAME**

The plan name or package ID.

**COST**

The relative cost of the SQL statement. It might not relate to the actual CPU or elapsed time for the query.

**PARALLELISM_DISABLED**

Indicates whether query parallelism is disabled by the resource limit facility (RLF) for dynamic queries:

- **NO** — The RLF does not affect this statement.

**I/O ONLY**

Query I/O parallelism is disabled.

**CP ONLY**

Query CP parallelism is disabled.

**CP + I/O**

Query I/O and CP parallelism is disabled.

**X**

Sysplex query parallelism is disabled.

**X + I/O**

Sysplex query and query I/O parallelism is disabled.

**X + CP**

Sysplex query and query CP parallelism is disabled.
YES  The entire query parallelism (I/O, CP, and Sysplex) is disabled.
N/A  Query parallelism does not apply to this statement.

QBLOCKNO
The position of the query in the statement.

COLLID
The collection ID of the package.

PROGNAME
The name of the package containing the statement to be prepared.

CONSISTENCY_TOKEN
The consistency token.

APPLNAME
The name of the application plan.

WHEN_OPTIMIZE
Indicates when the access path of the SQL statement is optimized and determined:
BIND  The access path is determined at bind and run time.
DEFAULT  The access path is determined at bind time.
REOPT  The statement is bound with REOPT. The access path is determined at run time.
RUN  The access path is determined at run time.

OPT_HINT_IDENT
Access path hint value.

OPTIMIZE_HINTS_USED
Indicates whether the query used access path hints.

UNITS
Cost in CPU units.

MILLI_SEC
Cost in milliseconds.

COST_CATEGORY
Cost category.

BIND_TIME
The date and time at which the plan or package to which the SQL statement belongs was bound.

VERSION
The version ID of the package (64 characters).

PLANNO
The number of the step in which the query is processed.

METHOD
The join method used for the step.

SORTN_UNIQ
Indicates whether the new table is sorted to remove duplicate rows.

SORTC_UNIQ
Indicates whether the composite table is sorted to remove duplicate rows.
SQL Activity - Minibind

**DATABASE**
The database ID.

**NEXTSTEP**
The next step in a join.
NOT APPLICABLE is printed if this is the last step of a join, or if this is not a join.

**SORTN_JOIN**
Indicates whether the new table is sorted for a merge scan join or hybrid join. For a hybrid join, this is a sort of the RID list.

**SORTC_JOIN**
Indicates whether the composite table is sorted for a nested loop join, merge scan join, or hybrid join.

**OBJECT**
The internal ID of the table space.

**ACCESTYPE**
The method of accessing the new table. N/P is printed if there is no access type.

**SORTN_ORDERBY**
Indicates whether the new table is sorted for ORDER BY.

**SORTC_ORDERBY**
Indicates whether the composite table is sorted for ORDER BY.

**CREATOR**
The creator of the new table accessed in this step.

**PAGE_RANGE**
Indicates whether the table qualifies for page range screening so that plans scan only the partitions that are needed.

**SORTN_GROUPBY**
Indicates whether the new table is sorted for GROUP BY.

**SORTC_GROUPBY**
Indicates whether the composite table is sorted for GROUP BY.

**TNAME**
The name of the table accessed in this step, without qualifier. This field is blank if a view is used instead of a real table.

**JOIN_TYPE**
The type of join enabled:
- **LEFT** Left outer join
- **FULL** Full outer join
- **INNER** Inner join
- **STAR** Star join
- **N/A** Not applicable is shown if DB2 never produces a counter value in a specific context.

**SORTN_PGROUP_ID**
The parallel group ID for the parallel sort of the new table.
A parallel group is the collective term for consecutive operations (in this case a sort) executed in parallel that have the same number of parallel tasks.

**SORTC_PGROUP_ID**
The parallel group ID for the parallel sort of the composite table.

**CORRELATION_NAME**
The correlation name of a table or view that is specified in the statement. If no correlation name is specified, the field is blank.

**MERGE_JOIN_COLS**
The number of columns that are joined during a merge scan join.

**ACCESS_DEGREE**
The number of parallel tasks or operations activated by a query.

**JOIN_DEGREE**
The number of parallel tasks or operations used in joining the composite table with the new table.

**TSLOCKMODE**
Indicates the lock mode to be acquired on the new table or its table space.

If the isolation can be determined at bind time, possible values are:

- **IS** Intent share lock
- **IX** Intent exclusive lock
- **S** Share lock
- **U** Update lock
- **X** Exclusive lock
- **SIX** Share with intent exclusive lock
- **N** UR isolation, no lock

If the isolation cannot be determined at bind time, the lock mode determined by the isolation at run time is shown by the following values:

- **NS** For UR isolation: no lock. For CS or RR isolation: an S lock.
- **NIS** For UR isolation: no lock. For CS or RR isolation: an IS lock.
- **NSS** For UR isolation: no lock. For CS isolation: an IS lock. For RR isolation: an S lock.
- **SS** For UR or CS isolation: no lock. For RR isolation: an S lock.

**PARALLELISM_MODE**
The kind of parallelism used at bind time:

- **I/O** Query I/O parallelism
- **CP** Query CP parallelism
- **X** Sysplex query parallelism
- **NO** No parallelism was used.

**ACCESS_PGROUP_ID**
The ID of the parallel group for accessing the new table.

**JOIN_PGROUP_ID**
The ID of the parallel group for joining the composite table with the new table.
ACCESS_NAME
The index name. This field applies only to index scans. N/A is printed for table space scans or when no index is used.

ACCESS_CREATOR
The index creator.

STATEMENT_CACHE
Statement cache flag. Possible values are:
YES  The prepared statement is retrieved from the prepared statement cache.
NO   The prepared statement is not retrieved from the prepared statement cache.

MATCHCOLS
The number of index keys used in an index scan. This field is 0 if either no index is used or an index is used that has no matching columns.

PREFETCH
Indicates what kind of prefetch of the data is used:
SEQ   Sequential prefetch
LIST  List prefetch
No    No prefetch

OPERATION
The type of index access operation.

PREFETCH_INDEX
Indicates whether data pages are to be read in advance by a prefetch.

MIXOPSEQ
The sequence number of a step in a multiple index operation.

INDEXONLY
Indicates whether the access to an index alone is sufficient to carry out the step.

COLUMN_FN_EVAL
Indicates when an SQL column function is evaluated.

PAGES_FOR_TABLE
Pages for table.

TAB_CARDINALITY
Table cardinality.

DIRECT_ROW_ACC
Indicates whether direct row access was used, possible values are:
YES  Direct row access was used
NO   Direct row access was not used

STARJOIN
Indicates whether star join was used, possible values are:
YES  Star join was used
NO   Star join was not used
N/A  Not applicable
Page and Row Locking Activity:

This block shows the page locking, row locking, and lock avoidance activity for each object, performed by the event.

The page and row locking activity block is only printed if a commit occurred or a thread terminated.

In summary by occurrence, page and row locking activity information generated for explicit commits is shown on the relevant commit events.

In summaries by cursor or program, any explicit commits occurring during the life of that cursor or program are counted. Page and row locking activity caused by those commits is shown on the relevant cursor or program.

In summaries by statement number or statement type, commits are not counted. Because page and row locking activity is not relevant for these summary levels, it is not printed.

Any page or row locking activity occurring when a thread terminated is shown in the summary by thread. This activity is added to any page or row locking which took place in the body of the thread. Therefore, page and row locking figures in summary by thread can be greater than the sum of page locking figures shown in the body of the thread. The difference is the page and row locking activity occurring at thread termination.

Page and Row Locking Workload Block Example

Here is an example of the page and row locking workload block.

<table>
<thead>
<tr>
<th>MEMBER</th>
<th>DATABASE</th>
<th>PAGESET</th>
<th>COUNT</th>
<th>SIZE</th>
<th>OR ROW LOCKS</th>
<th>ESCAL</th>
<th>HIGHEST</th>
<th>LOCK</th>
<th>TYPE</th>
<th>SUCCESSFUL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE11</td>
<td>DBPARALL</td>
<td>TSPARALL</td>
<td>1</td>
<td>PAGE</td>
<td>1</td>
<td>0</td>
<td>SPL</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUMMARY: MAX PAGE OR ROW LOCKS HELD</td>
<td>1 LOCK ESCALATIONS:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE12</td>
<td>DBPARALL</td>
<td>TSPARALL</td>
<td>2</td>
<td>PAGE</td>
<td>5</td>
<td>0</td>
<td>SPL</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUMMARY: MAX PAGE OR ROW LOCKS HELD</td>
<td>5 LOCK ESCALATIONS:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE21</td>
<td>DBPARALL</td>
<td>TSPARALL</td>
<td>1</td>
<td>PAGE</td>
<td>2</td>
<td>0</td>
<td>SPL</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUMMARY: MAX PAGE OR ROW LOCKS HELD</td>
<td>2 LOCK ESCALATIONS:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>4</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:
1. The DBID and OBID are obtained from IFCID 020.
2. The values in MAX PAGE OR ROW LOCKS HELD, LOCK ESCALATIONS SHARED, and LOCK ESCALATIONS EXCLUSIVE are accumulated within a subsystem. They are reset only at thread deallocation or when a new user signon occurs.
3. The values in MAXIMUM PAGE OR ROW LOCKS, HIGHEST LOCK, and # LOCK ESCAL are reset at commit time for dynamic BINDs and for static BINDs for which release (commit) is specified. Otherwise, these values accumulate until thread deallocation or until a new user signon occurs.
4. IFCID 218 is an additional lock summary record, written for lock avoidance. It indicates whether a successful lock avoidance test occurred during a given unit of work. The record is externalized for the agent at each commit or rollback.
5. For each event, the relevant IFCID 020 and 218 records are processed. If there is a DBID/OBID combination present for IFCID 218 but not for IFCID 020, the
SQL Activity - Page and Row Locking

IFCID 020 fields show N/P. If there is a DBID/OBID combination present for IFCID 020 but not for IFCID 218, the IFCID 218 field (LOCK AVOID SUCCESSFUL) shows N/P.

Field description

Here is a description of the field labels shown in the page and row locking workload block.

MEMBER
The name of the DB2 member within the DB2 data sharing group.

DATABASE
The database name, if available.
If the name is not available, the decimal DBID is printed instead.

PAGESET
The page set name, if available.
If the name is not available, the decimal OBID is printed instead.

COUNT
The number of page locking or row locking occurrences for each page set.
• Specific database and page set:
  – At commit time: always 1
  – At thread termination: the number of times this database and page set occurred on a commit record
• TOTAL
  – At commit time: the total number of page sets listed
  – At thread termination: the sum of the values for all page sets

LOCK SIZE
The lock size used:
PAGE Page lock
ROW Row lock
TABLE Table space or table lock
LOB LOB lock
UNKN Unknown lock
* Multiple lock sizes

MAXIMUM PAGE OR ROW LOCKS
The maximum number of either page locks or row locks held at one time against this object.

# LOCK ESCAL
The number of lock escalations:
• 0 if no escalations occur
• For simple table spaces and partitioned table spaces not using selective partition locking (SPL): 1 if any escalation occurred for this table space in this logical unit of work
• For segmented table spaces: the number of tables within the table space that have experienced lock escalations
• For partitioned table spaces using SPL: the number of partitions for which locks escalated within the table space
The TOTAL contains the sum of all values in this column.

**HIGHEST LOCK**
The highest table space lock state.

If the table space is simple or partitioned not using SPL, it is the highest lock state for this database or page set. At trace end, it is the largest value from any commit for this object. The following values are possible:

- **IS** Intent share
- **IX** Intent exclusive
- **S** Share
- **U** Update share
- **SIX** Share with intent exclusive
- **X** Exclusive

If the table space is segmented or partitioned using SPL, this field is blank.

**TS TYPE**
The table space type:

- **SIMPL** Simple table space
- **SEG** Segmented table space
- **PARTI** Partitioned table space
- **SPL** Partitioned table space using selective partition locking (SPL)
- **LOB** LOB table space

**LOCK AVOID SUCCESSFUL**
Indicates whether there was a successful lock avoidance test during the unit of work.

If the state of this field changed during the summarization period, an asterisk (*) is shown.

**MAX PAGE OR ROW LOCKS HELD**
The maximum number of page locks and row locks held at one time across all objects.

**LOCK ESCALATIONS: SHARED**
The total of shared lock escalations.

**LOCK ESCALATIONS: EXCLUSIVE**
The total of exclusive lock escalations.

*Query Parallelism:*

This section introduces the Query Parallelism block.

This block shows query parallelism activity performed by the event.

*Note:* In query CP and sysplex query parallelism, this is the only place where the TCB time of the parallel records is shown.

**Query Parallelism Workload Block Example**

Here is an example of a Query Parallelism Workload block.
Field description

An example of a query parallelism workload block is shown in “Query Parallelism Workload Block Example” on page 4253.

The fields in the query parallelism workload block are:

**QUERY BLOCK**
- The query block number.

**PARALLEL GROUP**
- The parallel group number.

**PLANNED AT BIND**
- The degree of parallelism planned at bind time.
  - This field contains 0 if host variables in the statement caused the parallelism decision to be made at bind time.

**PLANNED AT RUN**
- The degree of parallelism planned at run time.

**NEGOTIATED AT RUN**
- The degree of parallelism negotiated at run time, which depends on buffer pool availability.
  - If the value in this field is 1, the plan for parallel I/O processing falls back to sequential execution mode.

**REASON**
- The reason for deriving the planned run time degree of parallelism:
  - **NORMAL**
    - The planned run time degree is derived from planned bind-time degree.
  - **HOSTVAR**
    - Host variable partitioning
  - **NOESA**
    - No ESA sort support
  - **CURSOR**
    - Cursor that can be used for update and delete.
  - **EMPTY**
    - Empty parallel group
  - **ENCLUNAV**
    - MVS/ESA enclave services are not available
  - **UNKNOWN**
    - None of the above

**PIPE ELAPSED TIME**
- The time of pipe creation subtracted from the time of pipe termination.

**TASK CPU TIME**
- The sum of the normalized CPU times spent for the parallel tasks. In
sysplex query parallelism, the CPU times are normalized by the conversion factor that is derived from IFCID 106 and related to the conversion factor of the originating task.

If IFCID 106 is not present, asterisks are printed.

The task CPU time is calculated as follows:

- Let \( CV_O \) be the conversion factor for the member where the originating thread is running.
- Let \( CV_P \) be the conversion factor for the member where the parallel thread is running.
- Let \( TCB_P \) be the TCB time that is recorded by DB2 for an activity of the parallel thread.
- Then the following formula applies:

\[
\text{Normalized TCB time for that activity} = (TCB_P \times \frac{CV_O}{CV_P})
\]

**TYPE**  
The type of parallelism:

- CP  CP parallelism  
- I/O  I/O parallelism  
- SYS  Sysplex query parallelism

**NUMBER OF MEMBERS**  
The number of members on which the query executed.

**RID List Processing:**

This block shows the record ID (RID) list activity performed by the event.

**RID List Processing Workload Block Example**

Here is an example of the RID list processing workload block.

```plaintext
--- RID LIST PROCESSING

<table>
<thead>
<tr>
<th>DATABASE</th>
<th>PAGESET</th>
<th>THRESHOLD</th>
<th>RIDS OBTAINED</th>
<th>RIDS EXCEEDED LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHDBASE1</td>
<td>NHINDEX1</td>
<td>4075</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>NHDBASE2</td>
<td>NHINDEX2</td>
<td>36000</td>
<td>87</td>
<td>2</td>
</tr>
<tr>
<td>AVERAGE</td>
<td></td>
<td>20037.50</td>
<td>61.50</td>
<td>2.50</td>
</tr>
</tbody>
</table>
```

**Field description**

Here is a description of the field labels shown in the RID List Processing Workload Block.

**RIDS IN FINAL LIST**  
The number of RIDs in the final list.

**RID LIST USED**  
The number of times RID list was used.

**UNUSED (LIMIT EXCEEDED)**  
The number of RID lists not used because the number of RIDs exceeded the maximum limit.

**UNUSED (NO STORAGE)**  
The number of RID lists not used because no RID storage was available.

**DATABASE**  
The database name for the index.
SQL Activity - RID List Processing

**PAGESET**
The internal identifier index fan-set descriptor for the index.

**THRESHOLD**
The threshold value for the index.

The threshold value for list prefetch and ORing multiple indexes for access is the maximum of 25 percent of the table size (in bytes) or the number of RIDs that one RID block can hold. For ANDing multiple indexes, it is 25 percent of the table size.

The average is the total value of this field divided by the number of indexes (database/page set combinations).

**RIDS OBTAINED**
The number of RIDs obtained from an index.

The average is the total value of this field divided by the number of indexes (database/page set combinations).

**RIDS EXCEEDED LIMIT**
The number of RIDs which exceeded the maximum limit.

The average is the total value of this field divided by the number of indexes (database/page set combinations).

### Scan Activity:

This block shows the total scan activity for each object, performed by the event.

The database name and page set name for each scan are printed if they are available. These do not usually occur in DB2 trace records. The decimal database ID (DBID) and object ID (OBID) occur instead. When possible, OMEGAMON for Db2 PE translates the DBID and OBID into database names and page set names. If the translation does not work, the DBID or OBID decimal number is printed instead.

### Scan Activity Workload Block Example

Here is an example of the Scan Activity Workload Block.

```plaintext
--- SCAN ACTIVITY ------------------------------- ROWS --------------------- QUALIFIED AT ------ ROWS ------ SCAN ACTIVITY --- PAGES ------ RID ------

<table>
<thead>
<tr>
<th>DATABASE MEMBER</th>
<th>TYPE</th>
<th>SCANS</th>
<th>PROCESS</th>
<th>EXAMINE</th>
<th>STAGE 1</th>
<th>STAGE 2</th>
<th>INSERTS</th>
<th>UPDATES</th>
<th>DELETES</th>
<th>SCANNED</th>
<th>SCANS</th>
<th>DELETES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAPSTEST</td>
<td>1</td>
<td></td>
<td>FST IN</td>
<td>N-PIPE</td>
<td>PIPE RE</td>
<td>INS WAIT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/P SEQD</td>
<td></td>
<td></td>
<td>63792</td>
<td>63792</td>
<td>63792</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2942</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>DAPSTEST 6</td>
<td>33</td>
<td>0</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>56</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>N/P INDX</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>32</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>DAPSTEST 6</td>
<td>33</td>
<td>0</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>32</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>N/P SEQD</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>309 2</td>
<td>2</td>
<td>2</td>
<td>127584</td>
<td>127584</td>
<td>127584</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5684</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>N/P SEQD</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>309 6 6</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>N/P SEQD</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>73</td>
<td>0</td>
<td>191446</td>
<td>191441</td>
<td>191411</td>
<td>70</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8920</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

--- SCAN ACTIVITY --- PAGES --- RID ---

<table>
<thead>
<tr>
<th>DATABASE MEMBER</th>
<th>TYPE</th>
<th>SCANS</th>
<th>PROCESS</th>
<th>EXAMINE</th>
<th>STAGE 1</th>
<th>STAGE 2</th>
<th>INSERTS</th>
<th>UPDATES</th>
<th>DELETES</th>
<th>SCANNED</th>
<th>SCANS</th>
<th>DELETES</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
```

### Field description

Here is a description of the field labels shown in the Scan Activity Workload Block.

**DATABASE**
The database name.

If the name is not available, the decimal DBID is printed.
If IFCID 058 is not present, DBID information is not available and therefore the field is left blank.

**MEMBER**
The name of the DB2 member within the DB2 data sharing group. This field shows N/P in a non-data-sharing environment.

**PAGESET**
The page set name.

*Note:* If the value shown in the TYPE column is INDX, this column shows the index name if provided by DB2.

**TYPE**
Indicates whether the scan performed by the data manager is an index file (INDX), a sequential data file (SEQD), or a sequential work file (SEQW).

**SCANS**
The total number of scans performed by the data manager.

**ROWS PROCESS**
Number of rows of all record types processed by a scan. As an example:

```sql
SELECT A1 FROM TABLE_A WHERE A1=3
```

Where the table space that contains TABLE_A also contains TABLE_B and TABLE_C. Note that this does not include partitioned table spaces because a partitioned table space can have only one table.

For a simple table space, this is a count of all scanned rows from all three tables.

This field is identical to ROWS EXAMINE when the table space is segmented, or when the scan is an index scan.

**FST INS**
The number of rows inserted using the fast insert algorithm. This value is usually 1, but it is more than 1 for insert with subselect.

**ROWS EXAMINE**
The number of rows of a specific record type processed by the scan. If the table space contains more than one table, scanned rows from the specific table only are counted.

For index scans, this value represents the number of index entries processed.

For a table space containing only one table, the value of ROWS EXAMINE is the same as the value of ROWS PROCESS.

**N-PIPE**
The number of times that fast insert could not be used for the insert operation, so a non-pipe insert algorithm was used instead.

**QUALIFIED AT STAGE 1**
The total number of rows that were qualified at stage 1.

**PIPE RE**
The number of times that the fast insert pipe was refilled for the insert operation.

**QUALIFIED AT STAGE 2**
The total number of rows that were qualified at stage 2. The value in this field cannot be greater than the value in QUALIFIED AT STAGE 1.
SQL Activity - Scan

INS WAIT
The number of times that the insert operation waited for the fast insert pipe to fill.

ROWS INSERTS
The number of rows inserted by the data manager.

ROWS UPDATES
The number of rows updated by the data manager.

ROWS DELETES
The number of rows deleted by the data manager.

PAGES SCANNED
The number of Getpage requests the data manager issued to the buffer manager. For an index scan, the field shows the number of Getpage requests on index pages.

RI SCANS
The number of additional Getpage requests the data manager issued to the buffer manager to enforce referential constraints.

RI DELETES
The number of additional rows deleted or set to null due to referential integrity.

Sort Activity:
This block shows sort activity for each sort performed by the event.

The sort activity is divided into the following sections:

- "Sort Activity - QW0095/96," which describes the sort activity recorded by IFCID 095 and 096 (Sort Start and Sort End) pairs
- "Sort Activity - QW0028" on page 4261, which describes the multiple distinct sort activity recorded by IFCID 028

Sort Activity - QW0095/96:
This topic shows detailed information about “COMPO - Sort Activity - QW0095/96”.

Sort Activity - QW0095/96
The field labels shown in the following sample layout of “COMPO - Sort Activity - QW0095/96” are described in the following section.

MEMBER : SAUBSC MAX RETURN CODE : 0 WORKFILES : 1.00 RECORDS : 77.00
TOTAL SORTS : 1 INITIAL WORKFILES : 1 RECORD SIZE : 832.00 SORT TYPE : ESA
SORT KEYS : 2.00 SORT COLUMNS : 50.00 KEY SIZE : 10.00 MERGE PASSES : 27.00
AET/SORT : 20.28794 DATA SIZE : 822.00 ROWS DELETED : 72.00
PARTITIONING: NO PARTITION TYPE : NONE W-FILES PART : 85.00 PARTIT & SORTING : NO

MEMBER
The member name of this DB2.

N/A means this DB2 is not part of a data sharing group.

Install parameter MEMBER NAME on panel DSNTIPK, or ZPARM MEMBNAME in DSN6GRP.

Field Name: QWPAMBRN

MAX RETURN CODE
The sort return code:

- **0** Successful
- **4** Empty - sort successful
- **8** Resource unavailable
- **12** Sort key too long
- **16** Error detected by fetch routine during input phase
- **20** Serious processing error

Field Name: QW0096RC

**WORKFILES**

The number of work files used for both input and merge phases.

Field Name: QW0096WF

**RECORDS**

The number of records sorted.

Field Name: QW0096NR

**TOTAL Sorts**

The total number of sorts that occurred during the reporting period.

Field Name: SQLTOTSO

**INITIAL WORKFILES**

The number of initial work files. The sorting of records can take more than one work file. The number of work files needed depends on the distribution of sort key values. The maximum number of work files is limited by the buffer pool size.

Field Name: QW0096IR

**RECORD SIZE**

The sort record size in bytes (the sort key size and the data area size).

Field Name: QW0096WR

**SORT TYPE**

The type of sort that occurred. The possible values are:

- **ESA** ORDER BY sort using the ESA sort hardware instructions
- **ESAG** GROUP BY sort using the ESA sort hardware instructions
- **ESAT** ESA tag sort using the ESA sort hardware instructions
- **RCYC** GROUP RECYCLING sort using the ESA sort hardware instructions
- **REG** Regular sort
- **NONE** No sort occurred.

Field Name: QW0096TS

**SORT KEYS**

The number of sort keys.

Field Name: QW0096SK
SORT COLUMNS
The number of sort columns.
Field Name: QW0096SC

KEY SIZE
The sort key size in bytes.
Field Name: QW0096KL

MERGE PASSES
The number of merge passes during sort processing.
Field Name: QW0096MP

AET/SORT
The average elapsed time per sort.
Field Name: SQLAVTSO

DATA SIZE
The sort data area size in bytes.
Field Name: QW0096DL

ROWS DELETED
The number of rows deleted because records were merged for the evaluation of column functions with GROUP BY.
Field Name: QW0096RL

PARTITIONING
Indicates whether the sorted records were partitioned.
Field Name: QW0096PP

PARTITION TYPE
Indicates when partitioning took place:
W   The work file was partitioned at the end of the input phase. No merge occurred.
M   The output was partitioned during the last merge pass.
O   One record was put into one partition.
P   The records were presorted before being partitioned.
N   The work file was not partitioned.
Field Name: QW0096PT

W-FILES PART
The number of work files, equal to the degree of parallelism, that sort has partitioned.
Field Name: QW0096PW

PARTIT & SORTING
Indicates whether the input records were only partitioned or partitioned and sorted:
YES   The records were only partitioned.
The records were partitioned and sorted.

Field Name: QW0096PO

Sort Activity - QW0028:

This topic shows detailed information about “COMPO - Sort Activity - QW0028”.

Sort Activity - QW0028

The field labels shown in the following sample layout of “COMPO - Sort Activity - QW0028” are described in the following section.

NO. OF WORKFILES: The number of records sorted into work files after the sort input phase.

Field Name: QW0028NR

TOTAL MULTIPLE DS: Total number of multiple distinct sorts.

Field Name: QW0028DS

MULTIPLE_DISTINCT Sorts: The multiple distinct sort currently being processed.

Field Name: QW0028DC

REQUESTED WORKFILES: The number of work files requested from the buffer manager at the beginning of each merge pass (MVS/ESA 3.1.3). It is valid if TYPE equals S.

If this field is greater than WORKFILES ACQ, there is another merge pass. If both fields are equal, this is the last or only merge pass.

Field Name: QW0028WA

ACTUAL WORKFILES: The number of work files actually acquired from the buffer manager at the beginning of each merge pass (MVS/ESA 3.1.3). It is valid if TYPE equals S.

Field Name: QW0028WG

RECORDS IN WORKFILE: The number of records in the work file during work file partitioning.

Field Name: SQ28TYZ

PARTITION PARALLEL: The partition work file number. The value in this field is 0 if partitioning is not requested. If partitioning is requested, the value can be from 1 to n, where n is the degree of parallelism. It is valid if TYPE equals Z, W, X, K, M, L, T, O, U, V, P, or Y.
Field Name: QW0028PW

RECORDS LAST MERGE
The number of sort records in the partition work file during the last merge.

Field Name: SQ28TYQ

PARTITIONING ONE RECORD
The number of times that partitioning occurred when only one record was sorted and put into a partition work file.

Field Name: SQ28TYT

PRE-SORTED RECORDS
The number of times partitioning occurred when presorted records are put into multiple work files.

Field Name: SQ28TYV

RECORDS MDS GROUPS
The number multiple distinct loops containing a number of multiple distinct sorts.

Field Name: SQ28TYB

CURRENT MERGE PASS
The current merge pass. It is issued at the end of the merge pass and, therefore, valid if TYPE equals E.

Field Name: QW0028MP

TOTAL MDS GROUPS
The total number of multiple distinct sort groups.

Field Name: QW0028DG

RECORDS MDS GROUPBY
The number of records read into a group at the start of the GROUPBY phase for a multiple distinct sort.

Field Name: SQ28TYD

MAX REQUESTED
The maximum number of work files requested from buffer manager during merge passes.

Field Name: SQ28MAXR

AVG REQUESTED
The average number of work files requested from buffer manager during merge passes.

Field Name: SQ28AVRQ

MAX NOT ACQUIRED
The maximum number of work files requested but not received from buffer manager during merge passes.

Field Name: SQ28MXNA

AVG NOT ACQUIRED
The average of work files requested but not received from buffer manager during merge passes.

**Field Name:** SQ28AVNA

**Host Variables:**

This block shows the host variables to represent the values that will be sent to or received from the SQL statement.

**Note:**
1. The number of shown host variables is limited to 100.
2. A warning message is issued in DPMLOG, if the limit is reached or if SQLDA entries are missing.

**Workload Host Variables Example**

Here is an example of the workload host variables.

```plaintext
--- HOST VARIABLES ---
LOCATION : SYSDSN1  COLLID : PMDEMO  PROGNAME : DYNSEL08  CONSIS_TOKEN : X'5A427634E644C54'
STMT_NO : 133  FORMAT : 1 - COMPLETE  NO.SQLDA ENTRIES : 3

<table>
<thead>
<tr>
<th>ENTRY_NO.</th>
<th>NAME</th>
<th>NULL_INDICATOR</th>
<th>SQLTYPE</th>
<th>LOCATION</th>
<th>COLLID</th>
<th>PROGNAME</th>
<th>CONSIS_TOKEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>NO</td>
<td>452</td>
<td>SYSDSN1</td>
<td>PMDEMO</td>
<td>DYNSEL08</td>
<td>X'5A427634E644C54'</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>NO</td>
<td>452</td>
<td>SYSDSN1</td>
<td>PMDEMO</td>
<td>DYNSEL08</td>
<td>X'5A427634E644C54'</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>NO</td>
<td>452</td>
<td>SYSDSN1</td>
<td>PMDEMO</td>
<td>DYNSEL08</td>
<td>X'5A427634E644C54'</td>
</tr>
</tbody>
</table>
```

**Field description**

Here is a description of the field labels shown in the workload host variables block.

**LOCATION**
Location name.

**Field Name:** QW0247LN

**COLLID**
Package collection identifier.

**Field Name:** QW0247PC

**PROGNAME**
Program name.

**Field Name:** QW0247PN

**CONSIS_TOKEN**
Not present (N/P) is shown for this field if the value is X'40' or X'00'; otherwise the hexadecimal value of the field is shown.

**Field Name:** QW0247TS

**STMT_NO**

Statement number.

Field Name: QW0247SN

FORMAT

The format of the SQLDA. Possible values are:

B'1000'

0 - COMpressed
   Is a compressed form of the SQLDA.

B'0100'

1 - Complete
   Is a complete SQLDA containing the data type, address,
   and address of the indicator variable for each host variable.

B'0010'

2 - Fixed Length
   Is a variable length character format containing the length
   of the string and text.

? - Unknown
   Is shown, if none of the above field names is used.

Field Name: QW0247FE

ENTRY_NO.

SQLDA entry number.

Field Name: QW0247NO

NAME

SQLDA name, if Format 1 SQLDA. The first two bytes are the length of the
NAME and are not shown.

Field Name: QW0247NA

NULL_INDICATOR

Null indicator values:

- YES, if X'00'
- NO, if X'FF'

Field Name: QW0247NA

SQLTYPE

SQL type (see DB2 SQL Reference).

Field Name: QW0247TY

DATA TYPE

DATA TYPE is derived as described in DB2 SQL Reference, based on the
SQLTYPE:

384, 385
   DATE

388, 389
   TIME
TIMESTAMP
VARYING LENGTH CHARACTER STRING
FIXED-LENGTH CHARACTER STRING
LONG VARYING CHARACTER STRING
FLOATING POINT
PACKED DECIMAL
LARGE INTEGER
SMALL INTEGER

Note:
1. Any other SQL TYPES are shown as: NON DISPLAYABLE DATA
2. Values are shown in DB2 internal format.

Field Name: QW0247TY

PRECISION
If the field is decimal (484 or 485), this is the precision.
Field Name: QW0247LP

SCALE
If the field is decimal (484 or 485), this is the scale.
Field Name: QW0247LS

ADDR_HOST_VAR
The address of the host variable in the application address space.
Field Name: QW0247PT

ADDR_IND_VAR
The address of the indicator variable, if the value in QW0247TY is odd (NULLABLE).
Field Name: QW0247IN

DATA
The host variable data.
Field Name: QW0247DA

Workload Highlight:
This block shows the highlights of the workload activity performed by the event. All workload fields available in the SORTBY option are included.
Workload Highlights (HILITE) Block Example

Here is an example of the workload highlight (HILITE) block.

--- WORKLOAD HILITE -----------------------------------------------------------------------------------------------
SCANS : 8 RECS/SORT: 3.00 I/O REQS : 1 SUSPENDS : 2 EXITS : 2 AMS : 1
ROWSPROC : 8 WORK/SORT: 2.00 AET/I/O : 1.374752 AET/SUSP : 0.485483 AET/EXIT : 0.048234 AET/AMS : 0.094745
PAGESCAN: 47 PASS/SORT: 2.00 DATACAPT: YES RIDS UNUSED: 2 CHECKCON : REJECTED DEGREE REDUCTION : 3
LOB_PAGSCAN: 12345 LOB_UPD_PAGE: 12345

Field description

Here is a description of the field labels shown in the workload highlight (HILITE) block.

SCANS
The total number of scans performed by the data manager.

RECS/SORT
The average number of records per sort.

I/O REQS
The number of SYNCHRONOUS and ASYNCHRONOUS READ and SYNCHRONOUS WRITE I/O requests per event.

SUSPENDS
The number of LOCK SUSPENSIONS per event.

EXITS
The number of validation, encode edit, and decode edit exits per event.

AMS
The number of times Access Method Services (AMS) was invoked within the event. AMS can be invoked by:
- Creating a DB2 page set (table space, table partition, index space)
- Expanding an existing DB2 page set
- Deleting a DB2 page set

ROWSPROC
The number of rows processed (of all record types).

WORK/SORT
The average number of work files per sort.

AET/I/O
The average elapsed time I/O requests.

AET/SUSP
The average elapsed time for LOCK SUSPENSIONS.

AET/EXIT
The average elapsed time per EXIT invocation.

AET/AMS
The average elapsed time of the AMS invocations within the event.

PAGESCAN
The number of pages scanned.

DATACAPT
The data capture indicator; shows whether IFCID 188 is present.

RIDS UNUSED
The number of times RID list processing was not used because nor RID storage was available or the number of RIDs exceeded the maximum limit.
CHECKCON
Indicates that a table check constraint was performed for the current SQL event:

OK The check constraint was ok.

REJECTED
The row to be inserted or updated was rejected due to a check constraint.

N/P No check was performed.

DEGREE REDUCTION
The difference between planned and negotiated run time degree.

LOB_PAGSCAN
The number of LOB pages scanned.

LOB_UPD_PAGE
The number of LOB pages updated.

SYSPLEX QUERY PARALLELISM USED
This field is shown if the query is executed on more than one member, this field shows the number of members. Otherwise this field is blank.

Note:
1. All fields in the highlight block are printed. If other detail blocks are requested, then some of the highlights are shown twice, once in the highlight block and again in the detail block.
2. If the records required for a field are not present, N/P is printed for that field. N/A is printed if the field is not relevant to the level of DB2.

Statistics report set
These topics provide information about the statistics reports.

This section provides examples of the statistics default layout for SHORT and LONG. Descriptions of the fields in the layout are described in the next section. Because the layout of the report and trace is the same (with the exception of the highlights block), only a report example is reproduced here.

When data from a particular DB2 version is processed, N/A is printed for all fields in the report that are not applicable to that version.

You can use the user-tailored reporting (UTR) facility to modify the layouts and store the changes. If you do this, store your layouts under a different name to avoid confusion and keep the layouts relevant to this documentation.

Note: For an introduction to the Statistics report set and general Statistics information refer to the [Reporting User’s Guide](#). It also provides information on input to Statistics reports.

Statistics Short Report
This topic introduces the short version of the Statistics reports.

The SHORT layout presents selected data from all Statistics categories using the following blocks of data:
- “Accounting Rollup” on page 4329
- “Buffer Pool General” on page 4334
Statistics Report

Utilities:
- “Buffer Pool Write” on page 4349
- “CPU Times” on page 4359
- “Data Sharing Locking” on page 4365
- “EDM Pool Activity” on page 4397
- “Global DDF Activity” on page 4401
- “Group Buffer Pool Activity” on page 4405
- “Highlights” on page 4417
- “Locking Activity” on page 4433
- “Log Activity” on page 4436
- “Miscellaneous statistics report” on page 4440
- “Open/Close Activity” on page 4443
- “Plan/Package Activity” on page 4444
- “Query Parallelism” on page 4449
- “RID List Processing” on page 4457
- “ROWID” on page 4460
- “SQL DCL” on page 4471
- “SQL DDL” on page 4473
- “SQL DML” on page 4478
- “Stored Procedures” on page 4463
- “Subsystem Services” on page 4464
- “Triggers” on page 4480
- “Use Currently Committed” on page 4481
- “User-Defined Functions” on page 4481
- “Workfile Database” on page 4482

Use the following command to print a Statistics short report:

```
STATISTICS REPORT LAYOUT (SHORT)
```

Statistics Long Report

This topic introduces the long version of the Statistics reports.

The following report is an example of a member-scope statistics long report, produced with the command:

```
STATISTICS REPORT DSETSTAT LAYOUT(LONG)
```

Statistics Long Report

This is an example of a long report for Statistics.

--- HIGHLIGHTS

| INTERVAL START | 08/24/16 07:01:00.00 | SAMPLING START | 08/24/16 07:01:00.00 | TOTAL THREADS | 35.00 |
| INTERVAL END   | 08/24/16 10:01:00.00 | SAMPLING END   | 08/24/16 10:01:00.00 | TOTAL COMMITS | 11366.00 |
| INTERVAL ELAPSED | 3:00:00.002174 | OUTAGE ELAPSED | 0.000000 | DATA SHARING MEMBER | N/A |

LOCATION: OMPDAS
GROUP: N/P
MEMBER: N/P
SUBSYSTEM: DA5
DB2 VERSION: V10

IBM Db2 Performance Expert on z/OS
<table>
<thead>
<tr>
<th>SQL DML</th>
<th>QUANTITY /SECOND</th>
<th>THREAD /COMMIT</th>
<th>SQL DCL</th>
<th>QUANTITY /SECOND</th>
<th>THREAD /COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELECT</td>
<td>77608.00</td>
<td>7.19</td>
<td>LOCK TABLE</td>
<td>722.00</td>
<td>0.07</td>
</tr>
<tr>
<td>INSERT</td>
<td>736.00</td>
<td>0.07</td>
<td>21.03</td>
<td>0.06</td>
<td>GRANT</td>
</tr>
<tr>
<td>UPDATE</td>
<td>1969.00</td>
<td>0.18</td>
<td>56.26</td>
<td>0.17</td>
<td>SET HOST VARIABLE</td>
</tr>
<tr>
<td>MERGE</td>
<td>30.00</td>
<td>0.00</td>
<td>0.86</td>
<td>0.00</td>
<td>SET CURRENT SQLID</td>
</tr>
<tr>
<td>DELETE</td>
<td>623.00</td>
<td>0.06</td>
<td>17.80</td>
<td>0.05</td>
<td>SET CURRENT PATH</td>
</tr>
<tr>
<td></td>
<td>PREPARE</td>
<td>3775.00</td>
<td>0.35</td>
<td>107.86</td>
<td>0.33</td>
</tr>
<tr>
<td>DESCRIPT</td>
<td>20.00</td>
<td>0.00</td>
<td>0.57</td>
<td>0.00</td>
<td>CONNECT TYPE 1</td>
</tr>
<tr>
<td>DESCRIPT</td>
<td>TABLE</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>CONNECT TYPE 2</td>
</tr>
<tr>
<td>OPEN</td>
<td>90145.00</td>
<td>8.35</td>
<td>2575.57</td>
<td>7.93</td>
<td>RELEASE</td>
</tr>
<tr>
<td>CLOSE</td>
<td>90145.00</td>
<td>8.35</td>
<td>2575.57</td>
<td>7.93</td>
<td>SET CONNECTION</td>
</tr>
<tr>
<td>FETCH</td>
<td>181.1K</td>
<td>16.77</td>
<td>5174.80</td>
<td>15.94</td>
<td></td>
</tr>
<tr>
<td>NUMBER</td>
<td>91701.00</td>
<td>8.49</td>
<td>2620.03</td>
<td>8.07</td>
<td>ASSOCIATE LOCATORS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ALLOCATE CURSOR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TOTAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>HOLD LOCATOR</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FREE LOCATOR</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TOTAL</td>
<td>750.00</td>
<td>0.07</td>
</tr>
<tr>
<td>STORED PROCEDURES QUANTITY /SECOND</td>
<td>THREAD /COMMIT</td>
<td>TRIGGERS QUANTITY /SECOND</td>
<td>THREAD /COMMIT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL U Statement EXECUTED 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>STATEMENT TRIGGER ACTIVATED 0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>PROCEDURE ABENDED 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>SQL TRIGGER ACTIVATED 0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>CALL STATMENT TIMED OUT 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>SQL ERROR OCCURRED 0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>CALL STATEMENT REJECTED 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USER DEFINED FUNCTIONS QUANTITY /SECOND</td>
<td>THREAD /COMMIT</td>
<td>ROW ID QUANTITY /SECOND</td>
<td>THREAD /COMMIT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXECUTED 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>DIRECT ACCESS 0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>ABENDED 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>INDEX USED 0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>TIMED OUT 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>TABLE SPACE SCAN USED 0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>REJECTED 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USE CURRENTLY COMMITTED QUANTITY /SECOND</td>
<td>THREAD /COMMIT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSERT ROWS 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DELETE ROWS 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UPDATE ROWS 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SQL Commands:**
- CREATE TABLE
- CREATE GLOBAL TEMP TABLE
- DECLARE GLOBAL TEMP TABLE
- CREATE AUXILIARY TABLE
- CREATE INDEX
- CREATE VIEW
- CREATE SYNONYM
- CREATE TABLESPACE
- CREATE DATABASE
- CREATE STOGROUP
- CREATE ALIAS
- CREATE DISTINCT TYPE
- CREATE FUNCTION
- CREATE PROCEDURE
- CREATE TRIGGER
- CREATE SEQUENCE
- CREATE ROLE
- CREATE TRUSTED CONTEXT
- CREATE MASK / PERMISSION
- CREATE VARIABLE
- ALTER TABLE
- ALTER INDEX
- ALTER VIEW
- ALTER TABLESPACE
- ALTER DATABASE
- ALTER STOGROUP
- ALTER FUNCTION

**SQL DDL Commands:**
- LOCK TABLE
- GRANT
- REVOKE
- SET CURRENT SQLID
- SET CURRENT PATH
- SET CURRENT PRECISION
- CONNECT TYPE
- RELEASE
- SET CONNECTION
- SQL TRIGGER ACTIVATED
- SQL ERROR OCCURRED
- DIRECT ACCESS
- INDEX USED
- TABLE SPACE SCAN USED
- DROP TABLE
- DROP VIEW
- DROP SYNONYM
- DROP TABLESPACE
- DROP DATABASE
- DROP STOGROUP
- DROP ALIAS
- DROP PACKAGE
- DROP DISTINCT TYPE
- DROP TRIGGER
- DROP SEQUENCE
- DROP ROLE
- DROP TRUSTED CONTEXT
- DROP MASK / PERMISSION
- DROP VARIABLE
- RENAME TABLE
- GRANT INDEX
- COMMENT ON
- LABEL ON
- TOTAL

**Database Environment:**
- DB2 Version: V10
- DB2 Version: V10
- DB2 Version: V10
- DB2 Version: V10
- DB2 Version: V10
- DB2 Version: V10
- DB2 Version: V10
- DB2 Version: V10
- DB2 Version: V10

**Statistics Report:**
- Location: OMPDAS
- Group: N/P
- Statistics Report: Long
- Requested From: Not Specified
- Member: N/P
- To: Not Specified
- Subsystem: DAS
- Interval from: 08/24/16 07:01:00.00
- DB2 Version: V10
- Scope: Member
- Interval start: 08/24/16 07:01:00.00
- Sampling start: 35.00
- Interval end: 08/24/16 10:01:00.00
- Sampling end: 08/24/16 10:01:00.00
- Total commits: 11366.00
- Interval elapsed: 00.00
- Outage elapsed: 00.00
- Data sharing member: N/A

--- HIGHLIGHTS ---
Statistics Report

**ALTER SEQUENCE** 0.00 0.00 0.00 0.00
**ALTER JAR** 0.00 0.00 0.00 0.00
**ALTER TRUSTED CONTEXT** 0.00 0.00 0.00 0.00
**ALTER MASK / PERMISSION** 0.00 0.00 0.00 0.00

**LOCATION:** OMPDAS
**GROUP:** N/P
**DBE VERSION:** V10

--- HIGHLIGHTS ---

**INTERVAL START:** 08/24/16 07:01:00.00
**INTERVAL END:** 08/24/16 10:01:00.00
**TOTAL THREADS:** 35.00
**TOTAL COMMITS:** 11366.00
**DATA SHARING MEMBER:** N/A

**EDM POOL**

**PAGES IN DBD POOL (ABOVE)** 25600.00 N/A N/A N/A
**HELD BY DBD** 291.00 N/A N/A N/A
**STEALABLE PAGES** 204.27 N/A N/A N/A
**FREE PAGES** 25309.00 N/A N/A N/A

**PAGES IN SMRT POOL (ABOVE)** 28346.00 N/A N/A N/A
**HELD BY STATEMENTS** 545.89 N/A N/A N/A
**FREE PAGES** 27800.11 N/A N/A N/A

**PAGES IN SKL POOL (ABOVE)** 25600.00 N/A N/A N/A
**HELD BY SKLT** 10.11 N/A N/A N/A
**HELD BY SKEPT** 277.78 N/A N/A N/A
**STEALABLE PAGES** 287.88 N/A N/A N/A
**FREE PAGES** 25312.11 N/A N/A N/A

**MEMBER:** OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
**PAGE:** 1-4

--- HIGHLIGHTS ---

**INTERVAL START:** 08/24/16 07:01:00.00
**INTERVAL END:** 08/24/16 10:01:00.00
**TOTAL THREADS:** 35.00
**TOTAL COMMITS:** 11366.00
**DATA SHARING MEMBER:** N/A
### Statistics Report

**Location:** OMPDAS

**Group:** N/P

**Subsystem:** DAS

**DB2 Version:** V10

**Scope:** Member

**Page:** 1-5

--- **HIGHLIGHTS** ---

**Interval Start:** 08/24/16 07:01:00.00
**Sampling Start:** 08/24/16 07:01:00.00
**Total Threads:** 35.00

**Interval Elapsed:** 3:00:00.002174
**Outage Elapsed:** 0.000000
**Data Sharing Member:** N/A

#### OPEN/CLOSE ACTIVITY

<table>
<thead>
<tr>
<th>Activity</th>
<th>Quantity</th>
<th>/Second</th>
<th>Thread</th>
<th>Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Datasets -&gt; HMM</td>
<td>207.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DS Not in Use, Not Closed</td>
<td>203.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>In Use Datasets</td>
<td>4.01</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Open/Closed Threshold Reached:** 0.00 0.00 0.00 0.00

**DSets Converted R/W -> R/O:** 37.00 0.00 1.06 0.00

**TAPE VOLUME CONTENTION WAIT:** 0.00 0.00 0.00 0.00

--- **HIGHLIGHTS** ---

**Interval Start:** 08/24/16 07:01:00.00
**Sampling Start:** 08/24/16 07:01:00.00
**Total Threads:** 35.00

**Interval Elapsed:** 3:00:00.002174
**Outage Elapsed:** 0.000000
**Data Sharing Member:** N/A

#### PLAN/PACKAGE PROCESSING

<table>
<thead>
<tr>
<th>Activity</th>
<th>Quantity</th>
<th>/Second</th>
<th>Thread</th>
<th>Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incremental Binds</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Plan Allocation Attempts</td>
<td>27.00</td>
<td>0.00</td>
<td>0.77</td>
<td>0.00</td>
</tr>
<tr>
<td>Package Allocation Attempt</td>
<td>9056.00</td>
<td>0.91</td>
<td>281.60</td>
<td>0.87</td>
</tr>
<tr>
<td>Plans Bound</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Bind Add Subcommands</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Bind Replace Subcommands</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Test Binds No Plan-ID</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Packages Bound</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Bind Add Package Subcommand</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
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<td>Bind Replace Package Subcommand</td>
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<td>Automatic Binds Successful</td>
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<tr>
<td>Auto.Bind Invalid Res. IDs</td>
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<td>Auto.Bind Packages Success</td>
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---

Chapter 6. Batch reporting  4271
### Statistics Report

**LOCATION:** OMQDAS  
**GROUP:** N/P  
**MEMBER:** N/P  
**SUBSYSTEM:** DAS  
**DB2 VERSION:** V10  
**PAGE:** 1-7  
**REQUESTED FROM:** NOT SPECIFIED  
**TO:** NOT SPECIFIED  
**INTERVAL FROM:** 08/24/16 07:01:00.00  
**INTERVAL TO:** 08/24/16 10:01:00.00  
**SCOPE:** MEMBER

---

#### HIGHLIGHTS

**INTERVAL START:** 08/24/16 07:01:00.00  
**SAMPLING START:** 08/24/16 07:01:00.00  
**TOTAL THREADS:** 35.00  
**TOTAL COMMITS:** 11366.00  
**INTERVAL ELAPSED:** 3:00:00.00  
**OUTAGE ELAPSED:** 0.000000  
**DATA SHARING MEMBER:** N/A

### DB2 COMMANDS

<table>
<thead>
<tr>
<th>COMMAND</th>
<th>QUANTITY /SECOND</th>
<th>DB2 COMMANDS</th>
<th>CONTINUED QUANTITY /SECOND</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISPLAY DATABASE</td>
<td>6.00</td>
<td>MODIFY TRACE</td>
<td>0.00</td>
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<tr>
<td>DISPLAY THREAD</td>
<td>0.00</td>
<td>MODIFY DDF</td>
<td>0.00</td>
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<tr>
<td>DISPLAY UTILITY</td>
<td>6.00</td>
<td>CANCEL THREAD</td>
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<tr>
<td>DISPLAY TRACE</td>
<td>0.00</td>
<td>TERM UTILITY</td>
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<td>DISPLAY LIMIT</td>
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<td>DISPLAY LOCATION</td>
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<td>RECOVER BSDS</td>
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<tr>
<td>DISPLAY ARCHIVE</td>
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<td>RECOVER IODU1T</td>
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<tr>
<td>DISPLAY BUFFERPOOL</td>
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<td>RESET IODU1T</td>
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<tr>
<td>DISPLAY GROUPBUFFERPOOL</td>
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<td>DISPLAY GROUP</td>
<td>2.00</td>
<td>ARCHIVE LOG</td>
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<td>DISPLAY LOG</td>
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<td>DISPLAY DDF</td>
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<td>DISPLAY PROFILE</td>
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<td>DISPLAY ACCEL</td>
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<td>ACCESS DATABASE</td>
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<td>DISPLAY DYNAMICQUERYCAPTURE</td>
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<td>ALTER GROUPBUFFERPOOL</td>
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<td>ALTER UTILITY</td>
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<td>TOTAL</td>
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### DB2 STATISTICS

**START DATABASE:** 0.00  
**START TRACE:** 22.00  
**START DB2:** 0.00  
**START RLIMIT:** 0.00  
**START DDF:** 0.00  
**START PROCEDURE:** 0.00  
**START FUNCTION:** 0.00  
**START PROFILE:** 0.00  
**START ACCEL:** 0.00  
**START DYNAMICQUERYCAPTURE:** 0.00

**STOP DATABASE:** 0.00  
**STOP TRACE:** 30.00  
**STOP DB2:** 0.00  
**STOP RLIMIT:** 0.00  
**STOP DDF:** 0.00  
**STOP PROCEDURE:** 0.00  
**STOP FUNCTION:** 0.00  
**STOP PROFILE:** 0.00  
**STOP ACCEL:** 0.00  
**STOP DYNAMICQUERYCAPTURE:** 0.00

---

#### HIGHLIGHTS

**INTERVAL START:** 08/24/16 07:01:00.00  
**SAMPLING START:** 08/24/16 07:01:00.00  
**TOTAL THREADS:** 35.00  
**TOTAL COMMITS:** 11366.00  
**INTERVAL ELAPSED:** 3:00:00.00  
**OUTAGE ELAPSED:** 0.000000  
**DATA SHARING MEMBER:** N/A

### RDI LIST PROCESSING

<table>
<thead>
<tr>
<th>PROCESSING</th>
<th>QUANTITY /SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
<th>AUTHORIZATION MANAGEMENT</th>
<th>QUANTITY /SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
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<tbody>
<tr>
<td>SUCCESSFUL</td>
<td>59.00</td>
<td>0.01</td>
<td>1.69</td>
<td>0.01</td>
<td>TOTAL AUTH ATTEMPTS</td>
<td>062.00</td>
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<tr>
<td>NOT USED NO STORAGE</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>TOTAL AUDIO SUCW</td>
<td>062.00</td>
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<td>MAX RDI BLOCKS ALLOCATED</td>
<td>11.00</td>
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<td>N/A</td>
<td>N/A</td>
<td>PKG-AUTH SUCW</td>
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<tr>
<td>CURRENT RDI BLOCKS ALLOCATED</td>
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<td>N/A</td>
<td>N/A</td>
<td>PKG-AUTH SUCW</td>
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<td>0.00</td>
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<tr>
<td>MAX RDI BLOCKS OVERFLOWED</td>
<td>0.00</td>
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<td>N/A</td>
<td>N/A</td>
<td>PKG-AUTH UNSUC-CACHE</td>
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<td>N/A</td>
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<td>PKG-CACHE OVERWR - AUTH ID</td>
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<tr>
<td>STORAGE LIMIT EXCEEDED</td>
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<td>PKG-CACHE OVERWR ATM</td>
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<td>RDS LIMIT EXCEEDED</td>
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<td>RTH-AUTH SUCW</td>
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<td>PROC LIMIT EXCEEDED</td>
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<td>RTH-AUTH UNSUC-CACHE</td>
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<td>OVERFLOWED-NO STORAGE</td>
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<td>RTH-CACHE OVERWR - AUTH ID</td>
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### Statistics Report

**Location:** OMPDG5  
**OGEMGON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)  
**Page:** 1-9

**Group:** N/P  
**Statistics Report = Long**  
**Requested from:** Not Specified  
**Member:** N/P  
**Subsystem:** DAS  
**DB2 Version:** V10  
**Scope:** Member  
**Interval from:** 08/24/16 07:01:00.00  
**To:** 08/24/16 10:01:00.00

--- **Highlights**

**Interval Start:** 08/24/16 07:01:00.00  
**Sampling Start:** 08/24/16 07:01:00.00  
**Total Threads:** 35.00

**Interval End:** 08/24/16 10:01:00.00  
**Sampling End:** 08/24/16 10:01:00.00  
**Total Commits:** 11366.00

**Interval Elapsed:** 3:00:00.002174  
**Outage Elapsed:** 0.000000  
**Data Sharing Member:** N/A

### Locking Activity

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<th>/Second</th>
<th>Thread</th>
<th>COMMIT</th>
<th>Data Sharing Locking</th>
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<tbody>
<tr>
<td><strong>Suspensions (All)</strong></td>
<td>4.00</td>
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<td>0.11</td>
<td>0.00</td>
<td>Global Contention Rate (%) N/C</td>
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<tr>
<td><strong>Suspensions (Lock Only)</strong></td>
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<td>0.00</td>
<td>0.11</td>
<td>0.00</td>
<td>False Contention Rate (%) N/C</td>
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<tr>
<td><strong>Suspensions (IRLM Latch)</strong></td>
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<td>0.00</td>
<td>0.00</td>
<td>P/L-Ops XES Rate (%) 0.00</td>
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<td><strong>Suspensions (Other)</strong></td>
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<td>0.00</td>
<td>0.00</td>
<td>LOCK REQUESTS (P-LOCKS) N/A 0.00</td>
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<td>UNLOCK REQUESTS (P-LOCKS) N/A 0.00</td>
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<td>0.00</td>
<td>0.00</td>
<td>CHANGE REQUESTS (P-LOCKS) N/A 0.00</td>
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**Lock Requests:** 131.4K  
**Unlock Requests:** 19690.00  
**Query Requests:** 0.00  
**Change Requests:** 4469.05  
**Other Requests:** 0.00

**Lock Escalation (Shared):** 0.00  
**Lock Escalation (Exclusive):** 0.00  
**Suspenders (IRLM Global Cont):** N/A 0.00  
**Suspenders (XES Global Cont):** N/A 0.00  
**Suspenders (False Cont. MBR):** N/A 0.00  
**Suspenders (False Cont. LPAR):** N/A 0.00  
**Suspenders (No Delay Lock Req Rejects):** N/A 0.00  
**Suspenders (Async.XES-Converted Locks):** N/A 0.00

**Suspenders (P/L-OPs XES):** N/A 0.00  
**Deadlocks:** N/A 0.00  
**Lock Requests Failed:** N/A 0.00  
**Unlock Requests Failed:** N/A 0.00  
**Query Requests Failed:** N/A 0.00  
**Change Requests Failed:** N/A 0.00  
**Other Requests Failed:** N/A 0.00

--- **Highlights**

**Interval Start:** 08/24/16 07:01:00.00  
**Sampling Start:** 08/24/16 07:01:00.00  
**Total Threads:** 35.00

**Interval End:** 08/24/16 10:01:00.00  
**Sampling End:** 08/24/16 10:01:00.00  
**Total Commits:** 11366.00

**Interval Elapsed:** 3:00:00.002174  
**Outage Elapsed:** 0.000000  
**Data Sharing Member:** N/A

### Global DDF Activity

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<th>Thread</th>
<th>COMMIT</th>
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<td><strong>CONN Closed - MAX QUEUED</strong></td>
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<td>Ran Reduced-Negotiation N/A</td>
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<td>Sequential-Cursor N/A</td>
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<td><strong>RESCONMIZATION Succeeded</strong></td>
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<td>N/A</td>
<td>Sequential-No ESA N/A</td>
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<td>N/A</td>
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</table>

**CUR Active and Discn DTBS** 0.00  
**HMM Active and Discn DTBS** 51.00  
**HMM TDL Remote Connections** 100.00
Statistics Report

CUR DISCON DBATS NOT IN USE 0.00 N/A N/A N/A
HWM DISCON DBATS NOT IN USE 47.00 N/A N/A N/A
DBATS CREATED 0.00 N/A N/A N/A
DISCON (POOL) DBATS REUSED 0.00 N/A N/A N/A
CUR ACTIVE DBATS-BND DEALLOC 0.00 N/A N/A N/A
HWM ACTIVE DBATS-BND DEALLOC 0.00 N/A N/A N/A

------------------------ INTERVAL -----------------------

DB2 STORAGE ROLLUP
TOTAL RES
OP7 1118.00
OP6 851.00
OP5 532.00
OP4 659.00
OP1 20.00
GTF 40.00
SMF 30.00
---------
IFC 1182.00
TOTAL 2182.00

----- HIGHLIGHTS -----

INTERVAL START : 08/24/16 07:01:00.00 SAMPLING START: 08/24/16 07:01:00.00 TOTAL THREADS : 35.00
INTERVAL END : 08/24/16 10:01:00.00 SAMPLING END : 08/24/16 10:01:00.00 TOTAL COMMITS : 11366.00
INTERVAL ELAPSED: 3:00:00.002174 OUTAGE ELAPSED: 0.000000 DATA SHARING MEMBER: N/A

CPU TIMES

SYSTEM SERVICES ADDRESS SPACE 2.770310 0.005418 0.300807 3.156536 0.000000 0.000278
DATABASE SERVICES ADDRESS SPACE 0.099450 0.431247 0.027712 0.539310 0.000000 0.000047
IRIM 0.000308 0.000000 0.043932 0.044240 0.000000 0.000074
DDF ADDRESS SPACE 0.424677 0.000470 0.053274 0.478421 0.000000 0.000042

TOTAL 3.294745 0.498035 1.225727 5.018507 0.000000 0.000442

DB2 APPL.PROGR.INTERFACE

ABENDS 0.00 0.00 0.00 0.00 0.00 0.00
UNRECOGNIZED 0.00 0.00 0.00 0.00 0.00 0.00
COMMAND REQUESTS 0.01 1.03 0.00 1.04 0.00 0.00
READA REQUESTS 1118.00 0.10 31.94 10.94 0.00 0.00
READS REQUESTS 851.00 0.08 24.31 0.07 0.00 0.00
WRITE REQUESTS 0.00 0.00 0.00 0.00 0.00 0.00

TOTAL 2037.00 0.19 58.20 0.18

ACCOUNTING ROLLUP

ROLLUP THRESH RECS WRITTEN 3.00 0.00 0.09 0.00 0.00 0.00
STORAGE THRESH RECS WRITTEN 2.00 0.00 0.00 0.00 0.00 0.00
RECS UNQUALIFIED FOR ROLLUP 0.00 0.00 0.00 0.00 0.00 0.00

TOTAL 1419.4K 0.00 0.00 0.00

LOCATION: OMIDAS OMEGamon XE for DB2 Performance Expert (VSAM) PAGE: 1-11
GROUP: N/P
STATISTICS REPORT - LONG REQUESTED FROM: NOT SPECIFIED
MEMBER: N/P
TO: NOT SPECIFIED
SUBSYSTEM: DAS
INTERVAL FROM: 08/24/16 07:01:00.00
DB2 VERSION: V10
SCOPE: MEMBER
TO: 08/24/16 10:01:00.00

----- HIGHLIGHTS -----

INTERVAL START : 08/24/16 07:01:00.00 SAMPLING START: 08/24/16 07:01:00.00 TOTAL THREADS : 35.00
INTERVAL END : 08/24/16 10:01:00.00 SAMPLING END : 08/24/16 10:01:00.00 TOTAL COMMITS : 11366.00
INTERVAL ELAPSED: 3:00:00.002174 OUTAGE ELAPSED: 0.000000 DATA SHARING MEMBER: N/A

MISCELLANEOUS

HIGH LOG RBA 00000000001A9C506E80
ARRAY EXPANSIONS N/A
SPARSE IX DISABLED N/A
SPARSE IX BUILT WF N/A

4274 IBM Db2 Performance Expert on z/OS
Statistics Report

LOCATION: OMPG45  OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)  PAGE: 1-13
GROUP: N/P  STATISTICS REPORT - LONG  REQUESTED FROM: NOT SPECIFIED
MEMBER: N/P  TO: NOT SPECIFIED
SUBSYSTEM: DAS  INTERVAL FROM: 08/24/16 07:01:00.00
DB2 VERSION: V10  INTERVAL TO: 08/24/16 10:01:00.00
SCOPE: MEMBER

--- HIGHLIGHTS ---

INTERVAL START : 08/24/16 07:01:00.00  SAMPLING START : 08/24/16 07:01:00.00  TOTAL THREADS : 35.00
INTERVAL END : 08/24/16 10:01:00.00  SAMPLING END : 08/24/16 10:01:00.00  TOTAL COMMITS : 11366.00
INTERVAL ELAPSED: 3:00:00.002174  OUTAGE ELAPSED: 0.000000  DATA SHARING MEMBER: N/A

DB1 MVS STORAGE BELOW 2 GB  CONTINUED

<table>
<thead>
<tr>
<th>STORAGE</th>
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<th>DB1 MVS STORAGE BELOW 2 GB</th>
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<tr>
<td>TOTAL GBM1 STORAGE BELOW 2 GB</td>
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<td>24 BIT LOW PRIVATE (MB)</td>
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<tr>
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<td>24 BIT HIGH PRIVATE (MB)</td>
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<tr>
<td>TOTAL VARIABLE STORAGE</td>
<td>5.32</td>
<td>24 BIT PRIVATE CURRENT HIGH ADDRESS</td>
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<td>31 BIT EXTENDED HIGH PRIVATE (MB)</td>
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<td>EXTENDED CSA SIZE (MB)</td>
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<tr>
<td>HWM FOR ALLOCATED STATEMENTS</td>
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<td>STORAGE CUSHION</td>
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--- HIGHLIGHTS ---

INTERVAL START : 08/24/16 07:01:00.00  SAMPLING START : 08/24/16 07:01:00.00  TOTAL THREADS : 35.00
INTERVAL END : 08/24/16 10:01:00.00  SAMPLING END : 08/24/16 10:01:00.00  TOTAL COMMITS : 11366.00
INTERVAL ELAPSED: 3:00:00.002174  OUTAGE ELAPSED: 0.000000  DATA SHARING MEMBER: N/A

DB1 STORAGE ABOVE 2 GB  QUANTITY

<table>
<thead>
<tr>
<th>STORAGE</th>
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<tbody>
<tr>
<td>GETMAINED STORAGE</td>
<td>408.33</td>
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<tr>
<td>COMPRESSION DICTIONARY</td>
<td>0.00</td>
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<tr>
<td>IN USE EDM DBD POOL</td>
<td>2.14</td>
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<tr>
<td>IN USE EDM STATEMENT POOL</td>
<td>2.13</td>
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<tr>
<td>IN USE EDM RDS POOL</td>
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<tr>
<td>IN USE EDM SKELETON POOL</td>
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<tr>
<td>FIXED STORAGE POOL</td>
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<tr>
<td>VARIABLE STORAGE POOL</td>
<td>40.71</td>
</tr>
<tr>
<td>STORAGE MANAGER CONTROL BLOCKS</td>
<td>1.34</td>
</tr>
<tr>
<td>VIRTUAL BUFFER POOLS</td>
<td>118.08</td>
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<tr>
<td>VIRTUAL POOL CONTROL BLOCKS</td>
<td>2.28</td>
</tr>
<tr>
<td>CASTOUT BUFFERS</td>
<td>0.00</td>
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<tr>
<td>SHARED GEMAINED STORAGE</td>
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<tr>
<td>STORAGE FOR STMT DEPENDENCIES</td>
<td>9.74</td>
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<td>SHARED FIXED STORAGE</td>
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<td>RID POOL</td>
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<td>TOTAL AGENT NON-SYSTEM STORAGE</td>
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<tr>
<td>STATEMENTS COUNT</td>
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<td>HWM FOR ALLOCATED STATEMENTS</td>
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<td>STATEMENT COUNT AT HWM</td>
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<td>TIME AT HWM</td>
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</tr>
<tr>
<td>HWM FOR ALLOCATED STATEMENTS</td>
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<tr>
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Chapter 6. Batch reporting 4275
Statistics Report

| Thread Plan and Package Storage (MB) | 0.02 |
| Array Variable Storage (MB) | N/A |
| Shared Storage Manager Cntl Blks (MB) | 9.90 |
| Shared System Agent Stack Storage (MB) | 256.00 |
| Stack Storage in Use (MB) | 74.21 |
| Shared Non-System Agent Stack Storage (MB) | 768.00 |
| Stack Storage in Use (MB) | 3.23 |

Location: OMPSDS

--- Highlights ---

Interval Start: 08/24/16 07:01:00.00
Sampling Start: 08/24/16 07:01:00.00
Total Threads: 35.00
Interval Elapsed: 3:00:00.002174
Outage Elapsed: 0.000000
Data Sharing Member: N/A

---

### Dist and MVS Storage Below 2 GB

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<thead>
<tr>
<th>Quantity</th>
<th>Dist Storage Above 2 GB</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dist Storage Below 2 GB (MB)</td>
<td>6.77</td>
<td>Fixed Storage (MB)</td>
</tr>
<tr>
<td>Total GetMained Storage (MB)</td>
<td>0.00</td>
<td>GetMained Storage (MB)</td>
</tr>
<tr>
<td>Total Variable Storage (MB)</td>
<td>0.37</td>
<td>Variable Storage (MB)</td>
</tr>
<tr>
<td>Number of Active Connections</td>
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<td>Storage Manager Control Blocks (MB)</td>
</tr>
<tr>
<td>Number of Inactive Connections</td>
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<td></td>
</tr>
<tr>
<td>Total Fixed Storage (MB)</td>
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<td></td>
</tr>
<tr>
<td>Total GetMained Stack Storage (MB)</td>
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<td></td>
</tr>
<tr>
<td>Total Stack Storage in Use (MB)</td>
<td>0.91</td>
<td>System Agent Stack Storage in Use (MB)</td>
</tr>
<tr>
<td>Storage Cushion</td>
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### REAL and Auxiliary Storage for DBM1

<table>
<thead>
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<th>Quantity</th>
<th>REAL and Auxiliary Storage for Dist</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Total Storage in Use (MB)</td>
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<td>REAL Storage in Use (MB)</td>
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<td>31 Bit in Use (MB)</td>
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<td>31 Bit in Use (MB)</td>
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<td>64 Bit in Use (MB)</td>
<td>270.94</td>
<td>64 Bit in Use (MB)</td>
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<td>64 Bit Thread and System Only (MB)</td>
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<td>64 Bit Thread and System Only (MB)</td>
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<tr>
<td>HWM 64 Bit Real Storage in Use (MB)</td>
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<td>HWM 64 Bit Real Storage in Use (MB)</td>
</tr>
<tr>
<td>Average Thread Footprint (MB)</td>
<td>47.12</td>
<td>Average DBAT Footprint (MB)</td>
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### Auxiliary Storage in Use

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<td>64 Bit Thread and System Only (MB)</td>
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<td>HWM 64 Bit AUX Storage in Use (MB)</td>
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Location: OMPSDS

--- Highlights ---

Interval Start: 08/24/16 07:01:00.00
Sampling Start: 08/24/16 07:01:00.00
Total Threads: 35.00
Interval Elapsed: 3:00:00.002174
Outage Elapsed: 0.000000
Data Sharing Member: N/A

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### Common Storage Below and Above 2 GB

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<th>Quantity</th>
<th>Subsystem Shared Storage Above 2 GB</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>Extended CSA Size (MB)</td>
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<td>REAL Storage in Use (MB)</td>
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<tr>
<td>Fixed Pool Below (MB)</td>
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<td>Shared Thread and System (MB)</td>
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<tr>
<td>Variable Pool Below (MB)</td>
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<td>Average Thread Footprint (MB)</td>
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<tr>
<td>GetMained Below (MB)</td>
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</tr>
<tr>
<td>Fixed Pool Above (MB)</td>
<td>5.02</td>
<td>Shared Thread and System (MB)</td>
</tr>
<tr>
<td>Variable Pool Above (MB)</td>
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<td>Shared Stack Storage (MB)</td>
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<tr>
<td>GetMained Above (MB)</td>
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<td>Real Log Manager Write Buffers Above (MB)</td>
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<tr>
<td>Real Log Manager Control Blocks Above (MB)</td>
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<td>Average Thread Footprint (MB)</td>
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<tr>
<td>Auxiliary Storage in Use (MB)</td>
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</table>

4276 IBM Db2 Performance Expert on z/OS
### Statistics Report

**Page: 1-17**

**GROUP: N/P**

**REQUESTED FROM: NOT SPECIFIED**

**MEMBER: N/P**

**TO: NOT SPECIFIED**

**INTERVAL FROM: 08/24/16 07:01:00.00**

**INTERVAL TO: 08/24/16 10:01:00.00**

--- **HIGHLIGHTS** ---

**INTERVAL START**: 08/24/16 07:01:00.00

**SAMPLING START**: 08/24/16 07:01:00.00

**TOTAL THREADS**: 35.00

**INTERVAL END**: 08/24/16 10:01:00.00

**SAMPLING END**: 08/24/16 10:01:00.00

**TOTAL COMMITS**: 11366.00

**INTERVAL ELAPSED**: 3:00:00.000000

**OUTAGE ELAPSED**: 0.000000

**DATA SHARING MEMBER**: N/A

--- **WORKFILE DATABASE** ---

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<thead>
<tr>
<th>QUANTITY</th>
<th>SECOND</th>
<th>THREAD</th>
<th>COMMIT</th>
<th>CPU AND STORAGE METRICS</th>
<th>QUANTITY</th>
</tr>
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<tbody>
<tr>
<td><em>TOTAL STORAGE CONFIG (KB)</em></td>
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<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
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--- **SHORT-ON-STORAGE METRICS** ---

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<tr>
<td><em>FULL SYSTEM CONTRACTIONS</em></td>
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--- **HIGHLIGHTS** ---

**INTERVAL START**: 08/24/16 07:01:00.00

**SAMPLING START**: 08/24/16 07:01:00.00

**TOTAL THREADS**: 35.00

**INTERVAL END**: 08/24/16 10:01:00.00

**SAMPLING END**: 08/24/16 10:01:00.00

**TOTAL COMMITS**: 11366.00

**INTERVAL ELAPSED**: 3:00:00.000000

**OUTAGE ELAPSED**: 0.000000

**DATA SHARING MEMBER**: N/A

--- **BPO** ---

<table>
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<tr>
<th>QUANTITY</th>
<th>SECOND</th>
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<tbody>
<tr>
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<td><em>BPOOL HRT RATIO (%)</em></td>
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<td><em>BPOOL HRT RATIO (%) SEQ</em></td>
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<td><em>GETPAGE QUANT-SEQUENTIAL</em></td>
<td>109.1K</td>
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--- **Chapter 6. Batch reporting** ----

4277
Statistics Report

**DFHSM recall timeouts**

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- **VPOOL expans. or contract.**
  - 0.00 0.00 0.00 0.00 SYNCHRONOUS READS
  - 0.00 0.00 0.00 0.00 VPOOL READS-SEQUENTIAL

- **VPOOL expans. failures**
  - 0.00 0.00 0.00 0.00 IN-MEM OVLQ SEQ READS
  - 0.00 0.00 0.00 0.00 IN-MEM OVLQ RND READS

- **Concur. pref./IO streams-hwm**
  - 16.00 N/A N/A N/A SYNCHRONOUS READS

- **Pref./IO streams reduction**
  - 0.00 0.00 0.00 0.00 IN-MEM OVLQ SEQ READS

- **Parallel query requests**
  - 0.00 0.00 0.00 0.00 GETPAGE PER SYN.READ-RANDOM

- **Pref. quant. reduced to 1/2**
  - 0.00 0.00 0.00 0.00 IN-MEM OVLQ SEQ READS

- **Pref. quant. reduced to 1/4**
  - 0.00 0.00 0.00 0.00 IN-MEM OVLQ SEQ READS

- **Number of L/L inserts**
  - 0.00 0.00 0.00 0.00 IN-MEM OVLQ SEQ READS

- **INM buffers on SLRU**
  - 1103.46 N/A N/A N/A IN-MEM OVLQ SEQ READS

- **Max buffers on SLRU**
  - 1104.47 N/A N/A N/A IN-MEM OVLQ SEQ READS

- **SLRU length equals vpsqot**
  - 4.00 0.00 0.11 0.00 IN-MEM OVLQ SEQ READS

- **GETPAGE reqd random on SLRU**
  - 168.1K 15.57 4804.06 14.79 IN-MEM OVLQ SEQ READS

**Location:** OMPDA5 OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSAMX) **Page:** 1-19

**Group:** N/P **Statistics report** - Long **Requested from:** Not specified **Member:** N/P **To:** Not specified **Subsystem:** DAS

**DB2 version:** 10 **Scope:** Member **To:** 08/24/16 10:01:00

--- HIGHLIGHTS ---

**Interval start:** 08/24/16 07:01:00.00 **Sampling start:** 08/24/16 07:01:00.00 **Total threads:** 35.00

**Interval end:** 08/24/16 10:01:00.00 **Sampling end:** 08/24/16 10:01:00.00 **Total commits:** 11386.00

**Interval elapsed:** 3:00:00.002174 **Outage elapsed:** 0.000000 **Data sharing member:** N/A

**BP0 write operations**

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<tbody>
<tr>
<td><strong>Buffer updates</strong></td>
<td>1734.00</td>
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<td>49.54</td>
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<td><strong>Pages written</strong></td>
<td>154.00</td>
<td>0.01</td>
<td>4.40</td>
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**Sync. writes**

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<tr>
<td><strong>Pages written per write 1/2</strong></td>
<td>2.20</td>
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**Number of castout 1/0**

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**Page-ins required for write**

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--- HIGHLIGHTS ---

**Interval start:** 08/24/16 07:01:00.00 **Sampling start:** 08/24/16 07:01:00.00 **Total threads:** 35.00

**Interval end:** 08/24/16 10:01:00.00 **Sampling end:** 08/24/16 10:01:00.00 **Total commits:** 11386.00

**Interval elapsed:** 3:00:00.002174 **Outage elapsed:** 0.000000 **Data sharing member:** N/A

**BP2 general**

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<td><strong>Current active buffers</strong></td>
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**Number of dataset opens**

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**Buffers allocated - vpool**

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**DFHSM migrated dataset**

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**DFHSM recall timeouts**

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**VPOOL expans. or contract.**

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**VPOOL expans. failures**

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**Concur. pref./IO streams-hwm**

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**Pref./IO streams reduction**

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**Parallel query requests**

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**Pref. quant. reduced to 1/2**

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**Pref. quant. reduced to 1/4**

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</table>

**Number of L/L inserts**

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**INM buffers on SLRU**

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**Max buffers on SLRU**

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4278 IBM Db2 Performance Expert on z/OS
### Statistics Report

**LOCATION:** OMPDA5  
**GROUP:** N/P  
**MEMBER:** N/P  
**SUBSYSTEM:** DAS  
**DB2 VERSION:** V10  
**SCOPE:** MEMBER  
**INTERVAL FROM:** 08/24/16 07:01:00.00  
**INTERVAL TO:** 08/24/16 10:01:00.00  
**REQUESTED FROM:** NOT SPECIFIED  
**TO:** NOT SPECIFIED

#### HIGHLIGHTS

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<th>Quantity</th>
<th>/Second</th>
<th>/Thread</th>
<th>/Commit</th>
<th>Buffer Updates</th>
<th>Pages Written</th>
<th>Buff.Updates/Pages Written</th>
<th>Synchronous Writes</th>
<th>Asynchronous Writes</th>
<th>Pages Written Per Write I/O</th>
<th>Number of Castout I/O</th>
<th>Horiz. Def. Write Threshold</th>
<th>Vert. Def. Write Threshold</th>
<th>DM Threshold</th>
<th>Page-Ins Required for Write</th>
</tr>
</thead>
<tbody>
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<td>0.00</td>
<td>0.00</td>
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<td>0.00</td>
<td>0.00</td>
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<td>N/C</td>
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**LOCATION:** OMPDA5  
**GROUP:** N/P  
**MEMBER:** N/P  
**SUBSYSTEM:** DAS  
**DB2 VERSION:** V10  
**SCOPE:** MEMBER  
**INTERVAL FROM:** 08/24/16 07:01:00.00  
**INTERVAL TO:** 08/24/16 10:01:00.00  
**REQUESTED FROM:** NOT SPECIFIED  
**TO:** NOT SPECIFIED

#### HIGHLIGHTS

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<th>Buffer Operations</th>
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<th>/Thread</th>
<th>/Commit</th>
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<th>Pages Written</th>
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<th>Asynchronous Writes</th>
<th>Pages Written Per Write I/O</th>
<th>Number of Castout I/O</th>
<th>Horiz. Def. Write Threshold</th>
<th>Vert. Def. Write Threshold</th>
<th>DM Threshold</th>
<th>Page-Ins Required for Write</th>
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# Statistics Report

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**MEMBER:** N/P  
**SUBSYSTEM:** DAS  
**DB2 VERSION:** V10  
**SCOPE:** MEMBER  
**REQUESTED FROM:** NOT SPECIFIED  
**DATA SHARING MEMBER:** N/A  
**PAGE:** 1-24  

--- **HIGHLIGHTS** ---

## INTERVAL START: 08/24/16 07:01:00.00  
**SAMPLING START:** 08/24/16 07:01:00.00  
**TOTAL THREADS:** 35.00  
**END:** 08/24/16 10:01:00.00  
**INTERVAL ELAPSED:** 3:00:00.002174  
**OUTAGE ELAPSED:** 0.000000  

## BP7 WRITE OPERATIONS

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<td>PAGES WRITTEN</td>
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<td>CURRENT ACTIVE BUFFERS</td>
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<tr>
<td>IN-MEM OVLV REQ SEQS</td>
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<tr>
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<tr>
<td>PEAK PAGES READ</td>
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<td>NUMBER OF PAGES READ</td>
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<td>MAX Buffers on SLRU</td>
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## LOCATION:** OMPDAS  
**GROUP:** N/P  
**MEMBER:** N/P  
**SUBSYSTEM:** DAS  
**DB2 VERSION:** V10  
**SCOPE:** MEMBER  
**REQUESTED FROM:** NOT SPECIFIED  
**DATA SHARING MEMBER:** N/A  
**PAGE:** 1-25  

--- **HIGHLIGHTS** ---

## INTERVAL START: 08/24/16 07:01:00.00  
**SAMPLING START:** 08/24/16 07:01:00.00  
**TOTAL THREADS:** 35.00  
**END:** 08/24/16 10:01:00.00  
**INTERVAL ELAPSED:** 3:00:00.002174  
**OUTAGE ELAPSED:** 0.000000  

## BP32K WRITE OPERATIONS

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<tr>
<td>PEAK PAGES READ</td>
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<td>NUMBER OF PAGES READ</td>
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<tbody>
<tr>
<td>V10</td>
<td>1-26</td>
<td>MEMBER</td>
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<td>NOT SPECIFIED</td>
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<th>Buffer Sort/merge</th>
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### Interval End: 08/24/16 10:01:00.00

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### Interval Start: 08/24/16 07:01:00.00

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<tr>
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<tr>
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**Statistics Report**

<table>
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<tr>
<th>LOCATION: OMPDA5</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
<th>PAGE: 1-29</th>
</tr>
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<tbody>
<tr>
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<td>REQUESTED FROM: NOT SPECIFIED</td>
</tr>
<tr>
<td>MEMBER: N/P</td>
<td>TO: NOT SPECIFIED</td>
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</tr>
<tr>
<td>SUBSYSTEM: DAS5</td>
<td>INTERVAL FROM: 08/24/16 07:01:00.00</td>
<td>TO: 08/24/16 10:01:00.00</td>
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<td>DB2 VERSION: V10</td>
<td>SCOPE: MEMBER</td>
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--- HIGHLIGHTS ---

INTERVAL START: 08/24/16 07:01:00.00
INTERVAL END: 08/24/16 10:01:00.00
TOTAL THREADS: 35.00
TOTAL COMMITS: 11386.00
DATA SHARING MEMBER: N/A

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<tr>
<th>TOPTAL GENERAL</th>
<th>QUANTITY /SECOND /THREAD /COMMIT</th>
<th>TOPTAL READ OPERATIONS</th>
<th>QUANTITY /SECOND /THREAD /COMMIT</th>
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<tbody>
<tr>
<td>CURRENT ACTIVE BUFFERS</td>
<td>137.61 N/A N/A N/A</td>
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<td>99.70</td>
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<td>8660.00 N/A N/A N/A</td>
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**Statistics Report**

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--- HIGHLIGHTS ---

INTERVAL START: 08/24/16 07:01:00.00
INTERVAL END: 08/24/16 10:01:00.00
TOTAL THREADS: 35.00
TOTAL COMMITS: 11386.00
DATA SHARING MEMBER: N/A

4282 IBM Db2 Performance Expert on z/OS
Statistics Report

Chapter 6. Batch reporting

4283
### Statistics Report

**LOCATION:** OMPOAS  
**GROUP:** N/P  
**SUBSYSTEM:** DAS  
**DB2 VERSION:** V10  
**SAMPLING INTERVAL:** 08/24/16 07:01:00.00

--- HIGHLIGHTS ---

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<tr>
<th>STATMENTS</th>
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### SQL DML

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### SQL DCL

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### STORED PROCEDURES

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### USER DEFINED FUNCTIONS

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### USE CURRENTLY COMMITTED

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Statistics Report

--- HIGHLIGHTS

**INTERVAL:** : 08/24/16 07:01:00.00  SAMPLING START: 08/24/16 07:01:00.00  TOTAL COMMITS : 110.00
**INTERVAL END : 08/24/16 10:02:00.00  SAMPLING END : 08/24/16 10:02:00.00  TOTAL COMMITS : 479.00
**INTERVAL ELAPSED: 3:01:00.00  OUTAGE ELAPSED: 0.000000  DATA SHARING MEMBER: N/A

---

**LOCATION: OMPDB22**  OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V8R0M0)  **PAGE: S-2**
**GROUP: DB22**  **STATISTICS REPORT - LONG**  REQUESTED FROM: NOT SPECIFIED
**MEMBER: $22**  **TO: NOT SPECIFIED**
**SUBSYSTEM: DB2**  **INTERVAL FROM: 08/24/16 07:01:00.00**
**DB2 VERSION: V10**  **SCOPE: MEMBER**  **TO: 08/24/16 10:02:00.00**

--- HIGHLIGHTS

**INTERVAL:** : 08/24/16 07:01:00.00  SAMPLING START: 08/24/16 07:01:00.00  TOTAL COMMITS : 110.00
**INTERVAL END : 08/24/16 10:02:00.00  SAMPLING END : 08/24/16 10:02:00.00  TOTAL COMMITS : 479.00
**INTERVAL ELAPSED: 3:01:00.00  OUTAGE ELAPSED: 0.000000  DATA SHARING MEMBER: N/A

---

**EDM POOL**

---

**PAGES IN DBP POOL (ABOVE) 25600.00 N/A N/A N/A**
**HELD BY DBP 601.53 N/A N/A N/A**
**STEALABLE PAGES 514.16 N/A N/A N/A**
**FREE PAGES 24988.47 N/A N/A N/A**
**% PAGES IN USE 0.24 N/A N/A N/A**
**FAILS DUE TO DBP POOL FULL 0.00 0.00 0.00 0.00**

**PAGES IN STMT POOL (ABOVE) 28346.00 N/A N/A N/A**
**HELD BY STATEMENTS 26316.65 N/A N/A N/A**
**FREE PAGES 29.35 N/A N/A N/A**
**FAILS DUE TO STMT POOL FULL 0.00 0.00 0.00 0.00**

**PAGES IN SKEP POOL (ABOVE) 25600.00 N/A N/A N/A**
**HELD BY SKEP 7.85 N/A N/A N/A**
**HELD BY SKPT 229.25 N/A N/A N/A**
**STEALABLE PAGES 237.10 N/A N/A N/A**
**FREE PAGES 25362.90 N/A N/A N/A**
**% PAGES IN USE 0.00 N/A N/A N/A**
**FAILS DUE TO SKEP POOL FULL 0.00 0.00 0.00 0.00**

**DBP REQUESTS 768.00 0.07 6.98 1.60**
**DBP NOT FOUND 4.00 0.00 0.04 0.01**
**DBP HIT RATIO (%) 99.48 N/A N/A N/A**
**CT REQUESTS 100.00 0.01 0.91 0.21**

Chapter 6. Batch reporting  4285
### Statistics Report

**Location:** OMPD22  
**Subsystem:** S22

#### Datasets
- **Total Datasets:** 479
- **Start:** 08/24/16 07:01:00  
- **End:** 08/24/16 10:02:00

#### Statistics Overview
- **Elapsed Time:** 3:01:00.001144

#### Dynamic SQL Statement

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<td>875.00</td>
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#### Dynamic SQL Statement Services

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<td>0.22</td>
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<td>Units of Recovery Resolved</td>
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#### Cache Hit Ratio
- **Total Requests:** 876.00
- **Hit Ratio:** 94.29%
- **Misses:** 57.71%

#### Physic Cache
- **Miss Ratio:** 82.50%
- **Misses:** 57.71%

#### Local Cache Hit Ratio
- **Miss Ratio:** 82.50%
- **Misses:** 57.71%

#### CSWL
- **Hits:** 825.00
- **Misses:** 57.71%

#### Look-up in Catalog
- **Requests:** 0.00
- **Accesses:** 0.00

#### Statistics Report Details

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<td>0.23</td>
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<td>5.11</td>
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</table>

---

**NOTES:**
- **CWSL Stats:** LS82202210205: 100.00
- **Requests:** 825.00
- **Accesses:** 57.71%

---

**DSETS:**
- **Converted:** 50.00
- **R/W:** 4.50

---

**STATEMENTS IN GLOBAL CACHE:** 7077.42

---

**.generated_code**

```sql
SELECT ...
```
### PLAN/PACKAGE PROCESSING

<table>
<thead>
<tr>
<th>QUANTITY /SECOND</th>
<th>QUANTITY /THREAD</th>
<th>QUANTITY /COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### HIGHLIGHTS

**LOCATIONS:** OMÖT0B2Z OMEGAN® XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)

**GROUP:** DB22

**SUBSYSTEM:** S222

**DB2 VERSION:** V10

**LOCATION:** OMÖT0B2Z OMEGAN® XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)

**GROUP:** DB22

**SUBSYSTEM:** S222

**DB2 VERSION:** V10

---

**INTERVAL START:** 08/24/16 07:01:00.00

**INTERVAL END:** 08/24/16 10:02:00.00

**TOTAL THREADS:** 110.00

**TOTAL COMMIT:** 479.00

**INTERVAL ELAPSED:** 0:03:01.001144

**OUTAGE ELAPSED:** 0.000000

**DATA SHARING MEMBER:** N/A

### PLAN/PACKAGE PROCESSING

#### HIGHLIGHTS

**LOCATIONS:** OMÖT0B2Z OMEGAN® XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)

**GROUP:** DB22

**SUBSYSTEM:** S222

**DB2 VERSION:** V10

---

**INTERVAL START:** 08/24/16 10:02:00.00

**INTERVAL END:** 08/24/16 10:02:00.00

**TOTAL THREADS:** 110.00

**TOTAL COMMIT:** 479.00

**INTERVAL ELAPSED:** 0:03:01.01144

**OUTAGE ELAPSED:** 0.000000

**DATA SHARING MEMBER:** N/A

### DB2 COMMANDS

#### HIGHLIGHTS

**LOCATIONS:** OMÖT0B2Z OMEGAN® XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)

**GROUP:** DB22

**SUBSYSTEM:** S222

**DB2 VERSION:** V10

---

**INTERVAL START:** 08/24/16 10:02:00.00

**INTERVAL END:** 08/24/16 10:02:00.00

**TOTAL THREADS:** 110.00

**TOTAL COMMIT:** 479.00

**INTERVAL ELAPSED:** 0:03:01.01144

**OUTAGE ELAPSED:** 0.000000

**DATA SHARING MEMBER:** N/A

### DB2 COMMANDS

---

Chapter 6. Batch reporting 4287
## Statistics Report

### Location: OMPSDBZ2

- **DB2 Version:** V10
- **Scope:** MEMBER

### OMEGAMON XE for DB2 Performance Expert (V5R4M0) - PAGES: 5-8

<table>
<thead>
<tr>
<th>Procedure</th>
<th>QUANTITY</th>
<th>OPERATION</th>
<th>THREAD</th>
<th>COMMIT</th>
<th>AUTHORIZATION MANAGEMENT</th>
<th>QUANTITY</th>
<th>OPERATION</th>
<th>THREAD</th>
<th>COMMIT</th>
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<tbody>
<tr>
<td>STOP DATABASE</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<td>0.00</td>
<td>0.00</td>
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<tr>
<td>STOP DB2</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<td>STOP RLIMIT</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<td>STOP PROCEDURE</td>
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<td>0.00</td>
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<tr>
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<td>0.00</td>
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</tr>
<tr>
<td>STOP ACCEL</td>
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<td>0.00</td>
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<tr>
<td>STOP DYNAMQUERYCAPTURE</td>
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<td>0.00</td>
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</tr>
</tbody>
</table>

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### Location: OMPSDBZ2

- **DB2 Version:** V10
- **Scope:** MEMBER

### OMEGAMON XE for DB2 Performance Expert (V5R4M0) - PAGES: 5-9

<table>
<thead>
<tr>
<th>Procedure</th>
<th>QUANTITY</th>
<th>OPERATION</th>
<th>THREAD</th>
<th>COMMIT</th>
<th>DATA SHARING LOCKING</th>
<th>QUANTITY</th>
<th>OPERATION</th>
<th>THREAD</th>
<th>COMMIT</th>
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</thead>
<tbody>
<tr>
<td>SUSPENDED (LOCK ONLY)</td>
<td>11.00</td>
<td>0.06</td>
<td>0.10</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td>SUSPENDED (IRLM LATCH)</td>
<td>23.00</td>
<td>0.00</td>
<td>0.21</td>
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<td>SUSPENSIONS (OTHER)</td>
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<td>0.05</td>
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</tr>
</tbody>
</table>

---

### Notable Details
- **INTERVAL START:** 08/24/16 07:01:00.00
- **INTERVAL END:** 08/24/16 10:02:00.00
- **TOTAL THREADS:** 110.00
- **TOTAL COMMS:** 479.00
- **TOTAL SQL EXECUTIONS:** 184.27
- **TOTAL SQL ELAPSED:** 2:22.34
- **TOTAL SQL WAIT:** 21.00
- **TOTAL SQL COMPLETED:** 40.08
- **TOTAL SQL XES:** 15363.00
- **TOTAL SQL CHANGE:** 139.66
- **TOTAL SQL LOCK:** 15632.00
- **TOTAL SQL LOCKING:** 320.00

---

### IBM Db2 Performance Expert on z/OS
Chapter 6. Batch reporting 4289
Statistics Report

OP3 8.00 0.00 N/A 0.00 N/A STOP TRACE 34.00 0.00
OP4 193.00 0.00 N/A 0.00 N/A SYSTEM PARAMETERS 687.00 0.00
OP5 5.00 0.00 N/A 0.00 N/A SYS.PARMS-BPools 396.00 0.00
OP6 210.00 0.00 N/A 0.00 N/A AUDIT 0.00 0.00
OP7 1702.00 0.00 N/A 0.00 N/A TOTAL 2182.00 0.00
OP8 0.00 N/A 0.00 N/A N/A
RES 0.00 N/A N/A N/A

TOTAL 19679.00 0.00 0.00 0.00

ACCOUNTING ROLLUP QUANTITY /SECOND /THREAD /COMMIT LATCH CNT /SECOND /SECOND /SECOND /SECOND

ROLLUP THRESH REC ENTRIES 13.00 0.00 0.12 0.03 LC01-LC04 0.00 0.00 0.00 0.00
STORAGE THRESH REC ENTRIES 0.00 0.00 0.00 0.00 LC05-LC08 0.00 0.00 0.00 0.00
STALEN THRESH REC ENTRIES 4.00 0.00 0.04 0.01 LC09-LC12 0.00 0.00 0.00 0.00
RECS UNQUALIFIED FOR ROLLUP 0.00 0.00 0.00 0.00 LC13-LC16 0.00 0.00 0.00 0.00

LOCATION: OMPDB22 OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5RM0) PAGE: 5-12
GROUP: DB22 STATISTICS REPORT - LONG REQUESTED FROM: NOT SPECIFIED
SUBSYSTEM: S22 INTERVAL FROM: 08/24/16 07:01:00.00
DB2 VERSION: V10 SCOPE: MEMBER TO: 08/24/16 10:02:00.00

--- HIGHLIGHTS ---
INTERVAL START : 08/24/16 07:01:00.00 SAMPLING START: 08/24/16 07:01:00.00 TOTAL THREADS : 110.00
INTERVAL END : 08/24/16 10:02:00.00 SAMPLING END : 08/24/16 10:02:00.00 TOTAL COMMITS : 479.00
INTERVAL ELAPSED: 3:01:00.001144 OUTAGE ELAPSED: 0.000000 DATA SHARING MEMBER: N/A

DBM1 AND MV$ STORAGE BELOW 2 GB QUANTITY DBM1 AND MV$ STORAGE BELOW 2 GB CONTINUED QUANTITY

TOTAL DBM1 STORAGE BELOW 2 GB (MB) 9.59 24 BIT LOW PRIVATE (MB) 0.23
TOTAL GETMAIN'D STORAGE (MB) 0.96 24 BIT HIGH PRIVATE (MB) 0.48
TOTAL GETMAIN'D STORAGE (MB) 2.49 24 BIT PRIVATE CURRENT HIGH ADDRESS 0000000000040000
TOTAL AGENT LOCAL STORAGE (MB) 0.60 31 BIT EXTENDED LOW PRIVATE (MB) 71.65
TOTAL AGENT SYSTEM STORAGE (MB) 0.51 31 BIT EXTENDED HIGH PRIVATE (MB) 31.36
NUMBER OF PREFETCH ENGINES 8.00 31 BIT PRIVATE CURRENT HIGH ADDRESS 00000000072C9000
NUMBER OF DEFERRED WRITE ENGINES 10.00 EXTENDED REGION SIZE (MAX) 1508.00
NUMBER OF CASTOUT ENGINES 21.00 EXTENDED CSA SIZE (MB) 300.16
NUMBER OF GBP WRITE ENGINES 6.00
NUMBER OF P-LOCK/NOTIFY EXIT ENGINES 3.00 AVERAGE THREAD FOOTPRINT (MB) 0.56
TOTAL AGENT NON-SYSTEM STORAGE (MB) 0.09 MAX NUMBER OF POSSIBLE THREADS 1767
TOTAL NUMBER OF ACTIVE USER THREADS (MB) 5.66
TOTAL NUMBER OF ALLIED THREADS (MB) 5.66 AVERAGE THREAD FOOTPRINT (TYPE II) (MB) 0.16
NUMBER OF ACTIVE DBATS 0.00 MAX NUMBER OF POSSIBLE THREADS (TYPE II) 7778
NUMBER OF POOLED DBATS 0.00
NUMBER OF PARALLEL CHILD THREADS 0.00
SYSTEM COPY'S OF Cached SQL SMTS (MB) 0.27
IN USE STORAGE (MB) 0.00
HWM FOR ALLOCATED STATEMENTS (MB) 0.00
SYSTEM COPY'S OF Static SQL (MB) 0.73
IN USE STORAGE (MB) 0.00
THREAD PLAN AND PACKAGE STORAGE (MB) 0.00
BUFFER MANAGER STORAGE CONI. BLKS (MB) 0.78
TOTAL FIXED STORAGE (MB) 0.08
TOTAL GETMAIN'D STACK STORAGE (MB) 6.06
TOTAL STACK STORAGE IN USE (MB) 5.75
SYSTEM AGENT STACK STORAGE IN USE (MB) 4.88
STORAGE CUSHION (MB) 326.23

LOCATION: OMPDB22 OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5RM0) PAGE: 5-14
GROUP: DB22 STATISTICS REPORT - LONG REQUESTED FROM: NOT SPECIFIED
MEMBER: S22
SUBSYSTEM: S22 INTERVAL FROM: 08/24/16 07:01:00.00
DB2 VERSION: V10 SCOPE: MEMBER TO: 08/24/16 10:02:00.00

4290 IBM Db2 Performance Expert on z/OS
### Statistics Report

#### DBM1 Storage Above 2 GB

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
<th>Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Getmain storage</td>
<td>407.74</td>
<td>Compression dictionary</td>
<td>6.00</td>
</tr>
<tr>
<td>In use Edm db pool</td>
<td>2.35</td>
<td>In use Edm statement pool</td>
<td>110.61</td>
</tr>
<tr>
<td>In use Edm rrs pool</td>
<td>N/A</td>
<td>In use Edm skeleton pool</td>
<td>0.93</td>
</tr>
<tr>
<td>Fixed storage pool</td>
<td>12.39</td>
<td>Variable storage pool</td>
<td>28.49</td>
</tr>
<tr>
<td>Storage manager control blocks</td>
<td>1.34</td>
<td>Virtual buffer pools</td>
<td>235.58</td>
</tr>
<tr>
<td>Virtual pool control blocks</td>
<td>1.85</td>
<td>Castout buffers</td>
<td>2.63</td>
</tr>
<tr>
<td>Shared getmain storage</td>
<td>31.36</td>
<td>Shared fixed storage</td>
<td>3.15</td>
</tr>
<tr>
<td>Storage for stmt dependencies</td>
<td>27.29</td>
<td>Shared variable storage</td>
<td>21.91</td>
</tr>
<tr>
<td>Rdo pool</td>
<td>0.00</td>
<td>Total agent local storage</td>
<td>8.28</td>
</tr>
<tr>
<td>Total agent system storage</td>
<td>5.58</td>
<td>Total agent non-system storage</td>
<td>2.71</td>
</tr>
<tr>
<td>Thread copies of cached sql stmts</td>
<td>N/A</td>
<td>In use storage</td>
<td>0.00</td>
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<td>Statements count</td>
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<tr>
<td>Date at hwm</td>
<td>08/24/16</td>
<td>Time at hwm</td>
<td>08:11:42.94</td>
</tr>
<tr>
<td>Dynamic stmt cache cntl blks</td>
<td>12.65</td>
<td>System copies of cached sql stmts</td>
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</tr>
<tr>
<td>In use storage</td>
<td>N/A</td>
<td>System copies of static sql</td>
<td>N/A</td>
</tr>
<tr>
<td>Hwm for allocated statements</td>
<td>N/A</td>
<td>In use storage</td>
<td>N/A</td>
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<tr>
<td>System copies of package storage</td>
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<td>Thread plan and package storage</td>
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<td>Array variable storage</td>
<td>N/A</td>
<td>Shared storage manager cntl blks</td>
<td>2.96</td>
</tr>
<tr>
<td>Shared system agent stack storage</td>
<td>256.00</td>
<td>Stack storage in use</td>
<td>38.12</td>
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<tr>
<td>Shared non-system agent stack storage</td>
<td>768.00</td>
<td>Stack storage in use</td>
<td>2.83</td>
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</table>

#### Dist and MVS Storage Below 2 GB

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
<th>Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total disk storage below 2 GB</td>
<td>1.77</td>
<td>Fixed storage</td>
<td>0.09</td>
</tr>
<tr>
<td>Total getmain storage</td>
<td>0.00</td>
<td>Getmain storage</td>
<td>0.00</td>
</tr>
<tr>
<td>Total variable storage</td>
<td>0.27</td>
<td>Variable storage</td>
<td>0.04</td>
</tr>
<tr>
<td>Number of active connections</td>
<td>0.00</td>
<td>Storage manager control blocks</td>
<td>1.34</td>
</tr>
<tr>
<td>Total fixed storage</td>
<td>0.08</td>
<td>Total getmain bi storage</td>
<td>1.41</td>
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<tr>
<td>Total stack storage in use</td>
<td>0.88</td>
<td>Total stack in use</td>
<td>0.88</td>
</tr>
<tr>
<td>System agent stack storage in use</td>
<td>0.77</td>
<td>Storage cushion</td>
<td>328.43</td>
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</table>

#### 24 Bit Low Private

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
<th>Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 bit low private</td>
<td>0.24</td>
<td>24 bit high private</td>
<td>0.26</td>
</tr>
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</table>

#### 31 Bit Extended Low Private

<table>
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<tr>
<th>Category</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>31 bit extended low private</td>
<td>5.48</td>
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</table>

#### 31 Bit Extended High Private

<table>
<thead>
<tr>
<th>Category</th>
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<tbody>
<tr>
<td>31 bit extended high private</td>
<td>13.42</td>
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#### 31 Bit Private Current High Address

<table>
<thead>
<tr>
<th>Category</th>
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<tr>
<td>31 bit private current high address</td>
<td>00000000000004000</td>
</tr>
<tr>
<td>Extended region size (MAX)</td>
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</table>

## Real and Auxiliary Storage for DBM1

<table>
<thead>
<tr>
<th>Category</th>
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<th>Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real storage in use</td>
<td>433.68</td>
<td>Real storage in use</td>
<td>9.28</td>
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<tr>
<td>31 bit in use</td>
<td>74.77</td>
<td>64 bit in use</td>
<td>1.60</td>
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<td>64 bit in use</td>
<td>358.97</td>
<td>64 bit thread and system only</td>
<td>1.57</td>
</tr>
<tr>
<td>HWM 64 bit real storage in use</td>
<td>359.47</td>
<td>HWM 64 bit real storage in use</td>
<td>1.64</td>
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<tr>
<td>Average thread footprint</td>
<td>61.67</td>
<td>Average dbrt footprint</td>
<td>N/C</td>
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</table>

### Notes

- The report provides a detailed breakdown of storage usage and auxiliary information for DBM1 and DBZ2 for the period from 08/24/16 07:01:00.00 to 08/24/16 10:02:00.00.
- The total number of threads was 110.00.
- The total commits were 479.00.
- The data sharing member was N/A.
- The report includes statistics on various storage categories such as getmain storage, compression dictionary, cached SQL statements, and system copies of static SQL.
- The report also highlights the usage of variables, buffers, and storage spaces across different time intervals, providing insights into system performance and resource utilization.

---

**Location:** OMPDDBZ

**Statistics Report - Long**

**Requested From:** NOT SPECIFIED

**Member:** SZZZ

**Subsystem:** OMPDDBZ

**DB2 Version:** 10

**Scope:** MEMBER

**To:** 08/24/16 10:02:00.00

---

**Chapter 6. Batch reporting**

**Page:** 4291
Statistics Report

AUXILIARY STORAGE IN USE (MB) 5.49 AUXILIARY STORAGE IN USE (MB) 0.07
31 BIT IN USE (MB) 3.75 31 BIT IN USE (MB) 0.05
64 BIT IN USE (MB) 1.73 64 BIT IN USE (MB) 0.01
64 BIT THREAD AND SYSTEM ONLY (MB) 1.29 64 BIT THREAD AND SYSTEM ONLY (MB) 0.01
HWM 64 BIT AUX STORAGE IN USE (MB) 1.73 HWM 64 BIT AUX STORAGE IN USE (MB) 0.01

LOCATION: OM0DB2
OSGMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) PAGE: 5-16
GROUP: DB2
STATISTICS REPORT - LONG REQUESTED FROM: NOT SPECIFIED
MEMBER: S22
TO: NOT SPECIFIED
SUBSYSTEM: S22
INTERVAL FROM: 08/24/16 07:01:00.00
DB2 VERSION: V10
SCOPE: MEMBER
TO: 08/24/16 10:02:00.00

--- HIGHLIGHTS ---

INTERVAL START : 08/24/16 07:01:00.00  SAMPLING START: 08/24/16 07:01:00.00  TOTAL THREADS : 110.00
INTERVAL END : 08/24/16 10:02:00.00  SAMPLING END : 08/24/16 10:02:00.00  TOTAL COMMITS : 479.00
INTERVAL ELAPSED: 3:01:00.001144 OUTAGE ELAPSED: 0.000000 DATA SHARING MEMBER: N/A

COMMON STORAGE BELOW AND ABOVE 2 GB QUANTITY SUBSYSTEM SHARED STORAGE ABOVE 2 GB QUANTITY

EXTENDED CSA SIZE (MB) 300.16 REAL STORAGE IN USE (MB) 101.94
FIXED POOLbelow (MB) 1.28 SHARED STACK STORAGE (MB) 17.05
VARIABLE POOLbelow (MB) 0.68 AVERAGE THREAD FOOTPRINT (MB) 18.02
GETMAIN below (MB) 0.08 AUXILIARY STORAGE IN USE (MB) 0.26
FIXED POOLabove (MB) 4.82 SHARED THREAD AND SYSTEM (MB) 0.19
VARIABLE POOLabove (MB) 202.00 SHARED STACK STORAGE (MB) 0.08
GETMAIN above (MB) 0.19 REAL STORAGE IN USE (MB) 63.13

AUXILIARY STORAGE IN USE (MB) 0.00

AUXILIARY STORAGE IN USE (MB) 5.49

MVS LPAR SHARED STORAGE ABOVE 2 GB QUANTITY REAL STORAGE IN USE - SUMMARY QUANTITY

SHARED MEMORY OBJECTS (MB) 16.00 31/64-BIT PRIVATE (DMH) (MB) 433.88
64 BIT SHARED STORAGE (MB) 5701633.00 31/64-BIT PRIVATE (DQST) (MB) 9.28
HWM FOR 64 BIT SHARED STORAGE (MB) 5701633.00 64-BIT SHARED THREAD AND SYSTEM (MB) 84.89
64 BIT SHARED STORAGE BACKED IN REAL (MB) 889.29 64-BIT SHARED STACK (MB) 17.05
AUX STORAGE USED FOR 64 BIT SHARED (MB) 75.70 64-BIT COMMON (MB) 63.13
64 BIT SHARED STORAGE PAGED IN FROM AUX (MB) 92.69 TOTAL REAL STORAGE IN USE (MB) 608.03
64 BIT SHARED STORAGE PAGED OUT TO AUX (MB) 338.46

LOCATION: OM0DB2
OSGMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) PAGE: 5-17
GROUP: DB2
STATISTICS REPORT - LONG REQUESTED FROM: NOT SPECIFIED
MEMBER: S22
TO: NOT SPECIFIED
SUBSYSTEM: S22
INTERVAL FROM: 08/24/16 07:01:00.00
DB2 VERSION: V10
SCOPE: MEMBER
TO: 08/24/16 10:02:00.00

--- HIGHLIGHTS ---

INTERVAL START : 08/24/16 07:01:00.00  SAMPLING START: 08/24/16 07:01:00.00  TOTAL THREADS : 110.00
INTERVAL END : 08/24/16 10:02:00.00  SAMPLING END : 08/24/16 10:02:00.00  TOTAL COMMITS : 479.00
INTERVAL ELAPSED: 3:01:00.001144 OUTAGE ELAPSED: 0.000000 DATA SHARING MEMBER: N/A

WORKFILE DATABASE QUANTITY /SECOND /THREAD /COMMIT CPU AND STORAGE METRICS QUANTITY

TOTAL STORAGE CONFIG (KB) N/A N/A N/A N/A CP LPAR 8.00
TOTAL DGTST CONFIG (KB) N/A N/A N/A N/A CPU UTILIZATION LPAR 30.34
TOTAL WST CONFIG (KB) N/A N/A N/A N/A CPU UTILIZATION DB2 0.00
TOTAL STORAGE THRESHOLD (%) N/A N/A N/A N/A CPU UTILIZATION DB2 MSTR 0.00
MAX TOTAL STORAGE USED (KB) 8320.00 N/A N/A N/A CPU UTILIZATION DB2 DBM1 0.00
MAX DGTST Used (KB) N/A N/A N/A N/A UNREFERENCED INTERVAL COUNT 65535.00
MAX WST Used (KB) N/A N/A N/A N/A REAL STORAGE LPAR (MB) 8191.00
CUR TOTAL STORAGE USED (KB) 0.00 N/A N/A N/A FREE REAL STORAGE LPAR (MB) 1637.73
CUR DGTST Used (KB) N/A N/A N/A N/A USED REAL STORAGE DB2 (MB) 543.69
CUR WST Used (KB) N/A N/A N/A N/A
STORAGE IN 4K TS (KB) 0.00 N/A N/A N/A VIRTUAL STORAGE LPAR (MB) 20863.94
STORAGE IN 32K TS (KB) 0.00 N/A N/A N/A FREE VIRTUAL STOR LPAR (MB) 14707.73
4K USED INSTEAD OF 32K TS 0.00 0.00 0.00 0.00
32K USED INSTEAD OF 4K TS 0.00 0.00 0.00 0.00
MAX ACTIVE (DM) IN-MEMORY 5.00 N/A N/A N/A
MAX ACT (NONSORT) IN-MEMORY 0.00 N/A N/A N/A
MAX CUR (NONSORT) IN-MEMORY 0.00 N/A N/A N/A
### Statistics Report

**IN-MEM (NOKSORT) OVERFLOWED** | N/A | N/A | N/A | N/A  
**IN-MEM WORKF NOT CREATED** | N/A | N/A | N/A | N/A  
**AGENT STORAGE CONFIG (KB)** | 0.00 | N/A | N/A | N/A  
**NUMBER OF LIMIT EXCEEDED** | 0.00 | 0.00 | 0.00 | 0.00  
**AGENT STORAGE THRESHOLD (%)** | N/A | N/A | N/A | N/A  
**MAX AGENT STORAGE USED (KB)** | N/A | N/A | N/A | N/A  
**DM FAST INSERT PIPES** | N/A | N/A | N/A | N/A  
**DM FAST INSERT PIPES DISABLED** | N/A | N/A | N/A | N/A  

---

**SHORT-ON-STORAGE METRICS**

<table>
<thead>
<tr>
<th>Quantity / Second / Thread / Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full System Contractions</td>
</tr>
<tr>
<td>Critical Shortages</td>
</tr>
<tr>
<td>Aborts Due to Shortages</td>
</tr>
</tbody>
</table>

**Location:** OMPDBZ2 OMEGamon for DB2 Performance Expert (V5RAMO)

**Group:** DB2 Statistics Report - Long

**Member:** S222

**Subsystem:** S222

**Database System:** S222

**Interval Elapsed:** 3:01:00.00144

**Data Uptakes/Second:** 0.000000

**Data Sharing Member:** N/A

---

**BP0 General**

<table>
<thead>
<tr>
<th>Quantity / Second / Thread / Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Active Buffers</td>
</tr>
<tr>
<td>UNAVAIL BUFFER-VPOOL FULL</td>
</tr>
<tr>
<td>Buffers Allocated - VPOOL</td>
</tr>
<tr>
<td>Buffers Migrated Dataset</td>
</tr>
<tr>
<td>VPOOL Expans. Or Contract.</td>
</tr>
<tr>
<td>Concur.Pref.1/0 Streams-HWM</td>
</tr>
<tr>
<td>Pref.1/0 Streams Reduction</td>
</tr>
<tr>
<td>Parallel Query Requests</td>
</tr>
<tr>
<td>Pref.Quant.Reduced To 1/2</td>
</tr>
<tr>
<td>Pref.Quant.Reduced To 1/4</td>
</tr>
<tr>
<td>Number of L1 Inserts</td>
</tr>
<tr>
<td>Min Buffers on SLRU</td>
</tr>
<tr>
<td>Max Buffers on SLRU</td>
</tr>
<tr>
<td>SLRU Length Equals VPSEQT</td>
</tr>
<tr>
<td>GETPAGE Requ Random on SLRU</td>
</tr>
</tbody>
</table>

**Location:** OMPDBZ2 OMEGamon for DB2 Performance Expert (V5RAMO)

---

**BP0 WRITE OPERATIONS**

<table>
<thead>
<tr>
<th>Quantity / Second / Thread / Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer Updates</td>
</tr>
<tr>
<td>Pages Written</td>
</tr>
<tr>
<td>Synchronous Writes</td>
</tr>
<tr>
<td>Pages Written Per Write 1/0</td>
</tr>
<tr>
<td>Number of Castout 1/0</td>
</tr>
</tbody>
</table>

**Location:** OMPDBZ2 OMEGamon for DB2 Performance Expert (V5RAMO)

---

**BP0 WRITE OPERATIONS**

<table>
<thead>
<tr>
<th>Quantity / Second / Thread / Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer Updates</td>
</tr>
<tr>
<td>Pages Written</td>
</tr>
<tr>
<td>Synchronous Writes</td>
</tr>
<tr>
<td>Pages Written Per Write 1/0</td>
</tr>
<tr>
<td>Number of Castout 1/0</td>
</tr>
</tbody>
</table>

**Location:** OMPDBZ2 OMEGamon for DB2 Performance Expert (V5RAMO)

---

\[ \text{Chapter 6. Batch Reporting} \]
## Statistics Report

**LOCATION**: OMP0822  
**GROUP**: DB2  
**SUBSYSTEM**: S22  
**DB2 VERSION**: V10  
**PAGE**: 5-20  
**REQUESTED FROM**: NOT SPECIFIED  
**INTERVAL FROM**: 08/24/16 07:01:00.00  
**SCOPE**: MEMBER

### HIGHLIGHTS

**INTERVAL**  
**START**: 08/24/16 07:01:00.00  
**END**: 08/24/16 10:02:00.00  
**TOTAL THREADS**: 110.00  
**TOTAL COMMITS**: 479.00

#### BP3 GENERAL

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>/SECOND</td>
<td>/THREAD</td>
</tr>
<tr>
<td>/COMMIT</td>
<td>/COMMIT</td>
</tr>
</tbody>
</table>

- **CURRENT ACTIVE BUFFERS**: 0.00 N/A N/A N/A
- **UNAVAIL.BUFFER-VPOOL FULL**: 0.00 0.00 0.00 0.00
- **NUMBER OF DATASET OPENS**: 0.00 0.00 0.00 0.00
- **BUFFERS ALLOCATED - VPOOL**: 256.00 N/A N/A N/A
- **DPHS MIGRATED DATASET**: 0.00 0.00 0.00 0.00
- **VPOOL EXPANS. OR CONTRACT.**: 0.00 0.00 0.00 0.00
- **CONCUR.PREF.I/O STREAMS-HWM**: 0.00 N/A N/A N/A
- **PREP.I/O STREAMS REDUCTION**: 0.00 0.00 0.00 0.00
- **NUMBER OF LPL INSERTS**: 0.00 0.00 0.00 0.00
- **MIN BUFFERS ON SLRU**: 0.00 N/A N/A N/A
- **MAX BUFFERS ON SLRU**: 0.00 N/A N/A N/A
- **SLRU LENGTH EQUALS VPSEQT**: 0.00 0.00 0.00 0.00
- **GETPAGE REGULAR ON SLRU**: 0.00 0.00 0.00 0.00

- **PAGES WRITTEN**: 0.00 0.00 0.00 0.00
- **BUFFER UPDATES**: 0.00 0.00 0.00 0.00
- **SYNCHRONOUS WRITES**: 0.00 0.00 0.00 0.00
- **NUMBER OF CASTOUT 1/0**: 0.00 0.00 0.00 0.00
- **PAGE-INS REQUIRED FOR WRITE**: 0.00 0.00 0.00 0.00

**LOCATION**: OMP0822  
**GROUP**: DB2  
**SUBSYSTEM**: S22  
**DB2 VERSION**: V10  
**PAGE**: 5-21  
**REQUESTED FROM**: NOT SPECIFIED  
**INTERVAL FROM**: 08/24/16 07:01:00.00  
**SCOPE**: MEMBER

### HIGHLIGHTS

**INTERVAL**  
**START**: 08/24/16 07:01:00.00  
**END**: 08/24/16 10:02:00.00  
**TOTAL THREADS**: 110.00  
**TOTAL COMMITS**: 479.00

#### BP4 GENERAL

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>/SECOND</td>
<td>/THREAD</td>
</tr>
<tr>
<td>/COMMIT</td>
<td>/COMMIT</td>
</tr>
</tbody>
</table>

- **CURRENT ACTIVE BUFFERS**: 11.00 N/A N/A N/A
- **UNAVAIL.BUFFER-VPOOL FULL**: 0.00 0.00 0.00 0.00
- **NUMBER OF DATASET OPENS**: 0.00 0.00 0.00 0.00
- **GETPAGE REQUEST**: 0.00 0.00 0.00 0.00

---

4294 IBM Db2 Performance Expert on z/OS
### Statistics Report

<table>
<thead>
<tr>
<th>Buffers Allocated - VPOOL</th>
<th>2000.00</th>
<th>N/A</th>
<th>N/A</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dfshs Migrated Dataset</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Dfshs Recall Timouts</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Vpool Expans. Or Contract.</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Vpool Expans. Failures</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Concur, Pref. 1/0 Streams-HM</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Pref. 1/0 Streams Reduction</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Parallel Query Requests</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Pref. Quant. Reduced To 1/2</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Pref. Quant. Reduced To 1/4</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Number of Lpl Inserts</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Min Buffers on Slru</td>
<td>1835.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Slru Length Equals Vpseq</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Getpage Reqd Random on Slru</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

### Location: Omp0822

- **Omeqamon XE for DB2 Performance Expert (V5R4M0)**
- **Group:** Omp0822
- **Member:** S222
- **Subsystem:** S222

#### Highlights

- **Interval Start:** 08/24/16 07:01:00.00
- **Sampling Start:** 08/24/16 07:01:00.00
- **Total Threads:** 110.00
- **Interval End:** 08/24/16 10:02:00.00
- **Sampling End:** 08/24/16 10:02:00.00
- **Total Commits:** 479.00
- **Interval Elapsed:** 3:01:00.000114
- **Outage Elapsed:** 0.000000
- **Data Sharing Member:** N/A

### Lpl Highlights

<table>
<thead>
<tr>
<th>Statistic</th>
<th>N/A</th>
<th>N/A</th>
<th>N/A</th>
<th>N/A</th>
</tr>
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<tbody>
<tr>
<td><strong>Buffer Updates</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Pages Written</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Synchonous Writes</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Pages Written Per WRITE I/O</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Number of OUTAGE</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Horiz. Def. WRITE Threshold</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Vert. Def. WRITE Threshold</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>DM Threshold</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Pag-Ins Required for WRITE</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

### Location: Omp0822

- **Omeqamon XE for DB2 Performance Expert (V5R4M0)**
- **Group:** Omp0822
- **Member:** S222
- **Subsystem:** S222

#### Highlights

- **Interval Start:** 08/24/16 10:02:00.00
- **Sampling Start:** 08/24/16 10:02:00.00
- **Total Threads:** 110.00
- **Interval End:** 08/24/16 10:02:00.00
- **Sampling End:** 08/24/16 10:02:00.00
- **Total Commits:** 479.00
- **Interval Elapsed:** 3:01:00.000114
- **Outage Elapsed:** 0.000000
- **Data Sharing Member:** N/A

### Lpl Highlights

<table>
<thead>
<tr>
<th>Statistic</th>
<th>N/A</th>
<th>N/A</th>
<th>N/A</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buffer Updates</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Pages Written</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Synchonous Writes</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Pages Written Per WRITE I/O</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Number of OUTAGE</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Horiz. Def. WRITE Threshold</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Vert. Def. WRITE Threshold</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>DM Threshold</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Pag-Ins Required for WRITE</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Statistics Report

MAX BUFFERS ON SLRU 0.00 N/A N/A N/A L.PRF.PAGES READ/L.PRF.READ N/C
SLRU LENGTH EQUALS VPSEQ 0.00 0.00 0.00 0.00 DYNAMIC PREFETCH REQUESTED 0.00 0.00 0.00 0.00
GETPAGE REQU RANDOM ON SLRU 0.00 0.00 0.00 0.00 DYNAMIC PREFETCH READS 0.00 0.00 0.00 0.00
PAGES READ VIA DYN.PREFETCH 0.00 0.00 0.00 0.00 D.PRF.PAGES READ/D.PRF.READ N/C
PREF.DISABLED-NO BUFFER 0.00 0.00 0.00 0.00 PREF.DISABLED-NO READ ENG 0.00 0.00 0.00 0.00
PAGE-INS REQUIRED FOR READ 0.00 0.00 0.00 0.00

LOCATION: OMPP02Z
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
GROUP: DB22
SUBSYSTEM: S22
DB2 VERSION: 10
SCOPE: MEMBER

--- HIGHLIGHTS ---
INTERVAL START : 08/24/16 07:01:00.00 SAMPLING START : 08/24/16 07:01:00.00 TOTAL THREADS : 110.00
INTERVAL END : 08/24/16 10:20:00.00 SAMPLING END : 08/24/16 10:20:00.00 TOTAL COMMITS : 479.00
INTERVAL ELAPSED: 3:01:00.001144 OUTAGE ELAPSED: 0.000000 DATA SHARING MEMBER: N/A

BP7 WRITE OPERATIONS QUANTITY /SECOND /THREAD /COMM /BP7 SORT/MERGE QUANTITY /SECOND /THREAD /COMM
BUFFER UPDATES 4.00 0.00 0.04 0.01 MAX WORKFILES CONCURR. USED 0.00 N/A N/A N/A
BUFF. UPDATES/PAGES WRITTEN N/C MERGE PASS DEGRADED-LOW BUF 0.00 0.00 0.00 0.00
SYNCHRONOUS WRITES 0.00 0.00 0.00 0.00 WORKFILE REQ.REQLIST-LOW BUF 0.00 0.00 0.00 0.00
ASYNCHRONOUS WRITES 0.00 0.00 0.00 0.00 WORKFILE NOT CREATED-NO BUF 0.00 0.00 0.00 0.00
PAGES WRITTEN PER WRITE 1/0 N/C WORKFILE PRF NOT SCHEDULED 0.00 0.00 0.00 0.00
NUMBER OF CASTOUT 1/0 0.00 0.00 0.00 0.00
HORIZ.DEF.WRITE THRESHOLD 0.00 0.00 0.00 0.00
VERT.DEF.WRITE THRESHOLD 0.00 0.00 0.00 0.00
DM THRESHOLD 0.00 0.00 0.00 0.00
PAGE-INS REQUIRED FOR WRITE 0.00 0.00 0.00 0.00

LOCATION: OMPP02Z
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
GROUP: DB22
SUBSYSTEM: S22
DB2 VERSION: 10
SCOPE: MEMBER

--- HIGHLIGHTS ---
INTERVAL START : 08/24/16 07:01:00.00 SAMPLING START : 08/24/16 07:01:00.00 TOTAL THREADS : 110.00
INTERVAL END : 08/24/16 10:20:00.00 SAMPLING END : 08/24/16 10:20:00.00 TOTAL COMMITS : 479.00
INTERVAL ELAPSED: 3:01:00.001144 OUTAGE ELAPSED: 0.000000 DATA SHARING MEMBER: N/A

BP32K GENERAL QUANTITY /SECOND /THREAD /COMM /BP32K READ OPERATIONS QUANTITY /SECOND /THREAD /COMM
CURRENT ACTIVE BUFFERS 3.80 N/A N/A N/A BPOOL HIT RATIO (%) 94.66
UNAVAIL. BUFFER-VPOOL FULL 0.00 0.00 0.00 0.00 BPOOL HIT RATIO (%) SEQU 40.82
NUMBER OF DATASET OPENS 6.00 0.00 0.05 0.01 BPOOL HIT RATIO (%) RANDOM 97.76
BUFFERS ALLOCATED + VPOOL 6656.00 N/A N/A N/A GETPAGE REQUEST 1797.00 0.17 16.34 3.75
BFM REQUESTS-SEQUENTIAL 98.00 0.01 0.89 0.20 IN-MEM OVLF SEQ REQS N/A N/A N/A
VFHSM MIGRATED DATASET 0.00 0.00 0.00 0.00 GETPAGE REQUESTS-RANDOM 1699.00 0.16 15.45 3.55
DFM REQUESTS-SEQUENTIAL 0.00 0.00 0.00 0.00 IN-MEM OVLF RND REQS N/A N/A N/A
VFPOOL EXPANS. OR CONTRACT. 0.00 0.00 0.00 0.00
VFPOOL EXPANS. FAILURES 0.00 0.00 0.00 0.00
CONCUR, PREF, I/O STREAMS-HWM 0.00 N/A N/A N/A IN-MEM OVLF RND READS N/A N/A N/A
PREF, I/O STREAMS REDUCTION 0.00 0.00 0.00 0.00
PARALLEL QUERY REQUESTS 0.00 0.00 0.00 0.00 GETPAGE PER SYN.READ-RANDOM 53.09
PARALLEL QUERY REDUCTION 0.00 0.00 0.00 0.00 SEQUENTIAL SYM.READ-RANDOM 0.00 0.00 0.04 0.01
PREF, I/O STREAMS REDUCTION 0.00 0.00 0.00 0.00
NUMBER OF LPL INSERTS 0.00 0.00 0.00 0.00
MIN BUFFERS ON SLRU 0.00 N/A N/A N/A PAGE-INS VIA LIST PRETFCH 0.00 0.00 0.00 0.00
MAX BUFFERS ON SLRU 0.00 N/A N/A N/A
SLRU LENGTH EQUALS VPSEQ 0.00 0.00 0.00 0.00 DYNAMIC PREFETCH REQUESTED 25.00 0.00 0.23 0.05
GETPAGE RQH RANDOM ON SLRU 0.00 0.00 0.00 0.00 D.PRF.PAGES READ/D.PRF.READ 6.37
PREF.DISABLED-NO BUFFER 0.00 0.00 0.00 0.00
PAGE-INS REQUIRED FOR READ 83.00 0.01 0.75 0.17
### Statistics Report

**Stats Report** for DB2 Performance Expert (VSAM)

#### INTERVAL START: 08/24/16 07:01:00.00  
**INTERVAL END:** 08/24/16 10:02:00.00  
**TOTAL THREADS:** 110.00  
**TOTAL COMMITS:** 479.00  
**INTERVAL ELAPSED:** 3:01:00.001144  
**OUTAGE ELAPSED:** 0.000000  
**DATA SHARING MEMBER:** N/A

#### BP2X WRITE OPERATIONS

<table>
<thead>
<tr>
<th>Time</th>
<th>Thread</th>
<th>COMMIT</th>
<th>Quantity</th>
<th>Second</th>
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<tbody>
<tr>
<td>Buffer Updates</td>
<td>0.08</td>
<td>7.74</td>
<td>1.78</td>
<td>N/A</td>
</tr>
<tr>
<td>Pages Written</td>
<td>0.00</td>
<td>0.17</td>
<td>0.04</td>
<td>N/A</td>
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<td>Synchronous Writes</td>
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<td>0.01</td>
<td>N/A</td>
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<tr>
<td>Asynchronous Writes</td>
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<td>Number of Castout</td>
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<tr>
<td>Hori. Def.Write Threshold</td>
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#### BP2X SORT/MERGE

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<th>Quantity</th>
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<td>7.74</td>
<td>1.78</td>
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<tr>
<td>Buff.Updates/Pages Written</td>
<td>44.79</td>
<td>0.04</td>
<td>0.01</td>
<td>N/A</td>
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<tr>
<td>Synchronous Writes</td>
<td>4.00</td>
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<td>0.01</td>
<td>N/A</td>
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<td>Asynchronous Writes</td>
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<td>0.06</td>
<td>0.01</td>
<td>N/A</td>
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<td>Pages Written Per Write</td>
<td>1.73</td>
<td>0.05</td>
<td>0.01</td>
<td>N/A</td>
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<td>N/A</td>
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<tr>
<td>Hori. Def.Write Threshold</td>
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<td>N/A</td>
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<tr>
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**Location:** OMPB22  
**DB2 Version:** V10  
**Group:** DB2  
**Status:** STATISTICS REPORT - LONG  
**Requested From:** NOT SPECIFIED  
**To:** NOT SPECIFIED  
**SubSystem:** DBZ2  
**Start:** 08/24/16 07:01:00.00  
**End:** 08/24/16 10:02:00.00  
**Scope:** MEMBER  
**Data Sharing:** N/A

---

**Statistics Report** for DB2 Performance Expert (VSAM)

#### INTERVAL START: 08/24/16 07:01:00.00  
**INTERVAL END:** 08/24/16 10:02:00.00  
**TOTAL THREADS:** 110.00  
**TOTAL COMMITS:** 479.00  
**INTERVAL ELAPSED:** 3:01:00.001144  
**OUTAGE ELAPSED:** 0.000000  
**DATA SHARING MEMBER:** N/A

#### BP2X GENERAL

<table>
<thead>
<tr>
<th>Time</th>
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<th>COMMIT</th>
<th>Quantity</th>
<th>Second</th>
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<tbody>
<tr>
<td>Current Active Buffers</td>
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<td>N/A</td>
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<td>Dfshm Recall Timouts</td>
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#### BP2X READ OPERATIONS

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<td>GETPAGE SEQ-READS</td>
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<td>0.00</td>
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<td>N/A</td>
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<td>Page: 5-30</td>
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<td>Requested From: NOT SPECIFIED</td>
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<td>To: 08/24/16 10:02:00:00</td>
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**Statistics Report**

--- HIGHLIGHTS ---

| Interval Start: 08/24/16 07:01:00:00 | Sampling Start: 08/24/16 07:01:00:00 | Total Threads: 110.00 |
| Interval End: 08/24/16 10:02:00:00 | Sampling End: 08/24/16 10:02:00:00 | Total Commits: 479.00 |
| Interval Elapsed: 3:01:00.001144 | Outage Elapsed: 0.000000 | Data Sharing Member: N/A |

**BP16k General**

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<th>Quantity</th>
<th>/Second</th>
<th>/Thread</th>
<th>/Commit</th>
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<tbody>
<tr>
<td>Current Active Buffers</td>
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**BP16k Read Operations**

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<td>Getpage Req-Random</td>
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<td>S.RD.READS/PRF.READ N/C</td>
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--- HIGHLIGHTS ---

| Interval Start: 08/24/16 07:01:00:00 | Sampling Start: 08/24/16 07:01:00:00 | Total Threads: 110.00 |
| Interval End: 08/24/16 10:02:00:00 | Sampling End: 08/24/16 10:02:00:00 | Total Commits: 479.00 |
| Interval Elapsed: 3:01:00.001144 | Outage Elapsed: 0.000000 | Data Sharing Member: N/A |

**BP16k Write Operations**

<table>
<thead>
<tr>
<th>Quantity</th>
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<th>/Thread</th>
<th>/Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pages Written</td>
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</tr>
<tr>
<td>Buff Updates</td>
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<tr>
<td>Synchronous Writes</td>
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<tr>
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<td>0.00</td>
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<td>Pages Written Per Write 1/O</td>
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<td>Number of Castout 1/O</td>
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<td>Horiz. Def Write Threshold</td>
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--- HIGHLIGHTS ---

| Interval Start: 08/24/16 07:01:00:00 | Sampling Start: 08/24/16 07:01:00:00 | Total Threads: 110.00 |
| Interval End: 08/24/16 10:02:00:00 | Sampling End: 08/24/16 10:02:00:00 | Total Commits: 479.00 |
| Interval Elapsed: 3:01:00.001144 | Outage Elapsed: 0.000000 | Data Sharing Member: N/A |

--- HIGHLIGHTS ---

| Interval Start: 08/24/16 07:01:00:00 | Sampling Start: 08/24/16 07:01:00:00 | Total Threads: 110.00 |
| Interval End: 08/24/16 10:02:00:00 | Sampling End: 08/24/16 10:02:00:00 | Total Commits: 479.00 |
| Interval Elapsed: 3:01:00.001144 | Outage Elapsed: 0.000000 | Data Sharing Member: N/A |

4298

**IBM Db2 Performance Expert on z/OS**
### Statistics Report

#### **DATE:** 08/24/16  
#### **PAGE:** 5-33

### General Table

<table>
<thead>
<tr>
<th>Total General</th>
<th>Quantity / Second / Thread / Commit</th>
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<th>Quantity / Second / Thread / Commit</th>
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<td>In-Mem Ofvl Seq Req</td>
<td>N/A N/A N/A N/A</td>
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<td>Dfshm Recall Timouts</td>
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### Void Expans. or Contract.

| VPOOL Expans. or Contract. | 0.00 0.00 0.00 0.00 | Synchronous Reads | 1825.00 0.17 16.59 3.81 |
| VPOOL Expans. Failures | 0.00 0.00 0.00 0.00 | Sync Reads-Sequential | 819.00 0.08 7.45 1.71 |
| Concur.Pref.1/D Streams-H/M | 0.00 N/A N/A N/A | In-Mem Ofvl Seq Reads | N/A N/A N/A N/A |
| Pref.1/D Streams Reduction | 0.00 0.00 0.00 0.00 | Sync Reads-Read-Mem | 1006.00 0.09 15.10 2.01 |
| Parall.Query Req.Reduction | 0.00 0.00 0.00 0.00 | Sequential Prefetch Request | 1072.00 0.01 11.50 0.27 |
| Pref.Qant.Reduced To 1/2 | 0.00 0.00 0.00 0.00 | Sequential Prefetch Reads | 24.00 0.00 0.22 0.05 |
| Pref.Qant.Reduced To 1/4 | 0.00 0.00 0.00 0.00 | Pages Read Via Seq/Prefetch | 141.00 0.01 1.20 0.29 |
| Min Buffers on SLB | 0.00 N/A N/A N/A | SKIP Prefetch Reads | 8.00 |
| Max Buffers on SLB | 0.00 N/A N/A N/A | Pages Read Via List Prefetch | 131.00 0.01 1.19 0.27 |
| SLRU Length Equals VpsEq | 0.00 0.00 0.00 0.00 | In-Mem Ofvl Rnd Reads | N/A N/A N/A N/A |
| GetPage Req Random on SLB | 0.00 0.00 0.00 0.00 | Pages Read Via Dyn/Prefetch | 132.00 0.01 1.20 0.28 |
| Number of LPL Inserts | 0.00 0.00 0.00 0.00 | D.Prf.Pages Read/D.Pref.Read | 2.49 |
| Min Buffers on SLB | 0.00 N/A N/A N/A | Pref.Disabled-Non Buffer | 149.00 0.01 1.35 0.31 |
| Max Buffers on SLB | 0.00 N/A N/A N/A | Pref.Disabled-Non Read End | 0.00 0.00 0.00 0.00 |
| SLRU Length Equals VpsEq | 0.00 0.00 0.00 0.00 | Page-Ins Required For Read | 0.00 0.00 0.00 0.00 |

#### Location: OMP8222

| OMEGAMON XI FOR DB2 PERFORMANCE EXPERT (VRAMO) | PAGE: 5-33 |

--- **HIGHLIGHTS** ---

### Interval Start: 08/24/16 07:01:00.00

**Total Threads:** 110.00

**Total End:** 08/24/16 10:02:00.00

**Total Commits:** 479.00

**Interval Elapsed:** 00:01:00.00

**Outage Elapsed:** 00:00:00.00

**Data Sharing Member:** N/A

### Write Operations

<table>
<thead>
<tr>
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<th>Quantity / Second / Thread / Commit</th>
<th>Total Sort/Merge</th>
<th>Quantity / Second / Thread / Commit</th>
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</thead>
<tbody>
<tr>
<td>Buffer Updates</td>
<td>656.00 0.06 5.96 1.37</td>
<td>Max Workfiles Connreq. Used</td>
<td>0.00 N/A N/A N/A</td>
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<tr>
<td>Pages Written</td>
<td>24.00 0.00 0.22 0.05</td>
<td>Merge Passes Requested</td>
<td>0.00 0.00 0.00 0.00</td>
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<tr>
<td>Concurrent Writes</td>
<td>27.33</td>
<td>Merge Pass Degraded-LOW Buf</td>
<td>0.00 0.00 0.00 0.00</td>
</tr>
<tr>
<td>Asynchronous Writes</td>
<td>15.00 0.00 0.14 0.03</td>
<td>Workfile Req.Reqctd-LOW Buf</td>
<td>0.00 0.00 0.00 0.00</td>
</tr>
<tr>
<td>PAGES Written Per Write 1/0</td>
<td>6.00 0.00 0.05 0.01</td>
<td>Workfile Req.ALL Merge Pass</td>
<td>0.00 0.00 0.00 0.00</td>
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<tr>
<td>Pages Written For Castout 1/0</td>
<td>0.00 0.00 0.00 0.00</td>
<td>Workfile NOT Created-NO Buf</td>
<td>0.00 0.00 0.00 0.00</td>
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<td>Number of Castout 1/0</td>
<td>126.00 0.01 1.15 0.26</td>
<td>Workfile PRF NOT Schedul</td>
<td>0.00 0.00 0.00 0.00</td>
</tr>
<tr>
<td>Horiz.Def.Write Threshold</td>
<td>141.00 0.01 1.28 0.29</td>
<td>Sync Reads-Random</td>
<td>0.00 0.00 0.00 0.00</td>
</tr>
<tr>
<td>Verif.Def.Write Threshold</td>
<td>170.00 0.02 1.55 0.35</td>
<td>Sync Reads-Sequential</td>
<td>0.00 0.00 0.00 0.00</td>
</tr>
<tr>
<td>DM Threshold</td>
<td>0.00 0.00 0.00 0.00</td>
<td></td>
<td>0.00 0.00 0.00 0.00</td>
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<tr>
<td>Page-Ins Required For Write</td>
<td>0.00 0.00 0.00 0.00</td>
<td></td>
<td>0.00 0.00 0.00 0.00</td>
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</table>

#### Location: OMP8222

| OMEGAMON XI FOR DB2 PERFORMANCE EXPERT (VRAMO) | PAGE: 5-34 |

--- **HIGHLIGHTS** ---

### Interval Start: 08/24/16 07:01:00.00

**Sampling Start:** 08/24/16 07:01:00.00

**Total Threads:** 110.00

**Total End:** 08/24/16 10:02:00.00

**Total Commits:** 479.00

**Interval Elapsed:** 00:01:00.00

**Outage Elapsed:** 00:00:00.00

**Data Sharing Member:** N/A

--- **HIGHLIGHTS** ---

### Total General

<table>
<thead>
<tr>
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<th>Quantity / Second / Thread / Commit</th>
<th>Total Read Operations</th>
<th>Quantity / Second / Thread / Commit</th>
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<tr>
<td>Current Active Buffers</td>
<td>83.48 N/A N/A N/A</td>
<td>BPOOL Hit Ratio (%)</td>
<td>72.77</td>
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<tr>
<td>Unavail. Buffer-Pool Full</td>
<td>0.00 0.00 0.00 0.00</td>
<td>BPOOL Hit Ratio (%) SEQ</td>
<td>56.35</td>
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<tr>
<td>Number of Dataset Opens</td>
<td>20.00 0.00 0.18 0.04</td>
<td>GetPage Request</td>
<td>9022.00 0.38 82.02 18.84</td>
</tr>
<tr>
<td>Buffers Allocated - VPOOL</td>
<td>15943.50 N/A N/A N/A</td>
<td>GetPage Req-Sequential</td>
<td>1292.00 0.12 11.75 2.70</td>
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<tr>
<td>Dfshm Migrated Dataset</td>
<td>0.00 0.00 0.00 0.00</td>
<td>In-Mem Ofvl Seq Reads</td>
<td>N/A N/A N/A N/A</td>
</tr>
<tr>
<td>Dfshm Recall Timouts</td>
<td>0.00 0.00 0.00 0.00</td>
<td>GetPage Req-Random</td>
<td>7730.00 0.71 70.27 16.14</td>
</tr>
<tr>
<td>VPOOL Expans. or Contract.</td>
<td>0.00 0.00 0.00 0.00</td>
<td>Sync Reads-Random</td>
<td>1893.00 0.17 17.21 3.95</td>
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<tr>
<td>VPOOL Expans. Failures</td>
<td>0.00 0.00 0.00 0.00</td>
<td>Sync Reads-Sequential</td>
<td>825.00 0.08 7.65 1.72</td>
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</table>

--- **HIGHLIGHTS** ---

### Chapter 6. Batch Reporting
### Statistics Report

**Location:** OMPD22

**Member:** SEN2

**SYSTEM:** V10

**Statistics Report - Long**

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
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<th>/Thread</th>
<th>/Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Write Operations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Buffer Updates</strong></td>
<td>1507.00</td>
<td>0.14</td>
<td>0.39</td>
<td>3.15</td>
</tr>
<tr>
<td><strong>Pages Written</strong></td>
<td>43.00</td>
<td>0.00</td>
<td>0.39</td>
<td>0.09</td>
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<tr>
<td><strong>Buf. Updates/Pages Written</strong></td>
<td>35.05</td>
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<td></td>
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<tr>
<td><strong>Synchronous Writes</strong></td>
<td>19.00</td>
<td>0.00</td>
<td>0.17</td>
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</tr>
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<td><strong>Asyncronous Writes</strong></td>
<td>13.00</td>
<td>0.00</td>
<td>0.12</td>
<td>0.03</td>
</tr>
<tr>
<td><strong>Pages Written Per Write 1/O</strong></td>
<td>1.34</td>
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<td></td>
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<tr>
<td><strong>Pages WRN For Castout 1/O</strong></td>
<td>504.00</td>
<td>0.05</td>
<td>4.58</td>
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<tr>
<td><strong>Number of Castout 1/O</strong></td>
<td>129.00</td>
<td>0.01</td>
<td>1.17</td>
<td>0.27</td>
</tr>
<tr>
<td><strong>HDRIZ.DEF.WRITE THRESHOLD</strong></td>
<td>141.00</td>
<td>0.01</td>
<td>1.28</td>
<td>0.29</td>
</tr>
<tr>
<td><strong>VERT.DEF.WRITE THRESHOLD</strong></td>
<td>170.00</td>
<td>0.02</td>
<td>1.55</td>
<td>0.35</td>
</tr>
<tr>
<td><strong>DM THRESHOLD</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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</tr>
<tr>
<td><strong>Page-Ins Required For Write</strong></td>
<td>0.00</td>
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**Group BP**

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<tr>
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<th>/Thread</th>
<th>/Commit</th>
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<tbody>
<tr>
<td><strong>Group BP R/W Ratio (%)</strong></td>
<td>19.24</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td><strong>Group BP Read Hit Ratio (%)</strong></td>
<td>56.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Group BP R/W Ratio (%)</strong></td>
<td>1727.00</td>
<td>0.16</td>
<td>15.70</td>
<td>3.61</td>
</tr>
<tr>
<td><strong>SyN.Read[XI]-Data Returned</strong></td>
<td>5.00</td>
<td>0.00</td>
<td>0.05</td>
<td>0.01</td>
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<tr>
<td><strong>SyN.Read[XI]-No Data Return</strong></td>
<td>102.00</td>
<td>0.01</td>
<td>0.93</td>
<td>0.21</td>
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<tr>
<td><strong>Unregister Page</strong></td>
<td>181.00</td>
<td>0.02</td>
<td>1.65</td>
<td>0.38</td>
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<td><strong>Clean Pages Sync.Write</strong></td>
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</tr>
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<td><strong>Reg. List Hits (%)</strong></td>
<td>57.00</td>
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<td><strong>Number of Pages Retr. From BP</strong></td>
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<td>0.08</td>
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<td><strong>Pages Castout</strong></td>
<td>496.00</td>
<td>0.05</td>
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<tr>
<td><strong>Unlock Castout</strong></td>
<td>126.00</td>
<td>0.01</td>
<td>1.15</td>
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<td><strong>Read Class</strong></td>
<td>221.00</td>
<td>0.02</td>
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<td><strong>Read Directory Info</strong></td>
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<tr>
<td><strong>Read Storage Statistics</strong></td>
<td>1628.00</td>
<td>0.15</td>
<td>14.80</td>
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<td><strong>Register</strong></td>
<td>135.00</td>
<td>0.01</td>
<td>1.23</td>
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<td><strong>Delete Name</strong></td>
<td>12.00</td>
<td>0.00</td>
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<td><strong>AsyN BP Reads</strong></td>
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<td><strong>Explicit X-Invalidations</strong></td>
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<td><strong>Castout Class Threshold</strong></td>
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<td><strong>BP CHECKPOINTS Triggered</strong></td>
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<td><strong>Write Failed-Not Storage</strong></td>
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<td><strong>Write to SEC-GP Failed</strong></td>
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**IBM Db2 Performance Expert on z/OS**
## Statistics Report

### Page 5-37

**Location:** OMP022

**Group:** DB2

**Statistics Report - Long**

**Requested From:** Not Specified

**Member:** S22

**Interval From:** 08/24/16 07:01:00.00

**Subsystem:** S22

**Interval End:** 08/24/16 10:02:00.00

**DB2 Version:** V10

**Scope:** Member

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<tr>
<th>Page</th>
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<tr>
<td>5-37</td>
<td>OMP022</td>
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### HIGHLIGHTS

**INTERVAL START:** 08/24/16 07:01:00.00

**INTERVAL END:** 08/24/16 10:02:00.00

**TOTAL THREADS:** 110.00

**TOTAL COMMTS:** 479.00

**INTERVAL ELAPSED:** 3:01:00.000144

**OUTAGE ELAPSED:** 0.0000000 DATA SHARING MEMBER: N/A

### GROUP BP32K

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### GROUP BP32K Continued

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### CLEAN PAGES

**SYNC-WRITEN**

**ASYNC-WRITEN**

**PAGE LIST (RPL) REQUEST**

**INDEX LEAF**

**NUMBER OF PAGES RETR, FROM GBP**

### PAGES CASTOUT

**UNCASHTOUT CASTOUT**

### Read Castout Class

**SPACE MAP PAGES**

**DATA PAGES**

### Read Directory Info

**SPACE MAP PAGES**

**DATA PAGES**

### Read Storage Statistics

**INDEX LEAF PAGES**

**INDEX LEAF PAGES**

### Register Page

**SPACE MAP PAGES**

**DATA PAGES**

### Delete Name

**SPACE MAP PAGES**

**DATA PAGES**

### Explicit X-Invalidations

**SPACE MAP PAGES**

**DATA PAGES**

### Castout Class Threshold

**INDEX LEAF PAGES**

**INDEX LEAF PAGES**

### Group BP Castout Threshold

**INDEX LEAF PAGES**

**INDEX LEAF PAGES**

### GBP Checkpoints Triggered

**PAGES IN WRITE-AROUND**

**PAGES IN WRITE-AROUND**

### Write Failed-No Storage

### Write to SEC-GBP Failed

### Compl Checks Suspended

### Delete Name from SEC-GBP

### Unlock Castout Stats SEC-GBP

### ASYN SEC-GBP Requests

### Page 5-38

**Location:** OMP022

**Group:** DB2

**Statistics Report - Long**

**Requested From:** Not Specified

**Member:** S22

**Interval From:** 08/24/16 07:01:00.00

**Subsystem:** S22

**Interval End:** 08/24/16 10:02:00.00

**TOTAL THREADS:** 110.00

**TOTAL COMMTS:** 479.00

**INTERVAL ELAPSED:** 3:01:00.000144

**OUTAGE ELAPSED:** 0.0000000 DATA SHARING MEMBER: N/A

### GROUP BPBK

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### GROUP BPBK Continued

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### GBP Sync.Reading(1) Hit Ratio(%)

**WRITE AND REGISTER**

**WRITE AND REGISTER MULT**

**READ FOR CASTOUT**

**READ FOR CASTOUT MULT**

### GBP-Dependent Getpages

**PAGES WRITE & REG MULT**

**PAGES WRITE & REG MULT**

### SYN,READ(1)-DATA RETURNED

**INDEX PAGES WRITE**

**INDEX PAGES WRITE**

### SYN,READ(1)-NO DATA RETURN

**READ FOR CASTOUT MULT**

**READ FOR CASTOUT MULT**

### UNREGISTER PAGE

**PAGE P-LOCK LOCK REQ**

**PAGE P-LOCK LOCK SUSP**

**PAGE P-LOCK LOCK SUSP**

### Read Castout Class

**SPACE MAP PAGES**

**DATA PAGES**

### Read Directory Info

**SPACE MAP PAGES**

**DATA PAGES**

### Read Storage Statistics

**INDEX LEAF PAGES**

**INDEX LEAF PAGES**

### Register Page

**SPACE MAP PAGES**

**DATA PAGES**

### Delete Name

**SPACE MAP PAGES**

**DATA PAGES**

### Explicit X-Invalidations

**SPACE MAP PAGES**

**DATA PAGES**

---

**Chapter 6. Batch Reporting** 4301
### Statistics Report

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<th>Statistics</th>
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<th>Quantity</th>
<th>Second</th>
<th>Thread</th>
<th>Commit</th>
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<tbody>
<tr>
<td><strong>CASTOUT CLASS THRESHOLD</strong> (%)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td><strong>INDEX LEAF PAGES</strong> (%)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>GROUP BP CASTOUT THRESHOLD</strong> (%)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td><strong>PAGES IN WRITE-AROUND</strong> (%)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td><strong>GBP CHECKPOINTS Triggered</strong></td>
<td>36.00</td>
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<td>0.33</td>
<td>0.00</td>
<td><strong>WRITE FAILED-NO STORAGE</strong> (%)</td>
<td>0.00</td>
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<td><strong>DELETE NAME FROM SEC-GP</strong></td>
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<td><strong>ASYNC SEC-GP REQUESTS</strong></td>
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**LOCATION:** OMQBE2  
**OMEGamon XE for DB2 Performance Expert (VSRAMO)**  
**PAGE:** 5-39  
**GROUP:** DB2  
**STATISTICS REPORT - LONG**  
**REQUESTED FROM:** NOT SPECIFIED  
**MEMBER:** S22  
**TO:** NOT SPECIFIED  
**SUBSYSTEM:** S22  
**INTERVAL FROM:** 08/24/16 07:01:00.00  
**INTERVAL TO:** 08/24/16 16:02:00.00  
**TOTAL COMMITS:** 479.00  
**DATA SHARING MEMBER:** N/A  
**INTERVAL ELAPSED:** 3:01:00.001144  
**OUTAGE ELAPSED:** 0.000000

#### HIGHLIGHTS

**GROUP TOTAL**  
**PAGE** P-LOCK LOCK REQ | 420.00 | 0.04 | 3.82 | 0.88  
**SPACE MAP PAGES** | 204.00 | 0.02 | 1.85 | 0.43  
**INDEX LEAF PAGES** | 151.00 | 0.01 | 1.37 | 0.30  

**GROUP TOTAL CONTINUED**  
**PAGE** P-LOCK UNLOCK REQ | 453.00 | 0.04 | 4.12 | 0.95  

**GROUP: S/N RATIO (%)**  
**WRITE AND REGISTER** | 222.00 | 0.00 | 2.02 | 0.46  
**WRITE AND REGISTER MUL** | 67.00 | 0.01 | 0.61 | 0.14  

**GROUP: GBP SYN.READ(X) HIT RATIO(%)**  
**GBP-DEPENDENT GETPAGES** | 2117.00 | 0.19 | 19.25 | 4.42  
**CHANGED PGS SYNC.WRTN** | 292.00 | 0.03 | 2.65 | 0.61  

**GROUP: GBP SYN.READ(X) DATA RETURNED**  
**GBP-DEPENDENT GETPAGES** | 5.00 | 0.00 | 0.05 | 0.01  
**CHANGED PGS SYNC.WRTN** | 228.00 | 0.02 | 2.07 | 0.48  

**GROUP: GBP SYN.READ(N)-DATA RETURN**  
**GBP-DEPENDENT GETPAGES** | 1111.00 | 0.03 | 1.01 | 0.23  
**PAGES WRITE & REG MUL** | 290.00 | 0.03 | 2.71 | 0.62  
**GBP SYN.READ(N)-DATA RETURN** | 442.00 | 0.04 | 4.02 | 0.92  
**READ FOR CASTOUT** | 85.00 | 0.01 | 0.77 | 0.18  
**READ FOR CASTOUT MUL** | 78.00 | 0.01 | 0.71 | 0.16  

**GROUP: UNREGISTER PAGES**  
**getPage** | 181.00 | 0.02 | 1.65 | 0.38  

**GROUP: PAGES CASTOUT**  
**PAGES CASTOUT** | 504.00 | 0.05 | 4.58 | 1.95  

**GROUP: UNLOCK CASTOUT**  
**UNLOCK CASTOUT** | 129.00 | 0.01 | 1.17 | 0.27  

**GROUP: READ CASTOUT CLASS**  
**READ CASTOUT CLASS** | 226.00 | 0.02 | 2.05 | 0.47  

**GROUP: READ DIRECTORY INFO**  
**READ STORAGE STATISTICS** | 4885.00 | 0.45 | 44.41 | 10.20  
**INDEX LEAF PAGES** | 0.00 | 0.00 | 0.00 | 0.00  

**GROUP: ASYNCH GBP REQUESTS**  
**GROUP: ASYNCH GBP REQUESTS** | 1543.00 | 0.14 | 14.03 | 3.22  
**SPACE MAP PAGES** | 0.00 | 0.00 | 0.00 | 0.00  

**GROUP: ASYNCH X-INVALIDATIONS**  
**ASYNCH X-INVALIDATIONS** | 0.00 | 0.00 | 0.00 | 0.00  

**GROUP: CASTOUT CLASS THRESHOLD**  
**WRITE FAILED-NO STORAGE** | 0.00 | 0.00 | 0.00 | 0.00  

**GROUP: GBP CHECKPOINTS Triggered**  
**GBP CHECKPOINTS Triggered** | 126.00 | 0.01 | 1.15 | 0.26  

**GROUP: WRITE TO SEC-GP FAILED**  
**WRITE TO SEC-GP FAILED** | 0.00 | 0.00 | 0.00 | 0.00  

**GROUP: ASYNCH SEC-GP REQUESTS**  
**ASYNCH SEC-GP REQUESTS** | 0.00 | 0.00 | 0.00 | 0.00  

**LOCATION:** OMQBE1  
**OMEGamon XE for DB2 Performance Expert (VSRAMO)**  
**PAGE:** 6-1  
**GROUP:** N/P  
**STATISTICS REPORT - LONG**  
**REQUESTED FROM:** NOT SPECIFIED  
**MEMBER:** N/P  
**TO:** NOT SPECIFIED  
**SUBSYSTEM:** N/P  
**INTERVAL FROM:** 08/24/16 07:01:00.00  
**INTERVAL TO:** 08/24/16 16:01:00.00  
**TOTAL COMMITS:** 1108.00  
**DATA SHARING MEMBER:** N/A  
**INTERVAL ELAPSED:** 2:59:59.999316  
**OUTAGE ELAPSED:** 0.000000

**SQL DML**  
**SELECT** | 1551.00 | 0.14 | 57.44 | 17.71  
**INSERT** | 489.00 | 0.05 | 18.11 | 0.04  
**NUMBER OF ROWS** | 489.00 | 0.05 | 18.11 | 0.04  

**SQL DCL**  
**PREPARE** | 2937.00 | 0.27 | 106.78 | 0.26  
**DESCRIBE** | 2.00 | 0.00 | 0.07 | 0.00  

---

**GROUP:** N/P  
**STATISTICS REPORT - LONG**  
**REQUESTED FROM:** NOT SPECIFIED  
**MEMBER:** N/P  
**TO:** NOT SPECIFIED  
**SUBSYSTEM:** N/P  
**INTERVAL FROM:** 08/24/16 07:01:00.00  
**INTERVAL TO:** 08/24/16 16:01:00.00  
**TOTAL COMMITS:** 27.00  
**DATA SHARING MEMBER:** N/A  
**INTERVAL ELAPSED:** 2:59:59.999316  
**OUTAGE ELAPSED:** 0.000000

---

4302  
**IBM Db2 Performance Expert on z/OS**
### Statistics Report

**TOTAL DML**: 34476.00  3.19  1276.89  3.11

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**TOTAL**: 494.00  0.05  18.30  0.44

#### STORED PROCEDURES

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<th>Triggers</th>
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<td>CALL STATEMENT TIMED OUT</td>
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**USER-DEFINED FUNCTIONS**

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<td>TIMED OUT</td>
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**USE CURRENTLY COMMITTED**

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**LOCATION**: OMP0851  OMEGAON XE for DB2 Performance Expert (V5R4MD)  PAGE: 6-2

**GROUP**: N/P  **REQUESTED FROM**: NOT SPECIFIED  **TO**: NOT SPECIFIED

**SUBSYSTEM**: DB51  **INTERVAL FROM**: 08/24/16 07:01:00.00

**DB2 VERSION**: V11  **SCOPE**: MEMBER  **TO**: 08/24/16 10:01:00.00

**--- HIGHLIGHTS**

**INTERVAL START**: 08/24/16 07:01:00.00  **SAMPLING START**: 08/24/16 07:01:00.00  **TOTAL THREADS**: 27.00

**INTERVAL END**: 08/24/16 10:01:00.00  **TOTAL COMMITS**: 11096.00

**INTERVAL ELAPSED**: 2:59:59.999316  **OUTAGE ELAPSED**: 0.000000  **DATA SHARING MEMBER**: N/A

**SQL DDL**

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<th>CREATE GLOBAL TEMP TABLE</th>
<th>CREATE AUXILIARY TABLE</th>
<th>CREATE GLOBAL TEMP TABLE</th>
<th>CREATE INDEX</th>
<th>CREATE SYNONYM</th>
<th>CREATE TABLESPACE</th>
<th>CREATE DATABASE</th>
<th>CREATE STOGROUP</th>
<th>CREATE ALIAS</th>
<th>CREATE DISTINCT TYPE</th>
<th>CREATE FUNCTION</th>
<th>CREATE PROCEDURE</th>
<th>CREATE TRIGGER</th>
<th>CREATE SEQUENCE</th>
<th>CREATE ROLE</th>
<th>CREATE TRUSTED CONTEXT</th>
<th>CREATE MASK / PERMISSION</th>
<th>CREATE VARIABLE</th>
<th>ALTER TABLE</th>
<th>ALTER INDEX</th>
<th>ALTER VIEW</th>
<th>ALTER TABLESPACE</th>
<th>ALTER DATABASE</th>
<th>ALTER STOGROUP</th>
<th>ALTER FUNCTION</th>
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**LOCATION**: OMP0851  OMEGAON XE for DB2 Performance Expert (V5R4MD)  PAGE: 6-3

**GROUP**: N/P  **REQUESTED FROM**: NOT SPECIFIED  **TO**: NOT SPECIFIED

**SUBSYSTEM**: DB51  **INTERVAL FROM**: 08/24/16 07:01:00.00

**DB2 VERSION**: V11  **SCOPE**: MEMBER  **TO**: 08/24/16 10:01:00.00

**--- HIGHLIGHTS**

**INTERVAL START**: 08/24/16 07:01:00.00  **SAMPLING START**: 08/24/16 07:01:00.00  **TOTAL THREADS**: 27.00

**INTERVAL END**: 08/24/16 10:01:00.00  **TOTAL COMMITS**: 11096.00

**INTERVAL ELAPSED**: 2:59:59.999316  **OUTAGE ELAPSED**: 0.000000  **DATA SHARING MEMBER**: N/A

**EDM POOL**

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**PAGE**: 6-3  **HOLD BY EDM**: 242.00  **N/A**  **N/A**  **N/A**

Chapter 6. Batch reporting  4303
### Statistics Report

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<tr>
<td>Free Pages</td>
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<td>Pages in use</td>
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<td>Pages in SMT pool (above)</td>
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<th>Page: 6-4</th>
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--- HIGHLIGHTS ---

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<td>DBD HIT RATIO (%)</td>
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<td>CT REQUESTS</td>
<td>21.00</td>
<td>0.78 0.00 0.00</td>
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<td>CT HIT RATIO (%)</td>
<td>95.24</td>
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<td>PT REQUESTS</td>
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<td>1.69 676.44 1.65</td>
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<td>PT HIT RATIO (%)</td>
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--- HIGHLIGHTS ---

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### Statistics Report

**Location:** OMP0B51  
**DB2 Version:** V11  
**Scope:** MEMBER

--- **Highlights** ---

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**Plan/Package Processing**

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<td>Attempts to Free a Plan</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Plans Freed</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Free Package Subcommands</td>
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<td>0.00</td>
</tr>
<tr>
<td>Attempts to Free a Package</td>
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</tr>
<tr>
<td>Packages Freed</td>
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<td>0.00</td>
</tr>
</tbody>
</table>

--- **Highlights** ---

<table>
<thead>
<tr>
<th>Interval Start</th>
<th>08/24/16 07:01:00.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval End</td>
<td>08/24/16 10:01:00.00</td>
</tr>
<tr>
<td>Interval Elapsed</td>
<td>2:59:59.999316</td>
</tr>
<tr>
<td>Outage Elapsed</td>
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</tr>
<tr>
<td>Data Sharing Member</td>
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</tr>
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</table>

**DB2 Commands**

<table>
<thead>
<tr>
<th>Type</th>
<th>QUANTITY /SECOND</th>
<th>DB2 Commands</th>
<th>CONTINUED QUANTITY /SECOND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Database</td>
<td>2.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display Thread</td>
<td>2.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display Utility</td>
<td>2.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display Trace</td>
<td>2.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display SLIMIT</td>
<td>2.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display Location</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display Archive</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display BUFFERPO</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Chapter 6. Batch reporting 4305
### Statistics Report

**DISPLAY GROUPBUFFERPOOL**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**DISPLAY GROUP**
- Quantity: 2.00 /second
- Threads: 0.00
- Committee: 0.00

**DISPLAY PROCEDURE**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**DISPLAY FUNCTION**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**DISPLAY LOG**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**DISPLAY DDF**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**DISPLAY PROFILE**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**DISPLAY ACCEL**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**DISPLAY DYNAQUERYCAPTURE**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**ALTER BUFFERPOOL**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**ALTER GROUPBUFFERPOOL**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**START DATABASE**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**STOP DATABASE**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**START TRACE**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**STOP TRACE**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**START DB2**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**STOP DB2**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**START DLIM**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**STOP DLIM**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**START DDF**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**STOP DDF**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**START PROCEEDURE**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**STOP PROCEEDURE**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**START FUNCTION**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**STOP FUNCTION**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**START ACCEL**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**STOP ACCEL**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**START DYNAQUERYCAPTURE**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

**STOP DYNAQUERYCAPTURE**
- Quantity: 0.00 /second
- Threads: 0.00
- Committee: 0.00

---

**Statistics Report**

**LOCATION: OMPDS51**

**GROUP: N/P**

**SUBSYSTEM: DB51**

**DB2 VERSION: V11**

---

### HIGHLIGHTS

**INTERVAL START:** 08/24/16 07:01:00.00

**INTERVAL END:** 08/24/16 10:01:00.00

**TOTAL THREADS:** 27.00

**TOTAL COMMITS:** 11088.00

**INTERVAL ELAPSED:** 2:59:59.999316

**OUTAGE ELAPSED:** 0.000000

**DATA SHARING MEMBER:** N/A

---

### RID LIST PROCESSING

<table>
<thead>
<tr>
<th>Quantity</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.00</td>
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<td>0.00</td>
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---

### Authentication Management

<table>
<thead>
<tr>
<th>Quantity</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
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<tbody>
<tr>
<td>578.00</td>
<td>0.05</td>
<td>21.41</td>
<td>0.05</td>
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### Locking Activity

<table>
<thead>
<tr>
<th>Quantity</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.00</td>
<td>0.00</td>
<td>0.15</td>
<td>0.00</td>
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### Locks

<table>
<thead>
<tr>
<th>Quantity</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

---

### Deadlocks

<table>
<thead>
<tr>
<th>Quantity</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

---

**LOCATION: OMPDS51**

**GROUP: N/P**

**SUBSYSTEM: DB51**

**DB2 VERSION: V11**

---

### HIGHLIGHTS

**INTERVAL START:** 08/24/16 07:01:00.00

**INTERVAL END:** 08/24/16 10:01:00.00

**TOTAL THREADS:** 27.00

**TOTAL COMMITS:** 11088.00

**INTERVAL ELAPSED:** 2:59:59.999316

**OUTAGE ELAPSED:** 0.000000

**DATA SHARING MEMBER:** N/A

---

### Locking Activity

<table>
<thead>
<tr>
<th>Quantity</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
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<tbody>
<tr>
<td>4.00</td>
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<td>0.15</td>
<td>0.00</td>
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### Locks

<table>
<thead>
<tr>
<th>Quantity</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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### Deadlocks

<table>
<thead>
<tr>
<th>Quantity</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
### Statistics Report

#### Page: 6-10

**GROUP:** N/P  
**MEMBER:** N/P  
**SUBSYSTEM:** DB2  
**DATABASE:** DB2  
**SESSION:**  
**INTERVAL:** 08/24/16 07:01:00.00  
**TOTAL THREADS:** 27.00  
**INTERVAL ELAPSED:** 2:59:19.999316  
**DATA SHARING MEMBER:** N/A  
**SOURCE:** OMEGAMON XE for DB2 Performance Expert (V5R4M0)  
**REQUESTED FROM:** NOT SPECIFIED  
**TO:** NOT SPECIFIED  
**INTERVAL FROM:** 08/24/16 07:01:00.00  
**SCOPED MEMBER:** N/A  
**SCOPE:** MEMBER

**GLOBAL DFU ACTIVITY**

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>SECOND</th>
<th>THREAD</th>
<th>COMMIT</th>
<th>QUANTITY</th>
<th>SECOND</th>
<th>THREAD</th>
<th>COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBAT/CONN QUEUE/MAX ACTIVE</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
<td>MAX DEGREE - ESTIMATED</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>CONN CLOSED/MAX CONNECTED</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
<td>MAX DEGREE - PLANNED</td>
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<td>N/A</td>
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<tr>
<td>CONN CLOSED/MAX WAIT</td>
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<td>0.00</td>
<td>N/A</td>
<td>MAX DEGREE - EXECUTED</td>
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<td>N/A</td>
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<tr>
<td>COLD START CONNECTIONS</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>RAN ASPLANNED</td>
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<td>WARM START CONNECTIONS</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>RAN REDUCED-STOREAGE</td>
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<tr>
<td>RESYNCHRONIZATION ATTEMPTED</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>SEQUENTIAL-CURSOR</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td>RESYNCHRONIZATION SUCCEEDED</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>SEQUENTIAL-NO ESA</td>
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<td>0.00</td>
</tr>
<tr>
<td>CUR TYPE 1 INACTIVE DBAT</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>SEQUENTIAL-AUTONOMOUS PROC</td>
<td>0.00</td>
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<td>HMM TYPE 1 INACTIVE DBAT</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>SEQUENTIAL-NEGOTIATION</td>
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<td>TYPE 1 CONNECTIONS TERMINAT</td>
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<td>N/A</td>
<td>N/A</td>
<td>ONE DB2 = COORDINATOR = NO</td>
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<tr>
<td>CUR INACTIVE CONNS (TYPE 2)</td>
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<td>N/A</td>
<td>N/A</td>
<td>ONE DB2 = DCL TABLE</td>
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<tr>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>MEMBER SKIPPED (%)</td>
<td>N/C</td>
<td>N/A</td>
</tr>
<tr>
<td>CUR QU INACT CONNS (TYPE 2)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
<td>CUR QU INACT CONNS BUFFER</td>
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<tr>
<td>CUR QU INACT CONNS (TYPE 2)</td>
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<td>N/A</td>
<td>N/A</td>
<td>CUR QU INACT CONNS BUFFER</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>MIN QUEUETIME</td>
<td>0.000000</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>SEQUENTIAL-NOESA</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>MAX QUEUETIME</td>
<td>0.000000</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>SEQUENTIAL-NOESA</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td>AVG QUEUETIME</td>
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<td>N/A</td>
<td>N/A</td>
<td>SEQUENTIAL-NOESA</td>
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<td>0.00</td>
</tr>
</tbody>
</table>

**CUR ACTIVE AND DISCON DBAT**

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>SECOND</th>
<th>THREAD</th>
<th>COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUR ACTIVE AND DISCON DBAT</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>HMM ACTIVE AND DISCON DBAT</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>HMM TOT REMOTE CONNECTIONS</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>CUR DISCON DBAT NOT IN USE</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>HMM DISCON DBAT NOT IN USE</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DBAT CREATED</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DISCON (POOL) DBAT REUSED</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>CUR ACTIVE DBAT-NDXDEALL</td>
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<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>HMM ACTIVE DBAT-NDXDEALL</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

#### Page: 6-11

**GROUP:** N/P  
**MEMBER:** N/P  
**SUBSYSTEM:** DB2  
**DATABASE:** DB2  
**SESSION:**  
**INTERVAL:** 08/24/16 07:01:00.00  
**TOTAL THREADS:** 11098.00  
**INTERVAL ELAPSED:** 2:59:19.999316  
**DATA SHARING MEMBER:** N/A  
**SOURCE:** OMEGAMON XE for DB2 Performance Expert (V5R4M0)  
**REQUESTED FROM:** NOT SPECIFIED  
**TO:** NOT SPECIFIED  
**INTERVAL FROM:** 08/24/16 07:01:00.00  
**SCOPED MEMBER:** N/A  
**SCOPE:** MEMBER

**CPU TIMES**

<table>
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<tr>
<th>TCB TIME</th>
<th>PREEMPT SRB</th>
<th>NONPREEMPT SRB</th>
<th>CP CPU TIME</th>
<th>PREEMPT 1P SRB</th>
<th>CP CPU /COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSTEM SERVICES ADDRESS SPACE</td>
<td>2.372538</td>
<td>0.072353</td>
<td>0.316528</td>
<td>2.761420</td>
<td>0.000000</td>
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<tr>
<td>DATABASE SERVICES ADDRESS SPACE</td>
<td>0.136048</td>
<td>0.501538</td>
<td>0.049766</td>
<td>0.687346</td>
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<tr>
<td>INTERVAL</td>
<td>0.000090</td>
<td>0.000000</td>
<td>0.831925</td>
<td>0.832215</td>
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<td>DFS ADDRESS SPACE</td>
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<td>0.000049</td>
<td>0.046664</td>
<td>0.465586</td>
<td>0.000000</td>
</tr>
</tbody>
</table>

---

Chapter 6. Batch reporting 4307
### Statistics Report

**IFC DEST.**  | **WRITTEN** | **NOT WRIT** | **BUF_OVER** | **NOT ACCP** | **WRIT_FAIL** | **IFC RECORD COUNTS** | **WRITTEN** | **NOT WRITT** |
--- | --- | --- | --- | --- | --- | --- | --- | --- |
SMF | 131.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
GTF | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
OP1 | 181.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
OP2 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
OP3 | 58.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
OP4 | 110.4K | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
OP5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
OP6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
OP7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
OP8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
RES | 0.00 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
**TOTAL** | 112.0K | 0.00 | 0.00 | 0.00 | 0.00 |

**ACCOUNTING ROLLUP**  | **QUANTITY** | **/SECOND** | **/THREAD** | **/COMMIT** | **LATCH CNT** | **/SECOND** | **/SECOND** | **/SECOND** | **/SECOND** |
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
ROLLUP THREADS RECS WRITTEN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
STALEN THREADS RECS WRITTEN | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
RECS UNQUALIFIED FOR ROLLUP | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**TOTAL** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**DBM1 AND MVS STORAGE BELOW 2 GB**  | **QUANTITY** | **DBM1 AND MVS STORAGE BELOW 2 GB** | **CONTINUED** | **QUANTITY** |
--- | --- | --- | --- | --- |
TOTAL DBM1 STORAGE BELOW 2 GB | 7.80 | 24 BIT LOW PRIVATE | 0.23 |
TOTAL GETMAINED STORAGE | 0.53 | 24 BIT HIGH PRIVATE | 0.47 |
TOTAL VARIABLE STORAGE | 1.33 | 24 BIT PRIVATE CURRENT HIGH ADDRESS | 0000000000040000 |
TOTAL AGENT LOCAL STORAGE | 0.95 | 31 BIT EXTENDED LOW PRIVATE | 81.35 |
TOTAL AGENT STORAGE | 0.63 | 31 BIT EXTENDED HIGH PRIVATE | 26.82 |
NUMBER OF PREFETCH ENGINES | 23.00 | 31 BIT PRIVATE CURRENT HIGH ADDRESS | 0000000028650000 |
NUMBER OF DEFERRED WRITE ENGINES | 46.00 | EXTENDED REGION SIZE (MAX) | 1508.00 |
NUMBER OF CASTOUT ENGINES | 0.00 | EXTENDED CSA SIZE | 300.16 |
NUMBER OF GP WRITE ENGINES | 0.00 |
NUMBER OF P-LOCK/NOTIFY EXIT ENGINES | 0.00 | AVERAGE THREAD FOOTPRINT | 0.26 |
TOTAL AGENT NON-SYSTEM STORAGE | 0.11 | MAX NUMBER OF POSSIBLE THREADS | 3762 |
TOTAL NUMBER OF ACTIVE USER THREADS | 6.48 |
NUMBER OF ALLIED THREADS | 6.48 | AVERAGE THREAD FOOTPRINT (TYPE II) | N/A |

---

**LOCATION:** OMQ0851  | **OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V8R4M0)**  | **PAGE:** 6-12  | **GROUP:** N/P  | **STATISTICS REPORT - LONG**  | **REQUESTED FROM:** NOT SPECIFIED  | **MEMBER:** N/P  | **TO:** NOT SPECIFIED  | **SUBSYSTEM:** DBS | **INTERVAL FROM:** 08/24/16 07:01:00.00  | **DB2 VERSION:** V11  | **SCOPE:** MEMBER  | **TO:** 08/24/16 10:01:00.00  |

---

**LOCATION:** OMQ0851  | **OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V8R4M0)**  | **PAGE:** 6-13  | **GROUP:** N/P  | **STATISTICS REPORT - LONG**  | **REQUESTED FROM:** NOT SPECIFIED  | **MEMBER:** N/P  | **TO:** NOT SPECIFIED  | **SUBSYSTEM:** DBS | **INTERVAL FROM:** 08/24/16 07:01:00.00  | **DB2 VERSION:** V11  | **SCOPE:** MEMBER  | **TO:** 08/24/16 10:01:00.00  |
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<tr>
<td><strong>Total RAID Pools</strong></td>
<td>256.00</td>
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<tr>
<td><strong>Total Agent Local Storage</strong></td>
<td>13.10</td>
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<tr>
<td><strong>Total Agent System Storage</strong></td>
<td>9.76</td>
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<tr>
<td><strong>Total Agent Non-System Storage</strong></td>
<td>3.34</td>
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<tr>
<td><strong>In Use Storage</strong></td>
<td>0.00</td>
</tr>
<tr>
<td><strong>In Use EMD Statement Pool</strong></td>
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</tr>
<tr>
<td><strong>In Use EMD RDS Pool</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>In Use EMD Skeleton Pool</strong></td>
<td>0.59</td>
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<td>1.34</td>
</tr>
<tr>
<td><strong>Virtual Buffer Pools</strong></td>
<td>157.03</td>
</tr>
<tr>
<td><strong>Virtual Pool Control Blocks</strong></td>
<td>2.05</td>
</tr>
<tr>
<td><strong>Total RAID Pools Requested</strong></td>
<td>N/A</td>
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<td>N/A</td>
</tr>
<tr>
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<td>N/A</td>
</tr>
<tr>
<td><strong>Variable Storage Pool Requested</strong></td>
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</tr>
</tbody>
</table>

**Total RAID Pools:** 256.00
**Total Agent Local Storage:** 13.10
**Total Agent System Storage:** 9.76
**Total Agent Non-System Storage:** 3.34
**In Use Storage:** 0.00
**In Use EMD Statement Pool:** 0.64
**In Use EMD RDS Pool:** N/A
**In Use EMD Skeleton Pool:** 0.59
**Fixed Storage Pool:** 7.18
**Variable Storage Pool:** 30.86
**Total Storage Manager Control Blocks:** 1.34
**Virtual Buffer Pools:** 157.03
**Virtual Pool Control Blocks:** 2.05

**Total RAID Pools Requested:** N/A
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**In Use EMD RDS Pool Requested:** N/A
**In Use EMD Skeleton Pool Requested:** N/A
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**In Use EMD RDS Pool Requested:** N/A
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**In Use Storage Requested:** N/A
**In Use EMD Statement Pool Requested:** N/A
**In Use EMD RDS Pool Requested:** N/A
**In Use EMD Skeleton Pool Requested:** N/A
**Fixed Storage Pool Requested:** N/A
**Variable Storage Pool Requested:** N/A
Statistics Report

TOTAL FIXED STORAGE (MB) 0.08
TOTAL GETMAINED STACK STORAGE (MB) 1.02
TOTAL STACK STORAGE IN USE (MB) 0.91
SYSTEM AGENT STACK STORAGE IN USE (MB) 0.77
STORAGE CUSHION (MB) 326.43

24 BIT LOW PRIVATE (MB) 0.24
24 BIT HIGH PRIVATE (MB) 0.26
24 BIT STATE CURRENT HIGH ADDRESS 0000000000040000
31 BIT EXTENDED LOW PRIVATE (MB) 6.69
31 BIT EXTENDED HIGH PRIVATE (MB) 12.87
31 BIT PRIVATE CURRENT HIGH ADDRESS 0000000022200000
EXTENDED REGION SIZE (MAX) (MB) 1508.00

REAL AND AUXILIARY STORAGE FOR DB2 QUANTITY REAL AND AUXILIARY STORAGE FOR DIST QUANTITY
-----------------------------------------------------------
REAL STORAGE IN USE (MB) 301.82 REAL STORAGE IN USE (MB) 9.54
31 BIT IN USE (MB) 87.99 31 BIT IN USE (MB) 8.35
64 BIT IN USE (MB) 213.83 64 BIT IN USE (MB) 1.19
64 BIT THREAD AND SYSTEM ONLY (MB) 136.89 64 BIT THREAD AND SYSTEM ONLY (MB) 1.17
HWM 64 BIT REAL STORAGE IN USE (MB) 214.64 HWM 64 BIT REAL STORAGE IN USE (MB) 1.19
AVERAGE THREAD FOOTPRINT (MB) 34.72 AVERAGE DBAT FOOTPRINT (MB) N/C

AUXILIARY STORAGE IN USE (MB) 1.88 AUXILIARY STORAGE IN USE (MB) 0.01
31 BIT IN USE (MB) 0.61 31 BIT IN USE (MB) 0.01
64 BIT IN USE (MB) 1.27 64 BIT IN USE (MB) 0.00
64 BIT THREAD AND SYSTEM ONLY (MB) 1.02 64 BIT THREAD AND SYSTEM ONLY (MB) 0.00
HWM 64 BIT AUX STORAGE IN USE (MB) 1.27 HWM 64 BIT AUX STORAGE IN USE (MB) 0.00

LOCATION: OMPO8S1 OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO) PAGE: 6-16
GROUP: N/P STATISTICS REPORT - LONG REQUESTED FROM: NOT SPECIFIED
MEMBER: N/P TO: NOT SPECIFIED
SUBSYSTEM: DBS1 INTERVAL FROM: 08/24/16 07:01:00.00
DB2 VERSION: V11 SCOPE: MEMBER

COMMON STORAGE BELOW AND ABOVE 2 GB QUANTITY SUBSYSTEM SHARED STORAGE ABOVE 2 GB QUANTITY
-----------------------------------------------------------
EXTENDED CSA SIZE (MB) 300.16 REAL STORAGE IN USE (MB) 46.97
SHARED THREAD AND SYSTEM (MB) 30.08
FIXED POOL BELOW (MB) 0.86 SHARED STACK STORAGE (MB) 16.89
VARIABLE POOL BELOW (MB) 0.62 AVERAGE THREAD FOOTPRINT (MB) 7.25
GETMAINED BELOW (MB) 0.10

AUXILIARY STORAGE IN USE (MB) 0.00
VARIABLE POOL ABOVE (MB) 72.03 SHARED STACK STORAGE (MB) 0.18
GETMAINED ABOVE (MB) 0.15

REAL STORAGE IN USE (MB) 37.93
AVERAGE THREAD FOOTPRINT (MB) 5.86

REAL STORAGE IN USE (MB) 0.00

MVS LPAR SHARED STORAGE ABOVE 2 GB QUANTITY REAL STORAGE IN USE - SUMMARY QUANTITY
-----------------------------------------------------------
SHARED MEMORY OBJECTS (MB) 16.00 31/64-BIT PRIVATE (DBM1) (MB) 301.82
31/64-BIT PRIVATE (DBM1) (MB) 301.82
HWM FOR 64 BIT SHARED STORAGE (MB) 5701633.00 64-BIT SHARED THREAD AND SYSTEM (MB) 30.08
64 BIT SHARED STORAGE BACKED IN REAL (MB) 889.29 64-BIT SHARED STACK (MB) 16.89
HWM STORAGE USED FOR 64 BIT SHARED (MB) 75.70 64-BIT COMMON (MB) 37.93
64 BIT SHARED STORAGE PAGED IN FROM AUX (MB) 92.69 TOTAL REAL STORAGE IN USE (MB) 396.26
64 BIT SHARED STORAGE PAGED OUT TO AUX (MB) 338.46

LOCATION: OMPO9S5 OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO) PAGE: 6-17
GROUP: N/P STATISTICS REPORT - LONG REQUESTED FROM: NOT SPECIFIED
MEMBER: N/P TO: NOT SPECIFIED
SUBSYSTEM: DBS1 INTERVAL FROM: 08/24/16 07:01:00.00
DB2 VERSION: V11 SCOPE: MEMBER

--- HIGHLIGHTS ---

INTERVAL START : 08/24/16 07:01:00.00 SAMPLING START: 08/24/16 07:01:00.00 TOTAL THREADS : 27.00
INTERVAL END : 08/24/16 10:01:00.00 SAMPLING END : 08/24/16 10:01:00.00 TOTAL COMMITS : 11098.00
INTERVAL ELAPSED: 2:59:59.999316 OUTAGE ELAPSED: 0.000000 DATA SHARING MEMBER: N/A

IBM Db2 Performance Expert on z/OS
Statistics Report

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<th>DM</th>
<th>MAX</th>
<th>CUR</th>
<th>TOTAL</th>
<th>INTERVAL</th>
<th>INTERVAL</th>
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</table>

LOCATION: OMPBS1
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)  PAGE: 6-18
GROUP: N/P
STATISTICS REPORT - LONG  REQUESTED FROM: NOT SPECIFIED
MEMBER: N/P
TO: NOT SPECIFIED
SUBSYSTEM: DBS1
INTERVAL FROM: 08/24/16 07:01:00.00
DB2 VERSION: V11
SCOPE: MEMBER
TO: 08/24/16 10:01:00.00

---- HIGHLIGHTS --------------------------

- INTERVAL START : 08/24/16 07:01:00.00  SAMPLING START: 08/24/16 07:01:00.00  TOTAL THREADS : 27.00
- INTERVAL END : 08/24/16 10:01:00.00  SAMPLING END : 08/24/16 10:01:00.00  TOTAL COMMITS : 11096.00
- INTERVAL ELAPSED: 2:59:59.999316  OUTAGE ELAPSED: 0.000000  DATA SHARING MEMBER: N/A

WORKFILE DATABASE | QUANTITY | /SECOND | /THREAD | /COMMIT | CPU AND STORAGE METRICS | QUANTITY
-------------------|----------|---------|---------|---------|--------------------------|----------
TOTAL STORAGE (KB) | 268.4M | N/A | N/A | N/A | CPU UTILIZATION: LPAR | 8.00 |
TOTAL GTG STOR (KB) | 268.4M | N/A | N/A | N/A | CPU UTILIZATION: LPAR | 29.37 |
TOTAL STORAGE THRESHOLD (%) | 90.00 | N/A | N/A | N/A | CPU UTILIZATION: DB2 | 0.00 |
MAX TOTAL STORAGE USED (KB) | 2048.00 | N/A | N/A | N/A | CPU UTILIZATION: DB2 | 65535.00 |
MAX GTG STOR USED (KB) | 2048.00 | N/A | N/A | N/A | CPU UTILIZATION: DB2 | 8191.00 |
MAX W/ FREE STORAGE (KB) | 0.00 | N/A | N/A | N/A | FREE STORAGE: DB2 | 14706.97 |
MAX W/ FREE STORAGE (MB) | 0.00 | N/A | N/A | N/A | FREE STORAGE: DB2 | 335.00 |
MAX STORAGE IN 4K T/S | 0.00 | N/A | N/A | N/A | FREE STORAGE: DB2 | 0.00 |
MAX STORAGE IN 32K T/S | 0.00 | N/A | N/A | N/A | FREE STORAGE: DB2 | 0.00 |
4K USED INSTEAD OF 32K T/S | 0.00 | 0.00 | 0.00 | 0.00 | FREE STORAGE: DB2 | 0.00 |
32K USED INSTEAD OF 4K T/S | 0.00 | 0.00 | 0.00 | 0.00 | FREE STORAGE: DB2 | 0.00 |
MAX ACTIVE (UM) IN-MEMORY | 0.00 | N/A | N/A | N/A | REAL STORAGE: LPAR | 1000.00 |
MAX ACT (NONSORT) IN-MEM | 0.00 | N/A | N/A | N/A | REAL STORAGE: LPAR | 0.00 |
CUR ACTIVE (UM) IN-MEM | 0.00 | N/A | N/A | N/A | REAL STORAGE: LPAR | 0.00 |
CUR ACT (NONSORT) IN-MEM | 0.00 | N/A | N/A | N/A | REAL STORAGE: LPAR | 0.00 |
MAX STORAGE IN-MEM | 0.00 | N/A | N/A | N/A | REAL STORAGE: LPAR | 0.00 |
MAX STORAGE IN-MEM | 0.00 | N/A | N/A | N/A | REAL STORAGE: LPAR | 0.00 |
MAX STORAGE IN-MEM | 0.00 | N/A | N/A | N/A | REAL STORAGE: LPAR | 0.00 |
CUR STORAGE OVERFLOWED | 0.00 | 0.00 | 0.00 | 0.00 | REAL STORAGE: LPAR | 0.00 |
IN-MEM WORKFIT NOT CREATED | 0.00 | 0.00 | 0.00 | 0.00 | REAL STORAGE: LPAR | 0.00 |
AGENT STORAGE CONFIG | 0.00 | N/A | N/A | N/A | REAL STORAGE: LPAR | 0.00 |
NUMBER OF LIMTED EXCEEDED | 0.00 | 0.00 | 0.00 | 0.00 | REAL STORAGE: LPAR | 0.00 |
AGENT STORAGE THRESHOLD (%) | 0.00 | N/A | N/A | N/A | REAL STORAGE: LPAR | 0.00 |
MAX AGENT STORAGE USED | 2048.00 | N/A | N/A | N/A | REAL STORAGE: LPAR | 0.00 |
DMP FAST INSERT PIPES | N/A | N/A | N/A | N/A | REAL STORAGE: LPAR | 0.00 |
DMP FAST INSERT PIPES DISAB | N/A | N/A | N/A | N/A | REAL STORAGE: LPAR | 0.00 |
TOTAL STORAGE METRICS | QUANTITY | /SECOND | /THREAD | /COMMIT
-------------------|----------|---------|---------|---------
FULL SYSTEM CONTRACTS | 0.00 | 0.00 | 0.00 | 0.00 |
CRITICAL SHORTAGES | 0.00 | 0.00 | 0.00 | 0.00 |
ABENDS DUE TO SHORTAGES | 0.00 | 0.00 | 0.00 | 0.00 |

LOCATION: OMPBS1
OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)  PAGE: 6-19
GROUP: N/P
STATISTICS REPORT - LONG  REQUESTED FROM: NOT SPECIFIED
MEMBER: N/P
TO: NOT SPECIFIED
SUBSYSTEM: DBS1
INTERVAL FROM: 08/24/16 07:01:00.00
DB2 VERSION: V11
SCOPE: MEMBER
TO: 08/24/16 10:01:00.00

---- HIGHLIGHTS --------------------------

- INTERVAL START : 08/24/16 07:01:00.00  SAMPLING START: 08/24/16 07:01:00.00  TOTAL THREADS : 27.00
- INTERVAL END : 08/24/16 10:01:00.00  SAMPLING END : 08/24/16 10:01:00.00  TOTAL COMMITS : 11096.00
- INTERVAL ELAPSED: 2:59:59.999316  OUTAGE ELAPSED: 0.000000  DATA SHARING MEMBER: N/A

BPOOL General | QUANTITY | /SECOND | /THREAD | /COMMIT | BPOOL READ OPERATIONS | QUANTITY | /SECOND | /THREAD | /COMMIT
---------------|----------|---------|---------|---------|----------------------|----------|---------|---------|---------
CURRENT ACTIVE BUFFERS | 101.76 | N/A | N/A | N/A | BPOOL HIT RATIO (%) | 99.31 |
UNAVAIL.BUFFER-VPOOL | 0.00 | 0.00 | 0.00 | 0.00 | BPOOL HIT RATIO (%) | 97.00 |
NUMBER OF DATASET OPENS | 1.00 | 0.00 | 0.04 | 0.00 | GETPAGE REQUEST | 33279.00 |
BUFFERS ALLOCATED - VPOOL | 2200.00 | N/A | N/A | N/A | GETPAGE REGS-SEQUENTIAL | 6206.00 |
BUFFERS MIGRATED | 0.00 | 0.00 | 0.00 | 0.00 | GETPAGE REGS-RANDOM | 27073.00 |

Chapter 6. Batch reporting 4311
Statistics Report

DFHSM RECALL TIMEOUTS 0.00 0.00 0.00 0.00
VPOOL EXPANS. OR CONTRACT. 0.00 0.00 0.00 0.00 SYNCHRONOUS READS 44.00 0.00 1.63 0.00
VPOOL EXPANS. FAILURES 0.00 0.00 0.00 0.00 SYNC READS-SEQUENTIAL 6.00 0.00 0.22 0.00
CONCUR.PREF./I/O STREAMS-HWM 0.00 N/A N/A N/A IN-MEM. OVLQ SEQ READS N/A N/A N/A N/A
PREF./I/O STREAMS REDUCTION 0.00 0.00 0.00 0.00 SYNCHRONOUS READS-READ 38.00 0.00 1.41 0.00
PARALLEL QUERY REQUESTS 0.00 0.00 0.00 0.00 SYNCHRONOUS READS 712.45 0.00 0.00 0.00
PREPARED REQUESTS 0.00 0.00 0.00 0.00 SYNCHRONOUS READS 140.00 0.01 5.19 0.01
NUMBER OF LPI LISTS 0.00 0.00 0.00 0.00 SYNCHRONOUS READS 23.33 0.00 0.00 0.00
MIN BUFFERS ON SLRU 520.21 N/A N/A N/A SYNCHRONOUS READS 2.00 0.00 0.07 0.00
MAX BUFFERS ON SLRU 529.87 N/A N/A N/A SYNCHRONOUS READS 0.00 0.00 0.00 0.00
SLRU LENGTH EQUALS VPSEQ 0.00 0.00 0.00 0.00 DYNAMIC PREFETCH REQUESTED 1180.00 0.11 43.70 0.11
GETPAGE REQ. RANDOM ON SLRU 7.00 0.00 0.26 0.00 DYNAMIC PREFETCH READS 9.00 0.00 0.33 0.00

LOCATION: OM0851 OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSAMRO) PAGE: 6-20
GROUP: N/P STATISTICS REPORT - LONG REQUESTED FROM: NOT SPECIFIED
MEMBER: N/P TO: NOT SPECIFIED
SUBSYSTEM: DB51 INTERVAL FROM: 08/24/16 07:01:00.00
DB2 VERSION: V11 SCOPE: MEMBER TO: 08/24/16 10:01:00.00

*** HIGHLIGHTS ***

INTERVAL START: 08/24/16 07:01:00.00 SAMPLING START: 08/24/16 07:01:00.00 TOTAL THREADS : 27.00
INTERVAL END : 08/24/16 10:01:00.00 TOTAL COMMITS : 11098.00
INTERVAL ELAPSED: 2:59:59.999316 OUTAGE ELAPSED: 0.000000 DATA SHARING MEMBER: N/A

LOCATION: OM0851 OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSAMRO) PAGE: 6-21
GROUP: N/P STATISTICS REPORT - LONG REQUESTED FROM: NOT SPECIFIED
MEMBER: N/P TO: NOT SPECIFIED
SUBSYSTEM: DB51 INTERVAL FROM: 08/24/16 07:01:00.00
DB2 VERSION: V11 SCOPE: MEMBER TO: 08/24/16 10:01:00.00

*** HIGHLIGHTS ***

INTERVAL START: 08/24/16 07:01:00.00 SAMPLING START: 08/24/16 07:01:00.00 TOTAL THREADS : 27.00
INTERVAL END : 08/24/16 10:01:00.00 TOTAL COMMITS : 11098.00
INTERVAL ELAPSED: 2:59:59.999316 OUTAGE ELAPSED: 0.000000 DATA SHARING MEMBER: N/A

IBM Db2 Performance Expert on z/OS
**Statistics Report**

### Chapter 6. Batch reporting 4313

<table>
<thead>
<tr>
<th>Location: OMPD851</th>
<th>OMEGamon XE for DB2 Performance Expert (V5R4M0)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group:</strong> N/P</td>
<td><strong>Statistics Report - Long</strong></td>
</tr>
<tr>
<td><strong>Member:</strong> N/P</td>
<td><strong>Requested from:</strong> NOT SPECIFIED</td>
</tr>
<tr>
<td><strong>Subsystem:</strong> DB51</td>
<td><strong>To:</strong> NOT SPECIFIED</td>
</tr>
<tr>
<td><strong>Db2 version:</strong> V11</td>
<td><strong>Interval from:</strong> 08/24/16 10:01:00.00</td>
</tr>
</tbody>
</table>

#### Highlights

**Interval start:** 08/24/16 07:01:00.00  **Sampling start:** 08/24/16 07:01:00.00  **Total threads:** 27.00

**Interval end:** 08/24/16 10:01:00.00  **Sampling end:** 08/24/16 10:01:00.00  **Total commits:** 11098.00

**Interval elapsed:** 2:59:59.999316  **Outage elapsed:** 0.000000  **Data sharing member:** N/A

### BP32K Write Operations

<table>
<thead>
<tr>
<th>Quantity</th>
<th>/Second</th>
<th>/Thread</th>
<th>/Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buffer updates:</strong> 964.00</td>
<td>0.09</td>
<td>35.70</td>
<td>0.09</td>
</tr>
<tr>
<td><strong>Pages written:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>asyncronous writes:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Pages written per write 1/0:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Number of castout 1/0:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Horiz. def. write threshold:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Vert. def. write threshold:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Page-ins requested for write:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

### BP3K Read Operations

<table>
<thead>
<tr>
<th>Quantity</th>
<th>/Second</th>
<th>/Thread</th>
<th>/Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current active buffers:</strong> 0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Unavail. buffer-vpool full:</strong> 0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Number of dataset opens:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Buffers allocated + vpool:</strong> 10000.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>DfHsm migrated dataset:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>DfHsm recall timeouts:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Vpool expands or contract:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Vpool expands failures:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Concur. pref.1/0 streams-hwm:</strong> 0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Paral. query requests:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Paral. query req. / Reduction:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Pref. quant. reduced to 1/2:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Pref. quant. reduced to 1/4:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Number of LPL inserts:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Min buffers on slru:</strong> 251.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Max buffers on slru:</strong> 251.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Getpage reeq random on slru:</strong> 0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

### Location: OMPD851

**OMEGamon XE for DB2 Performance Expert (V5R4M0)**  **Page:** 6-22

**Group:** N/P  **Statistics report - long**  **Requested from:** NOT SPECIFIED

**Member:** N/P  **To:** NOT SPECIFIED

**Subsystem:** DB51  **Interval from:** 08/24/16 07:01:00.00

**Db2 version:** V11  **Scope:** MEMBER  **To:** 08/24/16 10:01:00.00

---

**Highlights**

---

**Interval start:** 08/24/16 07:01:00.00  **Sampling start:** 08/24/16 07:01:00.00  **Total threads:** 27.00

**Interval end:** 08/24/16 10:01:00.00  **Sampling end:** 08/24/16 10:01:00.00  **Total commits:** 11098.00

**Interval elapsed:** 2:59:59.999316  **Outage elapsed:** 0.000000  **Data sharing member:** N/A

**Statistics Report**

**Location:** OMPD851  **Subsystem:** OMEGamon XE for DB2 Performance Expert (V5R4M0)

**Group:** N/P  **Statistics Report - Long**  **Requested from:** NOT SPECIFIED

**Member:** N/P  **To:** NOT SPECIFIED

**Subsystem:** DB51  **Interval from:** 08/24/16 07:01:00.00

**Db2 version:** V11  **Scope:** MEMBER  **To:** 08/24/16 10:01:00.00

---

**Highlights**

---
### Statistics Report

**INTERVAL START**: 08/24/16 07:01:00.00  
**SAMPLING START**: 08/24/16 07:01:00.00  
**TOTAL THREADS**: 27.00  

**INTERVAL END**: 08/24/16 10:01:00.00  
**SAMPLING END**: 08/24/16 10:01:00.00  
**TOTAL COMMITS**: 11098.00

**INTERVAL ELAPSED**: 2:59:59.999316  
**OUTAGE ELAPSED**: 0.000000  
**DATA SHARING MEMBER**: N/A

---

### BP8K WRITE OPERATIONS

<table>
<thead>
<tr>
<th>Quantity/Second</th>
<th>Thread</th>
<th>Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer Updates</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>Pages Written</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>Buff.Updates/Pages Written</td>
<td>N/C</td>
<td></td>
</tr>
</tbody>
</table>

### BP8K SORT/MERGE

<table>
<thead>
<tr>
<th>Quantity/Second</th>
<th>Thread</th>
<th>Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer Updates</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>Pages Written</td>
<td>0.00</td>
<td>N/A</td>
</tr>
</tbody>
</table>

---

### Summary

**LOCATION**: OMPD081  
**GROUP**: N/P  
**STATISTICS REPORT**: OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)  
**PAGE**: 6-25  
**REQUESTED FROM**: NOT SPECIFIED  
**TO**: NOT SPECIFIED  
**INTERVAL FROM**: 08/24/16 07:01:00.00  
**INTERVAL TO**: 08/24/16 10:01:00.00  
**SCOPE**: MEMBER

---

### HIGHLIGHTS

**INTERVAL START**: 08/24/16 07:01:00.00  
**SAMPLING START**: 08/24/16 07:01:00.00  
**TOTAL THREADS**: 27.00  

**INTERVAL END**: 08/24/16 10:01:00.00  
**SAMPLING END**: 08/24/16 10:01:00.00  
**TOTAL COMMITS**: 11098.00

**INTERVAL ELAPSED**: 2:59:59.999316  
**OUTAGE ELAPSED**: 0.000000  
**DATA SHARING MEMBER**: N/A

---

### BP16K GENERAL

<table>
<thead>
<tr>
<th>Quantity/Second</th>
<th>Thread</th>
<th>Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Active Buffers</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>Unavail. Buffer-Pool Full</td>
<td>0.00</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### BP16K READ OPERATIONS

<table>
<thead>
<tr>
<th>Quantity/Second</th>
<th>Thread</th>
<th>Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concur./Pref./I/O Streams-HW</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>Pref./I/O Streams Reduction</td>
<td>0.00</td>
<td>N/A</td>
</tr>
</tbody>
</table>

---

### Location

**LOCATION**: OMPD081  
**GROUP**: N/P  
**STATISTICS REPORT**: OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)  
**PAGE**: 6-26  
**REQUESTED FROM**: NOT SPECIFIED  
**INTERVAL FROM**: 08/24/16 07:01:00.00  
**INTERVAL TO**: 08/24/16 10:01:00.00  
**SCOPE**: MEMBER

---

### HIGHLIGHTS

**INTERVAL START**: 08/24/16 07:01:00.00  
**SAMPLING START**: 08/24/16 07:01:00.00  
**TOTAL THREADS**: 27.00  

**INTERVAL END**: 08/24/16 10:01:00.00  
**SAMPLING END**: 08/24/16 10:01:00.00  
**TOTAL COMMITS**: 11098.00

**INTERVAL ELAPSED**: 2:59:59.999316  
**OUTAGE ELAPSED**: 0.000000  
**DATA SHARING MEMBER**: N/A

---

### BP16K WRITE OPERATIONS

<table>
<thead>
<tr>
<th>Quantity/Second</th>
<th>Thread</th>
<th>Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer Updates</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>Pages Written</td>
<td>0.00</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### BP16K SORT/MERGE

<table>
<thead>
<tr>
<th>Quantity/Second</th>
<th>Thread</th>
<th>Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer Updates</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>Pages Written</td>
<td>0.00</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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### Location

**LOCATION**: OMPD081  
**GROUP**: N/P  
**STATISTICS REPORT**: OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)  
**PAGE**: 6-26  
**REQUESTED FROM**: NOT SPECIFIED  
**INTERVAL FROM**: 08/24/16 07:01:00.00  
**INTERVAL TO**: 08/24/16 10:01:00.00  
**SCOPE**: MEMBER

---

### HIGHLIGHTS

**INTERVAL START**: 08/24/16 07:01:00.00  
**SAMPLING START**: 08/24/16 07:01:00.00  
**TOTAL THREADS**: 27.00  

**INTERVAL END**: 08/24/16 10:01:00.00  
**SAMPLING END**: 08/24/16 10:01:00.00  
**TOTAL COMMITS**: 11098.00
This section shows the individual blocks presented by OMEGAMON for Db2 PE reports and traces together with a short explanation of each field. The examples shown are taken from the statistics long reports and traces.
Statistics Report

The layout of the Statistics report and trace blocks is the same. Statistics traces show times and events as delta records describing the activity between two consecutive DB2 record pairs. Statistics reports show times and events over a user-specified period of time.

Each block is presented in the default layout. Some block can have columns, rows, or fields that are not included in the default layout. You can include columns, rows, and fields not shown in the default layouts with user-tailored reporting (UTR).

In the short report and trace, field names can differ slightly from the names shown in the long report or trace.

If a counter value or specific information in reports, in windows, or on panels is not shown, the following notation is used to indicate the reason:

**N/A** Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
- A counter is not available in one DB2 version.
- Counters are mutually exclusive.

**N/C** Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
- A divide by zero (percentages, ratios).
- Suppression of negative elapsed time values.
- Required counter values for calculation marked as N/A or N/P.
- Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

**N/P** Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
- When counter values are not generated because of operational conditions (a trace class is not active).
- An application does not provide a value because it is optional.

**Accelerator Data Overview:** This topic shows Accelerator Data report and trace blocks that are provided for the following versions of IBM DB2 Analytics Accelerator for z/OS.

**Accelerator Data - Prior to Version 4:**

This topic shows detailed information about “Statistics - Accelerator Data - Prior to Version 4”.

**Note:** This topic only refers to IBM DB2 Analytics Accelerator for z/OS prior to version 4.

The Statistics Accelerator report block is shown for each accelerator that provided services to the DB2 subsystem or to the DB2 data sharing group within the reported interval. The accelerator name is shown in the header line of each column together with the labels ACCELERATION and CONTINUED.

**Note:**
- The DB2 subsystem is connected with an accelerator via DRDA when submitting SQL queries. The performance counters of the DRDA connection (rows from
CONNECTS TO ACCELERATOR to ROWS RECEIVED FROM ACCELERATOR and the four time counters at the bottom) are collected and reported on an individual subsystem or member basis.

- The other Statistics counters are collected periodically from the accelerator and reported as single subsystem values or as total data sharing group values if the reported subsystem is a member (with enabled acceleration) of a data sharing group.
- The full accelerator name is shown in the header if it does not exceed 16 characters. Otherwise, the name is replaced by a short name in the header and the long name is displayed at the end of the report.
- The field descriptions of the fields QUERIES SUCCESSFULLY EXECUTED, QUERIES FAILED TO EXECUTE, CURRENTLY EXECUTING QUERIES, and MAXIMUM EXECUTING QUERIES refer to SQL statements passed to the accelerator. For product identifiers of IBM DB2 Analytics Accelerator for z/OS prior to AQT04015, the SQL statements are SELECT queries passed to the accelerator.

Statistics - Accelerator Data - Prior to Version 4

The field labels shown in the following sample layout of “Statistics - Accelerator Data - Prior to Version 4” are described in the following section.

### IDENTIFIER

The accelerator server identifier.

Field Name: Q8STNAME

### QUERIES SUCCESSFULLY EXECUTED

The number of SQL statements (sent by this DB2 system since accelerator start) that were successfully executed in the accelerator.

Field Name: Q8STSREQ

### QUERIES FAILED TO EXECUTE

The number of SQL statements (sent by this DB2 system since accelerator start) that failed to be successfully executed for any reason.

Field Name: Q8STFREQ

### ACCELERATOR IN INVALID STATE
The number of queries (sent by this DB2 system since accelerator start) that failed to be successfully executed, for example, because the accelerator was in an invalid state.

**Field Name:** Q8STFINV

**CURRENTLY EXECUTING QUERIES**

The number of currently (actively) executing SQL statements in the accelerator on behalf of all DB2 systems (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STACTV_64).

**Field Name:** Q8STACTV

**MAXIMUM EXECUTING QUERIES**

The maximum number of SQL statements actively executing in the accelerator concurrently at any time since accelerator start on behalf of all DB2 systems (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STMAXA_64).

**Field Name:** Q8STMAXA

**CONNECTS TO ACCELERATOR**

The number of connects to the accelerator from this DB2 system.

**Field Name:** Q8STCONN

**REQUESTS SENT TO ACCELERATOR**

The number of Distributed Relational Database Architecture (DRDA) requests sent by this DB2 system to the accelerator.

**Field Name:** Q8STREQ

**TIMED OUT**

The number of connections that were timed out when this DB2 system sent requests to the accelerator.

**Field Name:** Q8STTOUT

**FAILED**

The number of connections that failed when this DB2 system sent requests to the accelerator.

**Field Name:** Q8STFAIL

**BYTES SENT TO ACCELERATOR**

The total number of bytes sent to the accelerator.

**Field Name:** Q8STBYTS

**BYTES RECEIVED FROM ACCELERATOR**

The total number of bytes received from the accelerator.

**Field Name:** Q8STBYTR

**MESSAGES SENT TO ACCELERATOR**

The total number of messages sent to the accelerator.

**Field Name:** Q8STMSGS

**MESSAGES RECEIVED FROM ACCELERATOR**

The total number of messages received from the accelerator.
Field Name: Q8STMSGR

**BLOCKS SENT TO ACCELERATOR**

The total number of blocks sent to the accelerator.

Field Name: Q8STBLKS

**BLOCKS RECEIVED FROM ACCELERATOR**

The total number of blocks received from the accelerator.

Field Name: Q8STBLKR

**ROWS SENT TO ACCELERATOR**

The total number of rows sent to the accelerator.

Field Name: Q8STROWS

**ROWS RECEIVED FROM ACCELERATOR**

The total number of rows received from the accelerator.

Field Name: Q8STROWR

**TCP/IP SERVICES ELAPSED TIME**

The accumulated accelerator services TCP/IP elapsed time measured in DB2. It starts when sending the requests to the accelerator and ends when receiving the results from the accelerator.

Field Name: Q8STTELA

**WAIT TIME IN ACCELERATOR**

The wait time spent in the accelerator when executing requests from the DB2 subsystem.

Field Name: Q8STAWAT

**AVG QUEUE LENGTH (LAST 3 HRS)**

The average queue length during the last 3 hours at the accelerator.

Field Name: Q8STAVGQ03

**AVG QUEUE LENGTH (LAST 24 HRS)**

The average queue length during the last 24 hours at the accelerator.

Field Name: Q8STAVGQ24

**MAXIMUM QUEUE LENGTH**

The high watermark of the queue length at the accelerator (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STMAXQ_64).

Field Name: Q8STMAXQ

**AVG QUEUE WAIT ELAPSED TIME**

The average wait time at the accelerator queue.

Field Name: Q8STQUEW

**MAX QUEUE WAIT ELAPSED TIME**

The maximum wait time at the accelerator queue.

Field Name: Q8STQUEM

**WORKER NODES**
Accelerator Data - Prior to Version 4

The number of active worker nodes (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STWNOD_64).

**Field Name:** Q8STWNOD

**WORKER NODES AVG CPU UTILIZATION (%)**

The current CPU utilization on the accelerator worker nodes. This is a snapshot, which is the average CPU utilization across all worker nodes (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STWCPU_64).

**Field Name:** Q8STWCPU

**COORDINATOR AVG CPU UTILIZATION (%)**

The current CPU utilization on the accelerator coordinator node (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STCCPU_64).

**Field Name:** Q8STCCPU

**DISK STORAGE AVAILABLE (MB)**

The disk storage (MB) available at the accelerator.

**Field Name:** Q8STDSDKA

**DISK STORAGE AVAILABLE - IN USE (%)**

The current disk utilization of the accelerator worker nodes, expressed as percentage of the used I/O channels/resources.

**Field Name:** Q8STDSDKU

**DISK STORAGE AVAILABLE - IN USE FOR DATABASE (MB)**

The disk storage in-use for accelerator databases for this DB2 system.

**Field Name:** Q8STDSDKB

**DATA SLICES**

The number of data slices at the accelerator. This equals the degree of parallel I/O channels.

**Field Name:** Q8STNMDS

**DATA SKEW**

When table data is loaded into the accelerator, it may be unevenly distributed across the different data slices on the disks. This disparity is called data skew. The counter represents the accumulated skew over all tables that belong to the DB2 subsystem. The skew of a table is the ratio that shows how uneven the data slices are, as calculated by 

\[
\text{Skew} = \frac{\text{maximum data slice size} - \text{minimum data slice size}}{\text{median data slice size}}
\]

A high value indicates that data reorganization can improve disk utilization and query performance.

**Field Name:** Q8STSKEW

**PROCESSORS**

The number of CPU cores available on all worker nodes.

**Field Name:** Q8STCORS

**ELAPSED TIME IN ACCELERATOR**
The accumulated elapsed time spent in the accelerator when executing requests from the DB2 subsystem.

Field Name: Q8STAELA

CPU TIME SPENT IN ACCELERATOR

The CPU time spent in the accelerator when executing requests from the DB2 subsystem.

Field Name: Q8STACPU

Accelerator Data - Version 4 or later:

This topic shows detailed information about “Statistics - Accelerator Data - Version 4 or later”.

The Statistics Accelerator report block is shown for each accelerator that provided services to the DB2 subsystem or to the DB2 data sharing group within the reported interval. The left part consists of accelerator performance metrics from a subsystem or data sharing group perspective. The right parts contains total values from an accelerator perspective. The accelerator name is shown in the header line of each column.

With IBM DB2 Analytics Accelerator for z/OS version 4 or later, the Statistics report block shows performance data for the replication services which transmit data from DB2 to the accelerator. As for other counters, the replication values are shown in a DB2 subsystem or data sharing group view and in a total accelerator view. Most subsystem- or group-related replication fields are aggregated counters and shown as delta values in TRACE blocks and as apportioned interval values in the REPORT blocks in the left part. On the contrary, the corresponding total accelerator values in the right part are snapshot counters. This is due to the fact, that the replication can be disabled during the reporting period such that the accelerator only summarizes values from enabled replication engines.

In addition, the status of accelerators and replication engines may be unknown, and DB2 externalizes negative values -1 for related performance counters. The Statistics component handles such values as follows:

- Unknown (negative) accelerator values are snapshot counters and presented as zero. This matches the behavior of previous DB2 Accelerator versions, where zero values have been provided in the performance counters.
- Unknown (negative) replication engine values are shown as N/P in Statistics reports and as -1 in the Statistics accelerator table of the Performance Database as long as the status of the replication engine is not known. Once the status is known and non-negative performance values occur, aggregated and snapshot counters are handled as usual. If the replication status becomes unknown again, the aggregated counters are externalized as zero and shown as non-negative delta and interval values once replication has resumed.

Note:

- The DB2 subsystem is connected with an accelerator via DRDA when submitting SQL queries. The performance counters of the DRDA connection (rows from CONNECTS TO ACCELERATOR to WAIT TIME IN ACCELERATOR) are collected and reported on an individual subsystem or member basis in the left part.
Accelerator Data - Version 4 or later

- The other Statistics counters are collected periodically from the accelerator and reported as single subsystem values or as total data sharing group values in the left part if the reported subsystem is a member (with enabled acceleration) of a data sharing group.
- The full accelerator name is shown in the header if it does not exceed 16 characters. Otherwise, the name is replaced by a short name in the header and the long name is displayed at the end of the report.
- The descriptions of the fields labelled with QUERIES refer to SQL statements passed to the accelerator. For product identifiers of IBM DB2 Analytics Accelerator for z/OS prior to AQT04015, the SQL statements are SELECT queries passed to the accelerator and the fields INSERT STMTS to ROLLBACK STMTS are N/A.

Statistics - Accelerator Data - Version 4 or later

The field labels shown in the following sample layout of “Statistics - Accelerator Data - Version 4 or later” are described in the following section.

<table>
<thead>
<tr>
<th>TF3</th>
<th>FOR SUBSYSTEM/GROUP</th>
<th>QUANTITY</th>
<th>TF3</th>
<th>TOTAL ACCELERATOR</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>------</td>
<td>---------------------</td>
<td>----------</td>
<td>-----</td>
<td>-------------------</td>
<td>----------</td>
</tr>
<tr>
<td>QUERIES SUCCESSFULLY EXECUTED</td>
<td>1.00</td>
<td>QUERIES SUCCESSFULLY EXECUTED</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QUERIES FAILED TO EXECUTE</td>
<td>0.00</td>
<td>QUERIES FAILED TO EXECUTE</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURRENTLY EXECUTING QUERIES</td>
<td>0.70</td>
<td>CURRENTLY EXECUTING QUERIES</td>
<td>0.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAXIMUM EXECUTING QUERIES</td>
<td>1.00</td>
<td>MAXIMUM EXECUTING QUERIES</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPU TIME EXECUTING QUERIES</td>
<td>1.790000</td>
<td>CPU TIME EXECUTING QUERIES</td>
<td>1.790000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPU TIME LOAD/ARCHIVE/RESTORE</td>
<td>20.260000</td>
<td>CPU TIME LOAD/ARCHIVE/RESTORE</td>
<td>20.260000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSERT STMTS SENT TO ACCELERATOR</td>
<td>0.00</td>
<td>DISK STORAGE AVAILABLE (MB)</td>
<td>802454.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UPDATE STMTS SENT TO ACCELERATOR</td>
<td>0.00</td>
<td>IN USE FOR ACCEL DB - ALL DB2 (MB)</td>
<td>1579.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DELETE STMTS SENT TO ACCELERATOR</td>
<td>12045.00</td>
<td>IN USE FOR ACCEL DB - THIS DB2 (MB)</td>
<td>992.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPEN STMTS SENT TO ACCELERATOR</td>
<td>0.00</td>
<td>MAXIMUM QUEUE LENGTH</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CREATE STMTS SENT TO ACCELERATOR</td>
<td>12272.00</td>
<td>CURRENT QUEUE LENGTH</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DROP STMTS SENT TO ACCELERATOR</td>
<td>12272.00</td>
<td>AVG QUEUE WAIT ELAPSED TIME</td>
<td>0.025600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMMIT STMTS SENT TO ACCELERATOR</td>
<td>0.00</td>
<td>MAX QUEUE WAIT ELAPSED TIME</td>
<td>0.464235</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROLLBACK STMTS SENT TO ACCELERATOR</td>
<td>4.00</td>
<td>WORKER NODES</td>
<td>3.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REQUESTS SENT TO ACCELERATOR</td>
<td>12254.00</td>
<td>WORKER NODES DISK UTILIZATION (%)</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIMED OUT</td>
<td>0.00</td>
<td>WORKER NODES AVG CPU UTILIZATION (%)</td>
<td>2.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BYTES SENT TO ACCELERATOR</td>
<td>12045.00</td>
<td>COORDINATOR CPU UTILIZATION (%)</td>
<td>11.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BYTES RECEIVED FROM ACCELERATOR</td>
<td>402373564.00</td>
<td>PROCESSORS</td>
<td>48.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MESSAGES SENT TO ACCELERATOR</td>
<td>12272.00</td>
<td>DATA SLICES</td>
<td>22.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MESSAGES RECEIVED FROM ACCELERATOR</td>
<td>12272.00</td>
<td>CPU TIME FOR REPLICATION</td>
<td>0.148773</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLOCKS SENT TO ACCELERATOR</td>
<td>0.00</td>
<td>LOG RECORDS READ</td>
<td>137055.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLOCKS RECEIVED FROM ACCELERATOR</td>
<td>12250.00</td>
<td>LOG RECORDS FOR ACCEL TABLES</td>
<td>1496.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROWS SENT TO ACCELERATOR</td>
<td>0.00</td>
<td>LOG RECORDS BYTES PROCESSED</td>
<td>97265.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROWS RECEIVED FROM ACCELERATOR</td>
<td>0.00</td>
<td>INSERT ROWS FOR ACCEL TABLES</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCP/IP SERVICES ELAPSED TIME</td>
<td>12.937895</td>
<td>UPDATE ROWS FOR ACCEL TABLES</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELAPSED TIME IN ACCELERATOR</td>
<td>0.000000</td>
<td>DELETE ROWS FOR ACCEL TABLES</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WAIT TIME IN ACCELERATOR</td>
<td>0.000000</td>
<td>ACCELERATOR SERVER START</td>
<td>12/16/13 09:38:08:97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPU TIME FOR REPLICATION</td>
<td>0.085255</td>
<td>ACCELERATOR STATUS CHANGE</td>
<td>12/16/13 09:38:14:66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOG RECORDS READ</td>
<td>945.00</td>
<td>ACCELERATOR SERVER START</td>
<td>12/16/13 09:38:08:97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOG RECORDS FOR ACCEL TABLES</td>
<td>940.00</td>
<td>ACCELERATOR STATUS CHANGE</td>
<td>12/16/13 09:38:14:66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOG RECORDS BYTES PROCESSED</td>
<td>63299.00</td>
<td>INSERT ROWS FOR ACCEL TABLES</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSERT ROWS FOR ACCEL TABLES</td>
<td>0.00</td>
<td>UPDATE ROWS FOR ACCEL TABLES</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UPDATE ROWS FOR ACCEL TABLES</td>
<td>0.00</td>
<td>DELETE ROWS FOR ACCEL TABLES</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DELETE ROWS FOR ACCEL TABLES</td>
<td>0.00</td>
<td>REPLICAUTION LATENCY</td>
<td>0.000000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REPLICAUTION STATUS CHANGE</td>
<td>12/16/13 09:38:49:79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

IDENTIFIER

The accelerator server identifier.

Field Name: Q8STNAME

QUERIES SUCCESSFULLY EXECUTED

The number of SQL statements (sent by this DB2 system since accelerator start) that were successfully executed in the accelerator.

Field Name: Q8STSRQ

QUERIES FAILED TO EXECUTE
The number of SQL statements (sent by this DB2 system since accelerator start) that failed to be successfully executed for any reason.

Field Name: Q8STFREQ

CURRENTLY EXECUTING QUERIES

The number of currently executing SQL statements in the accelerator on behalf of this DB2 system.

Field Name: Q8STNQCS

MAXIMUM EXECUTING QUERIES

Shows the maximum number of SQL statements executing in the accelerator at any time since accelerator start on behalf of this DB2 system.

Field Name: Q8STMNQS

CPU TIME EXECUTING QUERIES

The total CPU cost associated with executing SQL statements in the accelerator on behalf of this DB2 system.

Field Name: Q8STTCQS

CPU TIME LOAD/ARCHIVE/RESTORE

The total CPU cost spent in the accelerator for data maintenance operations from this DB2 system. Replication-related operations are not included.

Field Name: Q8STTCMS

INSERT STMTS SENT TO ACCELERATOR

The number of INSERT statements sent by the DB2 system to the accelerator.

Field Name: Q8STINSC

UPDATE STMTS SENT TO ACCELERATOR

The number of UPDATE statements sent by the DB2 system to the accelerator.

Field Name: Q8STUPDC

DELETE STMTS SENT TO ACCELERATOR

The number of DELETE statements sent by the DB2 system to the accelerator.

Field Name: Q8STDELC

OPEN STMTS SENT TO ACCELERATOR

The number of OPEN statements sent by the DB2 system to the accelerator.

Field Name: Q8STOPNC

CREATE STMTS SENT TO ACCELERATOR

The number of CREATE statements sent by the DB2 system to the accelerator.

Field Name: Q8STCRTC

DROP STMTS SENT TO ACCELERATOR

The number of DROP statements sent by the DB2 system to the accelerator.
<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q8STDRPC</td>
<td>The number of COMMIT statements sent by the DB2 system to the accelerator.</td>
</tr>
<tr>
<td>Q8STCMTC</td>
<td>The number of ROLLBACK statements sent by the DB2 system to the accelerator.</td>
</tr>
<tr>
<td>Q8STRBKC</td>
<td>The number of connects to the accelerator from this DB2 system.</td>
</tr>
<tr>
<td>Q8STCONN</td>
<td>The number of Distributed Relational Database Architecture (DRDA) requests sent by this DB2 system to the accelerator.</td>
</tr>
<tr>
<td>Q8STREQ</td>
<td>The number of connections that were timed out when this DB2 system sent requests to the accelerator.</td>
</tr>
<tr>
<td>Q8STTOUT</td>
<td>The number of connections that failed when this DB2 system sent requests to the accelerator.</td>
</tr>
<tr>
<td>Q8STFAIL</td>
<td>The total number of bytes sent to the accelerator.</td>
</tr>
<tr>
<td>Q8STBYTES</td>
<td>The total number of bytes received from the accelerator.</td>
</tr>
<tr>
<td>Q8STBYTR</td>
<td>The total number of messages sent to the accelerator.</td>
</tr>
<tr>
<td>Q8STMSGS</td>
<td>The total number of messages received from the accelerator.</td>
</tr>
<tr>
<td>Q8STMSGR</td>
<td>The total number of blocks sent to the accelerator.</td>
</tr>
<tr>
<td>Q8STBLKS</td>
<td>The total number of blocks received from the accelerator.</td>
</tr>
</tbody>
</table>
BLOCKS RECEIVED FROM ACCELERATOR

The total number of blocks received from the accelerator.

Field Name: Q8STBLKR

ROWS SENT TO ACCELERATOR

The total number of rows sent to the accelerator.

Field Name: Q8STROWS

ROWS RECEIVED FROM ACCELERATOR

The total number of rows received from the accelerator.

Field Name: Q8STROWR

TCP/IP SERVICES ELAPSED TIME

The accumulated accelerator services TCP/IP elapsed time measured in DB2. It starts when sending the requests to the accelerator and ends when receiving the results from the accelerator.

Field Name: Q8STTELA

ELAPSED TIME IN ACCELERATOR

The accumulated elapsed time spent in the accelerator when executing requests from the DB2 subsystem.

Field Name: Q8STAELA

WAIT TIME IN ACCELERATOR

The wait time spent in the accelerator when executing requests from the DB2 subsystem.

Field Name: Q8STAWAT

CPU TIME FOR REPLICATION

The total CPU cost associated with the replication apply process for this DB2 system.

Field Name: Q8STTC excess

LOG RECORDS READ

The number of log records read by the replication capture agent for this DB2 system.

Field Name: Q8STNLRS

LOG RECORDS READ - LOG RECORDS FOR ACCEL TABLES

The number of log records (read by the replication capture agent for this DB2 system) that are applicable to tables in this accelerator.

Field Name: Q8STNLTS

LOG RECORD BYTES PROCESSED

The number of log record bytes processed by the replication capture agent for this DB2 system.

Field Name: Q8STNBS

INSERT ROWS FOR ACCEL TABLES
The number of INSERT rows applicable to accelerator tables that were processed by the replication capture agent for this DB2 system.

Field Name: Q8STNIS

**UPDATE ROWS FOR ACCEL TABLES**

The number of UPDATE rows applicable to accelerator tables that were processed by the replication capture agent for this DB2 system.

Field Name: Q8STNUS

**DELETE ROWS FOR ACCEL TABLES**

The number of DELETE rows applicable to accelerator tables that were processed by the replication capture agent for this DB2 system.

Field Name: Q8STNDS

**REPLICATION LATENCY**

The current replication latency for this DB2 system. Latency is defined as the time difference between the timestamp, when the last log record was applied to the target, compared to the current time.

Field Name: Q8STCRL

**REPLICATION STATUS CHANGE**

The timestamp when the last change of the accelerator replication state occurred for this DB2 system.

Field Name: Q8STTLSC

**QUERIES SUCCESSFULLY EXECUTED**

The number of SQL statements (sent by all DB2 systems since accelerator start) that successfully executed in the accelerator.

Field Name: Q8STNQSA

**QUERIES FAILED TO EXECUTE**

Shows the number of SQL statements (sent by all DB2 systems since accelerator start) that were not successfully executed for any reason.

Field Name: Q8STNQFA

**CURRENTLY EXECUTING QUERIES**

The number of currently (actively) executing SQL statements in the accelerator on behalf of all DB2 systems (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STACTV_64).

Field Name: Q8STACTV

**MAXIMUM EXECUTING QUERIES**

The maximum number of SQL statements actively executing in the accelerator concurrently at any time since accelerator start on behalf of all DB2 systems (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STMAXA_64).

Field Name: Q8STMAXA

**CPU TIME EXECUTING QUERIES**

The total CPU cost associated with executing SQL statements in the accelerator on behalf of all DB2 systems.
Field Name: Q8STTCQA

CPU TIME LOAD/ARCHIVE/RESTORE

The total CPU cost spent in the accelerator for data maintenance operations from all DB2 systems. Replication-related operations are not included.

Field Name: Q8STTCMA

DISK STORAGE AVAILABLE (MB)

The disk storage (MB) available at the accelerator.

Field Name: Q8STDSCA

DISK STORAGE AVAILABLE - IN USE FOR ACCEL DB - ALL DB2 (MB)

The disk storage (MB) in-use for accelerator databases for all DB2 systems.

Field Name: Q8STDSA

DISK STORAGE AVAILABLE - IN USE FOR ACCEL DB - THIS DB2(MB)

The disk storage in-use for accelerator databases for this DB2 system.

Field Name: Q8STDSKB

MAXIMUM QUEUE LENGTH

The high watermark of the queue length at the accelerator (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STMAXQ_64).

Field Name: Q8STMAXQ

CURRENT QUEUE LENGTH

The current queue length at the accelerator.

Field Name: Q8STCQL

AVG QUEUE WAIT ELAPSED TIME

The average wait time at the accelerator queue.

Field Name: Q8STQUEW

MAX QUEUE WAIT ELAPSED TIME

The maximum wait time at the accelerator queue.

Field Name: Q8STQUEM

WORKER NODES

The number of active worker nodes (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STWNOD_64).

Field Name: Q8STWNOD

WORKER NODES DISK UTILIZATION (%)

The current disk utilization of the accelerator worker nodes, expressed as percentage of the used I/O channels/resources.

Field Name: Q8STDSDKU

WORKER NODES AVG CPU UTILIZATION (%)

The current CPU utilization on the accelerator worker nodes. This is a snapshot, which is the average CPU utilization across all worker nodes (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STWCPU_64).
Accelerator Data - Version 4 or later

Field Name: Q8STWCPU

COORDINATOR CPU UTILIZATION (%)
The current CPU utilization on the accelerator coordinator node (Field name for DB2 Analytics Accelerator for z/OS Version 4: Q8STCCPU_64).

Field Name: Q8STCCPU

PROCESSORS
The number of CPU cores available on all worker nodes.

Field Name: Q8STCORS

DATA SLICES
The number of data slices at the accelerator. This equals the degree of parallel I/O channels.

Field Name: Q8STNMDS

CPU TIME FOR REPLICATION
The total CPU cost associated with the replication apply process for all DB2 systems.

Field Name: Q8STTCCA

LOG RECORDS READ
The number of log records read by the replication capture agents for all DB2 systems.

Field Name: Q8STNLRA

LOG RECORDS READ - LOG RECORDS FOR ACCEL TABLES
The number of log records read by the replication capture agents for all DB2 systems that are applicable to tables in this accelerator.

Field Name: Q8STNLTA

LOG RECORD BYTES PROCESSED
The number of log record bytes processed by the replication capture agents for all DB2 systems.

Field Name: Q8STNBA

INSERT ROWS FOR ACCEL TABLES
The number of INSERT rows applicable to accelerator tables that were processed by the replication capture agents for all DB2 systems.

Field Name: Q8STNIA

UPDATE ROWS FOR ACCEL TABLES
The number of UPDATE rows applicable to accelerator tables that were processed by the replication capture agents for all DB2 systems.

Field Name: Q8STNUA

DELETE ROWS FOR ACCEL TABLES
The number of DELETE rows applicable to accelerator tables that were processed by the replication capture agents for all DB2 systems.

Field Name: Q8STNDA
ACCELERATOR SERVER START

The timestamp when the accelerator server process started last time.
Field Name: Q8STTART

ACCELERATOR STATUS CHANGE

The timestamp when the last change of the accelerator occurred.
Field Name: Q8STTATC

Accounting Rollup:

This topic shows detailed information about “Statistics - Accounting Rollup”.

Statistics - Accounting Rollup

The field labels shown in the following sample layout of “Statistics - Accounting Rollup” are described in the following section.

<table>
<thead>
<tr>
<th>ACCOUNTING ROLLUP</th>
<th>QUANTITY /SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROLLUP THRESH RECS WRITTEN</td>
<td>4.00</td>
<td>0.02</td>
<td>N/C</td>
</tr>
<tr>
<td>STORAGE THRESH RECS WRITTEN</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>STALEN THRESH RECS WRITTEN</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>RECS UNQUALIFIED FOR ROLLUP</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
</tbody>
</table>

ROLLUP THRESH RECS WRITTEN

The number of roll-up accounting records written due to roll-up threshold exceeded.
Field Name: QWSDARTH

STORAGE THRESH RECS WRITTEN

The number of roll-up accounting records written due to roll-up accounting storage threshold exceeded.
Field Name: QWSDARSG

STALEN THRESH RECS WRITTEN

The number of roll-up accounting records written due to staleness threshold exceeded.
Field Name: QWSDARST

RECS UNQUALIFIED FOR ROLLUP

The number of records that failed to qualify for accounting roll-up because all roll-up key fields are equal to NULL or because of NULL values that are not permitted.
Field Name: QWSDARIR

Aggregated Accounting Statistics:

This topic shows detailed information about “Statistics - Aggregated Accounting Statistics”.

IFCID 369 contains aggregated Accounting data from IFCID 3 listed by connection type.
**Aggregated Accounting Statistics**

IFCID 369 is started using the START TRACE command for STATISTICS CLASS(9). IFCID 3 must also be enabled (ACCOUNTING CLASS(1)) to get 369 trace records. IFCID 369 values are aggregated each time an IFCID 3 is written and contain total values. In the Statistics reports, IFCID 369 delta values are calculated to show which IFCID 3 events occurred in a Statistics interval.

In contrast to Accounting reports, the IFCID 369 statistics performance metrics cannot distinguish between IFCID 3 records for parallel and non-parallel threads. In Accounting, the elapsed times of parallel threads are derived from IFCID 3 of the originating thread. In IFCID 369, all times (even the elapsed times of the originating thread and parallel subtasks) are aggregated and shown as such in the Statistics report. That is why IFCID 369 can provide more diagnostics on what is currently happening in a DB2 subsystem and whether there are bottlenecks (also for parallel subtasks).

For more information on the Accounting fields referred to in the field descriptions below, see:
- “Times - Class 1 - Application Time” on page 3341
- “Times - Class 2 - DB2 Time” on page 3347

**Statistics - Aggregated Accounting Statistics**

The field labels shown in the following sample layout of “Statistics - Aggregated Accounting Statistics” are described in the following section.

<table>
<thead>
<tr>
<th>CONNTYPE</th>
<th>CL1 ELAPSED</th>
<th>CL1 CPU</th>
<th>CL1 SE CPU</th>
<th>CL2 ELAPSED</th>
<th>CL2 CPU</th>
<th>CL2 SE CPU</th>
<th>CL3 SUSP</th>
<th>CL2 NOT ACC</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>BATCH</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
<tr>
<td>CICS</td>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
<td>0.000000</td>
</tr>
<tr>
<td>IMS</td>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
<td>N/P</td>
<td>0.000000</td>
</tr>
<tr>
<td>RRSASF</td>
<td>1:04,091521</td>
<td>0.143129</td>
<td>0.000000</td>
<td>0.050749</td>
<td>0.044200</td>
<td>0.000000</td>
<td>0.000002</td>
<td>0.000847</td>
<td>10.0000</td>
</tr>
<tr>
<td>UTILITY</td>
<td>21.317271</td>
<td>0.712988</td>
<td>0.031434</td>
<td>1.224435</td>
<td>0.189245</td>
<td>0.031434</td>
<td>0.987360</td>
<td>0.047629</td>
<td>72.0000</td>
</tr>
</tbody>
</table>

**CL1 ELAPSED**

The class 1 elapsed time aggregated by connection type. See also the description of Accounting field ADRECETT.

**Note:** In contrast to ADRECETT, elapsed times of parallel records are included in SDRECETT.

**Field Name:** SDRECETT

**CL1 CPU**

The class 1 CPU time aggregated by connection type. See also the description of Accounting field ADCPUT.

**Field Name:** SDCPU

**CL1 SE CPU**

The sum of several accumulated CPU times consumed while running on an IBM specialty engine in all environments and aggregated by connection type. See also the description of Accounting field AWACC1Z.

**Field Name:** SWACC1Z

**CL2 ELAPSED**

The class 2 elapsed time aggregated by connection type. See also the description of Accounting field ADDB2ETT.
Aggregated Accounting Statistics

Note: In contrast to ADDB2ETT, elapsed times of parallel records are included in SDDB2ETT.

Field Name: SDDB2ETT

CL2 CPU

The class 1 CPU time aggregated by connection type. See also the description of Accounting field ADDBCPUT.

Field Name: SDBBCPUT

CL2 SE CPU

The accumulated and consumed class 2 time on an IBM specialty engine aggregated by connection type. See also the description of Accounting field AWACC2Z.

Field Name: SWACC2Z

CL3 SUSP

The waiting time for all types of class 3 suspensions aggregated by connection type. See also the description of Accounting field ADTSUST.

Field Name: SDTSUST

CL2 NOT ACC

The time not accounted in DB2 and aggregated by connection type. See also the description of Accounting field ADNOTACC.

Note: In contrast to ADNOTACC, unaccounted times of parallel records are included in SDNOTACC.

Field Name: SDNOTACC

QUANTITY

The number of parallel child agents, Accounting intervals, or autonomous procedures rolled up for all threads of the connection type. See also the description of Accounting field QWACPCNT.

Field Name: SWACPCNT

Authorization Management:

This topic shows detailed information about “Statistics - Authorization Management”.

There are three authorization caches, located in the EDM pool:
• Plan, one cache per plan
• Package, one per subsystem
• Routine, for stored procedures and user-defined functions, one per subsystem

Allied threads (CICS, IMS, TSO, batch) are checked for EXECUTE authority at plan level. The package, and routine authorization caches only check EXECUTE authority for distributed applications.

The size of the plan authorization cache is set at BIND time, with the option CACHESIZE. When this is not specified, the default is taken from the ZPARM AUTHCACHE.
Authorization Management

If you run the plan infrequently, or if authority to run the plan is granted to PUBLIC, you might want to turn off caching for the plan so that DB2 does not use unnecessary storage. In this case specify a value of 0 for the CACHESIZE option.

Any plan that you run repeatedly is a good candidate for tuning by using the CACHESIZE option. Also, if you have a plan that a large number of users run concurrently, you might want to use a larger CACHESIZE.

The size of the package authorization cache is determined by ZPARM CACHEPAC.

The size of the routine authorization cache is determined by ZPARM CACHERAC.

Statistics - Authorization Management

The field labels shown in the following sample layout of “Statistics - Authorization Management” are described in the following section.

<table>
<thead>
<tr>
<th>Authorization Management</th>
<th>Quantity</th>
<th>/Second</th>
<th>/Thread</th>
<th>/Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL AUTH ATTEMPTS</td>
<td>53.00</td>
<td>0.29</td>
<td>N/C</td>
<td>1.61</td>
</tr>
<tr>
<td>TOTAL AUTH SUCC</td>
<td>53.00</td>
<td>0.29</td>
<td>N/C</td>
<td>1.61</td>
</tr>
<tr>
<td>PLAN-AUTH SUCC-W/O CATALOG</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>PLAN-AUTH SUCC-PUB-W/O CAT</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>PKG-AUTH SUCC-W/O CATALOG</td>
<td>16.00</td>
<td>0.09</td>
<td>N/C</td>
<td>0.48</td>
</tr>
<tr>
<td>PKG-AUTH SUCC-PUB-W/O CAT</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>PKG-AUTH UNSUCC-CACHE</td>
<td>1.00</td>
<td>0.01</td>
<td>N/C</td>
<td>0.03</td>
</tr>
<tr>
<td>PKG CACHE OVERWRIT - AUTH ID</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>PKG CACHE OVERWRIT - ENTRY</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>RTN-AUTH SUCC-W/O CATALOG</td>
<td>12.00</td>
<td>0.07</td>
<td>N/C</td>
<td>0.36</td>
</tr>
<tr>
<td>RTN-AUTH SUCC-PUB-W/O CAT</td>
<td>12.00</td>
<td>0.07</td>
<td>N/C</td>
<td>0.36</td>
</tr>
<tr>
<td>RTN-AUTH UNSUCC-CACHE</td>
<td>4.00</td>
<td>0.02</td>
<td>N/C</td>
<td>0.12</td>
</tr>
<tr>
<td>RTN CACHE OVERWRIT - AUTH ID</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>RTN CACHE OVERWRIT - ENTRY</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>RTN CACHE - ENTRY NOT ADDED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
</tbody>
</table>

TOTAL AUTH ATTEMPTS

The number of authorization checks performed for plans, packages, and stored procedures since DB2 was started. This includes successful and failed checks.

Field Name: QTAUCHK

TOTAL AUTH SUCC

The number of successful authorization checks performed on plans, packages, and stored procedures, since DB2 was started.

Field Name: QTAUSUC

PLAN-AUTH SUCC-W/O CATALOG

The number of successful authorization checks that do not use the DB2 catalog (including plan cache checks and public checks).

Background and Tuning Information

For transaction level security, ENABLE and DISABLE on BIND PACKAGE should be used to ensure adequate security. Granting execute authority on the plan to public should be adequate.

Field Name: QTAUCCH

PLAN-AUTH SUCC-PUB-W/O CAT
The number of successful authorization checks based on EXECUTE authority granted to PUBLIC.

**Field Name:** QTAUPUB

**PKG-AUTH SUCC-W/O CATALOG**

The number of successful package EXECUTE authorization checks without accessing the DB2 catalog.

**Field Name:** QTPACAUT

**PKG-AUTH SUCC-PUB-W/O CAT**

The number of successful package EXECUTE authorization checks without accessing the DB2 catalog. Package EXECUTE authority was granted to PUBLIC in the package authorization cache.

**Field Name:** QTPACPUB

**PKG-AUTH UNSUCC-CACHE**

The number of unsuccessful package EXECUTE authorization checks in the package authorization cache. No applicable entry was found in the cache and DB2 catalog access was used.

**Field Name:** QTPACNOT

**PKG CACHE OVERWRT - AUTH ID**

The number of times an authorization ID was overwritten to add another one to the package authorization cache.

**Field Name:** QTPACOW1

**PKG CACHE OVERWRT - ENTRY**

The number of times an entry for a collection-ID or package-ID was overwritten to add another one to the package authorization cache.

**Field Name:** QTPACOW2

**RTN-AUTH SUCC-W/O CATALOG**

The number of times the routine authorization cache was checked successfully of EXECUTE authority on a stored procedure or user-defined function. The DB2 catalog was not accessed. This counter includes the number of PUBLIC authorization checks.

**Field Name:** QTRACAUT

**RTN-AUTH SUCC-PUB-W/O CAT**

Number of successful authorization checks for user-defined function or stored procedure execution authority when that authority is held by PUBLIC. The DB2 catalog was not checked.

**Field Name:** QTRACPUB

**RTN-AUTH UNSUCC-CACHE**

Number of unsuccessful authorization checks for user-defined function or stored procedure EXECUTE authority because no applicable entry was found in the routine authorization cache.

**Field Name:** QTRACNOT

**RTN CACHE OVERWRT - AUTH ID**
Authorization Management

Number of times that DB2 overwrote an authorization ID in the routine authorization cache.

Field Name: QTRACOW1

RTN CACHE OVERWRT - ENTRY

Number of times that DB2 overwrote a routine entry in the routine authorization cache.

An entry in the routine authorization cache can refer to a function or procedure or to all functions or procedures within a specific schema.

Field Name: QTRACOW2

RTN CACHE - ENTRY NOT ADDED

Number of times that DB2 could not add an entry to the routine authorization cache.

An entry in the routine authorization cache can refer to a function or procedure or to all functions or procedures within a specific schema.

Field Name: QTRACNAC

Buffer Pool General:

This topic shows detailed information about “Statistics - Buffer Pool General”.

This block is only printed when the buffer pool is active. If more than one 4 KB or 32 KB buffer pool block is present, a summary block showing buffer pool totals is also printed. If the report contains both 4 KB and 32 KB buffer pool blocks, a block showing the totals for all buffer pools is printed.

Statistics - Buffer Pool General

The field labels shown in the following sample layout of “Statistics - Buffer Pool General” are described in the following section.

<table>
<thead>
<tr>
<th>Field</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP0 GENERAL</td>
<td>QUANTITY</td>
</tr>
<tr>
<td></td>
<td>/SECOND</td>
</tr>
<tr>
<td></td>
<td>/THREAD</td>
</tr>
<tr>
<td></td>
<td>/COMMIT</td>
</tr>
<tr>
<td>CURRENT ACTIVE BUFFERS</td>
<td>164.00</td>
</tr>
<tr>
<td>UNAVAIL.BUFFER- VPOOL FULL</td>
<td>0.00</td>
</tr>
<tr>
<td>NUMBER OF DATASET OPENS</td>
<td>0.00</td>
</tr>
<tr>
<td>BUFFERS ALLOCATED - VPOOL</td>
<td>5000.00</td>
</tr>
<tr>
<td>DFHSM MIGRATED DATASET</td>
<td>0.00</td>
</tr>
<tr>
<td>DFHSM RECALL TIMEOUTS</td>
<td>0.00</td>
</tr>
<tr>
<td>VPOOL EXPANS. OR CONTRACT.</td>
<td>0.00</td>
</tr>
<tr>
<td>VPOOL EXPANS. FAILURES</td>
<td>0.00</td>
</tr>
<tr>
<td>CONCUR. P/F. I/O STREAMS-HWM</td>
<td>0.00</td>
</tr>
<tr>
<td>P/F. I/O STREAMS REDUCTION</td>
<td>0.00</td>
</tr>
<tr>
<td>PARALLEL QUERY REQUESTS</td>
<td>0.00</td>
</tr>
<tr>
<td>PARALLEL QUERY REQ. REDUCTION</td>
<td>0.00</td>
</tr>
<tr>
<td>PREF. QUANT. REDUCED TO 1/2</td>
<td>0.00</td>
</tr>
<tr>
<td>PREF. QUANT. REDUCED TO 1/4</td>
<td>0.00</td>
</tr>
<tr>
<td>NUMBER OF LPL INSERTS</td>
<td>0.00</td>
</tr>
<tr>
<td>MIN BUFFERS ON SLRU</td>
<td>0.00</td>
</tr>
</tbody>
</table>
MAX BUFFERS ON SLRU  0.00  N/A  N/A  N/A
SLRU LENGTH EQUALS VPSEQT  0.00  0.00  0.00  0.00
GETPAGE REQ RANDOM ON SLRU  0.00  0.00  0.00  0.00

CURRENT ACTIVE BUFFERS

The total number of currently active (nonstealable) buffers. This field is an instantaneous sample of the number of buffers in the buffer pool that were updated or in use at the time this monitor data was requested. Because this field gives a snapshot value at statistics collection time, it only shows a problem if it happens at this time.

Background and Tuning Information

The buffer pool might be too small if the percentage of active pages in the buffer pool is beyond the deferred write threshold (DWQT).

Field Name: QBSTCBA

UNAVAIL.BUFFER-VPOOL FULL

The number of times a usable buffer could not be located in the virtual buffer pool because the virtual buffer pool was full.

Background and Tuning Information

Ideally, this value should be 0. Any other value indicates that the buffer pool is underallocated. In this case, use the ALTER BUFFERPOOL command to increase the virtual buffer pool size until this value remains at 0.

Field Name: QBSTXFL

NUMBER OF DATASET OPENS

The number of data sets physically opened successfully. This value is cumulative from the start of the DB2 statistics interval.

Field Name: QBSTDOS

BUFFERS ALLOCATED - VPOOL

The number of buffers allocated for a virtual buffer pool.

Note: In DB2 10, the buffer pool size can increase continuously by up to 25% for each DB2 restart. In DB2 11, the AUTOSIZE option of the ALTER BUFFERPOOL command can limit the range within VPSIZEMIN and VPSIZEMAX.

Background and Tuning Information

You should monitor the buffer pool hit ratio field to find the optimum size of the buffer pool. Usually the buffer pool hit ratio is improved by increasing the size of the buffer pool. However, paging the buffer pool storage impacts DB2 performance if the virtual buffer pool is too large.

Page-ins Required for Read I/O (QBSTRPI) and Page-ins Required for Write I/O (QBSTWPI) are useful when determining whether paging affects the performance of a certain buffer pool. The Resource Measurement Facility (RMF) also provides reports on MVS paging activity:

Storage Paging

When the virtual buffer pool is extended into expanded storage, MVS storage paging activity occurs. If a large buffer pool size results in excessive storage paging, consider allocating more real storage to the LPAR.
Paging to Auxiliary Storage

If the virtual buffer pool size requirements exceed the central storage and expanded storage available, the oldest buffer pool pages migrate to auxiliary paging storage. When these pages are accessed subsequently, I/O must bring them back into real storage. This should be avoided. You could have a smaller buffer pool and let DB2 do the I/O rather than use MVS paging with its I/O CPU overhead. This is a situation that you (as the system programmer) should monitor.

You can use the ALTER BUFFERPOOL command to alter the size of the virtual buffer pool.

Changing the size of the virtual buffer pool implicitly changes the buffer pool thresholds. See the Deferred Write Threshold Reached field (QBSTDWT).

Field Name: QBSTVPL

DFHSM MIGRATED DATASET

The number of times migrated data sets were encountered.

Field Name: QBSTMIG

DFHSM RECALL TIMEOUTS

The number of recall timeouts.

Field Name: QBSTRTO

VPOOL EXPANS. OR CONTRACT.

The number of successful virtual buffer pool expansions or contractions due to the ALTER BUFFERPOOL command. An increase in this counter indicates that buffer-pool-related system parameters have been changed.

Field Name: QBSTVPA

This is an exception field.

VPOOL EXPANS. FAILURES

The total number of virtual buffer pool expansion failures due to the lack of virtual storage space.

Background and Tuning Information

Ideally, this value should be 0. If it is not, check the virtual storage allocation of the DB2 database address space for areas that can be reduced. For example, you can reduce the size of other buffer pools.

Field Name: QBSTXFV

This is an exception field.

CONCUR.PREF/I/O STREAMS-HWM

The highest number of concurrent prefetch I/O streams allocated to support a parallel I/O or CP query in this buffer pool. It reflects prefetch activities for non-workfile page sets.

This number only applies to query I/O and CP parallelism.

Field Name: QBSTXIS

This is an exception field.
**PREFI/O STREAMS REDUCTION**

The total number of requested prefetch I/O streams that were denied because of a lack of buffer pool storage space.

It only applies to query I/O and CP parallelism.

For example, if 100 prefetch I/O streams are requested and only 80 are granted, then 20 is added to the number in this field.

**Background and Tuning Information**

Consider increasing the size of the buffer pool if this value is not 0.

The ratio of this field and the Reduced parallel query requests field gives the average degree of parallel query processing that was reduced because of insufficient buffer pool space. The Prefetch I/O streams - Concurrent streams - high-water mark field gives the highest degree of parallel query processing that was reduced for one or more queries processed in parallel.

The number in this field reflects the prefetch activities for non-workfile page sets.

**Field Name:** QBSTJIS

This is an exception field.

**PARALLEL QUERY REQUESTS**

The total number of requests made for parallel query support in this buffer pool. This field only applies to non-workfile page sets in query I/O and CP parallelism.

**Field Name:** QBSTPQO

**PARALLEL QUERY REQ.REDUCTION**

The number of times that DB2 could not allocate the requested number of buffer pages to allow a parallel group to run as planned.

This field only applies to non-workfile page sets in query I/O and CP parallelism.

**Background and Tuning Information**

This is caused by a shortage of storage in the buffer pool. A nonzero value could suggest that the buffer pool is too small. You can increase it using the ALTER BUFFERPOOL command.

**Field Name:** QBSTPQF

This is an exception field.

**PREF.QUANT.REDUCED TO 1/2**

The total number of times prefetch quantity is reduced from normal to 50% of normal. The normal size depends on the page size of the buffer pool.

This field only applies to query I/O and CP parallelism.

**Background and Tuning Information**

The number in this field indicates when DB2 had to reduce the sequential prefetch quantity to continue executing concurrently with parallel queries in the system. If the number is small, it may be tolerable.

**Field Name:** QBSTPL1

This is an exception field.
**Buffer Pool General**

**PREFQUANT.REDUCED TO 1/4**

The total number of times prefetch quantity is reduced from 50% to 25% of normal. The normal size depends on the page size of the buffer pool.

This field only applies to query I/O and CP parallelism.

**Background and Tuning Information**

The query response for parallel queries can be significantly degraded if the value in this field is not 0.

**Field Name:** QBSTPL2

This is an exception field.

**NUMBER OF LPL INSERTS**

The number of times that one or more pages were added to the logical page list (LPL).

**Field Name:** QBSTLPL

**MIN BUFFERS ON SLRU**

The minimum number of buffers on the sequential least-recently-used (SLRU) chain in the last statistical period. This is the low-water mark (LWM) within an interval.

**Field Name:** QBSTSMIN

**MAX BUFFERS ON SLRU**

The maximum number of buffers on the sequential least-recently-used (SLRU) chain in the last statistical period. This is the high-water mark (HWM) within an interval.

**Field Name:** QBSTSMAX

**SLRU LENGTH EQUALS VPSEQT**

The number of times when the length of the sequential least-recently-used (SLRU) chain equals the sequential steal threshold VPSEQT.

**Field Name:** QBSTHST

**GETPAGE REQU RANDOM ON SLRU**

The number of times that the random Getpage request has a buffer hit and the buffer is on the least-recently-used (SLRU) chain.

**Field Name:** QBSTRHS

**Buffer pool read statistics report:**

This topic shows detailed information about “Statistics - Buffer Pool Read”.

This block is only printed when the buffer pool is active. If more than one 4 KB or 32 KB buffer pool block is present, a summary block showing buffer pool totals is also printed. If the report contains both 4 KB and 32 KB buffer pool blocks, a block showing the totals for all buffer pools is printed.

**Statistics - Buffer Pool Read**

<table>
<thead>
<tr>
<th>BP0 READ OPERATIONS</th>
<th>QUANTITY /SECOND /THREAD /COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPOOL HIT RATIO (%)</td>
<td>50.90</td>
</tr>
<tr>
<td>BPOOL HIT RATIO (%)</td>
<td>50.89</td>
</tr>
</tbody>
</table>
The percentage of Getpage operations that were satisfied by a page already in the buffer pool.

The value is calculated as the ratio of number of successful Getpage operations minus the number of pages read from DASD (both synchronously and using prefetch), to the number of successful Getpage operations, expressed as a percentage.

**Background and Tuning Information**

The highest possible hit ratio is 100%, that is, when every page requested is always in the buffer pool. If the requested page is not in the buffer pool, the hit ratio is 0% or less. If the hit ratio is negative, this means that prefetch brought pages into the buffer pool that are not subsequently referenced, either because the query stops before it reaches the end of the table space, or because the prefetched pages are stolen by DB2 for reuse before the query can access them. A low buffer pool hit ratio is not necessarily bad. The hit ratio is a relative value, based on the type of application. For example, an application that browses large data might have a buffer pool hit ratio of 0. Watch for those cases where the hit ratio drops significantly for the same application. Here are some suggestions to increase the buffer hit ratio:

- Run the REORG utility for indexes or table spaces associated with the virtual buffer pool.
- Reserve more pages for random I/O by setting the SEQUENTIAL STEAL THRESHOLD (VPSEQT) to a lower value.
- Increase the buffer pool as long as the cost of paging does not outweigh the benefit of I/O avoidance.
Establish more separate buffer pools, perhaps to isolate different applications.

Place the objects that are accessed only sequentially in a separate buffer pool.

When the hit ratio is negative, it means that prefetch has brought pages into the buffer pool that are not subsequently referenced, either because the query stops before it reaches the end of the table space, or because the prefetched pages are stolen by DB2 for reuse before the query can access them.

The hit ratio measurement becomes less meaningful if the buffer pool is used by additional processes, such as utilities or work files.

**Field Name:** SBUFFRAT

**BPOOL HIT RATIO (%) SEQU**

The percentage of sequential Getpage operations that were satisfied by a page already in the buffer pool.

**Field Name:** SBUFFSEQ

**BPOOL HIT RATIO (%) RANDOM**

The percentage of random Getpage operations that were satisfied by a page already in the buffer pool. If this value is low, it indicates that page residency in the buffer pool is too low, therefore the buffer pool may be too small.

**Field Name:** SBUFFRDM

**GETPAGE REQUEST**

The number of Getpage requests including conditional and unconditional requests.

**Field Name:** QBSTGET

**GETPAGE REQS-SEQUENTIAL**

The number of Getpage requests issued by sequential access requesters.

**Field Name:** QBSTSGT

**IN-MEM OVFL SEQ REQS**

The number of sequential GETPAGE requests using overflowed buffers. If this counter has a non-zero value, the buffer pool size should be increased.

**Field Name:** QBSTASGE

This is an *exception* field.

**GETPAGE REQS-RANDOM**

The number of random Getpage requests.

**Field Name:** SDGETRAN

**IN-MEM OVFL RND REQS**

The number of non-sequential GETPAGE requests using overflowed buffers. If this counter has a non-zero value, the buffer pool size should be increased.
Field Name: QBSTAGET
This is an exception field.

SYNCHRONOUS READS
The number of synchronous read I/O operations performed by DB2 for applications and utilities.

Background and Tuning Information
This number includes both Synchronous Reads Sequential Access Only (QBSTSIO) and synchronous read operations for non-sequential access.

You can use this value and the value of Synchronous Reads Sequential Access Only to calculate the number of Non-Sequential Synchronous Reads.

Check the buffer pool hit ratio if the number of non-sequential synchronous reads is larger than expected.

Field Name: QBSTRIO
This is an exception field.

SYNC READS-SEQUENTIAL
The number of synchronous read I/O requests issued by sequential access requesters.

Background and Tuning Information
Sequential synchronous read I/Os can occur because:
• Prefetch is disabled (QBSTSPD).
• Prefetch pages could have been stolen from the buffer pool before the Getpage request is issued for those pages. Subsequently the pages are reread synchronously. A negative buffer pool hit ratio can indicate the same problem.
• The pages requested are not consecutive: DB2 estimated the selected range of pages to be so small that prefetch would make no sense. See also Sequential Prefetch Requested (QBSTSEQ).

It is normal to have a small value for SYNC READ I/O (SEQUENTIAL) because before the sequential prefetch is scheduled, the first page of a prefetch is read by SYNC READ I/O. However, if this number is large, consider increasing the size of the buffer pool or reviewing the sequential steal thresholds (VPSEQT and HPSEQT).

Field Name: QBSTSIO
This is an exception field.

IN-MEM OVFL SEQ READS
The number of synchronous read I/O operations for sequential GETPAGE requests using overflowed buffers.

If this counter has a non-zero value, the buffer pool size should be increased.

Field Name: QBSTASSE
This is an exception field.

SYNC READS-RANDOM
The number of random synchronous read I/O requests.
Buffer Pool Read

Field Name: SDSTRAN
This is an exception field.

IN-MEM OVFL RND READS
The number of synchronous read I/O operations for non-sequential GETPAGE requests using overflowed buffers.
If this counter has a non-zero value, the buffer pool size should be increased.

Field Name: QBSTASYN
This is an exception field.

GETPAGE PER SYN.READ-RANDOM
The number of random Getpage requests per random synchronous read I/O request.

Background and Tuning Information
This ratio is a good indicator of read efficiency in a transaction environment. The higher the number is, the better.

Field Name: SBRGPRIO

SEQUENTIAL PREFETCH REQUEST
The number of sequential prefetch requests. This counter is incremented for each PREFETCH request (which can result in an I/O read). If the prefetch results in an I/O read, up to 64 pages may be read for SQL, and up to 128 pages for utilities. A request does not result in an I/O read if all pages to be prefetched are already in the buffer pool.
This counter does not include sequential detection, which is recorded in the Dynamic Prefetch - Requested field.

Background and Tuning Information
Sequential prefetch reads a sequential set of pages. It allows CP and I/O operations to be overlapped. DB2 determines at BIND time whether sequential prefetch is used or not.
Sequential prefetch is generally used for a table space scan.
The number of prefetch requests by itself is not a good indicator for efficiency of prefetching:
• At run time not every prefetch request results in read I/O: the Sequential Prefetch Reads field (QBSTPIO) shows the number of read I/O operations caused by sequential prefetch. The Prefetch Disabled No Buffer (QBSTSPD) and Prefetch Disabled No Read Engine fields (QBSTREE) show the number of times prefetch was disabled because buffers and read engines had not been available.
• Check the value in the buffer pool hit ratio. A negative value indicates that prefetched pages are stolen from the buffer pool before they are read. The pages are subsequently reread synchronously. There will be also a large value in the Synchronous Reads Total (QBSTRIO) field.
• Decreasing the size of the buffer pool can reduce the prefetch quantity, leading to a larger number of prefetch requests. See also the Sequential Prefetch Pages Read field (QBSTSP).

Field Name: QBSTSEQ
This is an *exception* field.

**SEQUENTIAL PREFETCH READS**

The number of asynchronous read I/O operations due to normal sequential prefetch (applications and utilities).

**Background and Tuning Information**

Prefetch Read I/O is not activated if one of the following conditions applies:

- All pages in the prefetch range are already in the buffer pool.
- Prefetch is disabled (QBSTSPD).

This means that the value in this field is usually smaller than the number of sequential prefetch requests (QBSTSEQ).

**Field Name:** QBSTPIO

This is an *exception* field.

**PAGES READ VIA SEQ.PREFETCH**

The total number of pages read due to a normal sequential prefetch. A sequential prefetch request does not result in a read I/O if all the pages you want are found in the buffer pool.

**Background and Tuning Information**

For requests issued by application programs, the number of pages per READ I/O primarily depends on the page size and the size of the buffer pool. Normally sixty-four 4 KB pages (or eight 32 KB pages) is the maximum prefetch quantity for table space scans, whether data or index. Utilities use a prefetch quantity of up to 64 pages.

The number of pages per READ I/O can be lower because:

- Pages within the prefetch range may already be in the buffer pool.
- Not enough pages are available because of a buffer shortage.
- A prefetch quantity of 8 pages or less is used for work files.

A small value for this ratio can indicate:

- A good performing buffer pool being so large that most of the pages, which had otherwise to be prefetched, are cached in the buffer pool. In this case, the buffer pool hit ratio should be high.
- A buffer shortage condition, reducing the efficiency of sequential prefetch. This could mean, for example, work-file prefetch quantity reduction from 8 to 4 to 2, as the number of available buffers shrinks. In this case, you should consider tuning the buffer pool.

**Field Name:** QBSTSPP

This is an *exception* field.

**S.PREFPAGES READ/S.PREF.READ**

The number of sequential prefetch pages read per sequential prefetch read I/O operation.

**Field Name:** SBRPRRIO

This is an *exception* field.

**LIST PREFETCH REQUESTS**

The number of list prefetch requests.
List prefetch allows DB2 to access data pages efficiently even when the required data pages are not contiguous. It allows CP and I/O operations to be overlapped.

**Background and Tuning Information**

DB2 determines at BIND time whether sequential prefetch is used. List prefetch is chosen as follows:

- Usually with a single index that has a cluster ratio lower than 80%.
- Sometimes on a single index with a high cluster ratio, if the estimated amount of data to be accessed is too small to make sequential prefetch efficient.
- Always to access data by multiple index access.
- Always to access data from the inner table during a hybrid join.

DB2 never chooses list prefetch if the estimated number of RIDs to be processed takes more than 50% of the RID pool. During execution time, list prefetch processing terminates if more than 25% of the rows (with a minimum of 4075) in the table must be accessed.

Data pages are read in quantities equal to the sequential prefetch quantity (QBSTSEQ), which depends on buffer pool size and is usually 64 pages.

Field Name: QBSTLPF

This is an exception field.

**LIST PREFETCH READS**

The number of asynchronous read I/O operations caused by the list prefetch.

The number of pages read is shown by the List Prefetch Pages Read (QBSTLPP) field.

**Background and Tuning Information**

Prefetch Read I/O is not activated if one of the following conditions apply:

- All pages in the prefetch range are already in the buffer pool.
- Prefetch is disabled (Prefetch Disabled No Read Engine - QBSTREE).

This means that the value in this field is usually less than the number of list prefetch requests (QBSTLPF).

Field Name: QBSTLIO

This is an exception field.

**PAGES READ VIA LIST PREFETCH**

The number of pages read via list prefetch.

Field Name: QBSTLPP

**L.PREF.PAGES READ/L.PREF.READ**

The number of list prefetch pages read per list prefetch read I/O.

Field Name: SDLPPPIO

This is an exception field.

**DYNAMIC PREFETCH REQUESTED**
The number of dynamic prefetch requests. Dynamic prefetch is the process that is triggered because of sequential detection. If the prefetch request results in an I/O read, up to 32 advancing pages can be read at a time.

**Background and Tuning Information**

Dynamic prefetch reads a sequential set of pages. It allows CP and I/O operations to be overlapped. If DB2 does not choose prefetch at bind time it can sometimes use it at execution time. The method is called sequential detection.

The number of prefetch requests by itself is not a good indicator for efficiency of prefetching because:

- At run time not every prefetch request results in read I/O: the Dynamic Prefetch Reads field shows the number of read I/O operations caused by dynamic prefetch. The Prefetch Disabled No Buffer (QBSTSPD) and Prefetch Disabled No Read Engine (QBSTREE) fields show the number of times prefetch was disabled because buffers and read engines had not been available.
- Prefetch pages can be stolen from the buffer pool before they are read. This is indicated by a negative buffer pool hit ratio. The pages are subsequently reread synchronously. This will also cause an unexpectedly large value for total synchronous reads (QBSTRI).

Decreasing the size of the buffer pool can reduce the prefetch quantity (QBSTDPP), leading to a larger number of prefetch requests.

**Field Name:** QBSTDPF

This is an exception field.

**DYNAMIC PREFETCH READS**

The number of asynchronous read I/Os because of dynamic prefetch. The number of pages read is recorded in the Dynamic Prefetch Pages Read field.

**Background and Tuning Information**

A prefetch request does not result in an I/O if one of the following conditions apply:

- All pages to be prefetched are already in the buffer pool.
- The prefetch is canceled.

This means that the value in this field is usually smaller than the number of dynamic prefetch requests.

**Field Name:** QBSTDJO

This is an exception field.

**PAGES READ VIA DYN.PREFETCH**

The number of pages read because of dynamic prefetch. Dynamic prefetch is the process that is triggered by sequential detection.

**Background and Tuning Information**

The ratio of Dynamic Prefetch Pages Read to Dynamic Prefetch Reads is between 0 and 32.

DB2 can fetch up to 32 pages per prefetch.

The number of pages per READ I/O can be lower because:
Buffer Pool Read

- Pages within the prefetch range are already in the buffer pool.
- Not as many pages are available due to a buffer shortage.

A small value for this ratio can indicate:
- A good performing buffer pool being large enough to contain pages that would otherwise be prefetched. This is indicated by a high buffer pool hit ratio.
- A buffer shortage condition, which reduces the efficiency of dynamic prefetch. In this instance the buffer pool hit ratio will be low. Consider tuning the buffer pool.

Field Name: QBSTDPP
This is an exception field.

D.PREF.Pages Read/D.PREF.READ
The number of dynamic prefetch pages read per dynamic prefetch read I/O.

Field Name: SDDPPPIO
This is an exception field.

PREDEFINED-NO BUFFER
The total number of times sequential prefetch was disabled because buffers were not available.

Field Name: QBSTSPD
This is an exception field.

PREDEFINED-NO READ ENG
The total number of times a prefetch is disabled because of an unavailable read engine.

Background and Tuning Information
Because there are 600 read engines, a maximum of 600 concurrent prefetch operations can be processed at a time. When this maximum is reached, prefetching is disabled and this count is incremented. The value in this field should be close to 0.

Field Name: QBSTREE
This is an exception field.

PAGE-INS REQUIRED FOR READ
The number of page-ins required for a read I/O.

Note: A non-zero value can be accepted if a buffer pool expansion via ALTER BPSIZE occurs. In other situations, a non-zero value indicates a shortage of real storage relative to the buffer pool size.

Field Name: QBSTRPI
This is an exception field.

ZHYPERLINK READ – I/O
The number of successful reads using zHyperLink during the reported interval.

Field Name: QBSTSYIO
READ I/O – DASD CACHE HIT

The number of read I/Os where the requested data was found in the DASD subsystem cache during the reported interval.

Field Name: QBSTSIOC

Buffer Pool Sort/Merge:

This topic shows detailed information about “Statistics - Buffer Pool Sort/Merge”.

This block is only printed when the buffer pool is active. If more than one 4 KB or 32 KB buffer pool block is present, a summary block showing buffer pool totals is also printed. If the report contains both 4 KB and 32 KB buffer pool blocks, a block showing the totals for all buffer pools is printed.

Statistics - Buffer Pool Sort/Merge

The field labels shown in the following sample layout of “Statistics - Buffer Pool Sort/Merge” are described in the following section.

<table>
<thead>
<tr>
<th>BPO</th>
<th>SORT/MERGE</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX WORKFILES CONCURR. USED</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>MERGE PASSES REQUESTED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>N/C</td>
<td></td>
</tr>
<tr>
<td>MERGE PASS DEGRADED-LOW BUF</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>N/C</td>
<td></td>
</tr>
<tr>
<td>WORKFILE REQ, REJCTD-LOW BUF</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>N/C</td>
<td></td>
</tr>
<tr>
<td>WORKFILE NOT CREATED-NO BUF</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>N/C</td>
<td></td>
</tr>
<tr>
<td>WORKFILE PRF NOT SCHEDULED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>N/C</td>
<td></td>
</tr>
</tbody>
</table>

MAX WORKFILES CONCURR. USED

The maximum number of work files concurrently used during merge processing within this statistics period.

Ideally, each work file needs 16 buffers to allow DB2 to perform a sequential prefetch for work files.

Field Name: QBSTWFM

This is an exception field.

MERGE PASSES REQUESTED

The total number of merge passes for DB2 sort activities. This value reflects how many merge passes were requested for DB2 to determine the number of work files permitted to support each merge pass.

Field Name: QBSTWFR

MERGE PASS DEGRADED-LOW BUF

The number of times that a merge pass was not efficiently performed due to a shortage of space in the buffer pool. The number in this field is incremented for each merge pass where the maximum number of work files allowed is less than the number of work-files requested.

Background and Tuning Information

The maximum number of work files allowed is calculated as follows:
• Buffers consumed = 2 * (work files already allocated)
• Buffers available = (sequential steal threshold * buffer pool size - buffers consumed)
Buffer Pool Sort/Merge

- Maximum work files allowed = buffers available / (2 * 8)

The default for the sequential steal threshold is 0.8.

Ideally, the number in this field should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are too many concurrent work files. For example, there could be a number of concurrently open cursors that require sorting. Consider increasing the buffer pool size using the ALTER BUFFERPOOL command.

**Field Name:** QBSTWFF

This is an *exception* field.

**WORKFILE REQ.REJCTD-LOW BUF**

The total number of work files that were rejected during all merge passes because of insufficient buffer resources.

**Background and Tuning Information**

This field and the degraded low buffers field determine the average number of work files that cannot be honored at each merge pass because of insufficient buffer pool space.

Ideally, the number in this field should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are too many concurrent work files. For example, there could be a number of concurrently open cursors that require sorting. Consider increasing the size of the buffer pool using the ALTER BUFFERPOOL command.

Note that, when there are many concurrent sorts or large sorts, it is a good idea to dedicate a separate buffer pool for sort work files. This will greatly facilitate work-file performance tuning.

**Field Name:** QBSTWFD

This is an *exception* field.

**WORKFILE REQ-ALL MERGE PASS**

The total number of work files requested for all merge passes.

This field and the Merge Passes Requested field determine the average number of work files requested in a single merge pass.

For DB2 to perform an efficient prefetch for work files, each workfile should have at least 16 dedicated buffers. Work files used during sort phase processing or other non-sort-related processing are not included in this number.

**Field Name:** QBSTWFT

**WORKFILE NOT CREATED-NO BUF**

This field is only applicable if DB2 is running under MVS/XA.

The number of times a work file could not be created due to insufficient buffer resources. It indicates that a sort is in progress and limited in regard to the number of work files it can use.

**Background and Tuning Information**

Ideally, this should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are many concurrent work files. For example, there could be a number of open cursors that require sorting.
Generally, sorts are performed more efficiently with additional work files, but there are internal DB2 limits on the number of work files a transaction can have. It is possible that at run time a transaction cannot use as many work files as it had planned. You can control this by increasing the buffer pool size (ALTER BUFFERPOOL), or changing the transaction so it requires fewer concurrent work files.

**Field Name:** QBSTMAX

This is an *exception* field.

**WORKFILE PRF NOT SCHEDULED**

The number of times a sequential prefetch was not scheduled for a work file because the dynamic prefetch quantity is zero.

**Background and Tuning Information**

The work-file prefetch checks the dynamic prefetch quantity (normally 1 to 8 pages). When the quantity is zero, the value in this field is incremented. A high number in this field implies that the buffer pool is too small.

Ideally, the number in this field should be 0. Otherwise, it indicates a shortage of buffer pool space or that there are many concurrent work files. For example, there could be a number of concurrently open cursors that require sorting.

Consider increasing the size of the buffer pool or allocating a buffer pool specifically for DSNDB07 usage. This can be especially effective with high-use query systems whose reports make extensive use of sort activity.

**Field Name:** QBSTWKPD

This is an *exception* field.

**Buffer Pool Write:**

This topic shows detailed information about “Statistics - Buffer Pool Write”.

This block is only printed when the buffer pool is active. If more than one 4 KB or 32 KB buffer pool block is present, a summary block showing buffer pool totals is also printed. If the report contains both 4 KB and 32 KB buffer pool blocks, then a block showing the totals for all buffer pools is printed.

**Statistics - Buffer Pool Write**

The field labels shown in the following sample layout of “Statistics - Buffer Pool Write” are described in the following section.

<table>
<thead>
<tr>
<th>Buffer Pool Write Operations</th>
<th>Quantity / Second</th>
<th>/ Thread</th>
<th>/ Commit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUFFER UPDATES</td>
<td>6257.00</td>
<td>34.42</td>
<td>N/C</td>
</tr>
<tr>
<td>PAGES WRITTEN</td>
<td>939.00</td>
<td>5.17</td>
<td>N/C</td>
</tr>
<tr>
<td>BUFF. UPDATES/PAGES WRITTEN</td>
<td>6.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYNCHRONOUS WRITES</td>
<td>75.00</td>
<td>0.41</td>
<td>N/C</td>
</tr>
<tr>
<td>ASYNCHRONOUS WRITES</td>
<td>282.00</td>
<td>1.55</td>
<td>N/C</td>
</tr>
<tr>
<td>PAGES WRITTEN PER WRITE I/O</td>
<td>2.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAGES WRITTEN FOR CASTOUT I/O</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>NUMBER OF CASTOUT I/O</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>HORIZ.DEF.WRITE THRESHOLD</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
</tbody>
</table>
Buffer Pool Write

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
<th>Value 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERTI.DEF.WRITE THRESHOLD</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>N/C</td>
</tr>
<tr>
<td>DM THRESHOLD</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>N/C</td>
</tr>
<tr>
<td>PAGE-INS REQUIRED FOR WRITE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>N/C</td>
</tr>
</tbody>
</table>

**BUFFER UPDATES**

The number of times buffer updates were requested against pages in the buffer pool.

**Background and Tuning Information**

The ratio of Buffer Updates to Pages Written (QBSTPWS) suggests a high level of efficiency as it increases, because more updates are being externalized per physical write.

Buffer updates per pages written depends strongly on the type of application. For example, a batch program that processes a table in sequential mode with a high row update frequency in a dedicated environment can achieve very good update efficiency. In contrast, update efficiency tends to be lower for transaction processing applications, because transaction processing tends to be random.

The following can influence the number of updates per page:

- **Number of rows per page**
  A small PCTFREE value gathers more rows on the same page. However, at the same time this can impact concurrency.

- **Buffer pool size and deferred write thresholds**
  Increase DWQT and VDWQT or the size of the buffer pool. This causes DB2 to let page updates accumulate in the buffer pool. Therefore, the probability that more updates per page get captured increases. This effect is less significant if the buffer pool is concurrently used by several transactions, it also depends on the type of transaction.

Field Name: QBSTSWS

This is an *exception* field.

**PAGES WRITTEN**

The number of pages in the buffer pool written to DASD.

**Background and Tuning Information**

Consider the ratio of Pages Written per write I/O. The number of write I/O operations includes Asynchronous Writes (QBSTWIO) and Synchronous Writes (QBSTIMW).

The ratio of pages per write I/O suggests a high level of efficiency as the ratio increases, because more pages are being externalized per physical write.

The following factors impact the ratio of pages written per write I/O:

- **Checkpoint frequency**
  At checkpoint time, I/Os are scheduled to write all updated pages on the deferred write queue to DASD. If this occurs too frequently, the deferred write queue does not grow large enough to achieve a high ratio of pages written per write I/O.
The checkpoint frequency depends on the number of logs written between two consecutive checkpoints. This number is set at installation time; see the field CHECKPOINT FREQ of installation panel DSNTIPN.

**Frequency of active log switch**
DB2 takes a system checkpoint each time the active log is switched. High frequency of active log switches causes the problem described under checkpoint frequency.

**Buffer pool size and deferred write thresholds**
The deferred write thresholds (VDWQT and DWQT) are a function of buffer pool size. If the buffer pool size is decreased, these thresholds are reached more frequently, causing I/Os to be scheduled more often to write some of the pages on the deferred write queue to DASD. This prevents the deferred write queue from growing large enough to achieve a high ratio of pages written per write I/O.

**Number of data sets, and the spread of updated pages across them**
The efficiency of write I/O also depends on the number of data sets associated with the buffer pool and spread of updated pages across them. Because of the nature of batch processing, the ratio of pages written to write I/Os can be expected to be higher than that expected for transaction type workloads.

To determine update efficiency, use also the value in the Buffer Updates field (QBSTWS) to check the number of buffer updates per page written.

**Field Name:** QBSTPWS

This is an *exception* field.

**BUFF. UPDATES/PAGES WRITTEN**
The number of buffer updates per page written from the buffer pool to DASD.

The ratio of BUFFER UPDATES (QBSTWS) to PAGES WRITTEN (QBSTPWS) suggests a high level of efficiency as the ratio increases, because more updates are being externalized per physical write. For example, if there are 10 updates on the same page before it is externalized, then the ratio is 10:1 or 10. If all 10 updates are on 10 distinct pages, then the ratio is 10:10 or 1.

**Background and Tuning Information**
Buffer updates per pages written depends strongly on the type of application. For example, a batch program that processes a table in skip sequential mode with a high row update frequency in a dedicated environment can achieve very good update efficiency. In contrast, update efficiency tends to be lower for transaction processing applications, because transaction processing tends to be random.

The following factors can influence the number of updates per page:

**Number of rows per page**
A small PCTFREE value will gather more rows on the same page. However, at the same time this can have impact on concurrency.

**Buffer pool size and deferred write thresholds**
Increase DWQT and VDWQT or the size of the buffer pool. This
Buffer Pool Write

would tell DB2 to let page updates accumulate in the buffer pool. This means, the probability that more updates per page get captured increases. This effect is less significant if the buffer pool is concurrently used by multiple transactions, it depends on the type of transaction.

Field Name: SBRBUPW

SYNCHRONOUS WRITES

The total number of immediate writes.

Immediate writes occur when:

• An immediate write threshold (IWTH) is reached
• No deferred write engines are available
• More than two checkpoints pass without a page being written.

Sometimes DB2 uses synchronous writes even when the IWTH is not exceeded. As an example, when more than two checkpoints pass without a page being written. This type of situation does not indicate a buffer shortage.

Background and Tuning Information

A small number of immediate writes can be expected. Synchronous writes occur if there are too many checkpoints and/or the buffer pool is too small.

If a large number of synchronous writes occur, monitor the DM Critical Threshold Reached (QBSTDMC) field. Reaching Immediate Write Threshold (IWTH-97.5%) implies that the Data Management Threshold (DMTH-95%) has been crossed. You can ignore the value in the immediate write field when DM Critical Threshold Reached is zero. Otherwise consider increasing the size of the buffer pool. You can use the ALTER BUFFERPOOL command.

Check also the System Event Checkpoint field (QWSDCKPT) in the Subsystem Services block to see whether the frequency of DB2 checkpoints should be reduced. To do this, increase the value of ZPARM LOGLOAD.

Field Name: QBSTIMW

This is an exception field.

ASYNCHRONOUS WRITES

The number of asynchronous write I/O operations performed by media manager to a direct access storage device.

Field Name: QBSTWIO

This is an exception field.

PAGES WRITTEN PER WRITE I/O

The number of pages written from the buffer pool to DASD per synchronous or asynchronous write I/O. This count does not include preformatting I/O, such as I/O needed to prepare a data set for use.

Background and Tuning Information

The following factors impact the ratio of pages written per write I/O:

Checkpoint frequency

At checkpoint time, I/Os are scheduled to write all updated pages
on the deferred write queue to DASD. If this occurs too frequently, the deferred write queue does not grow large enough to achieve a high ratio of pages written per write I/O.

The checkpoint frequency depends on the number of logs written between two consecutive checkpoints. This number is set at installation time; see the field CHECKPOINT FREQ of installation panel DSNTIPN.

**Frequency of active log switch**
DB2 takes a system checkpoint each time the active log is switched. High frequency of active log switches causes the problem described under checkpoint frequency.

**Buffer pool size and deferred write thresholds**
The deferred write thresholds (VDWQT and DWQT) are a function of buffer pool size. If the buffer pool size is decreased, these thresholds are reached more frequently, causing I/Os to be scheduled more often to write some of the pages on the deferred write queue to DASD. This prevents the deferred write queue from growing large enough to achieve a high ratio of pages written per write I/O.

**Number of data sets, and the spread of updated pages across them**
The efficiency of write I/O also depends on the number of data sets associated with the buffer pool and spread of updated pages across them. Because of the nature of batch processing, the ratio of pages written to write I/Os can be expected to be higher than that expected for transaction type workloads.

To determine update efficiency check also the ratio Buffer Updates / Pages Written (SBRBUPW).

Field Name: SBRPWWIO

**PAGES WRTN FOR CASTOUT I/O**
The number of pages written for castout I/O operations.

Field Name: QBSTPCO

**NUMBER OF CASTOUT I/O**
The number of castout I/O operations.

Field Name: QBSTCIO

**HORIZ.DEFWRITE THRESHOLD**
The number of times the deferred write threshold (DWTH) was reached.

This threshold is a percentage of the virtual buffer pool that might be occupied by unavailable pages, including both updated pages and pages in use. DB2 checks this threshold when an update to a page is completed. If the percentage of unavailable pages in the virtual buffer pool exceeds the threshold, write operations are scheduled for enough data sets (up to 128 pages per data set) to reduce the number of unavailable buffers to 10% below the threshold.

**Background and Tuning Information**
The default value for this threshold is 30%. You can change that to any value from 0% to 90% by using the DWQT option on the ALTER BUFFERPOOL command.
Buffer Pool Write

The deferred write thresholds, DWQT and VDWQT, are specified as a percentage, their absolute value depends on the size of the virtual buffer pool.

Consider the following aspects when changing the deferred write thresholds:

Optimize the ratio of pages written per write I/O
The ratio can be monitored using the Pages Written (QBSTPWS) field.

When the buffer pool is relatively small, the default thresholds could prevent the deferred write queue from growing large enough to achieve a high ratio of pages written per write I/O. Raising these thresholds will, in this instance, reduce the I/O write frequency, increasing the number of pages written per I/O.

Distribute I/O evenly over time
If a virtual buffer pool is very large, it is unlikely that the default values of either DWQT or VDWQT will ever be reached. In this case, write I/Os tend to occur in surges, triggered by DB2 checkpoints. Lowering the VDWQT and the DWQT could improve performance by distributing the write I/Os more evenly over time.

Impact on other buffer pool thresholds
Increasing DWQT and VDWQT allows updated pages to use a larger portion of the virtual buffer pool. Large DWQT and VDWQT can have a significant effect on the other thresholds. For example, in work load where pages are frequently updated, and the updated pages exceed the size of the virtual buffer pool, setting both DWQT and VDWQT to 90% would probably cause frequent threshold-reached events for sequential prefetch (and possibly the data management and immediate write).

Field Name: QBSTDWT
This is an exception field.

VERTI.DEF.WRITE THRESHOLD
The number of times the vertical deferred write threshold (VDWQT) was reached. This threshold is similar to the deferred write threshold but it applies to the number of updated pages for one single page set in the buffer pool. If the percentage or number of updated pages for the data set exceeds the threshold, writes up to 128 pages are scheduled for that data set.

Field Name: QBSTDWV
This is an exception field.

DM THRESHOLD
The number of times the data manager critical threshold (DMTH-95%) was reached.

This field shows how many times a page was immediately released because the data management threshold was reached.

The threshold is checked before a page is read or updated. If the threshold has not been exceeded, DB2 accesses the page in the virtual buffer pool once for each page, no matter how many rows are retrieved or updated in that page. If the threshold has been exceeded, Getpage requests and
RELEASEs apply to rows instead of pages. That is, if more than one row is retrieved or updated in a page, more than one Getpage request and RELEASE is performed on that page.

Background and Tuning Information

Avoid reaching this threshold wherever possible because it significantly affects CPU usage. Set virtual buffer pool sizes large enough or reduce the workload on the buffer pool.

Field Name: QBSTDMC

This is an exception field.

PAGE-INS REQUIRED FOR WRITE

The number of page-ins required for a write I/O.

Field Name: QBSTWPI

Common Storage Below and Above 2 GB:

This topic shows detailed information about “Statistics - Common Storage Below and Above 2 GB”.

Statistics - Common Storage Below and Above 2 GB

The field labels shown in the following sample layout of “Statistics - Common Storage Below and Above 2 GB” are described in the following section.

<table>
<thead>
<tr>
<th>COMMON STORAGE BELOW AND ABOVE 2 GB</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXTENDED CSA SIZE</td>
<td>256.49</td>
</tr>
<tr>
<td>FIXED POOL BELOW</td>
<td>6.94</td>
</tr>
<tr>
<td>VARIABLE POOL BELOW</td>
<td>1.11</td>
</tr>
<tr>
<td>GETMAINED BELOW</td>
<td>0.07</td>
</tr>
<tr>
<td>FIXED POOL ABOVE</td>
<td>9.96</td>
</tr>
<tr>
<td>VARIABLE POOL ABOVE</td>
<td>0.00</td>
</tr>
<tr>
<td>GETMAINED ABOVE</td>
<td>0.00</td>
</tr>
<tr>
<td>STORAGE MANAGER CONTROL BLOCKS ABOVE</td>
<td>1.34</td>
</tr>
<tr>
<td>REAL LOG MANAGER WRITE BUFFERS ABOVE</td>
<td>0.00</td>
</tr>
<tr>
<td>REAL LOG MANAGER CONTROL BLOCKS ABOVE</td>
<td>0.00</td>
</tr>
<tr>
<td>AUX LOG MANAGER CONTROL BLOCKS ABOVE</td>
<td>0.00</td>
</tr>
<tr>
<td>REAL STORAGE IN USE</td>
<td>11.18</td>
</tr>
<tr>
<td>AVERAGE THREAD FOOTPRINT</td>
<td>0.01</td>
</tr>
<tr>
<td>AUXILIARY STORAGE IN USE</td>
<td>0.00</td>
</tr>
</tbody>
</table>

EXTENDED CSA SIZE (MB)

The size of the common storage area (CSA) above the 16 MB line.

Field Name: QW0225EC

FIXED POOL BELOW (MB)

The amount of storage allocated for 31-bit common fixed pool storage.

Field Name: QW0225FC

VARIABLE POOL BELOW (MB)

The amount of storage allocated for 31-bit common variable pool storage.
Common Storage Below and Above 2 GB

Field Name: QW0225VC
GETMAINED BELOW (MB)
The amount of storage allocated for 31-bit common getmained storage.
Field Name: QW0225GC
FIXED POOL ABOVE (MB)
The amount of storage allocated for 64-bit common fixed pool storage.
Field Name: QW0225FCG
VARIABLE POOL ABOVE (MB)
The amount of storage allocated for 64-bit common variable pool storage.
Field Name: QW0225VCG
GETMAINED ABOVE (MB)
The amount of storage allocated for 64-bit common getmained storage.
Field Name: QW0225GCG
STORAGE MANAGER CONTROL BLOCKS ABOVE (MB)
The amount of storage allocated for 64-bit common storage for storage manager control structures.
Field Name: QW0225SMC
REAL LOG MANAGER WRITE BUFFERS ABOVE (MB)
The amount of real storage in the 64-bit common area in use for Log Manager write buffers.
Field Name: S225LWR
REAL LOG MANAGER CONTROL BLOCKS ABOVE (MB)
The amount of real storage in the 64-bit common area in use for Log Manager control blocks.
Field Name: S225LCR
AUX LOG MANAGER CONTROL BLOCKS ABOVE (MB)
The amount of auxiliary storage in the 64-bit common area in use for Log Manager control blocks.
Field Name: S225LCA
REAL STORAGE IN USE (MB)
The amount of real storage in use for 64-bit common storage. This is recorded at the subsystem level.

Note: This field is available in z/OS 1.10 (and maintenance) or later.
Field Name: S225CSR
AVERAGE THREAD FOOTPRINT (MB)
The current average real storage in use for common storage of active user threads (allied threads + active and pooled DBATs).
Field Name: S225CTFR
AUXILIARY STORAGE IN USE (MB)
The amount of auxiliary storage in use for 64-bit common storage. This is recorded at the subsystem level.

**Note:** This field is available in z/OS 1.10 (and maintenance) or later.

**Field Name:** S225CSA

**CPU and Storage Metrics:**

This topic shows detailed information about “Statistics - CPU and Storage Metrics”.

This block shows information about CPU usage and storage metrics gathered by the z/OS Resource Measurement Facility (RMF) interface. The subsystem parameter ZOSMETRICS must be set to YES for enabling DB2 to retrieve data from RMF.

**Statistics - CPU and Storage Metrics**

The field labels shown in the following sample layout of “Statistics - CPU and Storage Metrics” are described in the following section.

<table>
<thead>
<tr>
<th>CPU AND STORAGE METRICS</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP LPAR</td>
<td>4.00</td>
</tr>
<tr>
<td>CPU UTILIZATION LPAR</td>
<td>255.47</td>
</tr>
<tr>
<td>CPU UTILIZATION DB2</td>
<td>0.04</td>
</tr>
<tr>
<td>CPU UTILIZATION DB2 MSTR</td>
<td>0.00</td>
</tr>
<tr>
<td>CPU UTILIZATION DB2 DBM1</td>
<td>0.00</td>
</tr>
<tr>
<td>UNREFERENCED INTERVAL COUNT</td>
<td>65535.00</td>
</tr>
<tr>
<td>REAL STORAGE LPAR (MB)</td>
<td>3071.00</td>
</tr>
<tr>
<td>FREE REAL STORAGE LPAR (MB)</td>
<td>268.00</td>
</tr>
<tr>
<td>USED REAL STORAGE DB2 (MB)</td>
<td>240.00</td>
</tr>
<tr>
<td>VIRTUAL STORAGE LPAR (MB)</td>
<td>17051.26</td>
</tr>
<tr>
<td>FREE VIRTUAL STOR LPAR (MB)</td>
<td>13828.00</td>
</tr>
<tr>
<td>USED VIRTUAL STOR DB2 (MB)</td>
<td>332.00</td>
</tr>
</tbody>
</table>

**CP LPAR**

The number of standard central processors (CPs) on the logical partition (LPAR) at the end of the defined Monitor III gatherer time interval (called MINTIME). This value does not include ZIIPs. This value is from Resource Measurement Facility (RMF) field CPUG3_PRCON.

**Field Name:** QWOSLNCP

**CPU UTILIZATION LPAR**

The percentage of the MINTIME time interval during which RMF reported that the entire LPAR was in use, averaged for a single processor. This value is calculated using Resource Measurement Facility (RMF) field CPUG3_LOGITI.

**Field Name:** QWOSLPRU

**CPU UTILIZATION DB2**

The percentage of the MINTIME time interval during which RMF reported that all DB2 address spaces were in use, calculated for a single processor.

**Field Name:** QWOSDB2U

**CPU UTILIZATION DB2 MSTR**
CPU and Storage Metrics

The percentage of the MINTIME time interval during which RMF reported that the DB2 MSTR address space was in use, calculated for a single processor.

Field Name: QWOSMSTU

CPU UTILIZATION DB2 DBM1

The percentage of the MINTIME time interval during which RMF reported that the DB2 DBM1 address space was in use, calculated for a single processor.

Field Name: QWOSDBMU

UNREFERENCED INTERVAL COUNT

The Unreferenced Interval Count (UIC). This value is RMF field GEIAHUIC_VE.

Field Name: QWOSLUIC

REAL STORAGE LPAR (MB)

The total real storage in the LPAR, in MB. This value is derived from RMF field GEIRPOOL_VE, which is the number of online real storage frames.

Field Name: QWOSLRST

FREE REAL STORAGE LPAR (MB)

The free real storage in the LPAR, in MB. This value is derived from RMF field GEIRAFC, which is the number of available real storage frames.

Field Name: QWOSLRSF

USED REAL STORAGE DB2 (MB)

The real storage used by DB2 subsystems, in MB. This value is the sum of the following values for all DB2 address spaces in the LPAR, converted to MB:

- The number of frames for swapped-in users. This value is derived from RMF field ASIFMCT_VE.
- The number of frames for idle users. This value is derived from RMF field ASIFMCTI_VE.

Field Name: QWOSDRSU

VIRTUAL STORAGE LPAR (MB)

The total virtual storage in the LPAR, in MB. This value is the sum of the following values for all address spaces in the LPAR:

- The number of frames for swapped-in users. This value is derived from RMF field ASIFMCT_VE.
- The number of frames for idle users. This value is derived from RMF field ASIFMCTI_VE.
- The number of auxiliary slots. This value is derived from RMF field ASIAUXSC_VE.

Field Name: QWOSLVST

FREE VIRTUAL STOR LPAR (MB)

The free virtual storage in the LPAR, in MB. This value is the sum of the following values, converted to MB:

- The total real storage in the LPAR (QWOSLRST)
• The number of currently available slots (RMF field GEISLTA)

**Field Name: QWOSLVSF**

### USED VIRTUAL STOR DB2 (MB)

The virtual storage used by DB2 subsystems, in MB. This value is the sum of the following values for all DB2 address spaces in the LPAR, converted to MB:

• The number of frames for swapped-in users. This value is derived from RMF field ASIFMCT_VE.

• The number of frames for idle users. This value is derived from RMF field ASIFMCTI_VE.

**Field Name: QWOSDVSU**

### CPU Times:

This topic shows detailed information about “Statistics - CPU Times”.

This block shows statistics data of CPU timer values for each resource manager and control address space.

DB2 can generate parallel tasks for the efficient execution of queries. Parallel tasks are executable units composed of special SRBs (service request block), which are called preemptable SRBs. With preemptable SRBs, the z/OS dispatcher can interrupt a task at any time to run other work at the same or higher dispatching priority. For non-distributed parallel work, parallel tasks run under a type of preemptable SRB, which is called a client SRB. The client SRB lets the parallel task inherit the importance of the originating address space. For distributed requests, the parallel tasks run under a preemptable SRB, which is called an enclave SRB.

### Statistics - CPU Times

The field labels shown in the following sample layout of “Statistics - CPU Times” are described in the following section.

<table>
<thead>
<tr>
<th>CPU TIMES</th>
<th>TCB TIME</th>
<th>PREEMPT SRB</th>
<th>NONPREEMPT SRB</th>
<th>CP CPU TIME</th>
<th>PREEMPT IIP SRB</th>
<th>CP CPU /COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSTEM SERVICES ADDRESS SPACE</td>
<td>0.120789</td>
<td>0.037248</td>
<td>0.027924</td>
<td>0.185961</td>
<td>0.000000</td>
<td>0.005635</td>
</tr>
<tr>
<td>DATABASE SERVICES ADDRESS SPACE</td>
<td>0.403656</td>
<td>0.218449</td>
<td>0.009574</td>
<td>0.631680</td>
<td>0.000000</td>
<td>0.019142</td>
</tr>
<tr>
<td>IRLM</td>
<td>0.000043</td>
<td>0.000000</td>
<td>0.224940</td>
<td>0.224983</td>
<td>0.000000</td>
<td>0.006818</td>
</tr>
<tr>
<td>DDF ADDRESS SPACE</td>
<td>0.005795</td>
<td>1.122965</td>
<td>0.007127</td>
<td>1.135886</td>
<td>0.000000</td>
<td>0.034421</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.530282</td>
<td>1.378663</td>
<td>0.269566</td>
<td>2.178511</td>
<td>0.000000</td>
<td>0.066015</td>
</tr>
</tbody>
</table>

**SYSTEM SERVICES ADDRESS SPACE - TCB TIME**

TCB time for the system services address space.

**Field Name: SSTCBT**

**DATABASE SERVICES ADDRESS SPACE - TCB TIME**

TCB time used for database services address space.

**Field Name: SDTCBT**

**IRLM - TCB TIME**

IRLM TCB time.

**Field Name: SDITCBT**

**DDF ADDRESS SPACE - TCB TIME**

DDF address space TCB time.
CPU Times

Field Name: SDDFTCBT

TOTAL - TCB TIME
Total TCB time for all address spaces.
Field Name: SDTTLTCBT

SYSTEM SERVICES ADDRESS SPACE - PREEMPT SRB
The preemptable SRB time for the system services address space, not including preemptable SRB time consumed on an IBM zIIP.
Field Name: SSPTSRB

DATABASE SERVICES ADDRESS SPACE - PREEMPT SRB
The preemptable SRB time for the database services address space, not including preemptable SRB time consumed on an IBM zIIP.
Field Name: SDPSRB

IRLM - PREEMPT SRB
The preemptable SRB time for the IRLM address space, not including preemptable SRB time consumed on an IBM zIIP.
Field Name: SDRPSRB

DDF ADDRESS SPACE - PREEMPT SRB
The preemptable SRB time for the DDF address space, not including preemptable SRB time consumed on an IBM zIIP.
Field Name: SDDFPSRB

TOTAL - PREEMPT SRB
Total preemptable SRB time for all address spaces, not including preemptable SRB time consumed on an IBM zIIP.
Field Name: SDTLPSPRB

SYSTEM SERVICES ADDRESS SPACE - NONPREEMPT SRB
The nonpreemptable SRB time for the system services address space.
Field Name: SSNPSR

DATABASE SERVICES ADDRESS SPACE - NONPREEMPT SRB
The nonpreemptable SRB time for the database services address space.
Field Name: SDNPSR

IRLM - NONPREEMPT SRB
The nonpreemptable SRB time for the IRLM address space.
Field Name: SDINPSR

DDF ADDRESS SPACE - NONPREEMPT SRB
The nonpreemptable SRB time for the DDF address space.
Field Name: SDDFNPSR

TOTAL - NONPREEMPT SRB
Total nonpreemptable SRB time for all address spaces.
Field Name: SDTLPNPSR
SYSTEM SERVICES ADDRESS SPACE - CP CPU TIME
System services address space total time.
Field Name: SSTOTT

DATABASE SERVICES ADDRESS SPACE - CP CPU TIME
Database services address space total time.
Field Name: SDTOTT

IRLM - CP CPU TIME
IRLM address space total time.
Field Name: SDITOTT

DDF ADDRESS SPACE - CP CPU TIME
DDF address space total time.
Field Name: SDDFTOTT

TOTAL - CP CPU TIME
Total CPU time for all address spaces.
Field Name: SDTLTOTT

SYSTEM SERVICES ADDRESS SPACE - PREEMPT IIP SRB
The preemptable SRB time for the system services address space consumed on an IBM zIIP.
Field Name: SSPSRZ

DATABASE SERVICES ADDRESS SPACE - PREEMPT IIP SRB
The preemptable SRB time for the database services address space consumed on an IBM zIIP.
Field Name: SDPSRZ

IRLM - PREEMPT IIP SRB
The preemptable SRB time for the IRLM address space consumed on an IBM zIIP.
Field Name: SDIPSRZ

DDF ADDRESS SPACE - PREEMPT IIP SRB
The preemptable SRB time for the DDF address space consumed on an IBM zIIP.
Field Name: SDDFPSRZ

TOTAL - PREEMPT IIP SRB
Total preemptable SRB time for all address spaces consumed on an IBM zIIP.
Field Name: SDTLPSRZ

Data Capture:
This topic shows detailed information about “Statistics - Data Capture”.
Data Capture

Statistics - Data Capture

The field labels shown in the following sample layout of “Statistics - Data Capture” are described in the following section.

<table>
<thead>
<tr>
<th>DATA CAPTURE</th>
<th>QUANTITY /SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOG RECORDS CAPTURED</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>LOG READS PERFORMED</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>LOG RECORDS RETURNED</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DATA ROWS RETURNED</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DESCRIBES PERFORMED</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DATA DESCRIPTIONS RETURNED</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>TABLES RETURNED</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
</tbody>
</table>

LOG RECORDS CAPTURED

The number of log records retrieved for which data capture processing was invoked.

Field Name: QWSDCDLC

LOG READS PERFORMED

The total number of data capture log reads for processing IFI reads requests for IFCID 185.

Field Name: QWSDCDLR

LOG RECORDS RETURNED

The total number of data capture log records returned.

Field Name: QWSDCDLR

DATA ROWS RETURNED

The total number of data capture data rows returned.

Field Name: QWSDCDRR

DESCRIBES PERFORMED

The total number of data capture describes performed.

A data capture describe is the process of getting descriptive information about a DB2 table from the catalog.

Field Name: QWSDCDMB

DATA DESCRIPTIONS RETURNED

The total number of data capture describes performed.

A data capture describe is the process of getting descriptive information about a DB2 table from the catalog.

Field Name: QWSDCDDD

TABLES RETURNED

The total number of data capture tables returned to the caller of the IFI reads call for IFCID 185.

Field Name: QWSDCDTB

Data set statistics report:

This topic shows detailed information about “Statistics - Data Set Statistics”.

4362 IBM Db2 Performance Expert on z/OS
Within IFCID 199, DB2 externalizes data set performance counters for open data sets that had high I/O activities (at least 1 I/O per second) in the last Statistics interval (determined by system parameter STATTIME). The metrics are reported with respect to a page set to which a data set belongs and which makes up a DB2 table space or index space. The average values are calculated with respect to the I/O start and end times shown in the report.

You have to use the DSETSTAT report option for creating the data set Statistics report block. The report shows data set metrics from the perspective of buffer pools which are assigned to page sets and related data sets. The DSETSTAT report option is ignored in the Statistics REPORT or SAVE subcommand if an INTERVAL(X) option with X>0 has been specified.

--- HIGHLIGHTS

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERVAL START</td>
<td>02/09/19 08:51:48.20</td>
</tr>
<tr>
<td>INTERVAL END</td>
<td>02/09/19 09:35:00.08</td>
</tr>
<tr>
<td>TOTAL THREADS</td>
<td>16.00</td>
</tr>
<tr>
<td>OUTAGE ELAPSED:</td>
<td>0.000000</td>
</tr>
</tbody>
</table>

Statistics - Data Set Statistics

<table>
<thead>
<tr>
<th>BPOOL</th>
<th>DATABASE</th>
<th>TYPE</th>
<th>SPACENAM</th>
<th>PART</th>
<th>SHOWN</th>
<th>GBP</th>
<th>I/O START TIME</th>
<th>I/O END TIME</th>
<th>SYNCH 1/O AVG</th>
<th>ASYN 1/O AVG</th>
<th>ZHL 1/O AVG</th>
<th>CURRENT PAGES (VP)</th>
<th>CHANGED PAGES (VP)</th>
<th>NUMBER OF GETPAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP0</td>
<td>DB2HYP22</td>
<td>TSP</td>
<td>TSHYP22</td>
<td>1 N</td>
<td></td>
<td>3.29</td>
<td>08:51:48.20</td>
<td>09:35:00.08</td>
<td>0.04233</td>
<td>0.01700</td>
<td>28.69</td>
<td>30782.2K</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>BP0</td>
<td>DB2HYP22</td>
<td>TSP</td>
<td>TSHYP22</td>
<td>1 N</td>
<td></td>
<td>2.54</td>
<td>09:30:00.09</td>
<td>09:35:00.08</td>
<td>0.04955</td>
<td>0.01756</td>
<td>352.35</td>
<td>30782.2K</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>BP0</td>
<td>DB2HYP22</td>
<td>TSP</td>
<td>TSHYP22</td>
<td>1 N</td>
<td></td>
<td>15.99</td>
<td>09:35:00.08</td>
<td>09:35:00.08</td>
<td>0.04913</td>
<td>0.00</td>
<td>30782.9K</td>
<td>30782.9K</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>BP0</td>
<td>DB2HYP22</td>
<td>TSP</td>
<td>TSHYP22</td>
<td>1 N</td>
<td></td>
<td>2.54</td>
<td>09:30:00.09</td>
<td>09:35:00.08</td>
<td>0.08680</td>
<td>0.00</td>
<td>57725.2K</td>
<td>57725.2K</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>BP0</td>
<td>DB2HYP22</td>
<td>TSP</td>
<td>TSHYP22</td>
<td>1 N</td>
<td></td>
<td>2.54</td>
<td>09:35:00.08</td>
<td>09:35:00.08</td>
<td>0.17300</td>
<td>0.01800</td>
<td>1787.00</td>
<td>57719.2K</td>
<td>0.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

BPOOL

The name of the buffer pool to which this information refers.

Field Name: S199BPNM

DATABASE

Database name.

Field Name: S199DBNM

SPACENAM

Pageset name, which can be a table space or an index space.

This is derived from the internal pageset identifier. For a table space this is the value in the PSID column in SYSIBM.SYSTABLESPACE of the catalog when the DB2 trace record was written. For an index space, this is the value in the ISOBID column in SYSIBM.SYINDEXES.

When OMEGamon XE for DB2 PE cannot determine the pageset name, the ID is shown in hexadecimal.

Field Name: S199OBNM

PART

For a partitioned table space or index space, this is the partition number. For a nonpartitioned table space or index space, this is the data set number.
Data Set Statistics

Field Name: QW0199DN

**TYPE**

This field indicates whether the pageset is a table space (T or TSP) or an index space (I or IDX).

Field Name: S199TYP

**GBP**

The value in this field specifies whether the pageset is group buffer pool dependent. This is only possible if DB2 has been set up for data sharing.

Field Name: S199GBP

**SHDW**

Indicates if it is a shadow data set.

Field Name: QW0199SD

**I/O START TIME**

The start time of the I/O activities for this data set externalized in the data set Statistics record. The field value is derived from QW0199SC.

Field Name: S199SC

**I/O END TIME**

The end time of the I/O activities for this dataset externalized in the data set Statistics record.

Field Name: S199EC

**SYNCH I/O AVG**

Average number of synchronous I/Os for the pageset, per second.

Field Name: S199SPAV

**ASYNC I/O AVG**

Average number of asynchronous I/Os for the pageset, per second.

Field Name: S199ACAV

**ASY I/O PGS AVG**

Average number of pageset pages read or written per asynchronous I/O.

Field Name: S199APAV

**SYN I/O AVG DELAY**

Average synchronous I/O delay for pages in the pageset, in milliseconds.

Field Name: QW0199S1 / 1000

**SYN I/O MAX DELAY**

Maximum synchronous I/O delay for pages in the pageset, in milliseconds.

Field Name: QW0199S2 / 1000

**ZHL I/O AVG**

The average number of zHyperLink I/Os for the pageset, per second.

Field Name: S199ZPA1
ZHL I/O AVG DELAY
The average zHyperLink I/O delay for the pageset, in milliseconds.
Field Name: QW0199Z1 / 1000

ZHL I/O MAX DELAY
The maximum zHyperLink I/O delay for the pageset, in milliseconds.
Field Name: QW0199Z2 / 1000

ASYN I/O AVG DELAY
Average asynchronous I/O delay for pages in the pageset, in milliseconds.
Field Name: QW0199A1 / 1000

ASYN I/O MAX DELAY
The maximum asynchronous I/O delay for pages in the pageset, in milliseconds.
Field Name: QW0199A2 / 1000

CURRENT PAGES (VP)
Number of pageset pages in the virtual buffer pool.
Field Name: QW0199VP

CHANGED PAGES (VP)
Number of changed page set pages in the virtual buffer pool.
Field Name: QW0199VD

NUMBER OF GETPAGES
The current number of Getpage requests.
Field Name: QW0199GP

Data Sharing Locking:
This topic shows detailed information about “Statistics - Data Sharing Locking”.
In this example, the quantities per thread show as not calculated (N/C) because DB2 threads remained open during the reporting period.

Statistics - Data Sharing Locking
The field labels shown in the following sample layout of “Statistics - Data Sharing Locking” are described in the following section.

<table>
<thead>
<tr>
<th>DATA SHARING LOCKING</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLOBAL CONTENTION RATE (%)</td>
<td>0.68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FALSE CONTENTION RATE (%)</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P/L-LOCKS XES RATE (%)</td>
<td>97.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOCK REQUESTS (P-LOCKS)</td>
<td>56.00</td>
<td>0.02</td>
<td>N/C</td>
<td>N/C</td>
</tr>
<tr>
<td>UNLOCK REQUESTS (P-LOCKS)</td>
<td>34.00</td>
<td>0.01</td>
<td>N/C</td>
<td>N/C</td>
</tr>
<tr>
<td>CHANGE REQUESTS (P-LOCKS)</td>
<td>22.00</td>
<td>0.01</td>
<td>N/C</td>
<td>N/C</td>
</tr>
<tr>
<td>SYNCH.XES - LOCK REQUESTS</td>
<td>3759.00</td>
<td>1.06</td>
<td>N/C</td>
<td>N/C</td>
</tr>
<tr>
<td>SYNCH.XES - CHANGE REQUESTS</td>
<td>7.00</td>
<td>0.00</td>
<td>N/C</td>
<td>N/C</td>
</tr>
<tr>
<td>SYNCH.XES - UNLOCK REQUESTS</td>
<td>3770.00</td>
<td>1.07</td>
<td>N/C</td>
<td>N/C</td>
</tr>
<tr>
<td>BACKGROUND.XES - CHILD LOCKS</td>
<td>4.00</td>
<td>0.00</td>
<td>N/C</td>
<td>N/C</td>
</tr>
<tr>
<td>ASYNCH.XES - CONVERTED LOCKS</td>
<td>13.00</td>
<td>0.00</td>
<td>N/C</td>
<td>N/C</td>
</tr>
</tbody>
</table>
Data Sharing Locking

SUSPENDS - IRLM GLOBAL CONT. 52.00 0.01 N/C N/C
SUSPENDS - XES GLOBAL CONT. 0.00 0.00 N/C N/C
SUSPENDS - FALSE CONT. MBR 0.00 0.00 N/C N/C
SUSPENDS - FALSE CONT. LPAR N/A N/A N/A N/A
NO DELAY LOCK REQ REJECTS 0.00 0.00 N/C N/C
INCOMPATIBLE RETAINED LOCK 0.00 0.00 N/C N/C

NOTIFY MESSAGES SENT 28.00 0.01 N/C N/C
NOTIFY MESSAGES RECEIVED 42.00 0.01 N/C N/C
P-LOCK/NFY EX.ENGINE UNAVAIL 0.00 0.00 N/C N/C
P-LOCK/NEGOTIATION 20.00 0.01 N/C N/C
PAGE P-LOCK NEGOTIATION 0.00 0.00 N/C N/C
OTHER P-LOCK NEGOTIATION 12.00 0.00 N/C N/C
P-LOCK CHANGE DURING NEG. 30.00 0.01 N/C N/C

GLOBAL CONTENTION RATE (%)
The total number of suspends because of contention divided by the total number of synchronous requests that went to XES, and the lock requests that were converted from synchronous to asynchronous locks, and the locks because of child lock propagation.

Note: If multiple members from the same data sharing group run on the same LPAR, the global contention rate should be ignored for a member where the QTGSFCON flag is zero. The QTGSFCON flag indicates whether the false contention is reported at the subsystem (=1) or LPAR level (=0).

Field Name: SGLOBRAT

FALSE CONTENTION RATE (%)
The total number of suspends because of false contention divided by the total number of synchronous requests that went to XES, and the lock requests that were converted from synchronous to asynchronous locks, and the locks because of child lock propagation. A false contention is if two different locks on different resources hash to the same lock entry.

Note: If multiple members from the same data sharing group run on the same LPAR, the global contention rate should be ignored for a member where the QTGSFCON flag is zero. The QTGSFCON flag indicates whether the false contention is reported at the subsystem (=1) or LPAR level (=0).

Background and Tuning Information
Try to keep the false contention rate to no more than 50% of the total global lock contention.

Field Name: SFLSERAT

P/L-LOCKS XES RATE (%)
Shows the percentage of P/L-lock requests that were propagated to XES synchronously.

Background and Tuning Information
This number reflects the effects of explicit hierarchical locking and other locking optimizations. Assuming a 100% Data Sharing workload, a value of 94% would mean that 6% of all Transaction Locks were not propagated to XES due to Data Sharing locking optimizations.
DB2 has some optimizations to reduce the necessity to go beyond the local IRLM whenever possible:

- Explicit hierarchical locking allows IRLM to grant child locks locally when there is no inter-DB2 R/W interest on the parent.
- If there is a single DB2 with update interest and multiple DB2s with read-only interest, DB2 propagates fewer locks than when all DB2s have update interest in the page set.
- All locks that go beyond the local IRLM are owned by the subsystem, not by an individual work unit. This allows for another optimization. Only the most restrictive lock mode for an object on a given subsystem must be propagated to XES and the coupling facility. A new lock that is equal to or less restrictive than one currently being held is not propagated.

**Field Name:** SLLOCRAT

**LOCK REQUESTS (P-LOCKS)**

The number of lock requests for P-locks.

**Field Name:** QTGSLPLK

**UNLOCK REQUESTS (P-LOCKS)**

The number of unlock requests for P-locks.

**Field Name:** QTGSUPLK

**CHANGE REQUESTS (P-LOCKS)**

The number of change requests for P-locks.

**Field Name:** QTGSCPLK

**SYNCH.XES - LOCK REQUESTS**

The number of P/L-lock requests propagated to z/OS XES synchronously.

This number is not incremented if the request is suspended before going to XES.

**Field Name:** QTGSLSLM

**SYNCH.XES - CHANGE REQUESTS**

The number of change requests propagated to z/OS XES synchronously, including logical and physical locks.

This number is not incremented if the request is suspended before going to XES.

**Field Name:** QTGSCSLM

**SYNCH.XES - UNLOCK REQUESTS**

The number of unlock requests propagated to z/OS XES synchronously, including logical and physical locks.

This number is not incremented if the request is suspended before going to XES.

**Field Name:** QTGSUSLM

**BACKGROUND.XES - CHILD LOCKS**

The number of resources propagated by IRLM to z/OS XES asynchronously, including logical and physical locks.
This can happen when new inter-DB2 interest occurs on a parent resource or when a request completes after the requester’s execution unit was suspended.

Field Name: QTGSKIDS

ASYNCH.XES -CONVERTED LOCKS

The number of synchronous to asynchronous heuristic conversions for LOCK requests in XES. This conversion is done when XES determines that it is more efficient to drive the request asynchronously to the coupling facility (CF).

Field Name: QTGSFLSE

SUSPENDS - IRLM GLOBAL CONT

The number of suspensions due to IRLM global resource contention. All IRLM lock states were in conflict on the same resource.

Global contention requires intersystem communication to resolve the lock conflict whereas local contention does not.

Field Name: QTGSIGLO

SUSPENDS - XES GLOBAL CONT.

The number of suspensions due to z/OS XES global resource contention. The z/OS XES lock states were in conflict but the IRLM lock states were not.

IRLM has many lock states but XES is only aware of the exclusive and shared lock states.

Field Name: QTGSSGLO

SUSPENDS - FALSE CONT. MBR

The total number of false contentions for LOCK and UNLOCK requests. A false contention occurs when different resource names hash to the same entry in the coupling facility (CF) lock table. The CF detects contention within the hash entry, and XES uses intersystem messaging to determine that no actual resource contention exists.

Note: The QTGSFCON flag indicates whether the false contention is reported at subsystem (=1) or LPAR level (=0).

Field Name: STGSFLM1

SUSPENDS - FALSE CONT. LPAR

The total number of false contentions for LOCK and UNLOCK requests. A false contention occurs when different resource names hash to the same entry in the coupling facility (CF) lock table. The CF detects contention within the hash entry, and XES uses intersystem messaging to determine that no actual resource contention exists.

Note: The QTGSFCON flag indicates whether the false contention is reported at subsystem (=1) or LPAR level (=0).

Field Name: STGSFLM2

NO DELAY LOCK REQ REJECTS
The total number of failed DB2 lock requests to XES to process without delay. XES rejects the lock request because it could not process it synchronously.

Field Name: QTGSCREJ

INCOMPATIBLE RETAINED LOCK

The number of global lock or change requests denied or suspended due to an incompatible retained lock.

Field Name: QTGSDRTA

NOTIFY MESSAGES SENT

The number of notify messages sent.

Field Name: QTGSNTFY

NOTIFY MESSAGES RECEIVED

The number of notify messages received.

Field Name: QTGSNTFR

P-LOCK/NOTIFY EXITS ENGINES

The maximum number of engines available for physical lock exit or notify exit requests.

Field Name: QTGSPEMX

P-LCK/NFY EX.ENGINE UNAVAIL

The number of times an engine is not available for physical lock exit or notify exit requests.

Field Name: QTGSPeqW

PSET/PART P-LCK NEGOTIATION

The number of times this DB2 was driven to negotiate a partition or page set physical lock due to changing inter-DB2 interest levels on the partition or page set.

Field Name: QTGSPpPE

PAGE P-LOCK NEGOTIATION

The number of times this DB2 negotiated a page physical lock because of physical lock contention within DB2.

Field Name: QTGSPGPE

OTHER P-LOCK NEGOTIATION

The number of times this DB2 was driven to negotiate a physical lock type other than page set, partition, or page.

Field Name: QTGSOTPE

P-LOCK CHANGE DURING NEG.

The number of times a physical lock change request was issued during physical lock negotiation.

Field Name: QTGSCnHP
DBM1 and MVS Storage Below 2 GB:

This topic shows detailed information about “Statistics - DBM1 and MVS Storage Below 2 GB”.

This block shows information about storage allocation within the DBM1 address space.

Storage quantities are shown in megabytes, this means that when you want to compare this with absolute values, as stored in the performance database, for example, you need to multiply the value shown by 1048576 (1024*1024). Similarly where a quantity is shown followed by a K, for example 262.1K, the quantity shown is 262.1MB*1000 (262.1*1048576*1000 bytes).

Statistics - DBM1 and MVS Storage Below 2 GB

The field labels shown in the following sample layout of “Statistics - DBM1 and MVS Storage Below 2 GB” are described in the following section.

<table>
<thead>
<tr>
<th>DBM1 AND MVS STORAGE BELOW 2 GB</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL DBM1 STORAGE BELOW 2 GB (MB)</td>
<td>6.52</td>
</tr>
<tr>
<td>TOTAL GETMAINEd STORAGE (MB)</td>
<td>0.52</td>
</tr>
<tr>
<td>TOTAL VARIABLE STORAGE (MB)</td>
<td>1.11</td>
</tr>
<tr>
<td>TOTAL AGENT LOCAL STORAGE (MB)</td>
<td>0.32</td>
</tr>
<tr>
<td>TOTAL AGENT SYSTEM STORAGE (MB)</td>
<td>0.22</td>
</tr>
<tr>
<td>NUMBER OF PREFETCH ENGINES</td>
<td>0.23</td>
</tr>
<tr>
<td>NUMBER OF DEFERRED WRITE ENGINES</td>
<td>9.00</td>
</tr>
<tr>
<td>NUMBER OF CASTOUT ENGINES</td>
<td>1.00</td>
</tr>
<tr>
<td>NUMBER OF GBP WRITE ENGINES</td>
<td>7.00</td>
</tr>
<tr>
<td>NUMBER OF P-LOCK/NOTIFY EXIT ENGINES</td>
<td>1.00</td>
</tr>
<tr>
<td>TOTAL AGENT NON-SYSTEM STORAGE (MB)</td>
<td>2.00</td>
</tr>
<tr>
<td>TOTAL NUMBER OF ACTIVE USER THREADS</td>
<td>0.10</td>
</tr>
<tr>
<td>NUMBER OF ALLIED THREADS</td>
<td>7.00</td>
</tr>
<tr>
<td>NUMBER OF ACTIVE DBATS</td>
<td>7.00</td>
</tr>
<tr>
<td>NUMBER OF POOLED DBATS</td>
<td>0.00</td>
</tr>
<tr>
<td>NUMBER OF PARALLEL CHILD THREADS</td>
<td>0.00</td>
</tr>
<tr>
<td>SYSTEM COPIES OF CACHED SQL STMTS (MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>IN USE STORAGE (MB)</td>
<td>7.00</td>
</tr>
<tr>
<td>HWM FOR ALLOCATED STATEMENTS (MB)</td>
<td>1.00</td>
</tr>
<tr>
<td>SYSTEM COPIES OF STATIC SQL (MB)</td>
<td>7.00</td>
</tr>
<tr>
<td>IN USE STORAGE (MB)</td>
<td>1.00</td>
</tr>
<tr>
<td>THREAD PLAN AND PACKAGE STORAGE (MB)</td>
<td>2.00</td>
</tr>
<tr>
<td>BUFFER MANAGER STORAGE CNTL BLKS (MB)</td>
<td>0.10</td>
</tr>
<tr>
<td>TOTAL FIXED STORAGE (MB)</td>
<td>7.00</td>
</tr>
<tr>
<td>TOTAL GETMAINEd STACK STORAGE (MB)</td>
<td>7.00</td>
</tr>
<tr>
<td>TOTAL STACK STORAGE IN USE (MB)</td>
<td>6.52</td>
</tr>
<tr>
<td>SYSTEM AGENT STACK STORAGE IN USE (MB)</td>
<td>0.52</td>
</tr>
<tr>
<td>STORAGE CUSHION (MB)</td>
<td>1.11</td>
</tr>
</tbody>
</table>

TOTAL DBM1 STORAGE BELOW 2 GB (MB)

Total DBM1 storage. This includes:

- Fixed length storage use
- Getmained storage
- Save areas
- Variables

Field Name: SW0225DB

TOTAL GETMAINEd STORAGE (MB)
Total storage acquired by GETMAIN. This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, and data space buffer pool control blocks.

This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Field Name: QW0225GM

TOTAL VARIABLE STORAGE (MB)

Total storage used by all variable pools. This includes storage used by:

- System agents
- Local agents
- RID pool
- Pipe manager subpool
- Local dynamic statement cache control blocks
- Local dynamic statement cache statement pool
- Buffer and data manager trace tables
- A list of objects in restricted state including the new PRO state. If consumption of this storage pool is high, review restrictive exception state of database objects and check whether they can be resolved or reduced.

Field Name: QW0225VR

TOTAL AGENT LOCAL STORAGE (MB)

The amount of storage allocated for agent-related local storage. This storage is used for operations such as sort.

Background and Tuning Information

Sorting requires a large amount of virtual storage because there can be multiple copies of the data being sorted at a given time.

DB2 Sort uses two kinds of storage pool for various internal control structures and data records, an agent-related local storage pool and a global sort pool. To take advantage of the 64-bit addressability for larger storage pool, some high level sort control structures are kept in agent-related storage below the 2 GB bar, which contain 64-bit pointers to areas in the global sort pool above the 2 GB bar. The sort pool above 2 GB contains sort tree nodes and data buffers.

Field Name: QW0225AL

TOTAL AGENT SYSTEM STORAGE (MB)

Storage used by system agents.

Field Name: QW0225AS

NUMBER OF PREFETCH ENGINES

Number of engines used for sequential, list, and dynamic prefetch.

Field Name: QW0225PF

NUMBER OF DEFERRED WRITE ENGINES

Number of engines used for deferred write operations.

Field Name: QW0225DW
NUMBER OF CASTOUT ENGINES

Number of engines available for data-sharing castout processing.
Field Name: QW0225CE

NUMBER OF GBP WRITE ENGINES

Number of engines for group buffer pool writes.
Field Name: QW0225GW

NUMBER OF P-LOCK/NOTIFY EXIT ENGINES

Number of data sharing P-Lock engines and Notify Exit engines.
Field Name: QW0225PL

TOTAL AGENT NON-SYSTEM STORAGE (MB)

Total Agent Non-System Storage. It is the difference between the Total Agent Local Storage (QW0225AL) and the Total Agent System Storage (QW0225AS).
Field Name: SW0225AN

TOTAL NUMBER OF ACTIVE USER THREADS

Total number of active user threads. This includes all active allied threads and the current number of active DBATs.
Field Name: SACUSTHR

NUMBER OF ALLIED THREADS

The number of active allied threads.
Field Name: QW0225AT

NUMBER OF ACTIVE DBATS

The number of active connections, or active and disconnected DBAT threads.
Field Name: SACDBATS

NUMBER OF POOLED DBATS

The current number of disconnected (pooled) DBATs that are available to process type 2 inactive or new connections.
Field Name: QDSTNADS

NUMBER OF PARALLEL CHILD THREADS

The number of active parallel child threads.
Field Name: QW0225PT

SYSTEM COPIES OF CACHED SQL STMTS (MB)

The total shareable storage allocated for dynamic SQL statements used by active threads.
- For DB2 11, this field is derived from QW0225SC8 and related to storage above the bar.
- Prior to DB2 11, this field is derived from QW0225SC and related to storage below the bar. The storage is used for executable code sequences (xPROC).
Field Name: SW0225SC
IN USE STORAGE (MB)

The total shareable storage requested for dynamic SQL statements used by active threads.

- For DB2 11, this field is derived from QW0225LS8 and related to storage above the bar.
- Prior to DB2 11, this field is derived from QW0225LS and related to storage below the bar. The storage is used for executable code sequences (xPROC).

Field Name: SW0225LS

HWM FOR ALLOCATED STATEMENTS (MB)

A statistics interval high-water mark of requested shareable storage for dynamic SQL statements used by active threads.

- For DB2 11, this field is derived from QW0225HS8 and related to storage above the bar.
- Prior to DB2 11, this field is derived from QW0225HS and related to storage below the bar. The storage is used for executable code sequences (xPROC).

Field Name: SW0225HS

SYSTEM COPIES OF STATIC SQL (MB)

The total shareable storage allocated for static SQL statements.

- For DB2 11, this field is derived from QW0225SX8 and related to storage above the bar.
- Prior to DB2 11, this field is derived from QW0225SX and used for storage of executable code sequences (xPROC) below the bar.

Field Name: SW0225SX

IN USE STORAGE (MB)

The total storage requested for shareable static SQL statements.

- For DB2 11, this field is derived from QISEKSPA and related to storage above the bar.
- Prior to DB2 11, this field is derived from QISEKSPA8 and used for storage of executable code sequences (xPROC) below the bar.

Field Name: SISEKSPA

THREAD PLAN AND PACKAGE STORAGE (MB)

The storage allocated to plans and packages below the bar.

Field Name: SISESQB

BUFFER MANAGER STORAGE CNTL BLKS (MB)

Storage used for page set control blocks.

Field Name: QW0225BB

TOTAL FIXED STORAGE (MB)

Total amount of fixed storage.

Field Name: QW0225FX

TOTAL GETMAINED STACK STORAGE (MB)

Total GETMAINED storage allocated for program stack use.
### Field Name: QW0225GS

**TOTAL STACK STORAGE IN USE (MB)**

The amount of stack storage that is in use.

### Field Name: QW0225SU

**SYSTEM AGENT STACK STORAGE IN USE (MB)**

The amount of 31-bit stack storage that is in use for system agents. This is a subset of QW0225SU.

### Field Name: QW0225SS

**STORAGE CUSHION (MB)**

Storage reserved to allow DB2 to complete critical functions while short on storage. This includes the contract warning cushion, storage reserved for must-complete operations, and storage for MVS use.

### Field Name: STORCUSH

**DBM1 Storage Above 2 GB:**

This topic shows detailed information about “Statistics - DBM1 Storage Above 2 GB”.

### Statistics - DBM1 Storage Above 2 GB

The field labels shown in the following sample layout of “Statistics - DBM1 Storage Above 2 GB” are described in the following section.

<table>
<thead>
<tr>
<th>DBM1 STORAGE ABOVE 2 GB</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>GETMAINED STORAGE (MB)</td>
<td>411.40</td>
</tr>
<tr>
<td>COMPRESSION DICTIONARY (MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>IN USE EDM DBD POOL (MB)</td>
<td>1.28</td>
</tr>
<tr>
<td>IN USE EDM STATEMENT POOL (MB)</td>
<td>13.02</td>
</tr>
<tr>
<td>IN USE EDM RDS POOL (MB)</td>
<td>N/A</td>
</tr>
<tr>
<td>IN USE EDM SKELETON POOL (MB)</td>
<td>1.05</td>
</tr>
<tr>
<td>FIXED STORAGE POOL (MB)</td>
<td>7.65</td>
</tr>
<tr>
<td>VARIABLE STORAGE POOL (MB)</td>
<td>30.68</td>
</tr>
<tr>
<td>STORAGE MANAGER CONTROL BLOCKS</td>
<td>6.71</td>
</tr>
<tr>
<td>VIRTUAL BUFFER POOLS (MB)</td>
<td>1244.62</td>
</tr>
<tr>
<td>VIRTUAL POOL CONTROL BLOCKS (MB)</td>
<td>12.67</td>
</tr>
<tr>
<td>CASTOUT BUFFERS (MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>SHARED GETMAINED STORAGE (MB)</td>
<td>33.45</td>
</tr>
<tr>
<td>STORAGE FOR STMT DEPENDENCIES (MB)</td>
<td>29.35</td>
</tr>
<tr>
<td>SHARED FIXED STORAGE (MB)</td>
<td>3.57</td>
</tr>
<tr>
<td>RID POOL (MB)</td>
<td>1.00</td>
</tr>
<tr>
<td>SHARED VARIABLE STORAGE (MB)</td>
<td>95.11</td>
</tr>
<tr>
<td>TOTAL AGENT LOCAL STORAGE (MB)</td>
<td>84.71</td>
</tr>
<tr>
<td>TOTAL AGENT SYSTEM STORAGE (MB)</td>
<td>7.50</td>
</tr>
<tr>
<td>TOTAL AGENT NON-SYSTEM STORAGE</td>
<td>77.21</td>
</tr>
<tr>
<td>THREAD COPIES OF Cached SQL STMTS (MB)</td>
<td>N/A</td>
</tr>
<tr>
<td>IN USE STORAGE (MB)</td>
<td>0.11</td>
</tr>
<tr>
<td>STATEMENTS COUNT</td>
<td>9.57</td>
</tr>
<tr>
<td>HWM FOR ALLOCATED STATEMENTS (MB)</td>
<td>0.59</td>
</tr>
<tr>
<td>STATEMENT COUNT AT HWM</td>
<td>24.00</td>
</tr>
<tr>
<td>DATE AT HWM</td>
<td>02/27/14</td>
</tr>
<tr>
<td>TIME AT HWM</td>
<td>13:15:30.39</td>
</tr>
<tr>
<td>DYNAMIC STMT CACHE CNTL BLKS (MB)</td>
<td>1.18</td>
</tr>
<tr>
<td>SYSTEM COPIES OF Cached SQL STMTS (MB)</td>
<td>N/A</td>
</tr>
<tr>
<td>IN USE STORAGE (MB)</td>
<td>N/A</td>
</tr>
<tr>
<td>HWM FOR ALLOCATED STATEMENTS (MB)</td>
<td>N/A</td>
</tr>
</tbody>
</table>
GETMAINED STORAGE (MB)

Total storage acquired by GETMAIN. This includes space for the compression dictionary, and statement and DBD cache that can be used by the Environmental Descriptor Manager (EDM).

This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Field Name: QW0225GA

COMPRESSION DICTIONARY (MB)

Storage space allocated for the compression dictionary.

Field Name: QW0225CD

IN USE EDM DBD POOL (MB)

The amount of storage used by database descriptors in the EDM DBD pool above the 2 GB bar.

Field Name: SISEDDBDP

IN USE EDM STATEMENT POOL (MB)

The amount of storage used by cached dynamic SQL statements in the EDM Statement pool above the 2 GB bar.

Field Name: SISEDYNP

IN USE EDM RDS POOL (MB)

The amount of storage used by objects in the EDM RDS pool above the 2 GB bar.

Field Name: SISECPTA

IN USE EDM SKELETON POOL (MB)

The amount of storage used by objects in the EDM Skeleton pool above the 2 GB bar.

Field Name: SISESKCP

FIXED STORAGE POOL (MB)

The total amount of fixed storage above the 2 GB bar.

Field Name: QW0225FA

VARIABLE STORAGE POOL (MB)

Amount of variable storage available above the 2 GB bar.

Field Name: QW0225VA

STORAGE MANAGER CONTROL BLOCKS (MB)

Total 64-bit storage allocated for storage manager control structures.
**DBM1 Storage Above 2 GB**

**Field Name:** QW0225SM

**VIRTUAL BUFFER POOLS (MB)**
Total storage allocated for virtual buffer pools above the 2 GB bar.

**Field Name:** SVPOOLZ

**VIRTUAL POOL CONTROL BLOCKS (MB)**
Storage used for primary virtual pool control blocks above the 2 GB bar.

**Field Name:** SBSTVPLZ

**CASTOUT BUFFERS (MB)**
Storage used for castout buffers.

**Field Name:** SW0225C2

**SHARED GETMAINED STORAGE (MB)**
The amount of virtual shared storage acquired by GETMAIN above the 2 GB bar.

**Field Name:** QW0225SG

**STORAGE FOR STMT DEPENDENCIES (MB)**
The amount of storage allocated above the 2 GB bar to support object dependencies on statements that are in the Dynamic Statement Cache (DB2 field: QW0225DMH).

**Field Name:** SW225DMH

**SHARED FIXED STORAGE (MB)**
The amount of total fixed virtual shared storage above the 2 GB bar.

**Field Name:** QW0225SF

**RID POOL (MB)**
Storage for RID list processing such as list prefetch, index ANDing, and ORing.

**Field Name:** QW0225RP

**SHARED VARIABLE STORAGE (MB)**
The amount of virtual shared variable storage above the 2 GB bar.

**Field Name:** QW0225SV

**TOTAL AGENT LOCAL STORAGE (MB)**
The amount of storage allocated for agent-related 64-bit local storage (DB2 field: QW0225ALG).

**Field Name:** SW225ALG

**TOTAL AGENT SYSTEM STORAGE (MB)**
The amount of 64-bit storage used by system agents (DB2 field: QW0225ASG).

**Field Name:** SW225ASG

**TOTAL AGENT NON-SYSTEM STORAGE (MB)**
The amount of 64-bit storage used by non-system agents. It is the difference between the Total Agent Local Storage (QW0225ALG) and the Total Agent System Storage (QW0225ASG).

**Field Name:** SW225ANG

**THREAD COPIES OF CACHED SQL STMTS (MB)**

This field is provided for consistency purposes. It has a value of N/A. The value can be estimated by the HWM FOR ALLOCATED STATEMENTS (QW0225H2).

**Field Name:** SW0225DY

**IN USE STORAGE (MB)**

The total non-shareable storage requested for dynamic SQL statements used by active threads. This value is related to shared agent local variable pools above the bar.

**Field Name:** QW0225L2

**STATEMENTS COUNT**

The number of dynamic SQL local cache statements used by active threads. This value is related to shared agent local variable pools above the bar.

**Field Name:** QW0225LC

**HWM FOR ALLOCATED STATEMENTS (MB)**

This value is related to shared agent local variable pools above the bar.

**Field Name:** QW0225H2

**STATEMENT COUNT AT HWM**

The number of dynamic SQL local cache statements used by active threads at high storage time. This value is related to shared agent local variable pools above the bar.

**Field Name:** QW0225HC

**DATE AT HWM**

The timestamp at high-water storage.

**Field Name:** QW0225HT

**TIME AT HWM**

The timestamp at high-water storage.

**Field Name:** QW0225HT

**DYNAMIC STMT CACHE CNTL BLKS (MB)**

The total statement cache storage blocks above the bar (64-bit shared variable pool).

**Field Name:** QW0225S2

**SYSTEM COPIES OF CACHED SQL STMTS (MB)**

The total shareable storage allocated for dynamic SQL statements used by active threads.

- For DB2 11, this field is derived from QW0225SC8 and related to storage above the bar.
Prior to DB2 11, this field is derived from QW0225SC and related to storage below the bar. The storage is used for executable code sequences (xPROC).

**Field Name:** SW0225SC

**IN USE STORAGE (MB)**
The total shareable storage requested for dynamic SQL statements used by active threads.

- For DB2 11, this field is derived from QW0225LS8 and related to storage above the bar.
- Prior to DB2 11, this field is derived from QW0225LS and related to storage below the bar. The storage is used for executable code sequences (xPROC).

**Field Name:** SW0225LS

**HWM FOR ALLOCATED STATEMENTS (MB)**
A statistics interval high-water mark of requested shareable storage for dynamic SQL statements used by active threads.

- For DB2 11, this field is derived from QW0225HS8 and related to storage above the bar.
- Prior to DB2 11, this field is derived from QW0225HS and related to storage below the bar. The storage is used for executable code sequences (xPROC).

**Field Name:** SW0225HS

**SYSTEM COPIES OF STATIC SQL (MB)**
The total shareable storage allocated for static SQL statements.

- For DB2 11, this field is derived from QW0225SX8 and related to storage above the bar.
- Prior to DB2 11, this field is derived from QW0225SX and used for storage of executable code sequences (xPROC) below the bar.

**Field Name:** SW0225SX

**IN USE STORAGE (MB)**
The total storage requested for shareable static SQL statements.

- For DB2 11, this field is derived from QISEKSPA and related to storage above the bar.
- Prior to DB2 11, this field is derived from QISEKSPA8 and used for storage of executable code sequences (xPROC) below the bar.

**Field Name:** SISEKSPA

**THREAD PLAN AND PACKAGE STORAGE (MB)**
The storage allocated to plans and packages above the bar.

**Field Name:** SISESQA

**ARRAY VARIABLE STORAGE**
The amount of storage in use for array variables.

**Field Name:** QW0225AR

**SHARED STORAGE MANAGER CNTL BLKS (MB)**
The amount of 64-bit shared storage allocated for storage manager control structures (DB2 field: QW0225SMS).

Field Name: SW225SMS

**SHARED SYSTEM AGENT STACK STORAGE (MB)**

The amount of 64-bit shared storage allocated for system agent stack use (DB2 field: QW0225GSG_SYS).

Field Name: SW225GSG

**STACK STORAGE IN USE (MB)**

The amount of 64-bit shared system agent stack that is in use (DB2 field: QW0225SUG_SYS).

Field Name: SW225SUG

**SHARED NON-SYSTEM AGENT STACK STORAGE (MB)**

The amount of 64-bit shared storage allocated for non-system agent stack use (DB2 field: QW0225GSG).

Field Name: SW225GSG

**STACK STORAGE IN USE (MB)**

The amount of 64-bit shared non-system agent stack that is in use (DB2 field: QW0225SUG).

Field Name: SW225SUG

### Dynamic SQL Statement

This topic shows detailed information about “Statistics - Dynamic SQL Statement”.

#### Statistics - Dynamic SQL Statement

The field labels shown in the following sample layout of “Statistics - Dynamic SQL Statement” are described in the following section.

<table>
<thead>
<tr>
<th>DYNAMIC SQL STM</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREPARE REQUESTS</td>
<td>210225</td>
<td>3503.74</td>
<td>N/C</td>
<td>328.99</td>
</tr>
<tr>
<td>FULL PREPARES</td>
<td>42681</td>
<td>711.35</td>
<td>N/C</td>
<td>66.79</td>
</tr>
<tr>
<td>SHORT PREPARES</td>
<td>154592</td>
<td>2576.53</td>
<td>N/C</td>
<td>241.93</td>
</tr>
<tr>
<td>SHORT PREPARES</td>
<td>154592</td>
<td>2576.53</td>
<td>N/C</td>
<td>241.93</td>
</tr>
<tr>
<td>BASED ON CACHE</td>
<td>141640</td>
<td>2360.66</td>
<td>N/C</td>
<td>221.66</td>
</tr>
<tr>
<td>BASED ON CATALOG</td>
<td>12952</td>
<td>215.87</td>
<td>N/C</td>
<td>20.27</td>
</tr>
<tr>
<td>LOOK-UP IN CATALOG</td>
<td>42685</td>
<td>711.41</td>
<td>N/C</td>
<td>66.80</td>
</tr>
<tr>
<td>CACHE HIT RATIO (%)</td>
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<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>CACHE+CATALOG HIT RATIO (%)</td>
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<td>EXPLICIT PREPARES</td>
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</tr>
<tr>
<td>IMPLICIT PREPARES</td>
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<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>STABILIZED PREPARES</td>
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<tr>
<td>PREPARES AVOIDED</td>
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<tr>
<td>CACHE LIMIT EXCEEDED</td>
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<td>0.00</td>
</tr>
<tr>
<td>PREP STMT PURGED</td>
<td>0</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>LOCAL CACHE HIT RATIO (%)</td>
<td>N/C</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>CSWL - STMTS PARSED</td>
<td>0</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
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</table>
Dynamic SQL Statement

<table>
<thead>
<tr>
<th>CSWL - LITS REPLACED</th>
<th>0</th>
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<th>N/C</th>
<th>0.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSWL - MATCHES FOUND</td>
<td>0</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CSWL - DUPLS CREATED</td>
<td>0</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
</tbody>
</table>

PREPARE REQUESTS

The number of requests for prepared statement cache sections.

Field Name: QISEDGS

PREPARE REQUESTS - FULL PREPARES

The number of full prepare requests.

A Full Prepare occurs for both Explicit Prepare and Implicit Prepare requests when the skeleton copy of the prepared SQL statement is not found in global dynamic SQL cache in the EDM pool.

Field Name: QISEDSS

PREPARE REQUESTS - SHORT PREPARES

The number of short prepare requests.

A Short Prepare is executed for both Explicit Prepare and Implicit Prepare requests when the skeleton copy of the prepared SQL statement is found in global dynamic SQL cache in the EDM pool.

For DB2 12 or later, this number also includes the number of catalog loads to solve a prepare request.

Field Name: SPREPSHT

SHORT PREPARES

The number of short prepare requests.

A Short Prepare is executed for both Explicit Prepare and Implicit Prepare requests when the skeleton copy of the prepared SQL statement is found in global dynamic SQL cache in the EDM pool.

For DB2 12 or later, this number also includes the number of catalog loads to solve a prepare request.

Field Name: SPREPSHT

SHORT PREPARES - BASED ON CACHE

The number of short prepare requests based on cache.

For DB2 12 or later, the number of loads from the catalog is excluded.

Field Name: SCACHSHT

SHORT PREPARES - BASED ON CATALOG

The number of times a dynamic SQL statement is found in a catalog.

Field Name: QISEDPSF

LOOK-UP IN CATALOG

The number of look-ups in a catalog to satisfy a dynamic SQL statement prepare request.

This field is updated when a statement is not found in the cache and the criteria is met to look for it in the catalog table. It is only incremented on the first look up and not if there are multiple rows that might be a match.
This is a system level value so it will be the number of times it has been checked since DB2 was started. It is incremented even if no copies of the statement have been captured.

Field Name: QISEDPSL

**CACHE HIT RATIO (%)**

The cache hit ratio in percent.

This field is a performance indicator for dynamic SQL statement execution. If this number is high, many fast Short Prepares cause a good performance. If this number is low, many slow Full Prepares lower the statement execution.

Field Name: SCACHHRA

**CACHE+CATALOG HIT RATIO (%)**

The cache and catalog hit ratio in percent.

This field is a performance indicator for dynamic SQL statement execution when DPS (Dynamic Plan Stability) is used. It provides how efficient DB2 loads dynamic statements from the catalog and the cache. Always observe this field in combination with the Cache Hit Ratio to identify how efficient DPS works.

Field Name: STOTCHRA

**TOTAL PREPARES**

The number of all Explicit and Implicit prepare requests.

An Explicit Prepare occurs when an SQL PREPARE or EXECUTE IMMEDIATE is requested by the application. An Explicit Prepare always results in either a Short Prepare or a Full Prepare.

An Implicit Prepare occurs when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache. An Implicit Prepare always results in either a Short Prepare or a Full Prepare.

Field Name: SPREPSUM

**TOTAL PREPARES - EXPLICIT PREPARES**

The number of SQL PREPARE statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXPREP

**TOTAL PREPARES - IMPLICIT PREPARES**

An implicit prepare occurs when the user copy of the prepared SQL statement no longer exists in the local dynamic SQL cache and the application plan or package is bound with KEEPDYNAMIC YES.

If the skeleton copy of the prepared SQL statement exists in the global dynamic SQL cache in the EDM pool, a short prepare is executed, otherwise a full prepare is executed.

Field Name: QXSTIPRP

**STABILIZED PREPARES**

The number of loads from the catalog.
Dynamic SQL Statement

It shows the number of times a PREPARE request was satisfied by making a copy from the stabilized statement in the SYSIBM.SYSDYNQRY catalog table. The stabilized statement search is done only when no matching statement was found in the prepared statement cache. This field should be identical to QISEDPSL, but it is reported from the QXST section (SQL Statement Execution).

**Field Name:** QXSTSFND

**PREPARES AVOIDED**

This field indicates the number of times where no SQL PREPARE or EXECUTE IMMEDIATE was issued by the application and a copy of a prepared SQL statement was found in local dynamic SQL cache.

When an application plan or package is bound with KEEPDYNAMIC YES, a copy of each prepared SQL statement for the application thread is held in the local dynamic SQL cache and kept across a commit boundary.

An application thread can save the total cost of a prepare by using a copy of the prepared statement in the local dynamic SQL cache from an earlier prepare by the same thread. To do this, the application must be modified to avoid issuing repetitive SQL PREPAREs for the same SQL statement.

**Field Name:** QXSTNPRP

**CACHE LIMIT EXCEEDED**

The number of times statements are invalidated in the local dynamic SQL cache because the MAXKEEPD limit has been reached and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

**Field Name:** QXSTDEXP

**PREP STMT PURGED**

The number of times statements are invalidated in the local dynamic SQL cache because of SQL DDL or updated RUNSTATS information and prepared SQL statements in the local dynamic SQL cache have to be reclaimed.

**Field Name:** QXSTDINV

**LOCAL CACHE HIT RATIO (%)**

The local cache hit ratio. This shows the percentage of SQL statements that avoided prepares because the statements were retrieved from the local cache. It indicates the effectiveness of the local SQL statement cache.

A value near to 100 indicates that in most cases DB2 found skeleton copies of prepared statements in local dynamic cache and avoided statement prepares.

A value near to 0 indicates that in most cases skeleton copies of prepared statements were not found in local dynamic cache and implicit prepares were performed.

**Field Name:** SLCACRAT

**CSWL - STMTS PARSED**

The number of times DB2 parsed dynamic statements because CONCENTRATE STATEMENTS WITH LITERALS behavior was used for the prepare of the statement for the dynamic statement cache.

**Field Name:** QXSTCWLP
CSWL - LITS REPLACED

The number of times DB2 replaced at least one literal in a dynamic statement because CONCENTRATE STATEMENTS WITH LITERALS was used for the prepare of the statement for dynamic statement cache.

Field Name: QXSTCWLRL

CSWL - MATCHES FOUND

The number of times DB2 found a matching reusable copy of a dynamic statement in cache during prepare of a statement that had literals replaced because of CONCENTRATE STATEMENTS WITH LITERALS.

Field Name: QXSTCWLM

CSWL - DUPLS CREATED

The number of times DB2 created a duplicate STMT instance in the statement cache for a dynamic statement that had literals replaced by CONCENTRATE STATEMENTS WITH LITERALS behavior. The duplicate STMT instance was needed because a cache match failed because the literal reusability criteria was not met.

Field Name: QXSTCWLD

DB2 API:

This topic shows detailed information about “Statistics - DB2 API”.

Statistics - DB2 API

The field labels shown in the following sample layout of “Statistics - DB2 API” are described in the following section.

<table>
<thead>
<tr>
<th>DB2 APPL.PROGR.INTERFACE</th>
<th>QUANTITY</th>
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<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABENDS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>UNRECOGNIZED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>COMMAND REQUESTS</td>
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<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>READA REQUESTS</td>
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<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
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<tr>
<td>TOTAL</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
</tbody>
</table>

ABENDS

The number of instrumentation facility interface (IFI) abends.

Field Name: QWSDSCA

UNRECOGNIZED

The number of calls made to IFI using a function that is not recognized by the interface.

Field Name: QWSDSCU

COMMAND REQUESTS

The number of calls made to IFI using the COMMAND function.

Field Name: QWSDSCCO

READA REQUESTS
The number of calls made to IFI using the READA (read asynchronous data) function.

Field Name: QWSDSCRA

READS REQUESTS
The number of calls made to IFI using the READS (read synchronous data) function.

Field Name: QWSDSCRS

WRITE REQUESTS
The number of calls made to IFI using the WRITE function.

Field Name: QWSDCWR

TOTAL
The total number of calls made to IFI.

Field Name: SDIFITOT

DB2 Commands:

This topic shows detailed information about “Statistics - DB2 Commands”.

Statistics - DB2 Commands

The field labels shown in the following sample layout of “Statistics - DB2 Commands” are described in the following section.

<table>
<thead>
<tr>
<th>DB2 COMMANDS</th>
<th>QUANTITY</th>
<th>/SECOND</th>
</tr>
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<tbody>
<tr>
<td>DISPLAY DATABASE</td>
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</tr>
<tr>
<td>DISPLAY THREAD</td>
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<tr>
<td>DISPLAY UTILITY</td>
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<td>0.00</td>
</tr>
<tr>
<td>DISPLAY TRACE</td>
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<td>0.00</td>
</tr>
<tr>
<td>DISPLAY RLIMIT</td>
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<td>DISPLAY LOCATION</td>
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<td>DISPLAY GROUP</td>
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<td>DISPLAY FUNCTION</td>
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<td>DISPLAY LOG</td>
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<tr>
<td>DISPLAY DDF</td>
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<tr>
<td>DISPLAY PROFILE</td>
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<td>DISPLAY DYNQUERYCAPTURE</td>
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<td>START DDF</td>
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<td>START ACCEL</td>
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<tr>
<td>START DYNQUERYCAPTURE</td>
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STOP DATABASE    0.00  0.00
STOP TRACE       0.00  0.00
STOP DB2         0.00  0.00
STOP RLIMIT      0.00  0.00
STOP DDF         0.00  0.00
STOP PROCEDURE   0.00  0.00
STOP FUNCTION    0.00  0.00
STOP PROFILE     0.00  0.00
STOP ACCEL       0.00  0.00
STOP DYNQUERYCAPTURE  0.00  0.00

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<th>QUANTITY /SECOND</th>
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<tr>
<td>MODIFY DDF</td>
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<td>RECOVER INDOUBT</td>
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<td>RESET INDOUBT</td>
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<td>RESET GENERICLU</td>
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<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>SET LOG</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>SET SYSPARM</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>ACCESS DATABASE</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>UNRECOGNIZED COMMANDS</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2.00</td>
<td>0.01</td>
</tr>
</tbody>
</table>

DISPLAY DATABASE

The number of DB2 DISPLAY DATABASE commands issued to view objects within one or more DB2 databases. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR0

DISPLAY THREAD

The number of DB2 DISPLAY THREAD commands issued to view threads active within the DB2 subsystem. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR1

DISPLAY UTILITY

The number of DB2 DISPLAY UTILITY commands issued to view the status of one or more DB2 utilities. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR2

DISPLAY TRACE

The number of DB2 DISPLAY TRACE commands issued to determine the currently active DB2 traces. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR3
**DB2 Commands**

**DISPLAY RLIMIT**

The number of DB2 DISPLAY RLIMIT commands issued to view the current status of the DB2 resource limit facility. This includes normal and abnormal completion of the command.

*Field Name:* Q9STCTRGR

**DISPLAY LOCATION**

The number of DB2 DISPLAY LOCATION commands issued to display statistics about threads with a distributed relationship. This includes normal and abnormal completion of the command.

*Field Name:* Q9STCTRL

**DISPLAY ARCHIVE**

The number of DB2 DISPLAY ARCHIVE commands issued. This includes normal and abnormal completion of the command.

*Field Name:* Q9STCTRLQ

**DISPLAY BUFFERPOOL**

The number of DB2 DISPLAY BUFFERPOOL commands issued. This includes normal and abnormal completion of the command.

*Field Name:* Q9STCTRRO

**DISPLAY GROUPBUFFERPOOL**

The number of DB2 DISPLAY GROUPBUFFERPOOL commands issued. This includes normal and abnormal completion of the command.

*Field Name:* Q9STCTRRT

**DISPLAY GROUP**

The number of DB2 DISPLAY GROUP commands issued. This includes normal and abnormal completion of the command.

*Field Name:* Q9STCTRX

**DISPLAY PROCEDURE**

The number of DB2 DISPLAY PROCEDURE commands executed. This includes normal and abnormal completion of the command.

*Field Name:* Q9STCTRLU

**DISPLAY FUNCTION**

The number of DB2 DISPLAY FUNCTION commands issued. This includes normal and abnormal completion of the command.

*Field Name:* Q9STCTRLZ

**DISPLAY LOG**

The number of DB2 DISPLAY LOG commands issued. This includes normal and abnormal completion of the command.

*Field Name:* Q9STCTX3

**DISPLAY DDF**

The number of DB2 DISPLAY DDF commands issued. This includes normal and abnormal completion of the command.
Field Name: Q9STCTX5

DISPLAY PROFILE

The number of DB2 DISPLAY PROFILE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTSD

DISPLAY ACCEL

The number of DB2 DISPLAY ACCEL commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTDA

DISPLAY DYNQUERycAPTURE

The number of DISPLAY DYNQUERYCAPTURE DB2 commands.

Field Name: Q9STCTDQ

ALTER BUFFERPOOL

The number of DB2 ALTER BUFFERPOOL commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRN

ALTER GROUPBUFFERPOOL

The number of DB2 ALTER GROUPBUFFERPOOL commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRS

ALTER UTILITY

The number of DB2 ALTER UTILITY commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRY

START DATABASE

The number of DB2 START DATABASE commands issued to make a database available for use. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR5

START TRACE

The number of DB2 START TRACE commands issued to initiate a DB2 trace. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR6

START DB2

The number of DB2 START DB2 commands issued to bring up a DB2 subsystem. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR7

START RLIMIT
DB2 Commands

The number of DB2 START RLIMIT commands issued to enable the DB2 resource limit facility. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRE

START DDF
The number of DB2 START DDF commands issued to enable the DB2 distributed data facility. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRI

START PROCEDURE
The number of DB2 START PROCEDURE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRV

START FUNCTION
The number of DB2 START FUNCTION commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTX0

START PROFILE
The number of DB2 START PROFILE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTSS

START ACCEL
The number of DB2 START ACCEL commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTSA

START DYNQUERYCAPTURE
The number of START DYNQUERYCAPTURE DB2 commands.

Field Name: Q9STCTSQ

STOP DATABASE
The number of DB2 STOP DATABASE commands issued to prevent access to a DB2 database. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR8

STOP TRACE
The number of DB2 STOP TRACE commands issued to terminate one or more active DB2 traces. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR9

STOP DB2
The number of DB2 STOP DB2 commands issued to terminate the DB2 subsystem. This includes normal and abnormal completion of the command.
Field Name: Q9STCTRA

STOP RLIMIT
The number of DB2 STOP RLIMIT commands issued to disable the DB2 resource limit facility. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRF

STOP DDF
The number of DB2 STOP DDF commands issued to disable the DB2 distributed data facility. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRJ

STOP PROCEDURE
The number of DB2 STOP PROCEDURE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR

STOP FUNCTION
The number of DB2 STOP FUNCTION commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTX1

STOP PROFILE
The number of DB2 STOP PROFILE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTST

STOP ACCEL
The number of DB2 STOP ACCEL commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTXA

STOP DYNQUERYCAPTURE
The number of STOP DYNQUERYCAPTURE DB2 commands.

Field Name: Q9STCTXQ

MODIFY TRACE
The number of DB2 MODIFY TRACE commands issued to alter trace events (IFCIDs) for an active trace. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRL

MODIFY DDF
The number of DB2 MODIFY DDF commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTMD

CANCEL THREAD
DB2 Commands

The number of DB2 CANCEL THREAD commands issued to cancel a thread. This includes normal and abnormal completion of the command.

Field Name: Q9STCTRK

TERM UTILITY

The number of DB2 TERM UTILITY commands issued to stop execution of a DB2 utility. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR8

RECOVER BSDS

The number of DB2 RECOVER BSDS commands issued to reestablish dual bootstrap data sets after one has been disabled by a data set error. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR3

RECOVER INDOUBT

The number of DB2 RECOVER INDOUBT commands issued to recover threads left indoubt because DB2 or a transaction manager could not automatically recover them. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR4

RESET INDOUBT

The number of DB2 RESET INDOUBT commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR8

RESET GENERICLU

The number of DB2 RESET GENERICLU commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR3

ARCHIVE LOG

The number of DB2 ARCHIVE LOG commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR8

SET ARCHIVE

The number of DB2 SET ARCHIVE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR8

SET LOG

The number of DB2 SET LOG commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTR8

SET SYSPARM

The number of DB2 SET SYSPARM commands issued. This includes normal and abnormal completion of the command.
Field Name: Q9STCTX4

ACCESS DATABASE

The number of DB2 ACCESS DATABASE commands issued. This includes normal and abnormal completion of the command.

Field Name: Q9STCTAD

UNRECOGNIZED COMMANDS

The number of commands not recognized by DB2. The number is incremented if the command verb or primary keyword cannot be determined. For example:

- ":-DISPLOX DATABASE(*)" is an unknown verb.
- ":-DISPLAY FATAFASE(*)" is an unknown primary keyword.

Field Name: Q9STEROR

TOTAL

The total number of DB2 commands that were issued.

Field Name: SDSTTOTT

DIST Storage Above 2 GB:

This topic shows detailed information about “Statistics - DIST Storage Above 2 GB”.

Statistics - DIST Storage Above 2 GB

The field labels shown in the following sample layout of “Statistics - DIST Storage Above 2 GB” are described in the following section.

<table>
<thead>
<tr>
<th>DIST STORAGE ABOVE 2 GB</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIXED STORAGE (MB)</td>
<td>0.96</td>
</tr>
<tr>
<td>GETMAINED STORAGE (MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>VARIABLE STORAGE (MB)</td>
<td>40.66</td>
</tr>
<tr>
<td>STORAGE MANAGER CONTROL BLOCKS (MB)</td>
<td>8.47</td>
</tr>
</tbody>
</table>

GETMAINED STORAGE (MB)

Total storage acquired by GETMAIN. This includes space for the compression dictionary, and statement and DBD cache that can be used by the Environmental Descriptor Manager (EDM).

This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Field Name: QW0225GA

FIXED STORAGE (MB)

The total amount of fixed storage above the 2 GB bar.

Field Name: QW0225FA

VARIABLE STORAGE (MB)

Amount of variable storage available above the 2 GB bar.

Field Name: QW0225VA

STORAGE MANAGER CONTROL BLOCKS (MB)
Total 64-bit storage allocated for storage manager control structures.

Field Name: QW0225SM

DIST and MVS Storage Below 2 GB:

This topic shows detailed information about “Statistics - DIST and MVS Storage Below 2 GB”.

Statistics - DIST and MVS Storage Below 2 GB

The field labels shown in the following sample layout of “Statistics - DIST and MVS Storage Below 2 GB” are described in the following section.

<table>
<thead>
<tr>
<th>DIST AND MVS STORAGE BELOW 2 GB</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL DIST STORAGE BELOW 2 GB</td>
<td>133.03</td>
</tr>
<tr>
<td>TOTAL GETMAINED STORAGE</td>
<td>0.04</td>
</tr>
<tr>
<td>TOTAL VARIABLE STORAGE</td>
<td>14.21</td>
</tr>
<tr>
<td>NUMBER OF ACTIVE CONNECTIONS</td>
<td>967.74</td>
</tr>
<tr>
<td>NUMBER OF INACTIVE CONNECTIONS</td>
<td>0.00</td>
</tr>
<tr>
<td>TOTAL FIXED STORAGE</td>
<td>0.85</td>
</tr>
<tr>
<td>TOTAL GETMAINED STACK STORAGE</td>
<td>117.92</td>
</tr>
<tr>
<td>TOTAL STACK STORAGE IN USE</td>
<td>117.89</td>
</tr>
<tr>
<td>SYSTEM AGENT STACK STORAGE IN USE</td>
<td>15.73</td>
</tr>
<tr>
<td>STORAGE CUSHION</td>
<td>358.03</td>
</tr>
<tr>
<td>24 BIT LOW PRIVATE</td>
<td>0.23</td>
</tr>
<tr>
<td>24 BIT HIGH PRIVATE</td>
<td>0.21</td>
</tr>
<tr>
<td>24 BIT PRIVATE CURRENT HIGH ADDRESS</td>
<td>0000000000042000</td>
</tr>
<tr>
<td>31 BIT EXTENDED LOW PRIVATE</td>
<td>5.14</td>
</tr>
<tr>
<td>31 BIT EXTENDED HIGH PRIVATE</td>
<td>147.14</td>
</tr>
<tr>
<td>31 BIT PRIVATE CURRENT HIGH ADDRESS</td>
<td>000000018325000</td>
</tr>
<tr>
<td>EXTENDED REGION SIZE (MAX)</td>
<td>1666.00</td>
</tr>
</tbody>
</table>

TOTAL DIST STORAGE BELOW 2 GB (MB)

Total DIST storage below the bar. This includes:
- Fixed length storage use
- Getmained storage
- Save areas
- Variables

Field Name: SW0225DI

TOTAL GETMAINED STORAGE (MB)

Total storage acquired by GETMAIN. This includes space for virtual pools, EDM pool, compression dictionary, castout buffers, and the data space lookaside buffer, and data space buffer pool control blocks.

This figure can be different from the sum of GETMAIN storage items shown in the statistics DBM1 storage, because DB2 does not produce grouping statistics for all GETMAIN storage.

Field Name: QW0225GM

TOTAL VARIABLE STORAGE (MB)

Total storage used by all variable pools. This includes storage used by:
- System agents
- Local agents
- RID pool
• Pipe manager subpool
• Local dynamic statement cache control blocks
• Local dynamic statement cache statement pool
• Buffer and data manager trace tables
• A list of objects in restricted state including the new PRO state. If consumption of this storage pool is high, review restrictive exception state of database objects and check whether they can be resolved or reduced.

Field Name: QW0225VR

NUMBER OF ACTIVE CONNECTIONS
The number of active connections, or active and disconnected DBAT threads.

Field Name: SACDBATS

NUMBER OF INACTIVE CONNECTIONS
The current number of type 2 inactive connections.

Field Name: QDSTCIN2

TOTAL FIXED STORAGE (MB)
Total amount of fixed storage.

Field Name: QW0225FX

TOTAL GETMAINED STACK STORAGE (MB)
Total GETMAINED storage allocated for program stack use.

Field Name: QW0225GS

TOTAL STACK STORAGE IN USE (MB)
The amount of stack storage that is in use.

Field Name: QW0225SU

SYSTEM AGENT STACK STORAGE IN USE (MB)
The amount of 31-bit stack storage that is in use for system agents. This is a subset of QW0225SU.

Field Name: QW0225SS

STORAGE CUSHION (MB)
Storage reserved to allow DB2 to complete critical functions while short on storage. This includes the contract warning cushion, storage reserved for must-complete operations, and storage for MVS use.

Field Name: STORCUSH

24 BIT LOW PRIVATE (MB)
The amount of private MVS storage below the 16 MB line. This storage is obtained from bottom upward, usually for unauthorized programs.

Field Name: QW0225LO

24 BIT HIGH PRIVATE (MB)
The amount of private MVS storage below the 16 MB line. This storage is obtained from top downward, usually for authorized programs.
DIST and MVS Storage Below 2 GB

Field Name: QW0225HI

**24 BIT PRIVATE CURRENT HIGH ADDRESS**

The current high address of the 24-bit private region.

Field Name: QW0225TP

**31 BIT EXTENDED LOW PRIVATE (MB)**

The amount of private MVS storage above the 16 MB line. This storage is obtained from bottom upward, usually for unauthorized programs.

Field Name: QW0225EL

**31 BIT EXTENDED HIGH PRIVATE (MB)**

The amount of private MVS storage above the 16 MB line. This storage is obtained from top downward, usually for authorized programs.

Field Name: QW0225EH

**31 BIT PRIVATE CURRENT HIGH ADDRESS**

The current high address of the 31-bit private region.

Field Name: QW0225EP

**EXTENDED REGION SIZE (MAX) (MB)**

The maximum amount of MVS private storage available above the 16 MB line.

Field Name: QW0225RG

**DRDA Remote Locations:**

This topic shows detailed information about “Statistics - DRDA Remote Locations”.

It shows information about remote locations of Distributed Relational Database Architecture (DRDA).

**Statistics - DRDA Remote Locations**

The field labels shown in the following sample layout of “Statistics - DRDA Remote Locations” are described in the following section.

<table>
<thead>
<tr>
<th>DRDA REMOTE LOCATIONS</th>
<th>SENT</th>
<th>RECEIVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONVERSATIONS</td>
<td>0.00</td>
<td>2.00</td>
</tr>
<tr>
<td>CONVERSATIONS QUEUED</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>CONVERSATIONS DEALLOCATED</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>SQL STATEMENTS</td>
<td>0.00</td>
<td>49.00</td>
</tr>
<tr>
<td>COMMITS</td>
<td>0.00</td>
<td>33.00</td>
</tr>
<tr>
<td>ROLLBACKS</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>ROWS</td>
<td>16.00</td>
<td>0.00</td>
</tr>
<tr>
<td>MESSAGES</td>
<td>1540.00</td>
<td>1540.00</td>
</tr>
<tr>
<td>BYTES</td>
<td>140.7K</td>
<td>280.5K</td>
</tr>
<tr>
<td>BLOCKS</td>
<td>32.00</td>
<td>0.00</td>
</tr>
<tr>
<td>THREAD INDOUBT-REM.L.COORD.</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

**SENT - CONVERSATIONS**

The number of conversations that were initiated from the requester location. This value is maintained at the requester location.
A conversation is a specific instance of using TCP/IP or SNA LU 6.2 to transfer information between a requester and a server. A conversation is a logical connection between a requester and a server.

Field Name: QLSTCNVS

SENT - CONVERSATIONS QUEUED
The number of conversation requests queued by the distributed data facility and waiting for allocation. This value is maintained at the requester location.

Background and Tuning Information
When this value is high, increase the limit for the number of conversations.

Field Name: QLSTCNVQ
This is an exception field.

SENT - CONVERSATIONS DEALLOCATED
The number of conversations that were deallocated from this site to the remote site.

Field Name: QLSTCNVT

SENT - SQL STATEMENTS
The number of SQL statements sent to the remote server. This value is updated at the requester location.

Field Name: QLSTSQLS

SENT - COMMITS
The number of commit requests sent to the server (single-phase commit protocol) and the committed requests sent to the participant (two-phase commit protocol).

Field Name: QLSTCOMS

SENT - ROLLBACKS
The number of abort requests sent to the server (single-phase commit protocol) and backout requests sent to the participant (two-phase commit protocol).

Field Name: QLSTABRS

SENT - ROWS
The number of data rows sent to the requester location (includes SQLDA). This value is updated at the server location.

Field Name: QLSTROWS

SENT - MESSAGES
The number of messages sent to the remote location. A message is a group of characters and control bit sequences transferred on a single TCP/IP or SNA API call. This value is maintained at the location where the messages originated.

Field Name: QLSTMSGS

SENT - BYTES
The number of bytes of data sent to the requester location. This value is maintained at the server location.

**Field Name:** QLSTBYTS

**SENT - BLOCKS**

The number of blocks transmitted using block fetch. This value is maintained at the server location.

**Field Name:** QLSTBTBF

**SENT - THREAD INDOUBT-REM.L.COORD.**

The number of threads that became indoubt with the remote location as the coordinator (two-phase commit operations only). A large value might indicate network problems.

**Field Name:** QLSTINDT

**RECEIVED - CONVERSATIONS**

The number of conversations that were initiated from the requester to the server location. This value is updated at the server location.

**Field Name:** QLSTCNVR

**RECEIVED - SQL STATEMENTS**

The number of SQL statements received from the requester location. This value is updated at the server location.

**Field Name:** QLSTSQLR

**RECEIVED - COMMITS**

The number of commit requests received from the requester (single-phase commit protocol) and committed requests received from the coordinator (two-phase commit protocol).

**Field Name:** QLSTCOMR

**RECEIVED - ROLLBACKS**

The number of abort requests received from the requester (single-phase commit protocol) and backout requests received from the coordinator (two-phase commit protocol).

**Field Name:** QLSTABRR

**RECEIVED - ROWS**

The number of data rows received from the server location. This value is maintained at the requester location.

**Note:**

- This value does not include any SQLDA or SQLCA transmitted.
- Block fetch can significantly affect the number of rows sent across the network. When used with nonupdate cursors, block fetch groups as many rows as possible into the message buffer, and transmits the buffer over the network without requiring a VTAM message. Consequently, more rows of data might be sent from the server location than are received by the requester location.

This is especially true when DB2 private protocol is used because multiple blocks can be transmitted from the server with no intervening messages from the requester.
Field Name: QLSTROWR

RECEIVED - MESSAGES

The number of messages received by VTAM from the remote location. This value is maintained at the location where the messages were received.

More messages might be sent from the server location than are received by the requester due to the manner in which distributed SQL statements are processed internally.

Field Name: QLSTMSGR

RECEIVED - BYTES

The number of bytes of data received from the server location. This value is maintained at the requester location.

More bytes of data might be sent from the server location than are received by the requester due to the manner in which distributed SQL statements are processed internally.

Field Name: QLSTBYTR

RECEIVED - BLOCKS

The number of blocks received from the remote location using block fetch. This value is maintained at the requester location.

Field Name: QLSTBRBF

EDM Pool Activity:

This topic shows detailed information about “Statistics - EDM Pool Activity”.

Statistics - EDM Pool Activity

The field labels shown in the following sample layout of “Statistics - EDM Pool Activity” are described in the following section.

<table>
<thead>
<tr>
<th>EDM POOL</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAGES IN DBD POOL (ABOVE)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>HELD BY DBD</td>
<td>87.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>STEALABLE PAGES</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FREE PAGES</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>% PAGES IN USE</td>
<td>6.96</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FAILS DUE TO DBD POOL FULL</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>PAGES IN STMT POOL (ABOVE)</td>
<td>1250.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>HELD BY STATEMENTS</td>
<td>3.54</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FREE PAGES</td>
<td>1246.46</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FAILS DUE TO STMT POOL FULL</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>PAGES IN SKEL POOL (ABOVE)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>HELD BY SKCT</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>HELD BY SKPT</td>
<td>16.53</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>STEALABLE PAGES</td>
<td>16.53</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FREE PAGES</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>% PAGES IN USE</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FAILS DUE TO SKEL POOL FULL</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DBD REQUESTS</td>
<td>18.00</td>
<td>0.10</td>
<td>N/C</td>
<td>0.55</td>
</tr>
<tr>
<td>DBD NOT FOUND</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DBD HIT RATIO (%)</td>
<td>100.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>CT REQUESTS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CT NOT FOUND</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
</tbody>
</table>
## EDM Pool Activity

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT Hit Ratio (%)</td>
<td>N/C N/A N/A N/A</td>
</tr>
<tr>
<td>PT Requests</td>
<td>17.00 0.09 N/C 0.52</td>
</tr>
<tr>
<td>PT Not Found</td>
<td>1.00 0.01 N/C 0.03</td>
</tr>
<tr>
<td>PT Hit Ratio (%)</td>
<td>94.12 N/A N/A N/A</td>
</tr>
<tr>
<td>PKG Search Not Found</td>
<td>0.00 0.00 N/C 0.00</td>
</tr>
<tr>
<td>PKG Search Not Found Insert</td>
<td>0.00 0.00 N/C 0.00</td>
</tr>
<tr>
<td>PKG Search Not Found Delete</td>
<td>0.00 0.00 N/C 0.00</td>
</tr>
<tr>
<td>Statements in Global Cache</td>
<td>1.18 N/A N/A N/A</td>
</tr>
</tbody>
</table>

### PAGES IN DBD POOL (ABOVE) (Prior to DB2 12)

This field shows the number of pages in the DBD pool above the 2 GB bar.

**Field Name:** QISEDPPGE

### HELD BY DBD

The current number of pages used for database descriptors (DBDs). This is a snapshot value.

**Field Name:** QISEDDBD

### STEALABLE PAGES

The current number of stealable pages used for database descriptors (DBDs).

**Field Name:** QISEDLRU

### FREE PAGES (Prior to DB2 12)

This field shows the number of free pages in the DBD pool above the 2 GB bar.

**Field Name:** QISEDPPRE

This is an exception field.

### % PAGES IN USE

The percentage of DBD pages in use expressed as complement of the percentage of available DBD pages (ratio of stealable and free pages to the total number).

**Field Name:** SISEDPUIU

### FAILS DUE TO DBD POOL FULL

This field shows the total number of failures because the DBD pool above the 2 GB bar was full.

**Field Name:** QISEDFFAL

This is an exception field.

### PAGES IN STMT POOL (ABOVE)

The current number of pages in the EDM Statement pool above the 2 GB bar. This is a snapshot value. For DB2 12 this field shows N/A.

**Field Name:** QISECPGE

### HELD BY STATEMENTS

The number of pages in the EDM Statement pool above the 2 GB bar that is used for cached dynamic SQL statements. This is a snapshot value.

**Field Name:** QISEDYNP
FREE PAGES
The number of pages currently not used by any object in the EDM Statement pool above the 2 GB bar. For DB2 12 this field shows N/A.
Field Name: QISECFRE

FAILS DUE TO STMT POOL FULL
The total number of failures because the EDM Statement pool above the 2 GB bar was full. For DB2 12 this field shows N/A.
Field Name: QISECFAL

PAGES IN SKEL POOL (ABOVE) (Prior to DB2 12)
The current number of pages in the EDM skeleton pool above the 2 GB bar.
Field Name: QISEKPGE

HELD BY SKCT
The current number of pages used for skeleton cursor tables (SKCTs). This is a snapshot value.
Field Name: QISESKCT

HELD BY SKPT
The current number of pages used for skeleton package tables (SKPTs). This is a snapshot value.
Field Name: QISESKPT

STEALABLE PAGES
The current number of stealable pages used for skeleton cursor and package tables.
Field Name: QISEKLRU

FREE PAGES (Prior to DB2 12)
The number of pages currently not used by any object in the EDM skeleton pool above the 2 GB bar.
Field Name: QISEKFRE

% PAGES IN USE
The percentage of skeleton pages in use expressed as complement of the percentage of available skeleton pages (ratio of stealable and free pages to the total number).
Field Name: SISEKPIU

FAILS DUE TO SKEL POOL FULL
The total number of failures because the EDM skeleton pool above the 2 GB bar was full.
Field Name: QISEKFAL

DBD REQUESTS
The number of requests for database descriptors (DBDs).
Field Name: QISEDBDG

DBD NOT FOUND
EDM Pool Activity

The total number of times database descriptors were loaded from DASD. To find the number of times the DBD was already in the EDM pool, subtract this value from the value of Requests for sections - DBD field.

Field Name: QISEDBDL
This is an exception field.

DBD HIT RATIO (%)
The ratio of successful requests for database descriptors (DBD) from the EDM pool to the total number of requests for database descriptors expressed as a percentage.

Field Name: SERDBLR
This is an exception field.

CT REQUESTS
The number of requests for cursor table (CT) sections.

Field Name: QISECTG
This is an exception field.

CT NOT FOUND
The number of times a cursor table section was loaded from DASD. To find the number of times the CT was found in the EDM pool, subtract this value from the value of the Requests for sections - CT field.

Field Name: QISECTL
This is an exception field.

CT HIT RATIO (%)
The ratio of successful requests for cursor tables from the EDM pool to the total number of requests for cursor tables expressed as a percentage.

Field Name: SERCTLR
This is an exception field.

PT REQUESTS
The number of requests for package table (PT) sections.

Field Name: QISEKTG
This is an exception field.

PT NOT FOUND
The number of times a package table section was loaded from DASD. To find the number of times the PT was already in the EDM pool, subtract this value from the value of the Requests for sections - PT field.

Field Name: QISEKTL
This is an exception field.

PT HIT RATIO (%)
The ratio of successful package table requests from the EDM pool to the total number of package table requests, expressed as a percentage.

Field Name: SERPTLR
This is an exception field.

PKG SEARCH NOT FOUND

When a package is bound with a wild card (*) for package names, in the form of PKLIST(COL1.*,COL2.*.....), EDM generates a NOT-FOUND record to avoid future I/O if a collection ID/package name combination does not exist.

This field shows how often a cached record was located during package binding.

Field Name: QISEKNFM

PKG SEARCH NOT FOUND INSERT

When a package is bound with a wild card (*) for package names, in the form of PKLIST(COL1.*,COL2.*.....), EDM generates a NOT-FOUND record to avoid future I/O if a collection ID/package name combination does not exist.

This field shows how often a record was added to the cache during package binding.

Field Name: QISEKNFA

PKG SEARCH NOT FOUND DELETE

When a package is bound with a wild card (*) for package names, in the form of PKLIST(COL1.*,COL2.*.....), EDM generates a NOT-FOUND record to avoid future I/O if a collection ID/package name combination does not exist.

This field shows how often a record was removed from the cache during package binding.

Field Name: QISEKNFR

STATEMENTS IN GLOBAL CACHE

Number of statements in the global cache.

Field Name: QISESTMT

Global DDF Activity:

This topic shows detailed information about “Statistics - Global DDF Activity”.

Statistics - Global DDF Activity

The field labels shown in the following sample layout of “Statistics - Global DDF Activity” are described in the following section.

<table>
<thead>
<tr>
<th>GLOBAL DDF ACTIVITY</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBAT/CONN QUEUED-MAX ACTIVE</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>CONN REJECTED-MAX CONNECTED</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>CONN CLOSED - MAX QUEUED</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>CONN CLOSED - MAX WAIT</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>COLD START CONNECTIONS</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>WARM START CONNECTIONS</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>RESYNCHRONIZATION ATTEMPTED</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>RESYNCHRONIZATION SUCCEEDED</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>CUR TYPE 1 INACTIVE DBATS</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>HWM TYPE 1 INACTIVE DBATS</td>
<td>2.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Global DDF Activity

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE 1 CONNECTIONS TERMINAT</td>
<td></td>
</tr>
<tr>
<td>CUR INACTIVE CONNS (TYPE 2)</td>
<td>0.02 N/A N/A N/A</td>
</tr>
<tr>
<td>HWM INACTIVE CONNS (TYPE 2)</td>
<td>14.00 N/A N/A N/A</td>
</tr>
<tr>
<td>ACC QU INACT CONNS (TYPE 2)</td>
<td>2.00 0.00 N/A N/A</td>
</tr>
<tr>
<td>CUR QU INACT CONNS (TYPE 2)</td>
<td>0.00 N/A N/A N/A</td>
</tr>
<tr>
<td>MIN QUEUE TIME</td>
<td>0.000109 N/A N/A N/A</td>
</tr>
<tr>
<td>MAX QUEUE TIME</td>
<td>0.000109 N/A N/A N/A</td>
</tr>
<tr>
<td>AVG QUEUE TIME</td>
<td>0.000109 N/A N/A N/A</td>
</tr>
<tr>
<td>HWM QU INACT CONNS (TYPE 2)</td>
<td>8.00 N/A N/A N/A</td>
</tr>
<tr>
<td>CUR ACTIVE AND DISCON DBATS</td>
<td>0.00 N/A N/A N/A</td>
</tr>
<tr>
<td>HWM ACTIVE AND DISCON DBATS</td>
<td>11.00 N/A N/A N/A</td>
</tr>
<tr>
<td>HWM TOTL REMOTE CONNECTIONS</td>
<td>14.00 N/A N/A N/A</td>
</tr>
<tr>
<td>CUR DISCON DBATS NOT IN USE</td>
<td>0.00 N/A N/A N/A</td>
</tr>
<tr>
<td>HWM DISCON DBATS NOT IN USE</td>
<td>11.00 N/A N/A N/A</td>
</tr>
<tr>
<td>DBATS CREATED</td>
<td>1.00 N/A N/A N/A</td>
</tr>
<tr>
<td>DISCON (POOL) DBATS REUSED</td>
<td>1.00 N/A N/A N/A</td>
</tr>
<tr>
<td>CUR ACTIVE DBATS-BND DEALLC</td>
<td>0.00 N/A N/A N/A</td>
</tr>
<tr>
<td>HWM ACTIVE DBATS-BND DEALLC</td>
<td>0.00 N/A N/A N/A</td>
</tr>
</tbody>
</table>

**DBAT/CONN QUEUED-MAX ACTIVE**

The number of times a DBAT or connection was queued because it reached the ZPARM maximum for active remote threads (MAXDBAT).

**Field Name:** QDSTQDBT

This is an exception field.

**CONN REJECTED-MAX CONNECTED**

The number of connections that were rejected because the ZPARM limit for maximum remote connections (CONDBAT) was reached.

**Field Name:** QDSTQ CRT

**CONN CLOSED - MAX QUEUED**

The number of queued client connections whose TCP/IP sockets were closed because the system parameter MAXCONQN was exceeded.

The socket close only occurs when the DB2 subsystem is a member of a data sharing group and DB2 was started with DDF THREADS set to INACTIVE.

**Field Name:** QDSTNCQC

**CONN CLOSED - MAX WAIT**

The number of queued client connections whose TCP/IP socket were closed due to system parameter MAXCONQW being exceeded.

The socket close only occurs when the DB2 subsystem is a member of a data sharing group and DB2 was started with DDF THREADS set to INACTIVE.

**Field Name:** QDSTNCCW

**COLD START CONNECTIONS**

The number of cold start connections with all remote locations (two-phase commit operations only).

**Field Name:** QDSTCSTR

This is an exception field.
WARM START CONNECTIONS

The number of warm start connections with all remote locations (two-phase commit operations only).

Field Name: QDSTWSTR
This is an exception field.

RESYNCHRONIZATION ATTEMPTED

The number of resynchronization connections attempted with all remote locations (two-phase commit operations only).

Background and Tuning Information
A large value can indicate network or system problems.

Field Name: QDSTRSAT
This is an exception field.

RESYNCHRONIZATION SUCCEEDED

The number of resynchronization connections that succeeded with all remote locations (two-phase commit operations only).

Background and Tuning Information
If the value of this field is much less than the number of resynchronizations attempted, network problems might exist.

Field Name: QDSTRSSU
This is an exception field.

CUR TYPE 1 INACTIVE DBATS

The current number of inactive DBATs type 1 (snapshot).

Field Name: QDSTQCIT

HWM TYPE 1 INACTIVE DBATS

The maximum number of inactive type 1 DBATs.
This value is a high-water mark.

Field Name: QDSTQMIT
This is an exception field.

TYPE 1 CONNECTIONS TERMINATED

The number of threads or connections that were terminated instead of being made type 1 inactive because the maximum number of type 1 inactive threads was reached (MAXTYPE1).

Field Name: QDSTNITC

CUR INACTIVE CONNS (TYPE 2)

The current number of type 2 inactive connections.

Field Name: QDSTCIN2

HWM INACTIVE CONNS (TYPE 2)

The maximum number of concurrent type 2 inactive connections that existed.
This value is a high-water mark for QDSTCIN2.
Global DDF Activity

Field Name: QDSTMIN2
**ACC QU INACT CONNS (TYPE 2)**

The number of RECEIVE requests on type 2 inactive or new connections that are queued to be serviced by a disconnected (pooled) DBAT.

Field Name: QDSTQIN2
**CUR QU INACT CONNS (TYPE 2)**

The current number of type 2 inactive or new connections that are queued waiting for a database access thread (DBAT).

Field Name: QDSTNQR2
**MIN QUEUE TIME**

The minimum queue time of a type 2 inactive or new connection that was queued waiting for a database access thread (DBAT) in the last statistical period.

Field Name: QDSTNQMN
**MAX QUEUE TIME**

The maximum queue time of a type 2 inactive or new connection that was queued waiting for a database access thread (DBAT) in the last statistical period.

Field Name: QDSTNQMX
**AVG QUEUE TIME**

The average queue time of a type 2 inactive or new connection that was queued waiting for a database access thread (DBAT) in the last statistical period.

Field Name: QDSTNQAV
**HWM QU INACT CONNS (TYPE 2)**

The maximum number of type 2 inactive or new connections that are queued waiting for a database access thread.

This value is a high-water mark for QDSTNQR2.

Field Name: QDSTMQR2
**CUR ACTIVE AND DISCON DBATS**

The current number of active and disconnected (pooled) DBATs.

Field Name: QDSTCNAT
**HWM ACTIVE AND DISCON DBATS**

The maximum number of active and disconnected (pooled) DBATs that existed.

This value is a high-water mark for QDSTCNAT.

Field Name: QDSTHWAT

This is an exception field.

**HWM TOTL REMOTE CONNECTIONS**

The maximum number of active and remote connections. This value is a high-water mark.
Field Name: QDSTHWDT
This is an exception field.

CUR DISCON DBATS NOT IN USE
The current number of disconnected (pooled) DBATs that are available to process type 2 inactive or new connections.

Field Name: QDSTNADS

HWM DISCON DBATS NOT IN USE
The maximum number of disconnected (pooled) DBATs that are available to process type 2 inactive or new connections.
This value is a high-water mark for QDSTNADS.

Field Name: QDSTMADS

DBATS CREATED
The number of requests that required a database access thread (DBAT) to be created to process the request.

Note: This does not include database access threads created to replace disconnected (pooled) DBATs that terminated because they reached their reuse limit.

Field Name: QDSTNDBA

DISCON (POOL) DBATS REUSED
The number of requests that were satisfied by assigning a disconnected (pooled) DBAT to process the request.

Field Name: QDSTPOOL

CUR ACTIVE DBATS-BND DEALLOC
The current number of DBATs that are active because the associated packages were bound with RELEASE(DEALLOCATE).

Field Name: QDSTNARD

HWM ACTIVE DBATS-BND DEALLOC
The maximum number of DBATs that are active because the associated packages were bound with RELEASE(DEALLOCATE).

Field Name: QDSTMARD

Group Buffer Pool Activity:
This topic shows detailed information about “Statistics - Group Buffer Pool Activity”.

This block shows activity for the group buffer pool connected to the reported DB2 system. The counters are cumulative from the time when the buffer pool was first connected. If more than one 4 KB or 32 KB group buffer pool block is printed, blocks showing the 4 KB and 32 KB group buffer pool totals are printed. If the report contains both 4 KB and 32 KB group buffer pool blocks, a block showing the totals of all group buffer pools is printed.
# Group Buffer Pool Activity

## Statistics - Group Buffer Pool Activity

The field labels shown in the following sample layout of “Statistics - Group Buffer Pool Activity” are described in the following section.

<table>
<thead>
<tr>
<th>GROUP BP0</th>
<th>QUANTITY /SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP BP R/W RATIO (%)</td>
<td>71.22</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>GBP SYN.READ(XI) HIT RATIO(%)</td>
<td>5.51</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>GBP-DEPENDING GETPAGES</td>
<td>6212.00</td>
<td>0.15</td>
<td>22.43</td>
</tr>
<tr>
<td>SYN.WRITE(XI)-DATA RETURNED</td>
<td>197.00</td>
<td>0.00</td>
<td>0.71</td>
</tr>
<tr>
<td>SYN.WRITE(XI)-NO DATA RETURN</td>
<td>3379.00</td>
<td>0.08</td>
<td>12.20</td>
</tr>
<tr>
<td>SYN.WRITE(NF)-DATA RETURNED</td>
<td>1.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>SYN.WRITE(NF)-NO DATA RETURN</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>UNREGISTER PAGE</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>CLEAN PAGES SYNCR.WRTN</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>CLEAN PAGES ASYNCR.WRTN</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>REG.PAGE LIST (RPL) REQUEST</td>
<td>115.00</td>
<td>0.00</td>
<td>0.42</td>
</tr>
<tr>
<td>NUMBER OF PAGES RETR.FROM GBP</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>PAGES CASTOUT</td>
<td>37.00</td>
<td>0.00</td>
<td>0.13</td>
</tr>
<tr>
<td>UNLOCK CASTOUT</td>
<td>37.00</td>
<td>0.00</td>
<td>0.13</td>
</tr>
<tr>
<td>READ CASTOUT CLASS</td>
<td>223.00</td>
<td>0.01</td>
<td>0.81</td>
</tr>
<tr>
<td>READ DIRECTORY INFO</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>READ STORAGE STATISTICS</td>
<td>4907.00</td>
<td>0.12</td>
<td>17.71</td>
</tr>
<tr>
<td>REGISTER PAGE</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>DELETE NAME</td>
<td>93.00</td>
<td>0.00</td>
<td>0.34</td>
</tr>
<tr>
<td>ASYNCH GBP REQUESTS</td>
<td>2959.00</td>
<td>0.07</td>
<td>10.68</td>
</tr>
<tr>
<td>EXPLICIT X-INVALIDATIONS</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>CASTOUT CLASS THRESHOLD</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>GROUP BP CASTOUT THRESHOLD</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>GBP CHECKPOINTS TRIGGERED</td>
<td>175.00</td>
<td>0.00</td>
<td>0.63</td>
</tr>
<tr>
<td>WRITE FAILED-NO STORAGE</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>WRITE TO SEC-GBP FAILED</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>COMPL CHECKS SUSPENDED</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>DELETE NAME LIST SEC-GBP</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>DELETE NAME FROM SEC-GBP</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>UNLOCK CASTOUT STATS SEC-GBP</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>ASYNCH SEC-GBP REQUESTS</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GROUP BP0 CONTINUED</th>
<th>QUANTITY /SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRITE AND REGISTER</td>
<td>114.00</td>
<td>0.00</td>
<td>0.41</td>
</tr>
<tr>
<td>WRITE AND REGISTER MULT</td>
<td>24.00</td>
<td>0.00</td>
<td>0.09</td>
</tr>
<tr>
<td>CHANGED PGS SYNCR.WRTN</td>
<td>278.00</td>
<td>0.01</td>
<td>1.00</td>
</tr>
<tr>
<td>CHANGED PGS ASYNCR.WRTN</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>PAGES WRITE &amp; REG MULT</td>
<td>164.00</td>
<td>0.00</td>
<td>0.59</td>
</tr>
<tr>
<td>READ FOR CASTOUT</td>
<td>37.00</td>
<td>0.00</td>
<td>0.13</td>
</tr>
<tr>
<td>READ FOR CASTOUT MULT</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>PAGE P-LOCK LOCK REQ</td>
<td>394.00</td>
<td>0.01</td>
<td>1.42</td>
</tr>
<tr>
<td>SPACE MAP PAGES</td>
<td>94.00</td>
<td>0.00</td>
<td>0.34</td>
</tr>
<tr>
<td>DATA PAGES</td>
<td>231.00</td>
<td>0.01</td>
<td>0.83</td>
</tr>
<tr>
<td>INDEX LEAF PAGES</td>
<td>69.00</td>
<td>0.00</td>
<td>0.25</td>
</tr>
<tr>
<td>PAGE P-LOCK UNLOCK REQ</td>
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<td>0.01</td>
<td>1.59</td>
</tr>
<tr>
<td>PAGE P-LOCK LOCK SUSP</td>
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<td>0.00</td>
<td>0.00</td>
</tr>
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<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>DATA PAGES</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>INDEX LEAF PAGES</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>PAGE P-LOCK LOCK NEG</td>
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<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>SPACE MAP PAGES</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
### GROUP BP R/W RATIO (%)

The group buffer pool read/write ratio. This reflects the effectiveness of the group buffer pool and whether the GBPCACHE NONE option can be used.

**Field Name:** SGBRWRAT

### GBP SYN.READ(XI) HIT RATIO(%)

The percentage of all requests made to read a page from the group buffer pool because the page was invalidated in the member's buffer pool, which found the data in the group buffer pool and did not have to retrieve the page from DASD.

**Background and Tuning Information**

For highly active group buffer pools, consider increasing the GBP size if the SYN.READ(XI) HIT RATIO percent is smaller than 90.

**Field Name:** SGBXIRAT

### GBP-DEPENDENT GETPAGES

The number of Getpages made for GBP-dependent objects.

**Field Name:** QBGLGG

### SYN.READ(XI)-DATA RETURNED

The number of requests made to read a page from the group buffer pool because the page was invalidated in the member's buffer pool. The member found the required page in the group buffer pool.

**Background and Tuning Information**

When you increase the size of the group buffer pool (GBP), the number of pages returned from the GBP can increase. Conversely, decreasing the size of the GBP can cause DB2 to return fewer pages because the GBP cannot hold pages long enough to allow them to be retrieved again.

**Field Name:** QBGLXD

This is an exception field.

### SYN.READ(XI)-NO DATA RETURN

The number of requests to read a page from the group buffer pool that were required because the page was invalidated in the member's buffer pool. The member did not find the data in the group buffer pool and had to retrieve the page from DASD.

**Background and Tuning Information**

Normally, when the page in a member's buffer is cross invalidated, the buffer is refreshed from the group buffer pool. In this instance, the requested page was not found in the group buffer pool though the page set is still GBP-dependent. The page has been removed from the group buffer pool for one of two reasons:

- Shortage of data pages and consequent reclamation of this page

---

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Pages</th>
<th>Index Leaf Pages</th>
<th>Pages in Write-Around</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Group Buffer Pool Activity

- Shortage of directory entries and consequent removal of the page together with cross invalidation of that page in the local buffer pools of all members using that page.

If the value in this field is high, you may want to tune the group buffer pool (GBP). Depending on the reason, increase the number of GBP data pages, increase the size of the directory entry space, or increase both the number of GBP data pages and the space for directory entries. Oversizing the group buffer pool can cause unnecessary GBP checkpoint overhead.

Field Name: QBGLXR

SYN.READ(NF)-DATA RETURNED

The number of requests made to read a page from the group buffer pool because the page was not in the buffer pool of the member. The member found the page in the group buffer pool.

Background and Tuning Information

The requesting member needs a page from a table space or index that is GBP-dependent or has GBPCACHE ALL defined. To get that page, the group buffer pool is checked before the page set on DASD.

If the group buffer pool is used to cache both clean and changed pages (GBPCACHE ALL is used for all data), you can try to get more pages returned from the group buffer pool by increasing the size of the group buffer pool. Do not tune the GBP based on this counter if it is used for caching changed pages only (GBPCACHE CHANGED).

Field Name: QBGLMD

This is an exception field.

SYN.READ(NF)-NO DATA RETURN

The number of requests made to read a page from the group buffer pool because the page was not in the member’s buffer pool and had to retrieve the page from DASD.

Background and Tuning Information

You can compare the value in this counter with the number of pages that were returned from the group buffer pool, see Sync.Read (Not Found) - Data Returned. If the group buffer pool is used to cache both clean and changed pages (GBPCACHE ALL is used for all data), you can try to get more pages returned from the group buffer pool by increasing the size of the group buffer pool. Do not tune the GBP based on this counter if it is used for caching changed pages only (GBPCACHE CHANGED).

Field Name: QBGLMR

UNREGISTER PAGE

The number of times DB2 unregistered interest for a single page. This happens when DB2 steals pages from the member’s buffer pool that belong to GBP-dependent page sets or partitions.

Background and Tuning Information
A large value here indicates that the local buffer pool contains a mixture of GBP-dependent data and non-GBP-dependent data.

The page stolen from the local buffer pool is replaced by a new one. This counter makes a distinction on whether the new page depends on the group buffer pool or not.

Usually a page of a GBP-dependent page set or partition is replaced by a page that is also GBP-dependent. In this instance, the unregister request for the page being stolen is combined with the read and register request for the new page. These combined requests do not contribute to this counter.

If, however, a page of a GBP-dependent page set or partition is replaced by a page that is not GBP-dependent, then only an unregister request is sent to the coupling facility. These separate requests are counted here.

**Field Name:** QBGLDG

**CLEAN PAGES SYNC.WRITTEN**

The number of clean pages that were synchronously written to the group buffer pool from the virtual pool.

**Background and Tuning Information**

Only GBPCACHE ALL causes clean (unchanged) pages to be written to the coupling facility. The pages are written to the coupling facility even if the page set is not GBP-dependent. If group buffer pool caching works effectively for prefetch, the value in this field should be much smaller than the value in Synchronous Read (Not Found) - Data Returned.

**Field Name:** QBGLWC

This is an *exception* field.

**CLEAN PAGES ASYNC.WRTN**

The number of clean pages that were asynchronously written to the group buffer pool from the virtual pool.

**Background and Tuning Information**

Only GBPCACHE ALL causes clean (unchanged) pages to be written to the group coupling facility. In this instance pages are written even if the page set is not GBP-dependent. Asynchronous write is done under prefetch processing.

If group buffer pool caching works effectively for prefetch, the value in this field should be much smaller than the combined values in:

- Synchronous Read (Not Found) - Data Returned
- Asynchronous Reads - Data Returned
- Clean pages - Read after register page list

**Field Name:** QBGLAC

This is an *exception* field.

**REG.PAGE LIST (RPL) REQUEST**

The number of register page list (RPL) requests made by prefetch. The group buffer pool must be allocated in a group coupling facility with CFLEVEL=2 or higher.

**Background and Tuning Information**

Performance might be improved by enabling RPL.
Field Name: QBGLAX
This is an exception field.

NUMBER OF PAGES RETR.FROM GBP

The number of coupling facility reads performed by prefetch to retrieve a changed page from the group buffer pool.

Field Name: QBGLAY
This is an exception field.

PAGES CASTOUT

The number of data pages that were cast out of the group buffer pool of the member.

Castout to a page set or partition is done by the castout owner of the page set or partition. This is normally the DB2 subsystem that had the first update intent on the page set or partition.

Background and Tuning Information

The number of pages written per I/O is normally close to the value of this field divided by the value in Unlock Castout.

For example, if an average of four pages is written per castout write I/O, the number of pages cast out should be four times the number in this field.

Because DB2 usually includes more than one page in the request to write pages to DASD, the number in this field should always be significantly more than Unlock Castout. If it is not (for example, when "unlock castout" is more than half of "pages castout"), the castout write I/O is inefficient; probably because you have random update patterns on the DB2 data or a low castout threshold.

Field Name: QBGLRC
This is an exception field.

UNLOCK CASTOUT

The number of times DB2 issued an unlock request to the coupling facility for completed castout I/Os.

When pages are cast out to DASD, they are locked for castout in the coupling facility. This castout lock is not an IRLM lock; it is to ensure that only one system can cast out a given page at a time.

Background and Tuning Information

The number of pages written per I/O is normally close to the value of pages castout divided by the value of this field.

For example, if an average of four pages is written per castout write I/O, the number of pages cast out should be four times the value in this field.

Because DB2 usually includes more than one page in a write request, the number in this field should always be significantly less than pages castout. If it is not (for example, when "unlock castout" is more than half of "pages castout"), the castout write I/O is inefficient; probably because you have random update patterns on the DB2 data or a low castout threshold.

Field Name: QBGLUN

READ CASTOUT CLASS
The number of requests made to the group buffer pool to determine which
pages, from a particular page set or partition, must be cast out because
they are cached as changed pages.

This request is issued either by the page set or partition castout owner, or,
when the group buffer pool castout threshold is reached, by the group
buffer pool structure owner.

**Field Name:** QBGLCC

**READ DIRECTORY INFO**

The number of requests issued by the group buffer pool structure owner to
read the directory entries of all changed pages in the group buffer pool.

This request is issued at group buffer pool checkpoints to record the oldest
recovery log record sequence number (LRSN). It is used as a basis for
recovery if the group buffer pool fails.

Such requests might have to be issued several times for each group buffer
pool checkpoint to read the directory entries for all changed pages.

**Background and Tuning Information**

If the value of this counter appears to be abnormally high, consider
upgrading the coupling facility to CFLEVEL=2 or higher to raise the
number of directory entries that can be read with one request. You can also
increase the group buffer pool checkpoint interval, but this can lengthen
the recovery for the group buffer pool.

**Field Name:** QBGLRD

**READ STORAGE STATISTICS**

The number of times DB2 requested statistics information from the group
buffer pool. It is issued by the group buffer pool structure owner at timed
intervals to determine whether the group buffer pool castout threshold
(GBPPOOL) has been reached.

**Field Name:** QBGLOS

**REGISTER PAGE**

The number of times DB2 registered interest in a single page.

These are "register-only" requests, which means that DB2 is not requesting
any data back from the request.

This request is made only to create a directory entry for the page to be
used for cross-invalidation when the page set or partition P-lock is
downgraded from S to IS mode, or from SIX to IX mode.

**Field Name:** QBGLRG

**DELETE NAME**

The number of requests made by DB2 to delete directory and data entries
associated with a particular page set or partition from the group buffer
pool.

DB2 issues this request when it changes a page set or partition from
GBP-dependent to non GBP-dependent. DB2 also issues this request for
objects that are defined with GBPCACHE ALL when those objects are first
opened.

**Background and Tuning Information**
Group Buffer Pool Activity

This counter is a measure of how often page sets or partitions change between being and not being dependent on the group buffer pool.

You can prevent DB2 going in and out of GBP dependency too often by tuning the following subsystem parameters that affect data sets when they are switched to a different state:

**PCLOSEN**

Pseudoclose frequency. The number of checkpoints required before a data set that was not updated can be a pseudoclose candidate.

If the PCLOSEN condition is met, the page set or partition is converted from read-write to read-only state. Depending on other concurrent users, this could raise the chance for the page set or partition to go out of GBP dependency.

**PCLOSET**

Pseudoclose time. The amount of time (in minutes) that must elapse before a data set can be a pseudoclose candidate.

If the PCLOSEN or PCLOSET condition is met, the page set or partition is converted from read-write to read-only state. Depending on other concurrent users, this could raise the chance for the page set or partition to go out of GBP dependency.

**LOGLOAD**

The number of log records that DB2 writes between successive checkpoints.

These parameters are specified in the CHECKPOINT FREQ field in panel DSNTIPN.

**Field Name:** QBGLDN

**ASYNCH GBP REQUESTS**

The number of IXLCACHE invocations for the primary group buffer pool.

**Field Name:** QBGLHS

**EXPLICIT X-INVALIDATIONS**

The number of times an explicit coupling facility cross-invalidation request was issued.

**Field Name:** QBGLEX

**CASTOUT CLASS THRESHOLD**

The number of times group buffer pool castout was initiated because the group buffer pool class castout threshold was detected.

**Background and Tuning Information**

The class castout threshold is one of two group buffer pool thresholds. In most cases the default value for the class threshold (5 percent) is a good choice. Depending on your workload, altering this value can reduce DASD contention during castout.

**Field Name:** QBGLCT

This is an exception field.

**GROUP BP CASTOUT THRESHOLD**
The number of times a group buffer pool castout was initiated because the group buffer pool castout threshold was detected.

**Background and Tuning Information**

The GBP castout threshold, GBP class castout threshold, and the length of the GBP checkpoint interval determine the castout characteristics of the group buffer pool.

You can consider this threshold a safety margin to protect the group buffer pool from being accidentally flooded by overactive applications.

In most situations, the default value for the group buffer pool castout threshold of 30 percent is a good choice. Use the ALTER GROUPBUFFERPOOL command to tune the group buffer pool thresholds.

**Field Name:** QBGLGT

This is an *exception* field.

**GBP CHECKPOINTS TRIGGERED**

The number of group buffer pool checkpoints triggered by this member.

**Background and Tuning Information**

The value of this counter depends on the length of the group buffer pool checkpoint interval.

**Field Name:** QBGLCK

**WRITE FAILED-NO STORAGE**

The number of coupling facility write requests that could not complete due to a lack of coupling facility storage resources.

**Background and Tuning Information**

A value greater than zero indicates that the data page resources of the coupling facility are being consumed faster than the DB2 castout processes can free them.

On write failure, the affected DB2 member initiates castout and retries several times, and finally, if it is a changed page, it will be added to the logical page list (LPL) requiring recovery.

If the problem is not simply due to a momentary surge in activity, you need either to decrease the group buffer pool castout thresholds, or to increase the number of data entries in the group buffer pool. To increase the number of data entries, you can do one of the following:

- Increase the total size of the group buffer pool.
- Adjust the ratio of directory entries to data entries in favor of data entries.

**Field Name:** QBGLWF

This is an *exception* field.

**WRITE TO SEC-GBP FAILED**

The number of coupling facility requests to write changed pages to the secondary group buffer pool for duplexing that failed because of a lack of storage in the coupling facility.

**Field Name:** QBGL2F

This is an *exception* field.
Group Buffer Pool Activity

COMPL CHECKS SUSPENDED

The number of completion checks for writes to the secondary GBP that were suspended because the write had not yet been completed.

Field Name: QBGL2S

DELETE NAME LIST SEC-GBP

The number of DELETE NAME LIST requests to delete pages from the secondary group buffer pool that have just been cast out from the primary.

Field Name: QBGL2D

DELETE NAME FROM SEC-GBP

The number of group buffer pool requests to delete a page from the secondary group buffer pool. These requests are issued by the group buffer pool structure owner to delete orphaned data entries in the secondary GBP as part of the garbage collection logic.

Field Name: QBGL2N

UNLOCK CASTOUT STATS SEC-GBP

The number of coupling facility requests to read the castout statistics for the secondary group buffer pool. These requests are issued by the group buffer pool structure owner to check for orphaned data entries in the secondary group buffer pool.

Field Name: QBGL2R

ASYNCH SEC-GBP REQUESTS

The number of asynchronous IXLCACHE invocations for the secondary group buffer pool.

Field Name: QBGL2H

WRITE AND REGISTER

The number of Write and Register requests.

Field Name: QBGLWS

WRITE AND REGISTER MULT

The number of Write and Register Multiple requests.

Field Name: QBGLWM

CHANGED PGS SYNC.WRTN

The number of changed pages written synchronously to the group buffer pool.

Pages are written with Write and Register (WAR) requests or Write and Register Multiple (WARM) requests.

At commit time changed pages are forced from the virtual buffer pool of the member to the coupling facility.

Background and Tuning Information

In data sharing, changed pages must have been written to the group buffer pool by the time a transaction commits. The pages are written either synchronously (force at commit) or asynchronously, for example, when a local buffer pool threshold is reached or at a member's checkpoint. The
number of pages that have to be forced out synchronously (in “burst mode”) at commit time can be reduced if asynchronous writes are triggered more frequently.

You can use the vertical deferred write threshold (VDWQT) to reduce the number of pages that have to be forced out synchronously and to increase the number of pages that are asynchronously written before the transaction commits. For GBP-dependent page sets, writes triggered by the vertical deferred write threshold go to the coupling facility. You can cause changed pages to be written out quicker and in smaller increments, by reducing the vertical deferred write threshold (VDWQT).

**Field Name:** QBGLSW

This is an *exception* field.

**CHANGED PGS ASYNC.WRTN**

The number of changed pages written asynchronously to the group buffer pool.

Pages are written in response to Write and Register (WAR) and Write and Register Multiple (WARM) requests.

Changed pages can be written from the member’s virtual buffer pool to the group coupling facility before the application commits. This happens when, for example, a local buffer pool threshold is reached, or when P-lock negotiation forces the pages on the vertical deferred write queue to be written to the group buffer pool.

**Background and Tuning Information**

In data sharing, changed pages must have been written to the group buffer pool before a transaction commits. The pages are written either synchronously during commit processing or asynchronously before the transaction commits when, for example, a local buffer pool threshold is reached or at a member’s checkpoint. See Changed Pages - Written Synchronously for the number of changed pages synchronously written to the group buffer pool.

The vertical deferred write threshold (VDWQT) can be used to reduce the number of pages that have to be forced out synchronously and to increase the number of pages that are asynchronously written before the transaction commits. For GBP-dependent page sets, writes triggered by the vertical deferred write threshold go to the coupling facility. If you want changed pages to be written out quicker and in smaller increments, you can lower the vertical deferred write threshold (VDWQT).

**Field Name:** QBGLAW

This is an *exception* field.

**PAGES WRITE & REG MUL**

The number of pages written using Write and Register Multiple (WARM) requests.

**Field Name:** QBGLWP

**READ FOR CASTOUT**

The number of Read For Castout requests. One page read per request.

**Field Name:** QBGLCR
Group Buffer Pool Activity

READ FOR CASTOUT MULT
The number of Read For Castout Multiple requests.
Field Name: QBGLCM

PAGE P-LOCK LOCK REQ
The sum of all page P-lock lock requests.
Field Name: SBGLPLR

SPACE MAP PAGES
The number of page P-lock lock requests for space map pages.
Field Name: QBGLP1

DATA PAGES
The number of page P-lock requests for data pages.
Field Name: QBGLP2

INDEX LEAF PAGES
The number of page P-lock requests for index leaf pages.
Field Name: QBGLP3

PAGE P-LOCK UNLOCK REQ
The number of page P-lock unlock requests.
Field Name: QBGLU1

PAGE P-LOCK LOCK SUSP
The sum of all page P-lock lock suspensions.
Field Name: SBGLPLS

SPACE MAP PAGES
The number of page P-lock suspensions for space map pages.
Field Name: QBGLS1

DATA PAGES
The number of page P-lock suspensions for data pages.
Field Name: QBGLS2

INDEX LEAF PAGES
The number of page P-lock suspensions for index leaf pages.
Field Name: QBGLS3

PAGE P-LOCK LOCK NEG
The sum of all page P-lock lock negotiations.
Field Name: SBGLPLN

SPACE MAP PAGES
The number of page P-lock negotiations for space map pages.
Field Name: QBGLN1

DATA PAGES
The number of page P-lock negotiations for data pages.

Field Name: QBGLN2

INDEX LEAF PAGES

The number of page P-lock negotiations for index leaf pages.

Field Name: QBGLN3

PAGES IN WRITE-AROUND

The number of changed pages that were written to disk through group buffer pool write-around due to condition write failures to the group buffer pool.

Field Name: QBGLWA

Highlights:

This topic shows detailed information about “Statistics - Highlights”.

The sample shows the Statistics Highlights block for the long report. The description also shows additional fields printed with the Statistics short report.

Statistics - Highlights

The field labels shown in the following sample layout of “Statistics - Highlights” are described in the following section.

--- HIGHLIGHTS

INTERVAL START : 07/26/10 19:32:45.57
SAMPLING START: 07/26/10 19:32:45.57
TOTAL THREADS : 0.00
INTERVAL END : 07/26/10 19:35:47.34
SAMPLING END : 07/26/10 19:35:47.34
TOTAL COMMITS : 33.00
INTERVAL ELAPSED: 3:01.768843
OUTAGE ELAPSED: 0.000000
DATA SHARING MEMBER: N/A

INTERVAL START

The start time of the period represented by this report or trace entry.

For a trace, it is the timestamp of the DB2 Statistics records pair which marks the beginning of the delta record represented by the trace entry.

For the group page of group-scope reports it is the beginning of the earliest interval across reported members.

For SAVE data, it is the timestamp of the first DB2 Statistics report pair used to derive a row in the statistics SAVE and FILE tables.

For FILE, it is the timestamp of the DB2 Statistics records pair which marks the beginning of the delta record represented by a row in the statistics SAVE and FILE tables.

Field Name: SDBEGREC

INTERVAL END

The end time of the period represented by this report or trace entry.

For a trace, it is the timestamp of the DB2 statistics records pair which marks the end of the delta record represented by the trace entry.

For the group page of group-scope reports it is the ending of the latest interval across reported members.

For SAVE data, it is the timestamp of the last DB2 statistics report pair used to derive a row in the statistics SAVE and FILE tables.
For FILE, it is the timestamp of the DB2 statistics records pair which marks the end of the delta record represented by a row in the statistics SAVE and FILE tables.

Field Name: SDENDREC

INTERVAL ELAPSED
The elapsed time of the period represented by this report or trace entry.
For a trace, it is the time elapsed between two consecutive DB2 statistics records pairs which mark the beginning and the end of the delta record represented by the trace entry. For a report, it is the elapsed time for the period within the interval record for which the DB2 statistics data is available.
For the group page of group-scope reports it is the average elapsed time of all the reported members.
Field Name: SDELTIME

SAMPLING START
The timestamp of the first DB2 statistics records pair used to derive a report entry (an interval record). For example, when INTERVAL(0) is specified, the sampling start coincides with the interval record start time in member-scope reports.
Field Name: SDSAMPST

SAMPLING END
The timestamp of the last DB2 statistics records pair used to derive a report entry (an interval record). For example, when INTERVAL(0) is specified, the sampling start coincides with the interval record end time in member-scope reports.
Field Name: SDSAMPEN

OUTAGE ELAPSED
The time for which OMEGAMON XE for DB2 PE detected discontinuity in the available DB2 statistics data. The most common reason for this is a stop or start of the reported DB2 system within the reported interval. For the group page of group-scope reports it is the average outage time of all reported members.
Field Name: SDOUTEL

TOTAL THREADS
The number of successful create thread requests. It does not include DBATs.
A thread is required before an application can use SQL. When established, a thread can have one or more secondary authorization IDs.
A thread is needed to perform any DB2 activity. For example, a thread is needed to run a DB2 utility to perform an IFI request such as READS, or to process a DB2 command such as -DISPLAY THREAD. However, a thread is not created if the command failed because of a syntax error.

Background and Tuning Information
Thread reuse can help improve performance.
The term *thread reuse* only applies to IMS and CICS attachments. In the case of the TSO attachment facility and the call attachment facility (CAF), threads cannot be reused, because the threads are allocated to the user address space.

Thread reuse should be considered in the following cases:

- **If transaction volume is high:**
  High volume transactions should achieve a high percentage of thread reuse. If threads are reused on low volume transactions, the number of threads needed increases because these threads are not automatically terminated by IMS when not being used. This may result in too many idle threads for the level of the DB2 workload. Under CICS, protected threads are terminated after about 45 seconds if no transaction eligible to reuse the thread has been received.

- **If thread creation cost is significant:**
  As a rule of thumb, more than 5% of the total CPU cost of transaction processing is considered significant.

The ACQUIRE and RELEASE parameters of BIND should be specified to minimize the thread creation cost, while providing the needed concurrency:

- If most of the application plan’s SQL statements are executed, then ACQUIRE(ALLOCATE) is cheaper than ACQUIRE(USE).
- If only a small number of the SQL statements are executed, ACQUIRE(USE) becomes cheaper and improves concurrency, because the required resources are only acquired (locked) when the plan actually references (uses) them. An example would be a generalized plan used by many different transactions. It would contain multiple logic paths referencing different tables.

  Note that, when packages are involved, ACQUIRE(USE) is always implicitly used.

- **Concurrency in thread reuse** is based on page locking provided by the IS and IX intent locks, whose duration is governed by ACQUIRE and RELEASE of BIND.

  RELEASE(DEALLOCATE) is strongly recommended for thread-reuse transactions to reduce transaction CPU time.

When thread reuse is implemented, monitor the EDM pool. It should be sufficient in size to accommodate expanding plans where the next transaction requires additional plan sections over those that are already part of the plan.

**Field Name:** Q3STCTHD

This is an *exception* field.

**TOTAL COMMITS**

The total number of commits during the interval covered by the report or trace. This includes commit, read-only commit, sync, and rollback events.

DBATIs executed on this location are not included in reports generated with the SCOUP(GROUP) subcommand option.

**Field Name:** SDCOMMIT

This is an *exception* field.

**DATA SHARING MEMBER**
In group-scope reports, this field shows the name of the member for which statistics is presented, and, on the group total page, the number of DB2 subsystems in the reported data sharing group. In member-scope reports, this field shows N/A.

**Field Name:** QWHAMEMN

This is an exception field.

**INCREMENTAL BINDS**

The number of incremental binds (excluding prepare). It is incremented by:

- SQL statements with BIND VALIDATE(RUN) that fail at bind time and are bound again at execution time
- Static DDL statements (such as CREATE TABLE, DROP TABLE, LOCK TABLE) that use DB2 private protocol

**Background and Tuning Information**

If a plan is bound with VALIDATE(RUN), DB2 performs validity checks at bind time and rechecks any failures at run time. This can result in catalog contention and degraded application performance, depending on the number of statements flagged and how many times they are executed. Avoid VALIDATE(RUN) if possible. Ensure that all objects are created and all privileges are granted before bind, and select the VALIDATE(BIND) option.

**Field Name:** QXINCRB

This is an exception field.

**DBAT QUEUED**

The number of times a DBAT or connection was queued because it reached the ZPARM maximum for active remote threads (MAXDBAT).

**Field Name:** QDSTQDBT

This is an exception field.

**AUTH SUCC.W/OUT CATALOG**

The number of successful authorization checks that do not use the DB2 catalog (including plan cache checks and public checks).

**Background and Tuning Information**

For transaction level security, ENABLE and DISABLE on BIND PACKAGE should be used to ensure adequate security. Granting execute authority on the plan to public should be adequate.

**Field Name:** QTAUCCH

**DB2 Command**

The total number of DB2 commands that were issued.

**Field Name:** SDSTTTOTL

**BUFUPDT/PAGES WRITTEN**

The number of buffer updates per page written from the buffer pool to DASD.

The ratio of BUFFER UPDATES (QBSTSWS) to PAGES WRITTEN (QBSTPWS) suggests a high level of efficiency as the ratio increases, because more updates are being externalized per physical write. For
example, if there are 10 updates on the same page before it is externalized, then the ratio is 10:1 or 10. If all 10 updates are on 10 distinct pages, then the ratio is 10:10 or 1.

**Background and Tuning Information**

Buffer updates per page written depends strongly on the type of application. For example, a batch program that processes a table in skip sequential mode with a high row update frequency in a dedicated environment can achieve very good update efficiency. In contrast, update efficiency tends to be lower for transaction processing applications, because transaction processing tends to be random.

The following factors can influence the number of updates per page:

**Number of rows per page**

A small PCTFREE value will gather more rows on the same page. However, at the same time this can have impact on concurrency.

**Buffer pool size and deferred write thresholds**

Increase DWQT and VDWQT or the size of the buffer pool. This would tell DB2 to let page updates accumulate in the buffer pool. This means, the probability that more updates per page get captured increases. This effect is less significant if the buffer pool is concurrently used by multiple transactions, it depends on the type of transaction.

**Field Name:** SBRBUPW

**TOTAL API**

The total number of calls made to IFI.

**Field Name:** SDIFITTOT

**PAGES WRITTEN/WRITE I/O**

The number of pages written from the buffer pool to DASD per synchronous or asynchronous write I/O. This count does not include preformatting I/O, such as I/O needed to prepare a data set for use.

**Background and Tuning Information**

The following factors impact the ratio of pages written per write I/O:

**Checkpoint frequency**

At checkpoint time, I/Os are scheduled to write all updated pages on the deferred write queue to DASD. If this occurs too frequently, the deferred write queue does not grow large enough to achieve a high ratio of pages written per write I/O.

The checkpoint frequency depends on the number of logs written between two consecutive checkpoints. This number is set at installation time; see the field CHECKPOINT FREQ of installation panel DSNTIPN.

**Frequency of active log switch**

DB2 takes a system checkpoint each time the active log is switched. High frequency of active log switches causes the problem described under checkpoint frequency.

**Buffer pool size and deferred write thresholds**

The deferred write thresholds (VDWQT and DWQT) are a function of buffer pool size. If the buffer pool size is decreased, these
thresholds are reached more frequently, causing I/Os to be scheduled more often to write some of the pages on the deferred write queue to DASD. This prevents the deferred write queue from growing large enough to achieve a high ratio of pages written per write I/O.

**Number of data sets, and the spread of updated pages across them**

The efficiency of write I/O also depends on the number of data sets associated with the buffer pool and spread of updated pages across them. Because of the nature of batch processing, the ratio of pages written to write I/Os can be expected to be higher than that expected for transaction type workloads.

To determine update efficiency check also the ratio Buffer Updates / Pages Written (SBRBUPW).

**Field Name:** SBRPWWIO

**MEMBER**

In group-scope reports, this field shows the name of the member for which statistics is presented, and, on the group total page, the number of DB2 subsystems in the reported data sharing group. In member-scope reports, this field shows N/A.

**Field Name:** QWHAMEMN

**IFC Destinations:**

This topic shows detailed information about “Statistics - IFC Destinations”.

**Statistics - IFC Destinations**

The field labels shown in the following sample layout of “Statistics - IFC Destinations” are described in the following section.

<table>
<thead>
<tr>
<th>IFC DEST</th>
<th>WRITTEN</th>
<th>NOT WRIT</th>
<th>BUF. OVER</th>
<th>NOT ACCP</th>
<th>WRT. FAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMF</td>
<td>40.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>GTF</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>OP1</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>OP2</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>OP3</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>OP4</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>OP5</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>OP6</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>OP7</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>OP8</td>
<td>0.00</td>
<td>0.00</td>
<td>N/A</td>
<td>0.00</td>
<td>N/A</td>
</tr>
<tr>
<td>RES</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**SMF - WRITTEN**

The total number of SMF records successfully written.

**Field Name:** SDISMFWR

**GTF - WRITTEN**

The total number of GTF records successfully written.

**Field Name:** SDIGTFWR

**OP1 - WRITTEN**
The total number of OP1 records successfully written.

Field Name: SDIOP1WR

OP2 - WRITTEN
The total number of OP2 records successfully written.

Field Name: SDIOP2WR

OP3 - WRITTEN
The total number of OP3 records successfully written.

Field Name: SDIOP3WR

OP4 - WRITTEN
The total number of OP4 records successfully written.

Field Name: SDIOP4WR

OP5 - WRITTEN
The total number of OP5 records successfully written.

Field Name: SDIOP5WR

OP6 - WRITTEN
The total number of OP6 records successfully written.

Field Name: SDIOP6WR

OP7 - WRITTEN
The total number of OP7 records successfully written.

Field Name: SDIOP7WR

OP8 - WRITTEN
The total number of OP8 records successfully written.

Field Name: SDIOP8WR

RES - WRITTEN
The total number of RES records successfully written.

Field Name: SDIRRTWR

TOTAL WRITTEN
The total number of IFC records successfully written.

Field Name: SDTOTW

SMF - NOT WRITTEN
The total number of SMF records not written. This field should be 0. Otherwise, records may have been lost.

Field Name: SDISMFNW

GTF - NOT WRITTEN
The total number of GTF records not written. This field should be 0. Otherwise, records may have been lost.

Field Name: SDIGTFNW

OP1 - NOT WRITTEN
The total number of OP1 records not written. This field should be 0. Otherwise, records may have been lost.

Field Name: SDIOP1NW

OP2 - NOT WRITTEN

The total number of OP2 records not written. This field should be 0. Otherwise, records may have been lost.

Field Name: SDIOP2NW

OP3 - NOT WRITTEN

The total number of OP3 records not written. This field should be 0. Otherwise, records may have been lost.

Field Name: SDIOP3NW

OP4 - NOT WRITTEN

The total number of OP4 records not written. This field should be 0. Otherwise, records may have been lost.

Field Name: SDIOP4NW

OP5 - NOT WRITTEN

The total number of OP5 records not written. This field should be 0. Otherwise, records may have been lost.

Field Name: SDIOP5NW

OP6 - NOT WRITTEN

The total number of OP6 records not written. This field should be 0. Otherwise, records may have been lost.

Field Name: SDIOP6NW

OP7 - NOT WRITTEN

The total number of OP7 records not written. This field should be 0. Otherwise, records may have been lost.

Field Name: SDIOP7NW

OP8 - NOT WRITTEN

The total number of OP8 records not written. This field should be 0. Otherwise, records may have been lost.

Field Name: SDIOP8NW

TOTAL NOT WRITTEN

The total number of IFC records not written.

Field Name: SDTOTNW

SMF - BUF.OVER

The total number of SMF buffer overruns. Ideally, this field should be 0 or very small.

Field Name: SDISMFBF

SMF - NOT ACCP

The total number of SMF records not accepted. Ideally, this field should be 0 or very small.
Field Name: SDISMFRA

GTF - NOT ACCP

The total number of GTF records not accepted. Ideally, this field should be 0 or very small.

Field Name: SDIGTFRA

OP1 - NOT ACCP

The total number of OP1 records not accepted. Ideally, this field should be 0 or very small.

Field Name: SDIOP1RA

OP2 - NOT ACCP

The total number of OP2 records not accepted. Ideally, this field should be 0 or very small.

Field Name: SDIOP2RA

OP3 - NOT ACCP

The total number of OP3 records not accepted. Ideally, this field should be 0 or very small.

Field Name: SDIOP3RA

OP4 - NOT ACCP

The total number of OP4 records not accepted. Ideally, this field should be 0 or very small.

Field Name: SDIOP4RA

OP5 - NOT ACCP

The total number of OP5 records not accepted. Ideally, this field should be 0 or very small.

Field Name: SDIOP5RA

OP6 - NOT ACCP

The total number of OP6 records not accepted. Ideally, this field should be 0 or very small.

Field Name: SDIOP6RA

OP7 - NOT ACCP

The total number of OP7 records not accepted. Ideally, this field should be 0 or very small.

Field Name: SDIOP7RA

OP8 - NOT ACCP

The total number of OP8 records not accepted. Ideally, this field should be 0 or very small.

Field Name: SDIOP8RA

TOTAL NOT ACCP

The total number of IFC records not accepted.

Field Name: SDTOTNA
IFC Destinations

SMF - WRT.FAIL

The total number of SMF write failures. Ideally, this field should be 0 or very small.

Field Name: SDISMFWF

GTF - WRT.FAIL

The total number of GTF write failures. Ideally, this field should be 0 or very small.

Field Name: SDIGTFWF

TOTAL WRT.FAIL

The total number of IFC write failures.

Field Name: SDTOTWF

IFC Record Counts:

This topic shows detailed information about “Statistics - IFC Record Counts”.

Statistics - IFC Record Counts

The field labels shown in the following sample layout of “Statistics - IFC Record Counts” are described in the following section.

<table>
<thead>
<tr>
<th>IFC RECORD COUNTS</th>
<th>WRITTEN</th>
<th>NOT WRTN</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSTEM RELATED</td>
<td>4.00</td>
<td>0.00</td>
</tr>
<tr>
<td>DATABASE RELATED</td>
<td>4.00</td>
<td>0.00</td>
</tr>
<tr>
<td>ACCOUNTING</td>
<td>4.00</td>
<td>0.00</td>
</tr>
<tr>
<td>START TRACE</td>
<td>2.00</td>
<td>0.00</td>
</tr>
<tr>
<td>STOP TRACE</td>
<td>1.00</td>
<td>0.00</td>
</tr>
<tr>
<td>SYSTEM PARAMETERS</td>
<td>5.00</td>
<td>0.00</td>
</tr>
<tr>
<td>SYS.PARMS-BPOOLS</td>
<td>4.00</td>
<td>0.00</td>
</tr>
<tr>
<td>AUDIT</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>TOTAL</td>
<td>24.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

SYSTEM RELATED (WRITTEN)

The number of system-related records written.

Field Name: SDISRRW

DATABASE RELATED (WRITTEN)

The number of database-related records written.

Field Name: SDIDRRW

ACCOUNTING (WRITTEN)

The number of accounting records written.

Field Name: SDIACTW

START TRACE (WRITTEN)

The number of start trace records written.

Field Name: SDISTRW

STOP TRACE (WRITTEN)

The number of stop trace records written.
Field Name: SDISTPW
SYSTEM PARAMETERS (WRITTEN)
The number of DB2 system parameter records written.

Field Name: SDIZPMW
SYS.PARMS-BPOOLS (WRITTEN)
The number of DB2 system parameter buffer pool records written.

Field Name: SDBSCRSW
AUDIT (WRITTEN)
The number of DB2 audit records written.

Field Name: SDIAUDW
TOTAL (WRITTEN)
The total number of records that were successfully written.

Field Name: SDTSCRSW
SYSTEM RELATED (NOT WRTN)
The number of system-related records not written. Ideally, this field should be 0 or very small.

Field Name: SDISRRN
DATABASE RELATED (NOT WRTN)
The number of database-related records not written. Ideally, this field should be 0 or very small.

Field Name: SDIDRRN
ACCOUNTING (NOT WRTN)
The number of accounting records not written. Ideally, this field should be 0 or very small.

Field Name: SDIACTN
START TRACE (NOT WRTN)
The number of start trace records not written. Ideally, this field should be 0 or very small.

Field Name: SDISTRN
STOP TRACE (NOT WRTN)
The number of stop trace records not written. Ideally, this field should be 0 or very small.

Field Name: SDISTPN
SYSTEM PARAMETERS (NOT WRTN)
The number of DB2 system parameter records not written. Ideally, this field should be 0 or very small.

Field Name: SDIZPMN
SYS.PARMS-BPOOLS (NOT WRTN)
The number of DB2 system parameter buffer pool records not written. Ideally, this field should be 0 or very small.
IFC Record Counts

Field Name: SDBSCRNW

AUDIT (NOT WRITN)
The number of DB2 audit records that were not written.

Field Name: SDIAUDN

TOTAL (NOT WRITN)
The total number of records that were not written.

Field Name: SDTSCRNW

IRLM Storage Below and Above 2 GB (DB2 11):

This topic shows detailed information about “Statistics - IRLM Storage Below and Above 2 GB (DB2 11)”.

Statistics - IRLM Storage Below and Above 2 GB (DB2 11)
The field labels shown in the following sample layout of “Statistics - IRLM Storage Below and Above 2 GB (DB2 11)” are described in the following section.

IRLM STORAGE BELOW AND ABOVE 2 GB

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXTENDED CSA SIZE IN USE</td>
<td>The total amount of Extended Common Service Area (ECSA) storage in use by Internal Resource Lock Manager (IRLM) pools (DB2 field: QW0225I_BBECSA).</td>
</tr>
<tr>
<td>HWM EXTENDED CSA SIZE IN USE</td>
<td></td>
</tr>
<tr>
<td>31 BIT PRIVATE IN USE</td>
<td>The total amount of 31-bit private storage in use by IRLM pools (DB2 field: QW0225I_BBPVT).</td>
</tr>
<tr>
<td>HWM 31 BIT PRIVATE IN USE</td>
<td></td>
</tr>
<tr>
<td>THRESHOLD 31 BIT PRIVATE</td>
<td></td>
</tr>
<tr>
<td>64 BIT PRIVATE IN USE</td>
<td>The high-water mark of ECSA storage allocated by IRLM pools (DB2 field: QW0225I_BBECSAH).</td>
</tr>
<tr>
<td>HWM 64 BIT PRIVATE IN USE</td>
<td></td>
</tr>
<tr>
<td>THRESHOLD 64 BIT PRIVATE</td>
<td></td>
</tr>
<tr>
<td>64 BIT COMMON IN USE</td>
<td>The high-water mark of 31-bit private storage allocated by IRLM pools (DB2 field: QW0225I_BBPVH).</td>
</tr>
<tr>
<td>HWM 64 BIT COMMON IN USE</td>
<td></td>
</tr>
</tbody>
</table>

Field Name: S225IECU

HWM EXTENDED CSA SIZE IN USE (MB)

Field Name: S225IECH

31 BIT PRIVATE IN USE (MB)

Field Name: S225IBPU

HWM 31 BIT PRIVATE IN USE (MB)
THRESHOLD 31 BIT PRIVATE (MB)

The threshold of 31-bit private storage available for normal IRLM execution. Only requests for storage by "must complete" tasks will be granted if this threshold is exceeded (DB2 field: QW0225I_BPMAX).

Field Name: S225IBPT

64 BIT PRIVATE IN USE (MB)

The total amount of 64-bit private storage in use by IRLM pools (DB2 field: QW0225I_ABPVT).

Field Name: S225IAPU

HWM 64 BIT PRIVATE IN USE (MB)

The high-water mark of 64-bit private storage allocated by IRLM pools (DB2 field: QW0225I_ABPVH).

Field Name: S225IAPH

THRESHOLD 64 BIT PRIVATE (MB)

The threshold of 64-bit private storage available for normal IRLM execution. Only requests for storage by "must complete" tasks will be granted if this threshold is exceeded (DB2 field: QW0225I_APMAX).

Field Name: S225IAPT

64 BIT COMMON IN USE (MB)

The total amount of 64-bit common storage in use by IRLM pools (DB2 field: QW0225I_ABCSA).

Field Name: S225IACU

HWM 64 BIT COMMON IN USE (MB)

The high-water mark of 64-bit common storage allocated by IRLM pools (DB2 field: QW0225I_ABCSH).

Field Name: S225IACH

Latch Counters:

This topic shows detailed information about “Statistics - Latch Counters”.

The QVLS latch counters represent the number of suspends that were performed by agents that attempted to obtain a latch.

There is not a one-to-one relationship between the QVLS counters and IFCID 56 or 57, because an agent might suspend multiple times or not at all, while trying to obtain a latch. That is why the QVLS counters are not directly related to Accounting Class 3.

Statistics - Latch Counters

The field labels shown in the following sample layout of “Statistics - Latch Counters” are described in the following section.

<table>
<thead>
<tr>
<th>LATCH CNT</th>
<th>/SECOND</th>
<th>/SECOND</th>
<th>/SECOND</th>
<th>/SECOND</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC01-LC04</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>LC05-LC08</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>LC09-LC12</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
## Latch Counters

<table>
<thead>
<tr>
<th>Latch Counter</th>
<th>Count</th>
<th>Count</th>
<th>Count</th>
<th>Count</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC13-LC16</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>LC17-LC20</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>LC21-LC24</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>LC25-LC28</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>LC29-LC32</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>LC254</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### LC01

This field is infrequently used.

**Field Name:** QVLSLC01

### LC02

The predominant latch usage is: Global authorization cache.

**Field Name:** QVLSLC02

### LC03

The predominant latch usage is: DDF disconnect.

**Field Name:** QVLSLC03

### LC04

The predominant latch usage is: SYSSTRING cache.

**Field Name:** QVLSLC04

### LC05

The predominant latch usage is: IRLM data sharing exits or RLF.

**Field Name:** QVLSLC05

### LC06

The predominant latch usage is: Data sharing index split.

**Field Name:** QVLSLC06

### LC07

The predominant latch usage is: Index lotch and OBD allocation.

**Field Name:** QVLSLC07

### LC08

The predominant latch usage is: Query parallelism.

**Field Name:** QVLSLC08

### LC09

The predominant latch usage is: Utilities or stored procedure URIDs.

**Field Name:** QVLSLC09

### LC10

The predominant latch usage is for Sequence objects (stand-alone and table-based Identity Column). DB2 12 latch contention can be significantly reduced for the Identity Column in a data-sharing environment because of the reduction in log force write.

**Field Name:** QVLSLC10

### LC11
Latch Counters

The predominant latch usage is for Sequence objects (stand-alone and table-based Identity Column) for concurrent transactions. DB2 12 latch contention can be significantly reduced for the Identity Column in a data-sharing environment because of the reduction in log force write.

Field Name: QVLSLC11

LC12

The predominant latch usage is database allocation control latch (latch class X'0C') or WebSphere global transaction ID latch (latch class X'4C').

Field Name: QVLSLC12

LC13

The predominant latch usage is: Pageset operations.

Field Name: QVLSLC13

LC14

The predominant latch usage is represented by various buffer pool related activities, including buffer pool control block and pool serialization.

Field Name: QVLSLC14

LC15

The predominant latch usage is: ARCHIVE LOG MODE(QUIESCE).

Field Name: QVLSLC15

LC16

The predominant latch usage is: UR synonym chain.

Field Name: QVLSLC16

LC17

The predominant latch usage is: RURE chain.

Field Name: QVLSLC17

LC18

The predominant latch usage is: DDF resynch list.

Field Name: QVLSLC18

LC19

The predominant latch usage is logical log write (in contrast to physical log write).

Field Name: QVLSLC19

LC20

The predominant latch usage is: System checkpoint.

Field Name: QVLSLC20

LC21

The predominant latch usage is: Accounting rollup.

Field Name: QVLSLC21

LC22
**Latch Counters**

The predominant latch usage is: Internal checkpoint.  
**Field Name:** QVLSLC22

<table>
<thead>
<tr>
<th>LC23</th>
<th>The predominant latch usage is Buffer Manager latch for page latch contention timer queue or deferred write latch. Both types of latches have latch class X'17'.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Field Name:</strong> QVLSLC23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LC24</th>
<th>The predominant latch usage is EDM LRU latch or Buffer Manager prefetch scheduling latch. EDM LRU latch can be identified by latch class X'18' while Buffer Manager prefetch scheduling latch can be identified by latch class X'38' in a latch contention trace.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Field Name:</strong> QVLSLC24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LC25</th>
<th>The predominant latch usage is: EDM hash latch.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Field Name:</strong> QVLSLC25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LC26</th>
<th>The predominant latch usage is: Dynamic statement cache.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Field Name:</strong> QVLSLC26</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LC27</th>
<th>The predominant latch usage is: stored procedure queue latch and UDF.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Field Name:</strong> QVLSLC27</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LC28</th>
<th>The predominant latch usage is: Stored procedures or authorization cache.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Field Name:</strong> QVLSLC28</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LC29</th>
<th>The predominant latch usage is: Field procs and DDF transaction manager.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Field Name:</strong> QVLSLC29</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LC30</th>
<th>The predominant latch usage is: Agent services.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Field Name:</strong> QVLSLC30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LC31</th>
<th>The predominant latch usage is: Storage manager.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Field Name:</strong> QVLSLC31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LC32</th>
<th>The predominant latch usage is: shared storage pool latch.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Field Name:</strong> QVLSLC32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LC254</th>
<th>The predominant latch usage is: Index latch.</th>
</tr>
</thead>
</table>
Field Name: QVLSLC254

Locking Activity:

This topic shows detailed information about “Statistics - Locking Activity”.

Statistics - Locking Activity

The field labels shown in the following sample layout of “Statistics - Locking Activity” are described in the following section.

<table>
<thead>
<tr>
<th>LOCKING ACTIVITY</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUSPENSIONS (ALL)</td>
<td>15.00</td>
<td>0.08</td>
<td>N/C</td>
<td>0.45</td>
</tr>
<tr>
<td>SUSPENSIONS (LOCK ONLY)</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>SUSPENSIONS (IRLM LATCH)</td>
<td>15.00</td>
<td>0.08</td>
<td>N/C</td>
<td>0.45</td>
</tr>
<tr>
<td>SUSPENSIONS (OTHER)</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>TIMEDOUTS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DEADLOCKS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>LOCK REQUESTS</td>
<td>11626.00</td>
<td>63.96</td>
<td>N/C</td>
<td>352.30</td>
</tr>
<tr>
<td>UNLOCK REQUESTS</td>
<td>2745.00</td>
<td>15.10</td>
<td>N/C</td>
<td>83.18</td>
</tr>
<tr>
<td>QUERY REQUESTS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CHANGE REQUESTS</td>
<td>389.00</td>
<td>2.14</td>
<td>N/C</td>
<td>11.79</td>
</tr>
<tr>
<td>OTHER REQUESTS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>LOCK ESCALATION (SHARED)</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>LOCK ESCALATION (EXCLUSIVE)</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DRAIN REQUESTS</td>
<td>7.00</td>
<td>0.04</td>
<td>N/C</td>
<td>0.21</td>
</tr>
<tr>
<td>DRAIN REQUESTS FAILED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CLAIM REQUESTS</td>
<td>999.00</td>
<td>5.50</td>
<td>N/C</td>
<td>30.27</td>
</tr>
<tr>
<td>CLAIM REQUESTS FAILED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**SUSPENSIONS (ALL)**

The total number of suspensions.

Field Name: SLRSUSP

**SUSPENSIONS (LOCK ONLY)**

The number of times a lock could not be obtained and the unit of work was suspended.

Background and Tuning Information

This number should be low, ideally 0.

The number of lock suspensions is a function of the lock requests. Lock suspensions (or conflicts) can happen on either LOCK REQUEST or CHANGE REQUEST.

Suspensions are highly dependent on the application and table space locking protocols.

Field Name: QTXASLOC

This is an exception field.

**SUSPENSIONS (IRLM LATCH)**

The number of latch suspensions.

Field Name: QTXASLAT

This is an exception field.
Locking Activity

SUSPENSIONS (OTHER)

The number of suspensions caused by something other than lock or latch.

**Field Name:** QTXASOTH

This is an *exception* field.

TIMEOUTS

The number of times a unit of work was suspended for a time exceeding the timeout value. This number should be low, ideally 0.

**Field Name:** QTXATIM

This is an *exception* field.

DEADLOCKS

The number of times deadlocks were detected. This number should be low, ideally 0.

**Background and Tuning Information**

Deadlocks occur when two or more application processes each hold locks on resources that the others need, without which they cannot proceed. Ensure that all applications accessing the same tables access them in the same order.

To improve concurrency:
- Use row level locking instead of page level locking to minimize deadlocks.
- For small tables use page level locking with MAXROWS 1.

To minimize deadlocks:
- Delay updates to just before commit.
- Use SELECT with the FOR UPDATE clause to use U lock.
- Adjust the deadlock detection cycle parameter DEADLOK in the IRLM procedure.

This field is incremented once for each deadlock encountered. There is no correlation between this field and the deadlock events reported in the Locking report set or the number of IFCID 172 records written. This field reports all deadlocks, regardless of how they were resolved. The locking report and record trace IFCID 172 show only those deadlocks that were resolved by DB2.

**Field Name:** QTXADEA

This is an *exception* field.

LOCK REQUESTS

The number of requests to lock a resource.

**Field Name:** QTXALOCK

This is an *exception* field.

UNLOCK REQUESTS

The number of requests to unlock a resource.

This value can be less than the number of lock requests because DB2 can release several locks with a single unlock request.

**Field Name:** QTXAUNLK
QUERY REQUESTS

The number of query requests.

Field Name: QTXAQR

CHANGE REQUESTS

The number of change requests.

Field Name: QTXACHG

OTHER REQUESTS

The number of requests to IRLM to perform a function other than LOCK, UNLOCK, QUERY, or CHANGE.

Field Name: QTXAIRLM

LOCK ESCALATION (SHARED)

The number of times the maximum page locks per table space are exceeded, and the table space lock escalates from a page lock (IS) to a table space lock (S) for this thread. You can specify the number of locks allowed per table space with the LOCKS PER TABLE(SPACE) parameter on the DB2 install panel DSNTIPJ.

Background and Tuning Information

Escalations can cause unpredictable response times. Lock escalations should only happen when an application process updates or references (if repeatable read is used) more pages than normal.

Field Name: QTXALES

This is an exception field.

LOCK ESCALATION (EXCLUSIVE)

The number of times the maximum page locks per table space are exceeded and the table space lock escalates from a page lock (IX) to a table space lock (X).

Background and Tuning Information

Escalations can cause unpredictable response times. Lock escalations should only happen when an application process updates or references (if repeatable read is used) more pages than it normally does.

A useful rule of thumb is to compare the number of escalations (shared and exclusive) to the successful escalations (those that did not cause deadlocks and timeouts). If this value, or the number Lock escalations - shared and if the number of timeouts or deadlocks is also not 0, the timeout or deadlock is probably caused by the escalation.

If many escalations cause deadlocks and timeouts, the recommendation is to change the escalation threshold value. Use of ANY is extremely useful to prevent unnecessary and expensive page locks, for example locking all pages in a table space.

Lock escalations, shared or exclusive, should not be expected in a transaction environment.

Field Name: QTXALEX

This is an exception field.

DRAIN REQUESTS
The number of drain requests.

**Field Name:** QTXADRNO

This is an *exception* field.

**DRAIN REQUESTS FAILED**

The number of unsuccessful drain requests.

**Field Name:** QTXADRUN

This is an *exception* field.

**CLAIM REQUESTS**

The number of claim requests.

**Field Name:** QTXACLNO

This is an *exception* field.

**CLAIM REQUESTS FAILED**

The number of unsuccessful claim requests.

**Field Name:** QTXACLUN

This is an *exception* field.

**Log Activity:**

This topic shows detailed information about “Statistics - Log Activity”.

**Statistics - Log Activity**

The field labels shown in the following sample layout of “Statistics - Log Activity” are described in the following section.

<table>
<thead>
<tr>
<th>LOG ACTIVITY</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>READING SATISIFIED-OUTPUT BUFF</td>
<td>96.00</td>
<td>0.53</td>
<td>N/C</td>
<td>2.91</td>
</tr>
<tr>
<td>READING SATISIFIED-OUTP.BUF(%)</td>
<td>100.00</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>READING SATISIFIED-ACTIVE LOG</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>READING SATISIFIED-ARCHIVE LOG</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>READING SATISIFIED-ARCH.LOG(%)</td>
<td>0.00</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>TAPE VOLUME CONTENTION WAIT</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>READ DELAYED-UNAVAIL.RESOR</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ARCHIVE LOG READ ALLOCAT.</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CONTR.INTERV.OFFLOADED-ARCH</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>LOOK-AHEAD MOUNT ATTEMPTED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>LOOK-AHEAD MOUNT SUCCESSFUL</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>UNAVAILABLE OUTPUT LOG BUFF</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>OUTPUT LOG BUFFER PAGED IN</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>LOG RECORDS CREATED</td>
<td>19276.00</td>
<td>106.05</td>
<td>N/C</td>
<td>584.12</td>
</tr>
<tr>
<td>LOG CI CREATED</td>
<td>861.00</td>
<td>4.74</td>
<td>N/C</td>
<td>26.09</td>
</tr>
<tr>
<td>LOG WRITE I/O REQ (LOG1&amp;2)</td>
<td>554.00</td>
<td>3.05</td>
<td>N/C</td>
<td>16.79</td>
</tr>
<tr>
<td>LOG CI WRITTEN (LOG1&amp;2)</td>
<td>2004.00</td>
<td>11.02</td>
<td>N/C</td>
<td>60.73</td>
</tr>
<tr>
<td>LOG RATE FOR 1 LOG (MB)</td>
<td>N/A</td>
<td>0.02</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**READS SATISIFIED-OUTPUT BUFF**

The number of log reads satisfied from the output buffer.
Background and Tuning Information

This field, together with the reads satisfied from active log and reads satisfied from archive log (QJSTRACT and QJSTRARH) fields indicate how efficiently DB2 retrieves log records. Use these numbers to adjust the number of output buffers and the total active log capacity to maximize DB2 performance.

Field Name: QJSTRBUF
This is an exception field.

READS SATISFIED-OUTP.BUF(%)  
The percentage of log reads that were satisfied in the output log buffer.

Field Name: SARLBUF

READS SATISFIED-ACTIVE LOG
The number of log reads satisfied from the active log data set.

Background and Tuning Information

This field, together with the reads satisfied from archive log and reads satisfied from output buffer fields, indicate how efficiently DB2 retrieves log records. Use these numbers to adjust the number of output buffers and the total active log capacity to maximize DB2 performance. Ideally, this value should be 0 or very small.

Field Name: QJSTRACT
This is an exception field.

READS SATISFIED-ACTV.LOG(%)  
The percentage of log reads satisfied from the active log.

Field Name: SARLACT
This is an exception field.

READS SATISFIED-ARCHIVE LOG
The number of log reads satisfied from the archive log data set.

Background and Tuning Information

This field, together with the reads satisfied from active log and reads satisfied from output buffer fields indicate how efficiently DB2 retrieves log records. Use these numbers to adjust the number of output buffers and the total active log capacity to maximize DB2 performance. Ideally, this value should be 0 or very small.

Field Name: QJSTRARH
This is an exception field.

READS SATISFIED-ARCH.LOG(%)  
The percentage of log reads that were satisfied from the archive log data set.

Field Name: SARLRARC
This is an exception field.

TAPE VOLUME CONTENTION WAIT
Log Activity

The number of read accesses that were delayed because of a tape volume contention when only one reader per tape is possible.

Background and Tuning Information
This field shows the number of agents forced to wait because a tape volume was already in use by another. If this number is not 0, increase the read tape units on the archive log data set parameters panel DSNTIPA.

Field Name: QJSTTVC
This is an exception field.

READ DELAYED-UNAVAIL.RESOUR
The number of read accesses delayed due to unavailable resources.

Background and Tuning Information
Generally, this can be due to insufficient tape units allocated. If this is so, reissue the SET ARCHIVE command and use a higher value for the count parameter. Another (although unlikely) cause is insufficient archive log read service task availability.

Field Name: QJSTWUR
This is an exception field.

ARCHIVE LOG READ ALLOCATION
The number of archive log read allocations.

It indicates the frequency of archive log open and close activity.

Background and Tuning Information
A high number indicates a need for more or larger active log data sets. This value should be small, ideally 0.

Field Name: QJSTALR
This is an exception field.

ARCHIVE LOG WRITE ALLOCATION
The number of archive log write allocations.

It indicates the frequency of archive log open and close activity.

Background and Tuning Information
A high number indicates a need for more or larger active log data sets. This value should be small, ideally 0.

Field Name: QJSTALW

CONTR.INTERV.OFFLOADED-ARCH
The number of control intervals (CIs) offloaded from the active log to the archive log.

Field Name: QJSTCIOF

LOOK-AHEAD MOUNT ATTEMPTED
The number of look ahead (tape volume) mounts attempted.

Background and Tuning Information
This field and field QJSTLAMS (label LOOK-AHEAD MOUNT SUCCESSFUL) show the efficiency of look ahead for tape mounts.
Field Name: QJSTLAMA

LOOK-AHEAD MOUNT SUCCESSFUL
The number of successful look-ahead (tape volume) mounts. It indicates the look-ahead mounting performance gains.

Background and Tuning Information
For maximum performance, this field and field QJSTLAMA (label LOOK-AHEAD MOUNT ATTEMPTED) should be equal. To find the number of failed attempts, subtract the value in this field from LOOK-AHEAD MOUNT ATTEMPTED. Too many failed attempts negate potential performance gains. This can be caused by not having enough tape units available. Issue the DISPLAY ARCHIVE command and note the current count value. Then issue the SET ARCHIVE command using a higher value for the count parameter.

Field Name: QJSTLAMS

UNAVAILABLE OUTPUT LOG BUFF
The number of waits caused by an unavailable output log buffer.
When DB2 wants to write a log record and the log buffer is not available, DB2 and the application must wait for an available log buffer.

Background and Tuning Information
Another possible cause is that the size of the write threshold might be too close to the size of the output buffer.
If this field is not 0, increase the number in the output buffer field on installation panel DSNTIPL to increase the number of output buffers or increase the size of the buffer.

Field Name: QJSTWTB
This is an exception field.

OUTPUT LOG BUFFER PAGED IN
The number of times an output log buffer had to be paged in before it could be initialized. The log-write latch is held at this point.

Background and Tuning Information
A nonzero value could indicate that the output log buffer size is too large, or there is insufficient real storage to back up the output log buffer size.

Field Name: QJSTBPAG

LOG RECORDS CREATED
The number of log write requests.
The log record is written asynchronously to the log buffer. The application does not wait for the record to be written to the log data set and regains control immediately.
Buffered log records are written to DASD when the buffer threshold is exceeded.

Field Name: QJSTWRNW

LOG CI CREATED
The number of active log output control intervals created.
Log Activity

Background and Tuning Information

Log records are placed sequentially in output log buffers, which are formatted as VSAM control intervals. The control intervals are written to a set of predefined DASD active log data sets, which are used sequentially and recycled.

The ratio of this field to write output log buffers should be low.

Rules of thumb:

The lower the value, the better. A high value indicates that too many I/Os are required for the number of log buffers created.

It is possible that WRTTHRSH is set too low. It is also possible that transactions could be arriving so infrequently that at commit time force requests are not queued and each force request is individually triggering an I/O of its log buffers.

Field Name: QJSTBFFL

LOG WRITE I/O REQ (LOG1&2)

The total number of log-write I/O requests (such as media manager calls). This is the sum of the IFCID 038/039 pairs and includes both copy1 and copy2 active log data set writes.

Background and Tuning Information

This value should correspond to the active log write I/O activity in an RMF report.

Field Name: QJSTLOGW

LOG CI WRITTEN (LOG1&2)

The total number of log control intervals (CIs) written. This includes CI rewrites and both copy1 and copy2 active log data set writes. If a given CI is rewritten 5 times, this counter is incremented by 5.

Field Name: QJSTCIWR

LOG RATE FOR 1 LOG (MB)

The log rate for the active log data sets in MB per second. This figure is valid for dual logging, if single logging is used, multiply the value shown by 2.

Background and Tuning Information

To calculate this rate (mega bytes/second) at which data is written to the active log data set, multiply the value of field QJSTCIWR (label LOG CI WRITTEN (LOG1&2)) by 4096 and divide it by 1024 * 1024 * statistics-interval-seconds * 2. When the value exceeds 10MB/sec per log copy, you should examine I/O tuning of log data sets (for example, using faster log devices and/or I/O striping, using variable-length or compressed log record layouts to reduce log data size).

Field Name: SJSTCIWR

Miscellaneous statistics report:

This topic shows detailed information about “Statistics - Miscellaneous”.

4440  IBM Db2 Performance Expert on z/OS
Statistics - Miscellaneous

The field labels shown in the following sample layout of “Statistics - Miscellaneous” are described in the following section.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MISCELLANEOUS</td>
<td></td>
</tr>
<tr>
<td>HIGH LOG RBA</td>
<td>0000000000169B80695</td>
</tr>
<tr>
<td>BYPASS COL</td>
<td>0.00</td>
</tr>
<tr>
<td>MAX SQL CASCADING LEVEL</td>
<td>0.00</td>
</tr>
<tr>
<td>MAX STOR LOB VALUES (MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>MAX STOR XML VALUES (MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>ARRAY EXPANSIONS</td>
<td>0.00</td>
</tr>
<tr>
<td>SPARSE IX DISABLED</td>
<td>0.00</td>
</tr>
<tr>
<td>SPARSE IX BUILT WF</td>
<td>0.00</td>
</tr>
<tr>
<td>NO DM CALL RIDL/LPF</td>
<td>0.00</td>
</tr>
<tr>
<td>FETCH 1 BLOCK ONLY</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**HIGH LOG RBA**

The high-used RBA address of the log (DB2 field prior to DB2 11: QWSDLR).

*Field Name: QWSDLRG*

**BYPASS COL**

The total number of columns (rows x columns) for which an invalid select procedure was encountered.

DB2 bypasses invalid select procedures which can cause some degradation in performance.

*Field Name: QISTCOLS*

**MAX SQL CASCAD LEVEL**

The maximum level of indirect SQL cascading. This includes cascading because of triggers, UDFs, or stored procedures.

*Field Name: QXCASCDP*

This is an exception field.

**MAX STOR LOB VALUES (MB)**

Maximum storage used for LOB values.

*Field Name: QXSTLOBV*

This is an exception field.

**MAX STOR XML VALUES (MB)**

Maximum storage used for XML values.

*Field Name: QXSTXMLV*

**ARRAY EXPANSIONS**

The number of times an array variable is expanded beyond 32 KB.

*Field Name: QXSTARRAY_EXPANSIONS*

**SPARSE IX DISABLED**

The number of times that sparse index was disabled because of insufficient storage.

*Field Name: QXSISTOR*
SPARSE IX BUILT WF

The number of times that sparse-index built a physical work file for probing.

Field Name: QXSIWF

NO DM CALL RIDL/LPF

The number of times that RDS did not call data manager for RID list retrieval for multiple index access or list prefetch because runtime adaptive index processing was able to determine the outcome.

Field Name: QXRSDMAD

FETCH 1 BLOCK ONLY

The number of times that RDS fetched one block and made no subsequent requests for additional blocks.

Field Name: QXR1BOAD

MVS LPAR Shared Storage Above 2 GB:

This topic shows detailed information about “Statistics - MVS LPAR Shared Storage Above 2 GB”.

Statistics - MVS LPAR Shared Storage Above 2 GB

The field labels shown in the following sample layout of “Statistics - MVS LPAR Shared Storage Above 2 GB” are described in the following section.

<table>
<thead>
<tr>
<th>MVS LPAR SHARED STORAGE ABOVE 2 GB</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHARED MEMORY OBJECTS</td>
<td>2.00</td>
</tr>
<tr>
<td>64 BIT SHARED STORAGE</td>
<td>163840.00</td>
</tr>
<tr>
<td>HWM FOR 64 BIT SHARED STORAGE</td>
<td>491520.00</td>
</tr>
<tr>
<td>64 BIT SHARED STORAGE BACKED IN REAL</td>
<td>2240.80</td>
</tr>
<tr>
<td>AUX STORAGE USED FOR 64 BIT SHARED</td>
<td>0.00</td>
</tr>
<tr>
<td>64 BIT SHARED STORAGE PAGED IN FROM AUX</td>
<td>0.00</td>
</tr>
<tr>
<td>64 BIT SHARED STORAGE PAGED OUT TO AUX</td>
<td>0.00</td>
</tr>
</tbody>
</table>

SHARED MEMORY OBJECTS

The number of shared memory objects allocated for this MVS LPAR (DB2 field: QW0225SHRMOMB).

Field Name: SW225SMO

64 BIT SHARED STORAGE (MB)

The amount of 64-bit shared storage allocated for this MVS LPAR (including hidden pages).

Field Name: S225SPG

HWM FOR 64 BIT SHARED STORAGE (MB)

High water mark of 64-bit shared storage allocated for this MVS LPAR (DB2 field: QW0225SHRGBYTES).

Field Name: SW225SGB

64 BIT SHARED STORAGE BACKED IN REAL (MB)

The amount of 64-bit shared storage backed in real storage for this MVS LPAR.

Field Name: S225SRL
AUX STORAGE USED FOR 64 BIT SHARED (MB)

The amount of auxiliary storage used for 64-bit shared storage for this MVS LPAR (including reserved auxiliary slots for pages that arepaged in).

Field Name: S225SAX

64 BIT SHARED STORAGE PAGED IN FROM AUX (MB)

The amount of 64-bit shared storage paged in from auxiliary storage for this MVS LPAR.

Field Name: S225SPI

64 BIT SHARED STORAGE PAGED OUT TO AUX (MB)

The amount of 64-bit shared storage paged out to auxiliary storage for this MVS LPAR.

Field Name: S225SPO

Open/Close Activity:

This topic shows detailed information about “Statistics - Open/Close Activity”.

Statistics - Open/Close Activity

The field labels shown in the following sample layout of “Statistics - Open/Close Activity” are described in the following section.

<table>
<thead>
<tr>
<th>OPEN/CLOSE ACTIVITY</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN DATASETS - HWM</td>
<td>79.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>OPEN DATASETS</td>
<td>64.34</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DS NOT IN USE,NOT CLOSE-HWM</td>
<td>79.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DS NOT IN USE,NOT CLOSED</td>
<td>55.43</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>IN USE DATA SETS</td>
<td>8.91</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>DSETS CLOSED-THRESH.REACHED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DSETS CONVERTED R/W --&gt; R/O</td>
<td>7.00</td>
<td>0.04</td>
<td>N/C</td>
<td>0.21</td>
</tr>
</tbody>
</table>

OPEN DATASETS - HWM

The maximum number of data sets concurrently open since the last time DB2 was started. This is a high-water mark (HWM).

Background and Tuning Information

Monitor this field to see whether you are reaching the maximum number of open data sets permissible.

Note: The maximum number of open data sets is 200,000. The default is 20,000.

Field Name: QTMAXDS

This is an exception field.

OPEN DATASETS

The number of data sets concurrently open (snapshot).

Field Name: QTDSOPN

DS NOT IN USE, NOT CLOSE-HWM
Open/Close Activity

The maximum number of data sets on the deferred close queue. It is a high-water mark representing the maximum number of data sets that are not in use but have not been physically closed yet.

Field Name: QTMAXPB
This is an exception field.

DS NOT IN USE, NOT CLOSED
The number of data sets that are not currently used, but are not closed due to a deferred close (snapshot).

Field Name: QTSLLWDDD
This is an exception field.

IN USE DATA SETS
The number of data sets currently in use (snapshot).

Field Name: SDINUSEC
This is an exception field.

DSETS CLOSED-THRESH. REACHED
The number of data sets that were closed because the total number of open data sets reached the deferred close threshold value. The deferred close value is based on the value of DSMAX or the MVS DD limit (whichever is smaller).

Field Name: QTDSDRN
This is an exception field.

DSETS CONVERTED R/W -> R/O
The number of infrequently updated data sets that are converted from R/W to R/O state. An updated data set is considered infrequently updated when it has not been updated for either 5 consecutive DB2 checkpoints or 60 minutes. For tablespace data sets, the switching from R/W to R/O state means the SYSLGRNG entry is closed.

Field Name: QTPCCT
This is an exception field.

Plan/Package Activity:
This topic shows detailed information about “Statistics - Plan/Package Activity”.

Statistics - Plan/Package Activity
The field labels shown in the following sample layout of “Statistics - Plan/Package Activity” are described in the following section.

<table>
<thead>
<tr>
<th>PLAN/PACKAGE PROCESSING</th>
<th>QUANTITY /SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCREMENTAL BINDS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>PLAN ALLOCATION ATTEMPTS</td>
<td>2.00</td>
<td>0.01</td>
<td>N/C</td>
</tr>
<tr>
<td>PLAN ALLOCATION SUCCESSFUL</td>
<td>2.00</td>
<td>0.01</td>
<td>N/C</td>
</tr>
<tr>
<td>PACKAGE ALLOCATION ATTEMPT</td>
<td>17.00</td>
<td>0.09</td>
<td>N/C</td>
</tr>
<tr>
<td>PACKAGE ALLOCATION SUCCESS</td>
<td>17.00</td>
<td>0.09</td>
<td>N/C</td>
</tr>
<tr>
<td>PLANS BOUND</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>BIND ADD SUBCOMMANDS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
</tbody>
</table>
Plan/Package Activity

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
<th>N/C</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIND REPLACE SUBCOMMANDS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>TEST BINDS NO PLAN-ID</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>PACKAGES BOUND</td>
<td>14.00</td>
<td>0.08</td>
<td>N/C</td>
<td>0.42</td>
</tr>
<tr>
<td>BIND ADD PACKAGE SUBCOMMAND</td>
<td>49.00</td>
<td>0.27</td>
<td>N/C</td>
<td>1.48</td>
</tr>
<tr>
<td>BIND REPLACE PACKAGE SUBCOMMAND</td>
<td>14.00</td>
<td>0.08</td>
<td>N/C</td>
<td>0.42</td>
</tr>
<tr>
<td>AUTOMATIC BIND ATTEMPTS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>AUTOMATIC BINDS SUCCESSFUL</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>AUTO.BIND INVALID RES. IDS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>AUTO.BIND PACKAGE ATTEMPTS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>AUTO.BIND PACKAGES SUCCESS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>REBIND SUBCOMMANDS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ATTEMPTS TO REBIND A PLAN</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>PLANS REBOUND</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>REBIND PACKAGE SUBCOMMANDS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ATTEMPTS TO REBIND PACKAGE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>PACKAGES REBOUND</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>FREE PLAN SUBCOMMANDS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ATTEMPTS TO FREE A PLAN</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>PLANS FREED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>FREE PACKAGE SUBCOMMANDS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ATTEMPTS TO FREE A PACKAGE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>PACKAGES FREED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
</tbody>
</table>

INCREMENTAL BINDS

The number of incremental binds (excluding prepare). It is incremented by:

- SQL statements with BIND VALIDATE(RUN) that fail at bind time and are bound again at execution time
- Static DDL statements (such as CREATE TABLE, DROP TABLE, LOCK TABLE) that use DB2 private protocol

Background and Tuning Information

If a plan is bound with VALIDATE(RUN), DB2 performs validity checks at bind time and rechecks any failures at run time. This can result in catalog contention and degraded application performance, depending on the number of statements flagged and how many times they are executed. Avoid VALIDATE(RUN) if possible. Ensure that all objects are created and all privileges are granted before bind, and select the VALIDATE(BIND) option.

Field Name: QXINCRB

This is an exception field.

PLAN ALLOCATION ATTEMPTS

The number of times a request was made to allocate a bound plan for an agent.

It represents the number of times DB2 was requested to create a thread by the attachment facility for the user. This does not include allocations for DB2 system agents.

Field Name: QTALLOCA

This is an exception field.

PLAN ALLOCATION SUCCESSFUL

The number of successful plan allocation attempts.

The cause of plan allocation failure could be plan unavailability or attempting to allocate a nonexistent plan.
Plan/Package Activity

Field Name: QTALLOC

PACKAGE ALLOCATION ATTEMPT
The number of attempts to allocate a package.

Field Name: QTPKALL

PACKAGE ALLOCATION SUCCESS
The number of successful package allocation attempts.

Background and Tuning Information
Package allocation failure can occur when a package is unavailable or does not exist.

A high count of the number of packages unsuccessfully allocated (QTPKALLA - QTPKALL) typically occurs when a package list with multiple collections is used and frequently-located packages are found in the back end rather than in the front end of a package list. For example, when a package is found in the tenth collection, QTPKALLA is incremented by 10, one for each collection searched, but QTPKALL is incremented by 1.

A high number of packages unsuccessfully allocated can be accompanied by a high count of the number of unsuccessful checks for package execute authority made using the package authorization check because an application entry was not found in the cache (QTPACNOT). In this case, placing frequently used packages in the front end of a package list would reduce the number of Buffer Manager Getpages to the catalog/directory tablespaces.

Field Name: QTPKALL

PLANS BOUND
The number of plans successfully bound and kept for future agent allocations.

This field represents the sum of successful BIND ADD (QTBINDA) and successful BIND REPLACE (QTBINDR) commands. This counter is not incremented for BIND subcommands with no plan ID specified, as identified by QTTESTB. Note that QTBINDA + QTBINDR is not necessarily equal to this field. It is equal only if all BIND ADD and BIND REPLACE subcommands issued are successful.

Field Name: QTPLNBD

BIND ADD SUBCOMMANDS
The number of successful and unsuccessful BIND ADD subcommands issued.

The sum of QTBINDA, QTBINDR, and QTTESTB equals the total number of BIND subcommands.

Field Name: QTBINDA

BIND REPLACE SUBCOMMANDS
The number of successful and unsuccessful BIND REPLACE subcommands issued.

Field Name: QTBINDR

TEST BINDS NO PLAN-ID
The number of BIND subcommands issued without a plan ID.

**Field Name:** QTTTESTB

### PACKAGES BOUND

The number of packages bound and kept for future package allocations. It is the sum of successful BIND ADD PACKAGE and BIND REPLACE PACKAGE subcommands, but only if all these commands are really issued successfully.

**Field Name:** QTPKGBD

### BIND ADD PACKAGE SUBCOMMAND

The number of successful and unsuccessful BIND ADD PACKAGE subcommands issued.

**Field Name:** QTBINDPA

### BIND REPLACE PACKAGE SUBCOMMAND

The number of successful and unsuccessful BIND REPLACE PACKAGE subcommands issued.

**Field Name:** QTBINDPR

### AUTOMATIC BIND ATTEMPTS

The number of attempts to autobind a plan. This occurs when the plan was invalidated by modifications to the declarations of the data referenced by the programs bound as part of the plan. For example, dropping an index when it is used in the plan results in automatic bind.

**Field Name:** QTABINDA

### AUTOMATIC BINDS SUCCESSFUL

The number of plans successfully autobound.

**Field Name:** QTABIND

### AUTO.BIND INVALID RES. IDS

The number of requests to allocate a nonexistent plan or package. This is the number of all plan and package allocation attempts that failed because the resource was unavailable or the object did not exist.

**Field Name:** QTINVRID

### AUTO.BIND PACKAGE ATTEMPTS

The number of attempts to autobind a package.

**Background and Tuning Information**

If YES was specified, or defaulted, for autobind on DB2 install panel DSNTIPB, an autobind occurs when a plan or package:

- Is invalid because declarations of the data referenced by the program or package were modified. For example, when an index used in a package is dropped, an automatic bind occurs when the package is run for the first time after the index was dropped.
- Was bound in a later release and is used in a previous release for the first time.
- Was used in a previous release but is later remigrated and used in a later release for the first time.
Plan/Packet Activity

Field Name: QTAUTOBA
This is an exception field.

AUTO.BIND PACKAGES SUCCESS
The number of packages successfully autobound.
Field Name: QTPKABND
This is an exception field.

REBIND SUBCOMMANDS
The number of REBIND subcommands issued. More than one plan can be rebound with a single REBIND subcommand. If the value in this field is 1, the number of plans you are attempting to rebind is shown in the Rebind - plan attempts field.
Field Name: QTREBIND

ATTEMPTS TO REBIND A PLAN
The number of attempts to rebind a plan. This number can be larger than the value shown in the Rebind - plan subcommands field because you can specify more than one plan in a single REBIND subcommand.
Field Name: QTRBINDA

PLANS REBOUND
The number of rebind attempts that completed successfully. This field is equal to the Rebind - Plan attempts field if all specified plans rebound successfully.
Field Name: QTPLNRBD

REBIND PACKAGE SUBCOMMANDS
The number of REBIND PACKAGE subcommands issued. More than one package can be rebound with a single subcommand. If the value in this field is 1, Rebind - package attempts shows the number of packages you are attempting to rebind.
Field Name: QTRBINDP

ATTEMPTS TO REBIND PACKAGE
The number of attempts to rebind a package. This can be larger than the value shown in Rebind package subcommands because you can rebind more than one package with a single command.
Field Name: QTRBNDPA

PACKAGES REBOUND
The number of packages successfully rebound. If all specified packages were rebound successfully, this field is equal to Rebind package attempts.
Field Name: QTPKGRBD

FREE PLAN SUBCOMMANDS
The number of FREE subcommands issued.
More than one plan can be freed with a single FREE subcommand. If this field is 1, then the number of plans you are trying to free is shown in ATTEMPTS TO FREE A PLAN.
Field Name: QTFREE

ATTEMPTS TO FREE A PLAN

The number of attempts to free a plan.

This value can be larger than FREE PLAN SUBCOMMANDS because multiple plan IDs can be specified in a single FREE subcommand.

Field Name: QTFREEA

PLANS FREED

The number of times a plan was successfully freed.

Freeing a plan can fail if someone else is using the plan and holds a lock on it.

Field Name: QTPLNFRD

FREE PACKAGE SUBCOMMANDS

The number of FREE PACKAGE subcommands issued.

More than one package can be freed with a single FREE subcommand. If the value in this field is 1, then the number of packages you are attempting to free is shown in ATTEMPTS TO FREE A PACKAGE.

Field Name: QTFREEP

ATTEMPTS TO FREE A PACKAGE

The number of attempts to free a package. This number can be larger than FREE PACKAGE SUBCOMMANDS because you can free several packages with a single command.

Field Name: QTFREEAP

PACKAGES FREED

The number of times a package was successfully freed. If all the specified packages were freed successfully, the value of this field is equal to ATTEMPTS TO FREE A PACKAGE.

Field Name: QTPKGFRD

Query Parallelism:

This topic shows detailed information about “Statistics - Query Parallelism”.

This block shows information about query parallelism used by DB2 to perform parallel operations in SQL query processing. Dependent on various settings, DB2 may create parallel groups for a query where each parallel group consists of a set of tasks or I/O operations that can be executed in parallel. The degree of parallelism is the number of parallel tasks or I/O operations that DB2 determines. It can be used for the operations on the parallel group.

The DB2 users can limit the maximum number of parallel operations to reduce the resource consumption of a parallelism environment, and even DB2 may decide during execution time to reduce the planned degree of parallelism in order to respond to system limitations.
Statistics - Query Parallelism

The field labels shown in the following sample layout of “Statistics - Query Parallelism” are described in the following section.

<table>
<thead>
<tr>
<th>QUERY PARALLELISM</th>
<th>QUANTITY/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX DEGREE - ESTIMATED</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>MAX DEGREE - PLANNED</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>MAX DEGREE - EXECUTED</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>PARALLEL GROUPS EXECUTED</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>RAN AS PLANNED</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>RAN REDUCED- STORAGE</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>RAN REDUCED- NEGOTIATION</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>SEQUENTIAL- CURSOR</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>SEQUENTIAL- NO ESA</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>SEQUENTIAL- NO BUFFER</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>SEQUENTIAL- AUTONOMOUS PROC</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>SEQUENTIAL- NEGOTIATION</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>ONE DB2 - COORDINATOR = NO</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>ONE DB2 - ISOLATION LEVEL</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>ONE DB2 - DCL TTABLE</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>MEMBER SKIPPED (%)</td>
<td>N/C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REFORM PARAL- CONFIG CHANGED</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>REFORM PARAL- NO BUFFER</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**MAX DEGREE - ESTIMATED**

The maximum degree of parallelism estimated for a parallel group at bind time based on the cost formula. If the parallel group contains a host variable or parameter marker, then bind time will estimate the parallel group degree based on a valid assumption value.

Field Name: QXMAXESTIDG

**MAX DEGREE - PLANNED**

The maximum degree of parallelism planned for a parallel group. It is the ideal parallel group degree obtained at execution time after the host variable or parameter marker value is “plug-in” and before buffer pool negotiation and system negotiation are performed.

Field Name: QXMAXPLANIDG

**MAX DEGREE - EXECUTED**

The maximum degree of parallelism executed among all parallel groups to indicate the extent to which queries were processed in parallel.

Field Name: QXMAXDEG

**PARALLEL GROUPS EXECUTED**

The total number of parallel groups executed.

Field Name: QXTOTGRP

**RAN AS PLANNED**

The total number of parallel groups that executed in the planned parallel degree. This field is incremented by one for each parallel group that executed in the planned degree of parallelism (as determined by DB2).

Field Name: QXNORGRP

**RAN REDUCED- STORAGE**
The total number of parallel groups that did not reach the planned parallel degree because of a lack of storage space or contention on the buffer pool.

The exception field name is QXREDGRP.

**Background and Tuning Information**

If this field is not 0, increase the size of the current buffer pool using the ALTER BUFFERPOOL command or use the ALTER TABLESPACE command to assign table spaces accessed by this query to a different buffer pool.

**Field Name**: QXREDGRP

This is an *exception* field.

**RAN REDUCED-NEGOTIATION**

The total number of parallel groups that did not reach the planned parallel degree due to system negotiation result of system stress level.

**Field Name**: QXSTOREDGRP

**SEQUENTIAL-CURSOR**

The total number of parallel groups that fell back to sequential mode due to a cursor that can be used by UPDATE or DELETE.

**Field Name**: QXDEGCUR

**SEQUENTIAL-NO ESA**

The total number of parallel groups that fell back to sequential mode due to a lack of ESA sort support.

**Field Name**: QXDEGESA

**SEQUENTIAL-NO BUFFER**

The total number of parallel groups that fell back to sequential mode due to a storage shortage or contention on the buffer pool.

The exception field name is QXDEGBUF.

**Field Name**: QXDEGBUF

**SEQUENTIAL-AUTONOMOUS PROC**

The total number of parallel groups that fell back to sequential mode under an autonomous procedure.

**Field Name**: QXDEGAT

**SEQUENTIAL-NEGOTIATION**

The total number of parallel groups that fell back to sequential mode due to system negotiation result of system stress level.

**Field Name**: QXSTODGNGRP

**ONE DB2 - COORDINATOR = NO**

The total number of parallel groups executed on a single DB2 subsystem due to the COORDINATOR subsystem value being set to NO. When the statement was bound, the COORDINATOR subsystem value was set to YES. This situation can also occur when a package or plan is bound on a DB2 subsystem with COORDINATOR=YES, but is run on a DB2 subsystem with COORDINATOR=NO.
Query Parallelism

Field Name: QXCOORNO

ONE DB2 - ISOLATION LEVEL

The total number of parallel groups executed on a single DB2 subsystem due to repeatable-read or read-stability isolation.

Field Name: QXISORR

ONE DB2 - DCL TTABLE

The number of parallel groups in a query block that were downgraded to CPU parallelism because they referenced a UDF and a declared temporary table was detected at execution time.

DB2 enforces execution on a single DB2 (CPU parallelism), in this instance, because it cannot determine at incremental bind time for the statement whether the UDF will reference the declared temporary table. Other parallel groups in the same statement are not necessarily downgraded.

Field Name: QXDEGDTT

MEMBER SKIPPED (%)

The percentage of parallel groups that were not distributed over the data sharing group because one or more DB2 members did not have enough buffer pool storage. This only applies to parallel groups that were intended to run in sysplex query parallelism.

Background and Tuning Information

This percentage is only recorded when the buffer pool is defined to allow for parallelism. For example, if VPXPSEQT=0 on an assistant, DB2 does not send parallel work there, and the percentage is not increased.

Field Name: SXXCRAT

REFORM PARAL-CONFIG CHANGED

The total number of parallel groups where DB2 reformulated the parallel portion of the access path because of a change in the number of active members, or because of a change of processor models on which they run, from bind time to run time. This counter is incremented only on the parallelism coordinator at run time.

Field Name: QXREPOP1

REFORM PARAL-NO BUFFER

The total number of parallel groups in which DB2 reformulated the parallel portion of the access path because there were insufficient buffer-pool resources. This counter is incremented only at the parallelism coordinator at run time.

Field Name: QXREPOP2

Real and Auxiliary Storage for DBM1:

This topic shows detailed information about “Statistics - Real and Auxiliary Storage for DBM1”.

Statistics - Real and Auxiliary Storage for DBM1

The field labels shown in the following sample layout of “Statistics - Real and Auxiliary Storage for DBM1” are described in the following section.
REAL AND AUXILIARY STORAGE FOR DBM1

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>REAL STORAGE IN USE</td>
<td>(MB)</td>
<td>8403.51</td>
</tr>
<tr>
<td>31 BIT IN USE</td>
<td>(MB)</td>
<td>160.28</td>
</tr>
<tr>
<td>64 BIT IN USE</td>
<td>(MB)</td>
<td>8243.23</td>
</tr>
<tr>
<td>64 BIT THREAD AND SYSTEM ONLY</td>
<td>(MB)</td>
<td>394.61</td>
</tr>
<tr>
<td>HWM 64 BIT REAL STORAGE IN USE</td>
<td>(MB)</td>
<td>8243.23</td>
</tr>
<tr>
<td>AVERAGE THREAD FOOTPRINT</td>
<td>(MB)</td>
<td>0.57</td>
</tr>
<tr>
<td>AUXILIARY STORAGE IN USE</td>
<td>(MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>31 BIT IN USE</td>
<td>(MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>64 BIT IN USE</td>
<td>(MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>64 BIT THREAD AND SYSTEM ONLY</td>
<td>(MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>HWM 64 BIT AUX STORAGE IN USE</td>
<td>(MB)</td>
<td>0.00</td>
</tr>
</tbody>
</table>

REAL STORAGE IN USE (MB)

The amount of real storage in use for 31-bit and 64-bit private pools.

Field Name: SW0225RL

31 BIT IN USE (MB)

The amount of real storage in use for 31-bit private pools.

Note: This value is available from z/OS V1.11.

Field Name: S225RL31

64 BIT IN USE (MB)

The amount of real storage in use for 64-bit private pools.

Note: This value is available from z/OS V1.11.

Field Name: S225VPR

64 BIT THREAD AND SYSTEM ONLY (MB)

The amount of real storage in use for 64-bit private pools that does not include buffer pool storage.

Note: This field is available in z/OS 1.10 (and maintenance) or later.

Field Name: S225PSR

HWM 64 BIT REAL STORAGE IN USE (MB)

High water mark of real storage in use for 64-bit private pools.

Note: This value is available from z/OS V1.11.

Field Name: S225GPR

AVERAGE THREAD FOOTPRINT (MB)

The current average real storage in use for private DBM1 storage of active user threads (allied threads + active and pooled DBATs).

Field Name: S225DTFR

AUXILIARY STORAGE IN USE (MB)

The amount of auxiliary storage in use for 31-bit and 64-bit private pools.

Field Name: SW0225AX

31 BIT IN USE (MB)

The amount of auxiliary storage in use for 31-bit private pools.
Real and Auxiliary Storage for DBM1

Note: This value is available from z/OS V1.11.

Field Name: S225AX31

64 BIT IN USE (MB)

The amount of auxiliary storage in use for 64-bit private pools.

Note: This value is available from z/OS V1.11.

Field Name: S225VAS

64 BIT THREAD AND SYSTEM ONLY (MB)

The amount of auxiliary storage in use for 64-bit private pools that does not include buffer pool storage.

Note: This field is available in z/OS 1.10 (and maintenance) or later.

Field Name: S225PSA

HWM 64 BIT AUX STORAGE IN USE (MB)

High water mark of auxiliary storage in use for 64-bit private pools.

Note: This value is available from z/OS V1.11.

Field Name: S225GAS

Real and Auxiliary Storage for DIST:

This topic shows detailed information about “Statistics - Real and Auxiliary Storage for DIST”.

Statistics - Real and Auxiliary Storage for DIST

The field labels shown in the following sample layout of “Statistics - Real and Auxiliary Storage for DIST” are described in the following section.

<table>
<thead>
<tr>
<th>REAL AND AUXILIARY STORAGE FOR DIST</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>REAL STORAGE IN USE (MB)</td>
<td>86.89</td>
</tr>
<tr>
<td>31 BIT IN USE (MB)</td>
<td>59.47</td>
</tr>
<tr>
<td>64 BIT IN USE (MB)</td>
<td>27.41</td>
</tr>
<tr>
<td>64 BIT THREAD AND SYSTEM ONLY (MB)</td>
<td>27.40</td>
</tr>
<tr>
<td>HWM 64 BIT REAL STORAGE IN USE (MB)</td>
<td>27.41</td>
</tr>
<tr>
<td>AVERAGE DBAT FOOTPRINT (MB)</td>
<td>0.09</td>
</tr>
<tr>
<td>AUXILIARY STORAGE IN USE (MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>31 BIT IN USE (MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>64 BIT IN USE (MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>64 BIT THREAD AND SYSTEM ONLY (MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>HWM 64 BIT AUX STORAGE IN USE (MB)</td>
<td>0.00</td>
</tr>
</tbody>
</table>

REAL STORAGE IN USE (MB)

The amount of real storage in use for 31-bit and 64-bit private pools.

Field Name: SW0225RL

31 BIT IN USE (MB)

The amount of real storage in use for 31-bit private pools.

Note: This value is available from z/OS V1.11.

Field Name: S225RL31
64 BIT IN USE (MB)

The amount of real storage in use for 64-bit private pools.

Note: This value is available from z/OS V1.11.
Field Name: S225VPR

64 BIT THREAD AND SYSTEM ONLY

The amount of real storage in use for 64-bit private pools that does not include buffer pool storage.

Note: This field is available in z/OS 1.10 (and maintenance) or later.
Field Name: S225PSR

HWM 64 BIT REAL STORAGE IN USE (MB)

High water mark of real storage in use for 64-bit private pools.

Note: This value is available from z/OS V1.11.
Field Name: S225GPR

AVERAGE DBAT FOOTPRINT

The current average real storage in use for private DIST storage of active and pooled DBATs.
Field Name: S225DDFR

AUXILIARY STORAGE IN USE (MB)

The amount of auxiliary storage in use for 31-bit and 64-bit private pools.
Field Name: SW0225AX

31 BIT IN USE (MB)

The amount of auxiliary storage in use for 31-bit private pools.

Note: This value is available from z/OS V1.11.
Field Name: S225AX31

64 BIT IN USE (MB)

The amount of auxiliary storage in use for 64-bit private pools.

Note: This value is available from z/OS V1.11.
Field Name: S225VAS

64 BIT THREAD AND SYSTEM ONLY

The amount of auxiliary storage in use for 64-bit private pools that does not include buffer pool storage.

Note: This field is available in z/OS 1.10 (and maintenance) or later.
Field Name: S225PSA

HWM 64 BIT AUX STORAGE IN USE (MB)

High water mark of auxiliary storage in use for 64-bit private pools.

Note: This value is available from z/OS V1.11.
Real and Auxiliary Storage for DIST

Field Name: S225GAS

Real Storage in Use - Summary:

This topic shows detailed information about “Statistics - Real Storage in Use - Summary”.

Statistics - Real Storage in Use - Summary

The field labels shown in the following sample layout of “Statistics - Real Storage in Use - Summary” are described in the following section.

<table>
<thead>
<tr>
<th>REAL STORAGE IN USE - SUMMARY</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>31/64-BIT PRIVATE (DBM1) (MB)</td>
<td>145.25</td>
</tr>
<tr>
<td>31/64-BIT PRIVATE (DIST) (MB)</td>
<td>5.34</td>
</tr>
<tr>
<td>64-BIT SHARED THREAD AND SYSTEM (MB)</td>
<td>17.25</td>
</tr>
<tr>
<td>64-BIT SHARED STACK (MB)</td>
<td>13.97</td>
</tr>
<tr>
<td>64-BIT COMMON (MB)</td>
<td>3.29</td>
</tr>
<tr>
<td>TOTAL REAL STORAGE IN USE (MB)</td>
<td>185.11</td>
</tr>
</tbody>
</table>

31/64-BIT PRIVATE (DBM1) (MB)

The amount of real storage in use for 31-bit and 64-bit private pools.

Field Name: SW0225RL

31/64-BIT PRIVATE (DIST) (MB)

The amount of real storage in use for 31-bit and 64-bit private pools.

Field Name: SW0225RL

64-BIT SHARED THREAD AND SYSTEM (MB)

The amount of real storage in use for 64-bit shared storage. This does not include shared stack storage. This is recorded at the subsystem level.

Note: This field is available in z/OS 1.10 (and maintenance) or later.

Field Name: S225SSR

64-BIT SHARED STACK (MB)

The amount of real storage in use for 64-bit shared stack storage. This is recorded at the subsystem level.

Note: This field is available in z/OS 1.10 (and maintenance) or later.

Field Name: S225KSR

64-BIT COMMON (MB)

The amount of real storage in use for 64-bit common storage. This is recorded at the subsystem level.

Note: This field is available in z/OS 1.10 (and maintenance) or later.

Field Name: S225CSR

TOTAL REAL STORAGE IN USE (MB)

The total amount of real storage in use.

Field Name: S225RLTL
RID List Processing:

This topic shows detailed information about “Statistics - RID List Processing”.

The RID pool is used for:

- List prefetch
- Multiple index access
- Hybrid joins

DB2 uses a matching index scan to collect those record identifiers (RID) that match the selection criteria and places them in a list in the RID pool. The list is sorted by page number, which is contained in the RID. DB2 then uses the sorted list to access the table by reading up to 32 pages per I/O and attempting to read ahead one block of 32 pages before use.

The RID pool is allocated dynamically as it is needed. The maximum size of the pool is determined by the ZPARM MAXRBLK.

The work file database is used to store a RID list when the RID pool storage cannot contain all the RIDs of the list. When RID pool storage overflow occurs for a RID list, DB2 attempts to store the RID list in work file storage instead of falling back to a relational scan.

The maximum number of RIDs (measured in RID blocks) that DB2 is allowed to store in the work file database is determined by ZPARM MAXTEMPS_RID.

Statistics - RID List Processing

The field labels shown in the following sample layout of “Statistics - RID List Processing” are described in the following section.

<table>
<thead>
<tr>
<th>RID LIST PROCESSING</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUCCESSFUL</td>
<td>8680.8K</td>
<td>4667.07</td>
<td>N/C</td>
<td>7.28</td>
</tr>
<tr>
<td>NOT USED-NO STORAGE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>NOT USED-MAX LIMIT</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>MAX RID BLOCKS ALLOCATED</td>
<td>147.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>CURRENT RID BLOCKS Alloc.</td>
<td>7.74</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>MAX RID BLOCKS OVERFLOWED</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>CURRENT RID BLOCKS OVERFL.</td>
<td>0.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>STORAGE LIMIT EXCEEDED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>RDS LIMIT EXCEEDED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DM LIMIT EXCEEDED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>PROC.LIMIT EXCEEDED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>OVERFLOWED-NO STORAGE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>OVERFLOWED-MAX LIMIT</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>INTERRUPTED (HJ)-NO STORAGE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>INTERRUPTED (HJ)-MAX LIMIT</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>SKIPPED-INDEX KNOWN</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
</tbody>
</table>

SUCCESSFUL

The number of times RID list (also called RID pool) processing is used.

During RID (RECORD ID) list processing, DB2 uses an index to produce a list of candidate RIDs, which is called a RID list. The RID list can be sorted and intersected (ANDed) or unioned (ORed) with other RID lists before actually accessing the data pages. RID list processing is used for a single
RID List Processing

index (index access with list prefetch) or for multiple indexes (multiple index access), which is when the RID lists are ANDed and ORed.

This field is incremented once for a given table access when RID list processing is used for index access with list prefetch, for multiple index access, or for both. For multiple index access, if a final RID list is obtained through ANDing and ORing of RID lists, the counter is incremented once, even if not all indexes were used by the RIDs in the multiple index access.

**Background and Tuning Information**

A nonzero value in this field indicates that DB2 has used list prefetch. If this is the case, check the access path selection.

**Field Name:** QXMIAP

This is an exception field.

**NOT USED-NO STORAGE**

The number of times DB2 detected that no storage was available to hold a list of RIDs during a given RID list process involving one index (single index access with list prefetch) or multiple indexes (multiple index access).

This field can be incremented during retrieval, sorting, ANDing, and ORing of RID lists for index access with list prefetch (single index). For single index access, this field can only be incremented once per access. For multiple index access, it can be incremented for every index involved in the ANDing and ORing of RID lists.

**Field Name:** QXNSMIAP

This is an exception field.

**NOT USED-MAX LIMIT**

The number of times DB2 detected that a RID list exceeded one or more internal limits during a given RID list (or RID pool) process involving one index (single index access with list prefetch) or multiple indexes (multiple index access). The internal limits include the physical limitation of the number of RIDs a RID list can hold and threshold values for the retrieval, ORing, and ANDing of RIDs.

For index access with list prefetch (single index), this field can only be incremented during RID list retrieval. For multiple index access, this field can be incremented during RID list retrieval, ANDing, and ORing. This counter reflects the number of times internal limits or threshold values were exceeded for the RID lists obtained directly from an index as well as for RID lists derived during the ANDing and ORing process.

**Background and Tuning Information**

Before you increase the RID list storage size, investigate the cause of the failure using the statistics record or the performance trace. You can specify the size for the RID list on the DB2 installation panel DSNTIPC.

**Field Name:** QXMRMIAP

This is an exception field.

**MAX RID BLOCKS ALLOCATED**

The highest number of RID blocks in use at any time since DB2 startup. This is a high-water mark.

**Field Name:** QISTRHIG
This is an *exception* field.

**CURRENT RID BLOCKS ALLOCATED.**

The number of RID blocks currently in use (snapshot value).

Field Name: QISTRCUR

This is an *exception* field.

**MAX RID BLOCKS OVERFLOWED**

This field is currently not set by DB2.

Field Name: QISTWFRRHIG

**CURRENT RID BLOCKS OVERFLOWED**

This field is currently not set by DB2.

Field Name: QISTWFRCUR

**STORAGE LIMIT EXCEEDED**

The number of times the DBM1 storage was exhausted during RID list processing.

**Background and Tuning Information**

This failure occurs when the DBM1 storage limit is reached.

Field Name: QISTRSTG

This is an *exception* field.

**RDS LIMIT EXCEEDED**

The number of times when the number of RIDs that can fit into the guaranteed number of RID blocks was greater than the maximum limit (25% of table size).

**Background and Tuning Information**

Ideally, this value should be 0.

The matching index scan part of the RID list processing scanned more than 25% of the index. RID list processing is then terminated, the index scan is abandoned and normally replaced by a tablespace scan.

Reasons for this are:

- Inaccurate or incomplete RUNSTATS statistics. To avoid this, you should collect all statistics on a regular basis, especially simple and correlated column statistics. Using RUNSTATS with SHRLEVEL(CHANGE) does not prevent access to data.

- Optimizer error. In this instance, you could disable RID list processing by adding the clause OPTIMIZE FOR 1 ROW to the SQL statement, or force the access path to index only by adding the necessary columns to the index.

Field Name: QISTRLLM

This is an *exception* field.

**DM LIMIT EXCEEDED**

The number of times when the number of RID entries was greater than the physical limit of approximately 26 million RIDs.

Field Name: QISTRPLM
RID List Processing

This is an *exception* field.

**PROC.LIMIT EXCEEDED**

The number of times the maximum RID pool storage was exceeded.

The size is determined by the installation parameter RID POOL SIZE (DB2 install panel DSNTIPC). It can be 0, or between 128 KB and 10 GB. The general formula for calculating the RID pool size is:

\[(\text{Number of concurrent RID processing activities}) \times (\text{average number of RIDs}) \times 2 \times (5 \text{ bytes per RID}).\]

**Field Name:** QISTRMAX

This is an *exception* field.

**OVERFLOWED-NO STORAGE**

The number of times a RID list was overflowed to a work file because no RID pool storage was available to hold the list of RIDs.

**Field Name:** QXWFRIDS

**OVERFLOWED-MAX LIMIT**

The number of times a RID list was overflowed to a work file because the number of RIDs exceeded one or more internal limits.

**Field Name:** QXWFRIDT

**INTERRUPTED (HJ)-NO STORAGE**

The number of times a RID list append for a hybrid join was interrupted because no RID pool storage was available to hold the list of RIDs.

**Field Name:** QXHJINCS

**INTERRUPTED (HJ)-MAX LIMIT**

The number of times a RID list append for a hybrid join was interrupted because the number of RIDs exceeded one or more internal limits.

**Field Name:** QXHJINCT

**SKIPPED-INDEX KNOWN**

The number of times a RID list retrieval for multiple index access was skipped because it was not necessary due to DB2 being able to predetermine the outcome of index ANDing or ORing.

**Field Name:** QXRSMIAP

**ROWID:**

This topic shows detailed information about “Statistics - ROWID”.

**Statistics - ROWID**

The field labels shown in the following sample layout of “Statistics - ROWID” are described in the following section.

<table>
<thead>
<tr>
<th>ROW ID</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECT ACCESS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>INDEX USED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>TABLE SPACE SCAN USED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**DIRECT ACCESS**
The number of times that direct row access was successful.

**Field Name:** QXROIMAT

**INDEX USED**

The number of times that direct row access failed and an index was used to find a record.

**Background and Tuning Information**

This can happen, for example, when a REORG is performed between the read of the ROWID column and the use of the host variable in the WHERE clause of the SQL statement. This causes the RID value in the host variable to be incorrect.

**Field Name:** QXROIIDX

**TABLE SPACE SCAN USED**

The number of times that an attempt to use direct row access reverted to using a table-space scan because DB2 was unable to use a matching index scan.

**Background and Tuning Information**

Ideally, this value should be 0.

Table-space scans can happen, for example, when a REORG is performed between the read of the ROWID column and the use of the host variable in the WHERE clause of the SQL statement. This causes the RID value in the host variable to be incorrect. DB2 first tries a matching-index scan before using a table-space scan.

To avoid table space scans, you can force the access path of an unsuccessful direct row access to use a matching index scan on the primary-index key by adding PKCOL to the WHERE clause in the SQL statement. 

```
..... WHERE ROWIDCOL=:HVROWID AND PKCOL=:HVPK
```

**Field Name:** QXROIITS

**Short-on-Storage Metrics:**

This topic shows detailed information about “Statistics - Short-on-Storage Metrics”.

**Statistics - Short-on-Storage Metrics**

The field labels shown in the following sample layout of “Statistics - Short-on-Storage Metrics” are described in the following section.

<table>
<thead>
<tr>
<th>SHORT-ON-STORAGE METRICS</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FULL SYSTEM CONTRACTIONS</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>CRITICAL SHORTAGES</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>ABENDS DUE TO SHORTAGES</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**FULL SYSTEM CONTRACTIONS**

The number of full system contractions.

**Field Name:** QSSTCONT

**CRITICAL SHORTAGES**

The number of critical storage shortages after contraction.
Short-on-Storage Metrics

Field Name: QSSTCRIT

ABENDS DUE TO SHORTAGES

The number of abends due to local storage shortage.

Field Name: QSSTABND

Simulated Buffer Pool Statistics:

This topic shows detailed information about “Statistics - Simulated Buffer Pool Statistics”.

Statistics - Simulated Buffer Pool Statistics

The field labels shown in the following sample layout of “Statistics - Simulated Buffer Pool Statistics” are described in the following section.

--- HIGHLIGHTS -----------------------------------------------

INTERVAL START : 11/12/14 21:33:43.65  SAMPLING START: 11/12/14 21:33:43.65  TOTAL THREADS : 41.00
INTERVAL END : 11/12/14 21:45:00.00  SAMPLING END : 11/12/14 21:45:00.00  TOTAL COMMITS : 2593.0K
INTERVAL ELAPSED: 11:16.350028  OUTAGE ELAPSED: 0.000000  DATA SHARING MEMBER: N/A

SIM BP  CUR PAGES IN USE  CUR SEQ PAGES IN USE  SYNC READ I/O (R)  PAGES MOVED INTO SIM BP
  MAX PAGES IN USE  MAX SEQ PAGES IN USE  SYNC READ I/O (S)  SYNC GBP READS (R)  TOTAL SYNC I/O DELAY

BP8  2077148.09  1008208.75  25602267.00  0.00  3399137.00
   2077152.00  301921.00  0.00  3471925.00  2:53:53.887488

BP19  9999.83  2091.49  444527.00  0.00  8181054.00
  10000.00  301921.00  0.00  3471925.00  2:48.717001

BP21  2087151.56  14232.85  3557658.00  0.00  7269201.00
  2087152.00  301921.00  29.00  31990.00  1:33:27.140580

BP23  2087151.47  428373.09  3746564.00  0.00  9301079.00
  2087152.00  455354.00  839.00  71096.00  1:04:06.941451

BP26  2000.00  0.00  182189.00  0.00  331185.00
  2000.00  35.00  0.00  4.00  1:18.368918

SIM BP
The buffer pool ID.

Field Name: QBSPBPID

CUR PAGES IN USE
The number of simulated buffers currently in use in the simulated buffer pool.

Field Name: QBSPIUS

MAX PAGES IN USE
The highest number of simulated buffers that were in use in the simulated buffer pool.

Field Name: QBSPHUS

CUR SEQ PAGES IN USE
The number of simulated buffers currently in use for sequential pages in the simulated buffer pool.

Field Name: QBSPSUS

MAX SEQ PAGES IN USE
The highest number of simulated buffers that were in use for sequential pages in the simulated buffer pool.
**Field Name:** QBSPHSU

**SYNC READ I/O (R)**

The number of pages found in the simulated buffer pool for a random request that could have avoided a synchronous read I/O from disk.

**Field Name:** QBSPDRR

**SYNC READ I/O (S)**

The number of pages found in the simulated buffer pool for a sequential request that could have avoided a synchronous read I/O from disk.

**Field Name:** QBSPDRS

**ASYNC READ I/O**

The number of pages found in the simulated buffer pool for a prefetch request that could have avoided an asynchronous read I/O from disk.

**Field Name:** QBSPDRA

**SYNC GBP READS (R)**

The number of pages found in the simulated buffer pool for a random request that could have avoided a synchronous read from GBP.

**Field Name:** QBSPGRR

**SYNC GBP READS (S)**

The number of pages found in the simulated buffer pool for a sequential request that could have avoided a synchronous read from GBP.

**Field Name:** QBSPGRS

**ASYNC GBP READS**

The number of pages found in the simulated buffer pool for a prefetch request that could have avoided an asynchronous read from GBP.

**Field Name:** QBSPGRA

**PAGES MOVED INTO SIM BP**

The number of pages logically moved into the simulated buffer pool from the virtual buffer pool.

**Field Name:** QBSPMVI

**TOTAL SYNC I/O DELAY**

The total time waiting for synchronous read I/O from disk for pages found in the simulated buffer pool.

**Field Name:** QBSPDTM

---

**Stored Procedures:**

This topic shows detailed information about “Statistics - Stored Procedures”.

**Statistics - Stored Procedures**

The field labels shown in the following sample layout of “Statistics - Stored Procedures” are described in the following section.
Subsystem Services:

This topic shows detailed information about “Statistics - Subsystem Services”.

**Statistics - Subsystem Services**

The field labels shown in the following sample layout of “Statistics - Subsystem Services” are described in the following section.

<table>
<thead>
<tr>
<th>SUBSYSTEM SERVICES</th>
<th>QUANTITY /SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDENTIFY</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE THREAD</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>SIGNON</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>TERMINATE</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ROLLBACK</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>COMMIT PHASE 1</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>COMMIT PHASE 2</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>READ ONLY COMMIT</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>UNITS OF RECOVERY INDOUBT</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>UNITS OF REC.INDOB RESOLVED</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>SYNCHS(SINGLE PHASE COMMIT)</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>QUEUED AT CREATE THREAD</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>SUBSYSTEM ALLIED MEMORY EOT</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>SUBSYSTEM ALLIED MEMORY EOM</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>SYSTEM EVENT CHECKPOINT</td>
<td>17.00</td>
<td>0.09 N/C</td>
<td>0.52</td>
</tr>
<tr>
<td>HIGH WATER MARK IDBACK</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>HIGH WATER MARK IDFORE</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>HIGH WATER MARK CTHREAD</td>
<td>0.00</td>
<td>0.00 N/C</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**IDENTIFY**

The number of successful connections to DB2 from an allied address space (TSO, BATCH, CICS, IMS, CAF, or UTILITY).
**Field Name:** Q3STIDEN

**CREATE THREAD**

The number of successful create thread requests. It does not include DBATs.

A thread is required before an application can use SQL. When established, a thread can have one or more secondary authorization IDs.

A thread is needed to perform any DB2 activity. For example, a thread is needed to run a DB2 utility to perform an IFI request such as READS, or to process a DB2 command such as -DISPLAY THREAD. However, a thread is not created if the command failed because of a syntax error.

**Background and Tuning Information**

Thread reuse can help improve performance.

The term *thread reuse* only applies to IMS and CICS attachments. In the case of the TSO attachment facility and the call attachment facility (CAF), threads cannot be reused, because the threads are allocated to the user address space.

Thread reuse should be considered in the following cases:

- **If transaction volume is high:**
  
  High volume transactions should achieve a high percentage of thread reuse. If threads are reused on low volume transactions, the number of threads needed increases because these threads are not automatically terminated by IMS when not being used. This may result in too many idle threads for the level of the DB2 workload. Under CICS, protected threads are terminated after about 45 seconds if no transaction eligible to reuse the thread has been received.

- **If thread creation cost is significant:**
  
  As a rule of thumb, more than 5% of the total CPU cost of transaction processing is considered significant.

The ACQUIRE and RELEASE parameters of BIND should be specified to minimize the thread creation cost, while providing the needed concurrency:

- If most of the application plan’s SQL statements are executed, then ACQUIRE(ALLOCATE) is cheaper than ACQUIRE(USE).

- If only a small number of the SQL statements are executed, ACQUIRE(USE) becomes cheaper and improves concurrency, because the required resources are only acquired (locked) when the plan actually references (uses) them. An example would be a generalized plan used by many different transactions. It would contain multiple logic paths referencing different tables.

  Note that, when packages are involved, ACQUIRE(USE) is always implicitly used.

- Concurrency in thread reuse is based on page locking provided by the IS and IX intent locks, whose duration is governed by ACQUIRE and RELEASE of BIND. RELEASE(DEALLOCATE) is strongly recommended for thread-reuse transactions to reduce transaction CPU time.
When thread reuse is implemented, monitor the EDM pool. It should be sufficient in size to accommodate expanding plans where the next transaction requires additional plan sections over those that are already part of the plan.

**Field Name:** Q3STCTHD

This is an *exception* field.

**SIGNON**

The number of signons that identified a new user of an existing thread for IMS and CICS.

This field is valid only for CICS and IMS (not valid for TSO, CAF, or UTILITY).

The initial signon does not perform an authorization check because the thread does not exist yet, but a resignon can.

**Background and Tuning Information**

If the number of signons is greater than the number of create thread occurrences, some threads have been reused. In the case of the TSO attachment facility and the call attachment facility (CAF), there is no sign-on, because the user is identified when the TSO address space is connected.

**Field Name:** Q3STSIGN

This is an *exception* field.

**TERMINATE**

The number of time threads that terminated successfully.

This number does not agree with the create thread count because each level of a thread’s access (IDENTIFY, SIGNON, and CREATE THREAD) must be terminated.

**Background and Tuning Information**

The value of this field is usually greater than the number of create thread occurrences, because it also includes the termination of connections to DB2 (IDENTIFY) and other internal counts.

**Field Name:** Q3STTERM

**ROLLBACK**

The number of times a unit of recovery was successfully rolled back. Some reasons for a rollback include:

- Application program abend
- Application rollback request
- Application deadlock on database records
- Application canceled by operator
- Thread abend due to resource shortage

This number also includes successfully aborted agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF).

**Field Name:** Q3STABRT

This is an *exception* field.
COMMIT PHASE 1

The number of successful requests for commit phase 1 in a two-phase commit environment such as CICS or IMS. It includes successfully prepared agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF). It does not include successful single-phase commits or distributed two-phase commits.

Background and Tuning Information

IMS and CICS applications use the PREPARE and COMMIT sequence to commit work.

Field Name: Q3STPREP

This is an exception field.

COMMIT PHASE 2

The number of successful commit phase 2 in a two-phase environment such as CICS or IMS. It includes successfully committed agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF). It does not include successful single-phase commits or distributed two-phase commits.

Background and Tuning Information

IMS and CICS applications use the PREPARE and COMMIT sequence to commit work. A nonzero value for this field indicates that updates have occurred.

Field Name: Q3STCOMM

READ ONLY COMMIT

The number of read-only commits.

There are occasions when CICS or IMS invokes DB2 when no DB2 resource was altered since the completion of the last commit process. When this occurs, DB2 performs both phases of the two-phase commit during the first commit phase and records that the user or job is read-only in relation to its DB2 processing.

Field Name: Q3STRDON

UNITS OF RECOVERY INDOUBT

The number of indoubt units of recovery.

A unit of recovery is indoubt when a failure occurs after a successful prepare but before a successful commit. The failure can occur in the address space of the application, the transaction manager, DB2, or all of these. IMS and CICS applications use the prepare and commit sequence to commit work. Ideally, this value should be 0.

Field Name: Q3STINDT

UNITS OF REC.INDBT RESOLVED

The number of indoubt units of recovery successfully resolved, either automatically or manually. It includes successful indoubt resolutions for agents associated with threads that use the Recoverable Resource Manager Services Attach Facility (RRSAF).
A unit of recovery is indoubt when a failure occurs after a successful prepare but before a successful commit. This number should equal the number of units of recovery gone indoubt. If it is less, then some indoubt units of recovery might still exist.

Field Name: Q3STRIUR

SYNCHS(SINGLE PHASE COMMIT)

The total number of commits in a single-phase commit environment such as TSO, CAF, or UTILITY. IMS applications use the prepare-and-commit sequence; CICS applications use both the synchronized commit request and the prepare-and-commit sequence to commit work.

Note that DBATs executed on this location are not included. For DBAT statistics, see SINGLE PHASE COMMITS received on the DDF activity block.

Field Name: Q3STSYNC

QUEUED AT CREATE THREAD

The number of create thread requests queued (not including DBATs).

The total number of threads accessing data that can be allocated concurrently is the MAX USERS value on the installation panel DSNTIPE. Requests are queued when the MAX USERS value is exceeded. If no threads are queued during peak hours, the maximum number of threads might be set too high.

Background and Tuning Information

As a rule of thumb about 1% thread queuing is acceptable. When this is appreciably higher, increase the value of MAX USERS on the DB2 install panel DSNTIPE.

The combined maximum allowed for MAX USERS and MAX REMOTE ACTIVE cannot exceed 2000.

Field Name: Q3STCTHW

This is an exception field.

SUBSYSTEM ALLIED MEMORY EOT

The number of times non-DB2 tasks abended while connected to DB2.

Field Name: Q3STMEOT

This is an exception field.

SUBSYSTEM ALLIED MEMORY EOM

The number of times MVS deleted non-DB2 address space while connected to DB2.

Field Name: Q3STMEOM

This is an exception field.

SYSTEM EVENT CHECKPOINT

The number of checkpoints DB2 has taken.

A checkpoint is a point at which DB2 records internal status information to the DB2 log. This information is used in the recovery process if DB2 abends.
Background and Tuning Information

For Statistics reports only: A checkpoint is taken when the specified number of log records have been written. A checkpoint is also taken each time DB2 switches to a new active log data set. If the Statistics reporting period is 30 minutes and the value of this field is 15, then DB2 is taking checkpoints every 2 minutes.

If the data sets are too small or the value for LOGLOAD is too low, checkpoints occur too frequently. As a result, database writes do not perform efficiently. The frequency of DB2 checkpoints can be decreased by increasing the value of the DSNZPARM LOGLOAD (CHECKPOINT FREQ on the Tracing install panel).

Rule of thumb: In a production environment, DB2 should take checkpoints every 10 minutes or so.

The default value for LOGLOAD is 50000. The actual value that you choose is dependent on the volume and nature of the work performed by your DB2 subsystem. It is a trade-off between the performance efficiency of larger numbers and the longer time to restart DB2 when there is an abnormal termination.

Field Name: QWSDECKPT
This is an exception field.

HIGH WATER MARK IDBACK

The maximum number of connections to a single instance from batch or TSO background tasks.

This is a high-water mark.

Field Name: Q3STHWIB

HIGH WATER MARK IDFORE

The maximum number of connections to a single instance from TSO foreground tasks.

This is a high water-mark.

Field Name: Q3STHWIF

HIGH WATER MARK CTHREAD

The highest number of batch CICS, IMS, and TSO tasks (CTHREAD) to a single instance.

This is a high-water mark.

Field Name: Q3STHWCT

Subsystem Shared Storage Above 2 GB:

This topic shows detailed information about “Statistics - Subsystem Shared Storage Above 2 GB”.

Statistics - Subsystem Shared Storage Above 2 GB

The field labels shown in the following sample layout of “Statistics - Subsystem Shared Storage Above 2 GB” are described in the following section.
Subsystem Shared Storage Above 2 GB

<table>
<thead>
<tr>
<th>Subsystem Shared Storage Above 2 GB</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>REAL STORAGE IN USE (MB)</td>
<td>2254.52</td>
</tr>
<tr>
<td>SHARED THREAD AND SYSTEM (MB)</td>
<td>2016.57</td>
</tr>
<tr>
<td>SHARED STACK STORAGE (MB)</td>
<td>237.94</td>
</tr>
<tr>
<td>AVERAGE THREAD FOOTPRINT (MB)</td>
<td>2.33</td>
</tr>
<tr>
<td>AUXILIARY STORAGE IN USE (MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>SHARED THREAD AND SYSTEM (MB)</td>
<td>0.00</td>
</tr>
<tr>
<td>SHARED STACK STORAGE (MB)</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**REAL STORAGE IN USE (MB)**

The total amount of real storage in use for 64-bit shared storage. This is recorded at the subsystem level.

*Note:* This field is available in z/OS 1.10 (and maintenance) or later.

*Field Name:* S225RLU

**SHARED THREAD AND SYSTEM (MB)**

The amount of real storage in use for 64-bit shared storage. This does not include shared stack storage. This is recorded at the subsystem level.

*Note:* This field is available in z/OS 1.10 (and maintenance) or later.

*Field Name:* S225SSR

**SHARED STACK STORAGE (MB)**

The amount of real storage in use for 64-bit shared stack storage. This is recorded at the subsystem level.

*Note:* This field is available in z/OS 1.10 (and maintenance) or later.

*Field Name:* S225KSR

**AVERAGE THREAD FOOTPRINT (MB)**

The current average real storage in use for subsystem shared storage of active user threads (allied threads + active and pooled DBATs).

*Field Name:* S225STFR

**AUXILIARY STORAGE IN USE (MB)**

The total amount of auxiliary storage in use for 64-bit shared storage. This is recorded at the subsystem level.

*Note:* This field is available in z/OS 1.10 (and maintenance) or later.

*Field Name:* S225AXU

**SHARED THREAD AND SYSTEM (MB)**

The amount of auxiliary storage in use for 64-bit shared storage that does not include shared stack storage. This is recorded at the subsystem level.

*Note:* This field is available in z/OS 1.10 (and maintenance) or later.

*Field Name:* S225SSA

**SHARED STACK STORAGE (MB)**

The amount of auxiliary storage in use for 64-bit shared stack storage. This is recorded at the subsystem level.
Note: This field is available in z/OS 1.10 (and maintenance) or later.

Field Name: S225KSA

SQL DCL:

This topic shows detailed information about “Statistics - SQL DCL”.

Statistics - SQL DCL

The field labels shown in the following sample layout of “Statistics - SQL DCL” are described in the following section.

<table>
<thead>
<tr>
<th>SQL DCL</th>
<th>QUANTITY/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCK TABLE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>GRANT</td>
<td>1.00</td>
<td>0.01</td>
<td>N/C</td>
</tr>
<tr>
<td>REVOKE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>SET HOST VARIABLE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>SET CURRENT SQLID</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>SET CURRENT DEGREE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>SET CURRENT RULES</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>SET CURRENT PATH</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>SET CURRENT PRECISION</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>CONNECT TYPE 1</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>CONNECT TYPE 2</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>RELEASE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>SET CONNECTION</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>ASSOCIATE LOCATORS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>ALLOCATE CURSOR</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>HOLD LOCATOR</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>FREE LOCATOR</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1.00</td>
<td>0.01</td>
<td>N/C</td>
</tr>
</tbody>
</table>

LOCK TABLE

The number of LOCK TABLE statements executed.

Field Name: QXLOCK

GRANT

The number of GRANT statements executed.

Field Name: QXGRANT

REVOKE

The number of REVOKE statements executed.

Field Name: QXREVOK

SET HOST VARIABLE

The number of SET HOST VARIABLE statements executed. The special register that was retrieved is not tracked.

Field Name: QXSETHV

SET CURRENT SQLID

The number of SET CURRENT SQLID statements executed.

Field Name: QXSETSQL
SET CURRENT DEGREE
The number of SET CURRENT DEGREE statements executed.
Field Name: QXSETCDG

SET CURRENT RULES
The number of SET CURRENT RULES statements executed.
Field Name: QXSETCRL

SET CURRENT PATH
The number of SET CURRENT PATH statements executed.
Field Name: QXSETPTH

SET CURRENT PRECISION
The number of SET CURRENT PRECISION statements executed.
Field Name: QXSETCPR

CONNECT TYPE 1
The number of CONNECT type 1 statements executed.
Field Name: QXCON1

CONNECT TYPE 2
The number of CONNECT type 2 statements executed.
Field Name: QXCON2

RELEASE
The number of RELEASE statements executed.
Field Name: QXREL

SET CONNECTION
The number of SET CONNECTION statements executed.
Field Name: QXSETCON

ASSOCIATE LOCATORS
The number of SQL ASSOCIATE LOCATORS statements executed.
Field Name: QXALOCL

ALLOCATE CURSOR
The number of SQL ALLOCATE CURSOR statements executed.
Field Name: QXALOCC

HOLD LOCATOR
The number of SQL HOLD LOCATOR statements executed.
Field Name: QXHOLDL

FREE LOCATOR
The number of SQL FREE LOCATOR statements executed.
Field Name: QXFREEL

TOTAL
The total number of DCL statements executed.
The exception field name is SSCDCL.

**Field Name:** SSCDCL

**SQL DDL:**

This topic shows detailed information about “Statistics - SQL DDL”.

**Statistics - SQL DDL**

The field labels shown in the following sample layout of “Statistics - SQL DDL” are described in the following section.

<table>
<thead>
<tr>
<th>SQL DDL</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CREATE TABLE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE GLOBAL TEMP TABLE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DECLARE GLOBAL TEMP TABLE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE AUXILIARY TABLE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE INDEX</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE VIEW</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE SYNONYM</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE TABLESPACE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE DATABASE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE STOGROUP</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE ALIAS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE DISTINCT TYPE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE FUNCTION</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE PROCEDURE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE TRIGGER</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE SEQUENCE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE ROLE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE TRUSTED CONTEXT</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE MASK / PERMISSION</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>CREATE VARIABLE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ALTER TABLE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ALTER INDEX</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ALTER VIEW</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ALTER TABLESPACE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ALTER DATABASE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ALTER STOGROUP</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ALTER FUNCTION</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ALTER PROCEDURE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ALTER SEQUENCE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ALTER JAR</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ALTER TRUSTED CONTEXT</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ALTER MASK / PERMISSION</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**SQL DDL CONTINUED**

<table>
<thead>
<tr>
<th>SQL DDL</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DROP TABLE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DROP INDEX</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DROP VIEW</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DROP SYNONYM</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DROP TABLESPACE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DROP DATABASE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DROP STOGROUP</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DROP ALIAS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DROP PACKAGE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DROP DISTINCT TYPE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DROP FUNCTION</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
</tbody>
</table>
SQL DDL

- **DROP PROCEDURE**
  - Total cost: 0.00
- **DROP TRIGGER**
  - Total cost: 0.00
- **DROP SEQUENCE**
  - Total cost: 0.00
- **DROP ROLE**
  - Total cost: 0.00
- **DROP TRUSTED CONTEXT**
  - Total cost: 0.00
- **DROP MASK / PERMISSION**
  - Total cost: 0.00
- **DROP VARIABLE**
  - Total cost: 0.00
- **RENAME TABLE**
  - Total cost: 0.00
- **RENAME INDEX**
  - Total cost: 0.00
- **TRUNCATE TABLE**
  - Total cost: 0.00
- **COMMENT ON**
  - Total cost: 0.00
- **LABEL ON**
  - Total cost: 0.00
- **TOTAL**
  - Total cost: 0.00

---

**CREATE TABLE**

The number of CREATE TABLE statements executed.

**Field Name:** QXCRTAB

**CREATE GLOBAL TEMP TABLE**

The number of CREATE GLOBAL TEMPORARY TABLE statements executed.

**Field Name:** QXCRGTT

**DECLARE GLOBAL TEMP TABLE**

The number of DECLARE GLOBAL TEMPORARY TABLE statements executed.

**Field Name:** QXDCLGTT

**CREATE AUXILIARY TABLE**

The number of CREATE AUXILIARY TABLE statements executed.

**Field Name:** QXCRA TB

**CREATE INDEX**

The number of CREATE INDEX statements executed.

**Field Name:** QXCRINX

**CREATE VIEW**

The number of CREATE VIEW statements executed.

**Field Name:** QXDEFVU

**CREATE SYNONYM**

The number of CREATE SYNONYM statements executed.

**Field Name:** QXCRSYN

**CREATE TABLESPACE**

The number of CREATE TABLESPACE statements executed.

**Field Name:** QXCTABS

**CREATE DATABASE**

The number of CREATE DATABASE statements executed.
Field Name: QXCRDAB

CREATE STOGROUP
The number of CREATE STOGROUP statements executed.

Field Name: QXCRSTG

CREATE ALIAS
The number of CREATE ALIAS statements executed.

Field Name: QXCRLALS

CREATE DISTINCT TYPE
The number of CREATE DISTINCT TYPE statements executed.

Field Name: QXCDIST

CREATE FUNCTION
The number of CREATE FUNCTION statements executed.

Field Name: QXCRUDF

CREATE PROCEDURE
The number of CREATE PROCEDURE statements issued.

Field Name: QXCRPRO

CREATE TRIGGER
The number of CREATE TRIGGER statements executed.

Field Name: QXCTRIG

CREATE SEQUENCE
The number of CREATE SEQUENCE statements.

Field Name: QXCSESEQ

CREATE ROLE
The number of CREATE ROLE statements executed.

Field Name: QXCRROL

CREATE TRUSTED CONTEXT
The number of CREATE TRUSTED CONTEXT statements issued.

Field Name: QXCRCTX

CREATE MASK / PERMISSION
The number of CREATE MASK and CREATE PERMISSION statements executed.

Field Name: QXCREMP

CREATE VARIABLE
The number of CREATE VARIABLE statements.

Field Name: QXCRTSV

ALTER TABLE
The number of ALTER TABLE statements executed.

Field Name: QXALTTA
ALTER INDEX
The number of ALTER INDEX statements executed.
Field Name: QXALTIX

ALTER VIEW
The number of ALTER VIEW statements issued.
Field Name: QXALT VW

ALTER TABLESPACE
The number of ALTER TABLESPACE statements executed.
Field Name: QXALTTS

ALTER DATABASE
The number of ALTER DATABASE statements executed.
Field Name: QXALDAB

ALTER STOGROUP
The number of ALTER STOGROUP statements executed.
Field Name: QXALTST

ALTER FUNCTION
The number of ALTER FUNCTION statements executed.
Field Name: QXALUDF

ALTER PROCEDURE
The number of ALTER PROCEDURE statements executed.
Field Name: QXALPRO

ALTER SEQUENCE
The number of ALTER SEQUENCE statements.
Field Name: QXALTSEQ

ALTER JAR
The number of ALTER JAR statements issued.
Field Name: QXALTJ R

ALTER TRUSTED CONTEXT
The number of ALTER TRUSTED CONTEXT statements issued.
Field Name: QXALTCTX

ALTER MASK / PERMISSION
The number of ALTER MASK and ALTER PERMISSION statements executed.
Field Name: QXALTMP

DROP TABLE
The number of DROP TABLE statements executed.
Field Name: QXDRPTA

DROP INDEX
The number of DROP INDEX statements executed.

Field Name: QXDRPIX

DROP VIEW
The number of DROP VIEW statements executed.

Field Name: QXDRPVU

DROP SYNONYM
The number of DROP SYNONYM statements executed.

Field Name: QXDRPSY

DROP TABLESPACE
The number of DROP TABLESPACE statements executed.

Field Name: QXDRPTS

DROP DATABASE
The number of DROP DATABASE statements executed.

Field Name: QXDRPDB

DROP STOGROUP
The number of DROP STOGROUP statements executed.

Field Name: QXDRPST

DROP ALIAS
The number of SQL DROP ALIAS statements executed.

Field Name: QXDRPAL

DROP PACKAGE
The number of SQL DROP PACKAGE statements executed.

Field Name: QXDRPPKG

DROP DISTINCT TYPE
The number of DROP DISTINCT TYPE statements executed.

Field Name: QXDDIST

DROP FUNCTION
The number of DROP FUNCTION statements executed.

Field Name: QXDRPFN

DROP PROCEDURE
The number of DROP PROCEDURE statements executed.

Field Name: QXDRPPR

DROP TRIGGER
The number of DROP TRIGGER statements executed.

Field Name: QXDRPTR

DROP SEQUENCE
The number of DROP SEQUENCE statements.
SQL DDL

Field Name: QXDROSEQ
DROP ROLE
The number of DROP ROLE statements issued.
Field Name: QXDRPROL
DROP TRUSTED CONTEXT
The number of DROP TRUSTED CONTEXT statements issued.
Field Name: QXDRPCTX
DROP MASK / PERMISSION
The number of DROP MASK and DROP PERMISSION statements executed.
Field Name: QXDRPMP
DROP VARIABLE
The number of DROP VARIABLE statements.
Field Name: QXDRPSV
RENAME TABLE
The number of RENAME TABLE statements executed.
Field Name: QXRNTAB
RENAME INDEX
The number of RENAME INDEX statements issued.
Field Name: QXRNIX
TRUNCATE TABLE
The number of TRUNCATE TABLE statements issued.
Field Name: QXTRTBL
COMMENT ON
The number of COMMENT ON statements executed.
Field Name: QXCMTON
LABEL ON
The number of LABEL ON statements executed.
Field Name: QXLABON
TOTAL
The total number of DDL statements executed.
Field Name: SSCDDL
This is an exception field.

SQL DML:
This topic shows detailed information about “Statistics - SQL DML”.

IBM Db2 Performance Expert on z/OS
The field labels shown in the following sample layout of “Statistics - SQL DML” are described in the following section.

<table>
<thead>
<tr>
<th>SQL DML</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELECT</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>INSERT NUMBER OF ROWS</td>
<td>151.00</td>
<td>0.53</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>UPDATE NUMBER OF ROWS</td>
<td>28.00</td>
<td>0.15</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>MERGE NUMBER OF ROWS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>PREPARE</td>
<td>16.00</td>
<td>0.09</td>
<td>N/C</td>
<td>0.48</td>
</tr>
<tr>
<td>DESCRIBE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>DESCRIBE TABLE</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>OPEN NUMBER OF ROWS</td>
<td>16.00</td>
<td>0.09</td>
<td>N/C</td>
<td>0.48</td>
</tr>
<tr>
<td>CLOSE NUMBER OF ROWS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>FETCH NUMBER OF ROWS</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>TOTAL DML</td>
<td>32.00</td>
<td>0.18</td>
<td>N/C</td>
<td>0.97</td>
</tr>
</tbody>
</table>

**SELECT**

The number of SQL SELECT statements executed.

**Field Name:** QXSELECT

**INSERT**

The number of INSERT statements executed.

**Field Name:** QXINSRT

**INSERT - NUMBER OF ROWS**

The number of rows inserted (DB2 field: QXRWSINSRTD).

**Field Name:** SRWINSRT

**UPDATE**

The number of UPDATE statements executed.

**Field Name:** QXUPDTE

**UPDATE - NUMBER OF ROWS**

The number of rows updated (DB2 field: QXRWSUPDTD).

**Field Name:** SRWUPDAT

**MERGE**

The number of times a MERGE statement was executed.

**Field Name:** QXMERGE

**DELETE**

The number of DELETE statements executed.

**Field Name:** QXDELET

**DELETE - NUMBER OF ROWS**

The number of rows deleted (DB2 field: QXRWSDELETED).
Field Name: SRWDELET

PREPARE
The number of SQL PREPARE statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXPREP

DESCRIBE
The number of DESCRIBE, DESCRIBE CURSOR, DESCRIBE INPUT, and DESCRIBE PROCEDURE statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXDESC

DESCRIBE TABLE
The number of DESCRIBE TABLE statements executed.

Field Name: QXDSCRTB

OPEN
The number of OPEN statements executed.

Field Name: QXOPEN

CLOSE
The number of CLOSE statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXCLOSE

FETCH
The number of FETCH statements executed. This number at the server location might not match the number at the user application because of the internal processing of the Distributed Data Facility (DDF).

Field Name: QXFETCH

FETCH - NUMBER OF ROWS
The number of rows fetched (DB2 field: QXRWSFETCHD).

Field Name: SRWFETCH

TOTAL
The total number of SQL DML statements executed.

Field Name: SSCDML
This is an exception field.

Triggers:
This topic shows detailed information about “Statistics - Triggers”.

Statistics - Triggers
The field labels shown in the following sample layout of “Statistics - Triggers” are described in the following section.
TRIGGERS

<table>
<thead>
<tr>
<th>TRIGGERS</th>
<th>QUANTITY /SECOND /THREAD /COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATEMENT TRIGGER ACTIVATED</td>
<td>0.00 0.00 N/C 0.00</td>
</tr>
<tr>
<td>ROW TRIGGER ACTIVATED</td>
<td>0.00 0.00 N/C 0.00</td>
</tr>
<tr>
<td>SQL ERROR OCCURRED</td>
<td>0.00 0.00 N/C 0.00</td>
</tr>
</tbody>
</table>

**STATEMENT TRIGGER ACTIVATED**

The number of times a statement trigger was activated.

**Field Name:** QXSTTRG

**ROW TRIGGER ACTIVATED**

The number of times a row trigger was activated.

**Field Name:** QXROWTRG

**SQL ERROR OCCURRED**

The number of times an SQL error occurred during the execution of a triggered action. This includes errors that occur in user-defined functions or stored procedures that are called from triggers and that pass back a negative SQLCODE.

**Field Name:** QXTRGERR

**Use Currently Committed:**

This topic shows detailed information about “Statistics - Use Currently Committed”.

**Statistics - Use Currently Committed**

The field labels shown in the following sample layout of “Statistics - Use Currently Committed” are described in the following section.

<table>
<thead>
<tr>
<th>USE CURRENTLY COMMITTED</th>
<th>QUANTITY /SECOND /THREAD /COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSERT ROWS SKIPPED</td>
<td>0.00 0.00 N/C 0.00</td>
</tr>
<tr>
<td>DELETE ROWS ACCESSED</td>
<td>0.00 0.00 N/C 0.00</td>
</tr>
<tr>
<td>UPDATE ROWS ACCESSED</td>
<td>0.00 0.00 N/C 0.00</td>
</tr>
</tbody>
</table>

**INSERT ROWS SKIPPED**

The number of rows skipped by read transactions because of uncommitted INSERT operations (using currently committed semantic for FETCH).

**Field Name:** QISTRCCI

**DELETE ROWS ACCESSED**

The number of rows accessed by read transactions because of uncommitted DELETE operations (using currently committed semantic for FETCH).

**Field Name:** QISTRCCD

**UPDATE ROWS ACCESSED**

The number of rows accessed by read transactions because of uncommitted UPDATE operations (using currently committed semantic for FETCH).

**Field Name:** QISTRCCU

**User-Defined Functions:**

This topic shows detailed information about “Statistics - User-Defined Functions”.

**User-Defined Functions:**

This topic shows detailed information about “Statistics - User-Defined Functions”.
User-Defined Functions

Statistics - User-Defined Functions

The field labels shown in the following sample layout of “Statistics - User-Defined Functions” are described in the following section.

<table>
<thead>
<tr>
<th>USER DEFINED FUNCTIONS</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>ABENDED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>TIMED OUT</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
<tr>
<td>REJECTED</td>
<td>0.00</td>
<td>0.00</td>
<td>N/C</td>
<td>0.00</td>
</tr>
</tbody>
</table>

EXECUTED
The number of user-defined functions executed.

Field Name: QXCAUD

ABENDED
The number of times a user-defined function abended.

Field Name: QXCAUDAB

TIMED OUT
The number of times a user-defined function timed out while waiting to be scheduled.

Field Name: QXCAUDTO

REJECTED
The number of times a user-defined function was rejected.

Field Name: QXCAUDRJ

Workfile Database:

This topic shows detailed information about “Statistics - Workfile Database”.

This block shows information about the Workfile Database used by DB2 as storage for work files for processing SQL statements, and as storage for created and declared global temporary tables.

The performance metrics in the report block distinguish between work files for declared global temporary tables (DGTTs) and work files for non-DGTT data such as created global temporary tables or sort results. In addition, DB2 supports in-memory work files which are sufficient for performing simple operations and do not require physical allocations. In-memory work files may overflow to physical records in the Workfile Database in case of memory constraints.

Statistics - Workfile Database

The field labels shown in the following sample layout of “Statistics - Workfile Database” are described in the following section.

<table>
<thead>
<tr>
<th>WORKFILE DATABASE</th>
<th>QUANTITY</th>
<th>/SECOND</th>
<th>/THREAD</th>
<th>/COMMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL STORAGE CONFIG (KB)</td>
<td>256.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>TOT DGTT STOR CONFIG (KB)</td>
<td>128.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>TOT WF STOR CONFIG (KB)</td>
<td>128.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>TOTAL STORAGE THRESHOLD (%)</td>
<td>90.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>MAX TOTAL STORAGE USED (KB)</td>
<td>128.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>MAX DGTT STOR USED (KB)</td>
<td>64.00</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Field Name</td>
<td>Description</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX WF STORAGE USED (KB)</td>
<td>64.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUR TOTAL STORAGE USED (KB)</td>
<td>2.06 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUR DGTT STOR USED (KB)</td>
<td>1.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUR WF STORAGE USED (KB)</td>
<td>1.06 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STORAGE IN 4K TS (KB)</td>
<td>2.06 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STORAGE IN 32K TS (KB)</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4K USED INSTEAD OF 32K TS</td>
<td>0.00 0.00 N/C 0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32K USED INSTEAD OF 4K TS</td>
<td>0.00 0.00 N/C 0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX ACTIVE (DM) IN-MEMORY</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX ACT (NONSORT) IN-MEM</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUR ACTIVE (DM) IN-MEMORY</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUR ACT (NONSORT) IN-MEM</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX STOR (DM) IN-MEM (KB)</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUR STOR (DM) IN-MEM (KB)</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX ACTIVE (SORT) IN-MEMORY</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUR ACTIVE (SORT) IN-MEMORY</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX STOR (SORT) IN-MEM (KB)</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUR STOR (SORT) IN-MEM (KB)</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN-MEM (NONSORT) OVERFLOWED</td>
<td>0.00 0.00 N/C 0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN-MEM WORKF NOT CREATED</td>
<td>0.00 0.00 N/C 0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGENT STORAGE CONFIG (KB)</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUMBER OF LIMIT EXCEEDED</td>
<td>0.00 0.00 N/C 0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGENT STORAGE THRESHOLD (%)</td>
<td>90.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX AGENT STORAGE USED (KB)</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DM FAST INSERT PIPES</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DM FAST INSERT PIPES DISAB</td>
<td>0.00 N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL STORAGE CONFIG (KB)**

The total storage (KB) configured for all table spaces in the Workfile Database.

**Field Name:** QISTWSTG

**TOT DGTT STOR Config (KB)**

The total preferred storage (KB) configured for DGTTs in the Workfile Database.

**Field Name:** QISTDGTTSTG

**TOT WF STOR Config (KB)**

The total preferred storage (KB) configured for non-DGTT work files in the Workfile Database.

**Field Name:** QISTWFSTG

**TOTAL STORAGE THRESHOLD (%)**

The alert threshold of high space-usage for DGTTs or non-DGTT work files in the Workfile Database (derived from zparm WFSTGUSE_SYSTEM_THRESHOLD).

**Field Name:** QISTSSTH

**MAX TOTAL STORAGE USED (KB)**

The maximum total amount of storage (KB) ever used in the Workfile Database at system level since DB2 startup.

**Field Name:** QISTWMXU

**MAX DGTT STOR USED (KB)**

---

Chapter 6. Batch reporting  4483
Workfile Database

The maximum total amount of storage (KB) ever used for DGTTs in the Workfile Database by all agents on the system since DB2 startup.

Field Name: QISTDGTTMXU

MAX WF STORAGE USED (KB)

The maximum total amount of storage (KB) ever used for non-DGTT work files in the Workfile Database by all agents on the system since DB2 startup.

Field Name: QISTWFMXU

CUR TOTAL STORAGE USED (KB)

The total amount of storage (KB) currently used in the Workfile Database at system level.

Field Name: QISTWCTO

CUR DGTT STOR USED (KB)

The total amount of storage (KB) currently used for DGTTs in the Workfile Database by all agents on the system.

Field Name: QISTDGGTCTO

CUR WF STORAGE USED (KB)

The total amount of storage (KB) currently used for non-DGTT work files in the Workfile Database by all agents on the system.

Field Name: QISTWFCTO

STORAGE IN 4K TS (KB)

The total amount of storage (KB) currently used for 4 KB table spaces in the Workfile Database.

Field Name: QISTW4K

STORAGE IN 32K TS (KB)

The total amount of storage (KB) currently used for 32 KB table spaces in the Workfile Database.

Field Name: QISTW32K

4K USED INSTEAD OF 32K TS

The number of times that space in a 4 KB page table space was used because space in a 32 KB page table space was preferred but not available in the Workfile Database.

Field Name: QISTWFP2

32K USED INSTEAD OF 4K TS

The number of times that space in a 32 KB page table space was used because space in a 4 KB page table space was preferred but not available in the Workfile Database.

Field Name: QISTWFP1

MAX ACTIVE (DM) IN-MEMORY

The maximum number of in-memory work files (created by the Data Manager) that were active at any point in time since DB2 startup. This is a high-water mark count.
Field Name: QISTIMAH

MAX ACT (NONSORT) IN-MEM

The maximum number of non-SORT related in-memory work files created by the Data Manager that were active at any point in time since DB2 startup. This is a high-water mark count.

Field Name: QISTI2AH

CUR ACTIVE (DM) IN-MEMORY

The number of currently active in-memory work files created by the Data Manager.

Field Name: QISTIMAC

CUR ACT (NONSORT) IN-MEM

The number of currently active non-SORT related in-memory work files created by the Data Manager.

Field Name: QISTI2AC

MAX STOR (DM) IN-MEM (KB)

The maximum space used for active in-memory work files created by the Data Manager at any point in time since DB2 startup. This is a high-water mark count.

Field Name: QISTIMSH

CUR STOR (DM) IN-MEM (KB)

The total space used for currently active in-memory work files created by the Data Manager.

Field Name: QISTIMSC

MAX ACTIVE (SORT) IN-MEMORY

The maximum number of in-memory work files created by the SORT component that were active at any point in time since DB2 start. This is a high-water mark count.

Field Name: QISTSIAH

CUR ACTIVE (SORT) IN-MEMORY

The number of currently active in-memory work files created by the SORT component.

Field Name: QISTSIAAC

MAX STOR (SORT) IN-MEM (KB)

The maximum space used for active in-memory work files created by the SORT component at any point in time since DB2 startup. This is a high-water mark count.

Field Name: QISTSISH

CUR STOR (SORT) IN-MEM (KB)

The total space used for currently active in-memory work files created by the SORT component.

Field Name: QISTSISC

IN-MEM (NONSORT) OVERFLOWED
Workfile Database

The number of times non-SORT related in-memory work files overflowed into a physical table space.

Field Name: QISTI2OF

IN-MEM WORKF NOT CREATED

The number of times an in-memory work file was not created due to critical storage conditions.

Field Name: QISTIMNC

AGENT STORAGE CONFIG (KB)

The maximum amount of storage (KB) in the Workfile Database that can be used by each agent (derived from ZPARM MAXTEMPS).

Field Name: QISTWMXA

NUMBER OF LIMIT EXCEEDED

The number of times the maximum amount of storage that an agent can use in the Workfile database was exceeded.

Field Name: QISTWFNE

AGENT STORAGE THRESHOLD (%)

The alert threshold of high space-usage for DGTTs or non-DGTT work files in the Workfile Database by an agent (derived from ZPARM WFGUSE_AGENT_THRESHOLD).

Field Name: QISTAStH

MAX AGENT STORAGE USED (KB)

The maximum amount of storage (KB) ever used in the Workfile Database by any thread since DB2 startup.

Field Name: QISTAMXU

DM FAST INSERT PIPES

The number of Data Manager (DM) fast insert pipes that were allocated since DB2 restart.

Field Name: QISTINPA

DM FAST INSERT PIPES DISAB

The number of DM fast insert pipes that have been disabled since DB2 restart.

Field Name: QISTINPD

The Statistics Save-File Utility

Use the Save-File utility to migrate and convert Statistics Save data sets into a format suitable for OMEGAMON for Db2 PE V5.4.0.

The function performed is specified in a parameter on the EXEC command.

Migrating Data Sets:

This topic describes how to migrate Statistics Save data sets created by OMEGAMON for Db2 PE V5.2.0 or V5.3.0 into the record format of OMEGAMON for Db2 PE V5.4.0.
To migrate Statistics Save data sets:

1. Create a VSAM data set for V520 or V530.
2. Define an OMEGAMON for Db2 PE V5.4.0 VSAM data set using IDCAMS as output.
3. Use the MIGRATE function of the Save-File utility to migrate the data sets of OMEGAMON for Db2 PE V5.2.0 or V5.3.0.
4. Restore the migrated VSAM data sets in V540 and compare the reports.

The RK02SAMP library provides the sample job DGOPJSMI, which you can modify to suit your installation.

Note:
- You can only process VSAM data sets in the same version of OMEGAMON for Db2 PE as they have been created. For example, if you create a SAVE data set in version 530, it can only be RESTORED in version 530. To use a SAVE data set in a higher version, you must migrate the SAVE data set using a migration utility.
- Before you restore or convert SAVE data sets from V5.2.0 or V5.3.0, you must first migrate this data to OMEGAMON for Db2 PE V5.4.0 format.
- Restored reports only show fields that are supported by the current version of OMEGAMON for Db2 PE.

Converting Data Sets:

To store performance data in Performance Database tables or spreadsheets, you must first convert Statistics Save data sets of OMEGAMON for Db2 PE V5.4.0 into sequential data sets that can be used by the DB2 load utility or the Spreadsheet Input-Data Generator of OMEGAMON for Db2 PE.

You can use the CONVERT function of the Statistics Save-File Utility to convert Statistics Save data sets of OMEGAMON for Db2 PE V5.4.0 into sequential data sets. The RK02SAMP library provides the sample job DGOPJSCO, which you can modify to suit your installation.

You can also use the STATISTICS SAVE subcommand with the CONVERT option to convert and save reduced data into a sequential data set. The output of this subcommand option is a sequential data set, that is specified and requested in SYSIN. The data set attributes are:

**Organization**
- PS

**Record format**
- VB

**Record length**
- 9072

**Block size**
- 9076

For more information about the STATISTICS SAVE subcommand refer to "Report Command Reference."
Workfile Database

The following list shows the types of records that are created by the CONVERT function (or CONVERT command option) and where to find their layout descriptions in the sample library RKO2SAMP:

- General data records (DGOSDGEN)
- Buffer Pool data records (DGOSDBUF)
- DDF data records (DGOSDDDF)
- Group Buffer Pool records (DGOSDBGP)
- Buffer Pool data set records (DGOSDSET)
- Accelerator data records (DGOSDXCL)
- Aggregated Accounting data records (DGOSDACC)
- Storage data records (DGOSDSTG)

For more information of the Spreadsheet Input-Data Generator refer to Reporting User’s Guide.

Save-File Utility DD Statements:

This topic lists the DD statements needed for migration and conversion. All of the DD statements described here are required.

Input

The DDNAME of the input data set. This can be an OMEGAMON for Db2 PE V5.2.0 or V5.3.0 Statistics Save data set for the MIGRATE function, or an OMEGAMON for Db2 PE V5.4.0 Statistics VSAM Save data set for the CONVERT function.

Output

The DDNAME of the output data set.

For CONVERT, allocate the data set with the following characteristics:

```
RECFM
  VB
LRECL
  9072
BLKSIZE
  9076
```

Refer to "OMEGAMON for Db2 PE VSAM Data Sets" on page 4647 for details on how to specify the allocated data sets to migrate to OMEGAMON for Db2 PE V5.4.0.

DPMLOG

OMEGAMON for Db2 PE command processor messages and messages indicating exceptional processing conditions are written to DPMLOG. If DPMLOG is not specified, it is dynamically allocated to the SYSOUT message class of the job. Allocate the data set with the following attributes:

```
RECFM
  FBA
```
The Statistics File Data Set and Output Records

Use the FILE subcommand to format DB2 Statistics records and write them to sequential data sets suitable for use by the DB2 load utility. You can store unreduced Statistics data into the performance database. Use the performance database to produce tailored reports using a reporting facility such as Query Management Facility (QMF).

The format of the output data from the Statistics File data set is identical with that of the CONVERT function of the Save-File utility.

You can also use the File data sets to generate CSV (comma-separated value) input-data. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables. For more information refer to Reporting User’s Guide.

The Statistics File data set is produced when OMEGAMON for Db2 PE Statistics delta records are externalized using the FILE subcommand. Each such delta record represents the period of time between two pairs of DB2 Statistics delta records and can be represented in the File data set by up to 8 types of records. File data is written to a File data set. The following types of records are created. Descriptions of the layouts of these records can be found in the RKO2SAMP library under the following names:

Table 288. Record Type and Description for Statistics File Data Sets and Output Records

<table>
<thead>
<tr>
<th>Record type</th>
<th>Description</th>
<th>Layout description in the RKO2SAMP library</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Statistics</td>
<td>Records contain data from IFCID 001 and 002. One general Statistics record is produced for each Statistics delta record.</td>
<td>DGOSDGEN</td>
</tr>
<tr>
<td>Buffer Pool Statistics</td>
<td>Records contain data derived from IFCID 002 records. One buffer pool record is produced for each buffer pool active at the start time of the corresponding delta record. Each OMEGAMON for Db2 PE Statistics delta record can produce up to 80 buffer pool Statistics records.</td>
<td>DGOSDBUF</td>
</tr>
<tr>
<td>DDF Statistics</td>
<td>Records contain DDF Statistics originating from IFCID 001. A DDF record is produced for all remote locations that used DRDA (where at least one location used this method at the start time of the delta record).</td>
<td>DGOSDDDF</td>
</tr>
<tr>
<td>Group Buffer Pool Statistics</td>
<td>Records contain data derived from IFCID 002 records. One group buffer pool record is produced for each group buffer pool active at the start time of the corresponding delta record. Each OMEGAMON for Db2 PE Statistics delta record can produce up to 80 group buffer pool Statistics records.</td>
<td>DGOSDGBP</td>
</tr>
<tr>
<td>Buffer Pool Data Set</td>
<td>Records contain data derived from IFCID 199. One row is written for each open data set that has an I/O event rate at least one event per second during the reporting interval.</td>
<td>DGOSDSET</td>
</tr>
<tr>
<td>Accelerator</td>
<td>Records contain data derived from IFCID 002. One row is written for each active accelerator attached to the DB2 subsystem that is currently reported.</td>
<td>DGOSDXCL</td>
</tr>
</tbody>
</table>
### System parameters report set

These topics provide information about the system parameters reports.  

**Note:** For an introduction to the System Parameters report set and general system parameter information refer to the Reporting User’s Guide.

#### System Parameters Report Header

This section introduces the System Parameters report header.

There are two different types of report headers for system parameters, for:

- MEMBER scope reports.
- GROUP scope reports.

#### System Parameters Report Header for MEMBER-Scope and GROUP-Scope Reports

Here is an example of a System Parameters report header for MEMBER-scope reports:

```plaintext
LOCATION: STLECI
GROUP: GPA
MEMBER: M2
SUBSYSTEM: SSDQ
DB2 VERSION: V10

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)  
SYSTEM PARAMETERS REPORT  
PAGE: 1-1  
ACTUAL FROM: 01/30/15 22:50:03.98
```

Here is an example of a System Parameters report header for GROUP-scope reports:

```plaintext
LOCATION: SYS1DSN2
GROUP: DSN2
DB2 VERSION: V10

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)  
SYSTEM PARAMETERS REPORT  
PAGE: 4-1  
ACTUAL FROM: 01/30/15 06:10:23.14
```

#### Field description

The OMEGAMON for Db2 PE system parameters report header contains the following information, described line by line:

**LOCATION**

The DB2 reporting location. If the location name is not available, the DB2 data sharing group name is printed in this field. If the DB2 data sharing group name does not exist, the DB2 subsystem ID is printed.

**OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VnRnMn)**

The product name and the version, release, and modification level.

---

<table>
<thead>
<tr>
<th>Record type</th>
<th>Description</th>
<th>Layout description in the RKO2SAMP library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregated Accounting</td>
<td>Records contain data derived from IFCID 369. One row is written for a</td>
<td>DGOSDACC</td>
</tr>
<tr>
<td></td>
<td>connection type IMS, CICS, RRSAF, Utility, Batch, or DDF containing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>aggregated wait and CPU times of threads with IFCID 3 events for this</td>
<td></td>
</tr>
<tr>
<td></td>
<td>connection type.</td>
<td></td>
</tr>
<tr>
<td>Storage Data</td>
<td>Records contain data derived from IFCID 225. One row is written for</td>
<td>DGOSDSTG</td>
</tr>
<tr>
<td></td>
<td>DB2 storage metrics valid for the reporting interval.</td>
<td></td>
</tr>
<tr>
<td>Simulated Buffer Pool</td>
<td>Records contain data derived from IFCID 002 records (QBST section).</td>
<td>DGOSDSIM</td>
</tr>
<tr>
<td></td>
<td>One buffer pool record is produced for each simulated buffer pool.</td>
<td></td>
</tr>
</tbody>
</table>
**System Parameters - Report Header**

**PAGE**
The page number in the format ill-nnnnn, where ill denotes the location number within the report and nnnnn the page number within the location.

**GROUP**
The name of the DB2 data sharing group. This field shows N/A if there is no group name.

**SYSTEM PARAMETERS REPORT**
The title of the report.

**MEMBER**
The name of the DB2 data sharing member or the member name of the DB2 subsystem. This field shows N/A if there is no member name.

This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

**SUBSYSTEM**
The ID of the DB2 subsystem that generated the data. This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

**ACTUAL FROM/TO**
The date and time of the first and last record included in the log for a location, group, subsystem, or member.

**DB2 VERSION**
The DB2 version number of the subsystem that generated the data.

**Example of the System Parameters Report**
This section shows an example of the System Parameters report.

**Example of the System Parameters report**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>OMPDA5</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSRAMO)</th>
<th>PAGE: 1-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP</td>
<td>N/P</td>
<td>SYSTEM PARAMETERS REPORT</td>
<td>-----------</td>
</tr>
<tr>
<td>MEMBER</td>
<td>N/P</td>
<td>ANT</td>
<td>-----------</td>
</tr>
<tr>
<td>SUBSYSTEM</td>
<td>D/A</td>
<td>DB2 VERSION: V10</td>
<td>-----------</td>
</tr>
<tr>
<td>MVS PARAMLIB UPDATE PARAMETERS (DSNTIPM)</td>
<td>IRLM INSTALLATION PARAMETERS (DSNTIPN)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBSYSTEM DEFAULT (SSID)</td>
<td>IRLM SUBSYSTEM NAME (IRLMSID)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUPPRESS SOFT ERRORS (SUPER)</td>
<td>IRLM RESOURCE TIMEOUT IN SECONDS (IRLMMWT)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STORAGE SIZES INSTALLATION PARMS (DSNTPC,DSTIPE,DSNTPEI)</td>
<td>IRLM AUTOMATIC START (IRLMAUT)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX NO OF DATA SETS CONCURRENTLY IN USE (DSMAX)</td>
<td>IRLM START PROCEDURE NAME (IRLMSPC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDM STATEMENT CACHE SIZE IN KB (EDMSMTMC)</td>
<td>IRLM SECONDS DB2 WILL WAIT FOR IRLM START (IRLMWST)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDM DB CACHE SIZE IN KB (EDMDBC)</td>
<td>U LOCK FOR REPEATABLE READ OR READ STABILITY (RRLOCK)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDM SKELETON POOL SIZE IN KB (EDMSKLE)</td>
<td>X LOCK FOR SEARCHED UPDATE/DELETE (XKLUPTDL)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAXIMUM SIZE OF EDM POOL IN BYTES (EDMPOOL)</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAXIMUM SIZE OF SORT POOL IN BYTES (SORTPOOL)</td>
<td>IMS/BMP TIMEOUT FACTOR (BMPINT)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAXIMUM SIZE OF ORL POOL IN KB (MAXORL)</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX NO OF USERS CONCURRENTLY RUNNING IN DB (CITREAD)</td>
<td>400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX NO OF CONCURRENT REMOTE ACTIVE CONNECTIONS (MAXRAT)</td>
<td>200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX NO OF REMOTE CONNECTIONS (CONOBAT)</td>
<td>10,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX NO OF TSO CONNECTIONS (ITDOR)</td>
<td>200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX NO OF BATCH CONNECTIONS (JOBBACK)</td>
<td>200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAXIMUM KEEP DYNAMIC STATISTICS (MAXKEEPD)</td>
<td>5,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX OPEN FILE KEYS (MAXOFK)</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAXIMUM REAL STORAGE (REALSTORAGE MANAGEMENT)</td>
<td>AUTO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAXIMUM REAL STORAGE (REALSTORAGE_MAX)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONTRACT THREAD STORAGE (CONSTOR)</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAXIMUM THREAD STORAGE (MINSTOR)</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LONG-RUNNING READER IN MINUTES (LRDTHDL)</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDL TIMEOUT FACTOR (DLTDX)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INDEX Cleanup THREADS (INDEX_CLEANUP_THREADS)</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3990 CACHE (SEOCACH)</td>
<td>SEQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRACING, CHECKPOINT &lt; PSEUDO-CLOSE PARAMETERS (DSNTPN)</td>
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<tr>
<td>START AUDIT TRACE (AUDITST)</td>
<td>NO</td>
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</tbody>
</table>

**Chapter 6. Batch reporting**

4491
System Parameters - Report

START GLOBAL TRACE (TRACSTR) ..................................................NO
TRACE TABLE SIZE IN KB (TRACTBL) .............................................16
LOCATE TABLE SIZE IN KB (TRACLOR) ...........................................1
START SMF ACCOUNTING (SMFACT) ..................................................1
START SMF STATISTICS (SMFSTAT) .................................................1,3,4,5,6
SYNCHRONIZATION INTERVAL IN MINUTES (SYNSI) .........................1 SYNCHRONIZATION INTERVAL WITHIN THE HOUR (SYNHC) ..............NO
ONLINE TABLE SIZE INTERVAL IN MIN (INDT) ...................................5
MONITOR BUFFER SIZE IN KB (MONSIZE) ........................................1,048,576
UNIQUE IDENTIFIER (UID) ............................................................0
DOF/AF ACCUM (ACCUMAF) ..........................................................10
AGGREGATION FIELDS (ACUMDF) ......................................................OFF
COMPRESSION SMF REC’S (SMFREC) ...............................................OFF

LOCATION: OMPDAS
GROUP: N/P
SYSTEM PARAMETERS REPORT
MEMBER: N/P
SUBSYSTEM: DAS
DB2 VERSION: V10

DISTRIBUTED DATA FACILITY PANEL 2 (DSNTIP2)

ARCHIVE LOG RACF PROTECTION (PROTECT) ......................................NO
DB2 AUTHORIZATION ENABLED (AUTH) ............................................YES
PLAN AUTHORIZATION CACHE SIZE (AUTHCACHE) ...............................3,072
PACKAGE AUTHORIZATION CACHE SIZE (CACHEPC) ..............................5,242,880
ROUTINE AUTHORIZATION CACHE SIZE (CACHERC) .............................5,242,880
AUTH EXIT CHECK (AUTHEXIT) .......................................................N/A
AUTH EXIT CHECK REFRESH (AUTHEXITR) ......................................N/A
SYSTEM ADMINISTRATOR 1 AUTHORIZATION ID (SYSADM) ....................LOGO
SYSTEM ADMINISTRATOR 2 AUTHORIZATION ID (SYSAADM) ..................LOGO
SYSTEM OPERATOR 1 AUTHORIZATION ID (SYSPR) ...............................EMIL
DEFAULT (UNKNOWN) USER AUTHORIZATION ID (DEFAULT) ....................N/A
RESOURCE LIMIT TABLE CREATOR AUTH ID (RFAUTH) ..........................N/P
SYSTEM BIND NEW PACKAGE (BINDNEWN) ........................................YES
DBA CREATE VIEW (DBACRVR) ..........................................................YES

DATA DEFINITION CONTROL SUPPORT (DSNTP2)

INSTALL DD CONTROL (RFGINSTL) ..................................................NO
CONTROL ALL APPLICATIONS (RFGDEPL) ........................................NO
REQUIRE FULL NAMES (RFGFUL) .....................................................YES
UNREGISTERED DD DEFAULT (RFGDFLT) ...........................................YES
ACCEPT REGISTER TABLE (RFGACCT) .............................................YES
DSN REGISTRATION DATABASE NAME (RFGDBNAME) ...............................DSNDSGDB
APPL REGISTRATION TABLE NAME (RFGMPAT) ....................................DSN,REGISTER,APPL
OBJECT REGISTRATION TABLE NAME (RFGMOMP) ...............................DSN,REGISTER,OBJ
ESCAPE CHARACTERS (RFGESCP) ...................................................."X’40’"

DB2 VERSION INSTALL (DSNTIP1)

DATA SHARING ENABLED (DSHARE) ...................................................NO
CURRENT DB2 RELEASE (NEWFUN) ..................................................YES
CURRENT DB2 RELEASE 1 .............................................................1
CURRENT DB2 RELEASE 2 .............................................................2
COMPRESSION FOR DIRECTORIES (COMPRESS_DIR) ............................N/A

LOCATION: OMPDAS
GROUP: N/P
SYSTEM PARAMETERS REPORT
MEMBER: N/P
SUBSYSTEM: DAS
DB2 VERSION: V10

APPLICATION PROGRAMMING DEFAULTS PANEL 1 (DSNTP1)

APPLICATION PROGRAMMING DEFAULTS PANEL 2 (DSNTP4,DSNTP1)

MINIMUM DIVIDE SCALE (DECIVIA) ..................................................NO
DECIMAL ARITHMETIC (DECA) ..........................................................YES
USE FOR DYNAMIC RULES (DYNRULES) ..........................................YES
STATIC DESCRIBE (DESCRIPT) .......................................................YES
DATE FORMAT (DATE) .................................................................150
TIME FORMAT (TIME) .................................................................150
DATE LOCAL TIME (DATELEN) .......................................................1,148
TIME LOCAL TIME (TIMELEN) .......................................................N/A
IMPLICIT TIMEZONE .................................................................CURRENT
STD SQL LANGUAGE (STSSQL) .......................................................YES
PAD NULL-TERMINATED (PADNULL) ................................................N/A
APPL COMPAT LEVEL (APPLCOMPAT) ..............................................N/A

SECONDARY SPACE ALLOCATION (SECOY) ...........................................10
ARCHIVE LOG BLOCK SIZE IN KB (BLKSIZE) ....................................24,576
Tape Unit Deallocate Period (DEALCT) .........................................0.0000:00
MAX NUMBER OF DATABASES IN SESSION (DBMAX) ...........................10,000
FIRST ARCHIVE COPY MASS STG GROUP NAME ................................NO
SECOND ARCHIVE COPY MASS STG GROUP NAME ................................NO

LOCATION: OMPDAS
GROUP: N/P
SYSTEM PARAMETERS REPORT
MEMBER: N/P
SUBSYSTEM: DAS
DB2 VERSION: V10

DEFINE GROUP OR MEMBER (DSNTPK)

GROUP NAME (GPNNAME) ..............................................................N/P
MEMBER NAME (MEMNAME) ..........................................................DAS
MAX NUMBER OF MEMBERS ................................................................248
RANDOM ACCESS ATTACH (RANATT) ..............................................YES
DEL CF STRUCTS (DEL_CFSTRUCTS_ON_RESTART) .............................N/A
PARALLELISM ASSISTANT (ASSIST) ................................................YES
PARALLELISM COORDINATOR (COORDNTR) .....................................YES

LOCATION: OMPDAS
GROUP: DAS
SYSTEM PARAMETERS REPORT
MEMBER: N/P
SUBSYSTEM: DAS
DB2 VERSION: V10

DISTRIBUTED DATA FACILITY PANEL 1 (DSNTP1)

FACILITY NAME .................................................................N/A

LOCATION: OMPDAS
GROUP: DAS
SYSTEM PARAMETERS REPORT
MEMBER: N/P
SUBSYSTEM: DAS
DB2 VERSION: V10

LOG INSTALLATION PARAMETERS (DSNTP1,DSNTPH)

OUTPUT BUFFER SIZE IN KB (OUTBUFF) .........................................4,000
CHECKPOINT TYPE (CHKTYPE) .......................................................SINGLE
MINUTES/CHECKPOINT (CHKMIN) ................................................N/P
CHECKPOINT FREQUENCY (CHKFREQ) ..............................................500,000
 UR CHECK FREQUENCY (URCHK) ..................................................0
 LIMIT BACKOUT (LIMIT) ...............................................................YES
 BACKOUT DURATION (BACKDUR) ..................................................5
 PLANE DURATION (PLAN) ...............................................................5
 CHECKPOINTS BETWEEN LEVEL ID UPDATES (BLEVEL) .....................5
 NUMBER OF ACTIVE LOG COPIES (WACOPY) ...................................1
 COPY 1 PREFIX (ARCPFX1) ............................................................OSN4,ARCHLOG1
 COPY 2 PREFIX (ARCPFX2) ............................................................OSN5,ARCHLOG2

LOCATION: OMPDAS
GROUP: DAS
SYSTEM PARAMETERS REPORT
MEMBER: N/P
SUBSYSTEM: DAS
DB2 VERSION: V10

TIMESTAMP ARCHIVE LOG DATA SETS (STAMP) ................................YES

LOCATION: OMPDAS
GROUP: DAS
SYSTEM PARAMETERS REPORT
MEMBER: N/P
SUBSYSTEM: DAS
DB2 VERSION: V10

IBM Db2 Performance Expert on z/OS
LIKE BLANK INSIGNIFICANT (LIKE Blank_InsigNificant)................N/A
FULLY QUALIFIED NAME OF DSNAME LOAD MODULE........................SVLSYN,DAS,DSNEXIT(DSNMLOAD)
OPERATOR FUNCTIONS INSTALLATION PARAMETERS (DSNTIP1):
  WTO ROUTE CODES (ROUTECD)................................1
  RESOURCE LIMIT FACILITY AUTOMATIC START (RLF)..................NO
  RESOURCE LIMIT SPECIFICATION TABLE SUFFIX (RLFTBL)............NO
  RESOURCE LIMIT SPEC TABLE ERROR ACTION (RLFERR)................MOPLIT
  AUTO BIND (ABIND)........................................YES
  ALLOW EXPLAIN AT AUTOBIND (ABEXPL)..................NO
  DQP SUPPORT (DEQP)........................................NO
  SITE TYPE (SITEYPE)........................................LOCAL
  LOCALSITE TRACKER SITE (TRRTSITE)..........................NO
  READ SPACE COPY ARCHIVE (ACPRFST)................................NO
  REAL TIME STATS (STATSINT)........................................30
  STATISTICS FEEDBACK (STATFDBK_PROFILE)........................N/A
  PROFILE AUTOSTART (PROFILE.AUTOSTART).........................N/A
ROUTINE PARAMETERS (DSNTIPX):
  DEFAULT 4-KB BUFFER POOL FOR USER DATA (TBSBPOOL)..................BP2
  DEFAULT 8-KB BUFFER POOL FOR USER DATA (TBSBPK8)..................BP8K
  DEFAULT 16-KB BUFFER POOL FOR USER DATA (TBSBPK16)..............BP16K
  DEFAULT 32-KB BUFFER POOL FOR USER DATA (TBSBPK32)..............BP32
  DEFAULT BUFFER POOL FOR USER LOB DATA (TBSBLOB)..................BP9
  DEFAULT BUFFER POOL FOR USER XML DATA (TBSBPXML)...............BP16K
  MAX ABEND COUNT (STORMAX)..................................0
  TIMEOUT VALUE (STORTIME)..................................180
  DB2 XML ENVIRONMENT (XMLENV)..............................DSNWLMV10_GENERAL
  MAX OPEN CURSORS (MAX_N_CUR)................................500
  MAX STORED PROCs (MAX_ST_PROC).............................2,000
  MAXIMUM NUMBER OF LO FIELDS (LEMAX)..........................20
  BIT COMPATIBILITY (BIT_COMPATIBILITY)..........................CURRENT
  BUFFER POOL PARAMETERS (DSNTIP1):
  MAX TEMP STORAGE PER AGENT IN MB (MAXTEMPS)..........................0
  SEparate work files (WFSSEP)................................NO
  MAX TEMP RIO (MAXTEMPS_RIO).................................NO
  MAXAGENT LEVEL THRESHOLD (MAXAGTEMP_AGENT_THRESHOLD).........N/A
  SYSTEM LEVEL THRESHOLD (MAXAGTEMP_SYSTEM_THRESHOLD).........N/A

WORKFILE DATABASE PANEL (DSNTIP9):
  MAX TEMP STORAGE PER AGENT IN MB (MAXTEMPS)..........................0
  SEparate work files (WFSSEP)................................NO
  MAX TEMP RIO (MAXTEMPS_RIO).................................NO
  MAXAGENT LEVEL THRESHOLD (MAXAGTEMP_AGENT_THRESHOLD).........N/A
  SYSTEM LEVEL THRESHOLD (MAXAGTEMP_SYSTEM_THRESHOLD).........N/A

OBJECTS AND DATA SETS (IMPOSSF):
  DECOMPRESSION (DECOMP)........................................YES
  COMPRESSION (COMP)...........................................NO
  USE RECONSTRUCT (RECONC)......................................YES

STATISTICS FEEDBACK (STATFDBK.Profile)........................N/A

LOCATION: OMQ0A5  ONEDM2 XE FOR DB2 PERFORMANCE EXPERT (YRSMO) PAGE: 1-4
SYSTEM PARAMETERS REPORT

GROUP: N/P  MEMBER: N/P
SUBSYSTEM: DAS5

DB2 VERSION: V10  ACTUAL FROM: 08/24/16 07:01:00.00
DB2 UTILITIES PARAMETERS (DSNTIP6, DSNTIP61, DSNTIP62):
  TEMPORARY UNIT NAME (VOLVOL)................................SYSDA
  UTIL TEMP STORCLAS (UTIL_TEMP_STORCLAS)......................N/P
  UTIL TEMP STORCLAS HISTORY (STORCLASHist).....................N/P
  STATISTICS HISTORY (STATHist)................................N/A
  STATISTICS ROLLUP (STORROLL)..................................YES
  TIMEOUT UTILITY FACTOR (UTMFAC)................................6
  UFS SORT DATA SET ALLOCATION (UFSORT)..........................YES
  IGNORE SORT STATUS (SORTSTAT)..............................NO
  SET CHECK PENDING (CHECK.SETCHECK)..........................NO
  UT DB SORT USE (DBSORT).....................................YES

OTHER SYSTEM PARAMETERS:
  MAX DB2 UNDO MANAGER (MAX_DB2UNDO)................................NO
  MAX DB2 RECOVERY (MAX_DB2RECOVERY)..............................NO
  MAX DB2 AUDIT (MAX_DB2AUDIT)..................................NO
  MAX DB2 ALERT (MAX_DB2ALERT)..................................NO
  MAX DB2 AUDIT VOLUME (MAX_DB2AUDITVOL)..........................NO
  MAX DB2 AUDIT NODE (MAX_DB2AUDITNODE)..........................NO

Chapter 6. Batch reporting 4493
## System Parameters - Report

<table>
<thead>
<tr>
<th>Buffer Pool Parameters</th>
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<tbody>
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<td><strong>Timestamp</strong></td>
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<td><strong>VPOOL Size (Pages)</strong></td>
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<tr>
<td><strong>BP0</strong></td>
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<tr>
<td><strong>VPOOL Seq Thresh</strong></td>
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<tr>
<td><strong>Horiz Defn Write Thresh</strong></td>
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<tr>
<td><strong>Vert Defn Write Thresh (%)</strong></td>
</tr>
<tr>
<td><strong>Vert Defn Write Thresh (BUF)</strong></td>
</tr>
<tr>
<td><strong>VPOOL Parallel Thresh</strong></td>
</tr>
<tr>
<td><strong>ASSISTING Parallel Seq Thresh</strong></td>
</tr>
<tr>
<td><strong>PGFIX Attr</strong></td>
</tr>
<tr>
<td><strong>Page Steal Method</strong></td>
</tr>
<tr>
<td><strong>AutoSize</strong></td>
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<td><strong>Framesize</strong></td>
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<td><strong>VPOOL Size Min</strong></td>
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<tr>
<th>LOCATION: OMPDAS</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
<th>PAGE: 1-6</th>
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<td><strong>GROUP</strong></td>
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<td><strong>DB2 Version</strong>: V10</td>
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<td><strong>EMPTY XML ELEMENT (XML_RESTRICT_EMPTY_TAG)</strong></td>
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<td><strong>INDEX MEMORY CONTROL (INDEX_MEMORY_CONTROL)</strong></td>
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<tr>
<td><strong>SELECT FOR UNLOAD (AUTH_COMPATIBILITY)</strong></td>
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<td><strong>PARAMETER MODULE</strong></td>
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<td><strong>ACCESS CONTROL (ACCESS_CNTL_MODULE)</strong></td>
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<td><strong>IDENTIFY/AUTH (AUTH_CNTL_MODULE)</strong></td>
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<td><strong>SIGNON (SIGNON_MODULE)</strong></td>
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<th>LOCATION: OMPDAS</th>
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<td><strong>DB2 Version</strong>: V10</td>
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</table>
VPOOL SIZE MAX  N/A
VPOOL SIZE  N/A
SIM POOL SIZE  N/A
SIM POOL SEQ THRESH  N/A

TIMESTAMP  08/24/16 07:01:00.00
BUFFER POOL ID  BP1
VPOOL SIZE (PAGES)  10000
VPOOL SEQ THRESH  80
HORIZ DEFER WRITE THRESH  30
VERT DEFER WRITE THRESH (%)  5
VERT DEFER WRITE THRESH (BUF)  0
VPOOL PARALLEL SEQ THRESH  50
ASSISTING PARALLEL SEQ THRESH  0
PGFIX ATTRIBUTE  NO
PAGE STEAL METHOD  LRU
AUTOSIZE  NO
FRAMESIZE  N/A
VPOOL SIZE MIN  N/A
VPOOL SIZE MAX  N/A
SIM POOL SIZE  N/A
SIM POOL SEQ THRESH  N/A

TIMESTAMP  08/24/16 07:01:00.00
BUFFER POOL ID  BP2
VPOOL SIZE (PAGES)  4
VPOOL SEQ THRESH  80
HORIZ DEFER WRITE THRESH  30
VERT DEFER WRITE THRESH (%)  5
VERT DEFER WRITE THRESH (BUF)  0
VPOOL PARALLEL SEQ THRESH  50
ASSISTING PARALLEL SEQ THRESH  0
PGFIX ATTRIBUTE  NO
PAGE STEAL METHOD  LRU
AUTOSIZE  NO
FRAMESIZE  N/A
VPOOL SIZE MIN  N/A
VPOOL SIZE MAX  N/A
SIM POOL SIZE  N/A
SIM POOL SEQ THRESH  N/A

TIMESTAMP  08/24/16 07:01:00.00
BUFFER POOL ID  BP3
VPOOL SIZE (PAGES)  2000
VPOOL SEQ THRESH  80
HORIZ DEFER WRITE THRESH  30
VERT DEFER WRITE THRESH (%)  5
VERT DEFER WRITE THRESH (BUF)  0
VPOOL PARALLEL SEQ THRESH  50
ASSISTING PARALLEL SEQ THRESH  0
PGFIX ATTRIBUTE  NO
PAGE STEAL METHOD  LRU
AUTOSIZE  NO
FRAMESIZE  N/A
VPOOL SIZE MIN  N/A
VPOOL SIZE MAX  N/A
SIM POOL SIZE  N/A
SIM POOL SEQ THRESH  N/A

TIMESTAMP  08/24/16 07:01:00.00
BUFFER POOL ID  BP4
VPOOL SIZE (PAGES)  2000
VPOOL SEQ THRESH  80
HORIZ DEFER WRITE THRESH  30
VERT DEFER WRITE THRESH (%)  5
VERT DEFER WRITE THRESH (BUF)  0
VPOOL PARALLEL SEQ THRESH  50
ASSISTING PARALLEL SEQ THRESH  0
PGFIX ATTRIBUTE  NO
PAGE STEAL METHOD  LRU
AUTOSIZE  NO
FRAMESIZE  N/A
VPOOL SIZE MIN  N/A
VPOOL SIZE MAX  N/A
SIM POOL SIZE  N/A
SIM POOL SEQ THRESH  N/A

TIMESTAMP  08/24/16 07:01:00.00
BUFFER POOL ID  BP7
VPOOL SIZE (PAGES)  10000
VPOOL SEQ THRESH  80
HORIZ DEFER WRITE THRESH  30
VERT DEFER WRITE THRESH (%)  5
VERT DEFER WRITE THRESH (BUF)  0
VPOOL PARALLEL SEQ THRESH  50
ASSISTING PARALLEL SEQ THRESH  0
PGFIX ATTRIBUTE  NO
PAGE STEAL METHOD  LRU
AUTOSIZE  NO
FRAMESIZE  N/A
VPOOL SIZE MIN  N/A

LOCATION: OMPDA5
GROUP: N/P
MEMBER: N/P
SUBSYSTEM: DAS
ACTUAL FROM: 08/24/16 07:01:00.00
DB2 VERSION: V10

System Parameters - Report
Chapter 6. Batch reporting
### System Parameters - Report

<table>
<thead>
<tr>
<th>Location: OMPDA5</th>
<th>OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)</th>
<th>Page: 1-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group: N/P</td>
<td>System Parameters Report</td>
<td></td>
</tr>
<tr>
<td>Member: N/P</td>
<td>Actual From: 08/24/16 07:01:00.00</td>
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<tr>
<td>Subsystem: DA5</td>
<td>DB2 Version: V10</td>
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#### BUFFER POOL PARAMETERS

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<th>Timestamp</th>
<th>Buffer Pool ID</th>
<th>VPOOL SIZE (PAGES)</th>
<th>VPOOL SEQ THRESH</th>
<th>HORIZ DEFER WRITE THRESH</th>
<th>VERT DEFER WRITE THRESH (%)</th>
<th>VERT DEFER WRITE THRESH (BUF)</th>
<th>VPOOL PARALLEL SEQ THRESH</th>
<th>ASSISTING PARALLEL SEQ THRESH</th>
<th>PGFIX ATTRIBUTE</th>
<th>PAGE STEAL METHOD</th>
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<th>FRAMESIZE</th>
<th>VPOOL SIZE MIN</th>
<th>VPOOL SIZE MAX</th>
<th>SIM POOL SIZE</th>
<th>SIM POOL SEQ THRESH</th>
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<tr>
<td>08/24/16 07:01:00.00</td>
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#### LOCATION: OMPDA5 | OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0) | Page: 1-11 |
| Group: N/P       | System Parameters Report                        |             |
| Member: N/P      | Actual From: 08/24/16 07:01:00.00                |             |
| Subsystem: DA5   | DB2 Version: V10                               |             |

#### BUFFER POOL PARAMETERS

<table>
<thead>
<tr>
<th>Timestamp</th>
<th>Buffer Pool ID</th>
<th>VPOOL SIZE (PAGES)</th>
<th>VPOOL SEQ THRESH</th>
<th>HORIZ DEFER WRITE THRESH</th>
<th>VERT DEFER WRITE THRESH (%)</th>
<th>VERT DEFER WRITE THRESH (BUF)</th>
<th>VPOOL PARALLEL SEQ THRESH</th>
<th>ASSISTING PARALLEL SEQ THRESH</th>
<th>PGFIX ATTRIBUTE</th>
<th>PAGE STEAL METHOD</th>
<th>AUTOSIZE</th>
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<th>VPOOL SIZE MIN</th>
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<th>SIM POOL SIZE</th>
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<td>50</td>
<td>0</td>
<td>NO</td>
<td>LRU</td>
<td>NO</td>
<td>NO</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Buffer Pool ID</td>
<td>VPOOL Size (PAGES)</td>
<td>VPOOL SEQ THRESH</td>
<td>VPOOL STACK THRESH</td>
<td>VPOOL PAGE STEAL METHOD</td>
<td>AUTO SIZE</td>
<td>FRAMESIZE</td>
<td>VPOOL Size MIN</td>
<td>VPOOL Size MAX</td>
<td>SIM POOL Size</td>
<td>SIM POOL SEQ THRESH</td>
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<td>BP15</td>
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<td>30</td>
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<td>BP8K0</td>
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### System Parameters - Report

#### BUFFER POOL PARAMETERS

<table>
<thead>
<tr>
<th>TIMESTAMP</th>
<th>BUFFER POOL ID</th>
<th>VPOOL SIZE (PAGES)</th>
<th>VPOOL SEQ THRESH</th>
<th>HORIZ DEFER WRITE THRESH</th>
<th>VERT DEFER WRITE THRESH (%)</th>
<th>VERT DEFER WRITE THRESH (BUF)</th>
<th>VPOOL PARALLEL SEQ THRESH</th>
<th>ASSISTING PARALLEL SEQ THRESH</th>
<th>PGFIX ATTRIBUTE</th>
<th>PAGE STEAL METHOD</th>
<th>AUTOSIZE</th>
<th>FRAMESIZE</th>
<th>VPOOL SIZE MIN</th>
<th>VPOOL SIZE MAX</th>
<th>SIM POOL SIZE</th>
<th>SIM POOL SEQ THRESH</th>
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</thead>
<tbody>
<tr>
<td>08/24/16 07:01:00.00</td>
<td>BP8K1</td>
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<td>80</td>
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<td>LRU</td>
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<td>08/24/16 07:01:00.00</td>
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<td>2000</td>
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<td>BP8K5</td>
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</tbody>
</table>

LOCATION: OMPDA5
GROUP: N/P
MEMBER: N/P
SUBSYSTEM: DAS5
DB2 VERSION: V10
### System Parameters - Report

**REPORT CATEGORY**: System Parameters - Report

**REPORT DATE**: 08/24/16

**REPORT LOCATION**: OMEGAMON XE for DB2 Performance Expert (VSAM)

**PAGE**: 5-1

**GROUP**: DBEE

**MEMBER**: SEE2

**V2**: V11

---

**MVS PARMLIB UPDATE PARAMETERS (DSNTIPM)**

<table>
<thead>
<tr>
<th>Subsystem</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBSYSTEM_DEFAULT</td>
<td>SSID</td>
<td>SEE2</td>
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<tr>
<td>SUPPRESS_SOFTERRORS</td>
<td>SUPERRKS</td>
<td>YES</td>
</tr>
<tr>
<td>STORAGE_SIZES_INSTALLATION_PARM</td>
<td>DSNTIPC, DSNTIPE, DSNTIPEI</td>
<td>YES</td>
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</tbody>
</table>

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**IRLM INSTALLATION PARAMETERS (DSNTIPI)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>IRLM_SUBSYSTEM_NAME</td>
<td>IRLMSID</td>
</tr>
<tr>
<td>IRLM_RESOURCE_TIMEOUT_IN_SECONDS</td>
<td>IRLMWT</td>
</tr>
<tr>
<td>IRLM_AUTOMATIC_START</td>
<td>IRLMUT</td>
</tr>
<tr>
<td>IRLM_START_PROCEDURE_NAME</td>
<td>IRLMPRC</td>
</tr>
<tr>
<td>SECONDS_DB2_WILL_WAIT_FOR_IRLM_START</td>
<td>IRLMWT</td>
</tr>
<tr>
<td>ULOCK_FOR_REPEATABLE_READ_OR_READ_STABILITY (IRBLK)</td>
<td>YES</td>
</tr>
<tr>
<td>XLOCK_FOR_SEARCHED_UPDATE_DELETE</td>
<td>NO</td>
</tr>
<tr>
<td>IMS/BMP_TIMEOUT_FACTOR</td>
<td>BMPTOUT</td>
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<tr>
<td>IMS/DLI_TIMEOUT_FACTOR (DLITOUT)</td>
<td>DLIOUT</td>
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<tr>
<td>WAIT_FOR RETAINED LOCKS</td>
<td>RETLWAI</td>
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<tr>
<td>ENABLE DB CHECKING</td>
<td>NO</td>
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**ARCHIVE LOG INSTALLATION PARAMETERS (DSNTIPA)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
<td>COPY1_ARCHIVE_LOG_DEVICE_TYPE (UNIT)</td>
<td>DASD</td>
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<tr>
<td>COPY2_ARCHIVE_LOG DEVICE_TYPE (UNIT)</td>
<td>DASD</td>
</tr>
<tr>
<td>SPACE_ALLOCATION_METHOD (ALCUNIT)</td>
<td>CYLINDER</td>
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<td>PRIMARY_SPACE_ALLOCATION (PRITY)</td>
<td>100</td>
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<td>SECONDARY_SPACE_ALLOCATION (SECQY)</td>
<td>10</td>
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<tr>
<td>MAXIMUM_READ_TAPE_UNITS (MTXRTU)</td>
<td>2</td>
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<tr>
<td>MAX_NUMBER_OF_DATASETS_RECEIVED_IN_BSDS (MAXARCH)</td>
<td>10,000</td>
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<tr>
<td>FIRST_ARCHIVE_COPY_MASS_STG_GROUP_NAME</td>
<td>NA</td>
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<td>SECOND_ARCHIVE_COPY_MASS_STG_Group_NAME</td>
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<td>DAYS_TO_RETAKE_ARCHIVE_LOG_DATA_SETS (ARCRTN)</td>
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<td>ISSUE_WTR_BEFORE_MOUNT_FOR_ARCHIVE_VOLUME (ARCWTR)</td>
<td>YES</td>
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<tr>
<td>COMPACT_DATA (COMPACT)</td>
<td>NO</td>
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<tr>
<td>QUESICE_PERIOD (QUESICE)</td>
<td>5</td>
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<tr>
<td>SINGLE_VOLUME (SVOLARC)</td>
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**BUFFER POOL ID (A81486)**

<table>
<thead>
<tr>
<th>Parameter</th>
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<tbody>
<tr>
<td>VPOOL_SEQTHRES</td>
<td>80</td>
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<tr>
<td>HORIZ_DEFER_WRITE_THRESH</td>
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<tr>
<td>VERT_DEFER_WRITE_THRESH</td>
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<tr>
<td>VERT_DEFER_WRITE_THRESH (BUF)</td>
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<td>VPOOL_PARALLEL_SEQTHRES</td>
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<td>ASSISTING_PARALLEL_SEQTHRES</td>
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<td>PGFX_ATTRIBUTE</td>
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<td>PAGE_STEAL_METHOD</td>
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<td>AUTOSIZE</td>
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<td>DATASETS</td>
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<td>MAXIMUM_TRAILERS</td>
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<td>MAXIMUM_SIMPOOLS</td>
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**LOCATION**: OMEGABEE

**REPORT CATEGORY**: System Parameters - Report

**REPORT DATE**: 08/24/16

**GROUP**: DBEE

**MEMBER**: SEE2

**V2**: V11

---

**DISTRIBUTED DATA FACILITY PANEL 2 (DSNTIP2)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
<td>TCP/IP_ALREADY_VERIFIED (TCPALVER)</td>
<td>NO</td>
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<tr>
<td>TCP/IP_KEEPALIVE (TCPKPAV)</td>
<td>120</td>
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<tr>
<td>CONNECTION_QUEUE_MAX_DEPTH (MAXCONN)</td>
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<tr>
<td>POOL_THREAD_TIMEOUT (POOLNAC)</td>
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**LOCATION**: OMEGABEE

**REPORT CATEGORY**: System Parameters - Report

**REPORT DATE**: 08/24/16

**GROUP**: DBEE

**MEMBER**: SEE2

**V2**: V11

---

**DISTRIBUTED DATA FACILITY PANEL 1 (DSNTIP1)**

<table>
<thead>
<tr>
<th>Parameter</th>
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<tbody>
<tr>
<td>DEFINE_GROUP</td>
<td>MEMBER (DSNTIPK)</td>
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<tr>
<td>GROUP_NAME (GRNAME)</td>
<td>DBEE</td>
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<tr>
<td>MEMBER_NAME (MEMNAME)</td>
<td>SEE2</td>
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<tr>
<td>MAX_NUMBER_OF_MEMBERS</td>
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<tr>
<td>DEL_CF_STRUCTS (DEL_CFSTRUCTS_ON_RESTART)</td>
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</table>

---

**Chapter 6. Batch Reporting**: 4499
PROTECTION INSTALLATION PARAMETERS (DSNTPP)

ARCHIVE LOG RACF PROTECTION (AUTH)...NO
DB2 AUTHORIZATION ENABLED (AUTH)...YES
PLAN AUTHORIZATION CACHE SIZE (AUTHPLAN)...3,072
PACKAGED AUTHORIZATION CACHE SIZE (CACHN...5,242,880
AUTH EXIT CHECK (AUTHEXITCHECK)...PRIMARY
AUTO AUTH EXIT CHECK (AUTAUTHEXIT)...YES
SYSTEM ADMINISTRATOR AUTHORIZATION ID (SYSADM)...LOGO
SYSTEM ADMINISTRATOR 2 AUTHORIZATION ID (SYSADM)...SYSTERM
SYSTEM OPERATOR AUTHORIZATION ID (SYSOPR)...SYSOPR
SYSTEM OPERATOR 2 AUTHORIZATION ID (SYSOPR2)...EML
DEFAULT (UNKNOWN) USER AUTHORIZATION ID (DEFUL...IBMUSER
RESERVED RESOURCE LIMIT TABLE CREATOR AUTH ID (RLFAUTH)...SYSIBM
BIND NEW PACKAGE (BINDN...BINDNO
BIND DBA CREATE VIEW (DBACR...NO

DATA DEFINITION CONTROL SUPPORT (DSNTP2)

INSTALL DD CONTROL (RGFINSTL)...NO
CONTROL ALL APPLICATIONS (RGTDEPL)...NO
CONTROL ALL APPLICATIONS (RGTDEPL)...NO
REQUIRED ALL CONTROL (RGTDEPL)...YES
UNREGISTERED DLL DEFAULT (RGDFDEFL)...ACCEPT
REGISTER TABLE OWNER (RGFKCOLL)...DSNRMGOL
DSN REGISTRATION DATABASE NAME (RGTDBMNAM)...DSNREG
APPL REGISTRATION TABLE NAME (RGFMTMP)...DSN_REGISTER_APPL
OBJECT REGISTRATION TABLE NAME (RGFMTRK)...DSN_REGISTER_OBJ
ESCAPE CHARACTERS (RGESCF)...X’40’

DB2 VERSION INSTALL (DSNTP1)

INSTALL DB2 RELEASE (NEWFUN)...YES
CURRENT DB2 RELEASE...REM
CURRENT DB2 RELEASE...REM
COMPRESS LBS FOR DIRECTORY...A/N

LOCATION: OMQBEE GROUP: OBE GROUP MEMBER: SEE2
SUBSYSTEM: DB2 SUBSYSTEM MEMBER: DB2 SUB
BZ VERSION: V11

APPLICATION PROGRAMMING DEFAULTS PANEL 1 (DSNTPP)

DEFAULT HOST LANGUAGE (DSFLANG)...IBMCOB
DECIMAL POINT OPTION (DECIMAL)...PERIOD
DEFAULT DELIMITER (DELIM)...DEFAULT
DEFAULT SQL DELIMITER (DSQDEL)...DEFAULT
DIST SQRT STRING DELIMITER (DSQSDRM)...APOST
DEFAULT MIXED GRAPHIC (MIXED)...NO
ERBIC GBS CCSID (SCSICSID)...900
ERBIC MBS CCSID (MCSCSID)...N/P
ASCI GBS CCSID (AGCSCID)...N/P
ASCI MBS CCSID (AMCSCID)...N/P
ASCI GBS CCSID (AGCSCID)...N/P
UNICODE GBS CCSID (UCSCSID)...367
UNICODE MBS CCSID (UMCSCID)...1,200
DEFAULT ENCODING SCHEME (ECHASE)...ERDIC
LOCAL LC_TYPE (LC_TYPE)...‘BLANK’
DECFLAT ROUND MODE (DEF_DECFLAT_ROUND_MODE)...ROUND_HALF_EVEN

SQL OBJECT DEFAULTS PANEL (DSNTP1,DSNTP1,DSNTP1)

RECOVER ROW FORMAT (RAF)...YES
OBJECT CREATE FORMAT (OBF)...YES
UTILITY OBJECT CONVERSION (UTILITY_OBJECT_CONVERSION)...VONE
SURE OS CONTROL INTERVAL (DSICL)...YES
TABLE SPACE ALLOCATION IN KB (TSQTY)...0
INDEX SPACE ALLOCATION IN KB (ISQTY)...0
OPTIMIZE EXTENT SIZING (MAXEXTSZ)...NO
PAD EXTENTS (PADIX)...NO
DEFAULT PARTITION SEGSIZE (PSEGSZ)...32
PERCENT FREE FOR UPDATE (PCFTFREE_UPD)...0
DEFINE DATA SETS (IMPSDF)...YES
USE DATA COMPRESSION (IMTPCOM)...YES
LIMIT KEY CONV PART OR (IX_TB_PART_CONV_EXCLUDE)...YES
PAGE SET PAGE NUMBERING (PAGESET_PAGENUM)...N/A
RETIRE STOPPED OBJECTS (RETRYSTOP)...N/A
RENAME TABLE (RENAMEABLE)...YES
PREVENT ALTER LIMITKEY (PREVENT_ALTLIMKEY)...NO
PREVENT INDEX PACK CREATE (PREVENT_INDEX_PACK)...NO
DDL MATERIALIZATION (DDL_MATERIALIZATION)...N/A
DEFAULT ALGORITHM (DEFAULT_INSERT_ALGORITHM)...N/A

LOCATION: OMQBEE GROUP: OBE GROUP MEMBER: SEE2
SUBSYSTEM: DB2 SUBSYSTEM MEMBER: DB2 SUB
BZ VERSION: V11

APPLICATION PROGRAMMING DEFAULTS PANEL 2 (DSNTP4,DSNTP4I)

MINIMUM DIVIDE SCALE (DECDIV)...NO
DECIMAL ARITHMETIC (DECARITH)...DEC15
USE FOR DYNAMIC RULES (DYNSUL)...YES
STATIC DESCRIBE (DESCSTAT)...YES
DATE FORMAT (DATE)...150
TIME FORMAT (TIME)...150
LOCAL DATE LENGTH (DATELEN...148
LOCAL TIME LENGTH (TIMELEN)...N/A
IMPLICIT TIMEZONE...CURRENT
STD SQL LANGUAGE (STSQL)...YES
PAD NULL TERMINATED (PNTNSTAT)...NO
APP COMPLIANT LEVEL (APPLCOMPL)...V1R1
LIKE BLANK INSIGNIFICANT (LIKE_BLANK_INSIGNIFICANT)...NO
FULLY QUALIFIED NAME OF DSNSDEEP LOAD MODULE...SYSLS.SEE2.DSNSEXIT(DSNSDEEP)

OPERATOR FUNCTIONS INSTALLATION PARAMETERS (DSNTP1)

WTO ROUTE CODES (ROUTCODE)...1
RESOURCE LIMIT FACILITY AUTOMATIC START (RLF)...YES
RESOURCE LIMIT SPECIFICATION TABLE SUFFIX (RLFTLB)...NO
ALLOW EXPLAIN AT AUTOBIND (ABEXP)...YES
DPROP SUPPORT (DPROP)...NO
SITE TYPE (SITEYPE)...LOCALSITE
TRACKER SITE (TRANSITE)...N/A
READ COPYXZ ARCCBST (ARC2FST)...NO
REAL TIME STATS (STATSTUN)...0
STATISTIC FEEDBACK (STATFDBK)...30
PROFRO AUTOSTART (PROFILE_AUTOSTART)...N/A

ROUTE PARAMETERS (DSNTPN)

MAX ABEND COUNT (STORMKAB)...0
TIMOUT VALUE (STORLTIME)...180
DBM ENVIRONMENT (LWENV)...NO
READ OBJECTS (RETRYSTOP)...N/A
MAX OPEN CURSORS (MAX_NNUM_CUR)...500
MAX STORED PROC (MAX_ST_PROC)...2,000
MAX ALTERNATE LIMIT (ALTERNATE)...20
BIF COMPATIBILITY (BIF_COMPATIBILITY)...CURRENT

BUFFER POOL PARAMETERS (DSNTP1)


**System Parameters - Report**

**PERFORMANCE AND OPTIMIZATION (DSNTP8, DSNTP16)**

- Cache Dynamic SQL (CACHEDYN).................YES
- Cache Dyn Stability (CACHEDYN_STABILIZATION)....N/P
- Optimization Hints Allowed (OPTHINTS)...........NO
- Evaluated Datetime Functions (EVALDATETIME).....NO
- Skip Unicode Inserts (SKIPUNCC)..................NO
- Max Degree of Parallelism (PARALLELISM).........0
- Max Degree for DSP1 (PARALLEL_DSP)..............0
- Parallelism Efficiency (PAR_EFF)..................50
- Star Degree (STAR)..................................1
- Max Data Caching in MB (MDCACH)..................20
- Current Refresh Age (REFRAGE).....................0
- Current Maintype (MAINTYPE).......................N/A
- Star Status Profile Feedback (STATSPK_PROFILE)......N/A

**LOCATION: OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (YSTRM0) PAGE: 5-4**

**GROUP: ODBE** SYSTEM PARAMETERS REPORT

**MEMBER: SEE2**

**SUBSYSTEM: SEE2**

**GROUP: ODBE** SYSTEM PARAMETERS REPORT

**MEMBER: SEE2**

**SUBSYSTEM: SEE2**

**B2 VERSION: V11**

**OTHER SYSTEM PARAMETERS**

- Dual BSDS Mode (DUALBSDS).......................YES
- Roll up Parallel Task Accounting (RPTACCT)......YES
- No. Pages Small Table Threshold (NPGTSHRD)......0
- Offset Option (OFFSET)............................YES
- Conversion Factor (CONVFAC)......................247
- Minimum Divide Scale (MINDIVSC)..................NONE
- Star Join Threshold (STJTABLES)...................10
- Online System Param User ID Monitor (N/P)........N/A
- Online System Param CoreIL ID Monitor (N/P)......N/A
- Online System Param Time Changed (N/P)............N/A
- Online System Param Type (N/P)....................N/A
- Max Concurrent PKG OPS (MAX_CONC_PKG_OPS).......10
- Admin Scheduler JCL Proc Name (ADMPROC).........N/P
- Flash Statements (CACHEDYN_FREEDOWN)............N/A
- Index 1/O Parallelism (INDEX_1/O_PARALLELISM)....YES
- ZOSmetrics...........................................YES
- Use Tracking For Implicit TP (IPMTMRO)...........YES
- Disable Implicit TP (IMPOSID).....................YES
- Enable Multiple Index Access (SUB_MIDX)...........YES
- SP PARAMS_JV (DFD_COMPATIBILITY)..................NO
- SP PARAMS_JV (DFD_COMPATIBILITY)..................YES
- DISABLE_IMPACT_JV (DFD_COMPATIBILITY)............NO
- DISABLE_IMPACT_JV (DFD_COMPATIBILITY)............YES
- DEF CMP PRIOR VERS (DFD_COMPATIBILITY)...........NO
- DYN STMT Cache Store (CACHE_DYN_TRACK_STORE_LIM).........2
- Activate 1/O Scheduling.............................YES
- Value For Trigger Drain............................YES
- Max Number of DOS with Hold......................3
- Field Procs for Describe Table Block..............5
- Restrict Alter Column for DCC (RESTRICT_ALT_COL_DCC)....NO
- Space Reserved for Z/OS Functions...............40,960
- Space Reserved for Critical Work...............35,357,136
- Space Top of Z/OS and Critical Space............35,357,136
- Detailed Measured Unit Price Tracking............NO
- OTC License Terms Accepted.......................NO
- Simulated CUPS......................................0
- Execution Time of Task/SRB in Microseconds......100
- Max "Not Found" Hash Records.....................100
- Max Extend Service Tasks..........................20
- Project 2 Insertion Threshold.....................2
- Max Zivempep Dictionary Entries...............4,096
- Redo KeepDictionary in BRF to RRF Conversion.....YES
- OData Resolve Alias (ODataResolveAlias)........YES
- PC Yes Specified...................................YES
- Block Opt 1 Row Sort (OPTIMBOOLD)..................NO
- Enable XML Restricted Empty Tag (XML_RESTRICT_EMPTY_TAG)....NO
- Suppress Hint SQL Code Dyn (SUPPRESS_HINT_SQLCODE_DYN)....NO
- Index Memory Control (INDEX_MEMORY_CONTROL).....N/A

----------

**LOCATION: OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (YSTRM0) PAGE: 5-5**

**GROUP: ODBE** SYSTEM PARAMETERS REPORT

**MEMBER: SEE2**

**SUBSYSTEM: SEE2**

**B2 VERSION: V11**

**SYSTEM UTILITIES PARAMETERS (DSNTP4, DSNTP16, DSNTP62)**

- Temporary Unit Name (VOLTODEV)..................SYSDA
- Util Temp Storclas (UTILITY_TEMPSTOR)...........N/P
- Statistics History (STATROLL)....................NONE
- Statistics Rollup (STATROLL).....................YES
- Utility Timeout Factor (UTMINT)...................6
- Ut Sort Data Set Allocation (UTSORTSL)...........YES
- Ignore Sortdata SMA (SIGNSORTM)...................NO
- Set Check Pending (CHECKSETCHK)..................NO
- Ut OBZ Sort Use (OBZSORT).......................YES
- Max Temp Storage Per Agent in MB (MAXTEMPS)......0
- Max Temp R4D (MAXTEMPS_R4D)......................NOLIMIT
- Agent Level Threshold (WSTGUSE_AGENT_THRESHOLD).....0
- System Level Threshold (WSTGUSE_SYSTEM_THRESHOLD)....90
- MAXIMUM DEGREE OF PARALLELISM (PARALLELISM)......99
- Fast Replication (CHECK_FASTREPLICATION).........REQUIRED
- Fast Restore (REC_FASTREPLICATION)...............REQUIRED
- Preferred Copy Fast Replication (COPY_FASTREPLICATION)....N/A
- Flashcopy Prac (FLASHCOPY_PRACTICE)............N/A
- DEFAULT TEMPLATE (FCOPYDYN)......................N/A
- ODBE:OB..<SN..<DSNUM..<ULQ..<N/A
- Flashcopy Copy (FLASHCOPY_COPY)..................NO
- Flashcopy Load (FLASHCOPY_LOAD)..................NO
- Flashcopy Regd Tablespace (FLASHCOPY_REGD_TS)....NO
- Flashcopy Regd Index (FLASHCOPY_REGD_INDEX)......NO
- System-Level Backups (SYSTEM_LEVEL_BACKUPS)......NO
- Restore/Recover (RESTORE_RECOVER_FROMDUMP).......NO
- OMB Class Name (UTILS_MDB_CLASS_NAME)..........."BLANK"
- Maximum Tape Units (RESTORE_TAPEUNITS)...........0
- Redo Part Sort NPSI (REDO_PART_SORT_NPSI)........AUTO
- Redo List Processing (REDOLIST_PROCESSING).......PARALLEL
- Redo Mapping Database (REDO_MAPPING_DATABASE).....N/P
- Redo Drop Pbg Parts (REDO_DROP_PBGParts)..........NO
- Redo Ignore Freespace (REDO_IGNORE_FREESP)........NO
- Alternate CopyPool (ALTERNATE_CP)..................N/A
- DB Backup STG Group (UTIL_DBSSG)..................N/A
- LDB Backup STG Group (UTIL_LGBSSG).................N/A
- HSM Message DS HQL (UTILS_HSM_MSGS_HQL)........N/A

**DATABASES AND SPACES STARTED AUTOMATICALLY (DSNTPIS)**

- ALL

----------

**ICF Catalog Qualifiers**

----------

**SIZES PANEL 1 (DSNTP1)**

- Lob Inline Length (LOB_INLINE_LENGTH).............0
- Lob Inline Length (LOB INLINE LENGTH).............0
- Lob Element Count (LOB_ELEMENT_COUNT)...........10,240
- System Lob Value Storage in MB (LOBVALUES)........4,096
- System Lob Value Storage in MB (LOBVALUES)........4,096
- User XLO Value STG in KB (XLMVALA)...............204,800

Chapter 6. Batch reporting 4501
System Parameters - Report

LOCATION: OMPXEE
GROUP: DBEE
MEMBER: SEE2
SUBSYSTEM: SEE2

SELECT FOR UNLOAD (AUTH_COMPATIBILITY)....................N/A
MATERIALIZE NODET SQLTUDF (MATERIALIZE_NODET_SQLTUDF)....N/A

BUFFER
TIMESTAMP
08/24/16 07:01:00.00

SYSTEM PARAMETERS REPORT

DEFAULT STARTUP MODULE (DSNTIPO3)

SYSTEM XML VAL STG IN MB (XMLVALS).....................10,240

B2 VERSION: V11

LOCATION: OMPXEE
GROUP: DBEE
MEMBER: SEE2
SUBSYSTEM: SEE2

SYSTEM PARAMETERS REPORT

DEFAULT STARTUP MODULES (DSNTIPO3)

SYSTEM XML VAL STG IN MB (XMLVALS).....................10,240

B2 VERSION: V11

LOCATION: OMPXEE
GROUP: DBEE
MEMBER: SEE2
SUBSYSTEM: SEE2

SYSTEM PARAMETERS REPORT

BUFFER POOL PARAMETERS

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VPOOL SEQ THRESH 80
HORIZ DEFER WRITE THRESH 30
VERT DEFER WRITE THRESH (%) 5
VERT DEFER WRITE THRESH (BUF) 0
VPOOL PARALLEL SEQ THRESH 50
ASSISTING PARALLEL SEQ THRESH 0
PGFIX ATTRIBUTE NO
PAGE STEAL METHOD LRU
AUTOSIZE NO
FRAMESIZE 4K
VPOOL SIZE MIN 0
VPOOL SIZE MAX 0
SIM POOL SIZE 0
SIM POOL SEQ THRESH 0

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VPOOL SEQ THRESH 80
HORIZ DEFER WRITE THRESH 30
VERT DEFER WRITE THRESH (%) 5
VERT DEFER WRITE THRESH (BUF) 0
VPOOL PARALLEL SEQ THRESH 50
ASSISTING PARALLEL SEQ THRESH 0
PGFIX ATTRIBUTE NO
PAGE STEAL METHOD LRU
AUTOSIZE NO
FRAMESIZE 4K
VPOOL SIZE MIN 0
VPOOL SIZE MAX 0
SIM POOL SIZE 0
SIM POOL SEQ THRESH 0

TImESTAMP 08/24/16 07:01:00.00  BP2  VPOOL SIZE (PAGES) 20000
VPOOL SEQ THRESH 80
HORIZ DEFER WRITE THRESH 30
VERT DEFER WRITE THRESH (%) 5
VERT DEFER WRITE THRESH (BUF) 0
VPOOL PARALLEL SEQ THRESH 50
ASSISTING PARALLEL SEQ THRESH 0
PGFIX ATTRIBUTE NO
PAGE STEAL METHOD LRU
AUTOSIZE NO
FRAMESIZE 4K
VPOOL SIZE MIN 0
VPOOL SIZE MAX 0
SIM POOL SIZE 0
SIM POOL SEQ THRESH 0

4502 IBM Db2 Performance Expert on z/OS
System Parameters - Report

LOCATION: OMGBEE
GROUP: DBEE
MEMBER: SEE2
SUBSYSTEM: SEE2
B2 VERSION: VII

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LOCATION: OMGBEE
GROUP: DBEE
MEMBER: SEE2
SUBSYSTEM: SEE2
B2 VERSION: VII

BUFFER POOL PARAMETERS

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### System Parameters - Report

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**Location:** OMPDBEE
**Group:** DBEE
**Subsystem:** SEE2
**Member:** SEE2
**SUBSYSTEM:** SEE2
**ACTUAL FROM:** 08/24/16 07:01:00.00

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**Buffer Pool Parameters**

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**Location:** OMPDBEE
**Group:** DBEE
**Subsystem:** SEE2
**Member:** SEE2
**ACTUAL FROM:** 08/24/16 07:01:00.00

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**Buffer Pool Parameters**

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**Location:** OMPDBEE
**Group:** DBEE
**Subsystem:** SEE2
**Member:** SEE2
**ACTUAL FROM:** 08/24/16 07:01:00.00

**Buffer Pool Parameters**

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**Location:** OMPDBEE
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**Member:** SEE2
**ACTUAL FROM:** 08/24/16 07:01:00.00

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**Location:** OMPDBEE
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<td>Buffers ID</td>
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<td>Horiz Defer Write Thresh</td>
<td>Vert Defer Write Thresh (%)</td>
<td>Vert Defer Write Thresh (Buf)</td>
<td>VPOOL Parallel Seq Thresh</td>
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<tr>
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**System Parameters - Report**

**Chapter 6. Batch reporting**

---

**Location:** OMPDBEE

**Group:** DBEE

**Member:** SEE2

**Subsystem:** SEE2

**BZ Version:** VII

---

**Timestamp:** 08/24/16 07:01:00.00

**Buffer Pool Parameters**

---

**Timestamp:** 08/24/16 07:01:00.00

**Buffer Pool ID:** BP16K0

**VPOOL Size (Pages):** 2000

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<th>VPOOL Size Max</th>
<th>SIM Pool Size</th>
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**Timestamp:** 08/24/16 07:01:00.00

**Buffer Pool ID:** BP16K1

**VPOOL Size (Pages):** 2000

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<th>VPOOL Parallel Seq Thresh</th>
<th>Assisting Parallel Seq Thresh</th>
<th>PPool Attribute</th>
<th>Page Steal Method</th>
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LOCATION: OMPD022  OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V8RAMO)  PAGE: 8-1
GROUP: DB22  SYSTEM PARAMETERS REPORT

B2 VERSION: V10

GROUP BUFFER POOL PARAMETERS

<table>
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<th>TIMESTAMP</th>
<th>CURRENT DIRECTORY TO DATA RATIO</th>
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MEMBER: S222

GBP ID: GBP10

ALLOCATED GBP SIZE (4K): 2048

ACTUAL DIRECTORY: 5007

ACTUAL DATA ENTRY: 714

PENDING DIRECTORY TO DATA RATIO: 5

MODE: SIMPLEX

GROUP BUFFER POOL PARAMETERS

<table>
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<th>TIMESTAMP</th>
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MEMBER: S222

GBP ID: GBP32X

ALLOCATED GBP SIZE (4K): 2304

ACTUAL DIRECTORY: 523

ACTUAL DATA ENTRY: 104

PENDING DIRECTORY TO DATA RATIO: 5

MODE: SIMPLEX

GROUP BUFFER POOL PARAMETERS

<table>
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</thead>
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MEMBER: S222

GBP ID: GBP8K0

ALLOCATED GBP SIZE (4K): 1280

ACTUAL DIRECTORY: 1101

ACTUAL DATA ENTRY: 219

PENDING DIRECTORY TO DATA RATIO: 5

MODE: SIMPLEX

---

LOCATION: OMPDC51  OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V8RAMO)  PAGE: 10-1
GROUP: N/P  SYSTEM PARAMETERS REPORT

B2 VERSION: V12

MVS PARM LIB UPDATE PARAMETERS (DSNTIPM)

SUPPRESS DEFAULT ERRORS (SUPERRS)..................N/P

STORAGE SIZES INSTALLATION IDS (DSNTPC,DSNTPF,DSNTP1B)

MAX NO OF DATA SETS CONCURRENTLY IN USE (DSMAPS)........20,000

EMD STATEMENT CACHE SIZE IN KB (EDMSENCS).............113,386

EDM DB DBCACHE SIZE IN KB (EDMBDBC)..................23,400

EDM SKELETON POOL SIZE IN KB (EDMSKELETON_POOL)........81,920

MAXIMUM SIZE OF EDM POOL IN BYTES (EDMPOOL)...........6,782,976

MAXIMUM SIZE OF SORT POOL IN BYTES (SRTPOL)...........10,240,000

MAXIMUM SIZE OF REORG POOL IN KB (REORGPK)............104,000

MAXIMUM SIZE OF DATAFILES CONCURRENTLY RUNNING IN DB2 (DITREAD)..............400

IRLM INSTALLATION PARAMETERS (DSNTP1B)

IRLM SUBSYSTEM NAME (IRLMSID)..........................IC51

IRLM RESOURCE TIMEOUT IN SECONDS (IRLMTOUT)............60

IRLM AUTOMATIC START (IRLMAUT).........................YES

IRLM START PROCEDURE NAME (IRLMPRD)....................IC51IRLM

SECONDS DB2 WILL WAIT FOR IRLM START (IRLMWRT)............120

U LOCK FOR REPEATABL READ OR READ STABILITY (RULOCK)........YES

MSC/MSM TIMEOUT FACTOR (BMTOUT)........................1

MSD/MSU TIMEOUT FACTOR (MTOUT)..........................6

WAIT FOR RETAINED LOCKS (RRTWAIT)......................NO

DISABLE DB CHECKING........................................NO

IRLM INITIALIZATION TIME ................................1

IRLM PROCESSING PARAMETERS

MAX NO OF USERS CONCURRENTLY RUNNING IN DB2 (CTHREAD)........400

MAX NO OF CONCURRENT REMOTE ACTIVE CONNECTIONS (MXDBAT)....200

MAX NO OF TSO CONNECTIONS (TDSFONE)..................200

MAX NO OF BATCH CONNECTIONS (TBDTBACK)..................200

MAXIMUM KEPT DYNAMIC STATEMENTS (MXKEEPC)...............5,000

MAX OPEN FILE REFS (MAXMKLF)..........................100

MANAGE REAL STORAGE (REALSTORAGE_MGMT)..................AUTO

MAXIMUM REAL STORAGE (REALSTORAGE_MAX)................0

MAXIMUM THREAD STORAGE (MNTORS).........................N/A

MANAGE THREAD STORAGE (MNSTOR).........................N/A

LONG-RUNNING READER IN MINUTES (LRIENDTHL)............10

DOL TIMEOUT FACTOR (DOLTO).........................1,000

INDEX CLEANUP THREADS (INDEX_CLEANUP_THREADS)...........10

IRLM INSTALLATION PARAMETERS (DSNTP1B)

WAIT TIME FOR LOCAL DEADLOCK..........................5,000

TIMEOUT INTERVAL ........................................60

IRLM MAXIMUM CSA USAGE ALLOWED.........................0

PENDING NUMBER OF HASH ENTRIES........................0

Z/OS LOCK TABLE LIST ENTRIES.............................0

MAX 31-BIT IRLM PRIVATE STORAGE.......................0

MAX 64-BIT IRLM PRIVATE STORAGE.......................0

ARCHIVE LOG INSTALLATION PARAMETERS (DSNTP1B)

IRLM INSTALLATION PARAMETERS (DSNTP1B)

CATALOG ARCHIVE DATASETS (CATALOG).....................NO

COPY1 ARCHIVE LOG DEVICE TYPES (UNIT)...............DASD

COPY2 ARCHIVE LOG DEVICE TYPES (UNIT)...............0

SPACE ALLOCATION METHOD (ALCUNIT)......................CYLINDER

PRIMARY SPACE ALLOCATION (PROITY)......................125

SECONDARY SPACE ALLOCATION (SECITY)....................15

ARCHIVE LOG BLOCK SIZE IN BYTES (BLKSIZE)...........24,576

MAXIMUM READ TAPE UNITS (MAXRTU)......................2

TAPE UNIT DEALLOCATION PERIOD (REALCET)...............0000:00

MAX NUMBER OF DATASETS RECORDED IN BSDS (MAXARCH).......10,000

FIRST ARCHIVE COPY MASS STG GROUP NAME.............'NONE'

SECOND ARCHIVE COPY MASS STG GROUP NAME.............'NONE'

DAYS TO RETAIN ARCHIVE LOG DATA SETS (ARCREN)........9,999

ISSUE WTOR BEFORE MOUNT FOR ARCHIVE VOLUME (ARCWTOR)....YES

---

4506  IBM Db2 Performance Expert on z/OS
Unicode: icfco3 (uicfco3) ............................................ YES
Dbf/rksaf accm (accumec) .......... 10
Aggregation fields (accumid) .......... OFF
Compress smf recs (smfcom) .......... OFF

Location: omegamon xe for db2 performance expert (vsramo)
Group: n/p
Member: n/p
Subsystem: dc5
B2 version: v12

Distributed data facility panel 2 (dsntip5)
TCP/IP already verified (tcpvalver) ....... NO
Extra blocks req (extrareq) .......... 100
Extra blocks srv (extrasrv) .......... 100
TCP/IP priority (tcpipaxy) .......... 120
Connection queue max depth (maxconq) ........ 0
Connection queue max wait (maxconw) .......... 120
Pool thread timeout (poolinac) .......... 120

Protection installation parameters (dsntipp)
Archive log racf protection (protct) .......... NO
Db2 authorization enabled (auth) .......... YES
Plan authorization cache size (authcache) .......... 3,072
Routine authorization cache size (cancelr) .......... 5,242,880
Auth exit check (authexit_check) .......... PRIMARY
Primary auth exit check (authexit_check) .......... PRIMARY
System administrator 1 authorization id (sysadm) .......... LOGO
System administrator 2 authorization id (sysadm2) .......... SYSDM
System operator 1 autorog .......... KZO
System operator 2 authorization id (sysop2) .......... KVO
Default (unknown) user authorization id (defltid) .......... IBMUSER
Resource limit table creator auth id (rlauth) .......... SYSEBM
Bind nsa package (bindmod) .......... NO
Db create view (dbcravw) .......... NO

Data definition control support (dsntip2)
Install do control (rgfinstl) .......... NO
Control all applications (rgfdepl) .......... NO
Require full names (rgffull) .......... YES
Unregistered dll default (rgfdelfl) .......... ACCEPT
Register table owner (rgfcollid) .......... DSNAGGCOL
Ddl registration database name (rgfrbmm) .......... DSNGRAGB
Appl registration table name (rgfmrnpt) .......... _DSN_REGISTER_APPL
Object registration table name (rgfmort) .......... _DSN_REGISTER_OBJ
Escape character (rgfescc) .......... 'X'40'

Db2 version install (dsntip1a)
Data sharing enabled (dshare) .......... NO
Current db release (newcon) .......... N/A
Current db release - 1 .......... N/A
Current db release - 2 .......... N/A
Compress lob ts for directory (compress_girlcb) .......... NO

Location: omegamon xe for db2 performance expert (vsramo)
Group: n/p
Member: n/p
Subsystem: dc5
B2 version: v12

Application programming defaults panel 1 (dsntipf)
Application programming defaults panel 2 (dsntip4,dsntip4)
Minimum divide scale (decdiv) .......... NO
Decimal point option (decimal) .......... PERIOD
Default delimiter (delim) .......... DEFAULT
Default sql delimiter (sqldelim) .......... DEFAULT
Dist sql string delimiter (sqlsdeli) .......... APOST
default mixed graphic (mixed) .......... NO
ebic2c mbs csid (csccid) .......... 1,148
ebic2c gbcs csid (csccid) .......... N/P
ebic2c gbcs csid (csccid) .......... N/P
ebic2c gbcs csid (csccid) .......... N/P
ascll mbs csid (mcscid) .......... N/P
ascll gbcs csid (mgccsid) .......... N/P
unicode gbcs csid (ugccsid) .......... 367
unicode gbcs csid (ugccsid) .......... 1,208
Default encoding scheme (enscheme) .......... EBCDIC
Application encoding (appencd) .......... EBCDIC
locale lc_type (lc_type) .......... 'blank'
declaration round mode (defDeclarationRoundMode) .......... ROUND_HALF_EVEN

SQL object defaults panel (dsntip7,dsntip7,dsntip72)
## System Parameters - Report

<table>
<thead>
<tr>
<th>Location: ODM0C51</th>
<th>OMEGAMON XE for DB2 Performance Expert (VSRAMO)</th>
<th>PAGE: 10-4</th>
</tr>
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<tr>
<td>Group: N/P</td>
<td>MEMBER: N/P</td>
<td>SUBSYSTEM: DC51</td>
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<tr>
<td>Immediate Override Flag (IMMFDRI)</td>
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<td>Redo Placement Default (REPLMNT)</td>
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<td>Roll Up Parallel Task Accounting (RTASKRL)</td>
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<td>No Parking Small Table Threshold (NPARKT)</td>
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<td>Offload Option (OFFLOAD)</td>
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<td>Star Join Enable (STARJOIN)</td>
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<td>Convert Factor</td>
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<td>Online System Parm User ID Monitor</td>
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<td>Online System Parm User Mode Monitor</td>
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<td>Online System Parm Time Changed</td>
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<td>DB2-Supplied Deep Indicator</td>
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<td>Max Concurrent PG Ops (MAX.Companion)</td>
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<td>Admin Scheduler JCL Proc Name (ADMTJCL)</td>
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<td>Free Local CACHED Statements (CACHEDYN_FREELocal)</td>
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<td>Indexes in Parallel (INDEXPARALLEL)</td>
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<td>Use Tracmode for Implicit T (IMPTMORD)</td>
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<td>Enable Multiple Index Access (SUBD_MXIA)</td>
<td>YES</td>
<td>SP_PARM_JV (DGF Compatibility)</td>
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<td>Timeout Value (STORSTIME)</td>
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<td>HWM Environment (HWMENV)</td>
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<td>Buffer Pool Parameters (DSNTP1P)</td>
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<td>Default 16-KB Buffer Pool for User Data (TBSPPK)</td>
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<td>Default Buffer Pool for User Indexes (IDXPPOOL)</td>
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<td>Query Accelerator Preferences (DSNTP82)</td>
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</table>

**System Parameters - Report**

- **Location:** ODM0C51
- **DB2 Utilities Parameters (DSNTPK4, DSNTPK6, DSNTPK62)**
  - Temporary Unit Name (VOLDEV) | SYSDA
  - UTIL Temp Storclas (UTIL_TEMP_STORCLAS) | N/P
  - Statistics History (STATHIST) | N/P
  - Statistics Rollup (STATROLL) | YES
  - Utility TIMEOUT Factor (UTMOUT) | 6
  - UT Sort Data Set Allocation (UTSORTA) | N/A
  - Ignore Sortnum Sort (INSORTN) | N/A
  - SET CHECK PENDING (CHECK_PEND) | N/A
  - UT DB2 Sort Use (DB2SORT) | N/A
  - Template Time (TEMPLATE_TIME) | UTC
  - Max Degree of Utility Parallelism (PARAMMDEG_UTIL) | 99
  - Fast Replication (CHECK_FASTREPLICATION) | REQUIRED
  - Copy Fast Replication (COPY_FASTREPLICATION) | PREFERRED
  - FlashCopy PPRC (FLASHCOPY_PPRC) | N/P
  - Default Template (FCOPYDPN) | NO
  - DNCS1.0.20.0.0 | N/A
  - FlashCopy PPRC (FLASHCOPY_PPRC) | NO
  - FlashCopy LOAD (FLASHCOPY_LOAD) | NO
  - FlashCopy REDG Tablespace (FLASHCOPY_REDG_TAB) | NO
  - FlashCopy RECON INDEX (FLASHCOPY_RECON_INDEX) | NO
  - FlashCopy REDG INDEX (FLASHCOPY_REDG_INDEX) | NO
  - System-Level Backups (SYSTEM_LEVEL_BACKUPS) | NO
  - Restore/Recover (RESTORE_RECOVER_FROMDUMP) | NO
  - Dump Class Name (UTILS_DUMP_CLASS_NAME) | "BLANK"
  - Max Image Tape Names (RESTORE_TAPEUNIT) | 0
  - REORG Part Sort NPS (REORG_PART_SORT_NPS) | NO
  - Redo List Processing (REORG_LIST_PROCESSING) | PARALLEL
  - Redo Mapping Database (REORG_MAPPDB) | NO
  - Redo Drop PG Parts (REORG_DROP_PGParts) | NO
  - Redo Ignore FSP (REORG_IGNORE_FSP) | NO/A

---

**System Parameters - Report**

- **Location:** ODM0C51
- **DB2 Performance Expert (VSRAMO)**
  - Page: 10-4
  - System Parameters Report
  - Actual from: 08/24/17 07:01:00.00

---

**System Parameters - Report**

- **Location:** ODM0C51
- **DB2 Performance Expert (VSRAMO)**
  - Page: 10-5
  - System Parameters Report
  - Actual from: 08/24/17 07:01:00.00
### System Parameters - Report

#### LOCATION: OMPDCS1

**GROUP:** N/P  **SYSTEM PARAMETERS REPORT**  
**MEMBER:** N/P  
**SUBSYSTEM:** DC51  
**SYSTEM PARAMETERS REPORT**  
**B2 VERSION:** V12  
**LOCATION:** OMPDCS1  
**GROUP:** N/P  **SYSTEM PARAMETERS REPORT**  
**MEMBER:** N/P  
**SUBSYSTEM:** DC51  
**SYSTEM PARAMETERS REPORT**  
**B2 VERSION:** V12  
**LOCATION:** OMPDCS1  
**GROUP:** N/P  **SYSTEM PARAMETERS REPORT**  
**MEMBER:** N/P  
**SUBSYSTEM:** DC51  
**SYSTEM PARAMETERS REPORT**  
**B2 VERSION:** V12  

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<td><strong>VPOLL Seq Thresh</strong></td>
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<tr>
<td><strong>Horiz Defer Write Thresh</strong></td>
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<tr>
<td><strong>Vert Defer Write Thresh (%)</strong></td>
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<td><strong>Vert Defer Write Thresh (Buf)</strong></td>
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### System Parameters - Report

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</table>
### System Parameters - Report

**LOCATION:** OMPDCS1  
**GROUP:** N/P  
**MEMBER:** N/P  
**SUBSYSTEM:** DC51  
**B2 VERSION:** V12  

**BUFFER POOL PARAMETERS**

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<th>VPOOL SIZE (PAGES)</th>
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<th>VERT DEFER WRITE THRESH (%)</th>
<th>VERT DEFER WRITE THRESH (BUF)</th>
<th>VPOOL PARALLEL SEQ THRESH</th>
<th>ASSISTING PARALLEL SEQ THRESH</th>
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**LOCATION:** OMPDCS1  
**GROUP:** N/P  
**MEMBER:** N/P  
**SUBSYSTEM:** DC51  
**B2 VERSION:** V12  

**BUFFER POOL PARAMETERS**

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System parameters report blocks

This section describes the blocks and fields shown in the system parameters report.

Blocks are listed in alphabetical order, fields are shown in the order they appear in the block.

Application Programming Defaults Panel 1 (DSNTIPF):

This topic shows detailed information about “System Parameters - Application Programming Defaults Panel 1 (DSNTIPF)”.

This block shows application programming defaults.

The values shown are used as default values by the program preparation panels, program preparation CLIST (DSNH), and precompiler. They can also be used as defaults by other programs, such as Query Management Facility (QMF).

Changing some of these defaults is not recommended because changes can make the syntax of existing SQL statements invalid or affect the way application programs run.

Values set here are contained in load module DSNHDECP, in library prefix.SDSNEXIT, which can be loaded and accessed by application programs. When modifying DSNHDECP, do so only by changing and running the installation CLIST.

Do not modify the data in DSNHDECP. If you modify any installation parameters by changing job DSNTIJUZ directly, these values are not recorded for later updates, new installations, or migrations.

Note: The fields shown on this panel depend on the installed DB2 version.
DEFAULT HOST LANGUAGE (DEFLANG)

The default programming language for your site. This can be:
- ASM
- C
- CPP
- COBOL
- COB2
- IBMCOB
- FORTRAN
- PLI

When this is C or C++, you can fold SQL identifiers to uppercase.

Install parameter LANGUAGE DEFAULT on panel DSNTIPF, or ZPARM DEFLANG in DSNHDECP.

Field Name: QWPBLANG

DECIMAL POINT OPTION (DECIMAL)

Indicates whether the decimal contains a comma (,) or a period (.). This parameter is used for dynamic SQL and COBOL programs. It is not used or supported by other languages.

Install parameter DECIMAL POINT IS on panel DSNTIPF, or ZPARM DECIMAL in DSNHDECP.

Derivation: DB2 field QWPBDE

Field Name: QWPBDE

DEFAULT DELIMITER (DELIM)

Shows the string delimiter for COBOL. Default string delimiter is the quotation mark. This option is applicable to all types of COBOL.

Install parameter STRING DELIMITER on panel DSNTIPF, or ZPARM DELIM in DSNHDECP.

Field Name: QWPBDL

DEFAULT SQL DELIMITER (SQLDELI)

The string delimiter for SQL.
Install parameter SQL STRING DELIMITER on panel DSNTIPF, or ZPARM SQLDELI in DSNHDECP.

Derivation: DB2 field QWPBSDL

Field Name: QWPBSDL

DIST SQL STRING DELIMITER (DSQLDELI)

Shows the SQL string delimiter used by this DB2 for bind operations when the requester does not give DB2 that information.

Install parameter DIST SQL STR DELIMTR on panel DSNTIPF, or ZPARM DSQLDELI in DSNHDECP.

Field Name: QWPBDSSD

DEFAULT MIXED GRAPHIC (MIXED)

Indicates whether the code points X'0E' and X'0F' are the shift-out and shift-in controls for character strings that include double-byte characters.

Install parameter MIXED DATA on panel DSNTIPF, or ZPARM MIXED in DSNHDECP.

Field Name: QWPBGRA

EBCDIC SBCS CCSID (SCCSID)

The EBCDIC single-byte coded character set ID.

A coded character set identifier (CCSID) must be specified when DDF STARTUP OPTION field on panel DSNTIPR is set to AUTO or COMMAND, or when the MIXED DATA field on panel DSNTIPF is set to YES. When mixed data is used, valid Mixed Data CCSID must also be specified.

A nonexistent CCSID causes an error.

An incorrect CCSID can corrupt data.

Install parameter EBCDIC CCSID on panel DSNTIPF, or ZPARM SCCSID in DSNHDECP.

Field Name: QWPBSID

EBCDIC MBCS CCSID (MCCSID)

The EBCDIC mixed coded character set ID.

A coded character set identifier (CCSID) must be specified when DDF STARTUP OPTION field on panel DSNTIPR is set to AUTO or COMMAND, or when the MIXED DATA field on panel DSNTIPF is set to YES. When mixed data is used, valid Mixed Data CCSID must also be specified.

A nonexistent CCSID causes an error.

An incorrect CCSID can corrupt data.

Install parameter EBCDIC CCSID on panel DSNTIPF, or ZPARM MCCSID in DSNHDECP.

Field Name: QWPBMID

EBCDIC GBCS CCSID (GCCSID)

The EBCDIC graphic coded character set ID.
A coded character set identifier (CCSID) must be specified when DDF STARTUP OPTION field on panel DSNTIPR is set to AUTO or COMMAND, or when the MIXED DATA field on panel DSNTIPF is set to YES. When mixed data is used, valid Mixed Data CCSID must also be specified.

A nonexistent CCSID causes an error.

An incorrect CCSID can corrupt data.

Install parameter EBCDIC CCSID on panel DSNTIPF, or ZPARM GCCSID in DSNHDECP.

Field Name: QWPBGID

ASCII SBCS CCSID (ASCCSID)

The ASCII single-byte coded character set ID.

The default (0) means the installation has no ASCII databases, table spaces, or tables.

Install parameter ASCII CCSID on panel DSNTIPF, or ZPARM ASCCSID in DSNHDECP.

Field Name: QWPBASID

ASCII MBCS CCSID (AMCCSID)

Indicates the ASCII mixed coded character set ID.

The default (0) means the installation has no ASCII databases, table spaces, or tables.

Install parameter ASCII CCSID on panel DSNTIPF, or ZPARM AMCCSID in DSNHDECP.

Field Name: QWPBAMID

ASCII GBCS CCSID (AGCCSID)

Indicates the ASCII graphic coded character set ID.

The default (0) means the installation has no ASCII databases, table spaces, or tables.

Install parameter ASCII CCSID on panel DSNTIPF, or ZPARM AGCCSID in DSNHDECP.

Field Name: QWPBAGID

UNICODE SBCS CCSID (USCCSID)

Unicode Single Byte Character Set identification.

Parameter UNICODE CCSID in installation panel DSNTIPF, or ZPARM USCCSID in macro DSNHDECP.

Field Name: QWPBUSID

UNICODE MBCS CCSID (UMCCSID)

Unicode Mixed Character Set identification.

Parameter UNICODE CCSID in installation panel DSNTIPF, or ZPARM UMCCSID in macro DSNHDECP.

Field Name: QWPBUMID

UNICODE GBCS CCSID (UGCCSID)
Unicode graphics character set identification.

Parameter UNICODE CCSID in installation panel DSNTIPF, or ZPARM UGCCSID in macro DSNHDECP.

Field Name: QWPBUGID

DEFAULT ENCODING SCHEME (ENSCHEME)

The default encoding scheme, which can be ASCII or EBCDIC, or UNICODE.

Install parameter DEF ENCODING SCHEME on panel DSNTIPF, or ZPARM ENSCHEME in DSNHDECP.

Derivation: DB2 field QWPBENS

Field Name: QWPBENS

APPLICATION ENCODING (APPENSCH)

Application encoding scheme.

Install parameter APPLICATION ENCODING on installation panel DSNTIPF, or ZPARM APPENSCH in DSNHDECP.

Field Name: QWPBAPSC

LOCALE LC_CTYPE (LC_TYPE)

The system LOCALE LC_CTYPE.

A locale is the part of the system environment that depends on language and cultural conventions. An LC_TYPE is a subset of a locale that applies to character functions. The UPPER, LOWER, and TRANSLATE scalar functions use the CURRENT LOCALE LC_CTYPE system default or special register. The results of these functions can vary, depending on the setting of the locale.

The following values are possible:

BLANK
The source field is empty.

This is the default, unless it is necessary to run the UPPER, LOWER, or TRANSLATE functions for data that must be interpreted using the rules provided by specific locales, for example, En_US or Fr_CA.

1st word
The source field contains left-justified word(s), where each byte of a word is > X'40'. It can be a single word or several ones, delimited by bytes <= X'40'.

Note: These hexadecimal codes do not represent printable characters.

N/P
The source field contains regular words that are not left-justified. This means that the first bytes are <= X'40'. N/P is also shown if the whole source field only consists of bytes < X'40', such as zeros.

Install parameter LOCALE LC_CTYPE on panel DSNTIPF, or ZPARM LC_TYPE in DSNHDECP.

Field Name: QWPBLCTP

DECFLOAT ROUND MODE (DEF_DECFLOAT_ROUND_MODE)
The default rounding mode for the decimal floating point type. Possible values are:

- X'80'  ROUND_CEILING
- X'40'  ROUND_DOWN
- X'20'  ROUND_FLOOR
- X'10'  ROUND_HALF_DOWN
- X'08'  ROUND_HALF_EVEN
- X'04'  ROUND_HALF_UP
- X'02'  ROUND_UP

Otherwise this field shows 'BLANK'.

ZPARM DEF_DECFLOAT_ROUND_MODE in DSNHDECP.

Field Name: QWPBDDRM

**DEFAULT CHARSET (CHARSET)**

Shows the default character set, ALPHANUM or KATAKANA.

ZPARM CHARSET in DSNHDECP.

Field Name: QWPBCHAR

**Application Programming Defaults Panel 2 (DSNTIP4, DSNTIP41):**

This topic shows detailed information about “System Parameters - Application Programming Defaults Panel 2 (DSNTIP4, DSNTIP41)”.

This block is a continuation of DSNTIPF and shows application programming defaults.

The values shown are used as default values by the program preparation panels, the program preparation CLIST (DSNH), and the precompiler. They can also be used as defaults by other programs, such as Query Management Facility (QMF).

Changing some of these defaults is not recommended because changes can make the syntax of existing SQL statements invalid or affect the way application programs run.

**System Parameters - Application Programming Defaults Panel 2 (DSNTIP4, DSNTIP41)**

The field labels shown in the following sample layout of “System Parameters - Application Programming Defaults Panel 2 (DSNTIP4, DSNTIP41)” are described in the following section.

```
APPLICATION PROGRAMMING DEFAULTS PANEL 2 (DSNTIP4,DSNTIP41)
---------------------------------------------------------------
MINIMUM DIVIDE SCALE (DECDIV3)...............................NO
DECIMAL ARITHMETIC (DECARTH)...............................DEC15
USE FOR DYNAMIC RULES (DYNRULS)............................YES
STATIC DESCRIBE (DESCSTAT).................................YES
DATE FORMAT (DATE)............................................ISO
TIME FORMAT (TIME)..........................................ISO
LOCAL DATE LENGTH (DATELEN)..............................N/A
LOCAL TIME LENGTH (TIMELEN)..............................N/A
IMPLICIT TIMEZONE...........................................CURRENT
```
**APPLICATION PROGRAMMING DEFAULTS PANEL 2 (DSNTIP4, DSNTIP41)**

STD SQL LANGUAGE (STDSQL) ............................................. NO
PAD NULL-TERMINATED (PADNTSTR) ...................................... NO
APPL COMPAT LEVEL (APPLCOMPAT) ........................................ N/A
LIKE BLANK INSIGNIFICANT (LIKE_BLANK_INSIGNIFICANT) .......... N/A
FULLY QUALIFIED NAME OF DSNHDECP LOAD MODULE...................
SYS1.DSNEXIT(DSNHDECP)

**MINIMUM DIVIDE SCALE (DECDIV3)**

This field is for IBM service use.

**Field Name:** QWP4DIV3

**DECIMAL ARITHMETIC (DECAR)**

Indicates the rules of precision for a decimal field.

Install parameter DECIMAL ARITHMETIC on panel DSNTIP4, or ZPARM DECAR in DSNHDECP.

**Derivation:** DB2 field QWPBAR

**Field Name:** QWPBARTH

**USE FOR DYNAMIC RULES (DYNRULS)**

Shows whether DB2 uses the application programming defaults specified on this panel or those of the DB2 precompiler options for dynamic SQL statements bound using DYNAMICRULES bind, define, or invoke behavior.

When YES, the application programming (DSNHDECP) defaults are used for dynamic SQL statements in plans or packages bound using DYNAMICRULES bind, define, or invoke behavior.

The following defaults are affected:

- DECIMAL POINT IS
- STRING DELIMITER
- SQL STRING DELIMITER
- MIXED DATA
- DECIMAL ARITHMETIC

When NO, values of the precompiler options are used for dynamic SQL statements in plans or packages bound with DYNAMICRULES(BIND).

Install parameter USE FOR DYNAMICRULES on panel DSNTIP4, or ZPARM DYNRULS in DSNHDECP.

**Field Name:** QWPBDRLS

**STATIC DESCRIBE (DESCSTAT)**

Shows whether DB2 builds a DESCRIBE SQLDA when binding static SQL statements.

A DESCRIBE cannot be issued against a static SQL statement except:

- In a distributed environment, where DB2 for z/OS is the server and the requester supports extended dynamic SQL. In this instance, a DESCRIBE on an SQL statement in the extended dynamic package appears to DB2 as a DESCRIBE on a static SQL statement in the DB2 package.

- When an application uses a stored procedure result set, the application must allocate a cursor for that result set. The application can do this using a DESCRIBE CURSOR statement. The SQL statement actually
described is the one with the cursor declared in the stored procedure. If that statement is static, a static SQL statement must be described.

When NO (default), DB2 does not generate a DESCRIBE SQLDA at BIND time for static SQL statements. If a DESCRIBE request is received at execution time, DB2 generates an error. However, if the describe request comes from a DESCRIBE CURSOR statement, DB2 satisfies the request but is only able to provide data type and length information. Column names are not provided.

When YES, DB2 generates a DESCRIBE SQLDA at BIND time so that DESCRIBE requests for static SQL can be satisfied during execution.

Note: You must rebind packages after this value has been set to YES.

This option increases the size of some packages because the DESCRIBE SQLDA is now stored with each statically-bound SQL SELECT statement.

Install parameter DESCRIBE FOR STATIC on panel DSNTIP4, or ZPARM DESCSTAT in DSN6SPRM.

Field Name: QWP4DSST

DATE FORMAT (DATE)

Default output format for dates.

Valid formats are ISO (yyyy-mm-dd), USA (mm/dd/yyyy), EUR (dd.mm.yyyy), JIS (yyyy-mm-dd), or LOCAL (your choice, defined by a date exit routine). DB2 interprets the input date from the punctuation and converts the output date to the required format.

Install parameter DATE FORMAT on panel DSNTIP4, or ZPARM DATE in DSNHDECP.

Field Name: QWPBDATE

TIME FORMAT (TIME)

Indicates the default output format for times.

Valid values are ISO (hh.mm.ss), USA (hh:mm AM), EUR (hh.mm.ss), JIS (hh:mm:ss), or LOCAL (your choice, defined by a time exit routine). DB2 interprets the input time from the punctuation and converts the output time to the required format.

Install parameter TIME FORMAT on panel DSNTIP4, or ZPARM TIME in DSNHDECP.

Field Name: QWPBTIME

LOCAL DATE LENGTH (DATELEN)

Shows the length of the longest field required to hold a locally defined date.

The default (0) indicates an IBM-supplied format (ISO, JIS, USA, or EUR).

Install parameter LOCAL DATE LENGTH on panel DSNTIP4, or ZPARM DATELEN in DSNHDECP.

Field Name: QWPBDLEN

LOCAL TIME LENGTH (TIMELEN)
Application Programming Defaults Panel 2 (DSNTIP4, DSNTIP41)

Shows the length of the longest field required to hold a time when a locally defined time format is used.

The default (0) indicates an IBM-supplied format (ISO, JIS, USA, or EUR).

Install parameter LOCAL TIME LENGTH on panel DSNTIP4, or ZPARM TIMELEN in DSNHDECP.

Field Name: QWPBTLEN

IMPLICIT TIMEZONE

The implicit time zone that is associated with DB2 table columns and routine parameters that are declared as time stamp with time zone.

For IFCID 106 - Application Programming Defaults, this field is displayed twice, with its hex value and in a readable string.

This field corresponds to DSNHDECP field IMPLICIT_TIMEZONE.

Field Name: QWPBIMTZ

STD SQL LANGUAGE (STDSQL)

Shows whether SQL, the language standard used by applications, conforms to 1986 ANSI SQL standard.

YES Conforms to the 1986 ANSI SQL standard
NO Conforms to the SQL language defined by DB2
86 Conforms to the 1986 ANSI SQL standard

Install parameter STD SQL LANGUAGE on panel DSNTIP4, or ZPARM STDSQL in DSNHDECP.

Field Name: QWPBSQL

PAD NULL-TERMINATED (PADNTSTR)

Shows whether output host variables that are NULL-terminated strings are padded with blanks and a NULL terminator.

When NO, NULL-terminated output host variables have the NULL terminator placed at the end of actual data returned in the host variable. When YES, NULL-terminated output host variables have the NULL terminator placed at the end of the string, after the string has been padded with blanks from the end of the actual data to the declared length of the output host variable.

Install parameter PAD NULL-TERMINATED on installation panel DSNTIP4, or ZPARM PADNTSTR in DSNHDECP.

Field Name: QWPBPAD

APPL COMPAT LEVEL (APPLCOMPAT)

Specifies the DB2 level for downward compatibility with applications. The ZPARM name is APPLCOMPAT in DSN6SPRM.

Field Name: QWP4APCO_VAR

LIKE BLANK INSIGNIFICANT (LIKE_BLANK_INSIGNIFICANT)

YES indicates that blanks are not significant when DB2 applies the LIKE predicate to a string. Blanks are significant in DB2 10.
Application Programming Defaults Panel 2 (DSNTIP4, DSNTIP41)

This setting corresponds to field LIKE BLANK INSIGNIFICANT on installation panel DSNTIP41. The ZPARM name is LIKE_BLANK_INSIGNIFICANT in DSN6SPRM.

Field Name: QWP4LBIN

FULLY QUALIFIED NAME OF DSNHDECP LOAD MODULE

Shows the fully qualified DECP name of the data set from which the DSNHDECP module was loaded.

Field Name: QWPBLNM

Archive Log Installation Parameters (DSNTIPA):

This topic shows detailed information about “System Parameters - Archive Log Installation Parameters (DSNTIPA)”. This block shows the characteristics of archive log data sets.

System Parameters - Archive Log Installation Parameters (DSNTIPA)

The field labels shown in the following sample layout of “System Parameters - Archive Log Installation Parameters (DSNTIPA)” are described in the following section.

ARCHIVE LOG INSTALLATION PARAMETERS (DSNTIPA)

---------------------------------------------
CATALOG ARCHIVE DATASETS (CATALOG).................YES
COPY1 ARCHIVE LOG DEVICE TYPE (UNIT).................DASD
COPY2 ARCHIVE LOG DEVICE TYPE (UNIT2)...............‘BLANK’
SPACE ALLOCATION METHOD (ALCUNIT)....................CYLINDER
PRIMARY SPACE ALLOCATION (PRIQTY)....................100
SECONDARY SPACE ALLOCATION (SECQTY)..................10
ARCHIVE LOG BLOCK SIZE IN BYTES (BLKSIZE)...........24,576
MAXIMUM READ TAPE UNITS (MAXRTU)....................2
TAPE UNIT DEALLOCATION PERIOD (DEALLCT)............0000:00
MAX NUMBER OF DATASETSRecorded in BSDS (MAXARCH).....1,000
FIRST ARCHIVE COPY MASS STG GROUP NAME............‘NONE’
SECOND ARCHIVE COPY MASS STG GROUP NAME.............‘NONE’
DAYS TO RETAIN ARCHIVE LOG DATA SETS (ARCRETN)........30
ISSUE WTOR BEFORE MOUNT FOR ARCHIVE VOLUME (ARCWTOR).YES
COMPACT DATA (COMPACT)..............................NO
QUIESCE PERIOD (QUIESCE)............................5
SINGLE VOLUME (SVOLARC)............................NO

CATALOG ARCHIVE DATASETS (CATALOG)

The alias of the VSAM integrated catalog facility user catalog or the name of the master catalog where the DB2 VSAM data sets created during installation are cataloged. The MVS catalog alias is also used as the high-level qualifier for DB2 VSAM data sets.

Install parameter CATALOG ALIAS on panel DSNTIPA, or ZPARM CATALOG in DSN6ARVP.

Field Name: QWP3CTLG

COPY1 ARCHIVE LOG DEVICE TYPE (UNIT)

The device type or unit name for storing archive log data sets.
The value can be any alphanumeric string. If you choose to archive to DASD, you can specify a generic device type with a limited volume range. DB2 requires that all archive log data sets allocated on DASD are cataloged.

If the device type is DASD, CATALOG DATA must be set to YES. If the unit name specifies DASD, the archive log data sets can extend to a maximum of 15 volumes. PRIQTY and SECQTY must be large enough to contain all active log data set data without extending beyond 15 volumes. If the unit name specifies a tape device, DB2 can extend to a maximum of 20 volumes. Default is TAPE.

Install parameter DEVICE TYPE 1 on panel DSNTIPA, or ZPARM UNIT in DSN6ARVP.

Field Name: QWP3UNT1

COPY2 ARCHIVE LOG DEVICE TYPE (UNIT2)

Indicates the device type or unit name for storing the second copy of archive log data sets.

The value can be any alphanumeric string. If you choose to archive to DASD, you can specify a generic device type with a limited volume range. DB2 requires that all archive log data sets allocated on DASD are cataloged.

If the device type is DASD, then CATALOG DATA must be set to YES. If the unit name specifies DASD, the archive log data sets can extend to a maximum of 15 volumes. PRIQTY and SECQTY must be large enough to contain all active log data set data without extending beyond 15 volumes. If the unit name specifies a tape device, DB2 can extend to a maximum of 20 volumes. Default is TAPE.

Install parameter DEVICE TYPE 2 on panel DSNTIPA, or ZPARM UNIT2 in DSN6ARVP.

Field Name: QWP3UNT2

SPACE ALLOCATION METHOD (ALCUNIT)

The unit used in allocating archive data sets. Possible values are:

- CYLINDER
  - Space allocation by cylinders (QWP3CYL=1)

- TRACKS
  - Space allocation by tracks (QWP3TRCK=1)

- BLOCKS
  - Space allocation by blocks (QWP3CYL=0 and QWP3TRCK=0)

Install parameter ALLOCATION UNITS on panel DSNTIPA, or ZPARM ALCUNIT in DSN6ARVP.

Field Name: RT0106SA

PRIMARY SPACE ALLOCATION (PRIQTY)

The primary space allocation for archive data sets.

Install parameter PRIMARY QUANTITY on installation panel DSNTIPA, or ZPARM PRIQTY in DSN6ARVP.

Field Name: QWP3RISP
SECONDARY SPACE ALLOCATION (SECQTY)

The amount of DASD secondary space allocation for an archive log data set.

The units used are specified by the ALLOCATION UNITS field. When blank (default), the CLIST calculates this space using block size and size of the log.

Install parameter SECONDARY QTY on panel DSNTIPA, or ZPARM SECQTY in DSN6ARVP.

Field Name: QWP3SECS

ARCHIVE LOG BLOCK SIZE IN BYTES (BLKSIZE)

The block size of the archive log data set.

The block size must be compatible with the device type used for archive logs. The value is rounded up to the next multiple of 4096 bytes.

If the archive log is written to tape, use the largest possible block size to improve the reading speed.

Recommended block size values are 28672 for tape, 20480 for 3380, and 24576 for 3390 or RAMAC.

Install parameter BLOCK SIZE on panel DSNTIPA, or ZPARM BLKSIZE in DSN6ARVP.

Field Name: QWP3BKSZ

MAXIMUM READ TAPE UNITS (MAXRTU)

The maximum number of tape units that can be allocated for archive read purposes.

Install parameter READ TAPE UNITS on panel DSNTIPA, or ZPARM MAXRTU in DSN6LOGP.

Field Name: QWP2MRTU

TAPE UNIT DEALLOCATION PERIOD (DEALLCT)

The number of minutes an archive read tape unit can remain unused before it is deallocated.

When archive log data is read from tape, this value should be high enough to allow DB2 to optimize tape handling for multiple read applications.

Install parameter DEALLOC PERIOD on panel DSNTIPA, or ZPARM DEALLCT in DSN6LOGP.

Field Name: QWP2DMIN

MAX NUMBER OF DATASETS RECORDED IN BSDS (MAXARCH)

The maximum number of archive log volumes that can be recorded in the BSDS.

When this number is exceeded, recording resumes at the beginning of the BSDS.

For dual archive, this value applies to each log data set. As an example, a value of 500 allows 500 COPY-1 and 500 COPY-2 data sets in the BSDS.

You must create image copies of all DB2 objects, probably several times, before the archive log data sets are discarded. If you fail to retain an
adequate number of archive log data sets for all the image copies, you might need to cold start or reinstall DB2. In either case, data is lost.

Install parameter RECORDING MAX on panel DSNTIPA, or ZPARM MAXARCH in DSN6LOGP.

Field Name: QWP2ARCL

FIRST ARCHIVE COPY MASS STG GROUP NAME
The mass storage system volume group name of the first storage group.
Field Name: QWP3MSV1

SECOND ARCHIVE COPY MASS STG GROUP NAME
The mass storage system volume group name of the second storage group.
Field Name: QWP3MSV2

DAYS TO RETAIN ARCHIVE LOG DATA SETS (ARCRETN)
The number of days DB2 keeps archive log data sets.
This value is added to the current date to calculate the expiration date.
The retention period is often used in tape management systems to control the reuse and scratching of data sets and tapes. DB2 uses this as the value for the dynamic allocation parameter DALRETPD when archive log data sets are created.
Install parameter RETENTION PERIOD on panel DSNTIPA, or ZPARM ARCRETN in DSN6ARVP.
Field Name: QWP3RETN

ISSUE WTOR BEFORE MOUNT FOR ARCHIVE VOLUME (ARCWTOR)
Indicates whether DB2 must send a message to the operator and wait for an answer before attempting to mount an archive log data set.
Other DB2 users can be forced to wait while the mount is pending. They are not affected while DB2 is waiting for a response to the message.
When YES, a device such as tape is used that requires long delays for mounts. DEVICE TYPE 1 shows the device type or unit name.
Install parameter WRITE TO OPER on panel DSNTIPA, or ZPARM ARCWTOR in DSN6ARVP.
Field Name: QWP3WTOR

COMPACT DATA (COMPACT)
Indicates whether data written to archive logs is compacted.
This option only applies to data written to a 3480 device that has the improved data recording capability (IDRC) feature.
Install parameter COMPACT DATA on panel DSNTIPA, or ZPARM COMPACT in DSN6ARVP.
Field Name: QWP3COMP

QUIESCE PERIOD (QUIESCE)
The maximum amount of time (in seconds) permitted for DB2 to attempt a full system quiesce.
Install parameter QUIESCE PERIOD on panel DSNTIPA, or ZPARM QUIESCE in DSN6ARVP.

Field Name: QWP3MQP

SINGLE VOLUME (SVOLARC)
Indicates whether single-volume DASD archives are used.
Install parameter SINGLE VOLUME on panel DSNTIPA, or ZPARM SVOLARC in DSN6ARVP.

Field Name: QWP3SVOL

Buffer Pool Parameters (DSNTIP1):

This topic shows detailed information about “System Parameters - Buffer Pool Parameters (DSNTIP1)”.

This block shows the default buffer pools for user data and indexes.

System Parameters - Buffer Pool Parameters (DSNTIP1)
The field labels shown in the following sample layout of “System Parameters - Buffer Pool Parameters (DSNTIP1)” are described in the following section.

BUFFER POOL PARAMETERS (DSNTIP1)
-------------------------------------
DEFAULT 4-KB BUFFER POOL FOR USER DATA (TBSBPOOL)...........BP2
DEFAULT 8-KB BUFFER POOL FOR USER DATA (TBSBP8K)...........BP8K0
DEFAULT 16-KB BUFFER POOL FOR USER DATA (TBSBP16K).........BP16K0
DEFAULT 32-KB BUFFER POOL FOR USER DATA (TBSBP32K)........BP32K
DEFAULT BUFFER POOL FOR USER LOB DATA (TBSBLOB)..........BP0
DEFAULT BUFFER POOL FOR USER XML DATA (TBSBPXML).........BP16K0
DEFAULT BUFFER POOL FOR USER INDEXES (IDXPOOL)............BP3

DEFAULT 4-KB BUFFER POOL FOR USER DATA (TBSBPOOL)
The name of the 4 KB buffer pool for user table spaces.
Install parameter DEFAULT BUFFER POOL FOR USER DATA on installation panel DSNTIP1, or ZPARM TBSBPOOL in DSN6SYSP.

Field Name: QWP1TBPL

DEFAULT 8-KB BUFFER POOL FOR USER DATA (TBSBP8K)
The default 8 KB buffer pool for:
• Table spaces with an 8 KB page size in implicitly created databases
• Explicitly created table spaces with an 8 KB page size, but without a buffer pool clause that is specified in the create table space statement.
Install parameter DEFAULT 8-KB BUFFER POOL FOR USER DATA on panel DSNTIP1 or ZPARM TBSBP8K in DSN6SYSP.

Field Name: QWP1TP8

DEFAULT 16-KB BUFFER POOL FOR USER DATA (TBSBP16K)
The default 16 KB buffer pool for:
• Table spaces with a 16 KB page size in implicitly created databases
• Explicitly created table spaces with a 16 KB page size, but without a buffer pool clause that is specified in the create table space statement.
Install parameter DEFAULT 16-KB BUFFER POOL FOR USER DATA on panel DSNTIP1 or ZPARM TBSBP16K in DSN6SYSP.

Field Name: QWP1TP16

DEFAULT 32-KB BUFFER POOL FOR USER DATA (TBSBP32K)

The default 32 KB buffer pool for:
- Table spaces with a 32 KB page size in implicitly created databases
- Explicitly created table spaces with a 32 KB page size, but without a buffer pool clause that is specified in the create table space statement.

Install parameter DEFAULT 32-KB BUFFER POOL FOR USER DATA on panel DSNTIP1 or ZPARM TBSBP32K in DSN6SYSP.

Field Name: QWP1TP32

DEFAULT BUFFER POOL FOR USER LOB DATA (TBSBPLOB)

The name of the buffer pool that is used for implicitly created LOB table spaces. This field corresponds to field default buffer pool for USER LOB DATA on installation panel DSNTIP1. The ZPARM name is TBSBPLOB in DSN6SYSP.

Field Name: QWP1TPLB

DEFAULT BUFFER POOL FOR USER XML DATA (TBSBPXML)

The name of the buffer pool that is used for XML table spaces. This field corresponds to field default buffer pool for USER XML DATA on installation panel DSNTIP1. The ZPARM name is TBSBPXML in DSN6SYSP.

Field Name: QWP1TPXM

DEFAULT BUFFER POOL FOR USER INDEXES (IDXBOOOL)

The name of the 4 KB buffer pool used for indexes on user data.

Install parameter DEFAULT BUFFER POOL FOR USER INDEXES on installation panel DSNTIP1, or ZPARM IDXBPOOL in DSN6SYSP.

Field Name: QWP1IXPL

Data Definition Control Support (DSNTIPZ):

This topic shows detailed information about “System Parameters - Data Definition Control Support (DSNTIPZ)”.

This shows the installation and configuration for data definition control support.

Two SQL tables (application and object registration) are identified and created even if data definition control support is not installed. This simplifies future activation of the facility. Specified application identifiers (DB2 plans or collections of packages) can be registered in the application registration table and, optionally, their associated DB2 object names can be registered in the object registration table. DB2 consults these two tables prior to accepting a given DDL statement to make sure that a particular application identifier and object name are registered.

Fields in this block can contain long names. When a long name exceeds the available space, it is truncated, the parameter identifier and the full name are printed in a separate list at the end of the report.
System Parameters - Data Definition Control Support (DSNTIPZ)

The field labels shown in the following sample layout of “System Parameters - Data Definition Control Support (DSNTIPZ)” are described in the following section.

**DATA DEFINITION CONTROL SUPPORT (DSNTIPZ)**

<table>
<thead>
<tr>
<th>Parameter Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTALL DD CONTROL (RGFINSTL)</td>
<td>NO</td>
</tr>
<tr>
<td>CONTROL ALL APPLICATIONS (RGFDEDPL)</td>
<td>NO</td>
</tr>
<tr>
<td>REQUIRE FULL NAMES (RGFFULLQ)</td>
<td>YES</td>
</tr>
<tr>
<td>UNREGISTERED DDL DEFAULT (RGFDEFLT)</td>
<td>ACCEPT</td>
</tr>
<tr>
<td>REGISTER TABLE OWNER (RGFCOLID)</td>
<td>DSNZPARM</td>
</tr>
<tr>
<td>DDL REGISTRATION DATABASE NAME (RGFDBNAM)</td>
<td>DSNRGFDB</td>
</tr>
<tr>
<td>APPL REGISTRATION TABLE NAME (RGFNMPRT)</td>
<td>DSNZPARMGRFNMPRTD</td>
</tr>
<tr>
<td>OBJECT REGISTRATION TABLE NAME (RGFNMORT)</td>
<td>DSNZPARMGRFNMORTD</td>
</tr>
<tr>
<td>ESCAPE CHARACTER (RGFESCP)</td>
<td>X'40'</td>
</tr>
</tbody>
</table>

**INSTALL DD CONTROL (RGFINSTL)**

Indicates whether data definition support has been installed.

Install parameter INSTALL DD CONTROL SUPT on panel DSNTIPZ, or ZPARM RGFINSTL in DSN6SPRM.

**Field Name:** QWP4REGI

**CONTROL ALL APPLICATIONS (RGFDEDPL)**

Indicates that the DB2 system is completely controlled by a set of closed applications identified in the application registration table.

Closed applications require their DB2 objects to be managed solely through the plans or packages registered in the application registration table.

Install parameter CONTROL ALL APPLICATIONS on panel DSNTIPZ, or ZPARM RGFDEDPL in DSN6SPRM.

**Field Name:** QWP4REGD

**REQUIRE FULL NAMES (RGFFULLQ)**

Indicates whether registered objects require fully qualified names.

Install parameter REQUIRE FULL NAMES on panel DSNTIPZ, or ZPARM RGFFULLQ in DSN6SPRM.

**Field Name:** QWP4REGQ

**UNREGISTERED DDL DEFAULT (RGFDEFLT)**

The action taken for DDL that names an unregistered object.

Options are REJECT, ACCEPT, or APPL, which rejects the DDL when the current application is not registered.

Install parameter UNREGISTERED DDL DEFAULT on panel DSNTIPZ, or ZPARM RGFDEFLT in DSN6SPRM.

**Field Name:** QWP4REGU

**REGISTER TABLE OWNER (RGFCOLID)**

The owner of the application registration table and the object registration table.

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.
Data Definition Control Support (DSNTIPZ)

Install parameter REGISTRATION OWNER on panel DSNTIPZ, or ZPARM RGFCOLID in DSN6SPRM.

**Field Name:** QWP4REGC

**DDL REGISTRATION DATABASE NAME (RGFDBNAM)**

The name of the database that contains the registration tables.

Install parameter REGISTRATION DATABASE on panel DSNTIPZ, or ZPARM RGFDBNAM in DSN6SPRM.

**Field Name:** QWP4REGN

**APPL REGISTRATION TABLE NAME (RGFNMPRT)**

The name of the application registration table.

Install parameter APPL REGISTRATION TABLE on panel DSNTIPZ or ZPARM RGFNMPRT in DSN6SPRM.

**Field Name:** QWP4REGA

**OBJECT REGISTRATION TABLE NAME (RGFNMORT)**

The name of the object registration table.

Install parameter OBJT REGISTRATION TABLE on panel DSNTIPZ, or ZPARM RGFNMORT in DSN6SPRM.

**Field Name:** QWP4REGO

**ESCAPE CHARACTER (RGFESCP)**

The escape character used in the application registration table (ART) or object registration table (ORT).

Sets of names in the ART and ORT can be represented by patterns that use the underscore (_) and percent sign (%) characters in the same way as in an SQL LIKE predicate.

Install parameter ART/ORT ESCAPE CHARACTER on panel DSNTIPZ, or ZPARM RGFESCP in DSN6SPRM.

**Field Name:** QWP4ESC

Data parameters (DSNTIPA3):

This topic shows detailed information about "System Parameters - Data Parameters Panel (DSNTIPA3)."

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**DATA PARAMETERS PANEL (DSNTIPA3)**

**ZHYPERLINKS SCOPE (ZHYPERLINK)**

The scope of zHyperLink I/O usage for this Db2 subsystem. Valid values are:

**DISABLED**

zHyperLink I/O not used by this subsystem
ENABLED
All eligible I/Os will use zHyperLink if possible

DATABASE
zHyperLink will only be used for eligible I/O on database objects

ACTIVELOG
zHyperLink will only be used for eligible I/O on active log object

Field name: QWP4ZHYPL

Define Group or Member (DSNTIPK):

This topic shows detailed information about “System Parameters - Define Group or Member (DSNTIPK)”.

This panel shows the members in a data sharing group.

DB2 subsystems that share data must belong to a DB2 data sharing group, which runs on a Parallel Sysplex. A data sharing group is a collection of one or more DB2 subsystems that access shared DB2 data. A Parallel Sysplex is a collection of MVS systems that communicate and cooperate with each other.

System Parameters - Define Group or Member (DSNTIPK)

The field labels shown in the following sample layout of “System Parameters - Define Group or Member (DSNTIPK)” are described in the following section.

DEFINE GROUP OR MEMBER (DSNTIPK)

GROUP NAME (GRPNAME)....................................DSNDBPG
MEMBER NAME (MEMBNAME).....................................DBP0
MAX NUMBER OF MEMBERS.......................................248
RANDOM ATTACH (RANDOMATT)...................................YES
DEL CF STRUCTS (DEL_CFSTRUCTS_ON_RESTART)....................NO
PARALLELISM ASSISTANT (ASSIST)..................................NO
PARALLELISM COORDINATOR (COORDNTR)..........................NO

GROUP NAME (GRPNAME)
The name of the DB2 data sharing group.
The group name encompasses the entire data sharing group and is the basis for the coupling facility structure names.
N/A means this DB2 is not part of a data sharing group.
Install parameter GROUP NAME on panel DSNTIPK, or ZPARM GRPNAME in DSN6GRP.
Field Name: QWPAGRPN

MEMBER NAME (MEMBNAME)
The member name of this DB2.
N/A means this DB2 is not part of a data sharing group.
Install parameter MEMBER NAME on panel DSNTIPK, or ZPARM MEMBNAME in DSN6GRP.
Field Name: QWPAMBRN

MAX NUMBER OF MEMBERS
The maximum number of members possible in a data sharing group. This is a constant (248) and is not shown on any installation panel.

Field Name: QWPAMAXM

RANDOM ATTACH (RANDOMATT)

Specifies a random group attach flag:
N Not eligible for random group attach.
NOT N Eligible for random group attach.

This field corresponds to field RANDOM ATTACH on installation panel DSNTIPK. The ZPARM name is RANDOMATT in DSN6GRP.

Field Name: QWPARAND

DEL CF STRUCTS (DEL_CFSTRUCTS_ON_RESTART)

Shows whether to:
• Delete change-data (CD) structures during restart
• Attempt to delete coupling-facility (CF) structures, including shared communications area (SCA) structures, internal resource lock manager (IRLM lock) structures, and allocated group buffer pools.

This field corresponds to field DEL CF STRUCTS on installation panel DSNTIPK.

ZPARM name DEL_CFSTRUCTS_ON_RESTART in DSN6SYSP.

Field Name: QWP1DCFS

PARALLELISM ASSISTANT (ASSIST)

Shows whether this DB2 member can assist a parallelism coordinator with parallel processing.

When YES, this member is considered an assistant at both bind and run time. To be a viable assistant at run time, both the VPPSEQT and VPXPSEQT buffer pool thresholds of this member must be greater than 0.

N/A means this DB2 is not part of a data sharing group.

Install parameter ASSISTANT on panel DSNTIPK or ZPARM ASSIST in DSN6GRP.

Field Name: QWPAAESS

PARALLELISM COORDINATOR (COORDNTR)

Shows whether this DB2 member can coordinate parallel processing on other members of the group.

When NO, a query can be processed by this DB2 member only.

When YES, a read-only query running on this DB2 member can be processed in part on other members of the group.

N/A means this DB2 is not part of a data sharing group.

Install parameterCOORDINATOR on panel DSNTIPK or ZPARM COORDNTR in DSN6GRP.

Field Name: QWPACOOR
Databases and Spaces Started Automatically (DSNTIPS):

This topic shows detailed information about “System Parameters - Databases and Spaces Started Automatically (DSNTIPS)”.

This block shows the databases, table spaces, and index spaces that are started or restarted automatically when DB2 is started. ZP ARM ALL/dbname in DSN6SPRM.

System Parameters - Databases and Spaces Started Automatically (DSNTIPS):

The field labels shown in the following sample layout of “System Parameters - Databases and Spaces Started Automatically (DSNTIPS)” are described in the following section.

DATABASES AND SPACES STARTED AUTOMATICALLY (DSNTIPS)
----------------------------------------------------
ALL

DATABASE NAME

The name of a database that is to be started automatically.

Field Name: QWP8DBNM

SPACE NAME

Contains the name of a table space or index space that is to be started automatically.

Field Name: QWP8SPNM

Default Startup Modules (DSNTIPO3):

This topic shows detailed information about “System Parameters - Default Startup Modules (DSNTIPO3)”.

System Parameters - Default Startup Modules (DSNTIPO3)

The field labels shown in the following sample layout of “System Parameters - Default Startup Modules (DSNTIPO3)” are described in the following section.

DEFAULT STARTUP MODULES (DSNTIPO3)
----------------------------------
PARAMETER MODULE..........................DSNZPARM
ACCESS CONTROL (ACCESS_CNTL_MODULE)..........................DSNX0XAC
IDENTIFY/AUTH (IDAUTH_MODULE)..........................DSN30ATH
SIGNON (SIGNON_MODULE)..........................DSN30SGN

PARAMETER MODULE

Shows the name of the active subsystem parameter module.

This field corresponds to field PARAMETER MODULE on installation panel DSNTIPO3.

Field Name: QWP1ZPNM

ACCESS CONTROL (ACCESS_CNTL_MODULE)

Shows the name of the default access control exit module.

This field corresponds to field ACCESS CONTROL on installation panel DSNTIPO3. The ZP ARM name is ACCESS_CNTL_MODULE in DSN6SYSP.

Field Name: QWP1DXAC
IDENTIFY/AUTH (IDAUTH_MODULE)

Shows the name of the default identify or authorization exit module.

This field corresponds to field IDENTIFY/AUTH on installation panel DSNTIPO3. The ZPARM name is IDAUTH_MODULE in DSN6SYSP.

Field Name: QWP1DATH

SIGNON (SIGNON_MODULE)

Shows the name of the default signon exit module.

This field corresponds to field SIGNON on installation panel DSNTIPO3. The ZPARM name is SIGNON_MODULE in DSN6SYSP.

Field Name: QWP1DSGN

Distributed Data Facility Panel 1 (DSNTIPR):

This topic shows detailed information about “System Parameters - Distributed Data Facility Panel 1 (DSNTIPR)”.

This block shows how Distributed Data Facility (DDF) was started and the names used to connect another DB2 subsystem.

To use DDF, you must have VTAM installed, even if you use TCP/IP connections only.

System Parameters - Distributed Data Facility Panel 1 (DSNTIPR)

The field labels shown in the following sample layout of “System Parameters - Distributed Data Facility Panel 1 (DSNTIPR)” are described in the following section.

DISTRIBUTED DATA FACILITY PANEL 1 (DSNTIPR)
---------------------------------------------
FACILITY NAME...............................................DDF
DDF STARTUP OPTION (DFD).................................AUTO
RLST ACCESS ERROR (RLFERRD)..............................NOLIMIT
RESYNCHRONIZATION INTERVAL IN MINUTES (RESYNC).........2
DBAT STATUS (CMTSTAT)......................................INACTIVE
MAX TYPE 1 INACTIVE THREADS (MAXTYPE1)........................0
IDLE THREAD TIMEOUT INTERVAL (IDTHTOIN)...............1,800
EXTENDED SECURITY (EXTSEC)..............................YES
USER ID AND PASSWORD REQUIRED..........................NO
SQL INTERRUPT PROCESSING DISABLED (SQLINTRP)..........NO
PRIVATE PROTOCOL (PRIVATE_PROTOCOL)..................AUTH

FACILITY NAME

The name of the DDF facility.
Field Name: QWP9NAME

DDF STARTUP OPTION (DFD)

Indicates whether DDF is loaded, and if so, how it was started.

When NO, DDF was not loaded at DB2 startup and cannot be started.
AUTO means DDF was loaded and started automatically when DB2 was started. The DDF address space was started as part of DDF initialization.
COMMAND means DDF was initialized and the DDF address space was started at DB2 startup. If DDF is running, it was started from the console with the -DSN1 START DDF command. If it is not running, it can be started with this command.

Install parameter DDF STARTUP OPTION on panel DSNTIPR, or ZPARM DDF in DSN6FAC.

Field Name: QWP9STRT

RLST ACCESS ERROR (RLFERRD)

Shows what DB2 does when the governor cannot access the resource limit specification table or when no row in the table matches the currently executing statement.

NOLIMIT (default) allows all dynamic SQL statements to run without limit.

NORUN terminates all dynamic SQL statements immediately with an SQL error code.

The number of CPU service units allowed for a query can be anywhere from 1 to 5000000.

Install parameter RLST ACCESS ERROR on panel DSNTIPR, or ZPARM RLFERRD in DSN6FAC (DB2 field QWP9RLER).

Field Name: QWP9RLER

RESYNCHRONIZATION INTERVAL IN MINUTES (RESYNC)

The number of minutes between resynchronization periods.

A resynchronization period is the time during which indoubt logical units of work involving this DB2 subsystem and partner logical units are processed.

Install parameter RESYNC INTERVAL on panel DSNTIPR, or ZPARM RESYNC in DSN6FAC.

Field Name: QWP9RYC

DBAT STATUS (CMTSTAT)

 Shows whether DB2 inactivates threads that have successfully committed or rolled back, and hold no cursors.

ACTIVE provides the best performance but consumes system resources.

INACTIVE is recommended when the installation must support a large number of connections.

When a thread becomes eligible for inactivation, DB2 tries to make it a type 2 inactive thread, which uses less storage than a type 1 inactive thread. If this fails, DB2 tries to make it a type 1 inactive thread. If neither attempt is successful, the thread remains active.

Install parameter DDF THREADS on panel DSNTIPR, or ZPARM CMTSTAT in DSN6FAC.

Field Name: QWP9CMST

MAX TYPE 1 INACTIVE THREADS (MAXTYPE1)

Indicates the number of type 1 inactive threads that DB2 allows.
A large number of type 1 inactive threads can adversely affect system performance. Type 1 inactive threads are used for DB2 private protocol.

DRDA uses type 2 inactive threads.

Zero indicates that type 1 inactive connections are not allowed. Threads remain active when they become eligible to be made a type 1 inactive thread.

A value greater than zero indicates that type 1 inactive connections are allowed, but are limited to this number. When a thread becomes eligible to be made a type 1 inactive thread, and this threshold is reached, the remote connection is terminated.

When this is equal to MAX REMOTE CONNECTED on panel DSNTIPE, DB2 allows all remote threads to become type 1 inactive threads.

Install parameter MAX INACTIVE DBATS on panel DSNTIPR, or ZPARM MAXTYPE1 in DSN6FAC.

**Field Name:** QWP9MAX1

**IDLE THREAD TIMEOUT INTERVAL (IDTHTOIN)**

The approximate time, in seconds, that an active server thread can remain idle before it is canceled.

Inactive and indoubt threads are not subject to timeout.

Threads are checked for timeouts every 3 minutes. This means that timeouts might not be honored for up to 3 minutes when the timeout value is less than this.

0 (default) means timeout processing is disabled, idle server threads remain in the system and continue to hold their resources, if any.

Install parameter IDLE THREAD TIMEOUT on panel DSNTIPR, or ZPARM IDTHTOIN in DSN6FAC.

**Field Name:** QWP9TT0

**EXTENDED SECURITY (EXTSEC)**

Extended security options.

When YES (strongly recommended), detailed reason codes are returned to a DRDA level 3 client when a DDF connection request fails because of security errors. When using SNA protocols, the requester must have included a product that supports the extended security sense codes, such as DB2 Connect version 5 and subsequent releases.

RACF users can change their passwords using the DRDA change password function. This support is only for DRDA level 3 requesters that have implemented support for changing passwords.

YES allows properly enabled DRDA clients to determine the cause of security failures without requiring DB2 operator support.

When NO, generic error codes are returned to the clients and RACF users are prevented from changing their passwords.

Install parameter EXTENDED SECURITY on panel DSNTIPR, or ZPARM EXTSEC in DSN6SYSP.

**Field Name:** QWP1SCER

**USER ID AND PASSWORD REQUIRED**
Shows whether user ID and password are required. In addition, one of the following is required:

- The user ID and password and any RACF PassTickets (A PassTicket is a one-time-only password that is generated by a requesting product or function) are Advanced Encryption Standard (AES) encrypted.
- A Kerberos ticket is required.
- The connection is protected by a z/OS Communications Server IP Application Transparent Transport Layer Security (AT-TLS) policy, which is ensured through a DB2 SECPORT.
- The connection is protected by an IPSec tunnel.

Field Name: QWP9TCPVE

SQL INTERRUPT PROCESSING DISABLED (SQLINTRP)

Shows how SQL interrupts are processed. It can have the following values:

- NO  SQL interrupt processing is enabled.
- YES DB2 SQL interrupt support is disabled.

Note: YES should only be used if remote client systems experience failures because of SQL interrupts. In this case, SQL interrupt support should be disabled only until the remote client systems can be modified to tolerate SQL interrupts.

ZPARM name SQLINTRP in DSN6FAC.

Field Name: QWP9SINTD

PRIVATE PROTOCOL (PRIVATE_PROTOCOL)

Shows if it is allowed to use the private protocol. It can have the following values:

- YES Allows private-protocol-related plan-owner-based package authorization behavior. Plan-owner-based package execution authorization semantics are honored for DB2 for z/OS DRDA requester systems that might rely on it. Secondary IDs are not used to determine package execution privileges for remote DB2 for z/OS applications.
- NO Does not allow any private-protocol-related behavior. Plan-owner-based package execution authorization semantics are not honored. This might affect DB2 for z/OS DRDA requester systems that rely on it. Secondary IDs are used to determine package execution privileges for remote DB2 for z/OS applications.

ZPARM name PRIVATE_PROTOCOL in DSN6FAC.

Field Name: QWP9PRVPA

Distributed Data Facility Panel 2 (DSNTIP5):

This topic shows detailed information about “System Parameters - Distributed Data Facility Panel 2 (DSNTIP5)”.

This block shows how Distributed Data Facility (DDF) was started and the names used to connect to another DB2 subsystem.

To use DDF, you must have VTAM installed, even if you use TCP/IP connections only.
**Note:** The fields shown on this panel depend on the installed DB2 version.

**System Parameters - Distributed Data Facility Panel 2 (DSNTIP5)**

The field labels shown in the following sample layout of “System Parameters - Distributed Data Facility Panel 2 (DSNTIP5)” are described in the following section.

---

**TCP/IP ALREADY VERIFIED (TCPALVER)**

Indicates whether DB2 accepts TCP/IP connection requests containing only a user ID.

When YES, a connection request is accepted with a user ID only. This value must be the same for all members of a data sharing group.

When NO (default), TCP/IP clients must provide authentication information (password, RACF PassTicket, or Kerberos ticket) to gain access to DB2.

Install parameter TCP/IP ALREADY VERIFIED on panel DSNTIP5, or ZPARM TCPALVER in DSN6FAC.

**Field Name:** QWP9TCPA

**EXTRA BLOCKS REQ (EXTRAREQ)**

The maximum number of extra DRDA query blocks DB2 requests from a remote DRDA server.

The default is 100.

This controls the total amount of data that can be transmitted on any given network exchange. It does not limit the size of the SQL query answer set.

Install parameter EXTRA BLOCKS REQ on panel DSNTIP5, ZPARM EXTRAREQ in DSN6SYSP.

**Field Name:** QWP1EXBR

**EXTRA BLOCKS SRV (EXTRASRV)**

The maximum number of extra DRDA query blocks DB2 returns to a DRDA client.

The default is 100.

This controls the total amount of data that can be transmitted on any given network exchange. It does not limit the size of the SQL query answer set.

Install parameter EXTRA BLOCKS SRV on panel DSNTIP5, ZPARM EXTRASRV in DSN6SYSP.

**Field Name:** QWP1EXBS

**TCP/IP KEEPALIVE (TCPKPALV)**
Indicates whether the TCP/IP configuration KeepAlive value has been overwritten.

When ENABLE (default), KeepAlive is enabled, the TCP/IP configuration stack value is used.

When DISABLE, TCP/IP KeepAlive has been disabled.

A value in the range 1 through 65534 means KeepAlive is active, and the TCP/IP stack value has been overridden. The number reported shows the time, in seconds, between TCP/IP probes.

When considering overwriting the keep-alive time, it is recommended to set a value close to the IDLE THREAD TIMEOUT value on installation panel DSNTIPR or the IRLM RESOURCE TIMEOUT value on installation panel DSNTIPI. It is good practice to set all these to about five minutes, or less.

Because KeepAlive detection is accomplished by probing the network at this interval, avoid small values, which can cause excessive network traffic and system resource consumption.

The trick is to find a proper balance that allows network failures to be detected on a timely basis without impacting system and network performance.

Install parameter TCP/IP KEEPALIVE on panel DSNTIP5, ZPARM TCPKPALV in DSN6FAC.

Field Name: QWP9TCKA

**CONNECTION QUEUE MAX DEPTH (MAXCONQN)**

The maximum depth of the connection-request queue of connections that are waiting for a DBAT to process a request. If this value is non-zero, and QWP9CMST is active, or the subsystem is not a member of a data sharing group, DB2 operates as if this value were 0.

A value of 0 is displayed for OFF; a value of 32767 is displayed for ON.

This field corresponds to field CONN QUEUE MAX DEPTH on installation panel DSNTIP5. The ZPARM name is MACONQN in DSN6FAC.

Field Name: QWP9MCONQN

**CONNECTION QUEUE MAX WAIT (MAXCONQW)**

The maximum time that a connection waits for a DBAT request. If this value is non-zero, and QWP9CMST is active, or the subsystem is not a member of a data sharing group, DB2 operates as if this value is 0.

A value of 0 is displayed for OFF; a value of 1 is displayed for ON.

This field corresponds to field CONN QUEUE MAX WAIT on installation panel DSNTIP5. The ZPARM name is MAXCONQW in DSN6FAC.

Field Name: QWP9MCONQW

**POOL THREAD TIMEOUT (POOLINAC)**

The approximate time, in seconds, that a DBAT can remain idle in the pool before it is terminated.

A DBAT thread in the pool counts as an active thread against MAX REMOTE ACTIVE and can hold locks, but does not have any cursors.
Threads are checked for timeouts every 3 minutes. This means that timeouts might not be honored for up to 3 minutes when the timeout value is less than this. The default is 120.

Install parameter POOL THREAD TIMEOUT on panel DSNTIP5, ZPARM POOLINAC in DSN6FAC.

**Field Name:** QWP9INAC

### DB2 Catalog and Directory Panel (DSNTIPA2):

This topic shows detailed information about “System Parameters - DB2 Catalog and Directory Panel (DSNTIPA2)”.

### System Parameters - DB2 Catalog and Directory Panel (DSNTIPA2)

The field labels shown in the following sample layout of “System Parameters - DB2 Catalog and Directory Panel (DSNTIPA2)” are described in the following section.

#### DB2 CATALOG AND DIRECTORY PANEL (DSNTIPA2)

<table>
<thead>
<tr>
<th>Field Name</th>
<th>SMS Data Class for Catalog Data (CATDDACL)</th>
<th>SMS Management Class for Catalog Data (CATDMGCL)</th>
<th>SMS Storage Class for Catalog Data (CATDSTCL)</th>
<th>SMS Data Class for Catalog Index Data (CATXDAACL)</th>
<th>SMS Management Class for Catalog Index Data (CATXMGCL)</th>
<th>SMS Storage Class for Catalog Index Data (CATXSTACL)</th>
<th>COMPRESS SPT01</th>
<th>SPT01 INLINE LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>N/P</td>
<td>N/P</td>
<td>SCPProd</td>
<td>N/P</td>
<td>N/P</td>
<td>SCPProd</td>
<td>YES</td>
<td>32,138</td>
</tr>
</tbody>
</table>

**SMS DATA CLASS FOR CATALOG DATA (CATDDACL)**

The SMS data class for DB2 catalog data sets. This field corresponds to column SMS data class in field “Directory and catalog data” on installation panel DSNTIPA3. The ZPARM name is CATDDACL in DSN6SPRM.

**Field Name:** QWP4CDDC

**SMS MANAGEMENT CLASS FOR CATALOG DATA (CATDMGCL)**

The SMS management class for DB2 catalog data sets. This field corresponds to column SMS MGMT class in field "Directory and catalog data" on installation panel DSNTIPA3. The ZPARM name is CATDMGCL in DSN6SPRM.

**Field Name:** QWP4CDMC

**SMS STORAGE CLASS FOR CATALOG DATA (CATDSTCL)**

The SMS storage class for DB2 catalog data sets. This field corresponds to column SMS STOR class in field “Directory and catalog data” on installation panel DSNTIPA3. The ZPARM name is CATDSTCL in DSN6SPRM.

**Field Name:** QWP4CDSC

**SMS DATA CLASS FOR CATALOG INDEX DATA (CATXDAACL)**

The SMS data class for DB2 catalog index data sets. This field corresponds to column SMS data class in field "Directory and catalog indexes" on installation panel DSNTIPA3. The ZPARM name is CATXDAACL in DSN6SPRM.

**Field Name:** QWP4CXDC
SMS MANAGEMENT CLASS FOR CATALOG INDEX DATA (CATXMGCL)

The SMS management class for DB2 catalog index data sets. This field corresponds to column SMS MGMT class in field “Directory and catalog indexes” on installation panel DSNTIPA3. The ZPARM name is CATXMGCL in DSN6SPRM.

Field Name: QWP4CXMC

SMS STORAGE CLASS FOR CATALOG INDEX DATA (CATXSTCL)

The SMS storage class for DB2 catalog index data sets. This field corresponds to column SMS STOR class in field “Directory and catalog indexes” on installation panel DSNTIPA3. The ZPARM name is CATXSTCL in DSN6SPRM.

Field Name: QWP4CXSC

COMPRESS SPT01 (COMPRESS_SPT01)

Enables the compression of SPT01.

Field Name: QWP4CS01

SPT01 INLINE LENGTH (SPT01_INLINE_LENGTH)

The maximum length in bytes of LOB columns in the SPT01 directory space that are maintained in the base table. This field corresponds to field SPT01 INLINE LENGTH on installation panel DSNTIPA2. The ZPARM name is SPT01_INLINE_LENGTH in DSN6SPRM.

Field Name: QWP4S1IL

DB2 Utilities Parameters (DSNTIP6, DSNTIP61, DSNTIP62):

This topic shows detailed information about “System Parameters - DB2 Utilities Parameters (DSNTIP6, DSNTIP61, DSNTIP62)”.

This block shows the default behavior of enhancements to the BACKUP SYSTEM and other utilities.

System Parameters - DB2 Utilities Parameters (DSNTIP6, DSNTIP61, DSNTIP62)

The field labels shown in the following sample layout of “System Parameters - DB2 Utilities Parameters (DSNTIP6, DSNTIP61, DSNTIP62)” are described in the following section.

DB2 UTILITIES PARAMETERS (DSNTIP6,DSNTIP61,DSNTIP62)

=================================================================================================================================
TEMPORARY UNIT NAME (VOLTDEVT)...............................SYSDA
UTIL TEMP STORCLAS (UTIL TEMP STORCLAS)......................N/P
STATISTICS HISTORY (STATHIST)................................NONE
STATISTICS ROLLUP (STATROLL)...................................YES
UTILITY TIMEOUT FACTOR (UTIMOUT)...............................6
UT SORT DATA SET ALLOCATION (UTSORTAL).......................YES
IGNORE SORTNUM STMT (IGNSORTN)..............................NO
SET CHECK PENDING (CHECK SETCHKP)............................NO
UT DB2 SORT USE (DB2SORT).................................YES
TEMPLATE TIME (TEMPLATE_TIME).........................UTC
MAXIMUM DEGREE OF UTILITY PARALLELISM (PARAMDEG_UTIL)....99
FAST REPLICATION (CHECK FASTREPLICATION)....................PREFERRED
FAST RESTORE (REC FASTREPLICATION)..........................PREFERRED
COPY FAST REPLICATION (COPY FASTREPLICATION)................PREFERRED
FLASHCOPY PPRC (FLASHCOPY_PPRC)............................REQUIRED
DEFAULT TEMPLATE (FCCOPYDDN)..............................
TEMPORARY UNIT NAME (VOLTDEVT)

Shows the device type or unit name for allocating temporary data sets. It is the direct access or disk unit name used for the precompiler, compiler, assembler, sort, linkage editor, and utility work-files in the tailored jobs and CLISTS.

It can be any device type acceptable to the DYNALLOC parameter of the SORT or OPTION options for DFSORT.

The default is SYSDA.

Install parameter TEMPORARY UNIT NAME on DSNTIPA2, or ZPARM VOLTDEVT in DSN6SPRM.

Field Name: QWP4VDTY

UTIL TEMP STORCLAS (UTIL_TEMP_STORCLAS)

Specifies the name of the SMS storage class that DB2 uses for defining temporary shadow data sets. A blank value indicates that the temporary shadow data sets a defined in the same storage class as the production page set. This field corresponds to field "UTIL TEMP STORCLAS" on installation panel DSNTIP6. The ZPARM name is UTIL_TEMP_STORCLAS in DSN6SPRM.

Field Name: QWP4CHEC

STATISTICS HISTORY (STATHIST)

Shows which inserts and updates are recorded in catalog history tables.

The report can show the following values:

N / NONE
Changes in the catalog are not recorded. This is the default.

A / ALL
All inserts and updates in the catalog are recorded.

P / ACCESSPATH
All inserts and updates to access path related catalog statistics are recorded.
S / SPACE
All inserts and updates to space related catalog statistics are recorded.

Install parameter STATISTICS HISTORY on panel DSNTIPO, or ZPARM STATHIST in DSN6SPRM.

Field Name: QWP4STHT

STATISTICS ROLLUP (STATROLL)
Shows whether RUNSTATS utility aggregates the partition level statistics, even though some parts may not contain data.

This should be YES for DB2 systems that have large partitioned table spaces, index spaces, or both. This enables the aggregation of part level statistics and helps the optimizer to choose a better access path.

Install parameter STATISTICS ROLLUP on panel DSNTIPO, or ZPARM STATROLL in DSN6SPRM.

Field Name: QWP4STRL

UTILITY TIMEOUT FACTOR (UTIMOUT)
Shows how much longer utilities can wait for a resource than SQL applications can.

This is the number of RESOURCE TIMEOUT units that a utility or utility command can wait for a lock or for all claims on a resource of a particular claim class to be released. The default value is 6, meaning a utility can wait 6 times longer than an SQL application for a resource.

Install parameter UTILITY TIMEOUT on panel DSNTIPI, or ZPARM UTIMOUT in DSN6SPRM.

Field Name: QWP4UTO

UT SORT DATA SET ALLOCATION (UTSORTAL)
In DB2 12 this field is a serviceability field.

YES indicates that utilities invoke a SORT use and a space prediction algorithm for dynamically allocated SORT work data sets. The ZPARM name is UTSORTAL in DSN6SPRM.

Field Name: QWP4SRAL

IGNORE SORTNUM STMT (IGNSORTN)
Ignores SORTNUM clause in utility control statements. The ZPARM name is IGNSORTN in DSN6SPRM.

Field Name: QWP4IGSN

SET CHECK PENDING (CHECK_SETCHKP)
In DB2 12 this field is a serviceability field.

YES sets the object in check-pending status when the check utility detects an inconsistency. This field corresponds to field “Set check pending” on installation panel DSNTIP61. The ZPARM name is CHECK_SETCHKP in DSN6SPRM.

Field Name: QWP4CSCP

UT DB2 SORT USE (DB2SORT)

Chapter 6. Batch reporting 4541
**DB2 Utilities Parameters (DSNTIP6, DSNTIP61, DSNTIP62)**

In DB2 12 this field is a serviceability field.

Enables the use of DB2 SORT.

**Field Name:** QWP4DB2SRT

**TEMPLATE TIME (TEMPLATE_TIME)**

Specifies the default setting for the TIME option of the template utility control statement. Possible values are:

- UTC (utility control)
- Local

This field corresponds to field TEMPLATE TIME on installation panel DSNTIP6. The ZPARM name is TEMPLATE_TIME in DSN6SPRM.

**Field Name:** QWP4TPTM

**MAXIMUM DEGREE OF UTILITY PARALLELISM (PARAMDEG_UTIL)**

The maximum degree of utility parallelism.

**Field Name:** QWP4UMD

**FAST REPLICATION (CHECK_FASTREPLICATION)**

The FASTREPLICATION type for check utilities:

- N=NONE
- P=PREFERRED
- R=REQUIRED

This field corresponds to field "Fast replication" in installation panel DSNTIP6. The ZPARM name is CHECK_FASTREPLICATION in DSN6SPRM.

**Field Name:** QWP4CFRP

**FAST RESTORE (REC_FASTREPLICATION)**

Specifies how the Recover utility directs DFSMSdss copy to restore an image copy that was created with FLASHCOPY. This field corresponds to field "Fast restore" on installation panel DSNTIP6. The ZPARM name is REC_FASTREPLICATION.

**Field Name:** QWP4RFRP

**COPY FAST REPLICATION (COPY_FASTREPLICATION)**

Specifies whether FlashCopy fast replication is preferred, required, or should not be used.

This field corresponds to field COPY FAST REPLICATION on INSTALLATION panel DSNTIP61. The ZPARM name is COPY_FASTREPLICATION in DSN6SPRM.

**Field Name:** QWP4CYFR

**FLASHCOPY PPRC (FLASHCOPY_PPRC)**

Specifies the behavior for DFSMSdss FLASHCOPY requests when the target disk storage volume is the primary device in a peer-to-peer remote copy (metro mirror) relationship (DB2 field: QWP4FCPPRC). This field corresponds to field "FLASHCOPY PPRC" on installation panel DSNTIP6. The ZPARM name is FLASHCOPY_PPRC.

**Field Name:** QWP4FCPPRC
DEFAULT TEMPLATE (FCCOPYDDN)

Specifies the default setting of the FCCOPYDDN subsystem parameter for the COPY, LOAD, REBUILD INDEX, REORG INDEX, and REORG TABLESPACE utility control statements when the FLASHCOPY parameter is YES or CONSISTENT. FCCOPYDDN specifies a DB2 utility template data-set name expression that is used to derive the copy data-set name that is allocated by the utility during operation.

This field corresponds to field DEFAULT TEMPLATE on installation panel DSNTIP6. The ZPARM name is FCOPYDDN in DSN6SPRM.

Field Name: QWP4FCCD

FLASHCOPY COPY (FLASHCOPY_COPY)

YES indicates that the Copy utility uses the subsystem parameter settings for FLASHCOPY and FCCOPYDDN when those keywords are not present in the utility control statement. The ZPARM name is FLASHCOPY_COPY in DSN6SPRM.

Field Name: QWP4FCCP

FLASHCOPY LOAD (FLASHCOPY_LOAD)

YES indicates that the load utility uses the subsystem parameter settings for FLASHCOPY, FCCOPYDDN, and FCAUXOBJ when those keywords are not present in the utility control statement. ZPARM NAME: FLASHCOPY_LOAD in DSN6SPRM.

Field Name: QWP4FCLD

FLASHCOPY REORG TABLESPACE (FLASHCOPY_REORG_TS)

YES indicates that the Reorg Tablespace utility uses the subsystem parameter settings for FLASHCOPY, FCCOPYDDN, and FCAUXOBJ when these keywords are not present in the utility control statement. The ZPARM name is FLASHCOPY_REORG_TS in DSN6SPRM.

Field Name: QWP4FCROT

FLASHCOPY REBUILD INDEX (FLASHCOPY_REBUILD_INDEX)

YES indicates that the Rebuild Index utility uses the subsystem parameter settings for FLASHCOPY and FCCOPYDDN when those keywords are not present in the utility control statement (DB2 field: QWP4FCRBI). The ZPARM name is FLASHCOPY_REBUILD_INDEX in DSN6SPRM.

Field Name: QWP4FCRBI

FLASHCOPY REORG INDEX (FLASHCOPY_REORG_INDEX)

YES indicates that the Reorg Index utility uses the subsystem parameter settings for FLASHCOPY and FCCOPYDDN when these keywords are not present in the utility control statement (DB2 field: QWP4FCROI). The ZPARM name is FLASHCOPY_REORG_INDEX in DSN6SPRM.

Field Name: QWP4FCROI

SYSTEM-LEVEL BACKUPS (SYSTEM_LEVEL_BACKUPS)

Shows if RECOVER uses system level backups as the recovery base.

Install parameter SYSTEM-LEVEL BACKUPS on installation panel DSNTIP6, or ZPARM SYSTEM_LEVEL_BACKUPS in DSN6SPRM.

Field Name: QWP4SLBU
**DB2 Utilities Parameters (DSNTIP6, DSNTIP61, DSNTIP62)**

**RESTORE/RECOVER (RESTORE_RECOVER_FROMDUMP)**

If YES, the system-level backup that is the recovery base, is from a dump on tape. Otherwise NO is shown.

Install parameter RESTORE/RECOVER on installation panel DSNTIP6, or ZPARM RESTORE_RECOVER_FROMDUMP in DSN6SPRM.

**Field Name:** QWP4RRFD

**DUMP CLASS NAME (UTILS_DUMP_CLASS_NAME)**

The name of the DFSMSHSM dump class used by the restore system utility to restore from a system-level backup that has been dumped to tape.

Install parameter DUMP CLASS NAME on installation panel DSNTIP6, or ZPARM UTILS_DUMP_CLASS_NAME in DSN6SPRM.

**Field Name:** QWP4RSDC

**MAXIMUM TAPE UNITS (RESTORE_TAPEUNITS)**

The maximum number of tape units or tape drives that the restore system utility can use to restore from a system-level backup that has been dumped to tape.

A value of 0 is displayed for NOLIMIT.

Install parameter MAXIMUM TAPE UNITS on installation panel DSNTIP6, or ZPARM RESTORE_TAPEUNITS in DSN6SPRM.

**Field Name:** QWP4RSMT

**REORG PART SORT NPSI (REORG_PART_SORT_NPSI)**

Specifies the default method of building a non-partitioned secondary index during the REORG tablespace part. This setting is used when the SORTNPSI keyword is not specified in a utility control statement.

Possible values are:
- `Auto`
- `Disable`
- `Enable`

This field corresponds to field REORG PART SORT NPSI in installation panel DSNTIP61. The ZPARM name is REORG_PART_SORT_NPSI in DSN6SPRM.

**Field Name:** QWP4RPSN

**REORG LIST PROCESSING (REORG_LIST_PROCESSING)**

Specifies the default value for the REORG TABLESPACE PARALLEL option.
- `Parallel`
- `Serial`

The ZPARM name is REORG_LIST_PROCESSING in DSN6SPRM.

**Field Name:** QWP4RLPR

**REORG MAPPING DATABASE (REORG_MAPPING_DATABASE)**

The default database in which REORG TABLESPACE SHRLLEVEL change implicitly creates the mapping table. This field corresponds to field
RECORD MAPPING DB on installation panel DSNTIP61. The ZPARM name RECORD_MAPPING_TABLE in DSN6SPRM.

Field Name: QWP4RMDB

REORG DROP PBG PARTS (REORG_DROP_PBG_PARTS)
If YES, REORG completes, REORG drops empty, and trailing partitions are set in a PARTITION-BY-GROWTH table space.
This field corresponds to field REORG DROP PBG PARTS on INSTALLATION panel DSNTIP61. The ZPARM name is REORG_DROP_PBG_PARTS in DSN6SPRM.

Field Name: QWP4RPBG

UTILITY CACHE OPTION (SEQPRES) (DB2 10 only)
Shows whether utilities that scan a nonpartitioned index followed by an update of a subset of the pages in the index allow data to remain in 3990 cache longer when reading data.
Install parameter UTILITY CACHE OPTION on panel DSNTIPE, or ZPARM SEQPRES in DSN6PRM.

Field Name: QWP4PST

STATISTICS CLUSTERING (STATCLUS) (DB2 10 only)
Shows if the RUNSTATS utility uses enhanced or standard clustering statistics: ENHANCED is used if it is on, otherwise STANDARD is shown.
Install parameter STATISTICS CLUSTERING on panel DSNTIP6, or ZPARM STATCLUS in DSN6SPRM.

Field Name: QWP4STCL

ALTERNATE COPYPOOL (ALTERNATE_CP)
Specifies an optional alternate SMS copy pool for the DB2 BACKUP SYSTEM utility.
This field corresponds to field ALTERNATE COPYPOOL on INSTALLATION panel DSNTIP62. The ZPARM name is ALTERNATE_CP in DSN6SPRM.

Field Name: QWP4BSACP

DB BACKUP STG GROUP (UTIL_DBBSG)
Specifies an optional backup SMS storage group to be used by the DB2 BACKUP SYSTEM utility for the DB copy pool.
This field corresponds to field DB BACKUP STG GROUP on INSTALLATION panel DSNTIP62. The ZPARM name is UTIL_DBBSG in DSN6SPRM.

Field Name: QWP4UDBSG

LOG BACKUP STG GROUP (UTIL_LGBSG)
Specifies an optional backup SMS storage group to be used by the DB2 BACKUP SYSTEM utility for the LOG copy pool.
This field corresponds to field LOG BACKUP STG GRP on INSTALLATION panel DSNTIP62. The ZPARM name is UTIL_LGBSG in DSN6SPRM.
DB2 Utilities Parameters (DSNTIP6, DSNTIP61, DSNTIP62)

Field Name: QWP4ULBSG

HSM MESSAGE DS HLQ (UTILS_HSM_MSGDS_HLQ)

Shows the high level qualifier (HLQ) for data sets (DS) to be allocated by the DB2 BACKUP SYSTEM and RESTORE SYSTEM utilities to receive messages from the Data Facility Hierarchical Storage Manager (DFHSM) and the IBM Data Facility Data Set Services (DFDSS) (DB2 field: QWP4UHMDH).

This value corresponds to field HSM MESSAGE DS HLQ on installation panel DSNTIP62. ZPARM name: UTILS_HSM_MSGDS_HLQ in DSN6SPRM.

Field Name: QWP4UHMDH

DB2 Version Install (DSNTIPA1):

This topic shows detailed information about “System Parameters - DB2 Version Install (DSNTIPA1)”.

System Parameters - DB2 Version Install (DSNTIPA1)

The field labels shown in the following sample layout of “System Parameters - DB2 Version Install (DSNTIPA1)” are described in the following section.

DB2 VERSION INSTALL (DSNTIPA1)

---------------------------------------
DATA SHARING ENABLED (DSHARE) ...............YES
CURRENT DB2 RELEASE (NEWFUN) ....................NO
CURRENT DB2 RELEASE - 1 ..........................YES
CURRENT DB2 RELEASE - 2 ..........................NO
COMPRESS LOB TS FOR DIRECTORY (COMPRESS_DIRLOB) ..........NO

DATA SHARING ENABLED (DSHARE)

Indicates whether data sharing is enabled.

Install parameter DATA SHARING on panel DSNTIPA1, or ZPARM DSHARE in DSN6GRP.

Field Name: QWP4AIOPT

CURRENT DB2 RELEASE (NEWFUN)

If YES, the DB2 subsystem/group is running in New Function Mode. At this mode/catalog level, the New Function Mode is enabled and available. The DB2 catalog is completely Unicode (UTF-8) and long names can be used.

Install parameter INSTALL TYPE on panel DSNTIPA1, or ZPARM NEWFUN in DSNHDECP.

Field Name: QWP4BNEWF

CURRENT DB2 RELEASE - 1

Shows the current release minus one of the new-function mode (NEWFUN).

Field Name: QWP4BNEWFN1

CURRENT DB2 RELEASE - 2

Shows the current release minus two of the new-function mode (NEWFUN).
Field Name: QWPBNEWFN2

COMPRESS LOB TS FOR DIRECTORY (COMPRESS_DIRLOB)

Specifies whether DB2 compresses large object (LOB) table spaces in the DB2 directory the next time that the table spaces are reorganized.

- 0 indicates NO
- 1 indicates YES

This value corresponds to field COMPRESS DB2 DIR LOBS on installation panel DSNTIP2. ZPARM name: COMPRESS_DIRLOB in DSN6SPRM.

Field Name: QWP4CDRL

Install DB2 - Resource Limit Facility (DSNTIPO4) (DB2 12):

This topic shows detailed information about “System Parameters - Install DB2 - Resource Limit Facility (DSNTIPO4) (DB2 12)”.

System Parameters - Install DB2 - Resource Limit Facility (DSNTIPO4) (DB2 12)

The field labels shown in the following sample layout of “System Parameters - Install DB2 - Resource Limit Facility (DSNTIPO4) (DB2 12)” are described in the following section.

<table>
<thead>
<tr>
<th>INSTALL DB2 - RESOURCE LIMIT FACILITY (DSNTIPO4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESOURCE LIMIT FACILITY AUTOMATIC START (RLF)........NO</td>
</tr>
<tr>
<td>RESOURCE LIMIT SPECIFICATION TABLE SUFFIX (RLFTBL)........01</td>
</tr>
<tr>
<td>RESOURCE LIMIT DYNAMIC ERROR ACTION (RLFERR)........NOLIMIT</td>
</tr>
<tr>
<td>RESOURCE LIMIT STATIC ERROR ACTION (RLFERRSTC).........NOLIMIT</td>
</tr>
<tr>
<td>RLF REMOTE DYNAMIC ERROR ACTION (RLFERRD)............NOLIMIT</td>
</tr>
<tr>
<td>RLF REMOTE STATIC ERROR ACTION (RLFERRDSTC)...........NOLIMIT</td>
</tr>
<tr>
<td>RLF SCOPE (RLFENABLE)..................................DYNAMIC</td>
</tr>
</tbody>
</table>

RESOURCE LIMIT FACILITY AUTOMATIC START (RLF)

Shows whether the resource limit facility (governor) is automatically started when DB2 is started.

Install parameter RLF AUTO START on panel DSNTIPO4, or ZPARM RLF in DSN6SYSP.

Field Name: QWP1RLF

RESOURCE LIMIT SPECIFICATION TABLE SUFFIX (RLFTBL)

The default resource limit specification table (RLST) suffix.

This suffix is used when the resource limit facility (governor) is automatically started or when the governor is started without specifying a suffix.

Install parameter RLST NAME SUFFIX on panel DSNTIPO4, or ZPARM RLFTBL in DSN6SYSP.

Prior to DB2 12: Install parameter RLST NAME SUFFIX on panel DSNTIPO4, or ZPARM RLFTBL in DSN6SYSP.

Field Name: QWP1RLFT

RESOURCE LIMIT DYNAMIC ERROR ACTION (RLFERR)

The action taken by DB2 when the governor cannot use the resource limit:
NOLIMIT
The dynamic SQL statements run without limit.

NORUN
The dynamic SQL statements terminated with an SQL error code.

A number from 1 to 5000000 represents the number of CPU service units allowed for a query.

Install parameter DYNAMIC SQL on panel DSNTIPO4, or ZPARM RLFERR in DSN6SYSP.

Prior to DB2 12: Install parameter RLST ACCESS ERROR on panel DSNTIPO, or ZPARM RLFERR in DSN6SYSP.

Field Name: RLFERR

RESOURCE LIMIT STATIC ERROR ACTION (RLFERRSTC)
The action taken by DB2 when the governor cannot use the resource limit:

NOLIMIT
The static SQL statements run without limit.

NORUN
The static SQL statements terminated with an SQL error code. The number of CPU service units allowed for a query can be anywhere from 1 to 5000000.

Install parameter STATIC SQL on panel DSNTIPO4, or ZPARM RLFERRSTC in DSN6SYSP (DB2 field QWP1RLFR).

Field Name: RLFERRSTC

RLF REMOTE DYNAMIC ERROR ACTION (RLFERRD)
Shows what DB2 does when the governor cannot access the resource limit specification table or when no row in the table matches the currently running statement:

NOLIMIT
This is the default. It allows all dynamic SQL statements to run without limit.

NORUN
Terminates all dynamic SQL statements immediately with an SQL error code. A number from 1 to 5000000 is the default limit. If the limit is exceeded, the SQL statement is terminated.

Install parameter REMOTE DYNAMIC SQL on panel DSNTIPO4, or ZPARM RLFERRD in DSN6FAC (DB2 field QWP9RLFR).

Field Name: RLFERRD

RLF REMOTE STATIC ERROR ACTION (RLFERRDSTC)
Shows what DB2 does when the governor cannot access the resource limit specification table or when no row in the table matches the currently running statement:

NOLIMIT
This is the default. It allows all static SQL statements to run without limit.

NORUN
Terminates all static SQL statements immediately with an SQL error code.
error code. A number from 1 to 5000000 is the default limit; if the limit is exceeded, the SQL statement is terminated.

Install parameter REMOTE STATIC SQL on panel DSNTIPO4, or ZPARM RLFERRDSTC in DSN6FAC (DB2 field QWP9RLER).

Field Name: RLFERRDSTC

RLF SCOPE (RLFENABLE)

The level of RLF governing:

DYNAMIC
  Dynamic SQL only

STATIC
  Static SQL only

ALL   Both, dynamic and static SQL

Install parameter RLF SCOPE on panel DSNTIPO4, or ZPARM RLFENABLE in DSN6SYSP (DB2 field QWP1RLFR).

Field Name: RLFENABLE

IRLM Installation Parameters (DSNTIPI):

This topic shows detailed information about “System Parameters - IRLM Installation Parameters (DSNTIPI)”.

This block shows the installation parameters of the internal resource lock manager (IRLM). There is one IRLM for each DB2 subsystem.

Note: The fields shown on this panel depend on the installed DB2 version.

System Parameters - IRLM Installation Parameters (DSNTIPI)

The field labels shown in the following sample layout of “System Parameters - IRLM Installation Parameters (DSNTIPI)” are described in the following section.

IRLM INSTALLATION PARAMETERS (DSNTIPI)

----------------------------------------------------------------------------------
IRLM SUBSYSTEM NAME (IRLMSID)..........................DJPO
IRLM RESOURCE TIMEOUT IN SECONDS (IRLMRWT)..............120
IRLM AUTOMATIC START (IRLMAUT)..........................YES
IRLM START PROCEDURE NAME (IRLMPROC)..........................DBP0IRLM
SECONDS DB2 WILL WAIT FOR IRLM START (IRLMSWT)..............300
U LOCK FOR REPEATABLE READ OR READ STABILITY (RRULock).....NO
X LOCK FOR SEARCHED UPDATE/DELETE (XLKUPDLT)................YES
IMS/BMP TIMEOUT FACTOR (BMPTOUT)..........................4
IMS/DLI TIMEOUT FACTOR (DLITOUT)..........................6
WAIT FOR RETAINED LOCKS (RETLWAIT).........................0
ENABLE DB CHECKING.....................................NO
IRLM INITIALIZATION TIME.................................1

IRLM SUBSYSTEM NAME (IRLMSID)

The IRLM subsystem name defined to MVS.

This is used for communication between DB2 and the IRLM. It is included in the MVS subsystem table IEFSSNxx, where xx is the value of SUBSYSTEM MEMBER on installation panel DSNTIPM.

If the IRLM for IMS is installed, the DB2 IRLM name is different because two IRLMs on the same MVS system must have unique names.
IRLM Installation Parameters (DSNTIPI)

Install parameter SUBSYSTEM NAME on panel DSNTIPI, or ZPARM IRLMSID in DSN6SPRM.

Field Name: QWP4ISID

IRLM RESOURCE TIMEOUT IN SECONDS (IRLMRWT)

The number of seconds before a timeout is detected.
This is an integer multiple of DEADLOCK TIME on panel DSNTIPJ.
Timeout means that a lock request has waited for a resource (or for claims on a resource for a particular claim class to be released) longer than this time.
For data sharing, the actual timeout period is longer than the timeout value.
Install parameter RESOURCE TIMEOUT on panel DSNTIPI, or ZPARM IRLMRWT in DSN6SPRM.

Field Name: QWP4TOUT

IRLM AUTOMATIC START (IRLMAUT)

Indicates whether IRLM is started automatically by DB2.
Install parameter AUTO START on panel DSNTIPI, or ZPARM IRLMAUT in DSN6SPRM.

Field Name: QWP4IAUT

IRLM START PROCEDURE NAME (IRLMPRC)

The name of the IRLM procedure invoked by MVS if AUTO START is YES.
The name cannot be the same as the subsystem name given for SUBSYSTEM NAME.
Install parameter PROC NAME on panel DSNTIPI, or ZPARM IRLMPRC in DSN6SPRM.

Field Name: QWP4IPRC

SECONDS DB2 WILL WAIT FOR IRLM START (IRLMSWT)

The IRLM wait time in seconds.
DB2 autostart abends if IRLM does not start within this time.
Install parameter TIME TO AUTOSTART on panel DSNTIPI, or ZPARM IRLMSWT in DSN6SPRM.

Field Name: QWP4ISWT

U LOCK FOR REPEATABLE READ OR READ STABILITY (RRULOCK)

Indicates whether the U (UPDATE) lock is used when using repeatable read (RR) or read stability (RS) isolation to access a table.
When YES, the U lock is used for an updated cursor with repeatable read or read stability.
When NO, the S lock is used for an updated cursor with repeatable read or read stability. If the cursor in the running applications includes the clause FOR UPDATE OF, but updates are infrequent, S locks generally provide better performance.
Install parameter U LOCK FOR RR/RS on panel DSNTIPI, or ZPARM RRULOCK in DSN6SPRM.

**Field Name:** QWP4RRU

**X LOCK FOR SEARCHED UPDATE/DELETE (XLKUPDLT)**

The locking method used when performing a searched UPDATE or DELETE.

When NO, DB2 uses an S or U lock when scanning for qualifying rows. For any qualifying rows or pages the lock is upgraded to an X lock before performing the update or delete. For nonqualifying rows or pages the lock is released if using ISOLATION(CS). For ISOLATION(RS), or ISOLATION(RR), an S lock is retained on the rows or pages until the next commit point. This option is used to achieve higher rates of concurrency.

When YES, DB2 gets an X lock on qualifying rows or pages. For ISOLATION(CS), the lock is released if the rows or pages are not updated or deleted. For ISOLATION(RS) or ISOLATION(RR), an X lock is retained until the next commit point. This is beneficial in a data sharing environment when most or all searched updates and deletes use an index. The downside is that if searched updates or deletes result in a tablespace scan, the likelihood of timeouts and deadlocks greatly increases.

Install parameter X LOCK FOR SEARCHED U/D on panel DSNTIPI, or ZPARM XLKUPDLT in DSN6SPRM.

**Field Name:** QWP4XLUD

**IMS/BMP TIMEOUT FACTOR (BMPTOUT)**

The number of RESOURCE TIMEOUT units that an IMS BMP connection waits for a lock to be released.

The default value is 4, meaning that an IMS BMP connection can wait 4 times the resource timeout value for a resource.

Install parameter IMS BMP TIMEOUT on panel DSNTIPI, or ZPARM BMPTOUT in DSN6SPRM.

**Field Name:** QWP4WBMP

**IMS/DLI TIMEOUT FACTOR (DLITOUT)**

The number of RESOURCE TIMEOUT units that a DL/I batch connection waits for a lock to be released.

The default value is 6, meaning that an IMS BMP connection can wait 4 times the resource timeout value for a resource.

Install parameter DL/I BATCH TIMEOUT on panel DSNTIPI, or ZPARM DLITOUT in DSN6SPRM.

**Field Name:** QWP4WDLI

**WAIT FOR RETAINED LOCKS (RETLWAIT)**

Indicates whether a request is suspended until an incompatible retained lock becomes available.

This value is only significant in a data sharing environment. It indicates how long a transaction should wait for a lock on a resource if another DB2 in the data sharing group has failed and is holding an incompatible lock on that resource. Locks held by failed DB2 members are called retained locks.
IRLM Installation Parameters (DSNTIPI)

This value is a multiplier that is applied to the connection's normal timeout value. For example, if the retained lock multiplier is 2, then the timeout period for a call attachment connection that is waiting for a retained lock is twice the normal CAF timeout period. The default is 0, meaning applications do not wait for incompatible retained locks, the lock request is immediately rejected and the application receives a "resource unavailable" SQLCODE.

Install parameter RETAINED LOCK TIMEOUT on panel DSNTIPI, or ZPARM RETLWAIT in DSN6SPRM.

Field Name: QWP4WAIT

ENABLE DB CHECKING

Enable database checking.

Field Name: QWP4DBCK

IRLM INITIALIZATION TIME

The time, in seconds, between Db2 periodic checks for IRLM initialization completion. There is currently no external parameter to control this time, but it is part of the IFCID 106 record, which is the basis for this section of the report. Db2 will keep checking until IRLM completes initialization or until the IRLM Wait Time (IRLMSWT) is reached. IRLM Wait Time is the total amount of time Db2 will wait for IRLM initialization.

Field Name: QWP4ISWI

IRLM Processing Parameters:

This topic shows detailed information about “System Parameters - IRLM Processing Parameters”.

This block shows the system parameters for internal resource lock manager (IRLM) processing.

Note: The fields shown on this panel depend on the installed DB2 version.

System Parameters - IRLM Processing Parameters

The field labels shown in the following sample layout of “System Parameters - IRLM Processing Parameters” are described in the following section.

IRLM PROCESSING PARAMETERS

----------------------------------
WAIT TIME FOR LOCAL DEADLOCK...................5,000
NUMBER OF LOCAL CYCLES PER GLOBAL CYCLE........1
TIMOUT INTERVAL..................................30
IRLM MAXIMUM CSA USAGE ALLOWED................0
Z/OS LOCK TABLE HASH ENTRIES...................1,048,576
PENDING NUMBER OF HASH ENTRIES..................0
Z/OS LOCK TABLE LIST ENTRIES...................8,282
MAX 31-BIT IRLM PRIVATE STORAGE................0
MAX 64-BIT IRLM PRIVATE STORAGE...............0

WAIT TIME FOR LOCAL DEADLOCK

Wait time for local deadlock.

Field Name: QWP5DLOK
NUMBER OF LOCAL CYCLES PER GLOBAL CYCLE

Number of local cycles per global cycle.

Field Name: QWP5DCYC

TIMEOUT INTERVAL

Timeout interval.

Field Name: QWP5TVAL

IRLM MAXIMUM CSA USAGE ALLOWED

The maximum amount of common service area that can be used by IRLM. The amount of space needed for the common service area (CSA) below the 16 MB line is less than 40 KB for each DB2 subsystem and 24 KB for each IRLM. High concurrent activity, parallelism, or high contention can require more CSA.

Most of the DB2 common data resides in the extended common service area (ECSA). Most modules, control blocks, and buffers reside in the extended private area. A DB2 subsystem with 200 concurrent users and 2000 open data sets should need less than 2 MB of virtual storage below the 16 MB line.

Field Name: QWP5MCSA

Z/OS LOCK TABLE HASH ENTRIES

The number of z/OS lock table hash entries.

Field Name: QWP5HASH

PENDING NUMBER OF HASH ENTRIES

The number of z/OS lock table hash entries pending.

Field Name: QWP5PHSH

Z/OS LOCK TABLE LIST ENTRIES

The number of z/OS lock table list entries.

Field Name: QWP5RLE

MAX 31-BIT IRLM PRIVATE STORAGE

The maximum amount of 31-bit IRLM private storage that is available of the 2 GB virtual storage limit, for normal operations in IRLM. IRLM reserves an additional 10% of the 2 GB for use by requests in IRLM.

Field Name: QWP5BPM

MAX 64-BIT IRLM PRIVATE STORAGE

The maximum amount of 64-bit IRLM private storage that is available of the total amount of storage that is specified by MEMLIMIT, for normal operations in IRLM. IRLM reserves an additional 10% of the amount that is specified by MEMLIMIT for use by requests in IRLM.

Field Name: QWP5APM

Lock Escalation Parameters (DSNTIPJ):

This topic shows detailed information about “System Parameters - Lock Escalation Parameters (DSNTIPJ)”.
Lock Escalation Parameters (DSNTIPJ)

This panel shows the characteristics of IRLM time-sharing fields and other locking options.

The default values are adequate for most sites in normal conditions.

System Parameters - Lock Escalation Parameters (DSNTIPJ)

The field labels shown in the following sample layout of “System Parameters - Lock Escalation Parameters (DSNTIPJ)” are described in the following section.

LOCK ESCALATION PARAMETERS (DSNTIPJ)

------------------------------------
MAX PAGE OR ROW LOCKS PER TABLE SPACE (NUMLKTS)...........1,000
MAX PAGE OR ROW LOCKS PER USER (NUMLKUS).................10,000

MAX PAGE OR ROW LOCKS PER TABLE SPACE (NUMLKTS)

The default (SYSTEM) for the LOCKMAX clause of the SQL statements CREATE TABLESPACE and ALTER TABLESPACE.

Install parameter LOCKS PER TABLE SPACE on panel DSNTIPJ, or ZPARM NUMLKTS in DSN6SPRM.

Field Name: QWP4LKTS

MAX PAGE OR ROW LOCKS PER USER (NUMLKUS)

The maximum number of page or row locks that a single application can hold concurrently on all table spaces.

This includes locks on data pages, index pages, and rows that the program acquires when it accesses table spaces.

The limit applies to all table spaces defined with the LOCKSIZE PAGE, LOCKSIZE ROW, or LOCKSIZE ANY options. 0 means that there is no limit to the number of page and row locks a program can acquire.

DB2 assumes that 250 bytes of storage are required for each lock. If NO is specified for CROSS MEMORY, the value of this field has to take into account the available lock space. If referential constraints between tables is defined, the value of this field might need to be increased.

Install parameter LOCKS PER USER on panel DSNTIPJ, or ZPARM NUMLKUS in DSN6SPRM.

Field Name: QWP4LKUS

Log Installation Parameters (DSNTIPL, DSNTIPH):

This topic shows detailed information about “System Parameters - Log Installation Parameters (DSNTIPL, DSNTIPH)”.

This block shows the characteristics of active log data sets.

System Parameters - Log Installation Parameters (DSNTIPL, DSNTIPH)

The field labels shown in the following sample layout of “System Parameters - Log Installation Parameters (DSNTIPL, DSNTIPH)” are described in the following section.

LOG INSTALLATION PARAMETERS (DSNTIPL, DSNTIPH)

---------------------------------------------
OUTPUT BUFFER SIZE IN K BYTES (OUTBUFF)...............4,000
CHECKPOINT FREQUENCY (CHKFREQ)....................500,000
OUTPUT BUFFER SIZE IN K BYTES (OUTBUFF)

The output log buffer size in kilobytes.

There is only one output log buffer per DB2 subsystem.

Increasing this parameter reduces BSDS I/O updates when there is a buffer
wraparound. Frequent wraparounds are likely in LOAD or REORG with
logging, and mass insert operations.

Increasing this parameter also helps avoid log write waits for an available
buffer during heavy update workload.

When the specified size is not a 4 KB multiple, it is rounded up to the next
4 KB multiple.

Install parameter OUTPUT BUFFER on DSNTIPL, or ZPARM OUTBUFF in
DSN6LOGP.

Field Name: QWP2OBPS

CHECKPOINT FREQUENCY (CHKFREQ)

Checkpoints frequency. This shows either the number of minutes (1 through
60) or the number of DB2 log records between the start of successive
checkpoints. DB2 starts a new checkpoint when this value is reached.

You can use the SET LOG command to change the number of log records
between checkpoints dynamically. Valid values are 1-60 when specifying a
time value and 200-16000000 when specifying a number of records.

Install parameter CHECKPOINT FREQ on panel DSNTIPL, ZPARM
CHKFREQ in DSN6SYSP.

Field Name: QWP1LOGL

UR CHECK FREQUENCY (URCHKTH)

Shows the number of checkpoint cycles to complete before DB2 issues a
warning message to the console and writes an IFCID 313 record for an
uncommitted, indoubt, or inflight unit of recovery (UR). The default is 0,
which disables this option.

Install parameter UR CHECK FREQ on panel DSNTIPL, or ZPARM
URCHKTH in DSN6SYSP.

Field Name: QWP1URCK

UR LOG RECORD WRITTEN THRESHOLD IN KB (URLGWTH)

Shows the number of log records that are to be written by an uncommitted
unit of recovery (UR) before DB2 issues a warning message to the console.
This provides notification of a long-running UR. Long-running URs might result in a lengthy DB2 restart or a lengthy recovery situation for critical tables. Log records are specified in 1-K (1000 log records) increments. A value of 0 indicates that no write check is to be performed.

Install parameter UR LOG WRITE CHECK on panel DSNTIPL, ZPARM URLGWTH in DSN6SYSP.

Field Name: QWP1LWCK

LIMIT BACKOUT (LBACKOUT)

Shows whether some backward log processing should be postponed.

When NO, DB2 backward log processing processes all inflight units of recovery (URs) and URs for abending transactions.

When YES, DB2 postpones backout processing for some units of work until the command RECOVER POSTPONED is issued.

AUTO (default) postpones some backout processing but automatically starts the backout processing when DB2 restarts and begins accepting new work.

When YES or AUTO, backout processing runs concurrently with new work. Page sets or partitions with backout work pending are unavailable until their backout work is complete.

Install parameter LIMIT BACKOUT on panel DSNTIPL, or ZPARM LBACKOUT in DSN6SYSP.

Field Name: QWP1LMBO

BACKOUT DURATION (BACKODUR)

Indicates how much of the log to process for backout when LIMIT BACKOUT = YES or AUTO.

During restart, backward log processing continues until both of the following events occur:

- All inflight and inabort URs with update activity against the catalog or directory are backed out.
- The number of log records processed is equal to the number specified in BACKOUT DURATION times the value of CHECKPOINT FREQ. If the checkpoint frequency is specified in minutes, the number of records processed is the default of 50000 records multiplied by the value of CHECKPOINT FREQ.

In-flight and in-abort URs that are not completely backed out during restart are converted to postponed-abort status. Page sets or partitions with postponed-backout work are put into restart pending (RESTP). This state blocks all access to the object other than access by the command RECOVER POSTPONED or by automatic backout processing performed by DB2 when LIMITED BACKOUT = AUTO.

A table space might be in restart pending mode, without the associated index spaces also in restart pending mode. This happens if a postponed abort UR makes updates only to non-indexed fields of a table in a table space. In this case, the indexes are accessible to SQL (for index-only queries), even though the table space is inaccessible.

Install parameter BACKOUT DURATION on panel DSNTIPL, or ZPARM BACKODUR in DSN6SYSP.
Field Name: QWP1BDUR

PSEUDO-CLOSE FREQUENCY (PCLOSEN)

The number of consecutive DB2 checkpoints that a page set or partition can remain in read/write mode since it was last updated. When this limit or the RO SWITCH TIME is reached, DB2 changes the page set or partition to read-only.

This can improve performance for recovery, logging, and data-sharing processing.

Install parameter RO SWITCH CHKPTS on panel DSNTIPL, or ZPARM PCLOSEN in DSN6SYSP.

Field Name: QWP1FREQ

PSEUDO-CLOSE TIMER (PCLOSET)

The number of minutes that a page set or partition can remain in read-write mode since it was last updated. When this limit or the RO SWITCH TIME is reached, DB2 changes the page set or partition to read-only.

This can improve performance for recovery, logging, and data-sharing processing.

Install parameter RO SWITCH TIME on panel DSNTIPL, or ZPARM PCLOSET in DSN6SYSP.

Field Name: QWP1TMR

CHECKPOINTS BETWEEN LEVEL ID UPDATES (DLDFREQ)

Shows how often, in checkpoints, the level ID of a page set or partition is updated. When zero (0), down-level detection is disabled. When five (5), down-level is enabled.

Use the following criteria to decide on a suitable value for this parameter:

- **How often are backup and restore methods used outside of the DB2 control (such as DSN1COPY or DFDSS dump and restore)?** If rarely used, there is no need to update the level ID frequently.

- **How many page sets are open for update at the same time?** If DB2 updates level IDs frequently, there is extra protection against down-level page sets. However, a performance degradation can occur if the level IDs for many page sets must be set at every checkpoint.

- **How often does the subsystem take checkpoints?** If the DB2 subsystem takes frequent system checkpoints, set the level ID frequency to a higher value.

Install parameter LEVELID UPDATE FREQ on panel DSNTIPL, or ZPARM DLDFREQ in DSN6SYSP.

Field Name: QWP1DFRQ

NUMBER OF ACTIVE LOG COPIES (TWOACTV)

The number of copies of the active log being maintained: 2 indicates dual logging.

Field Name: QWP2DUAL

NUMBER OF ARCHIVE LOG COPIES (TWOARCH)
Log Installation Parameters (DSNTIPL, DSNTIPH)

The number of copies of the archive log being produced during offloading: 2 indicates dual logging.

Install parameter NUMBER OF COPIES on PANEL DSNTIPH, or ZPARM TWOARCH in DSN6LOGP.

Field Name: QWP2ADL

COPY 1 PREFIX (ARCPFX1)

The prefix of the first archive log data set.

Install parameter Archive Logs: COPY1 PREFIX on panel DSNTIPH, or ZPARM ARCPFX1 in DSN6ARVP.

Field Name: QWP3RE1N

COPY 2 PREFIX (ARCPFX2)

The prefix of the second archive log data set. If single logging is used, this value is a default.

Install parameter Archive Logs: COPY2 PREFIX on panel DSNTIPH, or ZPARM ARCPFX2 in DSN6ARVP.

Field Name: QWP3RE2N

TIMESTAMP ARCHIVE LOG DATA SETS (TSTAMP)

Indicates whether the date and time of creation of the DB2 archive log data set is included in the archive log data set name.

Possible values are:

YES (QWP3DTIM=1)

The maximum allowable length of the user-controlled portion of the archive log prefix is reduced from 35 characters to 19 characters. This allows the 16-character timestamp to be added to the archive log data set prefix. The timestamp format is as follows: DyymddThhmmssst, where:

- D Starts the date.
- yy Is the last two digits of the year.
- ddd Is the day of the year.
- T Starts the time.
- hh Is the hour.
- mm Are the minutes.
- ss Are the seconds.
- t Is the tenths of a second.

The maximum allowable length of the user-controlled portion of the archive log prefix is reduced from 35 characters to 19 characters. This reduction in size permits the 16-character date and time qualifiers (timestamp) to be added to the archive log data set prefix.

NO (QWP3DTIM=0 and QWP3DTFM=0)

The archive data set name does not contain a timestamp.

EXT (QWP3DTFM=1)

The archive data set name contains a timestamp with an extended
date component in the format: .Dyyyyddd. A value of EXT in this field causes the lengths of the values that are entered for field COPY 1 PREFIX and field COPY 2 PREFIX to be audited to ensure that neither exceeds 17 bytes (19 bytes for other settings of TIMESTAMP ARCHIVES).

Install parameter TIMESTAMP ARCHIVES on panel DSNTIPH, or ZPARM TSTAMP in DSN6ARVP.

Field Name: RT0106AL

CHECKPOINT TYPE (CHKTYPE)

Shows the LOG checkpoint type. It can have the following values:

SINGLE
Either records or minutes.

BOTH
Both records and minutes, as specified by Records Between Checkpoint (QWP1LOGR) and Mins Between Checkpoint (QWP1LOGM).

ZPARM CHKTYPE in DSN6SYSP.

Field Name: QWP1LOGT

RECORDS/CHECKPOINT (CHKLOGR)

Shows the number of records between log checkpoints if the LOG checkpoint type is BOTH (records and minutes).

This field corresponds to field RECORDS/CHECKPOINT on installation panel DSNTIPL1, or ZPARM name CHKLOGR in DSN6SYSP.

Field Name: QWP1LOGR

MINUTES/CHECKPOINT (CHKMINS)

Shows the number of minutes between log checkpoints if the LOG checkpoint type is BOTH (records and minutes).

This field corresponds to field MINUTES/CHECKPOINT on installation panel DSNTIPL1, or ZPARM name CHKMINS in DSN6SYSP.

Field Name: QWP1LOGM

List of Long Names:

This topic shows detailed information about “System Parameters - List of Long Names”.

This block is printed at the end of the system parameters report when the report contains long names that have been truncated. The block shows the parameter identifier, in alphabetic order, and the complete name. If the name is too long to show on one line, it continues on the next.

System Parameters - List of Long Names

The field labels shown in the following sample layout of “System Parameters - List of Long Names” are described in the following section.

LIST OF LONG NAMES

DEFLTID DSNZPARMDEFLTIDDSNZPARMDEFLTIDDSNZPARMDEFLTID

Chapter 6. Batch reporting 4559
MVS Parmlib Update Parameters (DSNTIPM):

This topic shows detailed information about “System Parameters - MVS Parmlib Update Parameters (DSNTIPM)”.

This block shows the parameters used to produce the DSNTIJMV job that defined DB2 to MVS and updated the following PARMLIB members:

IEFSSN xx
to define DB2 and IRLM as formal MVS subsystems

IEAAPF xx
to authorize the prefix.SDSNLOAD, prefix.SDSNLINK, and prefix.SDSNEXIT libraries

LNKLST xx
to include the prefix.SDSNLINK library.

System Parameters - MVS Parmlib Update Parameters (DSNTIPM)

The field labels shown in the following sample layout of “System Parameters - MVS Parmlib Update Parameters (DSNTIPM)” are described in the following section.

MVS PARMLIB UPDATE PARAMETERS (DSNTIPM)

---------------------------------------

SUBSYSTEM DEFAULT (SSID) .................................D851
SUPPRESS SOFT ERRORS (SUPERRS) ..........................NO

SUBSYSTEM DEFAULT (SSID)

The MVS subsystem name for DB2. The name is used in member IEFSSN xx of SYS1.PARMLIB.

A valid name has 1-4 characters, the first must be A-Z, #, $, or @. Others must be A-Z, 1-9, #, $, or @. Default is DSN1.

Install parameter SUBSYSTEM NAME on panel DSNTIPM, or ZPARM SSID in DSNHDECP.

Field Name: QWPBSSID

SUPPRESS SOFT ERRORS (SUPERRS)

Shows whether the recording of errors, such as invalid decimal data and arithmetic exceptions, in the operating system data set SYS1.LOGREC is suppressed.

When YES, these exceptions are not recorded in the LOGREC data set.

Install parameter SUPPRESS SOFT ERRORS on panel DSNTIPM or ZPARM SUPERRS in DSN6SPRM.

Field Name: QWP4SAE
Operator Functions Installation Parameters (DSNTIPO):

This topic shows detailed information about “System Parameters - Operator Functions Installation Parameters (DSNTIPO)”.

This block shows various operator functions, such as write-to-operator route codes, automatic recall, and the maximum amount of CPU time allocated for a dynamic SQL statement.

Note: The fields shown on this panel depend on the installed DB2 version.

System Parameters - Operator Functions Installation Parameters (DSNTIPO)

The field labels shown in the following sample layout of “System Parameters - Operator Functions Installation Parameters (DSNTIPO)” are described in the following section.

---

**WTO ROUTE CODES (ROUTCDE)**

The MVS console routing codes.

These codes are assigned to messages that are not solicited from a specific console. Up to 16 comma-separated codes can be shown.

Install parameter WTO ROUTE CODES on panel DSNTIPO, or ZPARM ROUTCDE in DSN6SYSP.

Field Name: QWP1SMRC

**RESOURCE LIMIT FACILITY AUTOMATIC START (RLF) (prior to DB2 12)**

Shows whether the resource limit facility (governor) is automatically started when DB2 is started.

Install parameter RLF AUTO START on panel DSNTIPO4, or ZPARM RLF in DSN6SYSP.

Field Name: QWP1RLF

**RESOURCE LIMIT SPECIFICATION TABLE SUFFIX (RLFTBL) (prior to DB2 12)**

The default resource limit specification table (RLST) suffix.

This suffix is used when the resource limit facility (governor) is automatically started or when the governor is started without specifying a suffix.

Install parameter RLST NAME SUFFIX on panel DSNTIPO4, or ZPARM RLFTBL in DSN6SYSP.

Prior to DB2 12: Install parameter RLST NAME SUFFIX on panel DSNTIPO4, or ZPARM RLFTBL in DSN6SYSP.
Operator Functions Installation Parameters (DSNTIPO)

Field Name: QWP1RLFT

RESOURCE LIMIT SPEC TABLE ERROR ACTION (RLFERR) (prior to DB2 12)

The action taken by DB2 when the governor cannot use the resource limit:

NOLIMIT
The dynamic SQL statements run without limit.

NORUN
The dynamic SQL statements terminated with an SQL error code.

A number from 1 to 5000000 represents the number of CPU service units allowed for a query.

Install parameter DYNAMIC SQL on panel DSNTIPO4, or ZPARM RLFERR in DSN6SYSP.

Prior to DB2 12: Install parameter RLST ACCESS ERROR on panel DSNTIPO, or ZPARM RLFERR in DSN6SYSP.

Field Name: RLFERR

AUTO BIND (ABIND)

Indicates whether autobind is enabled. Values are:

YES Allows automatic rebind operations to be performed when a plan/package:
• Was marked “invalid”.
• Was bound on DB2 Vn, but is now running on DB2 Vn-1
• After use on DB2 Vn-1 (as previously described), is later used again on DB2 Vn

NO Prevent DB2 from performing any automatic rebind operations under any circumstances.

COEXIST
Allows automatic rebind operation to be performed in a DB2 Data Sharing coexistence environment when the plan/package:
• Is marked “invalid” or
• Was last bound in DB2 Vn and is running on DB2 Vn-1

Install parameter AUTO BIND on panel DSNTIPO, or ZPARM ABIND in DSN6SPRM.

Field Name: QWP4ABN

ALLOW EXPLAIN AT AUTOBIND (ABEXP)

Indicates whether EXPLAIN processing occurs during automatic rebind.

YES means EXPLAIN processing happens during automatic rebind of a plan or package that has EXPLAIN(YES) as a bind option. If the PLAN_TABLE does not exist, automatic rebind continues, but there is no EXPLAIN output. Explain processing does not happen for a plan or package with EXPLAIN(NO).

Install parameter EXPLAIN PROCESSING on panel DSNTIPO, or ZPARM ABEXP in DSN6SPRM.

Field Name: QWP4ABX

DPROP SUPPORT (EDPROP)
Operator Functions Installation Parameters (DSNTIPO)

Shows whether DataPropagator NonRelational (DPROP) is used to propagate SQL changes made to tables defined with DATA CAPTURE CHANGES.

1. No changes are propagated.
2. DPROP propagates SQL changes, and those changes made to tables defined with DATA CAPTURE CHANGES are only allowed when monitor trace class 6 is active, DPROP is installed, and the DB2 application is running in an IMS environment. If any of these conditions are not met, no changes to the DB2 table are permitted.
3. Data propagation occurs when monitor trace class 6 is active, DPROP is installed, and the DB2 application is running in an IMS environment. In this instance, an application that is not running in an IMS environment can update DB2 tables defined with DATA CAPTURE CHANGES. However, these changes are not propagated to IMS.

ANY Allows subsystems to propagate some data with DPROP and other data with a different propagation program.

Tables that should only be updated by DB2 applications running in an IMS environment can be protected using the following methods:
- Use the ENABLE parameter on BIND to specify a specific attachment facility through which updates to data propagation tables can be made.
- Define a validation procedure for data propagation tables to define which plans can update those tables.
- Allow update authority for data propagation tables to a group of authorization IDs that can only run in IMS.

Install parameter DPROP SUPPORT on panel DSNTIPO, or ZPARM EDPROP and CHGDC in DSN6SPRM.

Field Name: QWP4ENF

SITE TYPE (SITETYP)

Shows whether this system is at a local site or a recovery site.

LOCALSITE
This is the site of the current system. Multiple image copies are made and are operational here. This is the default.

RECOVERYSITE
This an alternative site for recovery purposes.

The RECOVER utility uses this parameter to determine what site the current system is on and recovers everything from the copies of data registered at that site.

The RECOVER and MERGECOPY utilities use this to determine whether COPYDDN or RECOVERDDN is allowed with NEWCOPY NO.

Install parameter SITE TYPE on panel DSNTIPO, or ZPARM SITETYP in DSN6SPRM.

Field Name: QWP4MSTY

TRACKER SITE (TRKRSITE)

Indicates whether this subsystem is a remote tracker site for another DB2 subsystem.
When YES, this is a tracker site.

A DB2 tracker site is a separate DB2 subsystem or data sharing group that exists solely for the purpose of keeping shadow copies of your primary site's data. No independent work can be run on the tracker site.

Install parameter TRACKER TYPE on panel DSNTIPO, or ZPARM TRKRSITE in DSN6SPRM.

Field Name: QWP4TRKR

READ COPY2 ARCHIVE (ARC2FRST)

This field indicates whether the COPY2 archives should be read first when the DB2 subsystem is started.

Install parameter READ COPY2 ARCHIVE on DSNTIPO, or ZPARM ARC2FRST in DSN6LOGP.

Field Name: QWP2OPT2

REAL TIME STATS (STATSINT)

The time interval that DB2 waits before it attempts to write out page set statistics to the real-time statistics tables. This value is between 1 and 65535 minutes.

Install parameter REAL TIME STATS on panel DSNTIPO, or ZPARM STATSINT in DSN6SPRM.

Field Name: QWP4INTE

STATISTICS FEEDBACK (STATFDBK_SCOPE)

Specifies the scope of SQL statements for which DB2 is to recommend statistics. Possible values are:

- All
- Dynamic
- None
- Static

This value corresponds to field STATISTICS FEEDBACK on installation panel DSNTIPO. The ZPARM name is STATFDBK_SCOPE in DSN6SPRM.

Field Name: QWP4SFBS

PROFILE AUTOSTART (PROFILE_AUTOSTART)

Specifies whether START PROFILE command processing is automatically initiated as part of DB2 startup (DB2 field: QWP1PFASY):

- 0 indicates NO
- 1 indicates YES

This field corresponds to field PROFILE AUTOSTART on installation panel DSNTIPO. ZPARM name: PROFILE_AUTOSTART in DSN6SYSP.

Field Name: QWP1PFASY

Other system parameters report:

This topic shows detailed information about “System Parameters - Other System Parameters”.

Other System Parameters

This block shows values not shown on other DB2 installation panels. These values are either set internally by DB2, or calculated from other install parameter values.

Note: The fields shown on this panel depend on the installed DB2 version.

### System Parameters - Other System Parameters

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUAL BDSM MODE (TWOBSDS)</td>
<td>Shows whether two BSDS data sets are used. A second BDS (strongly recommended) makes recovery much easier in most situations. In cases that normally require recovery and restart, a second BDS allows you to continue working. The storage overhead required is small and the data set is relatively inactive. DB2 parameter TWOBSDS in DSN6LOGP.</td>
</tr>
<tr>
<td>ROLL UP PARALLEL TASK ACCOUNTING (PTASKROL)</td>
<td>Indicates whether DB2 generates a trace record at the originating task level that summarizes accounting information for all parallel tasks.</td>
</tr>
</tbody>
</table>

### OTHER SYSTEM PARAMETERS

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUAL BDSM MODE (TWOBSDS)</td>
<td>YES</td>
</tr>
<tr>
<td>ROLL UP PARALLEL TASK ACCOUNTING (PTASKROL)</td>
<td>YES</td>
</tr>
<tr>
<td>NO, PAGES SMALL TABLE THRESHOLD (NMUTHRS)</td>
<td>.0</td>
</tr>
<tr>
<td>OFFLOAD OPTION (OFFLOAD)</td>
<td>.200</td>
</tr>
<tr>
<td>SU CONVERSION FACTOR</td>
<td>NONE</td>
</tr>
<tr>
<td>MINIMUM DIVIDE SCALE (MINDIVSCL)</td>
<td>.N/A</td>
</tr>
<tr>
<td>STAR JOIN THRESHOLD (SJTABLES)</td>
<td>.10</td>
</tr>
<tr>
<td>ONLINE SYSTEM PARM USER ID MONITOR</td>
<td>.N/P</td>
</tr>
<tr>
<td>ONLINE SYSTEM PARM CORREL ID MONITOR</td>
<td>.N/P</td>
</tr>
<tr>
<td>ONLINE SYSTEM PARM TIME CHANGED</td>
<td>.N/P</td>
</tr>
<tr>
<td>ONLINE SYSTEM PARM TYPE</td>
<td>.N/P</td>
</tr>
<tr>
<td>DB2-SUPPLIED DEEP INDICATOR</td>
<td>.X'05'</td>
</tr>
<tr>
<td>MAX CONCURRENT PARM OPS (MAX_CONCURRENT_PARM_OPS)</td>
<td>.10</td>
</tr>
<tr>
<td>ADMIN SCHEDULER JCL PROC NAME (ADMTMPROC)</td>
<td>.N/P</td>
</tr>
<tr>
<td>FREE LOCAL CACHED STATEMENTS (CACHEDYN_FREELOCAL)</td>
<td>.N/A</td>
</tr>
<tr>
<td>INDEX I/O PARALLELISM (INDEX_IO_PARALLELISM)</td>
<td>.N/A</td>
</tr>
<tr>
<td>INDEX_MEMORY_CONTROL</td>
<td>AUTO</td>
</tr>
<tr>
<td>USE TRACKMOD FOR IMPLICIT TS (IMPTKMOD)</td>
<td>YES</td>
</tr>
<tr>
<td>DSSIZE FOR IMPLICIT TS (IMPLOYEE)</td>
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<tr>
<td>SP_PARM_N_Y (DDF_COMPATIBILITY)</td>
<td>NO</td>
</tr>
<tr>
<td>SP_PARM_N_JV (DDF_COMPATIBILITY)</td>
<td>NO</td>
</tr>
<tr>
<td>DISABLE_IMPACT_JV (DDF_COMPATIBILITY)</td>
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</tr>
<tr>
<td>DISABLE_IMPACT_NJY (DDF_COMPATIBILITY)</td>
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</tr>
<tr>
<td>IGNORE_TZ (DDF_COMPATIBILITY)</td>
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<tr>
<td>DDF_COMP_PRIOR_VERSION (DDF_COMPATIBILITY)</td>
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<tr>
<td>DYN_STMT_CACHE_SIZE (CACHE_DYN_TRACK_STOR_LIM)</td>
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</tr>
<tr>
<td>ACTIVATE I/O SCHEDULING</td>
<td>YES</td>
</tr>
<tr>
<td>VALUE FOR TRIGGER DRAIN</td>
<td>.1</td>
</tr>
<tr>
<td>MAX NUMBER OF DSS WITH HOLD</td>
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</tr>
<tr>
<td>FIELD_PROCS FOR DESCRIBE_TABLE_BLOCK</td>
<td>.5</td>
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<tr>
<td>RESTRICT ALTER COLUMN FOR DCC (RESTRICT_ALT_COL_FOR_DCC)</td>
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</tr>
<tr>
<td>SPACE_RESERVED FOR I/O FUNCTIONS</td>
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<tr>
<td>SPACE_RESERVED FOR CRITICAL WORK</td>
<td>.26,279,936</td>
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<tr>
<td>SPACE_RESERVED_ON_TOP_OF_I/O_AND_CRITICAL_SPACE</td>
<td>.26,279,936</td>
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<tr>
<td>DETAILED_MEASURED UNIT_PRICE_TRACKING</td>
<td>NO</td>
</tr>
<tr>
<td>OTC_LICENSE_TERMS_ACCEPTED</td>
<td>NO</td>
</tr>
<tr>
<td>SIMULATED_CPUS</td>
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</tr>
<tr>
<td>CPU FOR EXPLAIN STATEMENTS (CPU_FOR_EXPLAIN)</td>
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</tr>
<tr>
<td>MAX &quot;NOT FOUND&quot; HASH RECORDS</td>
<td>.100</td>
</tr>
<tr>
<td>MAX EXTEND SERVICE_TASKS</td>
<td>.20</td>
</tr>
<tr>
<td>PROJECT Z INSERTION THRESHOLD</td>
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</tr>
<tr>
<td>MAX_ZIVLEMPEL_DICTIONARY_ENTRIES</td>
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</tr>
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<td>REORG_KEEPDICTIONARY_IN_BRF_TO_RRF_CONVERSION</td>
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<tr>
<td>ORDA_RESOLVE_ALIAS (ORDA_RESOLVE_ALIAS)</td>
<td>YES</td>
</tr>
<tr>
<td>PC_YESSION_SPECIFIED</td>
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</tr>
<tr>
<td>BLOCK OPT 1 ROW SORT (OPTIONBLKSORT)</td>
<td>NO</td>
</tr>
<tr>
<td>EMPTY XML ELEMENT (XML_RESTRIC_T_EMPTY_TAG)</td>
<td>NO</td>
</tr>
<tr>
<td>SUPPRESS_HINT_SQLCODE_DYN (SUPPRESS_HINT_SQLCODE_DYN)</td>
<td>NO</td>
</tr>
<tr>
<td>INDEX_MEMORY_CONTROL (INDEX_MEMORY_CONTROL)</td>
<td>AUTO</td>
</tr>
<tr>
<td>SELECT FOR UNLOAD (AUTH_COMPATIBILITY)</td>
<td>NO</td>
</tr>
<tr>
<td>MATERIALIZE_TABLE_SQRTDF (MATERIALIZE_TABLE_SQRTDF)</td>
<td>NO</td>
</tr>
<tr>
<td>ENCRYPTION_KEYLABEL (ENCRYPTION_KEYLABEL)</td>
<td>DB2SYS.KEY01</td>
</tr>
</tbody>
</table>
DB2 parameter PTASKROL in DSN6SYSP.

Field Name: QWP1PROL

NO. PAGES SMALL TABLE THRESHOLD (NPGTHRSH)

This parameter allows you to specify the optimizer threshold for qualifying a table as small.

-1 Every table qualifies as small.
0 No table qualifies as small (this is the default).
1 Only tables with zero pages qualify as small.
2 Tables with less than two pages qualify as small.
10 Tables with less than ten pages qualify as small.
502 Tables with less than 502 pages, and tables that have not had statistics collected qualify as small. For example, when NPAGES = -1.

DB2 parameter NPGTHRSH in DSN6SPRM.

Background and Tuning Information

Tables can be populated using insert just prior to their use by queries and then cleared immediately on completion of the queries. These tables are permanent even though the data they contain is transient.

This can cause problems when RUNSTATS is run overnight, or at other times when these tables are empty. This gives the optimizer the false indication that these tables contain no data when in fact, the tables will contain data when the query executes. This causes the optimizer to pick an inefficient access path. Usually the optimizer chooses to do a table scan, which would be the most efficient access path if the table were truly empty. Because the table is not empty when the query executes, it would be more efficient to use matching index access.

With this parameter, you can force the optimizer to treat tables containing no data as small tables. For these tables, the optimizer will:

- Select a matching index access rather than a table space scan and non-matching index access.
- Select the index with the most matching columns when more than one index qualifies for matching index access.
- Select indexes with the same number of matching columns on cost.

Field Name: QWP4NPAG

OFFLOAD OPTION (OFFLOAD)

Shows whether the offload process is initiated online.

ZPARM OFFLOAD in macro DSN6LOGP.

Field Name: QWP2OFFL

SU CONVERSION FACTOR

The CPU service unit conversion factor for this CPU.

This factor allows conversion CPU time in seconds to a common unit, called service unit (SU). The conversion factor used depends on the machine. Service units allow you to calculate CPU execution times across a data sharing group.
The conversion factor is used as follows:

\[ \text{CP secs} \times \frac{16,000,000}{\text{Conversion Factor}} = \text{SUs} \]

\[ \text{SUs} \times \frac{\text{Conversion Factor}}{16,000,000} = \text{CP secs} \]

This field does not map to an installation panel.

**Field Name:** QWPASUCV

**MINIMUM DIVIDE SCALE (MINDVSC)**

The minimum scale for the result of a decimal division. The values for this parameter are none (the default), 3, or 6. If 3 or 6 is specified, this parameter overrides the DECDIV3 parameter.

**Field Name:** QWP4MDSC

**STAR JOIN THRESHOLD (SJTABLES)**

The minimum number of tables in the star schema query block, including the fact table, dimensions tables, and snowflake tables. This value is considered only if the subsystem parameter STARJOIN qualifies the query for star join.

Possible values are:

- **0** Star join is disabled. This is the default.
- **1, 2, or 3** Star join is always considered.
- **4 through 255** Star join is considered if the query block has at least the specified number of tables.
- **256 and greater** Star join is never considered.

DB2 parameter SJTABLES in DSN6SPRM.

**Background and Tuning Information**

Although star join can reduce bind time significantly it does not provide optimal performance in all cases. Performance of star join depends on a number of factors such as the available indexes on the fact table, the cluster ratio of the indexes, and the selectivity of rows through local and join predicates. Follow these general guidelines for setting the value of SJTABLES:

- If you have star schema queries with less than 10 tables and you want to make the star join method applicable to all qualified queries, set the value of SJTABLES to a low number, such as 5.
- If you have star schema queries that are not necessarily suitable for star join but want to use star join for relatively large queries, use the default. The star join method will be considered for all qualified queries that have 10 or more tables.
- If you have star schema queries but normally do not want to use star join, you could increase SJTABLES, say to 15. This will greatly cut the bind time for large queries and avoid a potential bind time SQL return code -101 for large qualified queries.

**Field Name:** QWP4SJTB

**ONLINE SYSTEM PARM USER ID MONITOR**
Other System Parameters

The user ID that made the last online change to DB2 system settings.

Field Name: QWP4OZUS

ONLINE SYSTEM PARM CORREL ID MONITOR

The correlation ID of the online application that made the last change to DB2 system settings.

Field Name: QWP4OZCI

ONLINE SYSTEM PARM TIME CHANGED

Time of the last online change made to DB2 system settings.

Field Name: QWP4OZTM

ONLINE SYSTEM PARM TYPE

The type of DB2 system parameter changed by the last SET SYSPARM statement.

Field Name: QWP4OZTP

DB2-SUPPLIED DECP INDICATOR

Indicates that DECP is supplied by DB2.

Using a DB2 supplied DECP could cause data corruption due to applications using wrong CCSIDs.

Field Name: QWPBDB2S

MAX CONCURRENT PKG OPS (MAX_CONCURRENT_PKG_OPS)

The maximum number of package requests that can be processed simultaneously.

DB2 parameter MAX_CONCURRENT_PKG_OPS in DSN6SPRM.

Field Name: QWP4MXAB

ADMIN SCHEDULER JCL PROC NAME (ADMTPROC)

The name of the JCL procedure for starting the DB2 administrative scheduler task address space.

DB2 parameter ADMTPROC in DSN6SPRM.

Field Name: QWP4ADMT

FREE LOCAL CACHED STATEMENTS (CACHEDYN_FREELOCAL)

Indicates whether DB2 can free statements from the local dynamic statement cache to relieve storage constraints below the 2 GB bar. This parameter applies only for packages or plans that are bound with KEEP_DYNAMIC(YES). Possible values are:

0  DB2 cannot free statements from the local cache
1  DB2 can free statements from the local cache

DB2 parameter CACHEDYN_FREELOCAL in DSN6SPRM.

Field Name: QWP4FRLC

INDEX I/O PARALLELISM (INDEX_IO_PARALLELISM)

In DB2 12 this field is a serviceability field.

The enablement of the index I/O parallelism ZPARM.
Field Name: QWP4IIOP

ZOSMETRICS
YES indicates that gathering of z/OS metrics using the RMF interface is enabled. ZPARM ZOSMETRICS in DSN6SPRM.

Field Name: QWP4METE

USE TRACKMOD FOR IMPLICIT TS (IMPTKMOD)
Shows whether you have specified the TRACKMOD option on ALTER TABLESPACE for an implicitly created table space.

This field corresponds to field TRACK MODIFIED PAGES on installation panel DSNTIP7. The ZPARM name is IMPTKMOD in DSN6SPRM.

Field Name: QWP1TKMD

DSSIZE FOR IMPLICIT TS (IMPDSSIZE)
Shows the maximum DSSIZE in gigabytes that DB2 uses for creating each partition of an implicitly created base table space.

This field corresponds to field DEFAULT DSSIZE on installation panel DSNTIP7. The ZPARM name is IMPDSSIZE in DSN6SPRM.

Field Name: QWP1DSSZ

ENABLE MULTIPLE INDEX ACCESS (SUBQ_MIDX)
Specifies whether to enable or disable multiple index access for queries that have subquery predicates:

NO Disables multiple index access for queries.

YES Enables multiple index access for queries.

The ZPARM name is SUBQ_MIDX IN DSN6SPRM.

Field Name: QWP4SQMX

SP_PARMS_JV (DDF_COMPATIBILITY)
Specifies that when a Java client application calls a DB2 for z/OS stored procedure, DB2 returns output argument values with data types that match the data types that were specified in the CallableStatement.registerOutParameter method calls.

If SP_PARMS_JV is not specified, DB2 returns output parameter values with data types that match the data types of the parameters in the stored procedure definition.

ZPARM name DDF_COMPATIBILITY and ZPARM value SP_PARMS_JV in DSN6FAC.

Field Name: QWP9SPPMJ

SP_PARMS_NJV (DDF_COMPATIBILITY)
Specifies that when a non-Java client application calls a DB2 for z/OS stored procedure, DB2 returns output argument values with data types that match the data types of the corresponding CALL statement arguments, unless one of the following conditions are true:

- The non-Java client is Version 10 or later.
Other System Parameters

- The stored procedure uses a parameter data type that was introduced in DB2 for z/OS Version 10 (XML, TIMESTAMP WITH TIMEZONE, or TIMESTAMP with precision greater than 6).

If one condition is true, DB2 returns output parameter values with data types that match the data types of the parameters in the stored procedure definition. If SP_PARMS_NJV is not specified, DB2 returns output parameter values with data types that match the data types of the parameters in the stored procedure definition.

ZPARM name DDF_COMPATIBILITY and ZPARM value SP_PARMS_NJV in DSN6FAC.

Field Name: QWP9SPPM

DISABLE_IMPCAST_JV (DDF_COMPATIBILITY) (DB2 11 or later)

Specifies whether the DB2 for z/OS server disables implicit casting of input host variables from numeric data types to string data types, or from string data types to numeric data types, when the application is a Java client application that uses the IBM Data Server Driver for JDBC and SQLJ. If application compatibility is set to:
- V10R1: DB2 uses DISABLE_IMPCAST_JV.
- V11R1 or later: DB2 always does implicit casting.

ZPARM name DDF_COMPATIBILITY ZPARM value DISABLE_IMPCAST_JV in DSN6FAC.

Field Name: QWP9ICIJ

DISABLE_IMPCAST_NJV (DDF_COMPATIBILITY)

Specifies that DB2 for z/OS disables implicit casting of input host variables from numeric data types to string data types, or from string data types to numeric data types, when the application is a non-Java client application that uses an IBM Data Server client or driver that is at Version 10.5 or earlier.

ZPARM name DDF_COMPATIBILITY and ZPARM value DISABLE_IMPCAST_NJV in DSN6FAC.

Field Name: QWP9ICIN

IGNORE_TZ (DDF_COMPATIBILITY)

Shows whether to ignore the time zone (TMZ) in TMZ input for Java.

Field Name: QWP9ITZJ

DDF COMP PRIOR VERSION (DDF_COMPATIBILITY)

The DDF compatibility parameter. The DB2 server with new-function mode has not yet been activated. The DDF compatibility parameter causes this server to identify itself to all remote clients as being in new-function mode for the previous version. The format of this field in the trace record is mmr, where mm is the version of the DB2 server and r is the release.

Field Name: QWP9DDFCIP

DYN STMT CACHE STOR (CACHE_DEP_TRACK_STOR_LIM)

Specifies the number of gigabytes of storage that DB2 allocates for hashing entries in the dynamic statement cache. This parameter can avoid storage shortages for long-running threads. The storage is allocated above the bar.
The ZP ARN name is CACHE_DEP_TRACK_STOR_LIM in DSN6SPRM.

**Field Name**: QWP4CDTSL

### ACTIVATE I/O SCHEDULING

Determines whether the I/O scheduling feature is activated. DB2 parameter SPRMIOP in DSN6SPRM.

**Field Name**: QWP4IOP

### VALUE FOR TRIGGER DRAIN

The percentage below 100% DSMAX that open data sets can reach before an asynchronous drain is started. The default is 1, meaning that asynchronous drain starts when the number of open data sets reaches 99% of DSMAX.

DB2 defers closing and deallocating the table spaces or indexes until the number of open data sets reaches one of the following limits:

- The MVS limit for the number of concurrently open data sets.
- 99% (default) of the value that you specified for DSMAX.

When one of these limits is reached, DB2 closes a number of data sets not in use equal to 3% (default) of the value DSMAX. Thus, DSMAX controls not only the limit of open data sets, but also the number of data sets that are closed when that limit is reached.

DB2 parameter SPRMTDD in DSN6SPRM.

**Field Name**: QWP4TDDN

### MAX NUMBER OF DDS WITH HOLD

The percentage of maximum open data sets until the asynchronous drain operations are stopped.

DB2 parameter SPRMMDD in DSNDSPRM.

**Field Name**: QWP4MDDN

### FIELD PROCS FOR DESCRIBE TABLE BLOCK

The number of field procedures for the DESCRIBE TABLE block.

ZP ARM SPRMFDP.

**Field Name**: QWP4FDP

### RESTRICT ALTER COLUMN FOR DCC (RESTRICT_ALT_COL_FOR_DCC)

A value of YES prevents the use of ALTER table ALTER column with SET DATA TYPE, SET DEFAULT, and DROP DEFAULT when data capture changes is enabled on the target table. The ZP ARM name is RESTRICT_ALT_COL_FOR_DCC in DSN6SPRM.

**Field Name**: QWP4RACD

### SPACE RESERVED FOR Z/OS FUNCTIONS

The amount of space reserved for MVS functions.

**Field Name**: QWP1DB1M

### SPACE RESERVED FOR CRITICAL WORK

The amount of space reserved for critical work that must be completed.

**Field Name**: QWP1CRIT
**Other System Parameters**

**SPACE RESERVED ON TOP OF Z/OS AND CRITICAL SPACE**

The amount of space above z/OS and critical (QWP1DB1M + QWP1CRIT) that DB2 tries to leave available.

*Field Name:* QWP1SOS

**DETAILED MEASURED UNIT PRICE TRACKING**

Specifies whether DB2 performs detailed tracking for measured usage pricing. You can select the following values:

**YES**  DB2 does detailed measured usage tracking if SMF type 89 records are activated. When SMF89 is set to YES, DB2 invokes a z/OS service on every entry into or exit out of DB2 to ensure accurate tracking.

**NO (the default value)**  DB2 does not do detailed measured usage tracking. If the SMF type 89 record is activated, only high-level tracking is recorded in the SMF type 89 record. Selecting NO reduces CPU usage, but also increases the amount of time spent in DB2 as measured by SMF 89.

*Note:* Select SMF89 YES only if you use measured usage pricing.

DB2 parameter SMF89.

*Field Name:* QWP1SM89

**OTC LICENSE TERMS ACCEPTED**

Indicates that the one-time charge (OTC) license terms are accepted for this DB2 installation.

DB2 parameter OTC_LICENSE.

*Field Name:* QWP1OLAC

**SIMULATED CPUS**

The number of CPUs that are online.

*Field Name:* QWP4NCPU

**EXECUTION TIME OF TASK/SRB IN MICROSECONDS**

The accumulated SRB time for the address space. This value includes both, the preemptable and nonpreemptable SRB time. It does not include CPU time that is consumed on an IBM zIIP.

*Field Name:* QWSASRBT

**MAX 'NOT FOUND' HASH RECORDS**

The maximum number of NOT FOUND hash records.

*Field Name:* QWP4KNFC

**MAX EXTEND SERVICE TASKS**

Maximum number of extended service tasks.

*Field Name:* QWP4EST

**PROJECT Z INSERTION THRESHOLD**

Project Z insertion threshold.

*Field Name:* QWP4ZTN
MAX ZIVLEMPNEL DICTIONARY ENTRIES

The maximum number of ZIVLEMPNEL dictionary entries.

Field Name: QWP4MDE

REORG KEEPDICTIONARY IN BRF TO RRF CONVERSION

Indicates that KEEPDICTIONARY is used when a REORG converts a table space from basic row format (BRF) to reordered row format (RRF).

Field Name: QWP4HKEEPD

DRDA RESOLVE ALIAS (DRDA_RESOLVE_ALIAS)

YES means that in SQL statements, DB2 replaces aliases that refer to three-part names with qualified object names before it sends the statements to the remote location. This substitution is done in the following cases:

- When PREPARE or EXECUTE IMMEDIATE is performed
- When REMOTE BIND of a package is performed.

ZPARM name DRDA_RESOLVE_ALIAS in DSN6SPRM.

Field Name: QWP4HKEEPD

PC YES SPECIFIED

Shows whether the IRLM uses the cross-address-space program call. This parameter determines where the IRLM lock control block structure is stored.

If you run a tightly-controlled environment and virtual storage is not constrained, use PC=NO. PC=YES is the conservative choice where insufficient information about the environment is available to make a well-informed decision.

With PC=NO, locks are managed in extended common service area (ECSA) and it is possible to achieve better CPU performance, because DB2 does not use cross-memory services for IRLM requests. However, ECSA is a limited resource and constrains the size of the private address space area available above the 16-MB line. The demand for ECSA storage to support locks may be excessive when one or more of the following conditions are true:

- Extensive use of row-level locking
- Ineffective lock avoidance
- Infrequent application commits
- Lock escalation via NUMLKTS and LOCKMAX is disabled because the applications cannot tolerate the impact
- Effectively no limit on the number of locks taken by an application (NUMLKUS is set very high)
- Multiple DB2 subsystems with IRLM PC=NO reside on the same z/OS image

Assuming the average lock consumes 536 bytes of storage, a single application which takes 100000 locks before a commit would consume almost 52 MB of ECSA when IRLM is configured with PC=NO. MAXCSA would have to be set to at least 52 MB. If a very large number of locks are held by concurrent application processes, the demand for ECSA may not be able to be supported.
Recommendation: If you run applications that have many of the above characteristics, it is strongly recommended to use PC=YES. Certain ERP vendor applications that run concurrent processes can acquire a very large number of held locks that would require a very large setting for MAXCSA, or cause an ECSA overflow which would adversely impact the availability of the z/OS image.

If PC=NO is selected, MAXCSA should be sized to support the concurrent number of held locks required and to avoid an ECSA overflow condition. When setting MAXCSA, check to ensure that the ECSA setting in PARMLIB is sufficient to support the aggregate demand from IRLM and other subsystems. The ECSA size for z/OS is specified by the CSA keyword in the IEASSYSnn member in SYS1.PARMLIB.

With PC=YES, locks are managed in the extended private area of the IRLM address space. This can increase the CPU cost of lock and unlock requests relative to PC=NO. However, with reasonable lock avoidance, the total CPU overhead is likely to be limited to 1 to 2%, which is well within measurement noise and therefore not significant.

With PC=YES, the MAXIMUM ECSA option is ignored but must not be zero. The amount of storage allowed for LOCK usage is determined from the extended storage provided to the IRLM address space at startup time. This amount is reduced by 200 MB to allow a buffer for IRLM and z/OS required storage and for DMBS MUST COMPLETE processes. The amount being monitored can be seen in the display message from the irlmprc,STATUS,STOR command. IRLM still uses CSA and ECSA for other purposes. If you need to create a dump for DB2 diagnostic purposes, you need to ensure that IRLM is included in the dump, and that the dump data sets are large enough to hold IRLM.

PC=NO is a good solution when one or more of the following conditions are true, particularly when running a data sharing configuration:

- Optimal CPU performance is required
- No constraint is necessary on available ECSA
- Significant IRLM lock contention and a very large number of lock requests with ineffective lock avoidance
- Relatively high IRLM SRB time

YES puts the lock control block structure in the IRLM private address space, and the program call instruction is used to address it. IRLM still uses CSA and ECSA for other purposes. With PC=YES, the MAXIMUM ECSA option is ignored.

Field Name: QWP5PCY

**BLOCK OPT 1 ROW SORT (OPT1ROWBLOCKSORT)**

Specifies whether DB2 explicitly blocks sort operations when the OPTIMIZE FOR 1 ROW clause is specified on a query:

NO = DISABLE

Means that when OPTIMIZE FOR 1 ROW is specified, DB2 avoids access paths that involve sorts. If an access path that avoids a sort exists, it is possible, although unlikely, that an access path that involves a sort is chosen instead. This behavior is used in DB2 9 and earlier releases.
YES = ENABLE
Meaning that when OPTIMIZE FOR 1 ROW is specified, DB2 chooses access paths that avoid sorts whenever such a path is available.

ZPARM name is OPT1ROWBLOCSORT in DSN6PRM.

Field Name: QWP4O1RBS

SMS DATACLASS NAME FOR TS (SMSDCFL) (Prior to DB2 11)

SMS data class for table spaces. The data class name is a string of one to eight characters. The default is an empty string, which means that the SMS cluster is defined without the DATACLASS parameter.

When a valid data class name is specified, the SMS cluster is specified with the DATACLASS parameter using the name specified. If the name is not valid, SMS returns an error.

DB2 parameter SMSDCFL in DSN6PRM.

Field Name: QWP4DCFS

SMS DATACLASS NAME FOR IS (SMSDCIX) (Prior to DB2 11)

SMS data class for index table spaces. The data class name is a string of one to eight characters. The default is an empty string, which means that the SMS cluster is defined without the DATACLASS parameter.

When a valid data class name is specified, the SMS cluster is specified with the DATACLASS parameter using the name specified. If the name is not valid, SMS returns an error.

DB2 parameter SMSDCIX in DSN6PRM.

Field Name: QWP4DCIX

OUTER JOIN PERFORMANCE ENHANCEMENTS (OJPERFEH) (Prior to DB2 11)

Indicates whether outer join performance enhancements are enabled.

DB2 parameter OJPERFEH in DSN6PRM.

Field Name: QWP4OJEH

EMPTY XML ELEMENT (XML_RESTRICT_EMPTY_TAG)

Indicates whether empty XML elements are serialized:

NO Serialization of empty XML elements is not defined.

YES Empty XML elements are serialized using a start-element tag followed by an end-element tag.

ZPARM name is XML_RESTRICT_EMPTY_TAG in DSN6PRM.

Field Name: QWP4NOET

SUPPRESS_HINT_SQLCODE_DYN (SUPPRESS_HINT_SQLCODE_DYN)

Specifies whether DB2 suppresses SQLCODE +394 and SQLCODE +395 when specified access paths are applied for dynamic SQL statements.

NO DB2 issues SQLCODEs +394 and +395 for statement-level access paths and PLAN_TABLE access paths. NO is the default value.

STMT DB2 suppresses SQLCODEs +394 and +395 for statement-level access paths for dynamic SQL statements.
Other System Parameters

**ALL** DB2 suppresses SQLCODEs +394 and +395 for statement-level access paths and PLAN_TABLE access paths for dynamic SQL statements.

The ZPARM name is SUPPRESS_HINT_SQLCODE_DYN in DSN6SPRM.

**Field Name:** QWP4SHDE

**INDEX MEMORY CONTROL (INDEX_MEMORY_CONTROL)**

Shows the amount of memory that DB2 should allocate for fast traversing of DB2 indexes:

-1 = AUTO
   Specifies that DB2 sets the upper limit of the storage to 20% of the currently allocated buffer pools.

0 = DISABLE
   Specifies that DB2 returns any existing storage allocated for fast index traversal and does not allocate any further storage for this purpose.

500 - 200000
   Indicates the storage limit for fast index traversal.

The ZPARM name is INDEX_MEMORY_CONTROL in DSN6SPRM.

**Field Name:** QWP4IXMC

**SELECT FOR UNLOAD (AUTH_COMPATIBILITY)**

Shows the AUTH_COMPATIBILITY ZPARM values (DB2 field: QWP4AUTCSU):

1  The unload utility checks whether the user has the SELECT privilege on the target table.

0  The unload utility checks whether the user has the UNLOAD privilege on the target table.

**Field Name:** QWP4AUTCSU

**MATERIALIZE NODET SQLTUDF (MATERIALIZE_NODET_SQLTUDF)**

DB2 materializes the result of a user-defined SQL table function that is defined as not deterministic.

- 0=NO
- 1=YES

ZPARM name is MATERIALIZE_NODET_SQLTUDF in DSN6SPRM.

**Field Name:** QWP4MNSU

**ENCRYPTION_KEYLABEL (ENCRYPTION_KEYLABEL)**

If non-blank, the name of a ICSF key to be used for encrypting archive log data sets, directory data sets, catalog data sets and user-defined indexes on the Db2 catalog. A blank value shows as N/P in the report.

**Field Name:** QWP4ENKL

**Performance and Optimization (DSNTIP8, DSNTIP81):**

This topic shows detailed information about “System Parameters - Performance and Optimization (DSNTIP8, DSNTIP81)”.

**Note:** The fields shown on this panel depend on the installed DB2 version.
System Parameters - Performance and Optimization (DSNTIP8, DSNTIP81)

The field labels shown in the following sample layout of “System Parameters - Performance and Optimization (DSNTIP8, DSNTIP81)” are described in the following section.

PERFORMANCE AND OPTIMIZATION (DSNTIP8,DSNTIP81)

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CACHE DYNAMIC SQL (CACHEDYN)</td>
<td>YES</td>
</tr>
<tr>
<td>CACHE DYN STABILITY (CACHEDYN_STABILIZATION)</td>
<td>BOTH</td>
</tr>
<tr>
<td>OPTIMIZATION HINTS ALLOWED (OPTHINTS)</td>
<td>YES</td>
</tr>
<tr>
<td>EVALUATE UNCOMMITTED (EVALUNC)</td>
<td>NO</td>
</tr>
<tr>
<td>SKIP UNCOMM INSERTS (SKIPUNCI)</td>
<td>NO</td>
</tr>
<tr>
<td>IMMEDIATE OVERRIDE FLAG (IMMEDWRI)</td>
<td>NO</td>
</tr>
<tr>
<td>REBIND PLANMGMT DEFAULT (PLANMGMT)</td>
<td>OFF</td>
</tr>
<tr>
<td>PLANMGMTSCOPE DEFAULT (PLANMGMTSCOPE)</td>
<td>STATIC</td>
</tr>
<tr>
<td>PACKAGE RELEASE COMMIT (PKGREL_COMMIT)</td>
<td>N/A</td>
</tr>
<tr>
<td>RANDOMIZE XML DOCID (XML_RANDOMIZE_DOCID)</td>
<td>NO</td>
</tr>
<tr>
<td>DISABLE EDM RTS (DISABLE_EDMRTS)</td>
<td>YES</td>
</tr>
<tr>
<td>CURRENT DEGREE (CDSSRDEF)</td>
<td>ANY</td>
</tr>
<tr>
<td>MAX DEGREE OF PARALLELISM (PARAMDEG)</td>
<td>4</td>
</tr>
<tr>
<td>MAX DEGREE FOR DPSI (PARAMDEG_DPSI)</td>
<td>N/A</td>
</tr>
<tr>
<td>PARALLELISM EFFICIENCY (PARA_EFF)</td>
<td>50</td>
</tr>
<tr>
<td>STAR JOIN ENABLING (STARJOIN)</td>
<td>DISABLE</td>
</tr>
<tr>
<td>MAX DATA CACHING IN MB (MXDTCACH)</td>
<td>20</td>
</tr>
<tr>
<td>CURRENT REFRESH AGE (REFSHA GE)</td>
<td>0</td>
</tr>
<tr>
<td>CURRENT MAINT TYPE (MAINTYPE)</td>
<td>SYSTEM</td>
</tr>
<tr>
<td>VARCHAR FROM INDEX (RETVLCFK)</td>
<td>NO</td>
</tr>
<tr>
<td>STATS PROFILE FEEDBACK (STATFDBK_PROFILE)</td>
<td>YES</td>
</tr>
</tbody>
</table>

**CACHE DYNAMIC SQL (CACHEDYN)**

Indicates whether prepared dynamic SQL statements are saved for later use by eligible application processes in the EDM pool.

Install parameter CACHE DYNAMIC SQL on panel DSNTIP8, or ZPARM CACHEDYN in DSN6SPRM.

Field Name: QWP4CDYN

**CACHE DYN STABILITY (CACHEDYN_STABILIZATION)**

Specifies when dynamic SQL statements can be captured for stabilization. When a statement is stabilized, the current SQLID, statement text, and runtime structures are written to catalog tables. If a dynamic SQL statement is not present in the dynamic SQL statement cache, DB2 will load the runtime structures from catalog table rather than performing a full prepare. This extends the stability and reliability of performance of a dynamic SQL. It can have the following values:

**CAPTURE**

Statements may be stabilized through the -START DYNQUERY command using both MONITOR(NO) and MONITOR:YES). DB2 will not load stabilized statements from SYSDYNQRY.

**LOAD**

Statements may not be stabilized via any means. The -START DYNQUERY command will fail, and any MONITOR:YES) commands in progress will not stabilize statements, even if stabilization criteria are matched. During long prepare, DB2 will attempt to load stabilized statements from SYSDYNQRY with which to run.

**BOTH**

Statements may be stabilized through the -START DYNQUERY command via both MONITOR(NO) and MONITOR:YES). During
long prepare, DB2 will attempt to load stabilized statements from SYSDYNQRY with which to run. BOTH is the default setting.

NONE

Statements may not be stabilized via any means. The -START DYNQUERY command will fail, and any MONITOR(YES) commands in progress will not stabilize statements, even if stabilization criteria are matched. DB2 will not load stabilized statements from SYSDYNQRY.

This field corresponds to field CACHE DYN STABILITY on installation panel DSNTIP8. The ZPARM name is CACHEDYN_STABILIZATION in DSNTIP8.

Field Name: QWP4CDST

OPTIMIZATION HINTS ALLOWED (OPTHINTS)

Shows whether DB2 can use optimization hints from the PLAN_TABLE to influence the access paths used for certain queries.

Install parameter OPTIMIZATION HINTS on panel DSNTIP8, or ZPARM OPTHINTS in DSN6SPRM.

Field Name: QWP4HINT

EVALUATE UNCOMMITTED (EVALUNC)

Shows whether stage 1 predicate evaluation during table access can proceed upon uncommitted data or not.

This applies to isolation levels of Read Stability and Cursor Stability only. When NO (default), predicate evaluation occurs only on committed data (or on the application's own uncommitted changes). NO ensures that all qualifying data is always included in the answer set.

When YES, predicate evaluation can occur upon uncommitted data. Only committed data is returned to the query. However, a decision can be made to omit a row from the answer set based on uncommitted data. Later, undo processing (statement rollback or statement failure) could cause the data to revert to a state that satisfies the predicate.

When YES, DB2 can request fewer locks than in previous versions when processing isolation level Read Stability and Cursor Stability queries. The number of locks avoided is related to the access path of the query, the number of rows evaluated when processing the stage 1 predicate of the query, and the number of those rows that are overflow rows. Specifically, for isolation level Read Stability and Cursor Stability queries, locks are avoided for rows that do not satisfy the stage 1 predicate, provided they are not overflow rows. Table access includes table space scans and index-to-data access, including ridlist-to-data access. For isolation Cursor Stability ridlist production, all row/page locking is avoided.

Install parameter EVALUATE UNCOMMITTED on panel DSNTIP8, or ZPARM EVALUNC in DSN6SPRM.

Field Name: QWP4EVUN

SKIP UNCOMM INSERTS (SKIPUNCI)

YES indicates that uncommitted inserts are treated as if they have not yet been executed. The ZPARM name is SKIPUNCI.

Field Name: QWP4SKUI
IMMEDWRITE OVERRIDE FLAG (IMMEDWRI)

Indicates how DB2 updates group buffer pool dependent pages. This is only valid in a data-sharing environment.

Group buffer pool dependent pages can be written to DASD or SYSTEM pagesets.

Values shown are:

- **NO**  DB2 uses normal write activity for updates, this is the default. Pages are written out at, or before phase 2 commit, or at the end of an abend for transactions that have rolled back.
- **PH1** Pages are written out at, or before phase 1 commit.
  
  If a transaction subsequently rolls back, the pages are updated in the group buffer pool at the end of the rollback and are written out at the end of the abend.
- **YES**  Pages are written out to the coupling facility as soon as the buffer update commits. Pages are written out regardless of whether the update occurs during forward progress or rollback of the transaction.
  
  This option can affect performance due to coupling facility overhead.

Install parameter IMMEDIATE WRITE on panel DSNTIP8, or ZPARM IMMEDWRI in DSN6GRP.

**Field Name:** QWPAMMMW

REBIND PLANMGMT DEFAULT (PLANMGMT)

Shows if and how access path information is stored in the repository. Possible values are:

- **O**  On
- **F**  Off
- **B**  Basic
- **E**  Extended

**Field Name:** QWP4PMGT

PLANMGMTSCOPE DEFAULT (PLANMGMTSCOPE)

Controls which queries are populated in the access path repository (ZPARM parameter PLANMGMTSCOPE). Possible values are:

- **A**  ALL: Includes static and dynamic SQL queries.
- **S**  STATIC: Includes static SQL queries only. This is the default.
- **D**  DYNAMIC: Includes dynamic SQL queries only.

**Field Name:** QWP4PMSC

PACKAGE RELEASE COMMIT (PKGREL_COMMIT)

YES indicates that the following operations on a package that are bound with RELEASE(DEALLOCATE) are permitted while the package is active and allocated by DB2:

- BIND and REBIND requests, including AUTOMATIC REBIND
Data definition language changes to objects that are statically referenced by the package

The ZPARM name is PKGREL_COMMIT in DSN6SPRM.

Field Name: QWP4PKRC

RANDOMIZE XML DOCID (XML_RANDOMIZE_DOCID)

Specifies whether DB2 generates document ID elements sequentially or randomly. Possible values are:

YES      Sequentially
NO       Randomly

ZPARM name XML_RANDOMIZE_DOCID in DSN6SYSP.

Field Name: QWP1XRDI

DISABLE EDM RTS (DISABLE_EDMRTS)

Hexadecimal (X'01'). YES disables the use of EDM real-time Statistics. The ZPARM name is DISABLE_EDMRTS in DSN6SPRM.

Field Name: QWP4DEDR

CURRENT DEGREE (CDSSRDEF)

Shows the default for the CURRENT DEGREE special register when no degree is explicitly set with SET CURRENT DEGREE.

The default disables query parallelism.

Install parameter CURRENT DEGREE on panel DSNTIP8, or ZPARM CDSSRDEF in DSN6SPRM.

Field Name: QWP4CDEG

MAX DEGREE OF PARALLELISM (PARAMDEG)

Indicates the upper limit on the degree of parallelism for a parallel group.

This field has a value of 0. This means PARAMDEG is not set and DB2 can set a default maximum degree of parallelism based on the system configuration.

Install parameter MAX DEGREE on panel DSNTIP8, or ZPARM PARAMDEG in DSN6SPRM.

Field Name: QWP4MDEG

MAX DEGREE FOR DPSI (PARAMDEG_DPSI)

The maximum degree of parallelism for a parallel group in which a data-partitioned secondary index is used to control parallelism. This field corresponds to field MAX DEGREE FOR DPSI on installation panel DSNTIP81. The ZPARM name is PARAMDEG_DPSI in DSN6SPRM.

Field Name: QWP4DEGD

PARALLELISM EFFICIENCY (PARA_EFF)

The parallelism efficiency factor.

Note: This field has value of 0 if the System Management Facilities (SMF) trace contains the hexadecimal value X'8000'.
This field corresponds to field PARALLELISM EFFICIENCY on installation panel DSNTIP8. The ZPARM name is PARA_EFF in DSN6SPRM.

Field Name: QWP4PAEF

STAR JOIN ENABLING (STARJOIN)

Star join enable indicator. Possible values are:

-1 (DISABLE)
Star join is disabled. This is the default.

0 (ENABLE)
Star join is enabled when the join meets the conditions described in the DB2 administration information for performance.

1
Star join is enabled without comparing the ratio of the fact-table cardinality to the cardinality of the largest dimension table. The table with the largest cardinality is the fact table.

n
This is the star join fact table and the largest dimension table ratio. The lowest ratio of the cardinality of the fact table compared to the cardinality of the largest dimension table for which star join is used. 2 < N <= 32768.

Install parameter STAR JOIN QUERIES on panel DSNTIP8, or ZPARM STARJOIN in DSN6SPRM.

Background and Tuning Information

This parameter allows you to set the star join ratio to increase or decrease the dimension table and fact table ratio rule according to application needs.

This parameter also allows you to disable star join if needed for performance reasons. The default is to allow star join if star join detection is successful.

Star join technique is only used when these conditions exist:

• At least two dimensions exist.
• The join predicates are between the fact table and the dimension tables only. (No join predicates lie between the dimension tables.)
• The join predicates are equijoin predicates.
• No correlated subqueries cross dimensions.
• No cycles within the dimensions exist. This means that no predicate can reference more than one candidate dimension table with respect to the same column of the fact table.
• No outer join exists.
• The data type and length of the join predicates are the same.
• The fact table is larger than the dimension table.

Field Name: QWP4SJRT

MAX DATA CACHING IN MB (MXDTCACH)

The maximum amount of virtual memory in megabytes (MB) that is allocated for data caching.

Install parameter MAX DATA CACHING on panel DSNTIP8, or ZPARM MXDTCACH in DSN6SPRM.

Field Name: QWP4MXDC

CURRENT REFRESH AGE (REFSHAGE)
Shows the default for the CURRENT REFRESH AGE special register deferred materialized query tables.

Install parameter CURRENT REFRESH AGE on panel DSNTIP8, or ZPARM REFSHAGE in DSN6SPRM.

Field Name: QWP4RFSH

CURRENT MAINT TYPE (MAINTYPE)

Shows the default special register for the CURRENT MAINTAINED TABLE TYPES FOR OPTIMIZATION statement when no value is explicitly set. Possible values are:

- ALL
- NONE
- SYSTEM (default)
- USER

The default allows query rewrite using system-maintained materialized query tables (SYSTEM) when CURRENT REFRESH AGE is set to ANY. When USER, query rewrite is done using user-maintained materialized query tables when CURRENT REFRESH AGE is set to ANY. ALL means that query rewrite uses both system-maintained and user-maintained materialized query tables.

Install parameter CURRENT MAINT TYPES on panel DSNTIP8, or ZPARM MAINTYPE in DSN6SPRM.

Field Name: QWP4MNTY

VARCHAR FROM INDEX (RETVLCFK)

Indicates whether the VARCHAR column is retrieved from the index.

The data sharing scope of this parameter is GROUP.

When NO, index-only access of variable length column data is disabled. DB2 must retrieve data from the data page. Data is retrieved with no padding.

When YES, index-only access of variable length column data is enabled. This can improve performance. Data retrieved from the index is padded with blanks to the maximum length of the column.

Install parameter VARCHAR FROM INDEX on panel DSNTIP8, or ZPARM RETVLCFK in DSN6SPRM.

Field Name: QWP4VCFK

STATS PROFILE FEEDBACK (STATFDBK_PROFILE)

Specifies whether Statistics recommendations that are identified during query optimization cause DB2 to modify to Statistics profiles.

- 0 indicates NO
- 1 indicates YES

This value corresponds to field STATS PROFILE FEEDBACK on installation panel DSNTIP8. ZPARM name: STATFDBK_PROFILE in DSN6SPRM.

Field Name: QWP4SFPR
Protection Installation Parameters (DSNTIPP):

This topic shows detailed information about “System Parameters - Protection Installation Parameters (DSNTIPP)”.

This block shows security settings.

Data sets, including data sets defined to DFSMS, should be protected by a security manager, such as RACF.

Fields in this block can contain long names. When a long name exceeds the available space, it is truncated, the parameter identifier and the full name are printed in a separate list at the end of the report.

System Parameters - Protection Installation Parameters (DSNTIPP)

The field labels shown in the following sample layout of “System Parameters - Protection Installation Parameters (DSNTIPP)” are described in the following section.

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCHIVE LOG RACF PROTECTION (PROTECT)</td>
<td>Indicates whether archive log data sets are protected with individual RACF profiles when they are created.</td>
</tr>
<tr>
<td>DB2 AUTHORIZATION ENABLED (AUTH)</td>
<td>Shows whether DB2 performs authorization checking.</td>
</tr>
<tr>
<td>PLAN AUTHORIZATION CACHE SIZE (AUTHCACH)</td>
<td></td>
</tr>
<tr>
<td>PACKAGE AUTHORIZATION CACHE SIZE (CACHEPAC)</td>
<td></td>
</tr>
<tr>
<td>ROUTINE AUTHORIZATION CACHE SIZE (CACHERAC)</td>
<td></td>
</tr>
<tr>
<td>AUTH EXIT CHECK (AUTHEXIT_CHECK)</td>
<td></td>
</tr>
<tr>
<td>AUTH EXIT CACHE REFRESH (AUTHEXIT_CACHREFRESH)</td>
<td></td>
</tr>
<tr>
<td>SYSTEM ADMINISTRATOR 1 AUTHORIZATION ID (SYSADM)</td>
<td></td>
</tr>
<tr>
<td>SYSTEM ADMINISTRATOR 2 AUTHORIZATION ID (SYSADM2)</td>
<td></td>
</tr>
<tr>
<td>SYSTEM OPERATOR 1 AUTHORIZATION ID (SYSOPR1)</td>
<td></td>
</tr>
<tr>
<td>SYSTEM OPERATOR 2 AUTHORIZATION ID (SYSOPR2)</td>
<td></td>
</tr>
<tr>
<td>DEFAULT (UNKNOWN) USER AUTHORIZATION ID (DEFLTID)</td>
<td></td>
</tr>
<tr>
<td>RESOURCE LIMIT TABLE CREATOR AUTH ID (RLFAUTH)</td>
<td></td>
</tr>
<tr>
<td>BIND NEW PACKAGE (BINDNV)</td>
<td></td>
</tr>
<tr>
<td>DBA CREATE VIEW (DBACRVW)</td>
<td></td>
</tr>
</tbody>
</table>

ARCHIVE LOG RACF PROTECTION (PROTECT)

Indicates whether archive log data sets are protected with individual RACF profiles when they are created.

When YES, RACF protection must be active for DB2. YES also means that you cannot use RACF generic profiles for archive log data sets. If your archive log is on tape, RACF class TPEVOL must be active, otherwise, the off-load will fail.

Install parameter ARCHIVE LOG RACF on panel DSNTIPP, or ZPARM PROTECT in DSN6ARVP.

Field Name: QWP3RTCT

DB2 AUTHORIZATION ENABLED (AUTH)

Shows whether DB2 performs authorization checking.

When all authorization checking by DB2 is disabled, the GRANT statement is also disabled (granting every privilege to PUBLIC); this is not recommended.

Install parameter USE PROTECTION on panel DSNTIPP, or ZPARM AUTH in DSN6SPRM.
Protection Installation Parameters (DSNTIPP)

Field Name: QWP4AUTH

PLAN AUTHORIZATION CACHE SIZE (AUTHCACH)

The size of the authorization cache to be used if no CACHESIZE is specified on the BIND PLAN subcommand.

The size of the cache is 32 bytes of overhead + (8 bytes of storage X number of concurrent users).

0 means authorization caching is not used.

Install parameter PLAN AUTH CACHE on panel DSNTIPP, or ZPARM AUTHCACH in DSN6SPRM.

Field Name: QWP4AUCA

PACKAGE AUTHORIZATION CACHE SIZE (CACHEPAC)

The amount of storage allocated for caching authorization information for all packages on this DB2 member.

32 KB hold about 375 collection-ID.package-IDs. The cache is stored in the DSN1DBM1 address space.

Install parameter PACKAGE AUTH CACHE on panel DSNTIPP, or ZPARM CACHEPAC in DSN6SPRM.

Field Name: QWP4PAC

ROUTINE AUTHORIZATION CACHE SIZE (CACHERAC)

The amount of storage allocated for caching authorization information for all routines on this DB2 member.

Routines include stored procedures and user-defined functions.

32 KB hold about 380 schema.routine.type entries.

Install parameter ROUTINE AUTH CACHE on panel DSNTIPP, or ZPARM CACHERAC in DSN6SPRM.

Field Name: QWP4RAC

AUTH EXIT CHECK (AUTHEXIT_CHECK)

Specifies whether the DB2 authorization ID or the RACF primary authorization ID is to be used for authorization checks, when the access control authorization exit is active:

Primary

DB2 provides:

- The ACEE of the package owner to perform statement authorization checks during AUTOMATIC REBIND, BIND, and REBIND processing
- The ACEE of the package owner, routine definer, or routine invoker, as determined by the dynamic rules behavior for dynamic SQL authorization checking, when a DYNAMICRULES BIND option value other than run is in effect.

The access control authorization exit uses the ACEE for the XAPLUCHK authorization ID field to perform the authorization. The authorization ID in XAPLUCHK must be defined as a RACF user and must have the privileges required to execute the SQL statements in the package.
DB2  DB2 provides the ACEE of the primary authorization ID for performing all authorization checks. The primary authorization ID must have the privileges required to execute the SQL statements in the package. This field corresponds to field "RACF AUTH CHECK" on installation panel DSNTIPP. ZPARM name is RACF_AUTHCHECK in DSN6SPRM.

Field Name: QWP4RACK

AUTH EXIT CACHE REFRESH (AUTHEXIT_CACHEREFRESH)

Specifies whether the package authorization cache, routine authorization cache, and dynamic statement cache entries are refreshed when an access control authorization exit is active, and the user profile is changed in RACF. Possible values are:

- All
- None

This field corresponds to field AUTH EXIT CACHE REFR in installation panel DSNTIPP. ZPARM name is AUTHEXIT_CACHEREFRESH in DSN6SPRM.

Field Name: QWP4AECR

SYSTEM ADMINISTRATOR 1 AUTHORIZATION ID (SYADM)

One of two authorization IDs with SYADM authority. SYADM users can access to DB2 in all cases.

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Install parameter SYSTEM ADMIN 1 on panel DSNTIPP, or ZPARM SYADM in DSN6SPRM.

Field Name: QWP4SADM

SYSTEM ADMINISTRATOR 2 AUTHORIZATION ID (SYADM2)

One of two authorization IDs with SYADM authority. SYADM users can access to DB2 in all cases.

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Install parameter SYSTEM ADMIN 2 on panel DSNTIPP, or ZPARM SYADM2 in DSN6SPRM.

Field Name: QWP4ADM2

SYSTEM OPERATOR 1 AUTHORIZATION ID (SYSOPR1)

One of two authorization IDs with SYSOPR authority. SYSOPR users can access DB2 even if the DB2 catalog is unavailable.

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Install parameter SYSTEM OPERATOR 1 on panel DSNTIPP, or ZPARM SYSOPR1 in DSN6SPRM.

Field Name: QWP4OPR1
Protection Installation Parameters (DSNTIPP)

SYSTEM OPERATOR 2 AUTHORIZATION ID (SYSOPR2)

One of two authorization IDs with SYSOPR authority. SYSOPR users can access DB2 even if the DB2 catalog is unavailable.

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Install parameter SYSTEM OPERATOR 2 on panel DSNTIPP, or ZPARM SYSOPR2 in DSN6SPRM.

Field Name: QWP4OPR2

DEFAULT (UNKNOWN) USER AUTHORIZATION ID (DEFLTID)

The authorization ID used if RACF is not available for batch access and USER= is not specified in the job statement.

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Install parameter UNKNOWN AUTHID on panel DSNTIPP, or ZPARM DEFLTID in DSN6SPRM.

Field Name: QWP4DFID

RESOURCE LIMIT TABLE CREATOR AUTH ID (RLFAUTH)

The authorization ID used for the resource limit facility (governor).

This identifier can be a long string. If there is insufficient space to show the complete string, the string is truncated in the report block. The complete string is shown in a separate list of long names at the end of the report.

Install parameter RESOURCE AUTHID on panel DSNTIPP, or ZPARM RLFAUTH in DSN6SYS.

Field Name: QWP1RLFA

BIND NEW PACKAGE (BINDNV)

Shows whether BIND or BINDADD authority is required to BIND a new version of an existing package.

When BINDADD (default), only users with BINDADD system privilege can create a new package.

BIND users with BIND privilege for a package or collection can create a new version of an existing package when they bind it. This also allows users with PACKADM authority to add a new package or a new version of a package to a collection.

Install parameter BIND NEW PACKAGE on panel DSNTIPP, or ZPARM BINDNV in DSN6SPRM.

Field Name: QWP4BNVA

DBA CREATE VIEW (DBACRVW)

Shows whether a DB2 administrator can create a view or alias for another user. Possible values are YES or NO. The default is NO.

Install parameter DBADM CREATE AUTH on panel DSNTIPP, ZPARM DBACRVW in macro DSN6SPRM.

Field Name: QWP4CRVW
Protection Panel (DSNTIPP1):

This topic shows detailed information about “System Parameters - Protection Panel (DSNTIPP1)”.

System Parameters - Protection Panel (DSNTIPP1)

The field labels shown in the following sample layout of “System Parameters - Protection Panel (DSNTIPP1)” are described in the following section.

SECURITY ADMINISTRATOR 1 AUTHORIZATION ID (SECA1)

Security administrator 1 authorization ID (blank if ROLE).

This field corresponds to field SECURITY ADMIN 1 on installation panel DSNTIPP1, or ZPARM SECA1 in DSN6SPRM.

Field Name: QWP4SECA1_E

SECURITY ADMINISTRATOR 1 TYPE (SECA1_TYPE)

Security administrator 1 type. Possible values are:

' ' Blank indicates that the authorization ID (AUTH ID) is used.

'L' Indicates that ROLE is used.

This field corresponds to field SEC ADMIN 1 TYPE on installation panel DSNTIPP1, or ZPARM SECA1_TYPE in DSN6SPRM.

Field Name: QWP4SECA1_TYPE

SECURITY ADMINISTRATOR 2 AUTHORIZATION ID (SECA2)

Security administrator 2 authorization ID (blank if ROLE).

This field corresponds to field SECURITY ADMIN 2 on installation panel DSNTIPP1, or ZPARM SECA2 in DSN6SPRM.

Field Name: QWP4SECA2_E

SECURITY ADMINISTRATOR 2 TYPE (SECA2_TYPE)

Security administrator 2 type. Possible values are:

'blank' Indicates that the authorization ID (AUTH ID) is used.

'L' Indicates that ROLE is used.

This field corresponds to field SEC ADMIN 2 TYPE on installation panel DSNTIPP1, or ZPARM SECA2_TYPE in DSN6SPRM.

Field Name: QWP4SECA2_TYPE

SEPARATE SECURITY DUTIES (SEPARATE_SECURITY)

Separate security tasks. Possible values are:

Y SYSADM/SYSCTRL cannot GRANT/REVOKE

N SYSADM/SYSCTRL can GRANT/REVOKE
Field Name: QWP4SEPSD

INCLUDE DEPENDENT PRIVILEGES (REVOKE_DEP_PRIVILEGES)

Include dependent privileges on REVOKE. Possible values are:

Y  If INCLUDING DEPENDENT PRIVILEGES is enforced.
N  If NOT INCLUDING DEPENDENT PRIVILEGES is enforced.
S  If specified in a REVOKE statement.

Field Name: QWP4RVDPR

Query Accelerator Preferences (DSNTP82):

This topic shows detailed information about “System Parameters - Query Accelerator Preferences (DSNTP82)”.

System Parameters - Query Accelerator Preferences (DSNTP82)

The field labels shown in the following sample layout of “System Parameters - Query Accelerator Preferences (DSNTP82)” are described in the following section.

**QUERY ACCELERATOR PREFERENCES (DSNTP82)**

----------------------------------------
ACCELERATOR STARTUP OPTION (ACCEL)...........................NO
GET ACCEL ARCHIVE (GET_ACCEL_ARCHIVE)........................NO
ACCELERATION OPTIONS (QUERY_ACCEL_OPTIONS).................NONE
CURRENT QUERY ACCEL (QUERY_ACCELERATION)....................NONE
ACCELERATION MODELING (ACCELMODEL)..........................YES
REMOTE COPY SW ACCEL (REMOTE_COPY_SW_ACCEL).............YES

**ACCELERATOR STARTUP OPTION (ACCEL)**

Specifies whether to enable accelerator servers. Possible values are:

AUTO
   Enable and start accelerator servers.

COMMAND
   Enable but do not start accelerator servers.

NO
   Do not enable accelerator servers.

This field corresponds to field ACCEL STARTUP on installation panel DSNTP81. ZPARM name is ACCEL in DSN6SPRM.

Field Name: QWP4ACCS

**GET ACCEL ARCHIVE (GET_ACCEL_ARCHIVE)**

Determines the default value that is to be used for the CURRENT GET_ACCEL_ARCHIVE special register:

NO
   Indicates that if a table is archived in an accelerator server, and a query references that table, the query does not use the data that is archived.

YES
   Indicates that if a table is archived in an accelerator server, and a query references that table, the query uses the data that is archived.

ZPARM name GET_ACCEL_ARCHIVE in macro DSN6SPRM.

Field Name: QWP4CGAA

**ACCELERATION OPTIONS (QUERY_ACCEL_OPTIONS)**
Specifies additional types of SQL queries that are eligible for acceleration.

NONE
 Indicates that no additional types of SQL queries are eligible. Therefore, the types of queries that are described in the other available values for this parameter are not eligible for acceleration. This is the default value.

1
 Indicates that queries that include data that is encoded with the EBCDIC mixed or graphic encoding schemes are eligible for acceleration.

2
 Indicates that an INSERT with SELECT statement is eligible for acceleration. However, only the SELECT operation of the query is processed by the accelerator server.

3
 Indicates that queries that contain built-in functions for which DB2 processes each byte of the input string, rather than each character of the input string, can run on an accelerator server.

4
 The queries that reference an expression with a DATE data type that uses a LOCAL format are not blocked from executing on IBM DB2 Analytics Accelerator for z/OS. IBM DB2 Analytics Accelerator for z/OS will use the dd/mm/yyyy format to interpret the input and output date value. Specify option 4 only when you also specify LOCAL as the setting for the DSNHDECP.DATE parameter and your LOCAL date exit defines the specific dd/mm/yyyy date format. Otherwise, queries may return unpredictable results.

5
 Allow OFFLOAD of SYSTEM_TIME temporal queries.

6
 Allow OFFLOAD of queries that reference timestamp columns with a precision of up to 12.

7
 OFFLOAD uses YYYYMMDD date format.

ZPARM name QUERY_ACCEL_OPTIONS in macro DSN6SPRM.

Field Name: QWP4QACO

CURRENT QUERY ACCEL (QUERY_ACCELERATION)

Determines the default value that is to be used for the CURRENT QUERY ACCELERATION special register. Possible values are:

NONE
 Indicates that no query acceleration is done. This is the default value.

ENABLE
 Indicates that queries are accelerated only if DB2 determines that it is advantageous to do so. If there is an accelerator failure while a query is running, or the accelerator returns an error, DB2 returns a negative SQLCODE to the application.

ENABLE_WITH_FAILBACK
 Indicates that queries are accelerated only if DB2 determines that it is advantageous to do so. If the accelerator returns an error during the PREPARE or first OPEN for the query, DB2 executes the query without the accelerator. If the accelerator returns an error during a FETCH or a subsequent OPEN, DB2 returns the error to the user, and does not execute the query.
ELIGIBLE
Indicates that queries are accelerated if they are eligible for acceleration. DB2 does not use cost information to determine whether to accelerate the queries. Queries that are not eligible for acceleration are executed by DB2. If there is an accelerator failure while a query is running, or the accelerator returns an error, DB2 returns a negative SQLCODE to the application.

ALL
Indicates that queries are accelerated if they are eligible for acceleration. DB2 does not use cost information to determine whether to accelerate the queries. Queries that are not eligible for acceleration are not executed by DB2, and an SQL error is returned. If there is an accelerator failure while a query is running, or the accelerator returns an error, DB2 returns a negative SQLCODE to the application.

ZPARM name QUERY_ACCELERATION in DSN6SPRM.

Field Name: QWP4CQAC

ACCELERATION MODELING (ACCELMODEL)
The ACCELMODEL subsystem parameter determines whether to enable modeling of query workload for evaluating potential savings for both the accumulated elapsed time and CPU time if the plan is executed on an accelerator.

Only queries that are deemed eligible for execution on an accelerator by DB2 will be included in accelerator-related fields of Accounting trace IFCID 3:

No Specifies that no modeling is to be performed. This is the default setting.

Yes Specifies that modeling is to be performed. Consider acceleration eligibility for an SQL statement and update the new Accounting fields accordingly.

To enable modeling, the IBM DB2 Analytics Accelerator for z/OS special register CURRENT QUERY ACCELERATION and ZPARM QUERY_ACCELERATION (set by the CURRENT QUERY ACCEL) must be set to NONE for accelerator modeling. All other values for the special register and ZPARM will take the existing logic of IBM DB2 Analytics Accelerator for z/OS. This means that existing queries that already execute on the accelerator with CURRENT QUERY ACCELERATION = ENABLE, ENABLE WITH FAILBACK, ELIGIBLE, or ALL will not be part of the accelerator-related Accounting fields.

Field Name: QWP4ACMO

REMOTE COPY SW ACCEL (REMOTE_COPY_SW_ACCEL)
Specifies whether DB2 uses software (SW) to control the remote copy process for active log output in peer-to-peer remote copy (PPRC) environments. It can have the following values:

• DISABLE (This is the default value)
• ENABLE

ZPARM REMOTE_COPY_SW_ACCEL in DSN6LOGP.

Field Name: QWP2RCSA
Routine Parameters (DSNTIPX):

This topic shows detailed information about “System Parameters - Routine Parameters (DSNTIPX)”.

This block shows information about the stored procedures address space used to run stored procedures or user-defined functions.

**Note:** The fields shown on this panel depend on the installed DB2 version.

System Parameters - Routine Parameters (DSNTIPX)

The field labels shown in the following sample layout of “System Parameters - Routine Parameters (DSNTIPX)” are described in the following section.

**ROUTINE PARAMETERS (DSNTIPX)**

```
MAX ABEND COUNT (STORMXAB)....................0
TIMEOUT VALUE (STORTIME)..........................180
WLM ENVIRONMENT (WLMENV)..........................DBPGD800
MAX OPEN CURSORS (MAX_NUM_CUR)..................500
MAX STORED PROCS (MAX_ST_PROC)..................2,000
MAXIMUM NUMBER OF LE TOKENS (LEMAX)............20
BIF COMPATIBILITY (BIF_COMPATIBILITY)..........V9_DECIMAL_VARCHAR
```

**MAX ABEND COUNT (STORMXAB)**

The number of times a stored procedure is allowed to terminate abnormally, after which SQL CALL statements for the stored procedure are rejected.

Install parameter MAX ABEND COUNT on panel DSNTIPX, or ZPARAM STORMXAB in DSN6SYSP.

**Field Name:** QWP1SPAB

**TIMEOUT VALUE (STORTIME)**

The number of seconds before DB2 stops waiting for an SQL CALL statement to be assigned to one of the TCBs in the DB2 stored procedures address space.

Install parameter TIMEOUT VALUE on panel DSNTIPX, or ZPARAM STORTIME in DSN6SYSP.

**Field Name:** QWP1SPTO

**WLM ENVIRONMENT (WLMENV)**

Workload manager environment.

Install parameter WLM ENVIRONMENT on panel DSNTIPX, or ZPARAM WLMENV in DSN6SYSP.

**Field Name:** QWP1WLME

**MAX OPEN CURSORS (MAX_NUM_CUR)**

Shows the maximum number of cursors, including allocated cursors, that are open at a given DB2 site per thread. RDS keeps a total of currently open cursors. If an application attempts to open a thread after the maximum is reached, the statement will fail.

In a data sharing group, this parameter is shown at member scope.
Routine Parameters (DSNTIPX)

Install parameter MAX OPEN CURSORS on panel DSNTIPX, or ZPARM MAX_NUM_CUR in DSN6SPRM.

Field Name: QWP4MXNC

MAX STORED PROCS (MAX_ST_PROC)

Shows the maximum number of stored procedures per thread. If an application attempts to call a stored procedure after this is reached, the statement will fail. In a data sharing group, this parameter is shown as member scope.

Install parameter MAX STORED PROCS on panel DSNTIPX, or ZPARM MAX_ST_PROC in DSN6SPRM.

Field Name: QWP4MXSP

MAXIMUM NUMBER OF LE TOKENS (LEMAX)

The maximum number of LE tokens active at any time. When zero, no tokens are available.

A token is used each time one of the following is used: trigonometry functions, degrees, radians, rand, exp, power, log functions, upper, lower, translate.

Install parameter MAXIMUM LE TOKENS on panel DSNTIP7, or ZPARM LEMAX in DSN6SPRM.

Field Name: QWP4LEM

BIF COMPATIBILITY (BIF_COMPATIBILITY)

The BIF_COMPATIBILITY subsystem parameter specifies whether the built-in functions and specifications are to return results in the DB2 10 format or revert to the pre-Version 10 format. It can have the following values:

- CURRENT
- V9
- V9_TRIM
- V9_DECIMALVARCHAR (default for migration)
- N/P (default for new installation)

This field corresponds to field BIF COMPATIBILITY on installation panel DSNTIPX.

ZPARM name BIF_COMPATIBILITY in DSN6SPRM.

Field Name: QWP4_BIF_COMPAT

Sizes Panel 1 (DSNTIPD):

This topic shows detailed information about “System Parameters - Sizes Panel 1 (DSNTIPD)”.

System Parameters - Sizes Panel 1 (DSNTIPD)

The field labels shown in the following sample layout of “System Parameters - Sizes Panel 1 (DSNTIPD)” are described in the following section.

```
SIZES PANEL 1 (DSNTIPD)
------------------------
LOB INLINE LENGTH (LOB_INLINE_LENGTH)...............0
USER LOB VALUE STORAGE IN KB (LOBVALA)...............200,000
```
LOB INLINE LENGTH (LOB_INLINE_LENGTH)
Default inline length for any new storing large object (LOB) column in a Universal Table Space on the DB2 subsystem. The valid values are from 0 to 32680 inclusive (in bytes). The default value for this ZPARM is 0, which indicates that no inline attribute is required for any LOB column (BLOB, CLOB or DBCLOB) created on this subsystem.

Field Name: QWP1LBIL

USER LOB VALUE STORAGE IN KB (LOBVALA)
The maximum amount of storage (KB) each user can use for LOB values.
Install parameter USER LOB VALUE STORAGE on panel DSNTIP7, or ZPARM LOBVALA in DSN6SYSP.

Field Name: QWP1LVA

SYSTEM LOB VALUE STORAGE IN MB (LOBVALS)
The maximum amount of storage (MB) each system can use for LOB values.
Install parameter SYSTEM LOB VALUE STORAGE on panel DSNTIP7, or ZPARM LOBVALS in DSN6SYSP.

Field Name: QWP1LVS

MAXIMUM NUMBER OF LE TOKENS (LEMAX)
The maximum number of LE tokens active at any time. When zero, no tokens are available.
A token is used each time one of the following is used: trigonometry functions, degrees, radians, rand, exp, power, log functions, upper, lower, translate.
Install parameter MAXIMUM LE TOKENS on panel DSNTIP7, or ZPARM LEMAX in DSN6SPRM.

Field Name: QWP4LEM

USER XML VALUE STG IN KB (XMLVALA)
The maximum amount of memory in kilobytes (KB) for each user for storing XML values.
ZPARM XMLVALA in DSN6SYSP.

Field Name: QWP1XVA

SYSTEM XML VAL STG IN MB (XMLVALS)
The maximum amount of memory in megabytes (MB) for each system for storing XML values.
ZPARM XMLVALS in DSN6SYSP.

Field Name: QWP1XVS
SQL Object Defaults Panel (DSNTIP7, DSNTIP71, DSNTIP72):

This topic shows detailed information about “System Parameters - SQL Object Defaults Panel (DSNTIP7, DSNTIP71, DSNTIP72).”

This block shows the limits for the amount of storage that can be used for storing large object (LOB) values.

**Note:** The fields shown on this panel depend on the installed DB2 version.

System Parameters - SQL Object Defaults Panel (DSNTIP7, DSNTIP71, DSNTIP72)

The field labels shown in the following sample layout of “System Parameters - SQL Object Defaults Panel (DSNTIP7, DSNTIP71, DSNTIP72)” are described in the following section.

```
SQL OBJECT DEFAULTS PANEL (DSNTIP7,DSNTIP71,DSNTIP72)
-----------------------------------------------------
REORDERED ROW FORMAT (RRF)..................................YES
OBJECT CREATE FORMAT (OBJECT_CREATE_FORMAT)..............EXTENDED
UTILITY OBJECT CONVERSION (UTILITY_OBJECT_CONVERSION)....NONE
VARY DS CONTROL INTERVAL (DSVCI)............................YES
TABLE SPACE ALLOCATION IN KB (TSQTY)..........................0
INDEX SPACE ALLOCATION IN KB (IXQTY)..........................0
OPTIMIZE EXTENT SIZING (MEASIZE)............................NO
PAD INDEX BY DEFAULT (PADIX).................................NO
DEFAULT PARTITION SEGSIZE (DPSEGSZ)..........................32
PERCENT FREE FOR UPDATE (PCTFREE_UPD).......................0
DEFINE DATA SETS (IMPDSET)..................................YES
USE DATA COMPRESSION (IMPSCMP)...............................NO
LIMIT KEY CONV PART TAB (IX_TB_PART_CONV_EXCLUDE).........NO
RETRY STOPPED OBJECTS (RETRY_STOPPED_OBJECTS).............NO
RENAME TABLE (RENAME_TABLE)..................................NO
PREVENT ALTER LIMITKEY (PREVENT_ALTERTB_LIMITKEY)........NO
PREVENT INDEX PART CREATE (PREVENT_NEW_IXCTRL_PART)......NO (DB2 11 or later)
DDL MATERIALIZATION (DDL_MATERIALIZATION)..............ALWAYS_IMMEDIATE
DEFAULT_INSERT_ALGORITHM (DEFAULT_INSERT_ALGORITHM)......2
```

**REORDERED ROW FORMAT (RRF)**

In DB2 12 this field is a serviceability field.

A value of YES shows that reordered row format is enabled.

This field corresponds to field REORDERED ROW FORMAT on installation panel DSNTIP7. The ZPARM name is RRF in DSN6SPRM.

Field Name: QWP4RRF

**OBJECT CREATE FORMAT (OBJECT_CREATE_FORMAT)**

Creates new table spaces and indexes in the following log record format:

- **EXTENDED**
  
  Creates new table spaces and indexes in extended log record format.

- **BASIC**

  Creates new table spaces and indexes in basic log record format.

Field Name: QWP4OBCF

**UTILITY OBJECT CONVERSION (UTILITY_OBJECT_CONVERSION)**

This field can have the following values:
SQL Object Defaults Panel (DSNTIP7, DSNTIP71)

NONE (QWP4UTOC1=0 and QWP4UTOC2=0)
No conversion is performed. This option is the default setting of this parameter. NONE is allowed regardless of the OBJECT CREATE FORMAT setting.

BASIC (QWP4UTOC1=1 and QWP4UTOC2=0)
Existing table spaces and indexes that use extended 10-byte page format are converted to basic 6-byte page format. BASIC is allowed only if the OBJECT CREATE FORMAT field is also set to BASIC.

EXTENDED (QWP4UTOC1=0 and QWP4UTOC2=1)
Existing table spaces and indexes that use 6-byte page format are converted to extended 10-byte page format. EXTENDED is allowed only if the OBJECT CREATE FORMAT field is also set to EXTENDED.

NO BASIC (QWP4UTOC1=1 and QWP4UTOC2=1)
Prevents the conversion of table spaces and indexes in extended page format to basic page format and disallows a utility that accepts the RBALRSN_CONVERSION utility keyword from running on an object in basic page format unless it converts it to extended page format. This setting is permitted only when OBJECT_CREATE_FORMAT=EXTENDED is set.

The ZPARM name is UTILITY_OBJECT_CONVERSION in DSN6SPRM.

Field Name: RT0106OC

VARY DS CONTROL INTERVAL (DSVCI)
Indicates whether DB2 optimizes VSAM CONTROL INTERVAL to page size for data set allocation.

Install parameter VARY DS CONTROL INTERVAL on panel DSNTIP7, or ZPARM DSVCI in DSN6SYSP.

Field Name: QWP1VVICI

TABLE SPACE ALLOCATION IN KB (TSQTY)
Shows the amount of space in KB for primary and secondary space allocation for DB2-defined data sets for table spaces created without the USING clause. 0 indicates that DB2 uses standard defaults.

Install parameter TABLE SPACE ALLOCATION on panel DSNTIP7, or ZPARM TSQTY in DSN6SYSP.

Field Name: QWP1TSQT

INDEX SPACE ALLOCATION IN KB (IXQTY)
Shows the amount of space in KB for primary and secondary space allocation for DB2-defined data sets for index spaces created without the USING clause. 0 indicates that DB2 uses standard defaults.

Install parameter INDEX SPACE ALLOCATION on panel DSNTIP7, or ZPARM IXQTY in DSN6SYSP.

Field Name: QWP1IXQT

OPTIMIZE EXTENT SIZING (MGEXTSZ)
Indicates whether DB2 uses sliding secondary quantity for DB2 managed data sets to optimize extent sizing.
Install parameter OPTIMIZE EXTENT SIZING on panel DSNTIP7, or ZPARM MGEXTSZ in DSN6SYSP.

Field Name: QWP1MESZ

**PAD INDEX BY DEFAULT (PADIX)**

Shows whether new indexes are be padded by default.

- YES indicates that a new index is padded unless the NOT Padded option is specified on the CREATE INDEX statement.
- The default value, NO, indicates that a new index is not padded unless the Padded option is specified on the CREATE INDEX statement.

Install parameter PAD INDEXES BY DEFAULT on installation panel DSNTIE, or ZPARM PADIX in DSN6SPRM.

Field Name: QWP4PDIX

**DEFAULT PARTITION SEGSIZE (DPSEGSZ)**

The default segment size to be used for a partitioned table space when the CREATE TABLESPACE statement does not include the SEGSIZE parameter. This field corresponds to field DEFAULT PARTITION SEGSIZE on installation panel DSNTIP7. The ZPARM name is DPSEGSZ IN DSN6SYSP.

Field Name: QWP1DPSS

**PERCENT FREE FOR UPDATE (PCTFREE_UPD)**

Specifies the default percentage of each page that DB2 leaves as free space in a table space when a table in this table space is populated. This value applies only to table spaces whose definitions do not include PCTFREE and for UPDATE.

This value corresponds to field PERCENT FREE FOR UPDATE on installation panel DSNTIP71. The ZPARM name is PCTFREE_UPD in DSN6SPRM.

Field Name: QWP4PFUP

**DEFINE DATA SETS (IMPDSDEF)**

Defines the underlying data sets when a table space (TS) that is contained in an implicitly created database is created.

Install parameter DEFINE DATA SETS on panel DSNTIP7 or ZPARM IMPDSDEF in DSN6SYSP.

Field Name: QWP1DIDS

**USE DATA COMPRESSION (IMPTSCMP)**

Shows whether data compression in table spaces in implicitly defined databases is used.

Install parameter USE DATA COMPRESSION on panel DSNTIP7 or ZPARM IMPTSCMP in DSN6SYSP.

Field Name: QWP1CITS

**LIMIT KEY CONV PART TAB (IX_TB_PART_CONV_EXCLUDE)**

Shows whether to include all columns in the partitioning key during conversion from index-controlled partitioning to table-controlled partitioning:

- NO  Includes all columns
YES  Includes trailing columns only if they affect partitioning

This field corresponds to field EXCLUDE PART KEY ELEMENTS on installation panel DSNTIP71. The ZPARM name is IX_TB_PART_CONV_EXCLUDE in DSN6SPRM.

Field Name: QWP4XPKE

PAGE SET PAGE NUMBERING (PAGESET_PAGENUM)

Specifies whether range-partitioned table spaces and associated indexes will be created to use absolute page numbers across partitions or relative page numbers.

A  Absolute page numbers
R  Relative page numbers

Install parameter PAGE SET PAGE NUMBERING on panel DSNTIP71, or ZPARM PAGESET_PAGENUM in DSN6SPRM.

Field Name: QWP4PSPN

RETRY STOPPED OBJECTS (RETRY_STOPPED_OBJECTS)

Specifies whether DB2 should immediately reject requests for a stopped object or retry them, up to the IRLM timeout limit, if the object is restarted.

NO  This is the default. It indicates that DB2 immediately rejects requests for a stopped object.
YES  DB2 retries such requests, up to the IRLM timeout setting, if the stopped object is restarted.

Install parameter RETRY STOPPED OBJECTS on panel DSNTIP72, or ZPARM RETRY_STOPPED_OBJECTS in DSN6SPRM.

Field Name: QWP4RSO

RENAME TABLE (RENAMETABLE)

Specifies whether the RENAME TABLE statement should extend to tables that are referenced in a view definition or the definition of an SQL table function:

YES  ALLOW_DEP_VIEW_SQLTUFD
NO  DISALLOW_DEP_VIEW_SQLTUFD

Install parameter RENAME TABLE on panel DSNTIP72, or ZPARM RENAMETABLE in DSN6SPRM.

Field Name: QWP4ERTS

PREVENT ALTER LIMITKEY (PREVENT_ALTERTB_LIMITKEY)

Determines whether DB2 disallows altering the limit key by using an ALTER TABLE statement for index-controlled partitioned table spaces. This alter operation places the table space in REORG-pending (REORP) restrictive status, and the data is not available until the affected partitions are reorganized. Use PREVENT_ALTERTB_LIMITKEY to avoid this data unavailability.

NO  Specifies that you can alter a limit key by using an ALTER TABLE statement for index-controlled partitioned table spaces. NO is the default.
YES  Specifies that it is not permitted to alter a limit key by using an
ALTER TABLE statement for index-controlled partitioned table spaces. An ALTER TABLE statement must not attempt to alter the limit key for an index-controlled partitioned table.

Install parameter PREVENT ALTER LIMITKEY on panel DSNTIP71, or ZPARM: PREVENT_ALTERTB_LIMITKEY in DSN6SPRM.

Field Name: QWP4PALK

PREVENT INDEX PART CREATE (PREVENT_NEW_IXCTRL_PART) (DB2 11 or later)

Determines whether DB2 does not allow the creation of new index-controlled partitioned tables. This subsystem parameter ensures that new partitioned tables use table-controlled partitioning, which is the preferred partitioning method for non-universal table spaces.

NO Specifies that new index-controlled partitioned tables can be created. NO is the default value.

YES Specifies that new partitioned table spaces must use table-controlled partitioning. A CREATE INDEX statement must not attempt to create an index-controlled partitioned table.

Install parameter PREVENT INDEX PART CREATE on panel DSNTIP71, or ZPARM: PREVENT_NEW_IXCTRL_PART in DSN6SPRM.

Field Name: QWP4PCIP

DDL MATERIALIZATION (DDL_MATERIALIZATION)

Specifies when DB2 materializes changes to the definition of an object. This value corresponds to field DDL_MATERIALIZATION on installation panel DSNTIP71. ZPARM name is DDL_MATERIALIZATION in DSN6SPRM.

Field Name: QWP4DDLM

DEFAULT_INSERT_ALGORITHM (DEFAULT_INSERT_ALGORITHM)

Specifies the default algorithm for inserting data into table spaces. This value corresponds to the field DEFAULT_INSERT_ALGORITHM on installation panel DSNTIP71. The ZPARM name DEFAULT_INSERT_ALGORITHM is in DSN6SPRM.

Field Name: QWP4DINA

Storage Sizes Installation Parms (DSNTIPC, DSNTIPE, DSNTIPE1):

This topic shows detailed information about “System Parameters - Storage Sizes Installation Parms (DSNTIPC, DSNTIPE, DSNTIPE1)”.

This block shows the storage sizes calculated by the installation CLIST.

These space estimates do not account for cylinder rounding. Base requirements can be 10 to 20% higher depending on the DASD type. Most of the needed virtual storage is in extended private storage (including the buffer pool, the EDM pool, most of the code, and a significant amount of working storage).

Note: The fields shown on this panel depend on the installed DB2 version.
System Parameters - Storage Sizes Installation Parms (DSNTIPC, DSNTIPE, DSNTIPE1)

The field labels shown in the following sample layout of "System Parameters - Storage Sizes Installation Parms (DSNTIPC, DSNTIPE, DSNTIPE1)" are described in the following section.

---

**STORAGE SIZES INSTALLATION PARMS (DSNTIPC, DSNTIPE, DSNTIPE1)**

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX NO OF DATA SETS CONCURRENTLY IN USE (DSMAX)</td>
<td>The maximum number of data sets that can be open at one time. The practical limit can be less than the MVS limit of 32727, depending on available storage below the line. Install parameter DMAX on panel DSNTIPC, or ZPARM DMAX in DSN6SPRM. <strong>Field Name:</strong> QWP4DSMX</td>
</tr>
<tr>
<td>EDM STATEMENT CACHE SIZE IN KB (EDMSTMTC)</td>
<td>The size of the statement cache that can be used by the Environmental Descriptor Manager (EDM). This value is used at DB2 startup time as the minimum value. You can increase and subsequently decrease this value with the SET SYSPARM command. This value cannot be decreased below the value that is specified at DB2 startup. The CLIST calculates a statement cache size. This storage pool is located above the 2 GB bar. The value used at DB2 startup time is either calculated by the CLIST based on input from other installation information or an override value. For record trace, this value is shown in bytes. For other reports, the value is shown in kilobytes. Install parameter EDM STATEMENT CACHE on panel DSNTIPC, or ZPARM EDMSTMTC in DSN6SPRM. <strong>Field Name:</strong> QWP4ESTC</td>
</tr>
<tr>
<td>EDM DBD CACHE SIZE IN KB (EDMDBDC)</td>
<td></td>
</tr>
</tbody>
</table>

---

**Chapter 6. Batch reporting** 4599
Storage Sizes Installation Parms (DSNTIPC, DSNTIPE, DSNTIPE1)

The minimum size of the DBD cache that can be used by the Environmental Descriptor Manager (EDM). This value is used at DB2 startup time as the minimum value. You can increase and subsequently decrease the value with the SET SYSPARM command. This value cannot be decreased below the value that is specified at DB2 startup. This storage pool is located above the 2 GB bar. The CLIST calculates the DBD cache size.

The value used at DB2 startup time is either calculated by the CLIST based on input from other installation information or an override value.

Install parameter EDM DBD CACHE on panel DSNTIPC, or ZPARM EDMDBDC in DSN6SPRM.

Field Name: QWP4EDBC

EDM SKELETON POOL SIZE IN KB (EDM_SKELETON_POOL)

The minimum size of the EDM pool for skeleton package and skeleton cursor tables. For record trace, this value is shown in bytes. For other reports, the value is shown in kilobytes.

Install parameter EDM SKELETON POOL SIZE on panel DSNTIPC or ZPARM EDM_SKELETON_POOL in DSN6SPRM.

Field Name: QWP4SKLC

MAXIMUM SIZE OF EDM POOL IN BYTES (EDMPOOL)

The size (in kilobytes) of the environmental descriptor manager (EDM) pool.

This can be the value calculated by the CLIST, based on input from previous panels, or the value entered in the Override column at installation time.

Install parameter EDMPOOL STORAGE SIZE on panel DSNTIPC, or ZPARM EDMPOOL in DSN6SPRM.

Field Name: QWP4EDPL

MAXIMUM SIZE OF SORT POOL IN BYTES (SORTPOOL)

Indicates the amount of storage needed for the sort pool.

This can be the value calculated by the CLIST, based on input from previous panels, or the value entered in the Override column at installation time.

Install parameter SORT POOL SIZE on panel DSNTIPC, or ZPARM SORTPOOL in DSN6SPRM.

Field Name: QWP4SPOL

MAX IN-MEMORY SORT SIZE (MAXSORT_IN_MEMORY)

The maximum amount of storage in kilobytes to allocate for sorting the results of each query that contains the order by clause, the group by clause, or both. This field corresponds to field MAX IN-MEMORY SORT SIZE in installation panel DSNTIPC. The ZPARM name is MAXSORT_IN_MEMORY in DSN6SPRM.

Field Name: QWP4MIMTS

MAXIMUM SIZE OF RID POOL IN KB (MAXRBLK)

The amount of storage needed for the RID pool.
Storage Sizes InstallationParms (DSNTIPC, DSNTIPE, DSNTIPE1)

This can be the value calculated by the CLIST, based on input from previous panels, or the value entered in the Override column at installation time.

When 0, DB2 does not use access paths or join methods that depend on RID pool storage.

Install parameter RID POOL SIZE on panel DSNTIPC, or ZPARM MAXRBLK in DSN6SPRM.

Field Name: QWP4RMAX

MAX NO OF USERS CONCURRENTLY RUNNING IN DB2 (CTHREAD)

The maximum number of allied threads (threads started at the local subsystem) that can be allocated concurrently.

Separate threads are created for each occurrence of the following:
- TSO user (whether running a DSN command or a DB2 request from QMF)
- Batch job (whether running a DSN command or a DB2 utility)
- IMS region that can access DB2
- Active CICS transaction that can access DB2
- Task connected to DB2 through the call attachment facility.

Install parameter MAX USERS on panel DSNTIPE, or ZPARM CTHREAD in DSN6SYSP.

Field Name: QWP1CT

MAX NO OF CONCURRENT REMOTE ACTIVE CONNECTIONS (MAXDBAT)

The maximum number of database access threads (DBATs) that can be active concurrently.

When this limit has been reached, DB2 uses the value of DDF THREADS on panel DSNTIPR to decide how to handle a new allocation request.

When DDF THREADS is ACTIVE and MAX REMOTE CONNECTED has not been reached, the allocation request is allowed but any further processing for the connection is queued waiting for an active database access thread to terminate.

When DDF THREADS is INACTIVE and MAX REMOTE CONNECTED has not been reached, the allocation request is allowed and is processed when DB2 can assign an unused database access thread slot to the connection.

The total number of threads accessing data concurrently is the sum of MAX USERS and MAX REMOTE ACTIVE. The maximum allowable value for this sum is 2000.

Install parameter MAX REMOTE ACTIVE on panel DSNTIPE, or ZPARM MAXDBAT in DSN6SYSP.

Field Name: QWP1RMT

MAX NO OF REMOTE CONNECTIONS (CONDBAT)

The maximum allowed number of concurrent remote connections.

When this limit is reached, any new connection request is rejected.

Install parameter MAX REMOTE CONNECTED on panel DSNTIPE, or ZPARM CONDBAT in DSN6SYSP.
Field Name: QWP1CDB

MAX NO OF TSO CONNECTIONS (IDFORE)

The maximum number of concurrent TSO foreground connections (QMF, DSN, DB2I, and SPUFI).

Each of the following is a separate user:

- Each TSO foreground user executing a DSN command.
- Each TSO foreground user connected to DB2 through the call attachment facility (CAF). This can include QMF users running in TSO foreground or user-written CAF applications running in TSO foreground.

When the number of TSO users attempting to access DB2 exceeds this limit, connection requests are rejected.

There is no subsystem parameter to control the maximum concurrent connections for IMS and CICS. These are controlled by using IMS and CICS facilities. For CICS attachment, the maximum number of connections to DB2 can be controlled using the resource control table (RCT) TYPE=INIT THRDMAX value.

Install parameter MAX TSO CONNECT on panel DSNTIPE, or ZPARM IDFORE in DSN6SYSP.

Field Name: QWP1IDF

MAX NO OF BATCH CONNECTIONS (IDBACK)

The maximum allowed number of concurrent connections for batch jobs and utilities. This includes:

- All batch jobs using QMF.
- All batch jobs using the DSN command processor.
- All tasks connected to DB2 through call attach facility (CAF) running in batch. This can include:
  - Batch jobs using QMF
  - APPC applications
  - TCP/IP FTP connections

When the number of batch jobs reaches this limit, further requests are rejected.

Install parameter MAX BATCH CONNECT on panel DSNTIPE, or ZPARM IDBACK in DSN6SYSP.

Field Name: QWP1IDB

MAXIMUM KEPT DYNAMIC STATEMENTS (MAXKEEPD)

Shows the total number of prepared dynamic SQL statements that are saved past a commit point.

0 means that prepared dynamic SQL statements are not saved past commit points.

Install parameter MAX KEPT DYN STMTS on panel DSNTIPE, or ZPARM MAXKEEPD in DSN6SPRM.

Field Name: QWP4MXKD

MAX OPEN FILE REFS (MAXOFILR)
Storage Sizes Installation Parms (DSNTPC, DSNTIPE, DSNTIPE1)

The maximum number of concurrently open data sets for processing LOB file references.

Install parameter MAX OPEN FILE REFS on panel DSNTIPE or ZPARM MAXOFILR in DSN6SYSP.

Field Name: QWP1MOFR

MANAGE REAL STORAGE (REALSTORAGE_MANAGEMENT)

Specifies whether DB2 manages real storage consumption. This field corresponds to field MANAGE REAL STORAGE on installation panel DSNTIPE. The ZPARM name is REALSTORAGE_MANAGEMENT in DSN6SPRM.

Field Name: QWP4STMN

MAXIMUM REAL STORAGE (REALSTORAGE_MAX)

The maximum amount of real plus auxiliary storage that can be used.

A value of 0 is displayed for NOLIMIT.

The ZPARM name is REALSTORAGE_MAX in DSN6SPRM.

Field Name: QWP4RSMX

CONTRACT THREAD STORAGE (CONTSTOR)

In DB2 12 this field is a serviceability field.

Indicates whether DB2 returns unused thread storage at commit. Possible values are:

YES DB2 checks threads at commit points and periodically returns unused storage to the system.

NO DB2 does not check threads at commit points and returns acquired storage on deallocation.

Install parameter CONTRACT THREAD STG on panel DSNTIPE, or ZPARM CONTSTOR in DSN6SPRM.

Field Name: QWP4CONT

MANAGE THREAD STORAGE (MINSTOR)

In DB2 12 this field is a serviceability field.

Shows whether DB2 uses storage management to optimize the amount of working storage consumed by individual threads.

Install parameter MANAGE THREAD STORAGE on panel DSNTIPE, or ZPARM MINSTOR in DSN6SPRM.

For best performance, this parameter should be NO, meaning DB2 does not manage thread storage.

When YES, DB2 uses best fit algorithm to manage and assign thread storage. This can help on systems that have many long-running threads and that are constrained on DBM1 address space.

Field Name: QWP4MSTG

LONG-RUNNING READER IN MINUTES (LRDRTHLD)

Shows the number of minutes that a read claim can be held by an agent before DB2 reports it as a long-running reader. Valid values are 0 (default) through 1439.
Install parameter LONG-RUNNING READER on installation panel DSNTIPE, or ZPARM LRDRTHLD in DSN6SYSP.

Field Name: QWP4LRTH

DDL TIMEOUT FACTOR (DDLTOX)

Shows the time out factor of the SQL data definition. The time out value is the product of this value and the IRLMRWT value.

ZPARM name DDLTOX in DSN6SPRM.

Field Name: QWP4DDLTO

INDEX CLEANUP THREADS (INDEX_CLEANUP_THREADS)

The maximum number of threads that can be created to clean up pseudo-deleted index entries on a data sharing member of a subsystem. This field corresponds to field INDEX CLEANUP THREADS on installation panel DSNTIPE1. The ZPARM name is INDEX_CLEANUP_THREADS in DSN6SPRM.

Field Name: QWP4IXCU

3990 CACHE (SEQCACH)

Indicates whether DB2 prefetch uses sequential mode to read cached data from a 3990 controller. When BYPASS (default), DB2 prefetch bypasses the cache.

When SEQ, DB2 prefetch uses sequential access for read activity. There is a performance benefit using SEQ with DFSMS or DFP controls with newer 3990 caches.

Install parameter SEQUENTIAL CACHE on panel DSNTIPE, or ZPARM SEQCACH in DSN6SPRM.

Field Name: QWP4SCAC

Tracing, Checkpoint & Pseudo-Close Parameters (DSNTIPN):

This topic shows detailed information about “System Parameters - Tracing, Checkpoint & Pseudo-Close Parameters (DSNTIPN)”.

This block shows audit, global, accounting, and monitor trace and checkpoint frequency parameters.

System Parameters - Tracing, Checkpoint & Pseudo-Close Parameters (DSNTIPN)

The field labels shown in the following sample layout of “System Parameters - Tracing, Checkpoint & Pseudo-Close Parameters (DSNTIPN)” are described in the following section.

```
TRACING, CHECKPOINT & PSEUDO-CLOSE PARAMETERS (DSNTIPN)

START AUDIT TRACE (AUDITST) .................1
START GLOBAL TRACE (TRACSTR) ..................NO
TRACE TABLE SIZE IN 4K BYTES (TRACTBL) ..............16
LOCAL TRACE TABLE SIZE IN 4K BYTES (TRACLOC) ...........16
START SMF ACCOUNTING (SMFACCT) .............1,2,3,7,8
START SMF STATISTICS (SMFSTAT) ............1,3,4,5,6,10
STATISTICS TIME INTERVAL IN MINUTES (STATIME) .........1
SYNCHRONIZATION INTERVAL WITHIN THE HOUR (SYNCVAL) ....NO
ONLINE DATASET STATISTICS TIME INTERVAL IN MIN.(DSSTIME) ..5
```
START MONITOR TRACE (MON) .................................. NO
MONITOR BUFFER SIZE IN BYTES (MONSIZE) .............. 1,048,576
UNICODE IFIDS (UIFIDS) .................................................. NO
DDF/RRSAF ACCUM (ACCUMACC) .............................. 20
AGGREGATION FIELDS (ACCUMUID) ......................... 0
COMPRESSION SMF RECS (SMFCOMP) ......................... OFF

START AUDIT TRACE (AUDITST)

Shows whether the audit trace is started automatically when DB2 is started.

When YES, the audit trace is started for the default class (class 1) whenever DB2 is started. When ALL, an audit trace is automatically started for all classes.

Install parameter AUDIT TRACE on panel DSNTIPN, or ZPARM AUDITST in DSN6SYSP.

Field Name: QWP1AUDT

START GLOBAL TRACE (TRACSTR)

Shows whether the global trace is started automatically when DB2 is started.

When YES, the global trace starts for the default classes (classes 1, 2, and 3) whenever DB2 is started, and additional data consistency checks are made whenever a data page or index page is modified. When ALL, the global trace is automatically started for all classes.

The global trace is used to diagnose problems in DB2 but it also impacts DB2 performance. If you have production systems requiring high performance, you might consider turning off global trace. If you do this, be aware that this presents a serviceability exposure. In the event of a system failure, IBM service personnel will ask you to turn on global trace and attempt to recreate the problem.

Install parameter TRACE AUTO START on panel DSNTIPN, or ZPARM TRACSTR in DSN6SYSP.

Field Name: QWP1TRST

TRACE TABLE SIZE IN 4K BYTES (TRACTBL)

Shows the size of the RES trace table in 4 KB blocks. A value of 16 means 64 KB have been allocated for this table.

This is the default destination for the global trace records in DB2. Most trace records require 32-byte entries; events with more than three data items require 64-byte entries.

Install parameter TRACE SIZE on panel DSNTIPN, or ZPARM TRACTBL in DSN6SYSP.

Field Name: QWP1TRSZ

LOCAL TRACE TABLE SIZE IN 4K BYTES (TRACLOC)

The size of the local trace tables in multiples of 4 KB. ZPARM name TRACLOC in DSN6SYSP.

Field Name: QWP1TLSZ

START SMF ACCOUNTING (SMFACCT)
Shows whether DB2 sends accounting data to SMF automatically when DB2 is started. Numeric values show what classes are sent. When YES, the default class (class 1) is sent. When ALL, accounting classes one through five are started.

The SMFPRM xx member of SYS1.PARMLIB must also be set to allow SMF to write the records.

Install parameter SMF ACCOUNTING on panel DSNTIPN, or ZPARM SMFACCT in DSN6SYSP.

Field Name: QWP1SMFA

START SMF STATISTICS (SMFSTAT)

Shows whether a Statistics trace was started automatically at DB2 startup time.

The classes started are shown separated by commas.

DB2 sends collected trace data to SMF. The SMFPRM xx member of SYS1.PARMLIB must be set to allow SMF to write the records.

Install parameter SMF STATISTICS on panel DSNTIPN, or ZPARM SMFSTAT in DSN6SYSP.

Field Name: QWP1SMFS

STATISTICS TIME INTERVAL IN MINUTES (STATIME)

The time interval, in minutes, between statistics collections. Statistics records are written approximately at the end of this interval.

Install parameter STATISTICS TIME on panel DSNTIPN, or ZPARM STATETIME in DSN6SYSP.

Field Name: QWP1STIM

SYNCHRONIZATION INTERVAL WITHIN THE HOUR (SYNCVAL)

Shows whether DB2 statistics recording is synchronized with some part of the hour. The installation can specify that the DB2 statistics recording interval be synchronized with the beginning of the hour (00 minutes past the hour) or any number of minutes past the hour up to 59. Possible values are: 0-59, which indicate the synchronization point. When NO or N/A is shown, synchronization is disabled, this is the default.

If STATISTICS TIME INTERVAL IN MINUTES (STATIME) is greater than 60, NO or N/A is shown.

Install parameter STATISTICS SYNC on panel DSNTIPN, or ZPARM SYNCVAL in DSN6SYSP.

Field Name: QWP1SYNV

ONLINE DATASET STATISTICS TIME INTERVAL IN MIN.(DSSTIME)

The time interval, in minutes, before DB2 resets data set statistics collected for the online performance monitors. Online performance monitors can request DB2 data set statistics for the current interval with an IFI READS request for IFCID 199.

Install parameter DATASET STATS TIME on panel DSNTIPN, or ZPARM DSSTIME in DSN6SYSP.

Field Name: QWP1DTIM
START MONITOR TRACE (MON)

Shows whether the monitor trace is started automatically when DB2 is started. When YES, the default (trace class 1) is started. Numeric values show which classes are started. When ALL, monitor trace classes 1 through 8 are started.

Install parameter MONITOR TRACE on panel DSNTIPN, or ZPARM MON in DSN6SYSP.

Field Name: QWP1MON

MONITOR BUFFER SIZE IN BYTES (MONSIZE)

The default number of bytes allocated for the monitor trace buffer.

Install parameter MONITOR SIZE on panel DSNTIPN, or ZPARM MONSIZE in DSN6SYSP.

Field Name: QWP1MONS

UNICODE IFCIDS (UIFCIDS)

Shows whether output from IFC records should include Unicode information. Only a subset of the character fields (identified in the IFCID record definition by a %U in the comment area to the right of the field declaration in the DSNDQWxx copy files) are encoded in Unicode. The remaining fields maintain the same encoding of previous releases.

Install parameter UNICODE IFCIDS on panel DSNTIPN, or ZPARM UIFCIDS in DSN6SYSP.

Field Name: QWP1_UNICODE

DDF/RRSAF ACCUM (ACCUMACC)

Shows whether DB2 accounting data for DDF and RRSAF threads is accumulated by end user.

When NO, DB2 writes an accounting record when a DDF thread is made inactive, or when signon occurs for an RRSAF thread. A value in the range 2 through 65535 shows the number of times an end-user identifier should occur before DB2 writes an accounting record. An end-user identifier is the concatenation of the end-user user ID, end-user transaction name, and the end-user workstation name.

These values can be set by DDF threads using SERVER CONNECT and SET CLIENT calls, and by RRSAF threads using the RRSAF SIGN, AUTH SIGNON, and CONTEXT SIGNON functions.

An accounting record might be written prior to the number of end user occurrences in the following instances:

- When an internal storage threshold is reached for the accounting RRSAF signon call.
- When the thread deallocates, the accumulated accounting data for all end users on this thread is written (one record per end user).
- When this parameter is dynamically changed to deactivate accounting accumulation. In this instance, the next end-UR (for DDF thread) or signon (for a RRSAF thread) causes DB2 to write the accumulated accounting data for all end users on this thread (one record per end user).

Install parameter DDF/RRSAF ACCUM on installation panel DSNTIPN, or ZPARM ACCUMACC in DSN6SYSP.
Field Name: QWP1ACCU

AGGREGATION FIELDS (ACCUMUID)

Shows the aggregation fields used for DDF and RRSAF accounting rollup. Values are defined as follows:

0   End user ID, transaction name, and workstation name
1   End user ID
2   End user transaction name
3   End user workstation name
4   End user ID and transaction name
5   End user ID and workstation name
6   End user transaction name and workstation name

This value is ignored if DDF or RRSAF accounting are not used. DB2 writes individual accounting threads for threads that do not have all aggregation fields populated that are specified by this parameter.

Install parameter AGGREGATION FIELDS on installation panel DSNTIPN, or ZPARM ACCUMUID in DSN6SYSP.

Field Name: QWP1ACID

COMPRESS SMF RECS (SMFCOMP)

Shows the COMPRESS DEST(SMF) TRACE records. This field corresponds to field COMPRESS SMF RECS on installation panel DSNTIPN. ZPARM name: SMFCOMP in DSN6SYSP.

Field Name: QWP1CSMF

Workfile Database Panel (DSNTIP91):

This topic shows detailed information about “System Parameters - Workfile Database Panel (DSNTIP91)”.

System Parameters - Workfile Database Panel (DSNTIP91)

The field labels shown in the following sample layout of “System Parameters - Workfile Database Panel (DSNTIP91)” are described in the following section.

WORKFILE DATABASE PANEL (DSNTIP91)

----------------------------------------------
MAX TEMP STORAGE PER AGENT IN MB (MAXTEMPS)...........25,000
SEPARATE WORK FILES (WFDBSEP)..........................NO
MAX TEMP RID (MAXTEMPS_RID)..............................NONE
AGENT LEVEL THRESHOLD (WFSTGUSE_AGENT_THRESHOLD)......N/A
SYSTEM LEVEL THRESHOLD (WFSTGUSE_SYSTEM_THRESHOLD).......N/A

MAX TEMP STORAGE PER AGENT IN MB (MAXTEMPS)

The maximum amount of temporary storage in megabytes (MB) for each agent.

Install parameter MAX TEMP STORAGE on panel DSNTIP6 or ZPARM MAXTEMPS in DSNTIP9.

Field Name: QWP4WFAL

SEPARATE WORK FILES (WFDBSEP)
YES directs processing of declared temporary tables only to DB2-managed table spaces that are defined with SECQTY>0 (DB2 field: QWP4WFDBSEP). It directs all other processing to DB2-managed table spaces that are defined with SECQTY=0 or to user-managed table spaces. This field corresponds to field "Separate Work Files" in installation panel DSNTIP9. The ZPARM name is WFDBSEP in DSN6SPRM.

**Field Name:** QWP4WFDBSEP

**MAX TEMP RID (MAXTEMPS_RID)**

The maximum number of RID blocks of temporary storage in the Workfile database that a single RID list can use at any point in time. This field corresponds to field MAX TEMP RID on installation panel DSNTIP9. The ZPARM name is MAXTEMPS_RID.

It can have the following values:

- -1 if MAXTEMPS_RID=NONE
- 0 if MAXTEMPS_RID=NOLIMIT
- 1 to 329166 otherwise

**Field Name:** QWP4WFFRD

**AGENT LEVEL THRESHOLD (WFSTGUSE_AGENT_THRESHOLD)**

Specifies the percentage of space that is used in the Workfile Database by a single agent when DB2 issues a warning message.

This value corresponds to field AGENT LEVEL THRESHOLD on installation panel DSNTIP9. The ZPARM name is WFSTGUSE_AGENT_THRESHOLD in DSN6SPRM.

**Field Name:** QWP4WFSAT

**SYSTEM LEVEL THRESHOLD (WFSTGUSE_SYSTEM_THRESHOLD)**

Specifies the percentage of space that is used in the Workfile Database by all agents in a DB2 subsystem or data sharing member when DB2 issues a warning message.

This value corresponds to field SYSTEM LEVEL THRESHOLD on installation panel DSNTIP9. The ZPARM name is WFSTGUSE_SYSTEM_THRESHOLD in DSN6SPRM.

**Field Name:** QWP4WFSST

**Alter Buffer Pool Command Issued**

This topic shows detailed information about “System Parameters - Alter Buffer Pool Command Issued”.

**System Parameters - Alter Buffer Pool Command Issued**

The field labels shown in the following sample layout of “System Parameters - Alter Buffer Pool Command Issued” are described in the following section.
FRAMESIZE  4K  4K
VPOOL SIZE MIN  0  0
VPOOL SIZE MAX  0  0
SIM POOL SIZE  200  300
SIM POOL SEQ THRESH  50  75

BUFF POOL ID

The buffer pool internal identifier. The values 0 through 49 are the identifiers for BP0 through BP49. The values 80 through 89 are the identifiers for BP32K through BP32K9.

Field Name: QW0201BP

VPOOL SIZE (PAGES) (OLD)

The size of the old virtual pool.

Field Name: QW0201OP

VPOOL SIZE (PAGES) (NEW)

The size of the new virtual buffer pool.

Field Name: QW0201NP

VPOOL SEQ THRESH

The old and new virtual pool sequential steal threshold.

Old status taken from the DB2 field QW0201OT.

New status taken from the DB2 field QW0201NT.

Field Name: RT0201VS

HORIZ DEFER WRITE THRESH

This threshold is a percentage of the virtual buffer pool that might be occupied by unavailable pages, including updated pages and pages in use.

The default value for QWQT is 30%. You can change this value to any value from 0% to 90% using the DWQT option of the ALTER BUFFERPOOL command.

DB2 checks QWQT when an update to a page is complete. If the percentage of unavailable pages in the virtual buffer pool exceeds QWQT, write operations are scheduled for up to 128 pages per data set to decrease the number of unavailable buffers to 10% below QWQT. For example, if QWQT is 50%, the number of unavailable buffers is reduced to 40%.

When the limit of QWQT is reached, data sets containing the oldest updated pages are written asynchronously. DB2 continues to write pages until the ratio goes below the QWQT.

Field Name: QDBPDWQT

VERT DEFER WRITE THRESH (%)

The vertical deferred write threshold for the virtual buffer pool expressed as percentage.

Old status taken from the DB2 field QW0201OV.

New status taken from the DB2 field QW0201NV.

Field Name: RT0201PC

VERT DEFER WRITE THRESH (BUF)
The vertical deferred write threshold for the virtual buffer pool expressed as an absolute number of buffers. It is only used if VERTICAL DEFERRED WRITE THRESHOLD (PERCENTAGE) is 0.

Old status taken from the DB2 field QW0201OJ.
New status taken from the DB2 field QW0201NJ.

Field Name: RT0201BU

VPOOL PARALLEL SEQ THRESH
The old and new virtual pool parallel sequential threshold.
Old status taken from the DB2 field QW0201OQ.
New status taken from the DB2 field QW0201NQ.

Field Name: RT0201VP

ASSISTING PARALLEL SEQ THRESH
The assisting parallel sequential threshold before and after the ALTER BUFFERPOOL command was issued.
Old status taken from the DB2 field QW0201OX.
New status taken from the DB2 field QW0201NX.

Field Name: RT0201AS

PGFIX ATTRIBUTE
Indicates whether a page is fixed in real storage when it is first used. It can have one of the following values: YES or NO.

Field Name: QDBPPFIX

PAGE STEAL METHOD
Identifies the page stealing algorithm (PGSTEAL) that is used for the virtual buffer pool. It controls when and whether performance-critical objects in buffer pools are removed from buffer pools when the space is needed by other objects. Possible values are:

LRU Least recently used (LRU) objects are removed first. This means it takes away pages that are not used so that more recently used pages can remain in the virtual buffer pool. This is used by default.

FIFO First-In-First-Out (FIFO) means that the oldest objects are removed first. This results in a small decrease in the cost of a Getpage operation. It can reduce internal DB2 latch contention in environments that require very high concurrency.

NONE Objects are not removed from buffer pool (no page stealing). This setting provides the highest availability for business-critical objects.

Old status taken from the DB2 field QW0201OK.
New status taken from the DB2 field QW0201NK.

Field Name: RT0201PS

AUTOSIZE
The old and new status of the AUTOSIZE attribute.
Old status taken from the DB2 field QW0201OZ.
Alter Buffer Pool Command Issued

New status taken from the DB2 field QW0201NZ.

Field Name: RT0201AT

FRAMESIZE (OLD)

The size of the old frame (4 KB, 1 MB, or 2 GB).

Field Name: QW0201OC

FRAMESIZE (NEW)

The new frame size (4 KB, 1 MB, or 2 GB).

Field Name: QW0201NC

VPOOL SIZE MIN (OLD)

The minimum size of the old virtual pool.

Field Name: QW0201OA

VPOOL SIZE MIN (NEW)

The minimum size of the new virtual pool.

Field Name: QW0201NA

VPOOL SIZE MAX (OLD)

The maximum size of the old virtual pool.

Field Name: QW0201OB

VPOOL SIZE MAX (NEW)

The maximum size of the new virtual pool.

Field Name: QW0201NB

SIM POOL SIZE

The number of simulated buffers specified for the simulated buffer pool. Old value is taken from the DB2 field QW0201OS. New value is taken from the DB2 field QW0201NS.

Field Name: RT0201SZ

SIM POOL SEQ THRESH

The sequential steal threshold for the simulated buffer pool, expressed as a percentage of the total simulated buffer pool size. Old value is taken from the DB2 field QW0201OH. New value is taken from the DB2 field QW0201NH.

Field Name: RT0201ST

Alter Group Buffer Pool Command Issued

This topic shows detailed information about “System Parameters - Alter Group Buffer Pool Command Issued”.

System Parameters - Alter Group Buffer Pool Command Issued

The field labels shown in the following sample layout of “System Parameters - Alter Group Buffer Pool Command Issued” are described in the following section.
GBP ID

The DB2 group buffer pool ID.

Field Name: QW0256GB

CURRENT DIRECTORY TO DATA RATIO

The directory entry to data entry ratio. This is the value specified in the RATIO keyword of the ALTER GROUPBUFFERPOOL command.

New status deduced from the DB2 field QW0256NR.

Old status deduced from the DB2 field QW0256OR.

Field Name: RT0256DR

CLASS CASTOUT THRESHOLD (%)

The threshold at which the class castout is to be initiated. It is expressed as a percentage of the group buffer pool size. This is the value specified in the CLASST keyword of the ALTER GROUPBUFFERPOOL command.

New status deduced from the DB2 field QW0256NC.

Old status deduced from the DB2 field QW0256OC.

Field Name: RT0256CT

CLASS CASTOUT THRESHOLD (PAGES) (OLD)

The old class castout threshold based on the number of pages.

Field Name: QW0256ON

CLASS CASTOUT THRESHOLD (PAGES) (NEW)

The new class castout threshold based on the number of pages.

Field Name: QW0256NN

GBP CASTOUT THRESHOLD (%)

The threshold at which the castout is to be initiated for the group buffer pool. This is the value specified in the GBPOOLT keyword of the ALTER GROUPBUFFERPOOL command.

New status deduced from the DB2 field QW0256NG.

Old status deduced from the DB2 field QW0256OG.

Field Name: RT0256GT

GBP CHECKPOINT INTERVAL (MIN)

The time interval (in minutes) between successive group buffer pool checkpoints. This is the value specified in the GBPCHKPT keyword of the ALTER GROUPBUFFERPOOL command.

New status deduced from the DB2 field QW0256NK.

Old status deduced from the DB2 field QW0256OK.

Field Name: RT0256CI

GBP CACHE SETTING
Alter Group Buffer Pool Command Issued

GBPCACHE value before and after the ALTER GROUPBUFFERPOOL command was issued. This field specifies whether DB2 should write changed pages for the group buffer pool dependant pageset or partitions directly to DASD and use the group buffer pool only for sending XI signals.

New status deduced from the DB2 field QW0256NB.
Old status deduced from the DB2 field QW0256OB.

Field Name: RT0256CS

AUTO REC

A flag indicating how the AUTOREC option of the ALTER GROUPBUFFERPOOL command has been set. It specifies whether DB2 should automatically recover if GBP fails. The old value specifies the AUTOREC value before the ALTER GBP command was issued. The new value specifies the AUTOREC value after the ALTER GBP command was issued.

New status deduced from the DB2 field QW0256NA.
Old status deduced from the DB2 field QW0256OA.

Field Name: RT0256AR

Buffer Pool Parameters

This topic shows detailed information about “System Parameters - Buffer Pool Parameters”.

Normally, buffer pool information is reported once for each buffer pool if the attributes remain the same over the reporting period.

Buffer pool attributes can be changed while DB2 is active using the DB2 ALTER BUFFERPOOL command. If the performance trace class 10 is active, the event is recorded in the system parameters report.

When an ALTER BUFFERPOOL command is recorded, the status of the buffer pool before and after the command is shown.

Note: The fields shown on this panel depend on the installed DB2 version.

System Parameters - Buffer Pool Parameters

The field labels shown in the following sample layout of “System Parameters - Buffer Pool Parameters” are described in the following section.

<table>
<thead>
<tr>
<th>BUFFER POOL PARAMETERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIMESTAMP</td>
</tr>
<tr>
<td>BP0 VPOOL SIZE (PAGES)</td>
</tr>
<tr>
<td>VPOOL SEQ THRESH</td>
</tr>
<tr>
<td>HORIZ DEFER WRITE THRESH</td>
</tr>
<tr>
<td>VERT DEFER WRITE THRESH (%)</td>
</tr>
<tr>
<td>VERT DEFER WRITE THRESH (BUF)</td>
</tr>
<tr>
<td>VPOOL PARALLEL SEQ THRESH</td>
</tr>
<tr>
<td>ASSISTING PARALLEL SEQ THRESH</td>
</tr>
<tr>
<td>PGTIX ATTRIBUTE</td>
</tr>
<tr>
<td>PAGE STEAL METHOD</td>
</tr>
<tr>
<td>AUTOSIZE</td>
</tr>
<tr>
<td>FRAMESIZE</td>
</tr>
<tr>
<td>VPOOL SIZE MIN</td>
</tr>
</tbody>
</table>
BUFFER POOL ID

Buffer pool name.

Field Name: QDBPNM

VPOOL SIZE (PAGES)

The size of the virtual buffer pool.

Old status taken from the DB2 field QW0201OP.

New status taken from the DB2 field QW0201NP.

Field Name: QDBPVPSZ

VPOOL SEQ THRESH

Virtual pool sequential threshold (VPSEQT). This threshold is a percentage of the virtual buffer pool that might be occupied by sequentially accessed pages. The pages can be in the state updated, in use, or available. Therefore, each page might count regarding exceeding any other buffer pool threshold.

The default value for VPSEQT is 80%. You can change this value to a value from 0% to 100% by using the VPSEQT option of the ALTER BUFFERPOOL command.

VPSEQT is checked before stealing a buffer for a sequentially accessed page instead of accessing the page in the virtual buffer pool. If the threshold is exceeded, DB2 tries to steal a buffer that holds a sequentially accessed page rather than one that holds a randomly accessed page.

If you set VPSEQT to 0%, sequential pages cannot occupy space in the virtual buffer pool. In this case, prefetch is disabled, and sequentially accessed pages are discarded when they are released. You can, however, set the value for HPSEQT to a value above zero and the value for VPSEQT to zero. If you set VPSEQT to 100%, sequential pages can monopolize the entire virtual buffer pool.

Field Name: QDBPVPSH

HORIZ DEFER WRITE THRESH

This threshold is a percentage of the virtual buffer pool that might be occupied by unavailable pages, including updated pages and pages in use.

The default value for QWQT is 30%. You can change this value to any value from 0% to 90% using the DWQT option of the ALTER BUFFERPOOL command.

DB2 checks QWQT when an update to a page is complete. If the percentage of unavailable pages in the virtual buffer pool exceeds QWQT, write operations are scheduled for up to 128 pages per data set to decrease the number of unavailable buffers to 10% below QWQT. For example, if QWQT is 50%, the number of unavailable buffers is reduced to 40%.

When the limit of QWQT is reached, data sets containing the oldest updated pages are written asynchronously. DB2 continues to write pages until the ratio goes below the QWQT.

Field Name: QDBPDWQT
VERT DEFER WRITE THRESH (%)

Vertical deferred write threshold (VDWQT). This threshold is similar to the deferred write threshold but it applies to the number of updated pages for one single page set in the buffer pool. If the percentage or number of updated pages for the data set exceeds the threshold, writes up to 128 pages are scheduled for that data set.

VDWQT can be specified in one of the following ways:

- As a percentage of the virtual buffer pool that might be occupied by updated pages from one single page set. The default value for this threshold is 5%. You can change the percentage to any value from 0% to 90%.
- As the total number of buffers in the virtual buffer pool that might be occupied by updated pages from one single page set. You can specify the number of buffers from 0 to 9999. If you want to use the number of buffers as your threshold, you must set the percentage threshold to 0.

Field Name: QDBPVDQT

VERT DEFER WRITE THRESH (BUF)

The vertical deferred write threshold (VDWQT), shown as the number of buffers in the virtual buffer pool that might be occupied by updated pages from a single page set.

Field Name: QDBPVDQB

VPOOL PARALLEL SEQ THRESH

Virtual buffer pool parallel sequential threshold (VPPSEQT). This threshold is a part of the virtual buffer pool that might support parallel operations. It is measured as a percentage of the sequential steal threshold (VPSEQT). Setting VPPSEQT to zero disables parallel operation.

The default value for this threshold is 50% of the sequential steal threshold (VPSEQT). You can change the default value to any value from 0% to 100% by using the VPPSEQT option on the ALTER BUFFERPOOL command.

Field Name: QDBPPSQT

ASSISTING PARALLEL SEQ THRESH

Virtual buffer pool assisting parallel sequential threshold (VPXPSEQT). This threshold is a part of the virtual buffer pool that might support parallel operations initiated from another DB2 in the data sharing group. It is measured as a percentage of VPPSEQT.

Setting VPXPSEQT to zero (default) prevents DB2 from supporting sysplex query parallelism at run time for queries that use this buffer pool.

You can change the default value to any value from 0% to 100% using the VPXPSEQT option of the ALTER BUFFERPOOL command.

Field Name: QDBPXSQT

PGFIX ATTRIBUTE

Indicates whether a page is fixed in real storage when it is first used. It can have one of the following values: YES or NO.

Field Name: QDBPPFIX

PAGE STEAL METHOD

Buffer Pool Parameters
Identifies the page stealing algorithm (PGSTEAL) that is used for the virtual buffer pool. It controls when and whether performance-critical objects in buffer pools are removed from buffer pools when the space is needed by other objects. Possible values are:

**LRU**  Least recently used (LRU) objects are removed first. This means it takes away pages that are not used so that more recently used pages can remain in the virtual buffer pool. This is used by default.

**FIFO**  First-In-First-Out (FIFO) means that the oldest objects are removed first. This results in a small decrease in the cost of a Getpage operation. It can reduce internal DB2 latch contention in environments that require very high concurrency.

**NONE**  Objects are not removed from buffer pool (no page stealing). This setting provides the highest availability for business-critical objects.

Old status taken from the DB2 field QW0201OK.
New status taken from the DB2 field QW0201NK.

**Field Name:** RT0201PS

**AUTOSIZE**
Indicates if the AUTOSIZE option is activated on the ALTER BUFFERPOOL command.

**Field Name:** QDBPASIZ

**FRAMESIZE**
The frame size.

**Field Name:** QDBPFRAM

**VPOOL SIZE MIN**
The minimum size of the virtual pool.

**Field Name:** QDBPVPMI

**VPOOL SIZE MAX**
The maximum size of the virtual pool.

**Field Name:** QDBPVPMA

**SIM POOL SIZE**
The number of simulated buffers allocated in the simulated buffer pool.

**Field Name:** QDBBPSPSZ

**SIM POOL SEQ THRESH**
The sequential thief threshold for the simulated buffer pool, expressed as a percentage of the total simulated buffer pool size.

**Field Name:** QDBBSPST

**Group Buffer Pool Parameters**
This topic shows detailed information about “System Parameters - Group Buffer Pool Parameters”.

This block shows the merged group buffer pool data from all the members of a DB2 data sharing group. To produce this report, statistics class 5 must be active.
Group Buffer Pool Parameters

Each time an ALTER GROUPBUFFERPOOL command is issued for a member, an IFCID 230 record is produced showing information about the group buffer pools connected to that particular member of a data sharing group. If the IFCID 230 record indicates that the status of the group buffer pools has changed since the last IFCID 230 record was produced (regardless of which member produced it), or if this is the first IFCID 230 encountered, the new status of the group buffer pools is printed.

The status of the group buffer pools changes if the IFCID 230 record indicates one of the following:

- A member uses a new group buffer pool.
- A member does not use a group buffer pool that it used previously.
- At least one of the group buffer pool attributes has changed.

All the group buffer pools connected to the member, whether or not they have changed, are printed.

System Parameters - Group Buffer Pool Parameters

The field labels shown in the following sample layout of “System Parameters - Group Buffer Pool Parameters” are described in the following section.

CURRENT DIRECTORY TO DATA RATIO

The current directory entry to data entry ratio.

For ALTER GROUPBUFFERPOOL commands, this field reports the value specified in the RATIO keyword.

Field Name: QBGBGRI

CLASS CASTOUT THRESHOLD (%)

The threshold at which the class castout is to be initiated. It is expressed as a percentage of the size of the group buffer pool.

For ALTER GROUPBUFFERPOOL commands, it reports the value specified in the CLASST keyword.

Field Name: QBGBGCT

GBP ID

Field Name: QBGBGCI
Group buffer pool name.

Field Name: QBGBGN

**DB2 11: CLASS CASTOUT THRESHOLD (PAGES)**

The class castout threshold based on the number of pages.

Field Name: QBGBGCTN

**ALLOCATED GBP SIZE (4K)**

The allocated size of the group buffer pool in 4 KB blocks.

Field Name: QBGBGSZ

**GBP CASTOUT THRESHOLD (%)**

The threshold at which the castout is to be initiated for the group buffer pool. It is expressed as a percentage of the size of the group buffer pool.

For ALTER GROUPBUFFERPOOL commands, it reports the value specified in the GBPOOLT keyword.

Field Name: QBGBGGT

**ACTUAL DIRECTORY**

The actual number of allocated directory entries.

Field Name: QBGBGDR

**GBP CHECKPOINT INTERVAL (MIN)**

The time interval, in minutes, between successive group buffer pool checkpoints.

For ALTER GROUPBUFFERPOOL commands, it reports the value specified in the GBPCHKPT keyword.

Field Name: QBGBGCK

**ACTUAL DATA ENTRY**

The actual number of allocated data entries.

Field Name: QBGBGDT

**GBP CACHE SETTING**

GBP cache attribute. Possible values are:

- **YES**  GBP is used for both data caching and cross-invalidation.
- **NO**   GBP is used for cross-invalidation only.

Field Name: QBGBGCS

**PENDING DIRECTORY TO DATA RATIO**

The pending directory entry to data entry ratio.

Field Name: QBGBGR2

**AUTO REC**

Indicates whether automatic recovery takes place in the event of a structure failure or a loss of connectivity. When automatic recovery is active, all members of the group are recovered to the group buffer pool.

Field Name: QBGBGAS
Group Buffer Pool Parameters

MODE
Simplex or duplex mode indicator.

Field Name: QBGBDUP

Prior to DB2 11: SEC-GBP ALLOC
The allocated size of the secondary GBP when the GBP is DUPLEX.
This field is not shown when MODE is SIMPLEX.

Field Name: QBGBGSZ2

Prior to DB2 11: SEC-GBP ALLOC DIRECTORY ENTRY
Number of allocated directory entries in the secondary GBP when MODE is DUPLEX.

Field Name: QBGBGDR2

Prior to DB2 11: SEC-GBP ALLOC DATA ENTRY
The allocated data entries in the secondary GBP when MODE is DUPLEX.

Field Name: QBGBGDT2

Utility Activity Report Set
These topics provide information about the Utility Activity reports.

Note: For an introduction to the Utility Activity report set and general Utility Activity information refer to the Reporting User’s Guide. It also provides information on input to Utility Activity reports.

Headers Used in Utility Activity
OMEGAMON for Db2 PE header information is printed at the top of each Utility Activity report or trace page.

There are two types of headers:
• The Utility Activity report header
• The Utility Activity trace header.

The report and trace header shows the following information:

LOCATION
The DB2 reporting location. If the location name is not available, the DB2 data sharing group name is printed in this field. If the DB2 data sharing group name does not exist, the DB2 subsystem ID is printed.

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VnRnMn)
The product name and the version, release, and modification level.

PAGE The page number in the format lll-nnnnnn, where lll denotes the location number within the report and nnnnnn the page number within the location.

GROUP The name of the DB2 data sharing group. This field shows N/A if there is no group name.

REQUESTED FROM and TO
The FROM and TO dates and times specified in the REPORT or TRACE subcommand.
If both FROM and TO dates and times are omitted from the REPORT subcommand, the FROM and TO dates and times specified in GLOBAL are printed. If only the FROM date and time or only the TO date and time has been specified, NOT SPECIFIED is printed for the unspecified value.

If FROM and TO are not specified in REPORT or GLOBAL, NOT SPECIFIED appears for both the FROM and TO values.

If you have specified FROM and TO times without dates in REPORT or GLOBAL, ALL DATES is printed along with the specified times.

**MEMBER**

The name of the DB2 data sharing member or the member name of the DB2 subsystem. This field shows N/A if there is no member name.

This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

**SUBSYSTEM**

The ID of the DB2 subsystem that generated the data. This field is not printed on the report page showing the GROUP BUFFERPOOLS PARAMETERS.

**ORDER**

If the ORDER option of the REPORT or TRACE subcommand was used to arrange the report entries, the selected keywords are shown in this field. Depending on the context, the OMEGAMON for Db2 PE identifiers by which lock events are grouped are shown here.

**ACTUAL FROM/TO**

The date and time of the first and last record included in the log for a location, group, subsystem, or member.

**DB2 VERSION**

The DB2 version number of the subsystem that generated the data.

**PAGE DATE**

The date of the timestamps printed on this page. A page break occurs at the change of the date. This is useful if a trace page contains more than one entry and the date is not shown for each entry.

**IDENTIFIED BY**

Shows the identifiers specified with the ORDER option.

**WITH detail WORKLOAD**

The workload details as specified on the WORKLOAD option of the TRACE subcommand.

**Utility Activity Report Header Example:**

The Utility Activity reports contain information in the header at the top of each page as shown in the following example.

```plaintext
LOCATION: USIBMSYST082
GROUP: DSNCAT
MEMBER: SSDQ
SUBSYSTEM: SSDQ
DB2 VERSION: V10

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (VSAM)  PAGE: 1-1
UTILITY ACTIVITY REPORT  REQUESTED FROM: NOT SPECIFIED
ORDER: PRIMAUTH-PLANNAME  TO: NOT SPECIFIED
ACTUAL FROM: 01/30/15 23:50:43.70  TO: 01/30/15 02:35:57.68
```

**Utility Activity Trace Header:**

This section introduces the header of the Utility Activity trace.
Utility Activity - Report Headers

Utility Activity Trace Header Example

The Utility Activity trace header contains the following information.

LOCATION: USIBMSYSTDB2
GROUP: DSNCAT
MEMBER: SSOQ
SUBSYSTEM: SSOQ
DB2 VERSION: V10

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
UTILITY ACTIVITY TRACE
REQUESTED FROM: NOT SPECIFIED
TO: NOT SPECIFIED
ACTUAL FROM: 01/30/15 23:50:43.70
PAGE DATE: 01/30/15
IDENTIFIED BY PRIMAUTH/PLANNAME/INSTANCE WITH ALL WORKLOAD

The Utility Activity Reports

This topic describes the Utility Activity report.

The following command generates the Utility Activity report shown in "Utility Activity Report Example".

```
:;
UTILITY REPORT ;
:;
```

This command produces a report including both BIND and UTILITY activity types by default.

Utility Activity Report Example

```
LOCATION: PMODA22
GROUP: N/P
MEMBER: N/P
SUBSYSTEM: DA22
PRIMAUTH: PRIMAUTH
PLANNAME: PLANNAME
ORDER: PRIMAUTH-PLANNAME
DB2 VERSION: V10

OMEGAMON XE FOR DB2 PERFORMANCE EXPERT (V5R4M0)
UTILITY ACTIVITY REPORT
REQUESTED FROM: NOT SPECIFIED
TO: NOT SPECIFIED
ACTUAL FROM: 05/31/15 09:01:18.84
TO: 05/31/15 00:00:00.00

PRIMAUTH PLANNAME OCCURRENCES TOT. ELAPSED TOT. CP CPU TOT. ELAPSED TOT. CP CPU TOT. ZIIP AVG. ZIIP
AVG. ELAPSED AVG. CP CPU TOT. SORTCPU SORT ZIIP

---------------------- ----------- ----------- ----------- ----------- ----------- -----------
BBE DSNUTIL 5 1.605797 0.194854 UTILITY 0.321159 0.038971 LOAD 2 0.906060 0.089978 0.001934 0.000967 0.000000
2 0.453030 0.040489 0.453030 0.040489 0.453030 0.040489 0.453030 0.040489 0.000967 0.000000
3 0.097737 0.113876 REORG 0.037989 0.000110 0.000110 0.000110 0.000110 0.000110 0.000110
2 0.233246 0.085822 0.233246 0.085822 0.233246 0.085822 0.233246 0.085822 0.000000

UTILITY ACTIVITY REPORT COMPLETE
```

Field description

The report contains the following fields:

**OMEGAMON for Db2 PE identifiers**

Up to three OMEGAMON for Db2 PE identifiers can be printed in this column. They are printed whenever they change. The second and third identifiers are indented. If the ORDER option is not used, the default of PLANNAME within PRIMAUTH is shown. Refer to Report Command Reference for more information about the ORDER option.

**OCCURRENCES**

The total number of bind or utility threads for the current combination of OMEGAMON for Db2 PE identifiers. A bind thread is identified by the presence of appropriate pairs of IFCIDs 108, 109, 110, 111, 177, and 183. A utility thread is identified by the presence of IFCIDs 023, 024, and 025.

**TOT. ELAPSED**

The time difference between the first bind or utility record and the last bind or utility record.

**AVG. ELAPSED**

The TOT. ELAPSED time divided by OCCURRENCES.
TOT. CP CPU
The difference between the CPU time of the first bind or utility record and the CPU time of the last bind or utility record.

AVG. CP CPU
The TOT. CPUTIME divided by OCCURRENCES.

ACTIVITY TYPE
The name of the activity type and event. The activity type can only be BIND for bind events including remote bind activity, or UTILITY for utility events. All events are indented.

The bind events are as follows:

BIND PLAN
BIND PLAN subcommand issued

BIND PACK
BIND PACKAGE subcommand issued

BIND R-PACK
BIND PACKAGE subcommand issued for a remote location

RBND PLAN
REBIND PLAN subcommand issued

RBND PACK
REBIND PACKAGE subcommand issued

RBND R-PACK
REBIND PACKAGE subcommand issued for a remote location

FREE PLAN
FREE PLAN subcommand issued

FREE PACK
FREE PACKAGE subcommand issued

FREE R-PACK
FREE PACKAGE subcommand issued for a remote location

CONNECT
BIND CONNECT or CONNECT RESET subcommand issued for a remote location.

The utility events are as follows:

CHECKDAT
Identifies the utility as CHECK DATA.

CHECKIDX
Identifies the utility as CHECK INDEX.

COPY
Identifies the utility as COPY.

DIAGNOSE
Identifies the utility as DIAGNOSE.

LOAD
Identifies the utility as LOAD.

MERGECOP
Identifies the utility as MERGECOPY.

MODIFY
Identifies the utility as MODIFY.
Utility Activity - Report

QUIESCE
   Identifies the utility as QUIESCE.

RECOVER
   Identifies the utility as RECOVER TABLESPACE.

RECOVERI
   Identifies the utility as RECOVER INDEX.

REBUILDI
   Identifies the utility as REBUILD INDEX.

REORG
   Identifies the utility as REORG.

REPAIR
   Identifies the utility as REPAIR.

REPORT
   Identifies the utility as REPORT.

RUNSTATS
   Identifies the utility as RUNSTATS.

STOSPACE
   Identifies the utility as STOSPACE.

UNLOAD
   Identifies the utility as UNLOAD.

COUNT
   The number of occurrences of a single bind or utility event.

TOT. ELAPSED
   The time difference between the first and last occurrence of a specific bind or utility event.

AVG. ELAPSED
   The TOT. ELAPSED time divided by COUNT.

TOT. CP CPU
   The difference between the CPU time of the first occurrence of a specific bind or utility event and the CPU time of the UTILEND of the last occurrence of this bind or utility event.

AVG. CP CPU
   The TOT. CP TIME divided by COUNT.

TOT. SORTCPU
   The sum of the Sort CPU time for all occurrences of a specific utility event.

TOT. ZIIP
   The sum of the total utility ZIIP time for all occurrences of a specific utility event.

AVG. ZIIP
   The TOT. ZIIP time divided by COUNT.

SORT ZIIP
   The sum of the Sort ZIIP time for all occurrences of a specific utility event.

The Utility Activity Trace
   This topic introduces the Utility Activity trace.
Traces are presented in the order in which the threads complete. Start times might not be shown in ascending order if other threads finished prior to completion of a thread which started earlier.

The Utility Activity trace is generated with the following command:

```
UTILITY TRACE ORDER (PRIMAUTH=PLANNAME=INSTANCE)
```

This command produces a trace including both BIND and UTILITY activity types but excluding any workload detail by default.

**Utility Activity Short Trace Example**

Here is an example of a Utility Activity Short trace.

```
LOCATION: OMPDB51
GROUP: N/P
MEMBER: N/P
SUBSYSTEM: DB2
DB2 VERSION: V11

UTILITY-ID JOB NAME SHRLEVEL DATABASE PAGESET STEP SORT CPU SORT ZIIP
KOZS 12:33:31.62 0.732401 UTILITY KOZS.KOZUNLUT KOZUNLUT CHANGE
      0 1 0 0.008799 REDOS DBZPE .TSPA.FDF UNRL1 0.001200
      Y N 0 1 0 0.002311 0.000900

UTILITY TRACE COMPLETE
```

**Field description**

The trace contains the following fields:

**OMEGAMON for Db2 PE identifiers**

The OMEGAMON for Db2 PE identifiers specified in the ORDER option. They are printed whenever they change. The second and third identifiers are indented.

**PLANNAME**

The DB2 application plan name of the thread.
Utility Activity - Trace

**ELAPSED TIME**
The time difference between START TIME and the timestamp of the ENDUTIL of the last bind or utility record of the originating task.

**JOB NAME**
User-defined job name.

**SHRLEVEL**
The SHRLEVEL value of the utility. Possible values are: NONE, REFERENCE, or CHANGE.

**START TIME**
The timestamp of the first bind or utility record encountered for that thread.

**CPU TIME**
The CPU time of the bind or utility event, including the CPU time of any parallel tasks.

**ACTIVITY TYPE**
The name of the activity type and event. The activity type can only be BIND for bind events including remote bind activity, or UTILITY for utility events. All events are indented.

For a detailed description of Activity Type, see page "Field description" on page 4622.

**OBJECT(S)**
The description depends on whether it is a utility event, a bind event referring to a plan, a bind event referring to a package, or a BIND CONNECT:

- In the case of a utility, it is the database name.object name for each object worked on by the utility. Each database name.object name is shown only once.
- In the case of a BIND PLAN, RBND PLAN, or FREE PLAN event, it is the plan name.
- In the case of a BIND PACK, RBND PACK, FREE PACK, BIND R-PACK, RBND R-PACK, or FREE R-PACK event, the following information is shown:
  - **LOCN** The location of the package.
  - **COLL** The collection to which the package belongs.
  - **PKID** The package ID.
  - **VRID** The first 53 characters of the version name.
  - **CONS** The consistency token for the package.
- In the case of a CONNECT, it is LOCN, the location of the package.

**TOT. ZIIP**
The total utility ZIIP time (if Accounting class 1 trace is activated).

**SORT**
The following fields provide information about sorting. They are only written for utility events:

- **DF** Shows if DFSORT was invoked at least once (Y/N).
- **DB2** Shows if DB2SORT was invoked at least once (Y/N).
- **DATA** Shows the number of parallel data sorts.
INDEX
Shows the number of parallel index sorts.

OTHER
Shows the number of other sorts.

SORT CPU
Shows the SORT CPU time.

SORT ZIIP
Shows the SORT ZIIP time (if provided by the SORT program).

Workload Detail
Workload detail blocks are only printed in Utility Activity traces.

The workload detail blocks are displayed beneath the thread events.

Bind Activity:

This topic describes the layout of the Bind Activity block.

This block shows the bind activity for:
- BIND PACK
- BIND R-PACK
- RBND PACK
- RBND R-PACK
- BIND PLAN
- RBND PLAN

The layout depends on whether it is a package or a plan for which bind activity is shown.

Bind Activity Workload Block Example for Packages or Plans

Here is an example of the Bind Activity Workload Block for Packages.

--- BIND ACTIVITY -------------------------------------------------------------------------------------------------------------------------------------
ISOLATION : CS  TYPE : AUTOMATIC  ACQUIRE : ALLOCATION  DEGREE : ANY  VALIDATE : BIND
OWNER : MANFREDW  CURRENTDATA : YES  RELEASE : DEALLOCATION  KEEP DYNAMIC : YES  EXPLAIN : YES
DYNAMICRULES : BIND  DISCONNECT : CONDITIONAL  PREPARE : NODIFFER  QUALIFIER : HUGO PAUL  REOPTIMIZE : YES
ACTION : REPLACE  SQLERROR : NOPACKAGE  SQLRULES : DB2  PROTOCOL : NOT_SPEC  OPTHINT : YES
IMMEDIATE : YES
SENT : 123456  ELAPSED_TIME : 1234.123456  CPU_TIME : 1234.12345656
STMT. BOUND : 123456  ELAPSED_TIME : 1234.123456  CPU_TIME : 1234.12345656
STMT. ^BOUND : 123456  ELAPSED_TIME : 1234.123456  CPU_TIME : 1234.12345656

Here is an example of the Bind Activity Workload Block for Plans.

--- BIND ACTIVITY -------------------------------------------------------------------------------------------------------------------------------------
ISOLATION : CS  TYPE : AUTOMATIC  ACQUIRE : ALLOCATION  DEGREE : ANY  VALIDATE : BIND
OWNER : MANFREDW  CURRENTDATA : YES  RELEASE : DEALLOCATION  KEEP DYNAMIC : YES  EXPLAIN : YES
DYNAMICRULES : BIND  DISCONNECT : CONDITIONAL  PREPARE : NODIFFER  QUALIFIER : HUGO PAUL  REOPTIMIZE : YES
ACTION : REPLACE  CACHESIZE : 4096  SQLRULES : DB2  PROTOCOL : NOT_SPEC  OPTHINT : YES
IMMEDIATE : PH1
Field description

Here is a description of the field labels shown in the bind activity workload block for both packages and plans.

**ISOLATION**
Indicates the isolation level of the plan or package.

**TYPE**
The type of bind.

**ACQUIRE**
Indicates when to acquire the locks:
- **ALLOCATION**
  Acquire the locks when the plan or package is allocated.
- **USE**
  Acquire the locks when the application first accesses them.

**DEGREE**
Indicates whether DB2 is to attempt to run a query using parallel processing.
- **1**
  Parallelism is prohibited
- **ANY**
  Parallelism is allowed
- **ALL**
  Data currency is required for all cursors. Applicable to packages only.

**VALIDATE**
The time of validation:
- **RUN**
  Validate at run time.
- **BIND**
  Validate at bind time.

**OWNER**
The plan or package owner.

**CURRENTDATA**
Controls the data currency for ambiguous cursors:
- **NO**
  Data currency is not required for ambiguous cursors. Blocking for ambiguous cursors is allowed.
- **YES**
  Data currency is required for ambiguous cursors. Blocking for ambiguous cursors is inhibited.
- **ALL**
  Data currency is required for all cursors. Applicable to packages only.

**RELEASE**
Indicates when to release the locks:
- **COMMIT**
  Release locks at commit time.
- **DEALLOCATION**
  Release locks at deallocation time.
  For packages only:
- **DEFAULT**
  Release locks at run time, which is the default.

**KEEPDYNAMIC**
Indicates whether the prepared dynamic SQL statements are preserved past a commit:
The prepared dynamic SQL statements are destroyed at each commit.

The prepared dynamic SQL statements are preserved past a commit. Any subsequent OPEN, EXECUTE, or DESCRIBE assumes that the previous SQL statement is to be executed.

Indicates whether EXPLAIN was specified for the bind request.

The value of the DYNAMICRULES option on the BIND/REBIND command:

- **RUN**: Run time rules apply to a dynamic SQL statement for authorization checking and object qualification at run time.
- **BIND**: Bind-time rules apply to a dynamic SQL statement for authorization checking and object qualification at run time.
- **N/P**: DYNAMICRULES was not specified.

Indicates which remote connections are terminated during commit operations:

- **EXPLICIT**: Only connections in the release state are terminated.
- **AUTOMATIC**: All remote connections are terminated.
- **CONDITIONAL**: All remote connections are terminated provided that an open WITH HOLD cursor is not associated with the connection.

Indicates whether the preparation of dynamic SQL statements was deferred:

- **DEFER**: The preparation of the dynamic SQL statements that refer to remote objects was deferred until run time.
- **NODEFER**: The dynamic SQL statements were prepared at bind time.

The qualifier used for unqualified object names.

Indicates whether reoptimization was requested:

- **YES**: REOPT(VARS) was specified to reoptimize the access path of the SQL statement at run time.
- **NO**: NOROEPT(VARS) was specified to optimize the access path of the SQL statement only at bind time.

Specifies whether the plan or package replaces an existing plan or package with the same name or is new:

- **REPLACE**: The existing plan or package is replaced.
Utility Activity - Bind Activity

ADD   A new plan or package is added.

This field only applies to BIND activities. For all other activities, N/P is printed.

IMMEDWRITE
Indicates how DB2 updates group buffer pool dependent pages. This is only valid in a data sharing environment.

Group buffer pool dependent pages can be written to DASD or SYSTEM pagesets.

Values shown are:

NO   DB2 uses normal write activity for updates, this is the default. Pages are written out at, or before phase 2 commit, or at the end of an abort for transactions that have rolled back.

PH1   Pages are written out at, or before phase 1 commit.

If a transaction subsequently rolls back, the pages are updated in the group buffer pool at the end of the rollback and are written out at the end of the abort.

YES   Pages are written out to the coupling facility as soon as the buffer update commits. Pages are written out regardless of whether the update occurs during forward progress or rollback of the transaction.

This option can affect performance due to coupling facility overhead.

SQLERROR
Indicates whether a package is created if SQL errors are encountered:

CONTINUE   A package is created even when SQL errors are encountered.

NOPACKAGE   No package is created if SQL errors are encountered.

CACHE SIZE
The size (in bytes) of the authorization cache specified for the CACHESIZE keyword. A value of 0 indicates that DB2 determines the size of the authorization cache.

SQLRULES
Indicates whether a type-2 CONNECT statement was executed according to the rules of DB2 or the ISO/ANS SQL2 standard:

DB2   An error does not occur if CONNECT identifies an existing SQL statement.

STD   An error occurs if CONNECT identifies an existing SQL statement.

PROTOCOL
Valid values are:

DRDA   Protocol is DRDA.

PRIVATE   Protocol is a private protocol

NOT_SPEC   Protocol was not specified. This is only valid for packages.
OPTHINT
Indicates whether optimizations hints are to be used. This can be:

- YES
- NO

SENT
The number of SQL statements sent to be bound at the server, and the elapsed and CPU times spent for that event at the requester site.

This field is only shown for remote events.

STMT. BOUND
The number of SQL PARSER events and one or more minibind events that occur between matched BIND or REBIND begin/end record pairs, and the elapsed and CPU times spent for those events.

When a statement is bound, DB2 chooses an access path for the DB2 statement. The only bound DB2 statements are SELECT, UPDATE, INSERT, and DELETE. The other DB2 statements do not require an access path to be generated.

This field shows N/P if the CPU header is not present in the trace data. It is not shown if the IFCIDs 022 and 063 are not available.

STMT. BOUND
The number of SQL PARSER events without corresponding minibind events that occur between matched record pairs (BIND or REBIND begin/end), and the elapsed and CPU times spent for those events.

A statement is not bound if DB2 does not calculate an access path.

DETERM CURSOR and CLOSE CURSOR are examples of statements that are not bound.

This field shows N/P if the CPU header is not present in the trace data. It is not shown if the IFCIDs 022 and 063 are not available.

Data Set Information:
This block shows the data set information available for the activity.

Utility Data Set Information Workload Block
Here is an example of the Utility Data Set Information Workload Block:

--- DATA SET INFO -----------------------------------------------
DD NAME : CCCCCCB  DS NAME : CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC44  TEMPLATE NAME : CCCCCCB
DURATION : 02:03:05.10  DEVICE TYPE : C  OPEN TIMESTAMP: 01/30/15 18:15:44.38

Field description
Here is a description of the field labels shown in the Utility Data Set Information Workload Block:

DD NAME
Data definition.

DS NAME
Data set name.

TEMPLATE NAME
Template name.

NO.READS
Number of READ operations.
Utility Activity - Data Set Information

NO.WRITES
Number of WRITE operations.

NO.CHECKS
Number of checks.

NO.EOVS
Number of End of Volumes.

I/O WAIT TIME
I/O wait time.

DURATION
The number of seconds the data set was open.

DEVICE TYPE
Device type:
D DASD.
T Tape.

OPEN TIMESTAMP
Time the data set was opened.

Exit Activity:
This block shows the exits performed by the event.

Exits Workload Block Example
Here is an example of the Exits Workload Block.

--- EXITS ------------------------------------------------------------------
MEMBER VALIDATION TOTAL AET/EXIT EDIT TOTAL AET/EXIT
SE11 1 N/C 0 0.000060

Field description
Here is a description of the field labels shown in the Exits Workload Block.

MEMBER
The name of the DB2 member within the DB2 data sharing group.

VALIDATION TOTAL
The number of results of a validation exit call written for every validation row.

VALIDATION AET/EXIT
The summarized elapsed validation time divided by the value in VALIDATION TOTAL.

EDIT TOTAL
The summary of results of an edit exit call to encode a record written for every row edited and the results of an edit exit call to decode a record written for every row decoded.

EDIT AET/EXIT
The summarized elapsed edit time divided by the value in EDIT TOTAL.

I/O Activity:
This block shows the I/O activity for each object performed by the event.
I/O Activity Workload Block Example

This is an example of the I/O Activity Workload Block.

<table>
<thead>
<tr>
<th>DATABASE</th>
<th>PAGESET</th>
<th>MEMBER</th>
<th>BP</th>
<th>TOTAL</th>
<th>AET</th>
<th>TOTAL</th>
<th>TYPE</th>
<th>AET/WITH</th>
<th>% WITHOUT</th>
<th>TOTAL</th>
<th>TYPE</th>
<th>AET</th>
<th>PAGE/WRITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBPARALL</td>
<td>TS-PARALL</td>
<td>SE12</td>
<td>BP4</td>
<td>3</td>
<td>0.1296</td>
<td>3</td>
<td>SYNCH</td>
<td>0.129597</td>
<td>100.00</td>
<td>1.00</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRKSE12</td>
<td>DSN4K01</td>
<td>SE12</td>
<td>BP0</td>
<td>102</td>
<td>0.0164</td>
<td>102</td>
<td>SYNCH</td>
<td>0.016358</td>
<td>100.00</td>
<td>1.00</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Field description

Here is a description of the field labels shown in the I/O Activity Workload Block.

**DATABASE**
The database name. If the name is not available, the decimal DBID/OBID is printed.

**PAGESET**
The page set name. If the name is not available, the decimal DBID/OBID is printed.

**MEMBER**
The name of the DB2 member within the DB2 data sharing group.

**BP**
The buffer pool name.

**I/O REQUEST TOTAL**
The total number of I/O requests.

**I/O REQUEST AET**
The average elapsed time for each I/O request.

**READ REQUEST TOTAL**
The number of read I/O requests of a specific type.

**READ REQUEST TYPE**
The type of read request:

- **SYNCH**
  Synchronous read request

- **SEQPF**
  Sequential prefetch request

- **DYNPF**
  Dynamic prefetch request

- **LSTPF**
  List prefetch request

**READ REQUEST AET/WITH**
The average elapsed time for a read with I/O of a specific type.

**READ REQUEST %WITH**
The percentage of total read requests with I/O for a particular type.

**READ REQUEST PAGE/WITH**
The pages read for each read request with I/O of a particular type.

**READ REQUEST %WITHOUT**
The percentage of total read requests without I/O for a particular type. This can occur because all the pages requested by a prefetch read were already in the buffer pool.
Utility Activity - I/O

WRITE REQUEST TOTAL
The number of write I/O requests.

WRITE REQUEST TYPE
The type of write request.

WRITE REQUEST CAST
Indicates whether the write operations were initiated due to a coupling facility castout.

WRITE REQUEST AET
The average elapsed time for each write.

WRITE REQUEST PAGE/WRITE
The number of pages written.

LISTDEF Information:

This topic describes the workload block of the list definition (LISTDEF) information.

LISTDEF Information Workload Block

This is an example of the workload block of the list definition (LISTDEF) information.

--- LISTDEF LIST INFO ---------------------------------------------------------------
LIST NAME : CCCCCCCCCCCCCCCCCB LIST TYPE : M LIST SIZE : 12345

Field description

The workload block of the list definition (LISTDEF) information contains the following fields:

LIST NAME
Name of list definition information.

LIST TYPE
Type of LISTDEF information:
T Table space list.
I Index space list.
M Mixed list.

Lock Suspension Activity:

This topic shows detailed information about “Workload Detail - Lock Suspension Activity”.

This block shows the lock suspension activity for each object performed by the event.

Lock Suspension Activity Workload Block Example

The field labels shown in the following sample layout of “Lock Suspension Activity Workload Block” are described in the following section.

--- LOCK SUSPENSION ACTIVITY ---------------------------------------------------------
RESOURCE NAME TYPE REQUEST LOCAL LATCH IRLMQ GROUP NOTIF OTHER COUNT AET COUNT AET COUNT AET
DBPARALL TSPARALL DATAPAGE NOTIFY 0 0 0 24 24 0 0 24 0.74382 0 N/C 0 N/C

IBM Db2 Performance Expert on z/OS
The following list describes the fields in the lock suspension activity workload block:

**RESOURCE NAME**

The name of the resource on which the suspended request is made. The content of the field depends on the resource type:

- The plan name for SKCT
- The collection and package IDs for SKPT
- The collection ID for COLLECT
- The database name for DATABASE, CDB PLK, DBD PLCK
- The buffer pool ID for ALTERBUF, GBP S/S, P/P PLCK, PAGEPLCK, GBP CAST, P/P CAST
- The anchor point ID for HASH-ANC
- The row ID for ROW
- N/A for MASS, UTILITY, BINDLOCK, ALTERBUF, CATM MIG, CATM CAT, CATM DIR
- The database and page set names for all others

The database and page set names are translations obtained from the IFCIDs 105 and 107. If these records are unavailable, the decimal DBIDs and OBIDs are printed.

**MEMBER**

The name of the DB2 member within the DB2 data sharing group.

**TYPE**

The type of the locked resource. Possible values are shown in Table 261 on page 3461.

**REQUEST**

The type of request that has been suspended:

- LOCK  IRLM lock request
- UNLOCK  IRLM unlock request
- CHANGE  IRLM change request
- QUERY  IRLM query request
- NOTIFY  IRLM notify request
- DRAIN  Drain request
- LATCH  Latch request

**SUSPEND REASON LOCAL**

The number of suspensions due to local resource contentions.

**SUSPEND REASON LATCH**

The number of suspensions due to IRLM latch contentions.
Utility Activity - Lock Suspension

SUSPEND REASON IRLMQ
The number of suspensions due to IRLM queued requests.

SUSPEND REASON GROUP
The number of suspensions due to global contention.

SUSPEND REASON NOTIFY
The number of suspensions due to intersystem message sending.

SUSPEND REASON OTHER
The number of suspensions due to reasons other than those listed previously.

Note: For drain suspensions, the suspension reason is always “waiting for the claim count to reach zero” and is categorized as OTHER.

NORML RESUME COUNT
The number of suspensions that ended in the task, resuming normal processing after the lock request has completed.

NORML RESUME AET
The normal resume average elapsed time. This is the normal resume elapsed time divided by the NORML RESUME COUNT.

TIMEO RESUME COUNT
The number of suspensions that ended in a timeout.

TIMEO RESUME AET
The average elapsed timeout time. This is the elapsed timeout time divided by the TIMEO RESUME COUNT.

DEADL RESUME COUNT
The number of suspensions that ended in a deadlock.

Note: Drain suspensions do not end in a deadlock.

DEADL RESUME AET
The average elapsed deadlock time. This is the elapsed deadlock time divided by the DEADL RESUME COUNT.

Page and Row Locking Activity:
This block shows the page locking, row locking, and lock avoidance activity for each object, performed by the event.

The page and row locking activity block is only printed if a commit occurred or a thread terminated.

In summary by occurrence, page and row locking activity information generated for explicit commits is shown on the relevant commit events.

In summaries by cursor or program, any explicit commits occurring during the life of that cursor or program are counted. Page and row locking activity caused by those commits is shown on the relevant cursor or program.

In summaries by statement number or statement type, commits are not counted. Because page and row locking activity is not relevant for these summary levels, it is not printed.

Any page or row locking activity occurring when a thread terminated is shown in the summary by thread. This activity is added to any page or row locking which
took place in the body of the thread. Therefore, page and row locking figures in summary by thread can be greater than the sum of page locking figures shown in the body of the thread. The difference is the page and row locking activity occurring at thread termination.

An example of the page and row locking workload block is shown in the following example.

### Page and Row Locking Workload Block Example

<table>
<thead>
<tr>
<th>MEMBER</th>
<th>DATABASE</th>
<th>PAGESET</th>
<th>COUNT</th>
<th>LOCK</th>
<th>MAXIMUM PAGE OR ROW LOCKS HELD</th>
<th># LOCK ESCALATIONS</th>
<th>HIGHEST LOCK</th>
<th>TS</th>
<th>LOCK AVOID</th>
<th>TYPE</th>
<th>SUCCESSFUL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE11</td>
<td>DBPARALL</td>
<td>TSParall</td>
<td>1</td>
<td>PAGE</td>
<td>123456789012345678901234567890</td>
<td>0</td>
<td>0</td>
<td>SPL</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE12</td>
<td>DBPARALL</td>
<td>TSParall</td>
<td>2</td>
<td>PAGE</td>
<td>23456789012345678901234567890</td>
<td>2</td>
<td>2</td>
<td>SPL</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE21</td>
<td>DBPARALL</td>
<td>TSParall</td>
<td>1</td>
<td>PAGE</td>
<td>3456789012345678901234567890</td>
<td>3</td>
<td>3</td>
<td>SPL</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

1. The DBID and OBID are obtained from IFCID 020.
2. The values in MAX PAGE OR ROW LOCKS HELD, LOCK ESCALATIONS SHARED, and LOCK ESCALATIONS EXCLUSIVE are accumulated within a subsystem. They are reset only at thread deallocation or when a new user signon occurs.
3. The values in MAXIMUM PAGE OR ROW LOCKS, HIGHEST LOCK, and # LOCK ESCAL are reset at commit time for dynamic BINDs and for static BINDs for which release (commit) is specified. Otherwise, these values accumulate until thread deallocation or until a new user signon occurs.
4. IFCID 218 is an additional lock summary record, written for lock avoidance. It indicates whether a successful lock avoidance test occurred during a given unit of work. The record is externalized for the agent at each commit or rollback.
5. For each event, the relevant IFCID 020 and 218 records are processed. If there is a DBID/OBID combination present for IFCID 218 but not for IFCID 020, the IFCID 020 fields show N/P. If there is a DBID/OBID combination present for IFCID 020 but not for IFCID 218, the IFCID 218 field (LOCK AVOID SUCCESSFUL) shows N/P.

**Field description**

The fields in the page and row locking workload block are:

**MEMBER**

The name of the DB2 member within the DB2 data sharing group.

**DATABASE**

The database name, if available.

If the name is not available, the decimal DBID is printed instead.

**PAGESET**

The page set name, if available.

If the name is not available, the decimal OBID is printed instead.

**COUNT**

The number of page locking or row locking occurrences for each page set.

* Specific database and page set:
Utility Activity - Page and Row Locking

- At commit time: always 1
- At thread termination: the number of times this database and page set occurred on a commit record

• TOTAL
  - At commit time: the total number of page sets listed
  - At thread termination: the sum of the values for all page sets

LOCK SIZE
The lock size used:

PAGE Page lock
ROW Row lock
TABLE Table space or table lock
LOB LOB lock
UNKN Unknown lock
*
Multiple lock sizes

MAXIMUM PAGE OR ROW LOCKS
The maximum number of either page locks or row locks held at one time against this object.

# LOCK ESCAL
The number of lock escalations:

• 0 if no escalations occur
• For simple table spaces and partitioned table spaces not using selective partition locking (SPL): 1 if any escalation occurred for this table space in this logical unit of work
• For segmented table spaces: the number of tables within the table space that have experienced lock escalations
• For partitioned table spaces using SPL: the number of partitions for which locks escalated within the table space

The TOTAL contains the sum of all values in this column.

HIGHEST LOCK
The highest table space lock state.

If the table space is simple or partitioned not using SPL, it is the highest lock state for this database or page set. At trace end, it is the largest value from any commit for this object. The following values are possible:

IS Intent share
IX Intent exclusive
S Share
U Update share
SIX Share with intent exclusive
X Exclusive

If the table space is segmented or partitioned using SPL, this field is blank.

TS TYPE
The table space type:

SIMPL Simple table space
SEG  Segmented table space
PARTI Partitioned table space
SPL  Partitioned table space using selective partition locking (SPL)
LOB  LOB table space

LOCK AVOID SUCCESSFUL
Indicates whether there was a successful lock avoidance test during the unit of work.
If the state of this field changed during the summarization period, an asterisk (*) is shown.

MAX PAGE OR ROW LOCKS HELD
The maximum number of page locks and row locks held at one time across all objects.

LOCK ESCALATIONS: SHARED
The total of shared lock escalations.

LOCK ESCALATIONS: EXCLUSIVE
The total of exclusive lock escalations.

Utility Phases:
This block shows the utility phases for each object performed by the event. Its layout depends on whether the utility produces parallel tasks.

Note: You can process up to 40 utility phases for each object.

Phases Workload Block Example without Parallel Tasks
Here is an example of the phases workload block without parallel tasks. An example of the phases workload block with parallel tasks is shown in "Phases Workload Block Example with Parallel Tasks" on page 4640.
Utility Activity - Page and Row Locking

Phases Workload Block Example with Parallel Tasks

Here is an example of the phases workload block with parallel tasks.

--- Utility Phases ---

**Note:**

1. In LOAD and REORG utility parallelism, the calculation of the elapsed and CPU times for the SORT phase only takes into account the parallel sort, not the originating task.

2. Although not a phase of the LOAD or REORG utility, COPY is reported as a phase when a concurrent COPY was requested for the LOAD or REORG.

3. If the utility runs on several objects or partitions, a TOTAL is shown for each phase.

**Header Fields - Utility Phases:**

This topic describes the header fields of the Utility Phases.

**START TIME**

Start of the utility. This is the timestamp of the IFCID 023 (Utility Start) for the UTILINIT.

**ELAPSED TIME**

Total elapsed time. This is the difference between the timestamp of the IFCID 025 (Utility End) for the UTILTERM and the timestamp of the IFCID 023 (Utility Start) for the UTILINIT.

**UTILITY-ID**

User-defined utility identifier. This can be up to 16 characters in length.

**JOB NAME**

User-defined job name.
SHRLEVEL
The SHRLEVEL value of the utility. Possible values are: NONE, REFERENCE, or CHANGE.

SUBTASKS
These three numbers show the following information about parallel subtasks:
1. Requested number of subtasks.
2. Number of actual subtasks.
3. Number of reused subtasks.

Note: You can process up to 40 subtasks.

N/A is printed for both values when no subtasks or parallelism are used.

CPU TIME
Total CPU time. This is the difference between the CPU time of the IFCID 025 (Utility End) for the UTILTERM and the CPU time of the IFCID 023 (Utility Start) for the UTILINIT.

ACTIVITY TYPE
The name of the activity type and event. The activity type can only be BIND for bind events including remote bind activity, or UTILITY for utility events. All events are indented.

For a detailed description, of Activity Type, see page “Field description” on page 4622.

DATABASE.PAGESET
The page set ID. This field should match the corresponding field of the preceding IFCID 0024 record.

STEP
The step name of the utility job.

TOT. ZIIP
The total utility ZIIP time (if Accounting class 1 trace is activated).

SORT
The type of Sort:
- DF: DFSORT was invoked at least once. Possible values: are: Y or N.
- DB2: DB2 SORT was invoked at least once. Possible values: are: Y or N.
- DATA: The number of parallel data sorts.
- INDEX: The number of parallel index sorts.
- OTHER: The number of other sorts.

SORT CPU
The Sort CPU time.

SORT ZIIP
The Sort ZIIP time (if provided by the Sort program).

Field description - Utility phases:
This topic describes the fields of the Utility Phases.

PHASE
The name of the phase used by the utility.
Utility phases

UNLOAD
The unload phase of the maintask or the summary of unload subtasks.

SORT
The sort phase of the maintask or the summary of sort subtasks.

BUILD
The build phase of the maintask or the summary of build subtasks.

DATABASE
The database name of the object.

PAGESET
The table space name or index name of the object.

When the sort or build phase, or both, are running in parallel as part of a subtask, ******** is printed if the number of objects is greater than one.

PARTNO
The number of the partition or data set if the utility is operating on a single partition or data set. Otherwise, the value in this field is 0.

TYPE
The item type for the individual phases.

COUNT
The number of item types processed by the phase for one object.

ELAPSED TIME
The elapsed time of the phase. This is the time between the IFCID 024 (utility change) of the phase and the IFCID 024 of the next phase. For the last phase, this is the time between the IFCID 024 (utility change) of the phase and the IFCID 024 of the UTILTERM.

CPU TIME
The CPU time of the phase. This is the time between the IFCID 024 (utility change) of the phase and the IFCID 024 of the next phase. For the last phase, this is the time between the IFCID 024 (utility change) of the phase and the IFCID 024 of the UTILTERM.

UTILINIT/ UTILTERM
This is the starting and ending time of the utility. This is the sum of the time between the IFCID 023 (Utility start) for the subtask and the IFCID 024 of the first phase and the time between the IFCID 024 and the IFCID 025 (Utility end) of the UTILTERM. This is shown as elapsed time and CPU time.

MAIN TASK TOTAL
The total time spent processing main tasks. This is shown as elapsed time and CPU time.

SUBTASK
For each subtask, the following information is shown:

SUBTASK
The time between the IFCID 023 (utility start) for the subtask and the IFCID 024 (utility change) for the first phase within the subtask. This is shown as elapsed time and CPU time.

Phase
The name of the phase and time information. For a single phase, this is the time between the IFCID 024 (utility change) for the phase and the IFCID (utility end) of the subtask.

When a subtask contains multiple phases, the duration of the first and intermediate phases is measured from the IFCID 024 of the
phase to the IFCID 024 of the next phase. For the last phase in the
subtask, phase duration is taken from the IFCID 024 (utility
change) for the phase to the IFCID 025 (utility end) of the subtask.

This is shown as elapsed time and CPU time.

**SUBTASK TOTAL**
Total time spent processing the subtask. This is the time between
the IFCIDs 23 (utility start) and 25 (utility end) for the subtask.
This is shown as elapsed time and CPU time.

**Additional Record Information**
These topics provide additional information about reports.

**DPMOUT Record**
The externalized DPMOUT data is a sequential data set with variable-length
records. The following table outlines the format of the DPMOUT record.

*Note:* Do not use this record as a programming interface.

The DPMOUT record consists of the following sections:
- Header
- Product data section showing:
  - Instrumentation data
  - CPU data
  - DDF data
  - Data sharing information
- Repeating section information
- DBID and OBID translation information

The following tables show the layout of the DPMOUT record:

**DPMOUT header**

*Table 289. Layout of the DPMOUT Record (DPMOUT header)*

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>FIXED</td>
<td>Record length</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>FIXED</td>
<td>Reserved (zeros)</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>CHAR</td>
<td>'DPM'</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>FIXED</td>
<td>DB2PM version release flag</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>FIXED</td>
<td>Full record length</td>
</tr>
<tr>
<td>12</td>
<td>60</td>
<td>CHAR</td>
<td>SORT Key</td>
</tr>
<tr>
<td>12</td>
<td>16</td>
<td>CHAR</td>
<td>Location (EBCDIC)</td>
</tr>
<tr>
<td>28</td>
<td>8</td>
<td>CHAR</td>
<td>Group name</td>
</tr>
<tr>
<td>36</td>
<td>4</td>
<td>CHAR</td>
<td>Subsystem identifier</td>
</tr>
<tr>
<td>40</td>
<td>8</td>
<td>CHAR</td>
<td>Member</td>
</tr>
<tr>
<td>48</td>
<td>8</td>
<td>CHAR</td>
<td>SORT timestamp</td>
</tr>
<tr>
<td>56</td>
<td>1</td>
<td>CHAR</td>
<td>Destination code</td>
</tr>
<tr>
<td>57</td>
<td>4</td>
<td>CHAR</td>
<td>Destination sequence number</td>
</tr>
<tr>
<td>61</td>
<td>2</td>
<td>CHAR</td>
<td>Split record sequence no.</td>
</tr>
<tr>
<td>63</td>
<td>9</td>
<td>CHAR</td>
<td>Reserved</td>
</tr>
<tr>
<td>72</td>
<td>1</td>
<td>BIT 0</td>
<td>Record processing flags</td>
</tr>
</tbody>
</table>
### Table 289. Layout of the DPMOUT Record (DPMOUT header)  (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>73</td>
<td>3</td>
<td>CHAR</td>
<td>Reserved</td>
</tr>
<tr>
<td>76</td>
<td>8</td>
<td>CHAR</td>
<td>TIMEZONE adjusted timestamp</td>
</tr>
<tr>
<td>84</td>
<td>12</td>
<td>CHAR</td>
<td>Correlation name (translated)</td>
</tr>
<tr>
<td>96</td>
<td>8</td>
<td>CHAR</td>
<td>Correlation number (translated)</td>
</tr>
<tr>
<td>104</td>
<td>8</td>
<td>CHAR</td>
<td>Connecting system type</td>
</tr>
<tr>
<td>112</td>
<td>1</td>
<td>BIT</td>
<td>Record type flag</td>
</tr>
<tr>
<td>113</td>
<td>1</td>
<td>CHAR</td>
<td>Correlation data present</td>
</tr>
<tr>
<td>114</td>
<td>1</td>
<td>CHAR</td>
<td>CPU data present</td>
</tr>
<tr>
<td>115</td>
<td>1</td>
<td>CHAR</td>
<td>DDF data present</td>
</tr>
<tr>
<td>116</td>
<td>4</td>
<td>PTR</td>
<td>Offset to DBID/OBID section</td>
</tr>
<tr>
<td>120</td>
<td>2</td>
<td>FIXED</td>
<td>Length to DBID/OBID section</td>
</tr>
<tr>
<td>122</td>
<td>2</td>
<td>FIXED</td>
<td>Number to DBID/OBID section</td>
</tr>
<tr>
<td>124</td>
<td>2</td>
<td>FIXED</td>
<td>Offset to DBID/OBID strings</td>
</tr>
<tr>
<td>126</td>
<td>2</td>
<td>FIXED</td>
<td>length of DBID/OBID strings</td>
</tr>
<tr>
<td>128</td>
<td>2</td>
<td>FIXED</td>
<td>Total no. of split records</td>
</tr>
<tr>
<td>130</td>
<td>2</td>
<td>FIXED</td>
<td>Offset to long identifier</td>
</tr>
<tr>
<td>132</td>
<td>2</td>
<td>FIXED</td>
<td>Length of DPM0 header and</td>
</tr>
<tr>
<td>134</td>
<td>2</td>
<td>FIXED</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

### Product Data, Instrumentation Data

### Table 290. Layout of the DPMOUT Record (Product Data, Instrumentation Data)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>136</td>
<td>3</td>
<td>CHAR</td>
<td>Reserved</td>
</tr>
<tr>
<td>139</td>
<td>1</td>
<td>FIXED</td>
<td>Resource manager id</td>
</tr>
<tr>
<td>140</td>
<td>2</td>
<td>FIXED</td>
<td>IFCID</td>
</tr>
<tr>
<td>142</td>
<td>1</td>
<td>FIXED</td>
<td>Self defining area count</td>
</tr>
<tr>
<td>143</td>
<td>1</td>
<td>FIXED</td>
<td>DB2 version/release</td>
</tr>
<tr>
<td>144</td>
<td>4</td>
<td>PTR</td>
<td>ACE address</td>
</tr>
<tr>
<td>148</td>
<td>4</td>
<td>CHAR</td>
<td>Subsystem name</td>
</tr>
<tr>
<td>152</td>
<td>8</td>
<td>CHAR</td>
<td>Store clock value of header</td>
</tr>
<tr>
<td>160</td>
<td>4</td>
<td>FIXED</td>
<td>IFCID sequence number</td>
</tr>
<tr>
<td>164</td>
<td>4</td>
<td>FIXED</td>
<td>Destination sequence number</td>
</tr>
<tr>
<td>168</td>
<td>4</td>
<td>FIXED</td>
<td>Active trace number mask</td>
</tr>
<tr>
<td>172</td>
<td>16</td>
<td>CHAR</td>
<td>Local location name</td>
</tr>
<tr>
<td>188</td>
<td>24</td>
<td>CHAR</td>
<td>Logical unit of work ID (LUWID)</td>
</tr>
<tr>
<td>188</td>
<td>8</td>
<td>CHAR</td>
<td>Net id</td>
</tr>
<tr>
<td>196</td>
<td>8</td>
<td>CHAR</td>
<td>LU name</td>
</tr>
<tr>
<td>204</td>
<td>6</td>
<td>CHAR</td>
<td>Instance number</td>
</tr>
<tr>
<td>210</td>
<td>2</td>
<td>CHAR</td>
<td>Commit count</td>
</tr>
<tr>
<td>212</td>
<td>1</td>
<td>BIT</td>
<td>QWHS_Flags</td>
</tr>
</tbody>
</table>
Table 290. Layout of the DPMOUT Record (Product Data, Instrumentation Data) (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>212</td>
<td>2</td>
<td>FIXED</td>
<td>Ofset to long location</td>
</tr>
<tr>
<td>216</td>
<td>2</td>
<td>FIXED</td>
<td>Record sub-version</td>
</tr>
</tbody>
</table>

• Product Data, Correlation Data

Table 291. Layout of the DPMOUT Record (Product Data, Correlation Data)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>220</td>
<td>8</td>
<td>CHAR</td>
<td>Authorization id</td>
</tr>
<tr>
<td>228</td>
<td>12</td>
<td>CHAR</td>
<td>Correlation id</td>
</tr>
<tr>
<td>240</td>
<td>8</td>
<td>CHAR</td>
<td>Connection id</td>
</tr>
<tr>
<td>248</td>
<td>8</td>
<td>CHAR</td>
<td>Plan name</td>
</tr>
<tr>
<td>256</td>
<td>8</td>
<td>CHAR</td>
<td>Original operator id</td>
</tr>
<tr>
<td>264</td>
<td>4</td>
<td>FIXED</td>
<td>Connecting system type code</td>
</tr>
<tr>
<td>268</td>
<td>22</td>
<td>CHAR</td>
<td>Accounting token</td>
</tr>
<tr>
<td>290</td>
<td>2</td>
<td>CHAR</td>
<td>Reserved</td>
</tr>
<tr>
<td>292</td>
<td>66</td>
<td>CHAR</td>
<td>End user workstation data</td>
</tr>
<tr>
<td>292</td>
<td>16</td>
<td>CHAR</td>
<td>End user workstation userID</td>
</tr>
<tr>
<td>308</td>
<td>32</td>
<td>CHAR</td>
<td>End user workstation trans.</td>
</tr>
<tr>
<td>340</td>
<td>18</td>
<td>CHAR</td>
<td>End user workstation name</td>
</tr>
<tr>
<td>358</td>
<td>2</td>
<td>FIXED</td>
<td>Offset to long auth id</td>
</tr>
<tr>
<td>360</td>
<td>2</td>
<td>FIXED</td>
<td>Offset to long oper id</td>
</tr>
<tr>
<td>362</td>
<td>2</td>
<td>FIXED</td>
<td>Offset to long euser id</td>
</tr>
</tbody>
</table>

• Product Data, CPU Data

Table 292. Layout of the DPMOUT Record (Product Data, CPU Data)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>364</td>
<td>8</td>
<td>CHAR</td>
<td>CPU time</td>
</tr>
<tr>
<td>372</td>
<td>2</td>
<td>FIXED</td>
<td>Count field reserved (s)</td>
</tr>
<tr>
<td>374</td>
<td>2</td>
<td>FIXED</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

• Product Data, DDF Data

Table 293. Layout of the DPMOUT Record (Product Data, DDF Data)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>376</td>
<td>16</td>
<td>CHAR</td>
<td>Requester location name</td>
</tr>
<tr>
<td>392</td>
<td>8</td>
<td>CHAR</td>
<td>STCK for DBAT trace records</td>
</tr>
<tr>
<td>400</td>
<td>16</td>
<td>CHAR</td>
<td>Server name</td>
</tr>
<tr>
<td>416</td>
<td>8</td>
<td>CHAR</td>
<td>PRDID parm (DB2 2.3)</td>
</tr>
<tr>
<td>424</td>
<td>2</td>
<td>FIXED</td>
<td>Offset to requester name</td>
</tr>
</tbody>
</table>
### Utility phases

**Table 293. Layout of the DPMOUT Record (Product Data, DDF Data) (continued)**

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>426</td>
<td>2</td>
<td>FIXED</td>
<td>Offset to server name</td>
</tr>
</tbody>
</table>

- **Product Data, Data Sharing**

**Table 294. Layout of the DPMOUT Record (Product Data, Data Sharing)**

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>428</td>
<td>8</td>
<td>CHAR</td>
<td>DB2 Member name</td>
</tr>
<tr>
<td>436</td>
<td>8</td>
<td>CHAR</td>
<td>DB2 data sharing group</td>
</tr>
</tbody>
</table>

- **Self-Defining Sections**

**Table 295. Layout of the DPMOUT Record (Self-Defining Sections)**

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>444</td>
<td>4</td>
<td>PTR</td>
<td>Data section 1 offset</td>
</tr>
<tr>
<td>448</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 1 length</td>
</tr>
<tr>
<td>450</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 1 count</td>
</tr>
<tr>
<td>452</td>
<td>4</td>
<td>PTR</td>
<td>Data section 2 offset</td>
</tr>
<tr>
<td>456</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 2 length</td>
</tr>
<tr>
<td>458</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 2 count</td>
</tr>
<tr>
<td>460</td>
<td>4</td>
<td>PTR</td>
<td>Data section 3 offset</td>
</tr>
<tr>
<td>464</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 3 length</td>
</tr>
<tr>
<td>466</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 3 count</td>
</tr>
<tr>
<td>468</td>
<td>4</td>
<td>PTR</td>
<td>Data section 4 offset</td>
</tr>
<tr>
<td>472</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 4 length</td>
</tr>
<tr>
<td>474</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 4 count</td>
</tr>
<tr>
<td>476</td>
<td>4</td>
<td>PTR</td>
<td>Data section 5 offset</td>
</tr>
<tr>
<td>480</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 5 length</td>
</tr>
<tr>
<td>482</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 5 count</td>
</tr>
<tr>
<td>484</td>
<td>4</td>
<td>PTR</td>
<td>Data section 6 offset</td>
</tr>
<tr>
<td>488</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 6 length</td>
</tr>
<tr>
<td>490</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 6 count</td>
</tr>
<tr>
<td>492</td>
<td>4</td>
<td>PTR</td>
<td>Data section 7 offset</td>
</tr>
<tr>
<td>496</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 7 length</td>
</tr>
<tr>
<td>498</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 7 count</td>
</tr>
<tr>
<td>500</td>
<td>4</td>
<td>PTR</td>
<td>Data section 8 offset</td>
</tr>
<tr>
<td>504</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 8 length</td>
</tr>
<tr>
<td>506</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 8 count</td>
</tr>
<tr>
<td>508</td>
<td>4</td>
<td>PTR</td>
<td>Data section 9 offset</td>
</tr>
<tr>
<td>512</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 9 length</td>
</tr>
<tr>
<td>514</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 9 count</td>
</tr>
<tr>
<td>516</td>
<td>4</td>
<td>PTR</td>
<td>Data section 10 offset</td>
</tr>
<tr>
<td>520</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 10 length</td>
</tr>
</tbody>
</table>
### Table 295. Layout of the DPMOUT Record (Self-Defining Sections) (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>522</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 10 count</td>
</tr>
<tr>
<td>524</td>
<td>4</td>
<td>PTR</td>
<td>Data section 11 offset</td>
</tr>
<tr>
<td>528</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 11 length</td>
</tr>
<tr>
<td>530</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 11 count</td>
</tr>
<tr>
<td>532</td>
<td>4</td>
<td>PTR</td>
<td>Data section 12 offset</td>
</tr>
<tr>
<td>536</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 12 length</td>
</tr>
<tr>
<td>538</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 12 count</td>
</tr>
<tr>
<td>540</td>
<td>4</td>
<td>PTR</td>
<td>Data section 13 offset</td>
</tr>
<tr>
<td>544</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 13 length</td>
</tr>
<tr>
<td>546</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 13 count</td>
</tr>
<tr>
<td>548</td>
<td>4</td>
<td>PTR</td>
<td>Data section 14 offset</td>
</tr>
<tr>
<td>552</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 14 length</td>
</tr>
<tr>
<td>554</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 14 count</td>
</tr>
<tr>
<td>556</td>
<td>4</td>
<td>PTR</td>
<td>Data section 15 offset</td>
</tr>
<tr>
<td>560</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 15 length</td>
</tr>
<tr>
<td>562</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 15 count</td>
</tr>
<tr>
<td>564</td>
<td>4</td>
<td>PTR</td>
<td>Data section 16 offset</td>
</tr>
<tr>
<td>568</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 16 length</td>
</tr>
<tr>
<td>570</td>
<td>2</td>
<td>FIXED</td>
<td>Data section 16 count</td>
</tr>
<tr>
<td>572</td>
<td>2</td>
<td>FIXED</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

### DBID/OBID Translation

#### Table 296. Layout of the DPMOUT Record (DBID/OBID Translation)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>FIXED</td>
<td>Offset to DBID/OBID section</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>FIXED</td>
<td>OBID number</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>CHAR</td>
<td>Database name</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
<td>CHAR</td>
<td>Table or index space name</td>
</tr>
<tr>
<td>20</td>
<td>2</td>
<td>FIXED</td>
<td>Offset to index name</td>
</tr>
<tr>
<td>22</td>
<td>1</td>
<td>CHAR</td>
<td>Pageset type: I,T,U</td>
</tr>
<tr>
<td>23</td>
<td>1</td>
<td>CHAR</td>
<td>Reserved</td>
</tr>
<tr>
<td>24</td>
<td>4</td>
<td>FIXED</td>
<td>Object size in pages</td>
</tr>
</tbody>
</table>

### OMEGAMON for Db2 PE VSAM Data Sets

This section explains the VSAM Data Sets of OMEGAMON for Db2 PE.

OMEGAMON for Db2 PE uses the following VSAM data sets:

- A VSAM-Save data set is written when the job stream contains a SAVE subcommand without the CONVERT option.
- A physical sequential data set is written when the job stream contains a SAVE subcommand with a CONVERT option.
- Job summary data sets are written when new data is processed.
Utility phases

All VSAM data sets used in an OMEGAMON for Db2 PE job must exist before OMEGAMON for Db2 PE is executed. Preallocate the data sets using the IDCAMS command. You can run IDCAMS as an initial step in the OMEGAMON for Db2 PE job. The required attributes for VSAM data sets are shown in Table 297. An example of the required IDCAMS commands is shown in "IDCAMS Commands."

Refer to the z/OS DFSMS for more information about IDCAMS.

Note:
1. When the SAVE subcommand is specified, the save data set should be empty. If it is not empty, all existing records are deleted. If save and restore use the same physical data set, the restored data is rewritten during save.
2. You need not prime OMEGAMON for Db2 PE VSAM data sets.

### Table 297. Attributes for OMEGAMON for Db2 PE VSAM Data Sets

<table>
<thead>
<tr>
<th>Data Set</th>
<th>Key Length (bytes)</th>
<th>Maximum Record Length (bytes)</th>
<th>Average Record Length (bytes)</th>
<th>Buffer Space (bytes)</th>
<th>Data Control Interval Size (bytes)</th>
<th>Index Control Interval Size (bytes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting SAVE (ACSAVDD)</td>
<td>255</td>
<td>5500</td>
<td>3000</td>
<td>40 960</td>
<td>8192</td>
<td>4096</td>
</tr>
<tr>
<td>Statistics SAVE (STSAVDD)</td>
<td>92</td>
<td>8192</td>
<td>2400</td>
<td>40 960</td>
<td>8192</td>
<td>4096</td>
</tr>
<tr>
<td>Job Summary (JSSRSDD)</td>
<td>52</td>
<td>2462</td>
<td>160</td>
<td>40 960</td>
<td>8192</td>
<td>4096</td>
</tr>
</tbody>
</table>

Note: Buffer space and control interval size are suggestions only. You can modify them to suit the requirements of your installation.

### IDCAMS Commands

In this example, the job deletes the cluster if it already exists, then defines a new cluster with the specified attributes.

```
//ALCVSAM EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=* 
//SYSPIN DD * 
DELETE (cluster.name) 
DEFINE - 
   CLUSTER { - 
      NAME (cluster.name) - 
      TRACKS (as required) - 
      VOLUMES (as required) - 
      KEYS (keylength 0) - 
      RECORDSIZE (average maximum) - 
      BUFFERSPACE (40960) - 
      REUSE - 
   ) - 
DATA { - 
      CONTROLINTERVALSIZE (8192) - 
   } 
INDEX { - 
      CONTROLINTERVALSIZE (4096) - 
   } 
/*
```

### Correlation Translation Record

This record layout is not intended to be used as programming interface.

### Table 298. Correlation Translation Record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>8</td>
<td>Connection ID</td>
</tr>
</tbody>
</table>
Table 298. Correlation Translation Record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>2</td>
<td>Correlation name offset</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>Correlation name length</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td>Correlation number offset</td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>Correlation number length</td>
</tr>
<tr>
<td>16</td>
<td>64</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

**Location Information Record**
This topic describes the record format of the location information.

Table 299. Location Information Record Format

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>16</td>
<td>CHAR</td>
<td>Location</td>
</tr>
<tr>
<td>16</td>
<td>2</td>
<td>CHAR</td>
<td>Reserved</td>
</tr>
<tr>
<td>18</td>
<td>1</td>
<td>CHAR</td>
<td>Local time relativity (E or W)</td>
</tr>
<tr>
<td>19</td>
<td>5</td>
<td>CHAR</td>
<td>Difference between local time and GMT (HH:MM)</td>
</tr>
<tr>
<td>24</td>
<td>1</td>
<td>CHAR</td>
<td>CPU time relativity (E or W)</td>
</tr>
<tr>
<td>25</td>
<td>5</td>
<td>CHAR</td>
<td>Difference between CPU time and GMT (HH:MM)</td>
</tr>
<tr>
<td>30</td>
<td>50</td>
<td>CHAR</td>
<td>Reserved</td>
</tr>
</tbody>
</table>

**MAINPACK Definitions Record**
This topic describes the record format of the MAINPACK Definitions.

**Note:** This record layout is not intended to be used as programming interface.

Table 300. MAINPACK Definitions Record Format

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Data Type</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>16</td>
<td>CHAR</td>
<td>Requester location</td>
</tr>
<tr>
<td>16</td>
<td>8</td>
<td>CHAR</td>
<td>Connection ID</td>
</tr>
<tr>
<td>24</td>
<td>8</td>
<td>CHAR</td>
<td>Plan name</td>
</tr>
<tr>
<td>32</td>
<td>1</td>
<td>CHAR</td>
<td>Code</td>
</tr>
</tbody>
</table>
Utility phases
Chapter 7. Commands

This section describes each command and its command syntax.

“Operator commands”
“Report commands” on page 4665

Operator commands

You can issue commands to the OMEGAMON Collector and its subtasks from the operator console.

This figure gives a graphical overview of the command hierarchy:

![Command Hierarchy Diagram]

Figure 297. Overview of the command hierarchy

The started-task commands apply to the OMEGAMON Collector.

The subtask commands comprise:
- General subtask commands that apply to all subtasks
- Specific subtask commands that apply to a specific subtask

The command syntax is:
started-task command,subtask command,subcommand

The commands are listed in “Started-task commands” and “Additional OMEGAMON Collector subtask commands” on page 4652.

Started-task commands

The OMEGAMON Collector runs as a started task.

Started-task commands for the OMEGAMON Collector are:

**START command**

Starts the started task for the OMEGAMON Collector.

You can abbreviate START to S.
$ cccccccc
where cccccccc is the started task name that you specify for the OMEGAMON Collector during the configuration within the Configuration Tool.

STOP command

Stops the started task for the OMEGAMON Collector.

You can abbreviate STOP to P.

P cccccccc
where cccccccc is the started task name that you specify for the OMEGAMON Collector during the configuration within the Configuration Tool.

MODIFY command

Changes the started task for the OMEGAMON Collector.

You can abbreviate MODIFY to F.

F cccccccc
where cccccccc is always the started task name that you specify for the OMEGAMON Collector during the configuration within the Configuration Tool.

Parameters for this command are:

F cccccccc,DISPLAY
  Shows all active tasks. It displays the unique ID for the task and the task program name. The internal ID is required, for example, if you want to stop the subtask under the OMEGAMON Collector.

  **Note:** Command output is displayed in system log.

  This example shows system output for the DISPLAY parameter:
  
  CIO543: THE FOLLOWING TASK IDS ARE ACTIVE:
  CIO594 ID=O2U518  PROGRAM=KO2OINTB
  CIO594 ID=O2U520  PROGRAM=KO2OINTB
  CIO594 ID=OBVTAM  PROGRAM=KO2VTAM
  CIO594 ID=H2      PROGRAM=KO2HWLMB
  CIO594 ID=EVENTMGR PROGRAM=KO2EINTB
  
  F cccccccc,LIST
  Shows all active tasks. Is an alternate name for the DISPLAY parameter and produces the same results.

Additional OMEGAMON Collector subtask commands

You can issue commands to subtasks, such as COMM COLL, H2WLMGR, or EVENTMGR, which run under the OMEGAMON Collector. The subtask commands must be preceded by the MODIFY command of the OMEGAMON Collector.

General subtask commands are:

START subtask command

Starts a subtask under the OMEGAMON Collector.

You can abbreviate START to $.
**START subtask command**

This example of the **START** subtask command starts the subtask Near-Term History Data Collector from collecting trace data from the DB2 subsystem D41X.

F cccccccc,S H2D41X

where **H2D41X** is the subtask ID for the Near-Term History Data Collector.

**STOP subtask command**

This example of the **STOP** subtask command stops the subtask Near-Term History Data Collector from collecting trace data from the DB2 subsystem D41X.

F cccccccc,P H2D41X

where **H2D41X** is the subtask ID for the Near-Term History Data Collector.

You can also issue specific subtask commands as described in:

- “Subtask commands to Performance Expert Server” on page 4661
- “Subtask commands to the Near-Term History Data Collector” on page 4661
- “Subtask commands to the Event Collection Manager” on page 4663

**Subtask commands to Performance Expert Server**

You can issue specific subtask commands to the Performance Expert Server subtask (PESERVER). The subtask commands must be preceded by the MODIFY command.

Specific subtask commands are:

**START command**

This example of the **START** subtask command starts the subtask Near-Term History Data Collector from collecting trace data from the DB2 subsystem D41X.

F cccccccc,F PESERVER,S db2ssid

where

- **db2ssid** is the started task name that you specify for the OMEGAMON Collector during the configuration within the Configuration Tool
• *db2ssid* is the identifier of the DB2 subsystem for which you want to start the Performance Expert Server instance

**STOP command**

Stops an instance of Performance Expert Server for a specific DB2 subsystem.

**Note:** If you stop a Performance Expert Server instance with the **STOP** command, it will no longer be started automatically during the detect cycles of the DB2 subsystem auto detect feature until the OMEGAMON Collector subtask PESERVER is restarted.

You can abbreviate **STOP** to **P**.

```
Fcccccccc,F PESERVER,P db2ssid
```

where

- *cccccccc* is the started task name that you specify for the OMEGAMON Collector during the configuration within the Configuration Tool
- *db2ssid* is the identifier of the DB2 subsystem for which you want to stop the Performance Expert Server instance

**MODIFY command**

Issues a subcommand to the PESERVER subtask.

```
Fcccccccc,F PESERVER,F db2ssid,option
```

where:

- *cccccccc* is the started task name that you specify for the OMEGAMON Collector during the configuration within the Configuration Tool
- *db2ssid* is the identifier of the DB2 subsystem on which the PESERVER subtask runs.

**Tip:** Enter **ALL** for all of the DB2 subsystems on which the PESERVER subtask runs.

- *option* is the subcommand for the PESERVER subtask

Subcommands for the PESERVER subtask are:

**DB2MSGMON=parameter**

Starts or stops the DB2 messages collector. This collector shows or hides DB2 messages in the Tivoli Enterprise Portal workspaces. *parameter* can be one of these values:

- **Y** Starts the DB2 messages collector, which shows DB2 messages in the Tivoli Enterprise Portal workspaces. The DB2 messages collector is a function of the READA collector support task. If the READA collector support task has not been started, enabling the DB2 messages collector will start the READA collector support task.
- **N** Stops the DB2 messages collector, which hides DB2 messages in the Tivoli Enterprise Portal workspaces. If the DB2 messages collector is the only function enabled for the READA collector support task, disabling the DB2 messages collector will stop the READA collector support task.

**DISPLAY=(parameter,parameter,...)**

Specifies that specific details of the PESERVER subtask are displayed, where *parameter* can be one of these values:
PARMS
  Shows parameters for the PESERVER subtask.
  You can abbreviate this parameter to P.

USERS
  Shows users of the PESERVER subtask.
  You can abbreviate this parameter to U.

TRACE
  Shows the current status of all internal traces of the PESERVER subtask.
  You can abbreviate this parameter to T.

If you specify DISPLAY without parameters, all details are shown.

EPTT=parameter
  Specifies the threshold value for the elapsed processing time in seconds, where:
  •  parameter is an integer from 0 to 240

  If EPTT is set to a value greater than 0, the elapsed processing time and threshold are being compared. If the elapsed processing time exceeds the threshold, message FPEV2100W is issued.

  If EPTT is set to 0, the threshold is cleared and the comparison is disabled.

  The MODIFY command can be used to diagnose timeout conditions that are reported during the operation of the monitoring PESERVER subtask. For example, message FPEV2102W reports timeout conditions when data retrieval requests issued by the Classic Interface are not completed by the PESERVER subtask within 10 seconds. The MODIFY command sets an internal threshold for the elapsed processing time (EPTT) in the DB2 interface task of the PESERVER subtask. If a call to the DB2 IFI interface does not complete within the specified time:
  •  Message FPEV2103I is issued (optional).
  •  Message FPEV2100I is issued.

  The control block containing measured elapsed times is dumped to the server log in hexadecimal format for use by IBM support. An SVC dump for the DB2 address spaces of the monitored DB2 subsystem is initiated. The dump will only be taken for the first occurrence of a timeout after EPTT is set. In this case message FPEV2101I is issued to inform the user that a dump was initiated. The dump title is 'FPEVDB2I - DB2 ADDRESS SPACES FOR db2ssid', where db2ssid is the identifier for the DB2 subsystem. No further dump can be initiated until the PESERVER subtask is recycled.

TONT=parameter
  Specifies the value for the timeout notify threshold in seconds, where:
  •  parameter is an integer from 0 to 240

  If TONT is set to a value greater than 0, the time exceeding the internal timeout value and the timeout notify threshold are compared. If the internal timeout value for the elapsed processing time is exceeded by more time than specified in the timeout notify threshold, message FPEV2102W is issued. Otherwise message FPEV2102W is suppressed.

  If TONT is set to 0, the threshold is cleared, the comparison is disabled and message FPEV2102W will be issued for each data retrieval request exceeding the internal timeout value.
The MODIFY command sets the timeout notify threshold (TONT) in the DB2 interface task of the PESERVER subtask. If a call to the DB2 IFI interface does not complete within the time, which is calculated as internal timeout value plus specified notify threshold time, message FPEV2102W is issued. The current setting for the timeout notify threshold is displayed as part of the response to the DISPLAY MODIFY command (F cccccccc,F PESERVER,F db2ssid,DISPLAY).

The MODIFY command can be used to suppress the reporting of timeout conditions that are detected during the operation of the monitoring PESERVER subtask. You can suppress message FPEV2102W for systems running at their capacity limit where timeout conditions are expected but extraordinary situations will be reported. For example, message FPEV2102W reports timeout conditions when data retrieval requests issued by the Classic Interface are not completed by the PESERVER subtask within 10 seconds. If message FPEV2102W displays values up to 8 seconds in phases where limited responsiveness is expected, the timeout notify threshold can be set to 9 seconds to suppress expected messages and to still get alerted in case responsiveness decreases.

`RACOPS=parameter`

`RACOPSIZE=parameter`

Changes the size of the OP buffer used by the READA collector support task to retrieve READA data from the monitored DB2 subsystem or data sharing group, where:

- `parameter` is an integer between 16 and 64 (representing an OP buffer size in MB)

**Note:** Changing the OP buffer size will stop and restart the DB2 trace that is currently active for the OP buffer.

`RACOPT=parameter`

`RACOPTHRESHOLD=parameter`

Changes the threshold of the OP buffer used by the READA collector support task to retrieve READA data from the monitored DB2 subsystem or data sharing group, where:

- `parameter` is an integer between 6 and 75 (representing a percentage value)

The OP buffer threshold defines the fill level of the OP buffer that should trigger processing of OP buffer data by the READA collector support task. For example, specifying a OP buffer threshold of 15% causes the READA collector support task to retrieve data from the OP buffer as soon as the OP buffer space is used up to 15%.

**Note:** Changing the OP buffer size will stop and restart the DB2 trace that is currently active for the OP buffer.

`SHDATASETSTATISTICS=(parameter,interval)`

Specifies that data set information is collected, where:

- `parameter` can be Y or N
- `interval` is the time interval between two consecutive snapshots in seconds

`SHDB2CONNECTAPPLICATION=(parameter,interval)`

Specifies that DB2 Connect application data is collected if Performance Expert Agent for DB2 Connect Monitoring is installed, where:

- `parameter` can be Y or N
- `interval` is the time interval between two consecutive snapshots in seconds
**Recommendation:** For correlation reasons, the interval value should be identical to the interval value of the subcommand SHTHREAD.

**Restriction:** When DB2 Connect monitoring is active for more than one server, only one of these servers should access the collected data on the corresponding DB2 subsystem at a time. For more information about this restriction, refer to “Configuring Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 411 or to “Configuring Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux” on page 429.

**SHDB2CONNECTSYSTEM** = *(parameter, interval)*

Specifies that DB2 Connect system data is collected if Performance Expert Agent for DB2 Connect Monitoring is installed, where:
- *parameter* can be Y or N
- *interval* is the time interval between two consecutive snapshots in seconds

**Recommendation:** For correlation reasons, the interval value should be identical to the interval value of the subcommand SHSTATISTICS.

**Restriction:** When DB2 Connect monitoring is active for more than one server, only one of these servers should access the collected data on the corresponding DB2 subsystem at a time. For more information about this restriction, refer to “Configuring Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 411 or to “Configuring Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux” on page 429.

**SHSQLCACHE** = *(parameter, interval)*

Specifies that SQL statement cache information is collected, where:
- *parameter* can be Y or N
- *interval* is the time interval between two consecutive snapshots in seconds

**SHSTATISTICS** = *(parameter, interval)*

Specifies that DB2 statistics information is collected, where:
- *parameter* can be Y or N
- *interval* is the time interval between two consecutive snapshots in seconds

**Recommendation:** For correlation reasons, the interval value should be identical to the interval value of the subcommand SHDB2CONNECTSYSTEM.

**SHPYSTEMPARAMETERS** = *(parameter, interval)*

Specifies that system parameter information is collected, where:
- *parameter* can be Y or N
- *interval* is the time interval between two consecutive snapshots in seconds

**SHTHREAD** = *(parameter, interval)*

Specifies that thread information is collected, where:
- *parameter* can be Y or N
- *interval* is the time interval between two consecutive snapshots in seconds

**Recommendation:** For correlation reasons, the interval value should be identical to the interval value of the subcommand SHDB2CONNECTAPPLICATION.

If SHTHREAD is set to Y, thread detail data is collected, except for lock data and SQL text data.

If you want to collect lock data or SQL text data, or both, you must specify the parameters SHTHREADLOCK or SHTHREADSQL, or both succeeding the parameter SHTHREAD. Lock data and SQL text data is then collected within the same time interval as SHTHREAD.
SHTHREADLOCK=parameter
If SHTHREAD is set to Y, SHTHREADLOCK specifies if thread data, which is collected for Snapshot History, includes lock data.

*parameter* can be one of these values:

- **Y**: Thread data for Snapshot History is collected including lock data.
- **N**: Thread data for Snapshot History is collected excluding lock data.

SHTHREADSQL=parameter
If SHTHREAD is set to Y, SHTHREADSQL specifies if thread data, which is collected for Snapshot History, includes SQL text data.

*parameter* can be one of these values:

- **Y**: Thread data for Snapshot History is collected including SQL text data.
- **N**: Thread data for Snapshot History is collected excluding SQL text data.

SNAPSHOTHISTORY=parameter
Activates or deactivates Snapshot History processing, where *parameter* can be one of these values:

- **Y**: Activates Snapshot History processing.
- **N**: Deactivates Snapshot History processing.

You can abbreviate the subcommand to **SH**.

**Restriction:** When DB2 Connect monitoring is active for more than one server, only one of these servers should access the collected data on the corresponding DB2 subsystem at a time. For more information about this restriction, refer to “Configuring Performance Expert Agent for DB2 Connect Monitoring on Windows” on page 411 or to “Configuring Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux” on page 429.

SPMON=parameter
Starts or stops the stored procedure collector. This collector shows or hides stored procedure monitoring data in the IBM InfoSphere Optim Performance Manager dashboards.

*parameter* can be one of these values:

- **Y**: Starts the stored procedure collector, which shows stored procedure monitoring data in the IBM InfoSphere Optim Performance Manager dashboards. The stored procedure collector is a function of the READA collector support task. If the READA collector support task has not been started, enabling the stored procedure collector will start the READA collector support task.
- **N**: Stops the stored procedure collector, which hides stored procedure monitoring data in the IBM InfoSphere Optim Performance Manager dashboards. If the stored procedure collector is the only function enabled for the READA collector support task, disabling the stored procedure collector will stop the READA collector support task.

TRACELEVEL=parameter
Specifies the trace level for internal data server traces, where *parameter* is an integer value from 0 to 127.

You can abbreviate this parameter to **TL**.

This example shows the command to display all PESERVER parameters for the monitored DB2 subsystem D721:
$F\ D721\ DM1S,\ F\ PESERVER,\ F\ D721,\ DISPLAY=(PARMS)$

where D721DM1S is the started task for the OMEGAMON Collector.

This example shows the command to display all PESERVER parameters and users for all monitored DB2 subsystems:

$F\ D721\ DM1S,\ F\ PESERVER,\ F\ ALL,\ DISPLAY=(PARMS,USERS)$

where D721DM1S is the started task for the OMEGAMON Collector.

**Subtask commands to TEP Data Collection**

You can issue specific subtask commands to the TEP Data Collection. The subtask commands must be preceded by the `MODIFY` command.

Specific subtask commands are:

**MODIFY command**

Issues a subcommand to the COMMCOLL subtask.

$F\ cccccccc,\ F\ COMMCOLL,\ option$

where:

- `ccccccc` is the started task name that you specify for the OMEGAMON Collector during the configuration within the Configuration Tool
- `option` is the task that the COMMCOLL subtask should perform

`option` can be one of the following:

**CONNECTIONS**

Displays the active Agent connections to DB2 subsystems that are created by the D5API collector on behalf of the Agent.

**STIMER**

Changes the D5API collect interval value.

**REGISTRY**

Displays the internal contents of the D5API registration table.

**TRACE=NO**

Removes additional D5API collector write-to-operator (WTO) messages in the joblog of the server address space.

**TRACE=YES**

Displays additional D5API collector write-to-operator (WTO) messages in the joblog of the server address space.

**TRACEALL**

Displays the internal contents of the D5API trace table.

**STATUS**

Displays the status of the D5API.

This example shows how the D5API collect interval is changed.

$F\ D2DBnnn,\ F\ COMMCOLL,\ STIMER=hhmmsssth$

$F\ D2DB046,\ F\ COMMCOLL,\ STIMER=00001000$

CI0760: PROCESSING COMMAND
CI0720: PROCESS MESSAGES FOLLOW
D53101I COMMCOLL MODIFY PROCESSING IN PROGRESS
This example shows how the contents of the D5API registration table are displayed.

The registration table (REGISTRY) contains registration entries (RTBEs) for every OMEGAMON Collector instance running on an MVS image.

**F D2DBnnn,F COMMCCOLL,REGISTRY**

D53101I COMMCCOLL MODIFY PROCESSING IN PROGRESS
D53106I COMMON COLLECTOR REGISTRATION DATA DISPLAY
RTBE: ACTIVE=00000002 CONNECTED=00000002 MAX=00000040
RTBE DATA: FLGS=80000000 ATTACH=0001 DETACH=0001 STIMER=00000150
RTBE DATA: FLGS=80000000 ATTACH=0000 DETACH=0000 STIMER=00000150

If the module KO2AINIB is attached to any DB2 address space, the KO2AINIB registration routine adds an RTBE entry to the registration table. The RTBE contains the JOB/STC name of the DB2 address space and the address of the D5API communication control table and other information.

This list describes the RTB fields:

**ACTIVE**
- The active number of number of connections

**CONNECTED**
- The number of connected D2 address spaces

**MAX**
- The maximum number of D2 address spaces supported

This list describes the RTBE fields:

**RTBE**
- The registration table entry address within the RTB

**D2**
- The registration entry owning D2 address space

**D5APIUSE**
- The D5API common control table address

**STATUS**
- The status of the D5API in the D2 address space

**FLAGS**
- The status of the RTBE entry x'80' in use, x'00' available' Other flags currently 000000

**ATTACH**
- The number of times the D5API has attached KO2ACONB

**DETACH**
- The number of times the D5API has detached KO2ACONB

**STIMER**
- The elapsed interval value in the format of hhmmssth that a collect call can consume

This example shows how the internal contents of the D5API trace table are changed.
This example shows how the status of the D5API is displayed.

**Subtask commands to the Near-Term History Data Collector**

You can issue specific subtask commands to the Near-Term History Data Collector subtask (H2WLMGR). The subtask commands must be preceded by the `MODIFY` command of the OMEGAMON Collector.

Specific subtask commands are:

**START command**

The `START` command starts the Near-Term History Data Collector.

**STOP command**

The `STOP` command stops the Near-Term History Data Collector.
where
- \textit{cccccccc} is the started task name that you specify for the OMEGAMON Collector during the configuration within the Configuration Tool
- \textit{xxxx} is the name of the DB2 subsystem that the Near-Term History Data Collector monitors

\textbf{LISTH2DS command}

Lists the Virtual Storage Access Method (VSAM) data sets for history data that are defined in the collections options member. It also displays the status of each data set and the amount of space used.

\textbf{SWITCH command}

The Near-Term History Data Collector can switch and archive data sets automatically when the data set is full. The \texttt{SWITCH} command allows you to perform this operation manually whenever you want.

\textbf{Requirement:} Before you use this command, check the availability of your VSAM data sets by using the \texttt{LISTH2DS} command. Data is saved only for available data sets.

\textbf{VARY command}

Changes the collection specifications when the Near-Term History Data Collector is active.
members for specific DB2 subsystems can be created and invoked at startup of a Near-Term History Data Collector. Collection options in a COPTcccc data set member are specified by keywords and associated keyword values. Basically, keywords and values specify and limit the data to be collected by the Near-Term History Data Collector.

Generally, the Configuration Tool should be used to generate collection options members. Nevertheless, a collection options member for a specific DB2 subsystem can also be created by copying an existing collection options member or the default member rhilev.RKD2PAR(COPTcccc) and modifying the collection options in the copied member.

Keywords in a collection options member are used in the following ways:

- **Keyword(value)**
- **Keyword(value,value,...)**
- **Keyword(value:value,...)**

If a keyword accepts only one value, enter the value in parentheses after the keyword. If a keyword accepts multiple values, enter the values in parentheses after the keyword and separate the values by commas or spaces.

The NOT operator (¬) negates value specifications. For example, CONNID(¬IM3D,¬I210) specifies that the Near-Term History Data Collector should collect data about all connection identifiers except for IM3D and I210.

The asterisk (*) wildcard character can be used at the end of value specifications. For example, PLAN(ABCD*) specifies that the Near-Term History Data Collector should collect data about all plans with names that begin with ABCD.

The question mark (?) wildcard character can be used as a single character replacement within value specifications. For example, DB2ID(D??T) specifies that the Near-Term History Data Collector should collect data about all DB2 subsystems with names that begin with D, followed by two variable characters, and end with T.

If you must continue statements in an COPTcccc member on another line for keywords such as AUTHID, CONNID, CORRID, ORIGAUTH, or PLAN:
- Do not use a continuation character. This means, do not repeat a “Keyword(“ entry on the next line.
- Do no start the continuation line in column 1. Only keywords should begin in column 1, as in the following example:

```
PLAN(¬DSNG* ¬OSNI+ ¬FINA1 ¬FINA2 ¬DSNG*
  ¬DSNZZ ¬FINA3 ¬FINA4 ¬DSNR+ ¬DSNR*
  ¬FINA5 ¬FINAN6)
```

For more information refer to “Near-term history data collection options” on page 325.

The new collection specifications take effect after the current collection interval expires.

**Subtask commands to the Event Collection Manager**

You can issue specific subtask commands to the Event Collection Manager subtask (EVENTMGR). The subtask commands must be preceded by the MODIFY command of the OMEGAMON Collector.
Specific subtask commands are:

**START DB2=value**

Starts the object and volume analysis collectors for one or more Db2 subsystems. The Db2 subsystems are specified by subsystem IDs.

**Requirement:** If you specify more than one Db2 ID, you must enclose the string in parentheses.

You can use this parameter with the `MODIFY` command for the Event Collection Manager. The Event Collection Manager must already be started.

**F cccccccc,START EVENTMGR**

**F cccccccc,F EVENTMGR,START DB2=(db2ssid1,db2ssid2,...,db2ssidn)**

where:

- `ccccccc` is the started task name that you specify for the OMEGAMON Collector during the configuration within the Configuration Tool
- `db2ssid1,db2ssid2,...,db2ssidn` are the identifiers of the Db2 subsystems for which object and volume analysis collectors should be started

**STOP DB2=value**

Stops the object and volume analysis collectors for one or more Db2 subsystems. The Db2 subsystems are specified by subsystem IDs.

**Requirement:** If you specify more than one Db2 ID, you must enclose the string in parentheses.

**F cccccccc,F EVENTMGR,STOP DB2=(db2ssid1,db2ssid2,...,db2ssidn)**

where:

- `ccccccc` is the started task name that you specify for the OMEGAMON Collector during the configuration within the Configuration Tool
- `db2ssid` is the identifier of the Db2 subsystem for which object and volume analysis collectors should be stopped

**START INTERVAL=value**

Specifies the time interval for the start of the object and volume analysis collectors in minutes.

**Restrictions:**

- You can specify only one value for the interval.
- The value must be a number from 1 to 1440.

You can use this parameter with the `MODIFY` command for the Event Collection Manager.

**F cccccccc,F EVENTMGR,START DB2=db2ssid,INTERVAL=value**

where:

- `ccccccc` is the started task name that you specify for the OMEGAMON Collector during the configuration within the Configuration Tool
- `db2ssid` is the identifier of the Db2 subsystem for which object and volume analysis collectors are started
- `value` is the value for the interval
**START PARM=(COLD=value)**

Specifies if the Event Collection Manager configuration should be restarted. This option should only be used if a Db2 subsystem has been dynamically added to the z/OS LPAR since the Event Collection Manager was started, or under guidance from Level 2 support.

You can specify YES or NO. The default value is NO.

You can use this parameter with the `START` command for the Event Collection Manager.

```
F cccccccc,START EVENTMGR,PARM=(COLD=YES)
```

where:

- `ccccccc` is the started task name that you specify for the OMEGAMON Collector during the configuration within the Configuration Tool

**START THREAD=value**

Specifies if the object and volume analysis collectors should collect thread information.

You can specify YES or NO. The default value is YES.

You can use this parameter with the `MODIFY` command for the Event Collection Manager.

```
F cccccccc,F EVENTMGR,START DB2=db2ssid,THREAD=YES
```

where:

- `ccccccc` is the started task name that you specify for the OMEGAMON Collector during the configuration within the Configuration Tool
- `db2ssid` is the identifier of the Db2 subsystem for which object and volume analysis collectors are started

---

**Report commands**

This section describes the report commands and command syntax.

**OMEGAMON for Db2 PE identifiers**

This section provides a description of the OMEGAMON for Db2 PE identifiers that are used in reports and traces. These identifiers describe the object that OMEGAMON for Db2 PE is reporting on.

**Usage**

DB2 trace records contain identifiers that OMEGAMON for Db2 PE uses to:

- Group data
- Order reports
- Identify trace records
- Include or exclude specific data

**Note:** PRIMAUTH, ORIGAUTH, PLANNAME, CONNECT, CORRNAME, CORRNMBR, INSTANCE, CONNTYPE, and MAINPACK do not apply to statistics records. Except for MAINPACK, N/A is printed for these fields. For MAINPACK, nothing is printed.
Identifiers

ACE (Agent control element address)
The absolute hexadecimal address of the DB2 agent control element for the thread. Each work request in DB2 is represented by an agent. When a work request identifies itself to DB2, an agent control element address (ACE) is used to track the agent. The agent can be:

- An allied agent representing a work request that originated in allied address spaces
- A system agent representing a work request internal to DB2

You can use this address to select records for a particular thread. Note that an ACE address can be reused after a thread terminates.

BY The basis used for comparing values in the records to values in the exception threshold data set. Values are:

- TOTAL An absolute value (the default)
- MINUTE By minute
- SECOND By second
- COMMIT By commit
- THREAD By thread

BPID (Buffer pool ID)
The buffer pool ID.

CALCULATED OR FIELD VALUE
The value from the field in exception status. It can be an absolute value or a value calculated according to the comparison basis. Time values are reported in the format ssssss.thtt, where ssssss is time in seconds and thtt is in tenths, hundredths, thousandths, and ten-thousandths of seconds. Integer values such as aborts and selects are reported in the format nnnnnnnnnnn. Other values are reported in the format nnnnnnnn.nn.

CLASS (DB2 trace class)
DB2 groups records of a similar nature into classes. When running a DB2 performance trace, you can limit the type of information that is traced by selecting one or more trace classes. OMEGAMON for Db2 PE can be used to select records by DB2 performance class.

CONNECT (Connection ID)
The DB2 connection ID of the thread. The connection identifier of the correlation header, which is the ID of the address space that interfaces with DB2. You can, for example, specify the CICS or IMS ID.

CONNTYPE (Connection type)
The type of connection for the associated thread. You can, for example, specify that you want to include only records that have a connection type of TSO or CICS.

Note: If connection type is not present, 'BLANK' is printed.
Possible values for thread connection types are:
Correlation identifier

This value identifies the DB2 task in conjunction with the connection ID.

OMEGAMON for Db2 PE uses the correlation ID to derive two identifiers: the correlation name and the correlation number:

**CORRNAME (Correlation name)**
The correlation name of the thread. An identifier assigned to a task. This field is a subset of the correlation ID. Its meaning varies with the connection type.

**CORRNMBR (Correlation number)**
The correlation number of the thread. An identifier assigned to a task. This field is a subset of the correlation ID. Its meaning varies with the connection type.

The location of the correlation name and correlation number within the 12-character value depends on the type of connection that the task executes in.

In distributed processing, when the application requestor is a DB2 system, the value assigned to the correlation ID at the application server is the same as the value assigned to the application requestor. If the application requestor is not a DB2 system, the value assigned to the correlation ID at the application server is the name of the job, task, or process the requestor is servicing.

For more information about correlation ID translation, see [[Monitoring Performance from ISPF]](https://example.com).

**DATABASE (Database name)**
The name of the DB2 database.
Note that INCLUDE and EXCLUDE processing uses the character names of databases, while DB2 instrumentation records contain the decimal IDs used by DB2. OMEGAMON for Db2 PE translates the decimal ID to the character name.

**DATASET (Data set name)**
The 8-character name of the archive log, active log, or bootstrap data set (BSDS).

**ENDUSER (End user ID)**
The user ID of the workstation end user. This can be different from the AUTHID used to connect to DB2.

**EXCEPTION TIME**
For Accounting records, this is the Accounting timestamp. For Statistics records, this is the END TIME of the statistics interval in which the exception occurred.

**FIELD (Comparison with data in a record field)**
This option is used in conjunction with the FIELD command. By using the FIELD command, you can define a value and comparison operator for a data field in a specific IFCID type. You can include or exclude records based on the result of the comparison.

**FIELD DESCRIPTION**
A description of the field in exception status. This description matches, as closely as possible, the terminology used in the Accounting and Statistics reports. If the field in exception status is a buffer pool field, the buffer pool ID is printed in front of the field description on the same line. Values are:
- BP0 - BP49
- BP32K - BP32K9

All nondistributed fields for an accounting thread or statistics interval are listed first. Any distributed fields in exception status follow the nondistributed fields and are grouped by remote location. Packages follow after DDF and are grouped by package name.

**FIELD ID**
The field ID of the Accounting or Statistics field in exception status.

**GROUP (Group name)**
The name of the data-sharing group.

**IFCID (Instrumentation Facility Component Identifier)**
A decimal identifier that represents a significant DB2 event and appears in the trace records produced by DB2.

**INSTANCE (Instance number)**
The LUW instance number. This hexadecimal number is mainly for distributed activity and is part of the LUWID. It can be used to match the activity performed by DBATs, DBAT-distributed threads, and allied-distributed threads. The instance number is allocated at thread creation.

**LOCATION (Location name)**
The name of a DB2 system. The location name is unique among DB2 systems that can communicate with each other.
If an input data set contains data from several subsystems, at least one of the following identifiers has to be different if OMEGAMON for Db2 PE is to distinguish between different subsystems: group name, location name, member name, or subsystem ID.

**MAINPACK (Main package)**
This identifier can be used to distinguish between plans according to the packages they contain. The representative package is either the first or last package or DBRM in a plan.

This identifier is useful when the name of a plan does not provide satisfactory identification.

The MAINPACK definition is stored in the DPMPARMS member MAINPACK. You can get access to the member by using the MAINPACK Definition Editor panel of the IRF. A different MAINPACK definition can be specified for each unique combination of requester location, connection ID, and plan name.

The default value for MAINPACK is the package ID of the first executed package for any requester location, connection ID, and plan name. If there is no package data available, MAINPACK returns to the default plan name.

**MEMBER (Member name)**
The name of the data-sharing group member.

**OBJECT (Object type)**
The type of DB2 resource. Valid values are:
- **BUFFER** Buffer pool
- **COLLECT** Collection
- **DATABASE** Database
- **DISTTYPE** Distribution type
- **FUNCTION** Function
- **PACKAGE** Package
- **SCHEMA** Schema
- **APPLPLAN** Application plan
- **LOBTS** LOB table space
- **STOGROUP** Storage group
- **TAB/VIEW** Table or view
- **USERAUTH** For system privileges like SYSADM or SYSOPR

**OP** The greater than (>) or less than (<) operator.

**ORIGAUTH (Original authorization ID)**
The original authorization ID of the thread. The original value of the primary authorization ID at the time of connection to DB2 and before it can be changed by any authorization exits.
In distributed processing and if the requester is a DB2 system, the value of the original authorization ID at the application server is the same as the value assigned to the application requester. If the application requester is not a DB2 system, the value of the original authorization ID at the application server is the user ID used during the initial connection with the application server.

**PACKAGE (Package information)**
This identifier is used to identify a package or DBRM. It is displayed in traces and reports in the headings of corresponding package data blocks.

**PAGESET (Page set name)**
The name of the page set.

Note that INCLUDE and EXCLUDE processing uses the character names of page sets, while DB2 instrumentation records contain the decimal IDs used by DB2. OMEGAMON for Db2 PE translates the decimal ID to the character name.

**PARTNBR (Partition number)**
PARTNBR identifies a partition of a table space by its number.

Table spaces can be partitioned or non-partitioned. The value for this identifier is zero if the table is not partitioned. This identifier is only valid for the ORDER command used with IOACTIVITY. You must specify PAGESET before you can specify PARTNBR.

**PLANNAME (Plan name)**
The DB2 application plan name of the thread. The plan name from the correlation header. A plan is a control structure produced during the bind process and used by DB2 to process SQL statements encountered during statement execution.

To receive better identification and granulation of bind and utility traces and reports, it is necessary to filter and order data. The plan name on a bind event (constant DSNBIND) is replaced by the program name, and the plan name on a utility event (constant DSNUTIL) is replaced by the utility name.

**PER**
This value identifies the log entry as an exception per system, per plan, or per program.

**PRIMAUTH (Primary authorization ID) or AUTHID (Authorization ID)**
The two terms are interchangeable. This is the primary authorization ID of the thread.

**REQLOC (Requester location)**
For distributed processing, this is the location requesting the work. If the requester location is not a DB2 subsystem, or is not recognized by DB2, the logical unit name from the DRDA LUWID is printed instead of the requester location name. The logical unit name is enclosed in less than (<) and greater than (>) symbols.

For TCP/IP connections, the requester location can contain the dotted-decimal IP address.

**Note:** The IP address must be specified in a specific format. For example, REQLOC('::10.4.1.237').

**RESOURCETYPE (Resource type)**
The type of lock resource. You can specify one of the following values:
DATAPAGE
Data page locking

DATABASE
Locking of the DBD

PAGESET
Page set locking

DATASET
Locking of partitioned data sets

SKCT
Skeleton cursor table locking

INDEX
Index page locking

TABLE
Table locking

SKPT
Skeleton package table locking

COLLECT
Collection ID locking

DRAIN
All types of drain locking

ROW
Data row lock

OTHER
All unlisted resource types

Role
The role ID.

RMID (Resource manager identifier)
The decimal identifier of a DB2 resource manager. You can use RMID to select a particular type of activity. For example, RMID 6 selects records associated with storage management.

SQLCODE
The SQL return code. This identifier is only valid with the SQLACTIVITY TRACE or SQLACTIVITY FILE commands. It can be used to include statements that completed, for example, with a specific error.

SUBSYSTEMID (Subsystem ID)
The ID of the DB2 subsystem that generated the data.

TCONTEXT
The ID of a trusted context. A trusted context is an independent database entity that you can define based on a system authorization ID and connection trust attributes.

THREADTYPE (Thread type category)
The type of thread that you want included in a report. You can specify one or more of the following values:

ALLIED
Threads without distributed activity. An allied thread does not involve distributed activity, that is, it is not initiated by a remote location and does not request data from another location.

ALLIED_DIST
Threads that request work from remote locations. An allied-distributed thread is not initiated by a remote location, but it requests data from one or more server locations.

This category covers thread type ALLDDIST. It can be reported in Accounting Report if ordered by THREADTYPE.
DBAT

Threads performed on behalf of remote locations.

In the Accounting report, if data is ordered by THREADTYPE, this category covers following thread types:

- DBAT - Indicates accumulated data of threads that are initiated, created, and performing work on behalf of a remote (requester) location.
- DBATDP - Indicates accumulated data of DBAT duplicate threads.
- DBATDIST - Indicates accumulated data of DBAT distributed threads that are initiated by a requester location and executed by the server location that in turn requests data from another server location.
- DBATDICP - Indicates accumulated data of DBAT distributed and copy threads.
- DBATDIDP - Indicates accumulated data of DBAT distributed and duplicate threads.

THRESHOLD TYPE

Describes whether the THRESHOLD VALUE is defined in the exception threshold data set as a WARNING or a PROBLEM.

THRESHOLD VALUE

The value defined in the exception threshold data set, above or below which the actual value must fall to be considered in exception status.

TRANSACT (End user transaction name)

The transaction or application that the client is running.

TYPE (Event type)

Specifies which event types are to be included in, or excluded from, the lock detail trace. Valid event type values are:

- IRLMREQ
  - Lock, unlock, change, query, and notify requests
- CLAIMREQ
  - Claim acquire, claim change, and claim release
- DRAINREQ
  - Drain request and drain release
- PLOCKREQ
  - Page set or partition and page P-lock requests
- IRLMSUSP
  - The beginning of lock, unlock, change, query, and notify suspensions
- DRAINTUSP
  - The beginning of drain suspensions
- LATCHSUSP
  - The beginning of page latch suspensions
- IRLMRES
  - The end (resumption) of lock, unlock, change, query, and notify suspensions
- DRAINRES
  - The end (resumption) of drain suspensions
- LATCHRES
  - The end (resumption) of page latch suspensions
- TIMEOUT
  - Timeouts
- DEADLOCK
  - Deadlocks
LOCKSUMMARY
  Lock summary events
LOCKAVOID
  Successful lock avoidance events

The default is all event types.

Note: TYPE can also be used with the REDUCE and FILE subcommands of LOCKING, with the following limitations:
  • Valid types for REDUCE are: IRLMRES, DRAINRES, and LATCHRES.
  • Valid types for FILE are: IRLMREQ, CLAIMREQ, DRAINREQ, and LOCKAVOID.

If values other than those listed are used with INCLUDE, REDUCE, or FILE, an empty report or file is produced.

If values not relevant to REDUCE or FILE are used with EXCLUDE, the event type is not filtered.

WSNAME (End user workstation name)
  The user’s workstation name.

The OMEGAMON for DB2 PE command stream
  A JCL command stream consists of DD statements that determine the data sets used with reports and traces, and the commands, subcommands and subcommand options that determine the type of report or trace to be produced.

Usage
  You can create OMEGAMON for DB2 PE reports and traces as follows:
  • Interactively, by choosing the Create and execute reporting commands option from the main menu. This invokes the Interactive Report Facility (IRF), which lets you interactively specify the type of report and further options and then composes and submits a corresponding batch report command stream. The IRF is described in the Reporting User’s Guide.
  • Manually, by using the ISPF editor and creating JCL command streams to generate reports and traces. This method is described herein, together with the OMEGAMON for DB2 PE commands, subcommands, options and keywords that can be used in commands streams.

Usage notes
  • Most of the DD statements with a SYSOUT destination do not have to be specified because they are dynamically allocated by OMEGAMON for DB2 PE. See the individual DD statement descriptions for more information.
  • The final EXEC statement is required. If you do not include the EXEC statement in your JCL, no report is produced. All statements following the EXEC statement are ignored.
  • The syntax of your JCL is checked and written to the DPMLOG data set together with any information, warning or error messages raised.

Example
  Figure 298 on page 4674 shows a sample of the JCL required to produce OMEGAMON for DB2 PE reports and traces. In this sample, several place holders
Output from OMEGAMON for DB2 PE reports

This section helps you understand output values, date formats, and time formats.

Usage

The output from OMEGAMON for DB2 PE is one, or more, data sets containing the reports you requested, and a set of log file data sets. These log files are described in the Report Reference. The reports and traces produced are described and explained in detail in the relevant sections of this information.

Large and missing values in reports

Values printed on reports can be either total values or average values.

If there is insufficient space to print a value on a report or trace, a rounded value is printed followed by one of the following letters to indicate the magnitude:

// PE MAIN EXEC PGM=FPECMAIN
//* FOLLOWING ARE SYSTEM DDNAMES
//STEPLIB DD DSN=FPE.FPELIB.RKANMOD,DISP=SHR
//DPMPARAMS DD DSN=FPE.FPELIB.DPMPARMS,DISP=SHR
//INPUTDD DD DSN=FPE.FPELIB.DPMIN,DISP=SHR
//DPMLOG DD SYSOUT**
//SYSOUT DD SYSOUT**
//JOBSUMDD DD SYSOUT**
//EXCPDD DD DSN=FPE.EXCEPT.THRESH,DISP=OLD
//EXTRDD DD SYSOUT**
//EXFILDD DD DSN=FPE.EXCEPT.LOGFILE,DISP=OLD
//SYSPRMDD DD SYSOUT**
//DPMOUTDD DD DSN=FPE.FPELIB.DPMOUT.DATA,DISP=OLD
//JSSRSDD DD DSN=FPE.FPELIB.JSSRS.DATA,DISP=OLD
//SYSUDUMP DD DUMMY
//* FOLLOWING ARE REPORT SET DDNAMES
//ccWORK DD DSN=FPE.FPELIB.op.WORKDD,DISP=OLD
//ccRPTDD DD SYSOUT**
//ccTRCDD DD SYSOUT**
//ccSAVDD DD DSN=FPE.FPELIB.opSAV.DATA,DISP=OLD
//ccSTDD DD DSN=FPE.FPELIB.opRST.DATA,DISP=SHR
//ccFILDD DD DSN=FPE.FPELIB.op.FILE,DISP=OLD
//SYSIN DD *

Figure 298. Sample JCL
K  kilo    —  10^3
M  mega —  10^6
G  giga —  10^9
T  tera —  10^12
P  peta —  10^15
E  exa  —  10^18

The letter is printed directly after the number, without blank spaces. There can, however, be decimal places, as follows:

- Valid conversions of 12 345 include 12K, 12.35K, and 12.3K.
- Valid conversions of 1 234 567 include 1M, 1.2346M, and 1235K.

If a counter value or specific information in reports, in windows, or on panels is not shown, the following notation is used to indicate the reason:

N/A  Not applicable is shown if DB2 never produces a counter value in a specific context. Examples are:
   - A counter is not available in one DB2 version.
   - Counters are mutually exclusive.

N/C  Not calculated is shown for a derived field where the value cannot be calculated or is useless. Examples are:
   - A divide by zero (percentages, ratios).
   - Suppression of negative elapsed time values.
   - Required counter values for calculation marked as N/A or N/P.
   - Insufficient data or small counter values to allow significant statements (meaningless or misleading averages).

N/P  Not present is shown for a field where DB2 can present values, but does not in this instance. Examples are:
   - When counter values are not generated because of operational conditions (a trace class is not active).
   - An application does not provide a value because it is optional.

**Default date format**

By default, OMEGAMON for DB2 PE shows dates as mm/dd/yy. You can change this format to suit your own national language, or corporate convention by using `DATEFORMAT`. For more information, see “DATEFORMAT subcommand option” on page 4809.

This example shows the default date format as printed in the header of an Accounting short report.

**Elapsed time formats**

Time values are presented in one of the following formats:

```
dd hh:mm:ss.ffffffff
```

where:
dd represents days
hh represents hours
mm represents minutes
ss represents seconds
ffffffff represents the fractions of a second up to 8 decimal places.

For example, a time value of 1:30:25.10 represents 1 hour, 30 minutes, and 25.1 seconds.

Some of the reports that use this format might not report days (dd) or hours (hh).

ssssssss.ffffffff
where:
ssssssss represents seconds
ffffffff represents the fractions of a second up to 8 decimal places.

The actual number of decimal places varies from one field to another.

Some time fields can be rounded. If there is insufficient space to print a time value, the time is rounded by removing decimal places as required. For elapsed times, a rounded value is printed.

DD statements

Here you find a description of the DD statements used for OMEGAMON for DB2 PE.

This section describes the DD statements and the data sets shown in Figure 298 on page 4674.

The values for RECFM, LRECL, and BLKSIZE shown for some data sets are the values that OMEGAMON for DB2 PE generates at run time.

Note: The generated value for BLKSIZE is not mandatory, but it is recommended. Do not override the values for RECFM and LRECL.

ACMEMnn statements

The ACMEMnn statements are applicable to Accounting report set.

Usage

If you use the TRACE subcommand, OMEGAMON for DB2 PE temporarily uses an ACMEMnn work data set for each DB2 member that occurs in the input records. For example, if the input data set contains, or data sets contain, data from three different members, the ddnames ACMEM01, ACMEM02 and ACMEM03 are used. The work data sets are normally created on the MVS-defined work volumes, and on completion of the task.

Usage notes

- Only include ACMEMnn in your JCL if you want to control the placement or size of the data set. If your input has a large amount of data for a specific member, you might get a B37 abend on the ACMEMnn work data set. In that event, specify ACMEMnn.
- OMEGAMON for DB2 PE allocates 68 MB for a work data set by default. Define it as a temporary data set. As a guide, if the number of accounting-related input records for a specific member that satisfy the GLOBAL and ACCOUNTING command criteria exceeds 40 000, specify ACMEMnn.
• Do not specify DUMMY or DISP=MOD for this data set.

**RECFM:**

VBS

**LRECL:**

32 756

**BLKSIZE:**

6 233

**DPMLOG statement**
The DPMLOG statement is applicable to all report sets.

**Usage**

OMEGAMON for DB2 PE command processor messages are written to DPMLOG.

If DPMLOG is omitted, it is dynamically allocated to the SYSOUT message class of the job.

**Values**

**RECFM:**

FBA

**LRECL:**

133

**BLKSIZE:**

6 251

**DPMOUTDD statement**
The DPMOUTDD statement is applicable to all report sets.

**Usage**

If you:

- **Do not specify DPMOUTDD:**
  All DPMOUT-related processing is completed in storage. Only the records that relate to the report set commands in the same step are processed. No data is externalized.

- **Specify DPMOUTDD:**
  All records that satisfy GLOBAL FROM TO and INCLUDE or EXCLUDE selection criteria are reformatted to OMEGAMON for DB2 PE trace format, sorted by time sequence, location and group name, and written to the data set specified by DPMOUTDD.

**Usage notes**

- Include DPMOUTDD in your JCL only if you want to retain a copy of the input data as filtered by any GLOBAL options.

- Do not specify DUMMY or DISP=MOD for DPMOUTDD.

- You can specify a permanent or temporary data set for DPMOUTDD.

- Only specify the temporary DPMOUT data set if the number of filtered input records is likely to exceed 45 000. By default, OMEGAMON for DB2 PE allocates up to 68 MB for a work data set.

- The size of the DPMOUT data set depends on the number of input records and the GLOBAL filters. The input records are the IFCID records included in the DB2-related SMF record types 100, 101, and 102. One input record occupies approximately 1.5 KB of the space in the DPMOUT data set.
- When the input data set is composed mostly of DB2-related records, a good size for DPMOUT is 1.6 times the size of the input data set.

**Values**

**RECFM:**

VBS

**LRECL:**

32 756

**BLKSIZE:**

6 233

**DPMPARMS statement**

The DPMPARMS statement is applicable to all report sets.

**Usage**

The DPMPARMS data set is used to store changes that you have made to standard OMEGAMON for DB2 PE settings. For example, if you tailor your own report layout, it is stored in the DPMPARMS data set. Specify DPMPARMS if you want to use this layout. The modified OMEGAMON for DB2 PE settings stored in DPMPARMS are:

- Time zone processing
- Exception messages
- MAINPACK definition
- Correlation translation
- UTR layouts

**Usage notes**

Do not specify DUMMY for this data set.

**Values**

DPMPARMS must be a partitioned data set. Use the following attributes if you want to preallocate a new DPMPARMS data set. You should increase the number of directory blocks if you intend to tailor many report layouts.

**RECFM:**

FB

**LRECL:**

80

**BLKSIZE:**

6 160

**ERRDMPDD statement**

The ERRDMPDD statement is applicable to all report sets.

**Usage**

For diagnose purposes only. This DD statement provides corrupted input trace records.

This ddname is not required unless any corrupted IFCIDs are reported in your JOBSUMDD.
EXCPTDD statement
The EXCPTDD statement is applicable to Accounting and Statistics report sets.

Usage
The exception threshold data set EXCPTDD contains the user-defined exception thresholds.

This ddname is required if you want to produce an exception log or if you specified the EXCEPTION subcommand option with the TRACE, REPORT, or FILE subcommand.

EXFILDD1 statement
The EXFILDD1 statement is applicable to Accounting and Statistics report sets.

Usage
The data for the exception log file data set is written to EXFILDD1.

This DD statement is required if you want to produce an exception log file data set.

Usage notes
The exception threshold data set, as defined in EXCPTDD, is also required to produce an exception log file data set.

EXPRODDA statement
The EXPRODDA statement is applicable to Accounting and Statistics report sets.
Usage

The EXPRODDA data set defines the exception profile.

If EXPRODDA is omitted, it is dynamically allocated by OMEGAMON for DB2 PE and deleted after the job completes. If your input has a large amount of data for a specific member, you might experience a B37 abend on the work data set. If you want to control the placement or size of this data set, define a temporary data set.

Usage notes

Do not specify DUMMY or DISP=MOD for this data set.

Values

RECFM: VBS
LRECL: 32 756
BLKSIZE: 6 233

EXTRCDD1 statement

The EXTRCDD1 statement is applicable to Accounting and Statistics report sets.

Usage

The data for the exception log is written to EXTRCDD1 data set. This DD statement is required if you want to produce an exception log. For more information, see the Report Reference.

Usage notes

The exception threshold data set, as defined in EXCPTDD, is also required to produce an exception log.

Values

RECFM: FBA
LRECL: 133
BLKSIZE: 6 251

INPUTDD statement

The INPUTDD statement is applicable to all report sets.

Usage

The INPUTDD data set stores changes that you have made to standard OMEGAMON for DB2 PE settings. It lists the input data sets containing the DB2 performance data created by the DB2 trace facility. You can process several input data sets. These data sets are concatenated in the JCL to create one logical data set. The input data sets can be in SMF, GTF, or DPMOUT format or data sets generated by the Collect Report Data function of the Online Monitor. The normal rules for concatenating data sets apply. If DFSORT is used, see the z/OS information in the IBM Knowledge Center for rules governing the concatenation of data sets.
Note:

- INPUTDD is not required if you use RESTORE REPORT for Accounting or Statistics.
- If your DB2 performance data is provided in SMF log streams, specify the log stream name and the usage of the DFSORT IFASEXIT feature. Additional date filters can be provided for DFSORT if required. For example:

```bash
//INPUTDD DD DSN=IFASMF.SYSA.DB2,
// DCB=(RECFM=VB,BLKSIZE=32760,LRECL=32756),
// SUBSYS=(LOGR,IFASEXIT,'FROM=OLDEST,TO=YOUNGEST')
```

Values

The default ddname for the input data set is INPUTDD. You can specify another ddname by using the INPUTDD option of the GLOBAL command. If you specify another ddname, make sure that your JCL includes a valid DD statement for the new name. For more information, see "GLOBAL command" on page 4785.

JOBSUMDD statement

The JOBSUMDD statement is applicable to all report sets.

Usage

The job summary log and the IFCID frequency distribution log are written to JOBSUMDD.

This ddname is not required unless you want these logs. For more information, see the Report Reference.

Values

- **RECFM:** FBA
- **LRECL:** 133
- **BLKSIZE:** 6 251

JSSRSDD statement

The JSSRSDD statement applies to Accounting and Statistics report sets.

Usage

Job summary data is written to JSSRSDD when a SAVE subcommand is processed, and is restored from JSSRSDD when a RESTORE subcommand is processed.

If you are restoring data, the data set defined by JSSRSDD and the data set defined by xXRSTDD should match, that is, be produced by the same Save operation. For more information, see the Report Reference.

Usage notes

- JSSRSDD is optional.
- If you omit JSSRSDD, information about the previous processing of saved data is not restored, and information about current processing is not saved.
- The VSAM data set defined by JSSRSDD must exist before you run OMEGAMON for Db2 PE. You can do one of the following:
– Specify an existing data set from a previous OMEGAMON for Db2 PE run (when restoring data). If an existing data set is used and the SAVE subcommand is specified, the new job summary data is added to the previous content.
– Specify a new data set allocated by using the IDCAMS DEFINE CLUSTER function.

* Do not specify DUMMY for JSSRSDD.

For information about the allocation of the save data set, see *Monitoring Performance from ISPF*.

**SYSIN statement**
The SYSIN statement is applicable to all report sets.

**Usage**

SYSIN contains the commands of each OMEGAMON for DB2 PE report set that are input to OMEGAMON for DB2 PE. This DD statement is required.

**Values**

RECFM:

FB

LRECL: 80

BLKSIZE: 6 160

**SYSOUT statement**
The SYSOUT statement is applicable to all report sets.

**Usage**

Messages from DFSORT are written to the ddname SYSOUT.

If SYSOUT is omitted, it is dynamically allocated to the SYSOUT message class of the job.

**Values**

RECFM:

FBA

LRECL: 133

BLKSIZE: 6 251

**SYSPRMDD statement**
The SYSPRMDD statement is applicable to all report sets.

**Usage**

The System Parameters report is written to SYSPRMDD.

Specify this ddname if you want a System Parameters report.
Usage notes

- This ddname is optional.
- The default ddname for the System Parameters report is SYSPRMDD.
- You can specify another ddname by using the SYSPRMDD option of the OMEGAMON for DB2 PE GLOBAL command.
- If you specify another ddname, make sure that your JCL contains a valid DD statement for the new ddname. For information about the GLOBAL command, see “GLOBAL command” on page 4785.

Values

**RECFM:**
FBA

**LRECL:**
133

**BLKSIZE:**
6 251

### ccFILDD1 statements

The ccFILDD1 statements are applicable to Accounting (cc=AC), Audit (cc=AU), Locking (cc=LO), Record Trace (cc=RT), Statistics (cc=ST) and System Parameters (cc=SY) report sets.

Usage

By default, the output from the FILE subcommand is written to ccFILDD1.

Usage notes

- You can specify a different ddname by using the DDNAME option of the FILE subcommand.
- If you specify a different ddname, your JCL must contain a valid DD statement for the specified ddname.
- If you do not specify a different ddname, your JCL must contain a valid DD statement for the default ddname.

Values

**RECFM:**
VB

**LRECL:**
9 072

**BLKSIZE:**
9 076

### ccRPTDD statements

The ccRPTDD statements are applicable to Accounting (cc=AC), Audit (cc=AU), I/O Activity (cc=IO), Locking (cc=LO), Record Trace (cc=RT), SQL Activity (cc=SQ), Statistics (cc=ST), and Utility Activity (cc=UT) report sets.

Usage

ccRPTDD is the default output ddname for the REPORT subcommand.

The reports are written to ccRPTDD in the sequence corresponding to the REPORT subcommands. If ccRPTDD is omitted, it is dynamically allocated to the SYSOUT message class of the job.
Usage notes

You can specify a different ddname by using the DDNAME option of each
REPORT subcommand. If you specify a different ddname, your JCL must contain a
valid DD statement for the specified ddname.

Values

RECFM:
  FBA
LRECL:
  133
BLKSIZE:
  6 251

ccRSTDD statements

The ccRSTDD statements are applicable to Accounting (cc=AC) and Statistics
(cc=ST) report sets.

Usage

Data processed by the RESTORE subcommand is read from ccRSTDD by default. A
valid DD statement is required if your job stream contains a RESTORE
subcommand.

Usage notes

• You can specify a different ddname by using the DDNAME option of the
RESTORE subcommand.
• If your job stream contains a RESTORE subcommand that uses the DDNAME
option, your JCL must contain a valid DD statement for the specified ddname. If
your job stream contains a RESTORE subcommand that does not use the
DDNAME option, your JCL must contain a valid DD statement for the default
ddname.
• Do not specify DUMMY for ccRSTDD.

ccSAVDD statements

The ccSAVDD statements are applicable to Accounting (cc=AC) and Statistics
(cc=ST) report sets.

Usage

Reduced data processed by the SAVE subcommand is, by default, written as a
VSAM data set to ccSAVDD. Batch Accounting and Statistics offer a CONVERT
option of the SAVE subcommand that requires to specify a ddname that is
assigned to a sequential data set. A valid DD statement is required if your job
stream contains a SAVE subcommand.

Usage notes

• You can specify another ddname by using the DDNAME option of the SAVE
subcommand. If you specify a different ddname, your JCL must contain a valid
DD statement for the specified ddname. If you do not specify a different
ddname, your JCL must contain a valid DD statement for the default ddname.
• The VSAM data set (that is the default in Batch Accounting and Statistics)
defined by ccSAVDD must exist before you run OMEGAMON for DB2 PE.
Either specify an existing data set from a previous OMEGAMON for DB2 PE
run (when restoring data), or specify a new data set allocated by using the
IDCAMS DEFINE CLUSTER function. Note that the existing contents of the data set are lost unless the DDNAME options of both SAVE and RESTORE subcommands specify the same dname or data set.

- Do not specify DUMMY for ccSAVDD.

For information on the allocation of the save data set or sequential data set, see Report Reference.

**ccTRCDDx statements**
The ccTRCDDx statements are applicable to Accounting (cc=AC), Audit (cc=AU), I/O Activity (cc=IO), Locking (cc=LO), Record Trace (cc=RT), SQL Activity (cc=SQ), Statistics (cc=ST), System Parameters (cc=SY) and Utility Activity (cc=UT) report sets.

**Usage**

ccTRCDD is the output ddname for the TRACE subcommand.

If ccTRCDDx is omitted, it is dynamically allocated to the SYSOUT message class of the job.

**Usage notes**

- Up to five traces can be run in one job step. The default ddnames for the traces are ccTRCDD1 to ccTRCDD5, consecutively.
- You can specify a different ddname by using the DDNAME option in the corresponding TRACE subcommand. If you specify a different ddname, your JCL must contain a valid DD statement for the specified ddname.

**Values**

- **RECFM:** FBA
- **LRECL:** 133
- **BLKSIZE:** 6 251

**ccWORK statements**
The ccWORK statements are applicable to Accounting (cc=AC), Audit (cc=AUD), I/O Activity (cc=IO), Locking (cc=LO), Record Trace (cc=RT), SQL Activity (cc=SQL), Statistics (cc=ST), and Utility Activity (cc=UT) report sets.

**Usage**

ccWORK controls the placement or size of the data set.

If you reduce data, OMEGAMON for DB2 PE uses a temporary REDUCE work data set to provide virtual storage constraint relief. This is normally created on the MVS-defined work volumes, and deleted by OMEGAMON for DB2 PE. Include ccWORK in your JCL when you want to control the placement or size of the data set or if you get a B37 abend. This can happen if you are trying to reduce a large amount of data with a large number of different OMEGAMON for DB2 PE identifiers and a short reduction interval.
Usage notes

- If you specify ccWORK, OMEGAMON for DB2 PE allocates up to 68 MB for a work data set by default. Define it as a temporary data set.
- As a guide, if the number of accounting-related input records that satisfy the GLOBAL and report set command criteria exceeds 45 000 and the reduction ratio is very low, specify ccWORK.
- Do not specify DUMMY or DISP=MOD for this data set.

Values

RECFM: VBS
LRECL: 32 756
BLKSIZE: 6 233

OMEGAMON for DB2 PE commands

This section describes the OMEGAMON for DB2 PE report commands, their subcommands, and subcommand options.

The description of the subcommand options is intentionally brief, to avoid recurrences. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions.

The following topics provide additional information:

Report set commands:
- “ACCOUNTING command” on page 4690
- “AUDIT command” on page 4709
- “EXEC command” on page 4718
- “EXPLAIN command” on page 4719
- “IOACTIVITY command” on page 4729
- “LOCKING command” on page 4734
- “RECTRACE command” on page 4741
- “SQLACTIVITY command” on page 4746
- “STATISTICS command” on page 4755
- “SYSPARMS command” on page 4771
- “UTILITY command” on page 4774

Auxiliary commands:
- “CASE command” on page 4781
- “FIELD command” on page 4782
- “GLOBAL command” on page 4785
- “GROUP command” on page 4792
- “LIST command” on page 4800

Troubleshooting commands:
- “DUMP command” on page 4802
- “TAPECOPY command” on page 4804
Overview of the commands
The table below identifies the commands and their related subcommands and subcommand options. There are three types of commands: report set commands, auxiliary commands and troubleshooting commands.

Report set command - ACCOUNTING
This section gives a short overview of the commands, subcommands, and subcommand options. For details refer to the corresponding detailed sections:

Table 301. ACCOUNTING commands - Subcommands and subcommand options

<table>
<thead>
<tr>
<th>REPORT</th>
<th>From/To block</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEMBER</td>
<td>Group Options</td>
</tr>
<tr>
<td>SCOPE</td>
<td>SHORT/LONG Options</td>
</tr>
<tr>
<td>LAYOUT</td>
<td>LONG/SHORT Options</td>
</tr>
<tr>
<td>NOEXCEPTION</td>
<td>EXCEPTION</td>
</tr>
<tr>
<td>TOP</td>
<td>NUMBER/KEYWORD Options</td>
</tr>
<tr>
<td>DDNAME</td>
<td>ACRPTDD Options</td>
</tr>
<tr>
<td>ORDER block</td>
<td>INCLUDE/EXCLUDE block</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REDUCE</th>
<th>From/To block</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERVAL</td>
<td>0-60 Options</td>
</tr>
<tr>
<td>BOUNDARY</td>
<td>0-60 Options</td>
</tr>
<tr>
<td>CALCULATE</td>
<td>INCLUDE/EXCLUDE block</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RESTORE</th>
<th>DDNAME Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRSTDD</td>
<td>ddname Options</td>
</tr>
</tbody>
</table>
Table 301. ACCOUNTING commands - Subcommands and subcommand options (continued)

**SAVE** - For details refer to “ACCOUNTING command with SAVE subcommand” on page 4700

```
SAVE
  ▷ CONVERT
  DATATYPE(GENERAL,BP,GBP,DDF,RLF,PACkage,ACCEL)
  DATATYPE(GENERAL,BP,GBP,DDF,RLF,PACkage,ACCEL)
  DDNAME(ddname)
```

**TRACE** - For details refer to “ACCOUNTING command with TRACE subcommand” on page 4703

```
TRACE
  ▷ FROM/TO block
  ▷ LAYOUT(LONG name)
  ▷ NOEXCEPTION EXCEPTION
  ▷ TOP(number keyword)
  ▷ DDNAME(ddname)
  ▷ INCLUDE/EXCLUDE block
```

**FILE** - For details refer to “ACCOUNTING command with FILE subcommand” on page 4707

```
FILE
  ▷ FROM/TO block
  ▷ NOEXCEPTION EXCEPTION
  ▷ DATATYPE(GENERAL,BP,GBP,DDF,PACkage,ACCEL)
  ▷ DATATYPE(GENERAL,BP,GBP,DDF,PACkage,ACCEL)
  ▷ INCLUDE/EXCLUDE block
  ▷ DDNAME(ddname)
```
<table>
<thead>
<tr>
<th>Command types</th>
<th>Commands</th>
<th>Subcommands</th>
<th>Subcommand options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report set command</td>
<td>ACCOUNTING</td>
<td>REPORT TO, FROM, DDNAME, ORDER, INCLUDE, EXCLUDE, EXCEPTION, NOEXCEPTION, LAYOUT, TOP, SCOPE</td>
<td>REDUCE TO, FROM, INTERVAL, BOUNDARY, INCLUDE, EXCLUDE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SAVE DDNAME, DATATYPE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>RESTORE DDNAME</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TRACE TO, FROM, DDNAME, INCLUDE, EXCLUDE, EXCEPTION, NOEXCEPTION, LAYOUT, TOP</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FILE TO, FROM, DDNAME, INCLUDE, EXCLUDE, EXCEPTION, NOEXCEPTION</td>
<td></td>
</tr>
<tr>
<td>Report set command</td>
<td>AUDIT</td>
<td>REPORT TO, FROM, DDNAME, TYPE, LEVEL, ORDER, INCLUDE, EXCLUDE, SCOPE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>REDUCE TO, FROM, INCLUDE, EXCLUDE, SCOPE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TRACE TO, FROM, DDNAME, TYPE, INCLUDE, EXCLUDE, SCOPE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FILE TO, FROM, DDNAME, TYPE, INCLUDE, EXCLUDE</td>
<td></td>
</tr>
<tr>
<td>Report set command</td>
<td>EXEC</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Report set command</td>
<td>EXPLAIN</td>
<td>ACCTYPE MATCHING, NONMATCH, TABSCAN</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DBRM N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DEGREE ANY, DSJ, ESJ</td>
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<td></td>
<td></td>
<td>FIRST/LAST N/A</td>
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</tr>
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<td></td>
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<td>FORCE NO, YES</td>
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</tr>
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<td></td>
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<td>FORMAT NO, YES</td>
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<td></td>
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<td>GEN N/A</td>
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<td></td>
<td></td>
<td>HOSTVAR NO, YES</td>
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<td></td>
<td></td>
<td>INDEX ALL, NO, YES</td>
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<td></td>
<td></td>
<td>LEVEL N/A</td>
<td></td>
</tr>
<tr>
<td>Report set command</td>
<td>IOACTIVITY</td>
<td>REPORT TO, FROM, DDNAME, LEVEL, ORDER, INCLUDE, EXCLUDE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>REDUCE TO, FROM, INTERVAL, BOUNDARY, INCLUDE, EXCLUDE</td>
<td></td>
</tr>
<tr>
<td>Report set command</td>
<td>LOCKING</td>
<td>REPORT TO, FROM, DDNAME, LEVEL, ORDER, INCLUDE, EXCLUDE, SCOPE, SPREADSHEETDD</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>REDUCE TO, FROM, INTERVAL, BOUNDARY, INCLUDE, EXCLUDE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TRACE TO, FROM, DDNAME, LEVEL, INCLUDE, EXCLUDE, SCOPE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FILE TO, FROM, DDNAME, INCLUDE, EXCLUDE</td>
<td></td>
</tr>
<tr>
<td>Report set command</td>
<td>RETRACE</td>
<td>TRACE TO, FROM, DDNAME, LEVEL, INCLUDE, EXCLUDE, SORTBY</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FILE TO, FROM, DDNAME, INCLUDE, EXCLUDE</td>
<td></td>
</tr>
<tr>
<td>Report set command</td>
<td>SQLACTIVITY</td>
<td>REPORT TO, FROM, DDNAME, ORDER, INCLUDE, EXCLUDE, SORTBY, SUMMARIZEBY, WORKLOAD</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TRACE TO, FROM, DDNAME, INCLUDE, LIMIT, SORTBY, SUMMARIZEBY, WORKLOAD, SQLTEXT</td>
<td></td>
</tr>
<tr>
<td>Report set command</td>
<td>STATISTICS</td>
<td>REPORT TO, FROM, DDNAME, ORDER, INCLUDE, EXCEPTION, NOEXCEPTION, LAYOUT, SCOPE, DSETSTAT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>REDUCE TO, FROM, INTERVAL, BOUNDARY, INCLUDE, EXCLUDE, EXCEPTION, NOEXCEPTION, LAYOUT, DSETSTAT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SAVE DDNAME, DSETSTAT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>RESTORE DDNAME</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TRACE TO, FROM, DDNAME, INCLUDE, EXCLUDE, EXCEPTION, NOEXCEPTION, LAYOUT, DSETSTAT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FILE TO, FROM, DDNAME, INCLUDE, EXCLUDE, EXCEPTION, NOEXCEPTION, DSETSTAT</td>
<td></td>
</tr>
<tr>
<td>Report set command</td>
<td>SYSPARMS</td>
<td>TRACE DDNAME</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FILE DDNAME</td>
<td></td>
</tr>
<tr>
<td>Report set command</td>
<td>UTILITY</td>
<td>REPORT TO, FROM, DDNAME, TYPE, ORDER, INCLUDE, EXCLUDE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>REDUCE TO, FROM, INTERVAL, BOUNDARY, INCLUDE, EXCLUDE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TRACE TO, FROM, DDNAME, TYPE, ORDER, INCLUDE, EXCLUDE, WORKLOAD</td>
<td></td>
</tr>
</tbody>
</table>
Table 302. Commands, subcommands, and subcommand options (continued).

<table>
<thead>
<tr>
<th>Command types</th>
<th>Commands</th>
<th>Subcommands</th>
<th>Subcommand options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auxiliary commands</td>
<td>CASE</td>
<td>N/A</td>
<td>SENSITIVE, ANY</td>
</tr>
<tr>
<td></td>
<td>FIELD</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>GLOBAL</td>
<td>N/A</td>
<td>FROM, TO, INTERVAL, PRESORTED, SPANINC, BOUNDARY, INPUTDD, PAGESIZE, TIMEZONE, EXPLAIN, INCLUDE, EXCLUDE</td>
</tr>
<tr>
<td></td>
<td>GROUP</td>
<td>N/A</td>
<td>L, G, R</td>
</tr>
<tr>
<td></td>
<td>LIST</td>
<td>N/A</td>
<td>L, G, R</td>
</tr>
<tr>
<td>Troubleshooting</td>
<td>DUMP</td>
<td>N/A</td>
<td>EXEC, OFFSET, CODES, SKIP, STOPAFT, MAXDUMP</td>
</tr>
<tr>
<td>commands</td>
<td>TAPECOPY</td>
<td>N/A</td>
<td>EXEC, OFFSET, CODES, SKIP, STOPAFT, NEWCOPY</td>
</tr>
</tbody>
</table>

**ACCOUNTING command**

This section provides an overview of the ACCOUNTING command.

**Usage**

Use the ACCOUNTING command to generate Accounting reports, traces, and data sets. You can also use it to reduce, save, and restore data.

**Usage notes**

- This command can be used once in a job step.
- However, it can be used in the same job step with commands of the other report sets.
- You can filter records with the GLOBAL command and first. This can minimize your report output and reduce processing time. See “GLOBAL command” on page 4785 for more information.

**Syntax**

```
ACCOUNTING
   REPORT subcommand (1)
   REDUCE subcommand (2)
   SAVE subcommand (3)
   RESTORE subcommand (4)
   TRACE subcommand (5)
   FILE subcommand (6)
```

**Notes:**

1. You can specify REPORT up to 35 times.
2. You can specify REDUCE only once. If specified, you must also specify REPORT or SAVE at least once.
3. You can specify SAVE only once.
4. You can specify RESTORE only once.
5. You can specify TRACE up to five times.
6. You can specify FILE up to six times.
Subcommands

The subcommands are described in detail, together with their various options, in the following sections.

Sample JCL for requesting Accounting functions

This is a sample of the JCL required to produce Accounting reports and traces. See “DD statements” on page 4676 for descriptions of the DD statements.

The OMEGAMON for DB2 PE command language shown in this example may not be appropriate in all circumstances. You must modify it to meet your requirements. Most of the DD statements with a SYSOUT destination do not have to be specified because they are dynamically allocated by OMEGAMON for DB2 PE. See the individual DD statement descriptions for more information.

Note:
1. There is an advantage in omitting DPMOUTDD from your JCL. For more information, see “DPMOUTDD statement” on page 4677.
2. If you omit the EXEC statement, a report is not produced, the syntax of the OMEGAMON for DB2 PE command stream is checked and written together with any information, warning, or error messages generated to the DBPMLOG data set. All statements following the EXEC are ignored.

```assembler
//PEMAIN EXEC PGM=FPECMAIN
//* FOLLOWING ARE SYSTEM DDNAMES
//STEPIBM DD DSN=FPE.FPELIB.RKANMOD,DISP=SHR
//DPMPARMS DD DSN=MYID.FPELIB.DPMPARMS,DISP=SHR
//INPUTDD DD DSN=MYID.FPELIB.DPMIN,DISP=SHR
//DPMLOG DD SYSOUT=
//SYSOUT DD SYSOUT=
//JOBSUMDD DD SYSOUT=
//EXCTPD DD DSN=MYID.EXCEPT.THRESH,DISP=OLD
//EXTRCD1 DD SYSOUT=
//EXFILDD DD DSN=MYID.EXCEPT.LOGFILE,DISP=OLD
//DPMOUTDD DD DSN=MYID.FPELIB.DPMOUT.DATA,DISP=OLD
//JSSRSD DD DSN=MYID.FPELIB.JSSRS.DATA,DISP=OLD
//SYSUDUMP DD DUMMY
//* FOLLOWING ARE REPORT SET DDNAMES
//ACRPTDD DD SYSOUT=
//ACTRPCDD DD SYSOUT=
//ACSAVDD DD DSN=MYID.FPELIB.ACSAV.DATA,DISP=OLD
//ACRSTDD DD DSN=MYID.FPELIB.ACRST.DATA,DISP=SHR
//ACFILDD DD DSN=MYID.FPELIB.ACC.FILE,DISP=OLD
//ACWKRDD DD DSN=MYID.FPELIB.ACC.WORKDD,DISP=OLD
//* FOLLOWING IS THE COMMAND STREAM
//SYSPIN DD *
ACCOUNTING REDUCE RESTORE TRACE FILE REPORT SAVE EXEC
```

Figure 300. Sample JCL for requesting Accounting functions
ACCOUNTING command with REPORT subcommand:

This section describes the ACCOUNTING command with the REPORT subcommand.

Usage

Use the REPORT subcommand to generate reports from reduced records.

Usage notes

- Up to 35 REPORT subcommands can be specified within each ACCOUNTING command.

Syntax of the REPORT subcommand

Subcommand options

The syntax diagram shows the options that are available with this subcommand. For comprehensive descriptions of these options, see "OMEGAMON for DB2 PE subcommand options" on page 4806. The following list gives additional or specific descriptions of selected options, where appropriate.

FROM/TO

Limits the range of records included in the reporting process by date and time. For details, see "FROM/TO subcommand options" on page 4812.

You need to specify a REDUCE INTERVAL() for the FROM/TO subcommand under ACCOUNTING REPORT. Otherwise, you will see the following message:

NO DATA TO REPORT - NO ADEQUATE INPUT DATA OR TOO RESTRICTIVE FILTERS.

The reason for this message is that all accounting input data will be reduced by default to only one reporting interval. If you request several ACCOUNTING REPORTs with different FROM/TO subcommands, the INTERVAL() value that you chose should be the smallest of all FROM/TO intervals specified, as in the following example:

ACCOUNTING
REDUCE INTERVAL(15)
REPORT DNAME(ACCLONG1) /*ACCOUNTING REPORT*/
FROM,(10:00:00)
In order to ensure that no extra reporting interval is taken into account, specify either FROM or TO in a way that it does not overlap an adjacent interval boundary. In the following example, the report will show only one reporting interval every day FROM,(13:00:00) TO,(13:14:59):

ACCOUNTING

REDUCE INTERVAL(15)
REPORT DDNAME(ACCLONG3) /*ACCOUNTING REPORT*/
FROM,(13:00:00)
TO,(13:14:59)

As a comparison, the following report will report two adjacent reporting intervals every day - one from 13:00 to 13:15 and one from 13:15 to 13:30:

ACCOUNTING

REDUCE INTERVAL(15)
REPORT DDNAME(ACCLONG3) /*ACCOUNTING REPORT*/
FROM,(13:00)
TO,(13:15)

For more details, see “BOUNDARY subcommand option” on page 4807 and “INTERVAL subcommand option” on page 4818.

SCOPE

Specifies the scope of the report in a data sharing environment.

MEMBER

In member-scope reports, a data sharing group’s instrumentation data is presented member by member. The events are reported in the specified ORDER sequence within the DB2 subsystem (member) where they occurred. Member-scope reports are used for DB2 subsystems that are not involved in data sharing.

GROUP

In group-scope reports, instrumentation data belonging to individual members is merged and presented for the entire group. The events are reported in the specified ORDER sequence within the DB2 data sharing group, regardless of which member of the group actually generated the events.

LAYOUT

Specifies the name of a report layout. You can specify one of the supplied layouts or one that you have previously tailored:

SHORT

This is the default.

LONG

This option provides detailed thread-related data. You can also use other functions such as Record Trace and SQL Activity to find detailed DB2 trace data.

Historical Reporter migration layouts

Use the Historical Reporter migration layouts to help you identify OMEGAMON for DB2 PE data that was previously shown in the reports of the OMEGAMON Historical Reporter. The migration layouts include:
User-defined layouts

You can customize your own report layouts by specifying which blocks of data and which fields within the blocks are included, and their relative order. To adapt the reports according to your requirements, you use user-tailored reporting (UTR). With UTR, you can control the volume, contents, and layout of Statistics traces and reports.

For information about tailoring report layouts, see the Reporting User’s Guide.

EXCEPTION

Specify EXCEPTION if you want to show those records with at least one field in exception status. Otherwise, a standard report is produced.

If you use this option, your JCL must contain a valid DD definition for the ddname EXCPTDD. For more information about required ddnames, see Figure 300 on page 4691.

TOP

To identify report entries with a high value in certain fields, you can produce an Accounting report with TOP lists. TOP lists indicate which entries on the report have the highest value in the field you have specified by using the TOP subcommand option.

For more information about TOP processing, see “TOP subcommand option” on page 4831 and the Reporting User’s Guide. You can specify:

- **number**
  - By default, the TOP list contains the top ten entries, but you can change the number to anything from one to fifty.
  - * Specifies any combination of the fields. You can generate reports showing TOP lists for all the fields available for use with the TOP subcommand option.

- **ONLY**
  - ONLY indicates the use of TOP as a filter. When TOP is requested as a filter, the index is not shown. For example, the report produced by the command following shows only the top 3 entries for the default TOP field, elapsed time in application (INAPPLET).

```
ACCOUNTING
REPORT
  TOP (3 ONLY)
```

TOTAL

Produces reports that show total values instead of averages.

**keyword**

TOP lists for package fields report the maximum values of these fields in individual packages within a trace entry. TOP lists for buffer pool fields contain the totals for all the buffer pools.

The following list shows the keywords that these fields are specified by:

- **INAPPLET**
  - The class 1 elapsed time (in an application). This value is an average.

  If no TOP subcommand option is specified, the default is class 1 elapsed time (INAPPLET).
BUFFUPDTS
   The number of buffer updates. This value is an average.

CMPERUPD
   The ratio of the sum of commits and rollbacks to the sum of SQL
   UPDATE, SQL INSERT, and SQL DELETE statements.

DCLSTAT
   The total number of DCL statements executed.

DDLSTAT
   The total number of DDL statements executed.

DMLSTAT
   The total number of SQL DML statements executed.

GETPAGES
   The number of Getpage requests. This value is an average.

INAPPLPT
   The class 1 CPU time in an application. This value is an average.

INAPPLWT
   The class 1 waiting time in an application. This value is an average.

INDB2ET
   The class 2 elapsed time accumulated in DB2. This value is an average.

INDB2PT
   The class 2 CPU time in DB2. This value is an average.

INDB2WT
   The class 2 waiting time in DB2. This value is an average.

MAXWRKF
   Identifies the threads with the highest values for the field MAX WFILE
   BLKS (DB2 field QWAC_WORKFILE_MAX) which is shown in the
   Highlights data blocks. This value is a maximum.

NOTACCT
   The time not accounted in DB2. You use this time to determine
   whether there is a large percentage of time that has not been captured
   within the DB2 Accounting record. This value is an average.

OUTDB2ET
   The elapsed time outside DB2. This value is an average.

OUTDB2PT
   The CPU time outside DB2. This value is an average.

OUTDB2WT
   The waiting time outside DB2. This value is an average.

PINDBET
   The total elapsed time for executing the package or DBRM. This value
   is an average.

PINDBPT
   The CPU time spent by the package or DBRM (class 7). This value is
   an average.

PNOTACCT
   The total unaccounted time in DB2 caused by the execution of the
   package or DBRM. This value is an average.

PTSUSTME
   The waiting time for the package or DBRM caused by a class 8
   suspension. This value is an average.

SYNCREAD
   The number of synchronous read I/O operations. This value is an
   average.

TOTPREF
   The number of all types of prefetch requests. This value is an average.

TOTSUSP
   The number of suspensions. This value is an average.
The waiting time for all class 3 suspensions. This value is an average.

The sum of SQL UPDATE, SQL INSERT, and SQL DELETE statements executed.

 Specifies the data set where the report is written. The default ddname for report is ACRPTDD.

Specifies which OMEGAMON for DB2 PE identifiers are used to aggregate Accounting records.

For details, see “ORDER subcommand option” on page 4827 and “OMEGAMON for Db2 PE identifiers” on page 4665.

Additionally, you can use the REDUCE INTERVAL to order data on Accounting reports and Statistics reports. For example, if you want to report data at daily interval, specify INTERVAL (1440) in the REDUCE subcommand and ORDER(INTERVAL) in the REPORT subcommand.

Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other allowed identifiers with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

Special considerations for DDF trace data:

For single DB2 systems the PLANNNAME identifier can be used to filter data and order reports in a meaningful manner.

When DB2 is acting as a DDF server, the PLANNNAME identifier has a constant value of DISTSERV for requesters using DRDA. For OMEGAMON for DB2 PE Accounting data, DISTSERV is replaced with the first eight characters of the name of the client application so that filtering on PLANNNAME, is meaningful.

Because this replacement is done by the batch accounting component, you need to consider the impact when using the INCLUDE and EXCLUDE subcommand options with other commands. This can cause unexpected results, for example when GLOBAL INCLUDE is used.

The following example shows how PLANNNAME can be used in Accounting reports with DDF data to include data from a PLANNNAME with the value CAPPNAME:

```
GLOBAL
  INCLUDE (PLANNNAME(DISTSERV)) // to include all DDF data
ACCOUNTING
  REDUCE
    INCLUDE (PLANNNAME(CAPPNAME))
REPORT
  INCLUDE (PLANNNAME(CAPPNAME))
```

When GLOBAL INCLUDE is omitted, a report is produced, containing replaced names.
When REDUCE INCLUDE is omitted, no report is produced. This is because REDUCE is called implicitly by REPORT by using the GLOBAL filter. As accounting works with the replaced values, DISTSERV is not found in the input records.

When INCLUDE is omitted from REPORT, there is no data to report. The GLOBAL filter is used as default, explicitly including DISTSERV. As accounting works with the replaced values, DISTSERV is not found in the input records.

If the use of PLANNAME as a filter causes unexpected results across reports, use REQLOC, CONNTYPE and THREADTYPE, which are interpreted in exactly the same way in all OM XE for DB2 PE reports.

Example using REPORT with LAYOUT, INCLUDE, FROM, and TO options

The following example specifies:
• An Accounting long report
• Data is included that is only associated with the location in the range of LOCN01 to LOCN05
• Using records between and including the FROM and TO times

```
REPORT
  LAYOUT (LONG)
  INCLUDE (LOCATION(R(LOCN01 LOCN05)))
  FROM (03/18/99,10:00:00.00)
  TO (03/19/99,12:00:00.00)
```

Example using ACCOUNTING REPORT, specifying two order sets

This example specifies that two reports are produced:
• Both reports use the SHORT layout by default.
• The first report is ordered by primary authorization ID within plan name within connection ID.
• The second report is ordered by plan name within primary authorization ID.
• For both reports, a TOP list is produced identifying the top three report entries for INDB2ET (elapsed time spent in DB2).
• Both reports include data for the following primary authorization IDs:
  – UID0001
  – UID0005
  – UID0009.
• As no ddname was specified, both reports are written to the data set with the default ddname ACRPTDD.

```
ACCOUNTING
  REPORT
    TOP (3 INDB2ET)
    ORDER (CONNECTION-PLANNAME-PRIMAUTH,PRIMAUTH-PLANNAME)
    INCLUDE (PRIMAUTH(UID0001 UID0005 UID0009))
```

Example using ACCOUNTING with multiple REPORT subcommands

This example demonstrates how you can produce Accounting reports to show all accounting data for different requesting locations.
Because the Statistics report set does not offer a breakdown of the activity of DRDA protocol requests, an Accounting report showing the DDF statistics can be useful.

The first report shows fields summarized by the requesting location.

The information is shown for every requesting location, including the reporting location, regardless of the method of access.

The second report shows accounting data summarized by requesting location for all locations (except the reporting location) using DRDA protocol.

ACCOUNTING command with REDUCE subcommand:

This section describes the ACCOUNTING command with the REDUCE subcommand.

Usage

Use the REDUCE subcommand to reduce the volume of data that is input to the REPORT and SAVE subcommands.

Usage notes

- REDUCE consolidates records with certain common characteristics into one record.
- REDUCE can be used once in an ACCOUNTING command.
- REDUCE is invoked automatically when you use REPORT or SAVE. You must specify REDUCE, however, if you want to:
  - Specify an interval that can be used to order data on Accounting reports.
  - Produce several reports with different time spans.
  - Define the interval and input filters for SAVE. SAVE does not have its own FROM and TO, and INCLUDE or EXCLUDE filters. Instead, it uses REDUCE FROM and TO, and INCLUDE or EXCLUDE filters.
- In most cases, the reduced records contain totals of the values from the individual records. In some cases, the reduced records contain maximum values.

Syntax of the REDUCE subcommand
Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**FROM/TO**

Limits the range of records included in the reduction process by date and time.

For details, see “FROM/TO subcommand options” on page 4812.

**INTERVAL**

Defines the interval of time that accounting data is summarized for. Note the remarks about performance impact in “INTERVAL subcommand option” on page 4818.

**BOUNDARY**

Controls the alignment of the intervals used to summarize records in the reduction process.

**CALCULATE**

Indicates that a calculation of consumed or required ACWORK has to be done during the reduction of data for an Accounting REPORT or SAVE function.

For details, see the Reporting User’s Guide.

**INCLUDE/EXCLUDE**

Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

Some care is needed when using PLANNAME as a filter in a DDF environment, see Special considerations for DDF trace data.

**Example using REDUCE**

This example requests the following:

- Reduce the input data on daily intervals.
- Report the Accounting data by intervals.
- Write the report to the data set defined by the default ddname ACRPTDD.

```
ACCOUNTING
    REDUCE
        INTERVAL(1440)
    REPORT
```
ACCOUNTING command with SAVE subcommand:

This section describes the ACCOUNTING command with the SAVE subcommand.

Usage

Use the SAVE subcommand (without CONVERT option) to produce a VSAM data set containing reduced records. After the data has been saved, you can:

- Convert the save files to sequential data sets by using the save-file utility and load it to DB2 for subsequent use.
- Restore and combine it with newly reduced data to produce long-term reports.
- Restore it and use it in later reporting.

Use the SAVE subcommand with CONVERT option to produce a sequential data set containing reduced data in records. After the data has been processed, you can:

- Load it to DB2 for subsequent use.

Note: In contrast to the other usage, the conversion by the save-file utility is accomplished directly. VSAM data is not being produced, thus it also not possible to restore it.

You can also use the converted SAVE data sets to generate CSV (comma-separated value) input-data. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables. For more information refer to Reporting User’s Guide.

Usage notes

- VSAM data sets cannot be concatenated.
- For information on migration refer to Report Reference

Note:

- You can only process VSAM data sets in the same version of OMEGAMON for Db2 PE as they have been created. For example, if you create a SAVE data set in version 530, it can only be RESTORED in version 530.

To use a SAVE data set in a higher version, you must migrate the SAVE data set using a migration utility.

- Before you restore or convert SAVE data sets from V5.2.0 or V5.3.0, you must first migrate this data to OMEGAMON for Db2 PE V5.4.0 format.
- Restored reports only show fields that are supported by the current version of OMEGAMON for Db2 PE.

Syntax of the SAVE subcommand

```
SAVE [CONVERT]
```
Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**CONVERT**

Specifies that converted reduced data is written directly to a sequential data set.

It is recommended to specify this option if you want to create high amount of loadable reduced data in a sequential data set. It avoids a temporary VSAM data set to be used as a SAVE data set. This options causes OMEGAMON for DB2 PE to write converted reduced data directly to a sequential data set in a single step. The resulting output is loadable to the PDB tables. The user may experience performance improvements compared to the default path with a separate SAVE step and the subsequent convert of saved data by the save-file utility.

**Note:** Not every big trace input results in big reduced data and small trace input in small reduced data. This option becomes effective when the reduction results in high amount of reduced data. For example, it depends on the amount of different criteria that results due to your filtering. It is possible that you experience more performance improvement with a small input trace that results in many different criteria than with a large trace input with only a few different criteria.

This option can generally be used as it is neutral to the performance when processing only a few reduced records, but becomes effective when processing a high amount of reduced data. However, do not use this option if you want to RESTORE and REPORT saved data.

**DATATYPE**

Specifies which data types are to be written to the VSAM or sequential data set with each record. By default, if DATATYPE is not specified, or if DATATYPE() is specified (without keywords), all data types are written to the reduced data set.

This subcommand option lets you improve the system performance while the VSAM or sequential data set is generated by explicitly specifying only the required data types. If performance is not critical, you can safely ignore this subcommand option. Use one or more of the following keywords to specify the required data types.

**Note:** Note that a later restore of partially saved data does not reconstruct the unsaved data types.

**GENERAL**

General performance data. Always required for a save data set. Note that the GENERAL keyword needs to be specified explicitly.
**DDNAME**

Specifies the ddname where the save data is written. The default ddname is ACSAVDD.

**Without CONVERT option:**

The VSAM data set defined by the default ddname must already exist when you run OMEGAMON for DB2 PE. Either specify an existing data set from a previous OMEGAMON for DB2 PE run (when restoring data), or specify a new data set allocated by using the IDCAMS DEFINE CLUSTER function.

**Note:** If ddname is assigned to a non-VSAM file, you receive an error message and the job terminates.

**With CONVERT option:**

The ddname needs to be assigned to a physical sequential data set. This data set can be used for a subsequent load to Accounting SAVE tables.

**Note:** If ddname is assigned to a nonsequential data set, you receive an error message and the job terminates.

### Example using SAVE

This example requests the following:

- Save aggregated Accounting data to the VSAM save data set with ddname ACSAVDD1.

```
ACCOUNTING
SAVE
  DDNAME(ACSAVDD1)
```

This example requests the following:

- Convert reduced Accounting data and write it to the sequential data set with ddname ACSAVDD2.

```
ACCOUNTING
SAVE
  CONVERT
  DDNAME(ACSAVDD2)
```

**ACCOUNTING command with RESTORE subcommand:**

This section describes the ACCOUNTING command with the RESTORE subcommand.
Usage

Use the RESTORE subcommand to reload previously saved data (in a VSAM data set) for additional processing. After the data is restored, you can produce reports from the restored data alone, or from the restored data combined with newly reduced data.

Usage notes

- Saved data can be restored as often as required.

Syntax of the RESTORE subcommand

```
RESTORE DDNAME (ddname)
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**DDNAME**

Specifies the ddname used to reload a previously saved file for additional use. The ddname specifies the data set being restored. The default ddname is ACRSTDD.

Example using RESTORE with DDNAME option

This example specifies that the previously saved, reduced data is read from the data set defined by the ddname RESDANDD.

Note:

1. Do not specify DUMMY in your JCL for ACRSTDD. When you are not using RESTORE, omit this ddname from your JCL.
2. If you use the RESTORE and REDUCE subcommands in the same job stream, the INTERVAL and BOUNDARY options specified in REDUCE should match the INTERVAL and BOUNDARY options that were used to reduce the data being restored. If these values are different, the interval and boundary from the restored data is used.
3. Data from previous versions of OM XE for DB2 PE cannot be restored until it has been changed to the current OMEGAMON for DB2 PE format by using the migrate function of the save-file utility. For information about migrating data, see “Report Reference”.

```
RESTORE DDNAME (RESDANDD)
```

ACCOUNTING command with TRACE subcommand:

This section describes the ACCOUNTING command with the TRACE subcommand.
Usage

Use the TRACE subcommand to produce traces with an entry for each of the following:

- An IFCID 3 with associated IFCIDs 239 if more than 10 packages or DBRMs are executed within the plan
- Several IFCIDs 3 (and 239) generated at different locations for a distributed transaction (in merged traces only)
- Several IFCIDs 3 (and 239) generated for the originating and associated parallel tasks in CP parallelism

Usage notes

- An entry in an Accounting trace is referred to as a logical Accounting record as it can consist of several physical Accounting records (IFCID 3 and 239).
- Up to five traces can be requested in a job step.

Syntax of the TRACE subcommand

```plaintext
TRACE
   FROM/TO block
   LAYOUT (SHORT
            LONG
            name)
   NOEXCEPTION
   EXCEPTION
   TOP (10
        number
        ONLY
        INAPPLET
        keyword)
   DDNAME (ACTRCDD
            name)
   INCLUDE/EXCLUDE block
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

FROM/TO

Limits the range of records included in the trace by date and time.

For details, see “FROM/TO subcommand options” on page 4812.

LAYOUT

Specifies the name of a report layout. You can specify one of the supplied layouts or one that you have previously tailored:

SHORT

This is the default.

LONG

This option provides detailed thread-related data. You can also use other functions such as Record Trace and SQL Activity to find detailed DB2 trace data.

Historical Reporter migration layouts

Use the Historical Reporter migration layouts to help you identify
OMEGAMON for DB2 PE data that was previously shown in the reports of the OMEGAMON Historical Reporter. The migration layouts include:

- "Options for OMEGAMON Historical Reporter Accounting reports" on page 4820
- "Options for OMEGAMON Historical Reporter Statistics reports" on page 4824

User-defined Layouts

You can customize your own report layouts by specifying which blocks of data and which fields within the blocks are included, and their relative order. To adapt the reports according to your requirements, you use user-tailored reporting (UTR). With UTR, you can control the volume, contents, and layout of Statistics traces and reports.

For information about tailoring report layouts, see the Reporting User's Guide.

**EXCEPTION**

**NOEXCEPTION**

Specify EXCEPTION if you want to show those accounting trace entries with at least one field in exception status. Otherwise, a standard report is produced.

If you use this option, your JCL must contain a valid DD definition for the ddname EXCPTDD. For more information about required ddnames, see Figure 300 on page 4691.

**TOP**

Identifies trace entries with a high value in certain fields, you can produce an Accounting trace with TOP lists. TOP lists indicate which entries on the trace have the highest value in the field you have specified by using the TOP subcommand option.

For more information about TOP processing, see "TOP subcommand option" on page 4831 and Examples of TOP processing, as well as the Reporting User’s Guide.

You can specify:

- number

By default, the TOP list contains the top ten entries, but you can change the number to anything from one to fifty.

**ONLY**

ONLY allows to use TOP as a filter. When TOP is requested as a filter, the index is not shown. For example, the trace produced by the command following ONLY shows the top 3 entries for the default TOP field, elapsed time in application (INAPPLET). The keyword ONLY is valid wherever a resource name can be used.

```
ACCOUNTING
TRACE
  TOP (3 ONLY)
```

* Specifies any combination of the fields. You can generate reports showing TOP lists for all the fields available for use with the TOP subcommand option.

**keyword**

TOP lists for package fields report the maximum values of these fields in individual packages within a trace entry. TOP lists for buffer pool fields contain the totals for all the buffer pools.

The following list shows the keywords that these fields are specified by:

**INAPPLET**

The class 1 elapsed time (in an application). This value is an average.
If no TOP subcommand option is specified, the default is class 1 elapsed time (INAPPLPT).

**BUFUPDTS**
The number of buffer updates. This value is an average.

**CMPERUPD**
The ratio of the sum of commits and rollbacks to the sum of SQL UPDATE, SQL INSERT, and SQL DELETE statements.

**DCLSTAT**
The total number of DCL statements executed.

**DDLSTAT**
The total number of DDL statements executed.

**DMLSTAT**
The total number of SQL DML statements executed.

**GETPAGES**
The number of Getpage requests. This value is an average.

**INAPPLPT**
The class 1 CPU time in an application. This value is an average.

**INAPPLWT**
The class 1 waiting time in an application. This value is an average.

**INDB2ET**
The class 2 elapsed time accumulated in DB2. This value is an average.

**INDB2PT**
The class 2 CPU time in DB2. This value is an average.

**INDB2WT**
The class 2 waiting time in DB2. This value is an average.

**MAXWRKF**
Identifies the threads with the highest values for the field MAX WFILE BLKS (DB2 field QWAC_WORKFILE_MAX) which is shown in the Highlights data blocks. This value is a maximum.

**NOTACCT**
The time not accounted in DB2. You use this time to determine whether there is a large percentage of time that has not been captured within the DB2 Accounting record. This value is an average.

**OUTDB2ET**
The elapsed time outside DB2. This value is an average.

**OUTDB2PT**
The CPU time outside DB2. This value is an average.

**OUTDB2WT**
The waiting time outside DB2. This value is an average.

**PINDBET**
The total elapsed time for executing the package or DBRM. This value is an average.

**PINDBPT**
The CPU time spent by the package or DBRM (class 7). This value is an average.

**PNOTACCT**
The total unaccounted time in DB2 caused by the execution of the package or DBRM. This value is an average.

**PTSUSTME**
The waiting time for the package or DBRM caused by a class 8 suspension. This value is an average.

**SYNCREAD**
The number of synchronous read I/O operations. This value is an average.

**TOTPREF**
The number of all types of prefetch requests. This value is an average.
**TOTSUSP**

The number of suspensions. This value is an average.

**TOTSUSTM**

The waiting time for all class 3 suspensions. This value is an average.

**UPDPERCM**

The sum of SQL UPDATE, SQL INSERT, and SQL DELETE statements executed.

**DDNAME**

Specifies the data set where the trace is written. The default ddname for the first trace is ACTRCDD1. The default ddnames for the second to fifth traces are ACTRCDD2 through ACTRCDD5.

**INCLUDE/EXCLUDE**

Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

Some care is needed when using PLANNAME as a filter in a DDF environment, see Special considerations for DDF trace data.

**Example using TRACE without subcommand options**

The following example specifies:

- An accounting short trace
- Exception data is not presented
- Written to ACTRCDD1

```
TRACE ACCOUNTING command with FILE subcommand:

This section describes the ACCOUNTING command with the FILE subcommand.

**Usage**

Use the FILE subcommand to format unreduced DB2 data and store it in sequential data sets suitable for use by the DB2 load utility.

**Usage notes**

- In the case of CP parallelism, the logical Accounting record (aggregation of all the activity within the thread) is stored in the data set.
- The records can be placed in DB2 tables, and you can produce reports by using a reporting facility such as Query Management Facility (QMF).
- You can also use the FILE data sets to generate CSV (comma-separated value) input-data. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables. For more information refer to [Reporting User’s Guide](#).

Chapter 7. Commands  4707
Syntax of the FILE subcommand

```
FILE
  FROM/TO block
  NOEXCEPTION
  EXCEPTION
  DATATYPE(GENERAL,BP,GBP,DDF,PACKAGE,ACCEL)
  DATATYPE(GENERAL,BP,GBP,DDF,PACKAGE,ACCEL)
  INCLUDE/EXCLUDE block
  DDNAME(ddname)
  ACFILDD1
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See "OMEGAMON for DB2 PE subcommand options" on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**FROM/TO**
Limits the range of records included in the data set by date and time.
For details, see "FROM/TO subcommand options" on page 4812.
If you are reducing data, the times specified in REDUCE affect the data available for filing.

**EXCEPTION**
Specify EXCEPTION if you want to include only those file entries with values outside the user-specified limits. Otherwise, all records are included.
If you use this option, your JCL must contain a valid DD definition for the ddname EXCPTDD. For more information about required ddnames, see Figure 300 on page 4691.

**DATATYPE**
Specifies which data types are to be written to the FILE data set specified in the DDNAME subcommand option. By default, if DATATYPE is not specified, or if DATATYPE() is specified (without keywords), all data types are written.
This subcommand option lets you improve the system performance while the data set is generated by explicitly specifying only the required data types. If performance is not critical, you can safely ignore this subcommand option. Use one or more of the following keywords to specify the required data types.

**GENERAL**
General performance data

**BP**
Buffer pool performance data

**GBP**
Group buffer pool performance data

**DDF**
Distributed Data Facility (DDF) data

**PACKAGE**
Package execution data

**ACCEL**
Accelerator data
**DDNAME**

 Specifies the ddname where the file data set is written. The default ddname is ACFILDD1 for the first file instance, ACFILDD2 for the second file instance, and so on.

**INCLUDE/EXCLUDE**

 Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

 For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

**Example using FILE with EXCEPTION and INCLUDE options**

 This example specifies a file that includes only exception records for User10, User11, and User12. The file is generated on ddname ACFILDD1 by default.

 ..

 FILE

 EXCEPTION

 INCLUDE (PRIMAUTH(USER10 USER11 USER12))

 ..

**AUDIT command**

 This section provides an overview of the AUDIT command.

**Usage**

 Use the AUDIT command to reduce data and generate Audit reports, traces, and file data sets. The subcommands are described in detail, together with their various options, in the following sections.

**Usage notes**

 - This command can be used once in a job step.
 - However, it can be used in the same job step with commands of the other report sets.
 - You can filter records with the GLOBAL command first. This can minimize your report output and reduce processing time. See “GLOBAL command” on page 4785 for more information.

**Syntax**

```
AUDIT  
   REPORT subcommand  (1) 
   REDUCE subcommand  (2) 
   TRACE subcommand   (3) 
   FILE subcommand    (4) 
```

**Notes:**

1. You can specify REPORT up to 5 times.
You can specify REDUCE only once. If specified, you must also specify REPORT, TRACE, or FILE at least once.

You can specify TRACE up to 5 times.

You can specify FILE up to 7 times.

Subcommands

The subcommands are described in detail, together with their various options, in the following sections.

Sample JCL for requesting Audit functions

The OMEGAMON for DB2 PE command language shown in this example is not appropriate in all circumstances. You must modify it to meet your requirements.

Most of the DD statements with a SYSOUT destination do not have to be specified because they are dynamically allocated by OMEGAMON for DB2 PE. See “DD statements” on page 4676 for full descriptions of the DD statements.

Note:

1. There is an advantage in omitting DPMOUTDD from your JCL. For more information, see “DPMOUTDD statement” on page 4677.
2. The OMEGAMON for DB2 PE command stream is only processed if EXEC is included as the last command. Otherwise, OMEGAMON for DB2 PE only checks the syntax and writes the command stream together with any information, warning, or error messages generated to the job summary log.

This is a sample of the JCL required to produce Audit reports and traces. A description of the DD statements follows the sample.

```
//PEMAIN EXEC PGM=FPECMAIN
//** FOLLOWING ARE SYSTEM DDNAMES
//STEPLIB DD DSN=FPE.FPELIB.RKANMOD,DISP=SHR
//DPMPARMS DD DSN=MYID.FPELIB.DPMPARMS,DISP=SHR
//INPUTDD DD DSN=MYID.FPELIB.DPMIN,DISP=SHR
//DPMLOG DD SYSOUT**
//SYSSOUT DD SYSOUT**
//JOBSUMDD DD SYSOUT**
//DPMOUTDD DD DSN=MYID.FPELIB.DPMOUT.DATA,DISP=OLD
//SYSUDUMP DD DUMMY
//** FOLLOWING ARE REPORT SET DDNAMES
//AURPTDD DD SYSOUT**
//AUTRCDDx DD SYSOUT**
//AUFILDDx DD DSN=MYID.FPELIB.AUDIT.FILE,DISP=OLD
//AUDWORK DD DSN=MYID.FPELIB.AUDIT.WORKDD,DISP=OLD
//** FOLLOWING IS THE COMMAND STREAM
//SYSIN DD *

:: AUDIT
   REDUCE
   REPORT
   TRACE
   FILE
:: EXEC
```

Figure 301. Sample JCL for requesting Audit functions
AUDIT command with REPORT subcommand:

This section describes the AUDIT command with the REPORT subcommand.

Usage

Use the REPORT subcommand to generate reports from records.

Usage notes

- Up to five REPORT subcommands can be specified within each AUDIT command.

Syntax of the REPORT subcommand

```
REPORT
  FROM/TO block
  LEVEL (SUMMARY | DETAIL)
  TYPE (AUTHCHG | AUTHCNTL | AUTHFAIL | BIND | DDL | DML | UTILITY | MEMBER)
  SCOPE (GROUP)
  DDNAME (ddname)
  ORDER block
  INCLUDE/EXCLUDE block
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See "OMEGAMON for DB2 PE subcommand options" on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

FROM/TO

Limits the range of records included in the reporting process by date and time.

For details, see "FROM/TO subcommand options" on page 4812.

SCOPE

Specifies the scope of the report in a data sharing environment.

```
MEMBER
  GROUP
```

LEVEL

Specifies the level of the report. You can enter either of the following:

```
SUMMARY
  Produces reports of aggregated audit data.

DETAIL
  Produces reports of non-aggregated audit data in timestamp sequence
```
within the requested TYPE and ORDER. Events within reports are sorted by timestamp within OMEGAMON for DB2 PE identifiers.

**Note:** There is a dependency between the two commands AUDIT REPORT LEVEL(SUMMARY) and AUDIT REPORT LEVEL(DETAIL). If you request a SUMMARY report and a DETAIL report for the same audit TYPE, then first specify the DETAIL report and then the SUMMARY report in order to receive meaningful data in the SUMMARY report. If you request a SUMMARY report without a DETAIL report, then there is no dependency and the SUMMARY report delivers valuable results.

**TYPE**
Specifies the type of audit data to be reported. You can enter one or more of the following:

- **ALL**
  All audit categories are reported (the default)

- **AUTHCHG**
  Changes to authorization identifiers

- **AUTHCNTL**
  GRANTs and REVOKEs of privileges

- **AUTHFAIL**
  Authorization failure

- **BIND**
  DML statements at bind of auditable DB2 tables

- **DDL**
  DDL operations against auditable DB2 tables

- **DML**
  Read/write access against auditable DB2 tables

- **UTILITY**
  Utility access against auditable DB2 tables

**Note:**
1. If you select audit types in REPORT that were not specified in the TYPE option of REDUCE, blank reports are generated for those audit types.
2. If TYPE is specified with LEVEL(SUMMARY), a report of aggregated audit data is produced for each type requested.
3. If TYPE is not specified with LEVEL(SUMMARY), one report showing aggregated totals for all audit types is produced.
4. If TYPE is specified with LEVEL(DETAIL), one report showing nonaggregated audit data of all the requested types is produced.
5. If TYPE is not specified with LEVEL(DETAIL), a report showing nonaggregated audit data of all types is produced.

**DDNAME**
Specifies the data set where the report is written.

**ORDER**
Specifies the OMEGAMON for DB2 PE identifiers and their sequence for sorting the report and, in summary reports, which identifiers are used for aggregation.

For details, see "ORDER subcommand option” on page 4827 and "OMEGAMON for Db2 PE identifiers” on page 4665.

The default for ORDER varies with the LEVEL and TYPE specified.

The definition of an object depends on the LEVEL and TYPE specified.
INCLUDE/EXCLUDE

Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see "INCLUDE and EXCLUDE subcommand options" on page 4814, which lists other identifiers allowed with this command and subcommand combination, and "OMEGAMON for Db2 PE identifiers" on page 4665.

Example using REPORT with LEVEL and TYPE option

The following example uses LEVEL and TYPE:

```
AUDIT REPORT
   LEVEL (DETAIL)
   TYPE (AUTHFAIL, AUTHCNTL)
```

This example produces a detail report for all authorization failures and authorization GRANTS and REVOKEs found in the input data. By default, the reports are in PRIMAUTH-PLANNAME sequence and, for summary reports, the output is aggregated by PRIMAUTH-PLANNAME. The output is sent to default ddname AURPTDD.

Example using REPORT with ORDER option

In the following example ORDER specifies that three authorization failure detail reports are to be produced.

```
REPORT
   LEVEL (DETAIL)
   TYPE (AUTHFAIL)
   ORDER (PRIMAUTH-PLANNAME-REQLOC
         CONNECT-PLANNAME-REQLOC-PRIMAUTH)
```

- The first report is ordered by requesting location within plan name within primary authorization ID.
- The second report is ordered by plan name within connection ID.
- The third report is ordered by primary authorization ID within requesting location.

AUDIT command with REDUCE subcommand:

This section describes the AUDIT command with the REDUCE subcommand.

Usage

You use the REDUCE subcommand to reduce the volume of data that is input to subsequent subcommands.

Usage notes

- REDUCE can be used once in an AUDIT command.
The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

Subcommand options

FROM/TO
Limits the range of records included in the reduction process by date and time.
For details, see “FROM/TO subcommand options” on page 4812.

TYPE
Specifies the type of audit data to be reduced. One or more categories can be selected. Only the data selected on the REDUCE subcommand is available to subsequent REPORT subcommands. You can enter one or more of the following:

- **ALL**
  All audit categories are reported (the default)
- **AUTHCHG**
  Changes to authorization identifiers
- **AUTHCNTL**
  GRANTS and REVOKEs of privileges
- **AUTHFAIL**
  Authorization failure
- **BIND**
  DML statements at bind of auditable DB2 tables
- **DDL**
  DDL operations against auditable DB2 tables
- **DML**
  Read/write access against auditable DB2 tables
- **UTILITY**
  Utility access against auditable DB2 tables

INCLUDE/EXCLUDE
Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.
For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.
Example using REDUCE

This example requests the following:
• Reduce only input data of type AUTHCHG (Authority Change).
• Include only data of subsystem DSN1.
• Write the report to the data set defined by the default ddname AUDRPTDD.

AUDIT
    REDUCE
    TYPE (AUTHCHG)
    INCLUDE (SUBSYSTEM(DSN1))
    REPORT

AUDIT command with TRACE subcommand:

This section describes the AUDIT command with the TRACE subcommand.

Usage

Use the TRACE subcommand to produce traces with an entry for each DB2 Audit record.

Usage notes
• Up to five traces can be requested in a job step.

Syntax of the TRACE subcommand

```
TRACE
    FROM/TO block
    TYPE (AUTHCHG)
    INCLUDE (SUBSYSTEM(DSN1))
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

FROM/TO
Limits the range of records included in the trace by date and time.
For details, see “FROM/TO subcommand options” on page 4812.
**TYPE**
Identifies the type of data traced. You can enter one or more of the following:

- **ALL**
  All audit categories are reported (the default)
- **AUTHCHG**
  Changes to authorization identifiers
- **AUTHCNTL**
  GRANTs and REVOKEs of privileges
- **AUTHFAIL**
  Authorization failure
- **BIND**
  DML statements at bind of auditable DB2 tables
- **DDL**
  DDL operations against auditable DB2 tables
- **DML**
  Read/write access against auditable DB2 tables
- **UTILITY**
  Utility access against auditable DB2 tables

**SCOPE**
Specifies the scope of the trace.

- **MEMBER**
- **GROUP**

**DDNAME**
Specifies the data set where the trace is written.

**INCLUDE/EXCLUDE**
Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see "INCLUDE and EXCLUDE subcommand options" on page 4814, which lists other identifiers allowed with this command and subcommand combination, and "OMEGAMON for Db2 PE identifiers" on page 4665.

**Example using TRACE with TYPE option**

This command traces only authorization failures (in the order that they occur). The output goes to the default ddname AUTRCDD1.

```
AUDIT
  TRACE
    TYPE (AUTHFAIL)
```

**AUDIT command with FILE subcommand:**

This section describes the AUDIT command with the FILE subcommand.

**Usage**

Use the FILE subcommand to format unreduced DB2 data and store it in sequential data sets suitable for use by the DB2 load utility. The records can be placed in DB2 tables, and you can produce reports by using a reporting facility such as Query Management Facility (QMF).
Usage notes

By using the FILE subcommand you can:

- Process the different audit types separately by specifying one audit type for each FILE subcommand.
- Process the different audit types simultaneously by specifying any number of the available audit types in each FILE subcommand.

The FILE subcommand can occur a maximum of seven times in a job step.

Syntax of the FILE subcommand

```
FILE
  FROM/TO block
  ALL
  TYPE (AUTHCHG AUTHCNTL AUTHFAIL BIND DDL DML UTILITY AUFILOD*)
  DDNAME (ddname)
  INCLUDE/EXCLUDE block
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**FROM/TO**

Limits the range of records included in the data set by date and time.

For details, see “FROM/TO subcommand options” on page 4812.

**TYPE**

Selects the audit category. It identifies the type of data included in the data set.

You can enter one or more of the following:

- **ALL**
  All audit categories are reported (the default)
- **AUTHCHG**
  Changes to authorization identifiers
- **AUTHCNTL**
  GRANTS and REVOKEs of privileges
- **AUTHFAIL**
  Authorization failure
- **BIND**
  DML statements at bind of auditable DB2 tables
- **DDL**
  DDL operations against auditable DB2 tables
DML
Read/write access against auditable DB2 tables

UTILITY
Utility access against auditable DB2 tables

DDNAME
Specifies the ddname where the file data set is written. The default ddname is AUFILDD1 for the first file data set, and AUFILDD2 to AUFILDD7 for the second to seventh file data sets.

You can specify a different ddname by using the DDNAME option in the FILE subcommand. In this case, your JCL must contain a valid DD statement for the ddname you specify. If you do not specify a different ddname, your JCL must contain a valid DD statement for the corresponding default ddname. For example, if you omit the DDNAME option from the third FILE subcommand in the job stream, your JCL must contain a valid DD statement for AUFILDD3.

INCLUDE/EXCLUDE
Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

Example using FILE with TYPE option

This command generates a data set in the default ddname AUFILDD1. The data set contains one or more records for each authorization failure: an AUTHFAIL record and any matching records containing the text of the SQL statement that caused the authorization failure.

FILE
   TYPE (AUTHFAIL)

EXEC command
This section describes the EXEC command.

Usage
Typically, the EXEC command is the last statement in the OMEGAMON for DB2 PE command stream. This command causes the generation of any previously specified reports. It takes no arguments.

Usage notes
- When the EXEC command is not present, no report is produced. The syntax of the command stream is checked and written out, together with any information, warning, or error messages to the DPMOUTDD data set.
- All statements following the EXEC are ignored.
- You can filter records with the GLOBAL command first. This can minimize your report output and reduce processing time. See “GLOBAL command” on page 4785 for more information.
Syntax

EXPLAIN command
This section provides an overview of the EXPLAIN command.

Usage
Use the OMEGAMON for DB2 PE EXPLAIN command to produce explain reports.

Usage notes
• You can specify any number of EXPLAIN commands in the OMEGAMON for DB2 PE command stream.
• For each EXPLAIN command a separate OMEGAMON for DB2 PE explain report is produced.
• Some parameters can include a wildcard (*) provided that it is the last character in the text string.

Syntax

Subcommands and options
Each of the functions is identified with an appropriate keyword, followed by various subcommands and options, which identify the object being explained and control the amount of detail being produced.

The following sections identify the subcommands available for each function. Here you find a description of the EXPLAIN subcommands and options that can be specified with the EXPLAIN and GLOBAL commands:

ACCTYPE
Can be specified for the PLAN and PACKAGE keywords to control the statements that are to be explained within the plan or package based on the chosen access path. The following values are available:

ALL
For each explainable SQL statement in the plan, a report is produced. This is the default value.

MATCHING
Only explainable SQL statements where an access path of matching index scan has been selected, are processed and reported.

NONMATCH
Only explainable SQL statements where an access path of nonmatching index scan has been selected, are processed and reported.
TABSCAN

Only explainable SQL statements where an access path of table space scan has been selected, are processed and reported.

Note: ACCTYPE selection, as with any other OMEGAMON for DB2 PE explain selection, applies to individual PLAN_TABLE rows, not to the entire SQL statement. For example, if a particular SQL statement is executed in two steps, the first using matching index scan and the second using nonmatching index scan, and ACCTYPE(MATCHING) is specified, only the first step is reported.

DBRM

Can be specified for the PLAN keyword to control the DBRMs to be explained within the plan. If DBRM is not specified, all DBRMs within the plan are explained. If only a given DBRM within the plan is to be explained, you must specify the actual DBRM name in DBRM. If all DBRMs with a given name pattern are to be explained, a wildcard (*) can be used.

DEGREE

Can be specified for the QMFQUERY and SQLSTMT keywords to indicate whether the SQL statement or statements are eligible for query parallelism. The following values are available:

1 The SQL statement does not use query parallelism. This is the default.

ANY The SQL statement is eligible for query parallelism.

DSJ Disable star join.

ESJ Enable star join.

FIRST/LAST

Specifies the number of the first and the last statement in the plan or package to be explained, to control the range of SQL statements to be explained within the plan or package.

If FIRST is not specified, a value of 1 is used. If LAST is not specified, a value of 999 999 999 is used. If FIRST is greater than LAST, both parameters are set to the value of FIRST.

FORCE

Can be specified for the PACKAGE keyword to control the explanation of the SQL statements in a package. The following values are available:

NO If more than one package is referenced, the statements are only explained if the total number of SQL statements is less than 300. This is the default value.

YES All statements in all packages that conform to the specification are explained.

FORMAT

Can be specified for the PLAN and PACKAGE keywords to control the formatting of the SQL statements in the plan or package. The following values are available:

YES The SQL statement is formatted so that a new line is started for SQL
keywords such as SELECT, INTO, FROM, WHERE. Subselects, however, are not indented. This is the default value.

**NO** The SQL statement is formatted so that a new line is only started for the SQL keywords SELECT and UNION. By using this option, the SQL statement uses minimum page space.

**GEN**
Controls the number of version generations in a package to be explained, with PLAN and PACKAGE.

Specify a value from 1 to 99 to overwrite the default. For PLAN, if GEN is not specified, the default is 1.

For PACKAGE, if GEN is not specified, the default is 1, when no wildcard is used in the version ID of the package. If a wildcard is present, a value of 99 is used.

**HOSTVAR**
Can be specified for the PLAN and PACKAGE keywords to control the listing of host variable specifications. The following values are available:

**NO** No host variable definitions are listed in the report. This is the default value.

**YES** A listing of all (maximum 500) host variables used in the SQL statement is produced. This listing includes the definition type, length, and null characteristics.

**INDEX**
Controls the level of index information unless the index data block is excluded by using the LEVEL option. The following values are available:

**YES** If DB2 has selected a matching or nonmatching index scan, OMEGAMON for DB2 PE explain shows all index information for the selected index including key column information. If DB2 has selected a table space scan, OMEGAMON for DB2 PE explain shows detailed index information for all indexes of the accessed table. This is the default value.

**NO** No index information is shown in the report.

**ALL** Information for all indexes created for the table (including key column information) is shown in the report. The information is listed after the table details.

**LEVEL**
Controls which of the following blocks of data the OMEGAMON for DB2 PE explain report contains:

- “Raw” SQL EXPLAIN data as found in the PLAN_TABLE
- Access path data
- Table and table space data
- Index data
- Key data
- Distribution of the ten mostly used keys
- Plan/package bind data, if applicable
- Host variables data, if applicable
- Summary report
The table below summarizes which values can be specified and which blocks are reported.

Table 303. LEVEL values

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>Raw SQL</th>
<th>Access Path Data</th>
<th>Table (Space) Data</th>
<th>Index Data</th>
<th>Key Data</th>
<th>Top Ten Key Dist.</th>
<th>Plan/Package Data</th>
<th>Host Variables</th>
<th>Summary Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMMARY</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>SQL</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>BASIC</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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</tr>
<tr>
<td>INDEXES</td>
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<td>●</td>
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<tr>
<td>DETAIL</td>
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<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<td>●</td>
</tr>
<tr>
<td>NORAWXPL</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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<td>●</td>
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<tr>
<td>KEYDIST</td>
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<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>(None)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

LOCATION

Can be specified for the PLAN keyword to determine the location of the plan. If LOCATION is not specified, the local location, that is, the location specified in the SSID option, is used.

When a valid location name is specified, OMEGAMON for DB2 PE explain connects to the specified location and EXPLAIN PLAN processing continues at that location. To be valid, the location name must appear in the LOCATION column of the SYSIBM.SYSLOCATIONS table, or be the local DB2 subsystem's location name.

OWNER

Can be specified for the GLOBAL and QUERYNO keywords to control the authorization ID of the PLAN_TABLE for the current request. To select the correct PLAN_TABLE, OMEGAMON for DB2 PE explain looks for the authorization ID specified in the OWNER option of QUERYNO. If it is not specified, the OWNER value in GLOBAL is used. If OWNER is not specified in GLOBAL, OMEGAMON for DB2 PE explain uses the authorization ID of the job submitter.

PACKAGES

Can be specified for the PLAN keyword to control the explanation of statements in packages within a plan. The following values are available:

YES

For each package in the plan, only statements in the most recent version are explained. This is the default value.

NO

No statements in the packages are explained.

ALL

All statements in all versions of the packages are explained.

PACKLIMIT

Controls the number of packages to be explained.

A particular plan can consist of more packages than has been specified in PACKLIMIT (default is 100). In this case, a report listing all packages is produced but no SQL statements in these packages are explained. PACKLIMIT does not affect DBRMs.
One of the steps in OMEGAMON for DB2 PE installation is to bind the OMEGAMON for DB2 PE explain application. The default name for this plan is KO2EXPL.

If you do not want to use the default name, you can specify the name of the OMEGAMON for DB2 PE explain plan at OMEGAMON for DB2 PE execution time. This is done by specifying PLANEXPLAIN(xxxxxxxx) in GLOBAL, where xxxxxxxx is the OMEGAMON for DB2 PE explain plan name.

SQLID
Defines the current SQL ID. If you specify SQLID(USER), the primary SQL ID is set. Otherwise, a valid secondary authorization ID is set. This option has the same effect and is used in the same context as the SQL statement SET CURRENT SQLID.

SSID
Identifies the DB2 subsystem where the object specified in EXPLAIN resides. If SSID is not specified in either EXPLAIN or GLOBAL, an error message is issued and OMEGAMON for DB2 PE resumes processing with the next command.

TABLE
Can be specified for the PLAN and PACKAGE keywords to control the statements that are to be explained within the plan or package. If TABLE is not specified, all statements within the plan or package are explained.

If only statements accessing a given table are to be explained, you must specify the actual table name in TABLE. If only statements accessing tables with a given name pattern are to be explained, you can use a wildcard (*).

EXPLAIN PLAN specifications:

This section describes the EXPLAIN PLAN specifications.

Usage
Use this specification if you want to investigate all or selected SQL statements in a given plan. You can specify the name of the plan to be explained.

Usage notes
• OMEGAMON for DB2 PE EXPLAIN verifies that the specified plan exists in the catalog table SYSIBM.SYSPLAN.
• If it does, OMEGAMON for DB2 PE EXPLAIN further verifies that the plan has been bound with the EXPLAIN(YES) option.

Syntax of the EXPLAIN PLAN specification

EXPLAIN PLAN(planname) (1)

SSID(DB2 subsystem id)
Notes:
1. SSID is required unless specified in a preceding GLOBAL command.

Subcommand options

Note: This section only explains specific subcommands. The other subcommands and options are described in “Subcommands and options” on page 4719. The following list gives additional or specific descriptions of selected options, where appropriate.

planname
Identifies the plan that statements are to be explained for.

EXPLAIN PACKAGE specifications:

This section describes the EXPLAIN PACKAGE specifications.

Usage

Use this specification to investigate all or selected SQL statements for given packages.
Usage notes

• OMEGAMON for DB2 PE EXPLAIN verifies that the specified package exists in the catalog table SYSIBM.SYSPACKAGE.

• If it does, OMEGAMON for DB2 PE EXPLAIN further verifies that the package has been bound with the EXPLAIN(YES) option.

Syntax of the EXPLAIN PACKAGE specification

```
►► EXPLAIN PACKAGE
►-(collection id
  package id
  version id)

►-(SSID DB2 subsystem id)
  SQLID secondary authid)

►-(LEVEL (DETAIL
  BASIC
  INDEXES
  KEYDIST
  SQL
  SUMMARY
  NORAWXPL)

►-(ACCTYPE (ALL
  MATCHING
  NONMATCH
  TABSCAN)

►-(TABLE (authid
  tabname)

►-(FIRST (n)
  LAST (n)
  GEN (n)

►-(FORCE (NO
  YES)
  FORMAT (YES
  NO)
```

Notes:

1. SSID is required unless specified in a preceding GLOBAL command.

Subcommand options

Note: This section only explains specific subcommands. The other subcommands and options are described in "Subcommands and options" on page 4719. The following list gives additional or specific descriptions of selected options, where appropriate.

collection id
package id
version id

Identify the package that statements are to be explained for.

The asterisk is allowed as wildcard character for collection id, package id, and version id.

The version id string can contain the following special characters: underscore (_), at (@), number (#), dollar ($), dash (~), and period (.)
Use \(-n\) (the version generation number preceded by a minus sign) to specify the version id. The version generation number is the line counter of a package list sorted by the precompile date in descending order. The newest package version has the generation number "0" and the oldest package version has the generation number "\(-n\).

**EXPLAIN QMFQUERY specifications:**

This section describes the EXPLAIN QMFQUERY specifications.

**Usage**

Use this specification to check if a saved QMF query is written in the SQL language.

**Usage notes**

- QBE and PROMPTED queries must be converted to SQL before they can be explained.
- Apart from explaining your own saved QMF queries, you can explain a query created by other users provided that the query was saved with SHARE=YES.
- The QMF query can contain parameters, for example PARM1 and \&PARM1; These parameters can also substitute column names in the select list. However, the query must not contain literals and other strings with one or more ampersands (\&), enclosed between quotes ('). If there is more than one entry in the **PLAN_TABLE** with the same identifiers (for example, query number, plan name, and program name), a report for the most recent entry is produced.

**Syntax of the EXPLAIN QMFQUERY specification**

```
EXPLAIN QMFQUERY( qmf query name )
```

```
SSID( DB2 subsystem id )
```

```
SQLID( secondary authid )
```

```
LEVEL( BASIC INDEXES KEYDIST SQL SUMMARY NORAWXPL )
```

```
INDEX( YES NO )
```

```
DEGREE( ANY DSJ ESJ )
```

**Notes:**

1. SSID is required unless specified in a preceding GLOBAL command.
Subcommand options

Note: This section only explains specific subcommand options. The other subcommand options are described in “Subcommands and options” on page 4719. The following list gives additional or specific descriptions of selected options, where appropriate.

authid
qmfs query name
Identify the saved QMF query to be explained.

EXPLAIN SQLSTMT specifications:

This section describes the EXPLAIN SQLSTMT specifications.

Usage

Use this specification to investigate a particular SQL statement supplied in its text form.

Usage notes

- The supplied SQL statement is explained by SQL EXPLAIN using a query number of 99973591. If this number already exists in the PLAN_TABLE of the job submitter, OMEGAMON for DB2 PE explain deletes the rows before processing the SQL statement. After successful execution of SQL EXPLAIN, the newly created rows in the PLAN_TABLE of the job submitter are used to produce the usual OMEGAMON for DB2 PE Explain report.

Syntax of the EXPLAIN SQLSTMT specification

```
EXPLAIN SQLSTMT(explainable sql statement text;)
```

Notes:

1. SSID is required unless specified in a preceding GLOBAL command.
Subcommand options

Note: This section only explains specific subcommands. The other subcommands and options are described in "Subcommands and options" on page 4719. The following list gives additional or specific descriptions of selected options, where appropriate.

\[ \text{explainable SQL statement text} \]

Can span several lines.

EXPLAIN QUERYNO specifications:

This section describes the EXPLAIN QUERYNO specifications.

Usage

Use this specification to check if a particular SQL statement that is identified by its query number. You can obtain the query number as follows:

- A dynamic SQL EXPLAIN statement has been executed with a given query number. The SQL EXPLAIN statement might have been executed from either DB2I or QMF. If the query number is not specified in the SQL EXPLAIN statement, DB2 assigns a number. You can obtain the query number directly from the PLAN_TABLE.
- The application has been bound with the EXPLAIN(YES) option on the BIND or REBIND commands. The query number is the statement number that was assigned by the precompiler and placed in the DBRM.

Note: If a statement belonging to a particular plan or package is to be explained, EXPLAIN PLAN or EXPLAIN PACKAGE specifications are better suited than EXPLAIN QUERYNO. By using EXPLAIN PACKAGE or EXPLAIN PLAN options such as FIRST, LAST, or DBRM, the statement can be better identified.

Usage notes

- OMEGAMON for DB2 PE EXPLAIN searches for the query number in the job submittor's PLAN_TABLE, unless the OWNER keyword with a different user ID is specified.
- If the job submittor has SELECT authorization to another user's PLAN_TABLE, the job submittor can select EXPLAIN information from this table, by specifying the other user's authorization ID as the OWNER option.
- If the specified query number does not exist in the PLAN_TABLE, a warning message is issued. OMEGAMON for DB2 PE resumes processing with the next request.

Syntax of the EXPLAIN QUERYNO specification

\[ \text{EXPLAIN QUERYNO} \left( \text{query number} \right) \]

\[ \text{SSID} \left( \text{DB2 subsystem id} \right) \]

(1)
Notes:
1  SSID is required unless specified in a preceding GLOBAL command.

Subcommand options

Note: This section only explains specific subcommands. The other subcommands and options are described in “Subcommands and options” on page 4719. The following list gives additional or specific descriptions of selected options, where appropriate.

query number
   Identifies a query number in the PLAN_TABLE being accessed.

IOACTIVITY command
This section provides an overview of the IOACTIVITY command.

Usage
Use the IOACTIVITY command to reduce data and generate I/O Activity reports.

Usage notes
• You can specify this command only once in a job step.
• However, you can use it in the same job step with commands of the other report sets.
• You can filter records with the GLOBAL command first. This can minimize your report output and reduce processing time. See “GLOBAL command” on page 4785 for more information.

Syntax

Notes:
1  You can specify REPORT up to 5 times.
2  You can specify REDUCE only once. If specified, you must also specify REPORT at least once.
Subcommands

The subcommands are described in detail, together with their various options, in the following sections.

Sample command stream for IOACTIVITY

See “DD statements” on page 4676 for full descriptions of the DD statements contained in this sample.

```
// EXEC PGM=FPECMAIN
//** FOLLOWING ARE SYSTEM DDNAMES
//STEPLIB DD DSN=FPE.FPELIB.RKANMOD,DISP=SHR
//DPMPARMS DD DSN=MYID.FPELIB.DPMPARMS,DISP=SHR
//INPUTDD DD DSN=MYID.FPELIB.DPMIN,DISP=SHR
//DPMLOG DD SYSOUT**
//SYSOUT DD SYSOUT**
//JOBSUMDD DD SYSOUT**
//DPMOUTDD DD DSN=MYID.FPELIB.DPMOUT.DATA,DISP=OLD
//SYSJUMP DD DUMMY
//** FOLLOWING ARE REPORT SET DDNAMES
//** FOLLOWING IS THE COMMAND STREAM
//SYSIN DD *
IOACTIVITY
  REDUCE
  REPORT
EXEC
```

Figure 302. Sample command stream for IOACTIVITY

IOACTIVITY command with REPORT subcommand:

This section describes the IOACTIVITY command with the REPORT subcommand.

Usage

Use the REPORT subcommand to generate reports from records.

Usage notes

- Up to five REPORT subcommands can be specified within each IOACTIVITY command.

Syntax of the REPORT subcommand
Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**FROM/TO**

Limits the range of records included in the reporting process by date and time.

For details, see “FROM/TO subcommand options” on page 4812.

**LEVEL**

Specifies the level of the report. The following keywords can be used with LEVEL:

- **SUMMARY**
  
  Gives a summary of all I/O activity for the following categories:
  
  - Buffer pool
  - EDM pool
  - Active log
  - Archive log and BSDS
  - Cross invalidation

  SUMMARY also gives the grand totals of all the I/O statistics for the reporting interval for each category. It provides a quick overview of system-wide I/O activity to help monitor trends and identify potential problem areas.

  The following levels generate detail reports. See the ORDER subcommand option for default ordering of detail reports.

  - **ACTLOG**
    
    The active log report presents counts and average elapsed time for reads, writes, and other I/O activity.

  - **ARCLOG**
    
    The archive log/BSDS report presents the archive log and BSDS read and write requests.

  - **BUFFER**
    
    The buffer pool report presents successful and unsuccessful asynchronous and synchronous (prefetch) read requests and write requests.

  - **EDM**
    
    The environmental descriptor manager pool report presents cursor table (CT), package table (PT), and database descriptor (DBD) references, loads from a hard disk drive, elapsed time for each load, and average section lengths.

  - **XI**
    
    The cross-invalidation report presents buffer refresh events caused by aggregated cross invalidation.

  The default for LEVEL is SUMMARY.

**DDNAME**

Specifies the data set where the report is written. You can specify any valid ddname including the default, provided that your JCL contains a DD statement for it. If a DD statement is omitted, it will be dynamically allocated to the SYSOUT message class of the job. The default ddname for report is IORPTDD.
ORDER

Specifies the OMEGAMON for DB2 PE identifiers and their sequence for sorting detail reports. Note that ORDER cannot be used with LEVEL(SUMMARY), which is the default. To use ORDER, you must specify LEVEL with one or more of the detail levels.

For details, see "ORDER subcommand option" on page 4827 and "OMEGAMON for DB2 PE identifiers" on page 4665.

The default for ORDER (if not explicitly specified) depends on the specification of LEVEL:
- LEVEL(ACTLOG) orders by DATASET.
- LEVEL(ARCLOG) orders by DATASET.
- LEVEL(BUFFER) orders by PRIMAUTH-PLANNAME-BPID.
- LEVEL(EDM) orders by PRIMAUTH-PLANNAME.
- LEVEL(XI) orders by PRIMAUTH-PLANNAME.
- If LEVEL specifies multiple detail reports, default ordering is by PRIMAUTH-PLANNAME.

If ORDER is used once, and if LEVEL specifies multiple detail reports, each detail report is ordered by the OMEGAMON for DB2 PE identifiers specified with ORDER.

If ORDER is used multiple times, and if LEVEL specifies one or more detail reports, each detail report is repeated for each specified ordering.

Note: The EDM pool report contains the plan name and the database name. Ordering by these identifiers results in repetitious information.

In the following example ORDER specifies that three EDM pool reports are produced.

```
REPORT
  LEVEL (EDM)
  ORDER (PRIMAUTH-PLANNAME-REQLOC
        CONNECT-PLANNAME INTERVAL-PRIMAUTH-PLANNAME)
```

- The first report is ordered by requesting location within plan name within primary authorization ID.
- The second report is ordered by plan name within connection ID.
- The third report is ordered by requesting location within primary authorization ID within interval.

INCLUDE/EXCLUDE

Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see "INCLUDE and EXCLUDE subcommand options" on page 4814, which lists other identifiers allowed with this command and subcommand combination, and "OMEGAMON for DB2 PE identifiers" on page 4665.

Example using REPORT with FROM, TO, LEVEL, and INCLUDE options

This example specifies the following:
- A summary report
- Using records with the time and date range of 10:00 a.m. on 22 November 2002 to noon on 23 November 2002
• Data is included that is only associated with the location in the range of
  LOCN01 to LOCN05

REPORT
  FROM (11/22/02,10:00:00.00)
  TO (11/23/02,12:00:00.00)
  LEVEL (SUMMARY)
  INCLUDE (LOCATION(R(LOCN01 LOCN05)))

Example using REPORT with FROM, TO, LEVEL, ORDER, and EXCLUDE options

This example specifies the following:
• A buffer pool report
• Sorted by plan name within primary authorization ID within correlation name
• Records are used with the time and date range of 10:00 a.m. on 18 March 2002
to noon on 19 March 2002
• Data is excluded that is associated with the following locations:
  – LOCN10
  – LOCN12
  – LOCN15
  – LOCN20

REPORT
  FROM (03/18/02,10:00:00.00)
  TO (03/19/02,12:00:00.00)
  LEVEL (BUFFER)
  ORDER (CORRNAME-PRIMAUTH-PLANNAME)
  EXCLUDE (LOCATION(LOCN10 LOCN12 LOCN15 LOCN20))

Example using IOACTIVITY with REDUCE and REPORT subcommands

This example requests the following:
• Reduce only input data with a timestamp within the time range of 10:30 to 11:00
  on 14 May 2002.
• Create a summary report (the default) with the default order of PLANNAME
  within PRIMAUTH.
• Write the report to the data set defined by the default ddname IORPTDD.

IOACTIVITY
  REDUCE
  FROM (05/14/02,10:30:00.00)
  TO (11:00:00.00)
  REPORT

IOACTIVITY command with REDUCE subcommand:

This section describes the IOACTIVITY command with the REDUCE subcommand.

Usage

Use the REDUCE subcommand to reduce the volume of data that is input to subsequent subcommands. REDUCE consolidates records with certain common characteristics into one record.

Usage notes
• You can specify REDUCE only once in an IOACTIVITY command.
Syntax of the REDUCE subcommand

```plaintext
REDUCE
  FROM/TO block
    INTERVAL (minutes)
    BOUNDARY (minutes)
  INCLUDE/EXCLUDE block
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

FROM/TO
Limits the range of records included in the reduction process by date and time.

For details, see “FROM/TO subcommand options” on page 4812.

INTERVAL
Defines the time interval for consolidating and averaging records. Note the remarks about performance impact in “INTERVAL subcommand option” on page 4818.

BOUNDARY
Controls the alignment of the intervals used to summarize records in the reduction process.

INCLUDE/EXCLUDE
Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

Example using REDUCE with REPORT

This example specifies the following:
- Reduce only input data with a timestamp within the time range of 10:00 to 11:00 on 14 May 2002.
- Create a summary report (the default) with the default order of PLANNAME within PRIMAUTH
- Write the report to the data set defined by the default ddname IORPTDD.

```plaintext
IOACTIVITY
  REDUCE
    FROM (05/14/02,10:00:00.00)
    TO (,11:00:00.00)
  REPORT
```

LOCKING command

This section provides an overview of the LOCKING command.
Usage

Use the LOCKING command to generate Locking reports, traces, and file data sets on locking-related DB2 data.

Usage notes

- This command can be used once in a job step.
- However, it can be used in the same job step with commands of the other report sets.
- You can filter records with the GLOBAL command first. This can minimize your report output and reduce processing time. See “GLOBAL command” on page 4785 for more information.

Syntax

```
LOCKING (1)  
  | REPORT subcommand (2)  
  | REDUCE subcommand (3)  
  | TRACE subcommand (4)  
  | FILE subcommand
```

Notes:

1. You can specify REPORT up to 5 times.
2. You can specify REDUCE only once. If specified, you must also specify REPORT at least once.
3. You can specify TRACE up to 5 times.
4. You can specify FILE only once.

Subcommands

The subcommands are described in detail, together with their various options, in the following sections.

Sample JCL for requesting Locking functions

The following is a sample of the JCL required to produce Locking reports and traces. A description of the DD statements follows the sample.
Most of the DD statements with a SYSOUT destination do not have to be specified because they are dynamically allocated by OMEGAMON for DB2 PE. See “DD statements” on page 4676 for descriptions and more information.

Note:
1. There is an advantage in omitting DPMOUTDD from your JCL. For more information, see “DPMOUTDD statement” on page 4677.
2. If you do not include the EXEC statement in your JCL, no report is produced. The syntax of your JCL is checked and written to the DPMLOG data set together with any information, warning, or error messages raised.

LOCKING command with REPORT subcommand:

This section describes the LOCKING command with the REPORT subcommand.

Usage

Use the REPORT subcommand to generate reports from records.

Usage notes

- Up to five REPORT subcommands can be specified within each LOCKING command.

Syntax of the REPORT subcommand
Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**LEVEL**

Specifies the level of the report. Both the SUSPENSION and LOCKOUT keyword can be used together in the same REPORT subcommand.

**SUSPENSION**

Generates a lock suspension report. This is the default level.

**LOCKOUT**

Generates a lockout report.

**DETAIL**

Generates a detail report.

**SPREADSHEETDD**

Specifies that lock suspension report data should be written to the specified data set. The data is written in a format that can be imported by spreadsheet programs. The data set should be allocated using the following attributes:

- **RECFM:** VB
- **LRECL:** 1 200 or greater

Use this subcommand option only together with LEVEL(SUSPENSION), which is the default if LEVEL(LOCKOUT) is not specified. See also “Example using REPORT with LEVEL, ORDER, and SPREADSHEETDD options” on page 4738.

This subcommand option accumulates additional locking data. When written to the specified data set, the individual fields are separated by a separator character (a colon) so that workstation-based spreadsheet programs can import the data for further evaluation. When you download the data set to a client, ensure that you specify ascii or text, not binary, as transfer type in your file transfer program. This ensures that the necessary EBCDIC to ASCII conversion is performed.

For more information about using lock suspension report data, see the Report Reference (“Locking Report”).
Example using REPORT with LEVEL, ORDER, and INCLUDE options

This example specifies the following:

• A lock suspension report
• Sorted by plan name
• Data is included that is only associated with the location in the range of LOCN01 to LOCN05

```
REPORT
  LEVEL (SUSPENSION)
  ORDER (PLANNAME)
  INCLUDE (LOCATION(R(LOCN01 LOCN05)))
```

Example using REPORT with FROM, TO, LEVEL, ORDER, and EXCLUDE options

This example specifies the following:

• A lockout report
• Sorted by plan name within primary authorization ID within correlation name
• Records are used with the time and date range of 10:00 a.m. on 18 March 2001 to noon on 19 March 2001
• Data is excluded that is associated with the following locations:
  – LOCN10
  – LOCN12
  – LOCN15
  – LOCN20

```
REPORT
  FROM (03/18/01,10:00:00.00)
  TO (03/19/01,12:00:00.00)
  LEVEL (LOCKOUT)
  ORDER (CORRNAME-PRIMAUTH-PLANNAME)
  EXCLUDE (LOCATION(LOCN10 LOCN12 LOCN15 LOCN20))
```

Example using REPORT with LEVEL, ORDER, and SPREADSHEETDD options

This example specifies the following:

• A lock suspension report
• A sort order by PAGESET identifier within DATABASE identifier, which is the default, but any other ordering will do
• The data set TEST1DD where the Locking report is written in a spreadsheet-compatible format

```
REPORT
  LEVEL (SUSPENSION)
  ORDER (DATABASE-PAGESET)
  SPREADSHEETDD (TEST1DD)
```

LOCKING command with REDUCE subcommand:

This section describes the LOCKING command with the REDUCE subcommand.

Usage

You use the REDUCE subcommand to limit the volume of data that is input to subsequent subcommands.
Usage notes

- REDUCE consolidates records with certain common characteristics into one record.
- REDUCE can be used once in a LOCKING command.

Syntax of the REDUCE subcommand

```
REDUCE
  FROM/TO block
  INTERVAL (minutes)
  BOUNDARY (minutes)
  INCLUDE/EXCLUDE block
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options.

Example using REDUCE with FROM, TO, and INTERVAL options

This example specifies that data is to be reduced between 10:00 a.m. on 4 February 2001 and noon on 5 February 2001. The records are to be reduced into 60-minute intervals.

```
REDUCE
  FROM (02/04/01,10:00:00.00)
  TO (02/05/01,12:00)
  INTERVAL (60)
```

LOCKING command with TRACE subcommand:

This section describes the LOCKING command with the TRACE subcommand.

Use the TRACE subcommand to produce traces with an entry for every DB2 locking event.

Usage notes

- Up to five traces can be requested in a job step.

Syntax of the TRACE subcommand
Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

LEVEL

Specifies the type of trace and the amount of detail. One LEVEL option can be specified for each TRACE subcommand:

- **DETAIL**
  Generates a lock detail trace.

- **SUSPENSION**
  Generates a lock suspension trace.

- **LOCKOUT**
  Generates a lockout trace. This is the default.

- **DEADLOCK**
  Generates a deadlock trace.

- **TIMEOUT**
  Generates a timeout trace.

INCLUDE/EXCLUDE

Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

Note that the identifier TYPE can only be used with LEVEL(DETAIL).

Example using TRACE with FROM and TO options

This example specifies that:

- Three lockout (default) traces are produced for the time intervals specified.
- Each trace covers a unique 10-minute period of time on the same day.
- Each trace is written to the data set defined by the default ddname for the trace.

```
TRACE
FROM (03/18/00, 10:00:00.00)
TO (03/18/00, 10:10:00.00)
```
LOCKING command with FILE subcommand:

This section describes the LOCKING command with the FILE subcommand.

Usage

Use the FILE subcommand to format unreduced DB2 data and store it in sequential data sets suitable for use by the DB2 load utility. The records can be placed in DB2 tables and you can produce reports by using a reporting facility such as Query Management Facility (QMF).

Usage notes

- FILE is used to format lock detail records (from IFCIDs 21, 211, 212, and 223) describing Internal Resource Lock Manager (IRLM) requests, claim and drain requests, and successful lock avoidance events.
- Only one file data set can be generated in a job step.

Syntax of the FILE subcommand

```
FILE FROM/TO block LOFILDD1 DDNAME (ddname) INCLUDE/EXCLUDE block
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See "OMEGAMON for DB2 PE subcommand options" on page 4806 for comprehensive descriptions of these options.

Example using FILE with INCLUDE option

This command generates a data set on the default ddname LOFILDD1. The data set contains detailed information about the locking requests made by the primary authorization ID SYSADM.

```
FILE INCLUDE (PRIMAUTH(SYSADM))
```

RECTRACE command

This section provides an overview of the RECTRACE command.

Usage

Use the RECTRACE command to generate Record traces and file data sets.
Usage notes

- The command can be used once in a job step.
- However, it can be used in the same job step with commands of the other report sets.
- You can filter records with the GLOBAL command first. This can minimize your report output and reduce processing time. See “GLOBAL command” on page 4785 for more information.

Syntax of the RECTRACE command

```
RECTRACE (1)
     TRACE subcommand
     FILE subcommand (2)
```

Notes:

1. You can specify TRACE up to 5 times.
2. FILE can be specified only once.

Subcommands

The subcommands are described in detail, together with their various options, in the following sections.

Sample JCL for requesting Record trace functions

The following is a sample of the JCL required to produce Record traces. For details about the JCL and DD statements used, see “The OMEGAMON for DB2 PE command stream” on page 4673.

```
// PEMAIN EXEC PGM=FPECMAIN
//* FOLLOWING ARE SYSTEM DDNAMES
//STEPLIB DD DSN=FPE.FPELIB.RKANMOD,DISP=SHR
//DPMPARMS DD DSN=MYID.FPELIB.DPMPARMS,DISP=SHR
//INPUTDD DD DSN=MYID.FPELIB.DPMIN,DISP=SHR
//DPMLOG DD SYSOUT=* SYSOUT**
//JOBSUMDD DD SYSOUT=* SYSOUT**
//DPMOUTDD DD DSN=MYID.FPELIB.DPMOUT.DATA,DISP=OLD SYSOUT
//SYSUDUMP DD DUMMY
//* FOLLOWING ARE REPORT SET DDNAMES
//RTTRCDD1 DD SYSOUT**
//RTFILDD1 DD DSN=MYID.FPELIB.RTFIL.DATA,DISP=OLD
//RTWORK DD DSN=MYID.FPELIB.RT.WORKDD,DISP=OLD
//* FOLLOWING IS THE COMMAND STREAM
//SYSIN DD *
RECTRACE
     TRACE
     FILE
EXEC
```

Figure 304. Sample JCL for requesting Record trace functions

The OMEGAMON for DB2 PE command language shown in this section is not appropriate in all circumstances. You must modify it to meet your requirements.
Most of the DD statements with a SYSOUT destination do not have to be specified because they are dynamically allocated by OMEGAMON for DB2 PE. See the individual DD statement descriptions for more information.

Note: The OMEGAMON for DB2 PE command stream is only processed if EXEC is included as the last command. Otherwise, OMEGAMON for DB2 PE only checks the syntax.

RECTRACE command with TRACE subcommand:

This section describes the RECTRACE command with the TRACE subcommand.

Usage

Use the TRACE subcommand to produce traces with an entry for every IFCID available.

Usage notes

- Up to five traces can be requested in a job step.

Syntax of the TRACE subcommand

```
TRACE
FROM/TO block
LEVEL (SUMMARY)
SHORT
LONG
DUMP
TIMESTAMP
SORTBY (LUWID)
RTTRCDD* DDNAME (ddname)
INCLUDE/EXCLUDE block
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See "OMEGAMON for DB2 PE subcommand options" on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

FROM/TO

Limits the range of records included in the trace by date and time.

For details, see "FROM/TO subcommand options" on page 4812.

LEVEL

Selects the amount of detail in the trace. You can specify one of the following keywords:

SUMMARY

Produces a trace that lists all user-selected records in the input data set.

SHORT

Produces a trace that includes all user-selected records that are used in other OMEGAMON for DB2 PE reports. This is the default.
LONG
Produces a trace that includes all user-selected records. Serviceability data is also reported.

DUMP
Produces a trace that presents all user-selected records in hexadecimal dump format. The entire record is dumped. This option is used for diagnostic purposes.

SORTBY
Sorts the events within each location. You can specify either of the following:

LUWID
Records are sorted by timestamp within thread within location.

TIMESTAMP
Records are sorted by timestamp within location. TIMESTAMP is the default.

One entry of SORTBY can be specified for each TRACE subcommand.

DDNAME
Specifies the data set where the trace is written.

INCLUDE/EXCLUDE
Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

Examples

For an example refer to “Example using RECTRACE with TRACE and FILE subcommands” on page 4745

RECTRACE command with FILE subcommand:

This section describes the RECTRACE command with the FILE subcommand.

Usage

Use the FILE subcommand to format DB2 data and store it in sequential data sets suitable for use by the DB2 load utility. The records can be placed in DB2 tables and you can produce reports by using a reporting facility such as Query Management Facility (QMF).

Usage notes

- FILE is used to format Record Trace records from IFCID 22, 63, 96, 125, 172, 196, 316, 365, and 401.
- Only one file data set can be generated in a job step.

Syntax of the FILE subcommand
Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**FROM/TO**

Limits the range of records included in the data set by date and time.

For details, see “FROM/TO subcommand options” on page 4812.

**DDNAME**

Specifies the ddname where the file data set is written. The default ddname is RTFILDD1.

**INCLUDE/EXCLUDE**

Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

Example using RECTRACE with TRACE and FILE subcommands

This example requests a Record trace that:
- Includes records generated between 08:00 and 08:10 on each day included
- Includes records with PRIMAUTH:
  - UID0001
  - UID0002
  - UID0003
- Excludes records with PLANNAME:
  - PLIT2A01
  - PLIT2A02
- Generates a data set on ddname RTFILDD1 by default. The data set contains detailed information about the IFCIDs generated by the primary authorization ID SYSADM.

**Note:** If the EXEC statement is omitted, no trace is produced. The syntax of your command stream is checked and is written to the DPMLOG data set together with any error, warning, or information messages produced. All statements after the EXEC are ignored.

::

RECTRACE
TRACE
  FROM (,08:00:00)
  TO (,08:10:00)
  INCLUDE (PRIMAUTH(UID0001 UID0002 UID0003))
  EXCLUDE (PLANNAME(PLIT2A01 PLIT2A02))
FILE
SQLACTIVITY command
This section provides an overview of the SQLACTIVITY command.

Usage
Use the SQLACTIVITY command to reduce data, and to generate reports and traces.

Usage notes
- This command can be used once in a job step, it can be used in the same job step with other report set commands.
- For migration purposes you can use the SQLACTIVITY command to find information that was previously contained in the following report subjects for ACCOUNTING report types of the OMEGAMON Historical Reporter:
  - SCAN_ACTIVITY
  - SORT_ACTIVITY
  - SUMMARY
  - DETAIL
- You can filter records with the GLOBAL command first. This can minimize your report output and reduce processing time. See "GLOBAL command" on page 4785 for more information.

Syntax of the SQLACTIVITY command

```
SQLACTIVITY (TRACE subcommand) (REPORT subcommand)
```

Notes:
1. You can specify TRACE up to 5 times.
2. You can specify REPORT up to 5 times.

Subcommands
The subcommands are described in detail, together with their various options, in the following sections.

Sample JCL for requesting SQL Activity functions
The following figure is a sample of the JCL required to produce SQL Activity reports and traces. A description of the DD statements follows the sample.
The OMEGAMON for DB2 PE command language shown in this section is not appropriate in all circumstances. You must modify it to meet your requirements.

Most of the DD statements with a SYSOUT destination do not have to be specified because they are dynamically allocated by OMEGAMON for DB2 PE.

Note:
1. There is an advantage in omitting DPMOUTDD from your JCL. For more information, see “DPMOUTDD statement” on page 4677.
2. The OMEGAMON for DB2 PE command stream is only processed if EXEC is included as the last command. Otherwise, no report is generated. OMEGAMON for DB2 PE checks the syntax of your command stream and writes it, together with any information, warning, or error messages generated.

SQLACTIVITY command with REPORT subcommand:

This section describes the SQLACTIVITY command with the REPORT subcommand.

Usage

Use the REPORT subcommand to generate reports from records.

Usage notes

- Up to five REPORT subcommands can be specified within each SQLACTIVITY command.

Syntax of the REPORT subcommand
Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

FROM/TO
Limits the range of records included in the reporting process by date and time.

For details, see “FROM/TO subcommand options” on page 4812.

SUMMARIZEBY
Selects the SQL events to be summarized. You can specify one entry of SUMMARIZEBY for each REPORT subcommand. The following events can be specified:

PROGRAM
This is the default.

CURSOR
Cursor
**STMTID**
Statement ID

**STMTNO**
Statement number

**STMTYPE**
Statement type

**ALL**
All of the above

For more information about summarization, see the Reporting User’s Guide.

**SORTBY**
Sorts the SQL events within each summary level within each thread. You can specify one entry of SORTBY for each REPORT subcommand. One of the following events can be specified:

**DEFAULT**
The default sort sequence depends on the summary level specified.

**ELAPSEDTIME**
Average elapsed time

**EXITS**
Number of exits

**EXITTIME**
Elapsed time for each exit

**IOREQS**
I/O requests

**IOTIME**
Elapsed time for each I/O request

**PAGESCAN**
Pages scanned

**ROWSPROC**
Rows processed

**SCANS**
Number of scans

**SORTRECS**
Records sorted

**SORTWORK**
Workfiles sorted

**SUSP**
Lock suspensions

**SUSPTIME**
Elapsed time for each lock suspension

**TCBTIME**
Average TCB time

For more information about sorting and default, see the Reporting User’s Guide.

**WORKLOAD**
Displays workload detail for each event. The following detail can be reported:

**NONE**
No workload activity. This is the default.

**ACCT**
Accounting

**ALL**
All workload activity

Including MINIBIND if IFCID 22 is included in the input.

Including UDF activity if IFCID 324 is included in the input.
Note that the more workload detail you request, the more time OMEGAMON for DB2 PE requires for processing your request. It is recommended that you do not specify WORKLOAD(ALL) with a large amount of input data unless absolutely necessary.

**DCAP**
Data capture activity

**EXIT**
Exit activity

**HILITE**
Workload highlights

**IO**
I/O activity

**LOCK**
Lock suspension and page and row locking activity

**SCAN**
Scan activity, RID list activity, and query parallelism activity

**SORT**
Sort activity

**Note:** When IFCID 3 is included in the input, Accounting Trace activity is automatically included as part of the workload detail.

For more information about workload detail, see the [Reporting User’s Guide](#) and the [Report Reference](#).

**DDNAME**
Specifies the data set where the report is written.

**ORDER**
Specifies the OMEGAMON for DB2 PE identifiers and their sequence for sorting the report and, in summary reports, which identifiers are used for aggregation.

For details, see “ORDER subcommand option” on page 4827 and “OMEGAMON for Db2 PE identifiers” on page 4665.

**INCLUDE/EXCLUDE**
Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

**Example using REPORT with FROM, TO, and EXCLUDE options**

This example specifies the following:
- Records are used with the time and date range of 10:00 a.m. on 18 March 2002 to noon on 19 March 2002
- Data is excluded that is associated with the following locations:
  - LOCN10
  - LOCN12
  - LOCN15
  - LOCN20
  ...

```
REPORT
FROM (03/18/02,10:00:00.00)
TO (03/19/02,12:00:00.00)
```
SQLACTIVITY command with TRACE subcommand:

This section describes the SQLACTIVITY command with the TRACE subcommand.

Usage

Use the TRACE subcommand to produce traces with an entry for every DB2 SQL event.

Usage notes

- Up to five traces can be requested in a job step.
- For more information about including or excluding IFCIDs, see the Reporting User’s Guide.
Syntax of the TRACE subcommand

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

FROM/TO
Limits the range of records included in the trace by date and time.
For details, see “FROM/TO subcommand options” on page 4812.

SUMMARIZEBY
Selects the SQL events to be summarized. You can specify one entry of SUMMARIZEBY for each TRACE subcommand. The following events can be specified:
**OCCURRENCE**
- SQL statement occurrence. This is the default.

**PROGRAM**
- Program

**CURSOR**
- Cursor

**STMNO**
- Statement number

**STMTTYPE**
- Statement type

**ALL**
- All of the above

For more information about summarization, see the Reporting User’s Guide.

**SORTBY**
Sorts the SQL events within each summary level within each thread. You can specify one entry of SORTBY for each TRACE subcommand. One of the following events can be specified:

**DEFAULT**
- The default sort sequence depends on the summary level specified.

**ELAPSED TIME**
- Average elapsed time

**EXITS**
- Number of exits

**EXIT TIME**
- Elapsed time for each exit

**IOREQS**
- I/O requests

**IOTIME**
- Elapsed time for each I/O request

**PAGESCAN**
- Pages scanned

**ROWSPROC**
- Rows processed

**SCANS**
- Number of scans

**SORTRECS**
- Records sorted

**SORTWORK**
- Workfiles sorted

**SUSP**
- Lock suspensions

**SUSPTIME**
- Elapsed time for each lock suspension

**TCBTIME**
- Average TCB time

For more information about sorting and default, see the Report Reference.

**WORKLOAD**
Displays the workload detail for each event. The following detail can be reported:

**ACCT**
- Accounting

**ALL**
- All workload activity
Including MINIBIND if IFCID 22 is included in the input.
Including UDF activity if IFCID 324 is included in the input.
Note that the more workload detail you request, the more time OMEGAMON for DB2 PE requires for processing your request. It is recommended that you do not specify WORKLOAD(ALL) with a large amount of input data unless absolutely necessary.

DCAP
  Data capture activity
EXIT
  Exit activity
HILITE
  Workload highlights
IO
  I/O activity
LOCK
  Lock suspension and page and row locking activity
NONE
  No workload activity. This is the default.
SCAN
  Scan activity, RID list activity, and query parallelism activity.
SORT
  Sort activity
VARS
  Show host variables data, if host variables are used by the SQL statements.

If option WORKLOAD(VARS) is specified, option SUMMARIZEDBY(OCCURRENCE) is required (the default).

Note: When IFCID 3 is included in the input, Accounting Trace activity is automatically included as part of the workload detail.

For more information about workload detail, see the Reporting User’s Guide and the Report Reference.

DDNAME
  Specifies the data set where the trace is written.

LIMIT
  Sets the maximum number of threads processed by TRACE. The range is 1 to 99 999. If, for example, 3 is specified for LIMIT, no more than three threads are reported. A different limit can be set for each of the five possible traces. The default is 10.

INCLUDE/EXCLUDE
  Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

In addition to the common identifiers used with these options, the SQLACTIVITY TRACE command also has an SQLCODE identifier. This identifier can be used to include statements that completed, for example, with a specific error. The following are usage examples of the SQLCODE identifier.

SQLACTIVITY TRACE EXCLUDE(SQLCODE(0))
  This excludes any SQL statement that completed without warnings or errors.
SQLACTIVITY TRACE INCLUDE(SQLCODE(R(-251,-203)))
   This includes any SQL statements that ended with SQL error codes in the range -251 through -203.

SQLACTIVITY TRACE INCLUDE(SQLCODE(-805,-204,495))
   This includes only SQL statements that ended with the specific error codes -805, -204, and 495.

SQLACTIVITY TRACE INCLUDE(SQLCODE(LT(0)))
   This includes only SQL statements that ended with an error (-n).

SQLACTIVITY TRACE INCLUDE(SQLCODE(GT(0)))
   This includes only SQL statements that ended with a warning.

Example using TRACE with SUMMARIZEBY, SORTBY, and LIMIT options

```
TRACE
   FROM (,08:00:00.00)
   TO (,08:10:00.00)
   SUMMARIZEBY (STMTNO)
   SORTBY (ELAPSEDTIME)
   LIMIT (20)
   INCLUDE (PRIMAUTH(UID0001 UID0003 UID0005)
              PLANNAME(PLIT2A01,PLIT2A02))
```

It is summarized by statement number and sorted by elapsed time.

It reports the ten-minute period from 8:00 a.m. to 8:10 a.m. and includes only data that contains any of the following primary authorization IDs:
   - UID0001
   - UID0003
   - UID0005

Using any of the following plan names:
   - PLIT2A01
   - PLIT2A02

LIMIT has set the maximum number of threads processed to 20.

The trace is written to the data set defined by the default ddname SQTRCDD1.

**STATISTICS command**

This section provides an overview of the STATISTICS command.

**Usage**

Use the STATISTICS command to generate Statistics reports, traces, and file data sets. You can also use it to reduce, save, and restore data.

**Usage notes**

- This command can be used once in a job step.
- However, it can be used in the same job step with commands of the other report sets.
- You can filter records with the GLOBAL command first. This can minimize your report output and reduce processing time. See "GLOBAL command" on page 4785 for more information.
Syntax of the STATISTICS command

- REPORT subcommand
- REDUCE subcommand
- SAVE subcommand
- RESTORE subcommand
- TRACE subcommand
- FILE subcommand

Notes:
1 You can specify REPORT up to 5 times.
2 You can specify REDUCE only once. If specified, you must also specify REPORT or SAVE at least once.
3 You can specify SAVE only once.
4 You can specify RESTORE only once.
5 You can specify TRACE up to 5 times.
6 You can specify FILE only once.

Subcommands

The subcommands are described in detail, together with their various options, in the following sections.

Sample JCL for requesting Statistics functions

Figure 306 on page 4757 is a sample of the JCL required to produce statistic reports and traces. See “DD statements” on page 4676 for descriptions of the DD statements.
The OMEGAMON for DB2 PE command language shown in this section is not appropriate in all circumstances. You must modify it to meet your requirements.

Most of the DD statements with a SYSOUT destination do not have to be specified because they are dynamically allocated by OMEGAMON for DB2 PE. See the individual DD statement descriptions for more information.

Note:
1. There is a performance advantage in omitting DPMOUTDD from your JCL. For more information, see "DPMOUTDD statement" on page 4677.
2. The OMEGAMON for DB2 PE command stream is only processed if EXEC is included as the last command. Otherwise, OMEGAMON for DB2 PE only checks the syntax.

STATISTICS command with REPORT subcommand:

This section describes the STATISTICS command with the REPORT subcommand.

Usage

Use the REPORT subcommand to present statistics interval records. For the definition of the interval records see Report Reference.

The duration and alignment of the interval records are specified by the REDUCE subcommand.
The interval records can be either presented individually (if the ORDER(INTERVAL) subcommand option is specified) or aggregated into a new interval record for the duration that is specified with the FROM and TO options in the REPORT subcommand.

**Usage notes**

- Up to five REPORT subcommands can be specified within a STATISTICS command.

**Syntax of the REPORT subcommand**

```
REPORT
  FROM/TO block
  NOEXCEPTION
  EXCEPTION
  SCOPE Group
  STRPTDD ddname
  DDNAME ddname
  ORDER INTERVAL
  SHORT name
  LAYOUT LONG
  INCLUDE/EXCLUDE block
  DSETSTAT
```

**Subcommand options**

The syntax diagram shows the options that are available with this subcommand. See "OMEGAMON for DB2 PE subcommand options" on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**FROM/TO**

Limits the range of interval records included in the reporting process by date and time.

Combinations of FROM date and time, and TO date and time can be specified. Interval records are included from the first with an ending timestamp greater than or equal to the FROM date and time, to the last with an ending timestamp less than the TO date and time.

If you do not specify a date and time, FROM/TO defaults to the dates and times specified in the GLOBAL command. If FROM/TO is not specified in GLOBAL, all records are included in the report.

The specified FROM/TO dates and times are printed on the report. If FROM/TO is not specified in REPORT or GLOBAL, NOT SPECIFIED is printed on the report. If only the FROM date and time or only the TO date and time has been specified, NOT SPECIFIED is printed for the unspecified value.

Note that GLOBAL FROM and TO filters individual DB2 Statistics records whereas REPORT FROM and TO filters interval records. For example, with a REPORT FROM time of 14:15, an interval record starting at 14:00 and ending at 14:30 would appear on thereport (based on the end interval record time). However, a GLOBAL FROM time of 14:15 would filter the DB2 Statistics records at 14:00 and the interval record (14:00 to 14:30) might not be created (subject to the BOUNDARY specification).
You can specify a time adjustment for a DB2 location using the TIMEZONE option of the GLOBAL command. The time adjustment is applied to the record timestamp before FROM/TO processing.

If you are reducing data, the FROM/TO times specified in REDUCE can affect the data available for reporting.

Refer to “GLOBAL command” on page 4785 for more information.

For details on how to use the FROM/TO option, see “FROM/TO subcommand options” on page 4812.

**LAYOUT**

Specifies the name of a report layout. You can specify one of the supplied layouts or one that you have previously tailored:

**SHORT**

This is the default.

**LONG**

This option provides detailed thread-related data. You can also use other functions such as Record Trace and SQL Activity to find detailed DB2 trace data.

**Historical Reporter migration layouts**

Use the Historical Reporter migration layouts to help you identify OMEGAMON for DB2 PE data that was previously shown in the reports of the OMEGAMON Historical Reporter. The migration layouts include:

- “Options for OMEGAMON Historical Reporter Accounting reports” on page 4820
- “Options for OMEGAMON Historical Reporter Statistics reports” on page 4824

**User-defined layouts**

You can customize your own report layouts by specifying which blocks of data and which fields within the blocks are included, and their relative order. To adapt the reports according to your requirements, you use user-tailored reporting (UTR). With UTR, you can control the volume, contents, and layout of Statistics traces and reports.

For information about tailoring report layouts, see the Reporting User’s Guide.

**SCOPE**

Specifies the scope of the report in a data sharing environment.

**MEMBER**

Member-scope reporting presents DB2 statistics on a per-member basis without aggregating data-sharing-related counters for the entire data-sharing group.

**GROUP**

Group-scope reporting presents data-sharing-related counters for an entire data-sharing group.

**EXCEPTION NOEXCEPTION**

Specify EXCEPTION if you want to report only those interval records on Statistics reports with at least one field in exception status. Otherwise, a standard report is produced.

If you use this subcommand option, your JCL must contain a valid DD definition for the ddname EXCPTDD. For more information about required ddnames, see Figure 306 on page 4757.
DDNAME

Specifies the data set where the report is written. You can specify any valid ddname including the default, provided that your JCL contains a DD statement for it. If a DD statement is omitted, it will be dynamically allocated to the SYSOUT message class of the job. The default ddname for report is STRPTDD.

ORDER(INTERVAL)

Specifies that your report contains statistics data for each interval record that satisfies input filters.

For details, see “ORDER subcommand option” on page 4827 and “OMEGAMON for Db2 PE identifiers” on page 4665.

If you want to report the statistics data for the entire period covered by the interval records, do not specify this option.

INCLUDE/EXCLUDE

Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

DSETSTAT

Include buffer pool data set statistics. This option is ignored if option INTERVAL(X) with X>0 has been specified. Statistics interval processing with intervals > 0 can only be applied to IFCIDs 1, 2, 225, and 369 that are externalized by DB2 every minute. IFCID 199 externalization is controlled by system parameter STATTIME and can range from 1 to 60 minutes. Interval metrics for buffer pool data sets can be derived from Statistics TRACE or FILE data created with DSETSTAT.

Example using REDUCE, and REPORT with INCLUDE option

This example specifies the following:
• One interval record is derived. It covers the entire period that the DB2 statistics data is available for.
• The report uses the default SHORT layout.
• Data is included that is only associated with the location in the range of LOCN01 to LOCN05

REDUCE
REPORT
   INCLUDE (LOCATION(R(LOCN01 LOCN05)))

Example using REDUCE with INTERVAL option, and REPORT with several options

This example specifies the following:
• The input DB2 statistics data is distributed over 60-minutes intervals aligned with hour boundaries.
• The interval records between 10:00 a.m. on 18 March 1996 and noon on 19 March 1996 are considered for reporting, subject to the exception criteria.
• Each of the qualifying interval records is reported.
• The report uses the LONG layout.
REDUCE
  INTERVAL(60)
REPORT
  FROM (09/18/98,10:00:00.00)
  TO (09/19/98,12:00:00.00)
  LAYOUT (LONG)
  EXCEPTION ORDER (INTERVAL)

STATISTICS command with REDUCE subcommand:

This section describes the STATISTICS command with the REDUCE subcommand.

Usage

Specify REDUCE to control the following:

- The duration and alignment of statistics interval records. For a definition of the interval record, see Report Reference.
- The volume of data to be presented in traces and reports and stored in file and save data sets.

Usage notes

- REDUCE is invoked automatically when you use the REPORT or SAVE subcommand.
- REDUCE can be used once in a STATISTICS command.

Syntax of the REDUCE subcommand

```
REDUCE
  FROM/TO block
  INTERVAL (minutes)
  BOUNDARY (minutes)
  INCLUDE/EXCLUDE block
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

FROM/TO

Limits the range of DB2 statistics records to process by date and time.
Combinations of FROM date and time and TO date and time can be specified.

Note: DB2 statistics records are included from the last with a timestamp less than the FROM date and time to the last with a timestamp less than the TO date and time. The FROM/TO dates and times specified in REDUCE affect the other functions.
The DB2 statistics records available to REDUCE are limited by the GLOBAL FROM/TO dates and times.
If you do not specify a date and time, FROM/TO defaults to the date and time specified in the GLOBAL command. If dates and times are not specified in the GLOBAL command, all DB2 statistics records are included in the reduction process.

You can specify a time adjustment for a DB2 location using the TIMEZONE option of the GLOBAL command. The time adjustment is applied to the DB2 statistics record timestamp before FROM/TO processing.

Refer to “GLOBAL command” on page 4785 for more information.

For details on how to use the FROM/TO option, see “FROM/TO subcommand options” on page 4812.

**INTERVAL**

Defines the duration of statistics interval records. The range is from 0 to 99,999 and is specified in minutes. When the DB2 statistics data is distributed to the interval records, they can be presented in Statistics reports and stored in a save data set.

For example, if INTERVAL(15) is specified, 15-minute intervals are created over the period that the DB2 statistics data is available for and the DB2 data is distributed to these intervals.

INTERVAL(0) specifies that only one interval record is created, starting with the first and ending with the last DB2 Statistics record pair.

If no interval is specified, the interval specified in the GLOBAL command is used. If no interval is specified in GLOBAL, the default is 0.

INTERVAL has an impact on performance. Always use the largest interval that meets your reporting requirements. If interval processing is not required, the default INTERVAL(0) is recommended for optimum performance. For more information about intervals, see “Processing intervals.”

The following example uses INTERVAL to specify an interval of two hours:

```
INTERVAL (120)
```

**BOUNDARY**

Controls the alignment of the statistic interval records defined by the INTERVAL option.

For more information on boundaries, see “Processing intervals.”

**INCLUDE/EXCLUDE**

Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for DB2 PE identifiers” on page 4665.

**Processing intervals**

The start time of the first interval processed by REDUCE is influenced by BOUNDARY, INTERVAL, and FROM.

OMEGAMON for DB2 PE attempts to reduce all data that falls between FROM and TO dates and times. The first interval processed starts at a time aligned with
BOUNDARY, at or before the FROM time. If an interval cannot be aligned with the FROM time, the first properly aligned interval starting before the FROM time is used.

Although there is no restriction on the INTERVAL and BOUNDARY combination, your specification should comply with the following recommendations:

- For intervals of less than 60 (excluding 0), there should be a whole number of intervals in an hour. Choose one of the following values:
  - 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, or 30.
- For intervals of 60 or greater, there should be a whole number of intervals in a day. Choose one of the following values:
  - 60, 120, 180, 240, 360, 480, 720, or 1,440.
- For intervals of one day (1,440) or greater, INTERVAL should be a multiple of 1,440.
- Select your interval and boundary so that the first interval starts at the FROM time.

The first interval record starts at a time aligned with BOUNDARY, at or before the FROM time. If an interval record cannot start at the FROM time, it starts before, at the nearest time that satisfies the BOUNDARY specification. Note that an interval record starting before the FROM time only contains data between the FROM time and the end of the interval record. Input data before the FROM time is not processed. An interval record ending after the TO time only contains data between the beginning of the interval record and the TO time. Input data after the TO time is not processed.

**Example using REDUCE with FROM, TO, INTERVAL, BOUNDARY, and INCLUDE options**

BOUNDARY(60) aligns the start time of interval records at the start of an hour, so the first interval record starts at the FROM time (08:00). Subsequent interval records start every 30 minutes (08:30, 09:00, and 09:30 each day). Only the DB2 statistics for location SYDNEY is processed.

```plaintext
REDUCE FROM (,08:00) TO (,10:00) INTERVAL (30) BOUNDARY (60) INCLUDE (LOCATION(SYDNEY))
```

**Example using REDUCE with options, together with SAVE**

The following defaults are applied in this example:
- For FROM, all dates and a time of 00:00:00.00.
- For TO, all dates and a time of 23:59:59.99.

BOUNDARY(60) aligns the start time of interval records at the start of an hour, so the first interval record starts at the FROM time (00:00). Subsequent interval records cover 1,440 minutes or one day; an interval starts at 00:00 each day.

The interval records are saved in a data set for subsequent use.

```plaintext
REDUCE INTERVAL (1440)
```
Example using REDUCE with options, together with REPORT with options

BOUNDARY(60) aligns the start time of interval records at the start of an hour, so the first interval record starts at the first properly aligned time before the FROM time, which is 08:00. Subsequent interval records start every two hours (10:00 and 12:00).

A report presenting the statistics data for each of the 2-hour periods is produced.

```
REDUCE
  FROM (,08:15)
  TO (,13:00)
  INTERVAL (120)
  BOUNDARY (60)
  REPORT
    ORDER (INTERVAL)
```

STATISTICS command with SAVE subcommand:

This section describes the STATISTICS command with the SAVE subcommand.

Usage

Use the SAVE subcommand (without CONVERT option) to produce a VSAM data set containing interval records. After the data has been saved, you can:

- Archive the Statistics data for producing long-term reports.
- Convert the save files to sequential data sets by using the Save-File utility and load them into DB2 for subsequent use.
- Restore and combine it with newly reduced data to produce long-term reports.
- Restore it and use it in later reporting.

Use the SAVE subcommand with CONVERT option to produce a sequential data set containing reduced data in records. After the data has been processed, you can:

- Load it to DB2 for subsequent use.

Note: In contrast to the other usage, the conversion by the Save-File utility is accomplished directly. You cannot restore it, because VSAM data is not produced.

You can also use the converted SAVE data sets to generate CSV (comma-separated value) input-data. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables. For more information refer to Reporting User’s Guide.

Usage notes

- VSAM data sets cannot be concatenated.
- For information on migration refer to Report Reference

Note:
You can only process VSAM data sets in the same version of OMEGAMON for Db2 PE as they have been created. For example, if you create a SAVE data set in version 530, it can only be RESTORED in version 530.

To use a SAVE data set in a higher version, you must migrate the SAVE data set using a migration utility.

Before you restore or convert SAVE data sets from V5.2.0 or V5.3.0, you must first migrate this data to OMEGAMON for Db2 PE V5.4.0 format.

Restored reports only show fields that are supported by the current version of OMEGAMON for Db2 PE.

Syntax of the SAVE subcommand

```
SAVE
  DDNAME(ddname)
  DSETSTAT
  CONVERT
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See "OMEGAMON for DB2 PE subcommand options" on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**DDNAME**

Specifies the ddname where the save data is written. The default ddname is STSAVDD. You can specify any valid ddname provided that your JCL contains a valid DD statement for it.

Without CONVERT option:

When using SAVE, your JCL can also include a valid DD statement for JSSRSDD, so that the related job summary information can be saved.

**Note:** Do not specify DUMMY in the JCL for either STSAVDD or JSSRSDD. When you are not using SAVE, omit these ddnames from your JCL.

The VSAM data set defined by the default ddname must already exist when you run OMEGAMON for DB2 PE. See the Report Reference for a description of VSAM data sets. Either specify an existing data set from a previous OMEGAMON for DB2 PE run (when restoring data), or specify a new data set allocated using the IDCAMS DEFINE CLUSTER function.

**Note:** If ddname is assigned to a non-VSAM file, you receive an error message and the job terminates.

With CONVERT option:

The ddname needs to be assigned to a physical sequential data set. This data set can be used for a subsequent load to Statistics SAVE tables.

**Note:** If ddname is assigned to a nonsequential data set, you receive an error message and the job terminates.

**DSETSTAT**

Include buffer pool data set statistics. This option is ignored if option INTERVAL(X) with X>0 has been specified. Statistics interval processing with
intervals > 0 can only be applied to IFCIDs 1, 2, 225, and 369 that are externalized by DB2 every minute. IFCID 199 externalization is controlled by system parameter STATIME and can range from 1 to 60 minutes. Interval metrics for buffer pool data sets can be derived from Statistics TRACE or FILE data created with DSETSTAT.

**CONVERT**

Specifies that converted reduced data is written directly to a sequential data set.

It is recommended to specify this option if you want to create high amount of loadable reduced data in a sequential data set. It avoids a temporary VSAM data set to be used as a SAVE data set. This option causes OMEGAMON for DB2 PE to write converted reduced data directly to a sequential data set in a single step. The resulting output is loadable to the PDB tables. The user may experience performance improvements compared to the default path with a separate SAVE step and the subsequent convert of saved data by the save-file utility.

**Note:** Not every big trace input results in big reduced data and small trace input in small reduced data. This option becomes effective when the reduction results in high amount of reduced data. For example, it depends on the amount of different criteria that results due to your filtering. It is possible that you experience more performance improvement with a small input trace that results in many different criteria than with a large trace input with only a few different criteria.

This option can generally be used as it is neutral to the performance when processing only a few reduced records, but becomes effective when processing a high amount of reduced data. However, do not use this option if you want to RESTORE and REPORT saved data.

**Example using REDUCE, and SAVE with DDNAME and CONVERT option**

This example specifies that one interval record covering the entire input statistics data (because INTERVAL(0) is issued) is written to the external data set defined by the ddname SAVDSNDD. In this case it has to be a sequential data set.

```
REDUCE
SAVE
    DDNAME (SAVDSNDD)
    CONVERT
```

**STATISTICS command with RESTORE subcommand:**

This section describes the STATISTICS command with the RESTORE subcommand.

**Usage**

Use the RESTORE subcommand to reload previously saved data for additional processing.

**Usage notes**

- After the data is restored, you can produce reports from the restored data alone, or from the restored data combined with newly reduced data.
- Saved data can be restored as often as required.
Syntax of the RESTORE subcommand

```
  RESTORE
      DDNAME (ddname)
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**DDNAME**

Specifies the ddname used to reload a previously saved file for additional use. The ddname specifies the data set being restored. The default ddname is STRSTDD. You can specify any valid ddname, provided your JCL contains a valid DD statement for it.

When using RESTORE, your JCL can also include a valid DD statement for JSSRSDD, so that the related job summary information can also be restored.

Example using RESTORE with DDNAME option

This example specifies that the previously saved, reduced data is read from the data set defined by the ddname RESDSNDD.

**Note:**

1. Do not specify DUMMY in the JCL for either STRSTDD or JSSRSDD. When you are not using RESTORE, omit these ddnames from your JCL.
2. If you use the RESTORE and REDUCE subcommands in the same job stream, the INTERVAL and BOUNDARY options specified in REDUCE should match the INTERVAL and BOUNDARY options that were used to reduce the data being restored. If these values are different, the interval and boundary from the restored data is used.
3. Data from previous versions of DB2 PM cannot be restored until it has been changed to the current OMEGAMON for DB2 PE format by using the migrate function of the save-file utility. For information about migrating data, see the Report Reference.

```
  : RESTORE DDNAME (RESDSNDD)
  : STATISTICS command with TRACE subcommand:
  
  This section describes the STATISTICS command with the TRACE subcommand.
  
  Usage
  
  Use the TRACE subcommand to present statistics delta records.
  
  Usage notes
  
  • Up to five traces can be requested in a job step.
  ```
Syntax of the TRACE subcommand

```plaintext
TRACE
  FROM/TO block
    LAYOUT (SHORT (name), LONG (name))
    NOEXCEPTION
    EXCEPTION
    DDNAME (ddname)
    INCLUDE/EXCLUDE block
    DSETSTAT
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See "OMEGAMON for DB2 PE subcommand options" on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**FROM/TO**

Limits the range of delta records included in the trace by date and time.

Combinations of FROM date and time, and TO date and time can be specified. Delta records are included from the first with an ending timestamp greater than or equal to the FROM date and time, to the last with an ending timestamp less than the TO date and time.

If you do not specify a date and time, FROM/TO defaults to the dates and times specified in the GLOBAL command. If FROM/TO is not specified in GLOBAL, all records are included in the trace.

The specified FROM/TO dates and times are printed on the trace. If FROM/TO is not specified in TRACE or GLOBAL, NOT SPECIFIED is printed on the trace. If only the FROM date and time or only the TO date and time has been specified, NOT SPECIFIED is printed for the unspecified value.

Note that GLOBAL FROM and TO filters individual DB2 Statistics records whereas TRACE FROM and TO filters delta records. For example, with a TRACE FROM time of 14:15, a delta record starting at 14:00 and ending at 14:30 would appear on the trace (based on the end delta record time).

However, a GLOBAL FROM time of 14:15 would filter the DB2 Statistics records at 14:00 and the delta record (14:00 to 14:30) might not be created (subject to the BOUNDARY specification).

You can specify a time adjustment for a DB2 location using the TIMEZONE option of the GLOBAL command. The time adjustment is applied to the record timestamp before FROM/TO processing.

If you are reducing data, the FROM/TO times specified in REDUCE can affect the data available for tracing.

Refer to "GLOBAL command" on page 4785 for more information.

For details on how to use the FROM/TO option, see "FROM/TO subcommand options" on page 4812.

**LAYOUT**

Specifies the name of a report layout. You can specify one of the supplied layouts or one that you have previously tailored:
This option provides detailed thread-related data. You can also use other functions such as Record Trace and SQL Activity to find detailed DB2 trace data.

**Historical Reporter migration layouts**

Use the Historical Reporter migration layouts to help you identify OMEGAMON for DB2 PE data that was previously shown in the reports of the OMEGAMON Historical Reporter. The migration layouts include:

- “Options for OMEGAMON Historical Reporter Accounting reports” on page 4820
- “Options for OMEGAMON Historical Reporter Statistics reports” on page 4824

**User-defined Layouts**

You can customize your own report layouts by specifying which blocks of data and which fields within the blocks are included, and their relative order. To adapt the reports according to your requirements, you use user-tailored reporting (UTR). With UTR, you can control the volume, contents, and layout of Statistics traces and reports.

For information about tailoring report layouts, see the Reporting User’s Guide.

**EXCEPTION**

Specify EXCEPTION if you want to report only those delta records on Statistics reports with at least one field in exception status. Otherwise, a standard report is produced.

If you use this subcommand option, your JCL must contain a valid DD definition for the ddname EXCPTDD. For more information about required ddnames, see Figure 300 on page 4691.

**DDNAME**

Specifies the data set where the trace is written. The default ddname for the first trace is STTRCDD1. The default ddnames for the second to fifth traces are STTRCDD2 through STTRCDD5.

You can specify a different ddname by using the DDNAME subcommand option in the TRACE subcommand. In this case, your JCL must contain a valid DD statement for the ddname you specify.

**INCLUDE/EXCLUDE**

Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

**DSETSTAT**

Include buffer pool data set statistics.

Example using TRACE with DSETSTAT, LAYOUT, and DDNAME

This example:

- Includes the buffer pool data set statistics.
• Specifies the default (short) report format.
• Writes the data to the STTRCDD1 dataset.

```
TRACE
DSETSTAT
LAYOUT(SHORT)
DDNAME(STTRCDD1)
```

**STATISTICS command with FILE subcommand:**

This section describes the STATISTICS command with the FILE subcommand.

**Usage**

• Use the FILE subcommand to format unreduced DB2 data and store it in sequential data sets suitable for use by the DB2 load utility. The records can be placed in DB2 tables, and you can produce reports by using a reporting facility such as Query Management Facility™ (QMF).
• You can also use the FILE data sets to generate CSV (comma-separated value) input-data. This CSV data can then be transferred to workstations and imported into spreadsheets to improve DB2 performance analysis using graphical representations or pivot tables. For more information refer to Reporting User’s Guide.

**Usage notes**

• The data is stored in delta records in a sequential data set.

**Syntax of the FILE subcommand**

```
FILE
  FROM/TO block
  NOEXCEPTION
  EXCEPTION
  DDNAME(ddname)
  INCLUDE/EXCLUDE block
  DSETSTAT
```

**Subcommand options**

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**FROM/TO**

Limits the range of delta records included in the data set by date and time.

Combinations of FROM date and time, and TO date and time can be specified. Delta records are included from the first with an ending timestamp greater than or equal to the FROM date and time, to the last with an ending timestamp less than the TO date and time.

Any FROM/TO dates and times specified in GLOBAL can restrict the range of delta records included in the file data set. GLOBAL FROM/TO filters the raw
DB2 statistics records used to make up the delta records. Therefore, all records with begin or end times outside the GLOBAL dates and times are discarded. If the date and time is not specified in GLOBAL, all records in the input data are available.

You can specify a time adjustment for a DB2 location using the TIMEZONE option of the GLOBAL command. The time adjustment is applied to the record timestamp before FROM/TO processing.

If you are reducing data, the FROM/TO times specified in REDUCE can affect the data available for filing.

Refer to “GLOBAL command” on page 4785 for more information.

For details on how to use the FROM/TO option, see “FROM/TO subcommand options” on page 4812.

**EXCEPTION**

**NOEXCEPTION**

Specifies EXCEPTION to include only those file entries containing fields with values outside user-specified limits. Otherwise, all records are included.

If you use this subcommand option, your JCL must contain a valid DD definition for the ddname EXCPTDD. For more information about required ddnames, see “EXCPTDD statement” on page 4679.

**DDNAME**

Specifies the ddname where the file data set is written. The default ddname is STFILDD1.

**INCLUDE/EXCLUDE**

Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

**DSETSTAT**

Includes buffer pool data set statistics.

Example using FILE with DSETSTAT, and DDNAME

This example:

- Includes buffer tool data set statistics.
- Writes the data to the STFILDD1 dataset.

```
FILE
  DSETSTAT
  DDNAME(STFILDD1)
```

**SYSPARMS command**

This section provides an overview of the SYSPARMS command.
Usage

Use the SYSPARMS command to generate System Parameter reports. This command replaces the SYSPRMDD card. You can still use the SYSPRMDD in existing jobs, but not concurrently with the SYSPARMS command.

Usage notes

- With the SYSPARMS command, you can use the FILE subcommand to store system parameter information in FILE data sets, which can be loaded into the OMEGAMON for DB2 PE Performance Database.
- You can filter records with the GLOBAL command first. This can minimize your report output and reduce processing time. See “GLOBAL command” on page 4785 for more information. If you use global filtering and no records meet your filter conditions, the system parameter report is not generated. In this case your JOBSUMDD contains further information. System parameter reports are based on information from IFCID 106, 201, 202, 230, and 256.

Syntax of the SYSPARMS command

```
SYSPARMS [TRACE subcommand] [FILE subcommand]
```

Notes:

1. You can specify TRACE only once.
2. You can specify FILE only once.

Subcommands

The subcommands are described in detail, together with their various options, in the following sections.

Sample JCL for requesting SYSPARMS functions

The following is a sample of the JCL required to produce SYSPARMS reports and traces. See “DD statements” on page 4676 for descriptions of the DD statements.
The OMEGAMON for DB2 PE command language shown in this section is not appropriate in all circumstances. You must modify it to meet your requirements.

Most of the DD statements with a SYSOUT destination do not have to be specified because they are dynamically allocated by OMEGAMON for DB2 PE. See the individual DD statement descriptions for more information.

Note:
1. There is a performance advantage in omitting DPMOUTDD from your JCL. For more information, see “DPMOUTDD statement” on page 4677.
2. The OMEGAMON for DB2 PE command stream is only processed if EXEC is included as the last command. Otherwise, OMEGAMON for DB2 PE only checks the syntax.

**SYSPARMS command with TRACE subcommand:**

This section describes the SYSPARMS command with the TRACE subcommand.

**Usage**

Use the TRACE subcommand to produce traces with an entry for every DB2 system parameter event.

**Syntax of the SYSPARMS TRACE subcommand**

```
TRACE DDNAME(SYTRCDD1)
```

**Subcommand options**

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for...
comprehensive descriptions of these options.

Example using TRACE

The following is an example of the SYSPARMS command with the TRACE subcommand.

```
SYSPARMS
TRACE
EXEC
```

SYSPARMS command with FILE subcommand:

This section describes the SYSPARMS command with the FILE subcommand.

Usage

To create system parameter data for the Performance Database, use the SYSPARMS command with the FILE subcommand to produce a data set suitable for loading into DB2.

Syntax of the SYSPARMS FILE subcommand

```
FILE
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options.

Example using FILE

The following is an example of the SYSPARMS command with the FILE subcommand.

```
SYSPARMS
FILE
EXEC
```

UTILITY command

This section provides an overview of the UTILITY command.

Usage

Use the UTILITY command to generate Utility Activity reports and traces.

Usage notes

- The command can be used once in a job step.
- However, it can be used in the same job step with commands of the other report sets.
You can filter records with the GLOBAL command first. This can minimize your report output and reduce processing time. See “GLOBAL command” on page 4785 for more information.

Syntax of the UTILITY command

```
UTILITY
    (1)
      REPORT subcommand
    (2)
      REDUCE subcommand
    (3)
      TRACE subcommand
```

Notes:

1. You can specify REPORT up to 5 times.
2. You can specify REDUCE only once. If specified, you must also specify REPORT at least once.
3. You can specify TRACE up to 5 times.

Subcommands

The subcommands are described in detail, together with their various options, in the following sections.

Sample JCL for requesting Utility Activity functions

The following figure is a sample of the JCL required to produce Utility Activity reports and traces. A description of the DD statements can be found in “DD statements” on page 4676.

```
//PEMAIN EXEC PGM=FPECMAIN
/* FOLLOWING ARE SYSTEM DDNAMES*/
//STEPLIB   DD DSN=FPE.FPELIB.RKANMOD,DISP=SHR
//DPMPARMS  DD DSN=MYID.FPELIB.DPMPARMS,DISP=SHR
//INPUTDD   DD DSN=MYID.FPELIB.DPMIN,DISP=SHR
//DPMLOG    DD SYSOUT**
//SYSOUT    DD SYSOUT**
//JOBSUMDD  DD SYSOUT**
//SYSPRMDD  DD SYSOUT**
//DPMOUTDD  DD DSN=MYID.FPELIB.DPMOUT.DATA,DISP=OLD
//SYSUDUMP  DD DUMMY
/* FOLLOWING ARE REPORT SET DDNAMES*/
//UTRPTDD   DD SYSOUT**
//UTRTPDD1  DD SYSOUT**
//UTWORK    DD DSN=MYID.FPELIB.UT.WORKDD,DISP=OLD
/* FOLLOWING IS THE COMMAND STREAM*/
//SYIN      DD *
;
UTILITY
  REDUCE
  TRACE
  REPORT
  ...
EXEC
```

Figure 308. Sample JCL for requesting Utility Activity functions
The OMEGAMON for DB2 PE command language shown in this section is not appropriate in all circumstances. You must modify it to meet your requirements.

Most of the DD statements with a SYSOUT destination do not have to be specified because they are dynamically allocated by OMEGAMON for DB2 PE. See the individual DD statement descriptions for more information.

**Note:**
1. There is an advantage in omitting DPMOUTDD from your JCL. For more information, see the “DPMOUTDD statement” on page 4677.
2. The OMEGAMON for DB2 PE command stream is only processed if EXEC is included as the last command. If you omit the EXEC statement, no report is generated. OMEGAMON for DB2 PE checks the syntax of the job stream and writes it, together with any information, warning, or error messages generated to the job summary log.

**UTILITY command with REPORT subcommand:**

This section describes the UTILITY command with the REPORT subcommand.

**Usage**

Use the REPORT subcommand to generate reports from records.

**Usage notes**

- Up to five REPORT subcommands can be specified within each UTILITY command.

**Syntax of the REPORT subcommand**

```
REPORT
   FROM/TO block
   BIND
   TYPE ( )
     BIND
     UTILITY
   ORDER block
   UTRPTDD
     DDNAME ( ddname )
   INCLUDE/EXCLUDE block
```

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**Subcommand options**

- **FROM/TO**
  Limits the range of records included in the reporting process by date and time.
TYPE
Specifies the activity types. You can select one or both of these activity types with each REPORT subcommand:

BIND
Gives the elapsed time for each occurrence of a bind event. This includes information on the number of bound and nonbound events and the distribution of the bind into various bind subevents.

UTILITY
Gives the elapsed time for each occurrence of a utility event. Also provides information on the performance and resource usage of the various utility events.

If the TYPE subcommand option is omitted, both activity types are reported.

ORDER
Specifies the OMEGAMON for DB2 PE identifiers and their sequence for sorting the report, and in summary reports, the identifiers are used for aggregation.

For details, see “ORDER subcommand option” on page 4827 and “OMEGAMON for Db2 PE identifiers” on page 4665.

In the following example ORDER specifies that three Utility reports are to be produced.

```
REPORT
  TYPE (UTILITY)
  ORDER (PRIMAUTH-PLANNAME-REQLOC
          CONNECT-PLANNAME REQLOC-PRIMAUTH)
```

• The first report is ordered by requesting location within plan name within primary authorization ID.
• The second report is ordered by plan name within connection ID.
• The third report is ordered by primary authorization ID within requesting location.

DDNAME
Specifies the data set where the report is written.

INCLUDE/EXCLUDE
Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

For details, see “INCLUDE and EXCLUDE subcommand options” on page 4814, which lists other identifiers allowed with this command and subcommand combination, and “OMEGAMON for Db2 PE identifiers” on page 4665.

Example using REPORT with FROM, TO, ORDER, and EXCLUDE options

This example specifies the following:
• A report
• Sorted by plan name within primary authorization ID within correlation name
• Records are used with the time and date range of 10:00 a.m. on 18 March 1999 to noon on 19 March 1999
• Data is excluded that is associated with the following locations:
This section describes the UTILITY command with the REDUCE subcommand.

Usage

Use the REDUCE subcommand to reduce the volume of data that is input to subsequent subcommands. REDUCE consolidates records with certain common characteristics into one record.

Usage notes

- REDUCE can be used once in a UTILITY command.

Syntax of the REDUCE subcommand

```
REDUCE
   FROM/TO block
   INTERVAL (minutes)
   BOUNDARY (minutes)
   INCLUDE/EXCLUDE block
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See "OMEGAMON for DB2 PE subcommand options" on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

Example using REDUCE with FROM, TO, and INTERVAL options

This example specifies that data is to be reduced between 10:00 a.m. on 4 February 1999 and noon on 5 February 1999. The records are to be reduced into 60-minute intervals.

```
REDUCE
   FROM  (02/04/99,10:00:00.00)
   TO    (02/05/99,12:00)
   INTERVAL 60
```
UTILITY command with TRACE subcommand:

This section describes the UTILITY command with the TRACE subcommand.

Usage

Use the TRACE subcommand to produce traces with an entry for each DB2 utility or bind event.

Usage notes

- Up to five traces can be requested in a job step.

Syntax of the TRACE subcommand

```
TRACE [FROM/TO block]
  WORKLOAD (NONE | ALL | BIND | EXIT | IO | LOCK | PHASE)
  TYPE (BIND | UTILITY)
  ORDER block
  DDNAME (UTRCDD=ddname)
  INCLUDE/EXCLUDE block
```

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

FROM/TO

Limits the range of records included in the trace by date and time.

For details, see “FROM/TO subcommand options” on page 4812.

WORKLOAD

Displays the workload detail for each event. The following detail can be specified:

- **NONE**
  
  No workload activity. This is the default.

- **BIND**
  
  Bind activity

- **EXIT**
  
  Exit activity

- **IO**
  
  I/O activity
LOCK
Lock suspension and page and row locking activity

PHASE
Utility phases

ALL
All workload activity

TYPE
There are two activity types. You can select one or both of these activity types with each TRACE subcommand. If the TYPE subcommand option is omitted, both activity types are reported.

BIND
Gives the elapsed time for each occurrence of a bind event for each trace entry. This includes information on the number of bound and nonbound events and the distribution of the bind into various bind subevents.

UTILITY
Gives the elapsed time for each occurrence of a utility event for each trace entry, LISTDEF information, and information on the performance and resource and data set usage of the various utility events.

ORDER
Specifies the OMEGAMON for DB2 PE identifiers reported in the trace.
For details, see "ORDER subcommand option" on page 4827 and "OMEGAMON for Db2 PE identifiers" on page 4665.

Note: Traces are printed in the order that the threads end in and are not sorted by these identifiers.

DDNAME
Specifies the data set where the trace is written.

INCLUDE/EXCLUDE
Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.
For details, see "INCLUDE and EXCLUDE subcommand options" on page 4814, which lists other identifiers allowed with this command and subcommand combination, and "OMEGAMON for Db2 PE identifiers" on page 4665.

Example using TRACE with FROM and TO options

This example specifies:
• A trace with no workload.
• Including records from 10:00 to 10:15 on the input data set regardless of the date, because it was not specified.
• Sent to UTTRCDD1 by default.

::
TRACE
   FROM (,10:00)
   TO (,10:15)
::

Auxiliary commands
This section provides an overview of the Auxiliary commands.
Usage

This section describes auxiliary processing commands shared by various report sets. You can use these commands to streamline the generation of reports. For each command its subcommand options and keywords and its relationship to the report set command is described. The description of the subcommand options is intentionally brief, to avoid recurrences. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions.

Usage notes

The table below shows which auxiliary commands can affect which OMEGAMON for DB2 PE report sets.

<table>
<thead>
<tr>
<th>Auxiliary Command</th>
<th>Accounting</th>
<th>Audit</th>
<th>I/O Activity</th>
<th>Locking</th>
<th>Record Traces</th>
<th>SQL Activity</th>
<th>Statistics</th>
<th>System Parameters</th>
<th>Utility Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>FIELD</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>GLOBAL</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>GROUP</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>LIST</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The following topics provide additional information:

- “CASE command”
- “FIELD command” on page 4782
- “GLOBAL command” on page 4785
- “GROUP command” on page 4792
- “LIST command” on page 4800

CASE command

This section provides an overview of the Auxiliary command CASE.

Usage

Use the CASE command to differentiate between lowercase and uppercase values for DB2 PE identifiers. Specify CASE (SENSITIVE) before other commands if you want the commands to differentiate between uppercase and lowercase values. If no CASE command is specified or if you specify CASE (ANY), there is no differentiation between lowercase characters and uppercase characters.

Usage notes

- The CASE command affects all of the commands listed below it.
- You should usually list the CASE command first so that it affects all of the commands in the execution.

Syntax

```
CASE (SENSITIVE | ANY)
```
Subcommand options

The syntax diagram shows the options that are available with this subcommand. The following list gives descriptions of these options.

**SENSITIVE**
- Differentiates between uppercase and lowercase values.

**ANY**
- Does not differentiate between uppercase and lowercase values.

Examples using the CASE command

In these examples, there are two correlation names: driver and DRIVER. They are differentiated by their case.

In this example, CASE(SENSITIVE) is specified. Data related to the lower case correlation name driver is retrieved:
```
  CASE(SENSITIVE)
  GLOBAL
  INCLUDE (IFCID (3,239))
  INCLUDE (CORRNAME (driver))
  EXEC
  /*
```

In this example, CASE(SENSITIVE) is specified. Data related to the uppercase correlation name DRIVER is retrieved:
```
  CASE(SENSITIVE)
  GLOBAL
  INCLUDE (IFCID (3,239))
  INCLUDE (CORRNAME (DRIVER))
  EXEC
  /*
```

In this example, CASE(ANY) is specified. Data related to the lowercase correlation name driver and the uppercase correlation name DRIVER is retrieved:
```
  CASE(ANY)
  GLOBAL
  INCLUDE (IFCID (3,239))
  INCLUDE (CORRNAME (driver))
  EXEC
  /*
```

In this example, CASE is not specified. Data related to the lowercase correlation name driver and the uppercase correlation name DRIVER is retrieved:
```
  GLOBAL
  INCLUDE (IFCID (3,239))
  INCLUDE (CORRNAME (driver))
  EXEC
  /*
```

FIELD command

This section provides an overview of the Auxiliary command FIELD.
Usage

Use the FIELD command to define exception conditions. You can then filter individual records meeting these conditions by using the INCLUDE or EXCLUDE subcommand option.

Usage notes

- The FIELD command is used only with the INCLUDE and EXCLUDE subcommand option with RECTRACE. By using FIELD, you define the location of the data in a particular IFCID type, a comparison operator, and a value to compare the data against. The OMEGAMON for DB2 PE Record traces produced include or exclude those records that meet the comparison value. For example:

  ```
  //SYSIN DD *
  FIELD (  
    QW0018ID,  
    18,  
    0,  
    3,  
    C,  
    EQ,  
    INDX  
  )  
  RECTRACE 
  TRACE   
    LEVEL (SHORT) 
    INCLUDE (IFCID(18)) 
  FIELD (QW0018ID)) 
  : 
  EXEC
  ```

  This example reads the scan end record IFCID 18, looking for all records that contain index data (INDX). It produces a short Record trace containing only those scan end records that meet this condition.

- Effective use of the FIELD command requires a detailed knowledge of the DB2 IFCID record formats.

- You can specify the following with FIELD:
  - A value you want used as a comparison value.
  - A location within a particular type of performance input record (identified by IFCID) that you want compared to the comparison value.
  - The type of comparison that you want to make between the previous two values (that is, data in the record equal to the comparison value).

- The decision to include a record in the trace is based on whether the comparison was true or false (see Table 305) and whether the field name for the field definition was referenced in an INCLUDE or an EXCLUDE statement.

### Table 305. Comparison values

<table>
<thead>
<tr>
<th>Comparison True?</th>
<th>Field name Location</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>in INCLUDE</td>
<td>Record is used in the trace.</td>
</tr>
<tr>
<td>No</td>
<td>in INCLUDE</td>
<td>Record is not used in the trace.</td>
</tr>
<tr>
<td>Yes</td>
<td>in EXCLUDE</td>
<td>Record is not used in the trace.</td>
</tr>
<tr>
<td>No</td>
<td>in EXCLUDE</td>
<td>Record is used in the trace.</td>
</tr>
</tbody>
</table>
Syntax

\[
\text{FIELD} [\text{fname}][\text{IFCID}][\text{selfdef. sect. no.}][\text{offset}][\text{rep. group no.}][\text{field type}][\text{EQ comp. vol.}]\]

Parameters

The syntax diagram shows the parameters that are available with this subcommand. The following list gives additional or specific descriptions of selected parameters, where appropriate.

*field name*
   - An 8-character name identifying a particular field.

*IFCID*
   - The decimal IFCID number of the performance record.

*self defining section number*
   - The decimal number identifying the self-defining data section that points to the data section containing the field to be compared. If the value is 0, the self-defining section identified is the first one that points to the product section. If the value is 1, the self-defining section is the first one that points to a data section.

*offset*
   - The decimal offset into the data section of the starting byte of the record field to be compared.

*repeating group number*
   - The number of repeating data sections where the comparison is made. If this field contains a value of 0, the comparison is made in all repeating data sections. If the value is, for example, 12, the self-defining section is the twelfth one that points to a data section.
   - Valid values are 0-99.

*field type*
   - A character indicating the type of data to be compared:
     - C Character data
     - X Hexadecimal data
     - F Fullword binary data
     - H Halfword binary data

*comparison type*
   - The type of comparison to be made between the field in the performance record and the comparison value in the definition:
     - EQ Equal to
     - NE Not equal to
     - GE Greater than or equal to
     - LE Less than or equal to
     - GT Greater than
     - LT Less than

*comparison value*
   - The value to be compared to the defined field in the performance record:
Character data
Up to 16 characters can be entered. Character data containing blanks must be enclosed in single quotation marks. The quotation marks cannot be part of the comparison value.

Hexadecimal data
This value or constant represents a hexadecimal value, such as 0001D0F2. Up to 8 characters can be specified. Do not enclose the value in quotation marks.

Fullword binary
This data is converted into a fullword binary value. It is limited to the maximum value allowed in a fullword field.

Halfword binary
This data is converted into a halfword binary value. It is limited to the maximum value allowed in a halfword field.

Example using the FIELD command
This example requests the following:
• The name attributed to this field comparison is QXSELECT.
• The IFCID of the input record where this comparison is made is 003.
• The data section containing the data to be compared is defined by the second self-defining section.
• The data to be compared is at decimal offset 008 in the data section.
• The comparison is to be made in all occurrences of that data section (0).
• The data to be compared is a fullword binary value (F).
• The comparison is made as to whether the data in the data section is greater than the comparison value.
• The comparison value is 100 in fullword binary format.

```plaintext
FIELD (QXSELECT, 003, 02, 008, 0, F, GT, 100)
```

GLOBAL command
This section provides an overview of the Auxiliary command GLOBAL.

Usage
Use the GLOBAL command to filter input data and set default values for subcommand options. It is also used to define global processing options (such as DD statements for various data sets), the number of lines printed per page, whether the OMEGAMON for DB2 PE main internal sort occurs, and time zone adjustments for different locations.

Usage notes
The GLOBAL command affects the processing of each report set. It enables you to:
• Specify values for the FROM, TO, INCLUDE, and EXCLUDE subcommand options, which provide primary filtering of input records. Only those records that satisfy these options are available for further processing.

• Define global processing options:
  – Change the ddname for input data
  – Change the ddname for the System Parameters report
  – Change the ddname for the frequency distribution data set
  – Define the number of lines printed on each report or trace page
  – Specify a time adjustment for DB2 locations
  – Control whether the OMEGAMON for DB2 PE internal sort is performed
  – Control how the OMEGAMON for DB2 PE internal sort responds to possible incomplete spanned records in variable spanned input data sets (RECFM=VS or VBS)

• Define default values for the following REDUCE, REPORT, TRACE, and FILE subcommand options:
  – FROM and TO subcommand options: If you do not include either FROM or TO in a REDUCE, REPORT, TRACE, or FILE subcommand, the default dates and times specified in GLOBAL are applied.
  – INCLUDE and EXCLUDE subcommand options: If you do not provide either INCLUDE or EXCLUDE in a REDUCE, REPORT, TRACE, or FILE subcommand, the appropriate GLOBAL INCLUDE or EXCLUDE filters are applied as defaults.
  – INTERVAL subcommand option: If INTERVAL is not specified in a REDUCE subcommand, the default specified in GLOBAL is applied.
  – BOUNDARY subcommand option: If BOUNDARY is not specified in a REDUCE subcommand, the default specified in GLOBAL is applied.

There can be only one GLOBAL command in an OMEGAMON for DB2 PE execution.

The OUTCCSID (ccsid) option provides support for DB2 Unicode data conversion to MBCS EBCDIC. If specified, OUTCCSID must be the first positional parameter for the GLOBAL command.

The OMEGAMON DB2 batch reporter employs the CUNLCNV z/OS Unicode service to perform Unicode conversion to the requested OUTCCSID(). Please see the z/OS Unicode Services User’s Guide and Reference for the appropriate level of z/OS for CCSIDs supported by CUNLCNV.
Syntax

The syntax diagram shows the options that are available with this subcommand. See "OMEGAMON for DB2 PE subcommand options" on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

FROM/T0

The range of record timestamps processed by the primary filtering function of GLOBAL.

For details, see "FROM/T0 subcommand options" on page 4812.

INTERVAL

Defines the time interval that data is summarized for.

For more information, see "INTERVAL subcommand option" on page 4818.

PRESORTED

Controls the internal sort. It has the following values:

NO  Does not disable the sort. This is the default.

ACCEPT  Disables the sort and accepts out-of-sequence records. By using this option, you can create complete and accurate Accounting reports (including records from several locations) from data sets that have not been sorted, for example SMF or GTF. The following limitations apply with this option:

• Duplicate input data is not checked. Therefore, do not concatenate two data sets that contain the same trace records, such as when trace data has been collected in two data sets during the same period.
Only one location is reported per trace. To report more, specify several
TRACE subcommands with INCLUDE on LOCATION.

• Trace entries might not be printed in time sequence. If a trace contains
entries that are out of sequence, a message appears at the end showing
the number.

• When INTERVAL(0) is in effect (the default), the interval times
appearing in a report heading might not be accurate. Avoid ordering
reports by interval when the interval is zero.

**ENFORCE**
Disables the sort but terminates processing if out-of-sequence records are
present. Use this option only when the input data set has been sorted, for
example when reprocessing data from the DPMOUT data set.

**Note:** Do not specify PRESORTED for Parallel I/O or Sysplex query
parallelism, the results are unpredictable. Use the default (PRESORTED(NO) if
you see message FPEA4534I.

**SPANINC**
Controls how underlying sort facility of OMEGAMON for DB2 PE responds to
incomplete, spanned records in variable-length, unblocked, spanned
(RECFM=VS) or variable-length, blocked, spanned (RECFM=VBS) records.

Sort facilities like DFSORT provide options to control the action to be taken if
incomplete spanned records are detected. For DFSORT, the option
SPANINC=\textit{value}, where \textit{value} is RC0, RC4, or RC16, controls the return code to
be set, the message to be issued, and whether to terminate if necessary. For
more details, see the \textit{z/OS information in the IBM Knowledge Center}.

By default, OMEGAMON for DB2 PE passes option SPANINC=RC4 to the
underlying sort facility. For DFSORT, this option sets a return code of 4, issues
message ICE1971 once, eliminates all incomplete spanned records, and
continues with valid records being recovered. Usually, if no errors are detected,
this process is transparent.

The following GLOBAL SPANINC subcommand options can be used to control
the underlying sort facility if the default is not sufficient. The described
behavior only applies to DFSORT and functionally equivalent sort facilities.

**NOMESSAGE**
Corresponds to SPANINC=RC0. Sets a return code of 0, issues message
ICE1971 (once), and eliminates all incomplete spanned records it detects.

**WARNING**
Corresponds to SPANINC=RC4. Sets a return code of 4, issues message
ICE1971 (once), and eliminates all incomplete spanned records it detects.

**ERROR**
Corresponds to SPANINC=RC16. Sets a return code of 16, issues message
ICE204A, and terminates if an incomplete spanned record is detected.

**NO**
No SPANINC option is passed to the underlying sort facility. Use this
subcommand option if you run a sort facility that does not support the
SPANINC option or the listed option values.

**BOUNDARY**
Controls the alignment of the intervals used to summarize records in the
reduction process.

For more information, see “BOUNDARY subcommand option” on page 4807.
**INPUTDD**

The ddname of the input data set. The default is INPUTDD.

**SYSPRMD**

The ddname for the System Parameters report. The default is SYSPRMDD.

**PAGESIZE**

The number of lines printed per page. Specify an integer in the range 50 to 999. The default for PAGESIZE is 60.

Some reports have a fixed number of lines per page. PAGESIZE is ignored for I/O Activity summary reports, multi-page records in long Record Trace reports, and Explain reports.

**TIMEZONE**

The time adjustment applied to record timestamps during OMEGAMON for DB2 PE processing. By using TIMEZONE, you can process data from locations in different time zones based on the local time of a single location. All further processing is based on the adjusted time. The timestamp used in FROM and TO, printed on reports and traces, and recorded in the file and save data sets is the adjusted value. The DPMOUT data set contains both the original and the adjusted value.

**Note:**

When combining newly reduced data with restored data, make sure that the TIMEZONE specifications for the new data match those for the restored data. Misleading results can occur if the time adjustments are different.

If you change the reference location for data, the time adjustments in old save or file data might be incompatible with newly processed data.

This does not apply to the DPMOUT data, as time adjustments are recalculated when the data is read from INPUTDD.

You can specify time adjustments as follows:

**location**

The location of the reference time zone. The time is adjusted relative to the specified location. The adjustment is the difference between the time zone of the reference location and the CPU clock of the reported location. The LOCDATA member of the DPMPARMS data set must contain an entry for this location.

This is the recommended method.

**+hh:mm**

**-hh:mm**

The time difference between the reference time zone and Greenwich Mean Time (GMT). The time difference is specified as \(\pm hh:mm\), where \(hh\) is hours in the range 00 to 23, and \(mm\) is minutes in the range 00 to 59. You can specify any value in the range -12:00 to +12:00. Use + for local times west of Greenwich, and - for local times east of Greenwich. The time is adjusted relative to the specified time zone difference.

The data for calculating the required adjustments is stored in the LOCDATA member of the DPMPARMS data set. It is stored and edited by using the IRF.

**Note:**
1. If TIMEZONE is not specified, no timestamps are adjusted. If the location supplied in the TIMEZONE option does not have a corresponding entry in the LOCDATA member, a message is generated and execution is terminated.

2. During OMEGAMON for DB2 PE processing, if data is encountered for a location whose time zone adjustment values have not been supplied in the LOCDATA member, the time adjustment default is applied to all records for that location. The default adjustment is stored in LOCDATA under a location name of *. If LOCDATA does not contain a default entry, no adjustment is applied.

3. If several systems that should have the same CPU clock time have synchronization errors, you can use TIMEZONE to correct the times for OMEGAMON for DB2 PE processing. Change the CPU clock time for the nonsynchronized locations in LOCDATA to reflect the errors. For example, if SAN_JOSE_LAB is one minute late in synchronizing with SANTA_TERESA_LAB, edit LOCDATA and add a minute to the CPU clock value for SAN_JOSE_LAB.

4. Synchronization can only be adjusted to the nearest minute. Any adjustments made to LOCDATA might become invalid if the CPU clock time at any of the locations is reset.

For more information about TIMEZONE, see [Monitoring Performance from ISPF](#).

**EXPLAIN**

Defaults for EXPLAIN options can be specified with the GLOBAL command. These defaults are overridden by specifying different values in the EXPLAIN command, see "GLOBAL command with EXPLAIN option."

**INCLUDE/EXCLUDE**

Includes or excludes data associated with specific OMEGAMON for DB2 PE identifiers.

[Table 306 on page 4791](#) shows which OMEGAMON for DB2 PE identifiers can be used with the different INCLUDE and EXCLUDE subcommand options for GLOBAL.

**GLOBAL command with EXPLAIN option:**

This section describes the GLOBAL command with the EXPLAIN option.

**Usage**

Some OMEGAMON for DB2 PE Explain options can be made globally valid, if specified in the GLOBAL command. An option value specified in a specific EXPLAIN command takes precedence over the corresponding GLOBAL option value.

**Syntax of the GLOBAL EXPLAIN options**

**EXPLAIN Block:**
Notes:
1. SSID is required unless specified in a preceding GLOBAL command.

Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “Subcommands and options” on page 4719 for comprehensive descriptions of these options.

GLOBAL command with INCLUDE and EXCLUDE subcommand options:

This section provides an overview of the OMEGAMON for DB2 PE identifiers that can be used with the different INCLUDE and EXCLUDE subcommand options for GLOBAL.

Usage notes
- For more information, see “OMEGAMON for Db2 PE identifiers” on page 4665.
- Some care is needed when using PLANNNAME as a filter in a DDF environment, see Special considerations for DDF trace data.

OMEGAMON for DB2 PE identifiers

The following table shows which OMEGAMON for DB2 PE identifiers can be used with the different INCLUDE and EXCLUDE subcommand options for GLOBAL.

Table 306. OMEGAMON for DB2 PE identifiers used with INCLUDE and EXCLUDE subcommand options for GLOBAL

<table>
<thead>
<tr>
<th>OMEGAMON for DB2 PE identifiers</th>
<th>REDUCE</th>
<th>TRACE</th>
<th>REPORT</th>
<th>FILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE (Agent control element address)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CLASS (DB2 trace class)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CONNECT (Connection ID)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>OMEGAMON for DB2 PE identifiers</td>
<td>REDUCE</td>
<td>TRACE</td>
<td>REPORT</td>
<td>FILE</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------</td>
<td>-------</td>
<td>--------</td>
<td>------</td>
</tr>
<tr>
<td>CONNTYPE (Connection type)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CORRNAME (Correlation name)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CORRNMBR (Correlation number)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>DATABASE (Database name)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>DATASET (Data set name)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ENDUSER (End user ID)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIELD (Comparison with data in a record field)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>GROUP (Group name)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>IFCID (Instrumentation Facility Component Identifier)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>INSTANCE (Instance number)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>LOCATION (Location name)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MAINPACK (Main package)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER (Member name)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ORIGAUTH (Original authorization ID)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>PACKAGE (Package information) or PROGRAM (Program information)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>PAGESET (Page set name)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>PLANNAME (Plan name)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>PRIMAUTH (Primary authorization ID) or AUTHID (Authorization ID)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>REQLOC (Requester location)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>RESOURCETYPE (Resource type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMID (Resource manager identifier)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SQLCODE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBSYSTEMID (Subsystem ID)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>THREADTYPE (Thread type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRANSACT (End user transaction name)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>TYPE (Event type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WSNAMES (End user workstation name)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GROUP command**

This section provides an overview of the Auxiliary command GROUP.

**Usage**

Use the GROUP command to collect several OMEGAMON for DB2 PE identifier values under one name. When you request a report and specify this name by using the INCLUDE or EXCLUDE subcommand option, the events for all individual items are consolidated into one.
Usage notes

- With the GROUP command you can define a named set of OMEGAMON for DB2 PE identifier values. A set name can contain values or lists of values for a particular identifier.
- When you request a report and specify this name in INCLUDE or EXCLUDE, the events for all individual items are consolidated into one. For example, you might request that all PRIMAUTHs used by the accounting department be reported under the set name ACCTS. Thus, the entire department is reported in one entry rather than in individual entries for each PRIMAUTH.
- The GROUP command is only used to collect OMEGAMON for DB2 PE identifier values. It is not related to DB2 data sharing groups, and should not be confused with the GROUP keyword of the SCOPE subcommand option, or the GROUP OMEGAMON for DB2 PE identifier.
- Sets can be used in the REDUCE and REPORT subcommands of the following report sets:
  - Accounting
  - I/O Activity
  - Locking
  - SQL Activity
  - Utility Activity
- Sets can also be used in the following report sets and commands, however, OMEGAMON for DB2 PE treats them as lists:
  - Statistics
  - Audit
  - Record Traces
  - GLOBAL in all report sets
  - FILE and TRACE in all report sets

General rules regarding the use of GROUP

- Each GROUP command defines one set.
- You can use as many GROUP commands as you want.
- All values associated with a set must be for the same OMEGAMON for DB2 PE identifier.
- You can use more than one GROUP command for the same OMEGAMON for DB2 PE identifier.
- The combination of set name and OMEGAMON for DB2 PE identifier must be unique in the job step.

Rules applying to the use of GROUP with INCLUDE and EXCLUDE

- All set names that are referenced with INCLUDE or EXCLUDE must be defined by a GROUP command in the same job step.
- Set definitions are searched in the order that they are specified in.
- If more than one set name is used in INCLUDE or EXCLUDE, and the sets contain common values, the data is assigned to the first set that the value is found in. When OMEGAMON for DB2 PE has found a value in a set, it does not attempt to find other occurrences of the same value.

Syntax

```
GROUP
```
Subcommand options

The syntax diagram shows the options that are available with this subcommand. See "OMEGAMON for DB2 PE subcommand options" on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**PE_identifier**

The OMEGAMON for DB2 PE identifier that the set contains. Identifiers valid for the different report sets are shown in the following table.

<table>
<thead>
<tr>
<th>OMEGAMON for DB2 PE Identifier</th>
<th>Accounting</th>
<th>I/O Activity</th>
<th>Locking</th>
<th>Utility Activity</th>
<th>SQL Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONNECT</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>CONNTYPE</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>CORRNAME</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>CORRNMBR</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>DATABASE</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>DATASET</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>ENDUSER</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>MAINPACK</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>ORIGAUTH</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>PACKAGE</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>PAGESET</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>PLANNAME</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>PRIMAUTH or AUTHID</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>REQLOC</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>THREADTYPE</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>TRANSACT</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>WSNNAME</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

*set name*

The name of the set. It must be unique within the job step. Set names can consist of up to eight alphanumeric characters (A — Z, _, #, $, @, 0 — 9) with no embedded spaces. Set names must begin with a character in the range A to Z.

*value*

A value for the specified OMEGAMON for DB2 PE identifier.

Identifier values must consist of the following characters: A — Z, #, $, @, >, <, or 0 — 9. If the value you want to include contains a character that is not in this list, use an asterisk in its place or place the string in quotes.
Except for the CONNTYPE identifier, a value can be specified in generic form. Place an asterisk (*) in the value to indicate that any value is valid. For example:

- * processes any value.
- ABCD* processes any value starting with ABCD.
- *BCDE processes any value in the first character position where the second, third, fourth, and fifth character positions contain BCDE.
- **CDE processes any value in the first and second character positions where the third, fourth, and fifth character positions contain CDE.
- A*BCDE processes any value in the second character position where the first character position contains A, and the third, fourth, and fifth character positions contain CDE.

** Indicates that the following value is a list name. You cannot use the generic form for list names. For example, L(ABC*E) cannot be used.

** Denotes a range of values beginning with from_value and ending with to_value. The from_value must be less than to_value. The generic form can be used only in the last character position in range values. For example, R(AUTH1*, AUTH2*) is acceptable, but R(AUTH*1, AUTH*2) is not.

Note:

1. Quoted values can also be specified. Any quoted string is accepted, provided that it passes length and format checking.
2. Range cannot be specified for CONNTYPE.

**Grouping records:**

This section describes how to group records.

**Usage**

The record key for reduced data contains a number of OMEGAMON for DB2 PE identifiers. The identifiers contained in the key vary according to the report set.

When records are grouped, the set name of the records relating to grouped items is substituted for the original value of the specified identifier in the record key. When the substitution has been made, the records are not available for processing by using the original key values.

The following examples illustrate how sets are processed.

**Example 1:**

The following records are processed:

<table>
<thead>
<tr>
<th>Location</th>
<th>Connection ID</th>
<th>Correlation Name</th>
<th>Correlation Number</th>
<th>Plan Name</th>
<th>Primary Authorization ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLAN_1</td>
<td>ACCOUNTS</td>
</tr>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLAN_1</td>
<td>ACCOUNTS</td>
</tr>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLAN_2</td>
<td>ACCOUNTS</td>
</tr>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLAN_3</td>
<td>ACCOUNTS</td>
</tr>
</tbody>
</table>
Table 308. Record set processing (continued)

<table>
<thead>
<tr>
<th>Location</th>
<th>Connection ID</th>
<th>Correlation Name</th>
<th>Correlation Number</th>
<th>Plan Name</th>
<th>Primary Authorization ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLAN_4</td>
<td>ACCOUNTS</td>
</tr>
</tbody>
</table>

The following OMEGAMON for DB2 PE command stream example groups three of the four plans:

```plaintext
;  
//SYSIN DD *  
GROUP (  
  PLANNAME {  
    PLANGRP (  
      PLAN_1  
      PLAN_2  
      PLAN_3  
    )  
  }  
)  
;  
EXEC
```

This establishes a set named PLANGRP that you can use with INCLUDE or EXCLUDE on REDUCE and REPORT.

The stage of processing when the key value substitution takes place depends on where you include the set:

- You can use sets on GLOBAL(INCLUDE) to include records for grouped items. No substitution takes place during preprocessing, but the input records for the grouped items are included as if you entered each item.

**Note:** When using sets on GLOBAL, remember that the GLOBAL INCLUDE or EXCLUDE specification becomes the default for all other commands in the job step. GLOBAL INCLUDE is illustrated in the following example:

```plaintext
;  
//SYSIN DD *  
GROUP (  
  PLANNAME {  
    PLANGRP (  
      PLAN_1  
      PLAN_2  
      PLAN_3  
    )  
  }  
)  
GLOBAL INCLUDE (  
  PLANNAME (G(PLANGRP))  
)  
;  
EXEC
```

The following records are available for further processing:

Table 309. Records grouped using GLOBAL(INCLUDE)

<table>
<thead>
<tr>
<th>Location</th>
<th>Connection ID</th>
<th>Correlation Name</th>
<th>Correlation Number</th>
<th>Plan Name</th>
<th>Primary Authorization ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLAN_1</td>
<td>ACCOUNTS</td>
</tr>
</tbody>
</table>
• When you use the set name on REDUCE(INCLUDE), the set name is substituted for the original value of the identifier in the key during REDUCE processing. The reduced data contains only the grouped records. You cannot process data by using the original key values in REPORT, and only the records for the set are stored in the save data set.

```c
//SYSIN DD *
GROUP (
  PLANNAME (
    PLANGRP {
      PLAN_1
      PLAN_2
      PLAN_3
    }
  )
)
GLOBAL
  INCLUDE (PLANNAME (G(PLANGRP)))
ACCOUNTING
  REDUCE
    INCLUDE (PLANNAME (G(PLANGRP)))
  SAVE
; EXEC
```

• When you use the set name on GLOBAL(INCLUDE), it acts as the default for subcommands without an INCLUDE specification. The result for the following example is the same as the result for the preceding example. The records are grouped during REDUCE processing by using the GLOBAL(INCLUDE) default.

```c
//SYSIN DD *
GROUP (
  PLANNAME (
    PLANGRP {
      PLAN_1
      PLAN_2
      PLAN_3
    }
  )
)
GLOBAL
  INCLUDE (PLANNAME (G(PLANGRP)))
ACCOUNTING
  REDUCE
    INCLUDE (PLANNAME (G(PLANGRP)))
  SAVE
; EXEC
```

The reduced data and the save data set contain the following record:

<table>
<thead>
<tr>
<th>Location</th>
<th>Connection ID</th>
<th>Correlation Name</th>
<th>Correlation Number</th>
<th>Plan Name</th>
<th>Primary Authorization ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLAN_1</td>
<td>ACCOUNTS</td>
</tr>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLAN_2</td>
<td>ACCOUNTS</td>
</tr>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLAN_3</td>
<td>ACCOUNTS</td>
</tr>
</tbody>
</table>
Table 310. Records grouped during REDUCE processing using the GLOBAL(INCLUDE)

<table>
<thead>
<tr>
<th>Location</th>
<th>Connection ID</th>
<th>Correlation Name</th>
<th>Correlation Number</th>
<th>Plan Name</th>
<th>Primary Authorization ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLANGRP</td>
<td>ACCOUNTS</td>
</tr>
</tbody>
</table>

- When you use the set name on REPORT(INCLUDE), the records for grouped items are consolidated during report processing. In the following examples, the REDUCE subcommand specification overrides the GLOBAL default. All records that pass data filtering are included in the save data set because they are not grouped during REDUCE processing.

```plaintext
//SYSIN DD *
GROUP (   
  PLANNAME (   
    PLANGRP (   
      PLAN_1 
      PLAN_2 
      PLAN_3 
    )   
  ) )
GLOBAL INCLUDE (   
  PLANNAME (G(PLANGRP))   
) ACCOUNTING REDUCE INCLUDE (PLANNAME(*)) REPORT INCLUDE (PLANNAME(G(PLANGRP))) SAVE EXEC
```

In the following example, the set name on GLOBAL(INCLUDE) acts as the default for the REPORT subcommand. The result is the same as for the previous example.

```plaintext
//SYSIN DD *
GROUP (   
  PLANNAME (   
    PLANGRP (   
      PLAN_1 
      PLAN_2 
      PLAN_3 
    )   
  ) )
GLOBAL INCLUDE (   
  PLANNAME (G(PLANGRP))   
) ACCOUNTING REDUCE INCLUDE (PLANNAME(*)) REPORT INCLUDE (PLANNAME(G(PLANGRP))) SAVE EXEC
```

The Accounting report contains the following entry:

4798 IBM Db2 Performance Expert on z/OS
Table 311. Accounting report set

<table>
<thead>
<tr>
<th>Location</th>
<th>Connection ID</th>
<th>Correlation Name</th>
<th>Correlation Number</th>
<th>Plan Name</th>
<th>Primary Authorization ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLANGRP</td>
<td>ACCOUNTS</td>
</tr>
</tbody>
</table>

The save data set contains the following records:

Table 312. Save data for the accounting report set

<table>
<thead>
<tr>
<th>Location</th>
<th>Connection ID</th>
<th>Correlation Name</th>
<th>Correlation Number</th>
<th>Plan Name</th>
<th>Primary Authorization ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLAN_1</td>
<td>ACCOUNTS</td>
</tr>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLAN_1</td>
<td>ACCOUNTS</td>
</tr>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLAN_2</td>
<td>ACCOUNTS</td>
</tr>
<tr>
<td>LOCATION_1</td>
<td>TSO</td>
<td>USER_1</td>
<td>0</td>
<td>PLAN_3</td>
<td>ACCOUNTS</td>
</tr>
</tbody>
</table>

Example 2

In this example, two reports are generated. The first presents set items individually. In the second report, records are grouped. The REDUCE subcommand specification again overrides the GLOBAL default, so all records that pass preprocessing are included in the save data set.

```plaintext
//SYSIN DD *
GROUP (  
   PLANNAME ( 
      PLANGRP (  
         PLAN_1  
         PLAN_2  
         PLAN_3  
      )  
   )  
)  
GLOBAL  
   INCLUDE ( 
      PLANNAME (G(PLANGRP))  
   )  
ACCOUNTING  
   REDUCE  
      INCLUDE (PLANNAME(*))  
   REPORT  
      INCLUDE (PLANNAME(*))  
   REPORT  
      INCLUDE (PLANNAME(G(PLANGRP)))  
   SAVE  
:  
EXEC  
```

In the following example, the set name on GLOBAL(INCLUDE) acts as the default for the second REPORT subcommand. The result is the same as for the previous example.

```plaintext
:  
//SYSIN DD *
GROUP (  
   PLANNAME ( 
      PLANGRP (  
         PLAN_1  
         PLAN_2  
```

Chapter 7. Commands 4799
LIST command

This section provides an overview of the Auxiliary command LIST.

Usage

Use the LIST command to define a named list of values for a OMEGAMON for DB2 PE identifier, and to use the list name in INCLUDE or EXCLUDE instead of entering each list item.

Usage notes

- The LIST command is available in all report sets.
- A list can contain values or lists of values for a particular identifier. Items in a list are treated independently, as if they were entered individually in INCLUDE or EXCLUDE.
- You can assign a name to the list and specify this name by using the INCLUDE or EXCLUDE subcommand option. In this way, you do not need to enter each list item individually.
- Each LIST command defines one list.
- You can use as many LIST commands as you want.
- All values itemized in a list must be for the same OMEGAMON for DB2 PE identifier.
- You can use more than one LIST command for the same OMEGAMON for DB2 PE identifier.
- The combination of list name and OMEGAMON for DB2 PE identifier must be unique in the job step.

Rules applying to the use of LIST with INCLUDE and EXCLUDE

- List definitions are searched in the order that they were specified for INCLUDE or EXCLUDE.
- All list names that are referenced in INCLUDE or EXCLUDE must be defined by a LIST command in the same job step. Those list names that are not defined by a LIST command are ignored during INCLUDE and EXCLUDE processing.

Syntax

```
LIST
```
Subcommand options

The syntax diagram shows the options that are available with this subcommand. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions of these options. The following list gives additional or specific descriptions of selected options, where appropriate.

**PE_identifier**

The OMEGAMON for DB2 PE identifier that the list contains. Any identifier can be used with the LIST command except FIELD.

**list name**

The name of the list. The combination of list name and OMEGAMON for DB2 PE identifier must be unique in the job step. List names can consist of up to eight alphanumeric characters (A—Z, _, #, $, @, 0—9) with no embedded spaces. List names must begin with a character in the range A to Z.

**set name**

The name of the set. It must be unique within the job step. Set names can consist of up to eight alphanumeric characters (A—Z, _, #, $, @, 0—9) with no embedded spaces. Set names must begin with a character in the range A to Z.

**value**

A value for the specified OMEGAMON for DB2 PE identifier.

Identifier values must consist of the following characters: A—Z, _, #, $, @, >, <, or 0—9. If the value you want to include contains a character that is not in this list, use an asterisk in its place.

Except for the INSTANCE identifier, a value can be specified in generic form. Place an asterisk (*) in the value to indicate that any value is valid. For example:

- * processes any value.
- ABCD* processes any value starting with ABCD.
- *BCDE processes any value in the first character position where the second, third, fourth, and fifth character positions contain BCDE.
- **CDE processes any value in the first and second character positions where the third, fourth, and fifth character positions contain CDE.
- A*CDE processes any value in the second character position where the first character position contains A, and the third, fourth, and fifth character positions contain CDE.

**L**

Denotes that the following value is a list name. You cannot use the generic form for list names. For example, L(ABCD*) cannot be used.

The L(list name) option cannot specify the list name for this LIST command.

**G**

Denotes that the following value is a set name. You cannot use the generic form for set names. For example, G(ABCD*) cannot be used.

**R**

Denotes a range of values beginning with from_value and ending with to_value. The from_value must be less than to_value. The generic form can be used only
in the last character position in range values. For example, \( R(AUTH1*,AUTH2*) \) is acceptable, but \( R(AUTH1,AUTH2*) \) is not.

**Example using the LIST command**

This example requests the following:
- The name of the list is AUTHLST5.
- The primary authorization IDs (PRIMAUTH) associated with this list definition are:
  - USER01 through USER05
  - USER11.

```
//SYSIN DD *
LIST
  (PRIMAUTH(AUTHLST5(R(USER01,USER05),USER11)))
ACCOUNTING
  TRACE
  INCLUDE (PRIMAUTH(L(AUTHLST5)))
EXEC
```

**Troubleshooting commands**

This section provides an overview of the Troubleshooting commands.

**Usage**

This section describes the DUMP command used to dump records from an input data set, and the TAPECOPY command used to copy records from an input data set to an output data set. The options for these commands are almost identical. DUMP and TAPECOPY can each occur once in a job step. The description of the subcommand options is intentionally brief, to avoid recurrences. See "OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions.

The following topics provide additional information:
- "DUMP command”
- "TAPECOPY command” on page 4804

**DUMP command**

This section provides an overview of the Troubleshooting command DUMP.

**Usage**

The DUMP command is a tool used for diagnosis. It provides, in dump format, a printout of an input data set. All records in the input data set, a selected range of records, or specific record types can be dumped.

**Usage notes**
- The DUMP command defines options for the record dump module.
- Dumps are written to SYSPRINT in a hexadecimal dump format.
- "Sample JCL for DUMP and TAPECOPY commands” on page 4805 shows sample JCL for DUMP and TAPECOPY commands.

**Syntax**
Subcommand options

*dump name*

A user-defined name printed on the dump. If this field is omitted, the records are identified with the name DUMP0001.

Ensure that the specified name is not the same as a OMEGAMON for DB2 PE command keyword or abbreviation.

*EXEC*

Specifies INPUTDD as the ddname of the input data set. INPUTDD is the only valid ddname for this option and must be specified.

*OFFSET*

The offset of the record code into the record. The record code is a 1-byte field at position offset-plus-1. For example, OFFSET(4) defines a record code in the fifth byte of the record. The offset must be a numeric value less than the actual length of the record. The maximum value is 999 999 999. The default is 4.

*CODES*

The code values for records to be processed. Each code is a 2-digit hexadecimal number. You can specify either of the following:

- A list of values, for example '01,02,03'
- A range of values, for example '01-03,05-07'

Each entry must be separated by a comma. Enclose the code list in quotes if more than one value is specified.

If this option is omitted, all record codes (00-FF) are processed.

*SKIP*

The number of records to be skipped before processing begins. The maximum value is 999 999 999. The default is 0, which means that processing begins with the first record.

*STOPAFT*

The number of records to be processed, starting after the number of records to be skipped (SKIP option). The maximum value is 999 999 999. The default is 0, which causes all records (after skipping, if specified) to be processed.

*MAXDUMP*

The length of the dump in bytes, starting from the beginning of the record. The default is the full length of the record. You can enter any integer in the range of 1 to 99 999. For example, if you specify MAXDUMP(128), only the first 128 bytes of input records are dumped.

**Note:** Some IFCID records can be up to 32 KB in length. If you use the default for MAXDUMP (the entire record), very large reports can be produced.
Example using DUMP

In this example:
- The DUMP is named DUMPSTAT.
- The ddname of the input data set is INPUTDD (the GLOBAL default).
- The offset of 4 defines a record code in the fifth byte of the record.
- Only records with a value of 01 or 02 in the fifth byte are dumped.
- The first 125 records of the input data set are skipped.
- The next 10 records that meet the specifications are dumped.
- Only the first 1,000 bytes of each record are dumped.

DUMPSTAT DUMP {
  EXEC (INPUTDD)
  OFFSET (4)
  CODES ('01,02')
  SKIP (125)
  STOPAFT (10)
  MAXDUMP (1000))

Note: See also "Sample JCL for DUMP and TAECOPY commands" on page 4805.

TAECOPY command

This section provides an overview of the Troubleshooting command TAECOPY.

Usage

The TAECOPY command is a utility tool that you can use to select a specified subset or all records from an input data set, and copy them to an output data set. The selection logic is identical to that used for the DUMP command.

Usage notes
- The TAECOPY command defines options for the data set copy module.
- Copies of selected portions of the input data set are produced on a user-specified output data set.

Syntax

```
TAECOPY (EXEC (INPUTDD))
  OFFSET (integer)
  CODES (codelist)
  SKIP (integer)
  STOPAFT (integer)
  NEWCOPY (ddname)
```

Subcommand options

tape copy name
- A user-defined name identifying the records copied. If this field is omitted, the records are identified by the name COPY0001.

Ensure that the specified name is not the same as a OMEGAMON for DB2 PE command keyword or abbreviation.
**EXEC**

Specifies INPUTDD as the ddname of the input data set. INPUTDD is the only valid ddname for this option and must be specified.

**OFFSET**

The offset of the record code into the record. The record code is a 1-byte field at position offset-plus-1. For example, OFFSET(4) defines a record code in the fifth byte of the record. The offset must be a numeric value less than the actual length of the record. The maximum value is 999 999 999. The default is 4.

**CODES**

The code values for records to be processed. Each code is a 2-digit hexadecimal number. You can specify either of the following:

- A list of values, for example '01,02,03'
- A range of values, for example '01-03,05-07'

Each entry must be separated by a comma. Enclose the code list in quotes if more than one value is specified.

If this option is omitted, all record codes (00-FF) are processed.

**SKIP**

The number of records that are skipped before processing begins. The maximum value is 999 999 999.

The default is 0. If 0 is specified, processing begins with the first record.

**STOPAFT**

The number of records to be processed, starting after the number of records to be skipped (SKIP option). The maximum value is 999 999 999.

The default is 0. This causes all records (after skipping, if specified) to be processed.

**NEWCOPY**

The ddname of the output data set. The default is TAPECOPY.

**Example using TAPECOPY**

In this example:

- The TAPECOPY is named COPYSTAT.
- The ddname of the input data set is INPUTDD (the GLOBAL default).
- The offset of 4 defines a record code in the fifth byte of the record.
- Only records with a value of 01 or 02 in the fifth byte are copied.
- The first 50 records of the input data set are skipped.
- The next 10 records that meet the specifications are copied.
- The ddname of the output data set is OUTDATA.

COPYSTAT TAPECOPY(
  EXEC (INPUTDD)
  OFFSET (4)
  CODES ('01,02')
  SKIP (50)
  STOPAFT (10)
  NEWCOPY (OUTDATA))

**Sample JCL for DUMP and TAPECOPY commands**

The following figure shows a sample JCL for the DUMP and TAPECOPY commands.
Note: The command syntax shown below is not appropriate in all circumstances. You must modify it to meet your requirements and system setup.

```plaintext
//TPCDUMP1 JOB   (INSTALLATION DEPENDENCIES)
//*
//*******************************************************
//*
//COPY INPUT DATA FILE TO SYSPRINT OR AN OUTPUT DATA FILE
//*
//*******************************************************
//*
// PEMAIN EXEC PGM=FPECMAIN
// STEPLIB DD DSN=FPE.FPELIB.RKANMOD,DISP=SHR
// SYSPRINT DD SYSOUT=X
// SYSOUT DD SYSOUT=X
//*
//*
---   INPUT DATA SET   ---
//*
//INPUTDD DD DSN=FPE.FPELIB.INPUT1,DISP=SHR
//*
//*
---   OUTPUT DATA SET   ---
//*
//OUTDATA DD DSN=FPE.FPELIB.OUTPUT1,
//   DISP=(NEW,CATLG),
//   UNIT=SYSDA,SPACE=(TRK,(10,10),RLSE),
//   DCB=(RECFM=VB,LRECL=4092,BLKSIZE=4096)
//*
//SYSIN DD *
* *
---   TAPECOPY COMMAND EXAMPLE   ---
* 
COPY0001 TAPECOPY (EXEC(INPUTDD),SKIP(125),STOPAFT(10),NEWCOPY(OUTDATA))
* *
* *
---   DUMP COMMAND EXAMPLE   ---
* 
DUMP0001 DUMP (EXEC(INPUTDD),SKIP(125),STOPAFT(10),MAXDUMP(1000))
EXEC *
* 
```

Figure 310. Sample JCL for the DUMP and TAPECOPY commands

**OMEGAMON for DB2 PE subcommand options**

This section introduces you to subcommand options.

**Usage**

The following sections provide a comprehensive description of all subcommand options to avoid lengthy recurrences.

**Usage notes**

The general structure of commands is:

```
command
  subcommand
    option(keyword)
```
• A single command can be followed by one or more subcommands.
• A subcommand can be followed by one or more options.
• An option might have further keywords.

The commands are described in “OMEGAMON for DB2 PE commands” on page 4686 and “Auxiliary commands” on page 4780, together with the associated subcommands and subcommand options.

The following subcommand options can be used to specify how times are reported, and the intervals and time frames of your reports (time functions):
• “DATEFORMAT subcommand option” on page 4809
• “FROM/TO subcommand options” on page 4812
• “INTERVAL subcommand option” on page 4818
• “BOUNDARY subcommand option”

Supplemental information concerning these subcommand options is provided in “Notes on calculating intervals” on page 4808.

The following subcommand options can be used to control the amount of data that is reported and to control the way data is consolidated in reports (filter functions):
• “ORDER subcommand option” on page 4827
• “INCLUDE and EXCLUDE subcommand options” on page 4814
• “EXCEPTION and NOEXCEPTION subcommand options” on page 4811
• “DDNAME subcommand option” on page 4811
• “TOP subcommand option” on page 4831
• “LAYOUT subcommand option” on page 4819
• “SCOPE subcommand option” on page 4830
• “TYPE subcommand option” on page 4832
• “LEVEL subcommand option” on page 4827
• “SUMMARIZEBY subcommand option” on page 4830
• “WORKLOAD subcommand option” on page 4832
• “SORTBY subcommand option” on page 4830
• “LIMIT subcommand option” on page 4827

BOUNDARY subcommand option
The BOUNDARY subcommand option controls the alignment of the intervals.

Usage
The BOUNDARY subcommand option is used to control the alignment of the intervals used to summarize records in the reduction process.

Usage notes
• Boundary is ignored for INTERVAL (0). The interval starts at the timestamp of the first record that satisfies FROM.
• If you use the RESTORE and REDUCE subcommands in the same job stream, the INTERVAL and BOUNDARY options specified in REDUCE should match the INTERVAL and BOUNDARY options that were used to reduce the data being restored. If these values are different, the interval and boundary from the restored data is used.
Rules

- The range is from 0 to 60, and indicates minutes past the hour.
- A boundary of 0 specifies that intervals are aligned with the number of minutes in the FROM time.
- A boundary of 60 specifies that intervals are aligned with hour boundaries.
- If no boundary is specified, the default is the boundary specified in the GLOBAL command.
- If no boundary is specified in global, the default is 60.

Notes on calculating intervals

The start time of the first interval processed by REDUCE is influenced by BOUNDARY, INTERVAL, and FROM.

OMEGAMON for DB2 PE attempts to reduce all data that falls between FROM and TO dates and times. The first interval processed starts at a time aligned with BOUNDARY, at or before the FROM time. If an interval cannot be aligned with the FROM time, the first properly aligned interval starting before the FROM time is used.

Although there is no restriction on the INTERVAL and BOUNDARY combination, your specification should comply with the following recommendations:

- For intervals of less than 60 (excluding 0), there should be a whole number of intervals in an hour. Choose one of the following values:
  - 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, or 30.
- For intervals of 60 or greater, there should be a whole number of intervals in a day. Choose one of the following values:
  - 60, 120, 180, 240, 360, 480, 720, or 1440.
- For intervals of one day (1440) or greater, INTERVAL should be a multiple of 1440.
- Select your interval and boundary so that the first interval starts at the FROM time.

Example of interval calculation, aligning to the start of the hour

BOUNDARY (60) aligns the start time of intervals at the start of an hour, so the first interval starts at the FROM time (08:00). Subsequent intervals start every 30 minutes (08:30, 09:00, and 09:30 each day).

REDUCE
FROM (,08:00)
TO (,10:00)
INTERVAL (30)
BOUNDARY (60)

Example of interval calculation, covering a day

The following defaults are applied:

- For FROM, all dates and a time of 00:00:00.00.
- For TO, all dates and a time of 23:59:59.99.
BOUNDARY(60) aligns the start time of intervals at the start of an hour, so the first interval starts at the FROM time (00:00). Subsequent intervals cover 1 440 minutes or one day; an interval starts at 00:00 each day.

: 
REDUCE
INTERVAL (1440)
BOUNDARY (60)
:

Example of interval calculation, starting every hour

BOUNDARY(60) aligns the start time of intervals at the start of an hour, so the first interval starts at the hour of the FROM time (08:00). Subsequent intervals start every hour (09:00, 10:00, and 11:00).

: 
REDUCE
FROM (,08:30)
TO (,12:00)
INTERVAL (60)
BOUNDARY (60)
REPORT
FROM (,08:30)
TO (,12:00)
:

DATEFORMAT subcommand option
The DATEFORMAT subcommand option changes the format of dates.

Usage
The DATEFORMAT subcommand option is used to change the format of dates specified in the FROM and TO subcommand options, and displayed on OMEGAMON for DB2 PE reports, traces, and logs.

Format
The DATEFORMAT parameter must be 8 characters long and contain:

\[ \begin{align*}
dd & \quad \text{Day} \\
mm & \quad \text{Month} \\
yy & \quad \text{Year}
\end{align*} \]

Format rules
\begin{itemize}
\item You can specify the day, month, and year in any order.
\item A single character delimiter is also required in the third and fifth positions.
\item You can delimit the day, month, and year with either a slash (/), dash (-), period (.), or any combination of these delimiters.
\item The DATEFORMAT parameter can be abbreviated to DF.
\item If you use FROM or TO, you must specify the dates in exactly the same format you have defined in the DATEFORMAT parameter. For example, the following formats are all valid DATEFORMAT definitions:
\begin{itemize}
\item \text{yy-mm-dd}
\item \text{mm/dd/yy}
\item \text{dd.mm/yy}
\end{itemize}
\end{itemize}
If you do not specify the DATEFORMAT parameter in your JCL, dates are displayed in the OMEGAMON for DB2 PE default format, mm/dd/yy.

Sample Accounting JCL with DATEFORMAT subcommand option specified

For example, you might want to display the year before the month and day, separated by a delimiter, on a report. In this case, you would specify yy/mm/dd in the DATEFORMAT parameter.

In the JCL example shown below, DATEFORMAT is used to specify the date format as yy-mm-dd. The relevant information is highlighted.

//PERFORMANCE EXPERT JOB (INSTALLATION DEPENDENCIES)
/*
** ============== DB2 PERFORMANCE EXPERT JCL ==============
*/
/*
** PEMAIN EXEC PGM=FPECMAIN,PARM='DATEFORMAT=YY-MM-DD'
//STEPLIB DD DSN=FPE.FPELIB.RKANMOD,DISP=SHR
//INPUTDD DD DSN=FPE.FPELIB.DPMIN,DISP=SHR
//SYSPRINT DD SYSOUT=*    //SYSPRINT DD SYSOUT=*    //JOBSUMDD DD SYSOUT=*    //ACRPTDD DD SYSOUT=*    //SYSIN DD *
ACCOUNTING REPORT FROM (15-05-30,09:45) TO (15-05-30,09:55).
EXEC Accounting Report - Short

The JCL example shown above produces a report similar to the one shown here. The relevant information is highlighted.
ANOTHER name 108170 0 1.00 0.08 0.00 0.022644 8.98 0.11
MWS 108170 0.00 0.00 0.00 0.031945 0.00 0.00
MyTx3 108206 0.00 0.00 0.00 0.000643 0.00 12.95

<table>
<thead>
<tr>
<th>PROGRAM NAME</th>
<th>TYPE</th>
<th>OCCURS</th>
<th>ALLOCS</th>
<th>SQLSTMT</th>
<th>CL7</th>
<th>CL7</th>
<th>CL8</th>
<th>CL8</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ROLLUP+</td>
<td>PACKAGE 108170</td>
<td>108170</td>
<td>N/P</td>
<td>0.022644</td>
<td>0.000567</td>
<td>0.020832</td>
<td>4.08</td>
<td></td>
</tr>
</tbody>
</table>

*** SUB-TOTAL ***
ANOTHER name 109420 1249 0.99 0.02 0.02 0.023330 0.00 0.00
MWS 109420 0.00 0.00 0.00 0.033459 0.000640 0.04 0.00
MyTx3 108208 0.02 0.00 0.00 0.000717 0.00 15.90 0.12

<table>
<thead>
<tr>
<th>PROGRAM NAME</th>
<th>TYPE</th>
<th>OCCURS</th>
<th>ALLOCS</th>
<th>SQLSTMT</th>
<th>CL7</th>
<th>CL7</th>
<th>CL8</th>
<th>CL8</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL PROG</td>
<td>PACKAGE 109420</td>
<td>109420</td>
<td>N/P</td>
<td>0.023330</td>
<td>0.000640</td>
<td>0.021341</td>
<td>4.14</td>
<td></td>
</tr>
</tbody>
</table>

*** GRAND TOTAL ***

<table>
<thead>
<tr>
<th>PROGRAM NAME</th>
<th>TYPE</th>
<th>OCCURS</th>
<th>ALLOCS</th>
<th>SQLSTMT</th>
<th>CL7</th>
<th>CL7</th>
<th>CL8</th>
<th>CL8</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL PROG</td>
<td>PACKAGE 194630</td>
<td>194630</td>
<td>N/P</td>
<td>0.014006</td>
<td>0.000475</td>
<td>0.012711</td>
<td>2.85</td>
<td></td>
</tr>
</tbody>
</table>

DDNAME subcommand option
The DDNAME subcommand option specifies the data set where the report is written.

Usage
Use DDNAME to specify the data set where the report is written. You can specify any valid ddname including the default, provided that your JCL contains a DD statement for it. If a DD statement is omitted, it will be dynamically allocated to the SYSOUT message class of the job.

Default ddnames
The default ddnames are shown in the following table. x represents a number equal to or greater than one and equal to or less than the maximum number of subcommand invocations allowed.

Table 313. Default ddnames for DDNAME subcommand option

<table>
<thead>
<tr>
<th>Report Set</th>
<th>Accounting</th>
<th>Audit</th>
<th>I/O Activity</th>
<th>Locking</th>
<th>Record Trace</th>
<th>SQL Activity</th>
<th>Statistics</th>
<th>System Parameters</th>
<th>Utility Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILE</td>
<td>ACFILDDx</td>
<td>AUFILDDx</td>
<td>LOFILDDx</td>
<td>RTHILDDx</td>
<td>SQFILDDx</td>
<td>STFILDDx</td>
<td>SYFILDDx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REDUCE</td>
<td>ACWORK</td>
<td>AUDWORK</td>
<td>IOWORK</td>
<td>LOWORK</td>
<td>SQRPTDD</td>
<td>STRPTDD</td>
<td>UTRPTDD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REPORT</td>
<td>ACRPTDD</td>
<td>AURPTDD</td>
<td>IORPTDD</td>
<td>LORPTDD</td>
<td>SQTRCDD</td>
<td>STTRCDD</td>
<td>SYTRCDD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESTORE</td>
<td>ACSTDD</td>
<td>ACSAVDD</td>
<td></td>
<td>STRSTDD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAVE</td>
<td>ACTRCDDx</td>
<td>AUTRCDDx</td>
<td>LOTRCDDx</td>
<td>RTTRCDDx</td>
<td>SQTRCDDx</td>
<td>STTRCDDx</td>
<td>SYTRCDDx</td>
<td>UTTRCDDx</td>
<td></td>
</tr>
</tbody>
</table>

EXCEPTION and NOEXCEPTION subcommand options
The EXCEPTION subcommand option reports only the exception status. The NOEXCEPTION subcommand option produces a standard report.

Usage
Specify EXCEPTION if you want to report only those entries on reports with at least one field in exception status. Specify NOEXCEPTION to produce a standard report. NOEXCEPTION is the default.
The thresholds for exception fields are defined in the exception threshold data set. For more information about the exception threshold data set, see the Report Reference.

Usage notes

If you use this subcommand option, your JCL must contain a valid DD definition for the ddname EXCPTDD. For more information about required ddnames, see “DD statements” on page 4676.

FROM/TO subcommand options

The FROM/TO subcommand options specify the range of record timestamps.

Usage

These subcommand options are used to specify the range of record timestamps that OMEGAMON for DB2 PE processes.

These options are used with the GLOBAL command and the FILE, REDUCE, REPORT, and TRACE subcommands.

Usage notes

- If used with GLOBAL, all records outside those dates and times are discarded by OMEGAMON for DB2 PE before the remaining records are processed by other commands in the same JCL command stream. For more information about the GLOBAL command, see The GLOBAL command.
- You can specify a time adjustment for a DB2 location by using the TIMEZONE option of the GLOBAL command. The time adjustment is applied to record timestamps before other time-related processing is applied.
- You have several choices to specify a time frame. However, you can specify only one time frame with a subcommand.
  - FROM specifies the starting date and time. Records are processed beginning with the first record having a timestamp greater than, or equal to, the FROM date and time. FROM accepts date and time specifications, in any combination, as absolute values. Without delimiting TO option, all further records in the input data set are processed.
  - TO specifies the finishing date and time. Records are processed ending with the last record having a timestamp less than the TO date and time. TO accepts date and time specifications, in any combination, as absolute values. Without delimiting FROM option, processing begins with the first record in the input data set.
  - FROM and TO specify the starting date and time and the finishing date and time.

Syntax

FROM/TO block:

```
| FROM Date & Time | TO Date & Time |
```
Date & Time:

\[(date, time)\]

Parameters

date

The date in the form \(mm/dd/yy\), where \(mm\) is the month, \(dd\) is the day, and \(yy\) is the year. For example, 25 February 2008 is entered as 02/25/08.

OMEGAMON for DB2 PE assumes that the year value (\(yy\)) lies between the system-defined date minus 95 years and the system-defined date plus four years.

You can change the way dates are specified by using DATEFORMAT. For more information, see "DATEFORMAT subcommand option" on page 4809.

time

The time in the form \(hh:mm:ss.th\), where \(hh\) is the hour in 24-hour format, \(mm\) is the minute, \(ss\) is the second, and \(th\) is tenths and hundredths of a second. Trailing zeros can be omitted.

Rules

The \(date\) and \(time\) variables can be used in various combinations and can also inherit values specified with the GLOBAL command. The table below describes the assumed defaults if either of the options or values is not explicitly specified.

<table>
<thead>
<tr>
<th>Subcommand option</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM(date, time) TO(, time)</td>
<td>If the TO date is not specified, the FROM date is assumed.</td>
</tr>
<tr>
<td>FROM(, time) TO(date, time)</td>
<td>If the FROM date is not specified, the TO date is assumed.</td>
</tr>
<tr>
<td>FROM(date) TO(date)</td>
<td>If the FROM time is not specified, 00:00:00.00 is assumed.</td>
</tr>
<tr>
<td></td>
<td>If the TO time is not specified, 23:59:59.99 is assumed.</td>
</tr>
<tr>
<td>FROM(, time) TO(, time)</td>
<td>If dates are not specified, all records that comply with the times are processed; the date of records are ignored. REQUESTED ALL DATES is printed on reports and traces in place of REQUESTED FROM.</td>
</tr>
<tr>
<td>FROM(, time)</td>
<td>If only the FROM time is specified, 23:59:59.99 is used for the TO time. All records with a timestamp between the FROM time and 23:59:59.99 are processed; the dates of records are ignored. REQUESTED ALL DATES is printed on reports and traces in place of REQUESTED FROM.</td>
</tr>
<tr>
<td>TO(, time)</td>
<td>If only the TO time is specified, 00:00:00.00 is used for the FROM time. All records with a timestamp between 00:00:00.00 and the TO time are processed; the dates of records are ignored. REQUESTED ALL DATES is printed on reports and traces in place of REQUESTED FROM.</td>
</tr>
</tbody>
</table>
### Table 314. Option defaults for date and time variables (continued)

<table>
<thead>
<tr>
<th>Subcommand option</th>
<th>Default</th>
</tr>
</thead>
</table>
| `FROM(date,time)` or `FROM(date)` | If the TO date and time is not specified:  
  - For all subcommands, the TO values specified in GLOBAL are applied.  
  - If no TO values are specified in GLOBAL, processing begins with the first record with a timestamp after the FROM time (if specified) or 00:00:00.00 (if not specified), and ends with the last available record.  
  
  NOT SPECIFIED is printed on reports and traces in place of REQUESTED TO. |
| `TO(date,time)` or `TO(date)` | If the FROM date and time is not specified:  
  - For all subcommands, the FROM values specified in GLOBAL are applied.  
  - If no FROM values are specified in GLOBAL, processing begins with the first available record, and ends with the last record with a timestamp before the TO time (if specified) or 23:59:59.99 (if not specified) on the TO date.  
  
  NOT SPECIFIED is printed on reports and traces in place of REQUESTED FROM. |

---

**Example using FROM/TO: Specifying a fixed time frame**

Processing starts with the first record with a timestamp after 10:00 on 25 February 2008, and ends with the last record with a timestamp before 10:10 on the same day.

```
FROM('02/25/08,10:00'),TO('10:10')
```

**Example using FROM/TO: Specifying a fixed time interval per day**

All records with a timestamp at or after 10:00 and before 10:10 are processed, regardless of the date.

```
FROM('10:00')
TO ('10:10')
```

**Example using FROM/TO: Specifying a particular start time**

Processing starts with the first record with a timestamp after 13:00 on 25 February 2008, and ends with the last record in the input data set.

```
FROM('02/25/08,13:00')
```

**INCLUDE and EXCLUDE subcommand options**

The INCLUDE and EXCLUDE subcommand options define a list of identifier values that are included or excluded.
Usage

The INCLUDE and EXCLUDE subcommand options are used to include or exclude data associated with specific OMEGAMON for DB2 PE identifiers. If you omit this subcommand option, all records are included.

Use INCLUDE to define a list of identifier values that are included in processing. Use EXCLUDE to define a list of identifier values that are excluded from processing.

Usage notes

- You can specify list names, set names, values, or range values for each identifier. If you include some identifier values and omit EXCLUDE, only those records described in INCLUDE are processed. If you exclude some identifier values and omit INCLUDE, all records are processed except those described in EXCLUDE.
- Use GLOBAL INCLUDE, or EXCLUDE carefully with IFCID. Because many IFCID records are paired events, BEGIN and END records are necessary to get a valid report or trace. All IFCIDs that share a common END record must be used together with INCLUDE or EXCLUDE.

Syntax

INCLUDE/EXCLUDE block:

```
INCLUDE/EXCLUDE (PE_identifier(value))
```

Options

The following options are available with INCLUDE and EXCLUDE:

- **PE_identifier**
  Specifies the OMEGAMON for DB2 PE identifiers that you want to include in, or exclude from, your output. Identifiers valid for each report are listed in this section. Definitions of identifiers are described in "OMEGAMON for Db2 PE identifiers" on page 4665.

  If you do not specify an identifier when using the REDUCE, REPORT, TRACE, or FILE subcommand, OMEGAMON for DB2 PE uses the identifiers specified for GLOBAL INCLUDE or EXCLUDE.

  You can use an OMEGAMON for DB2 PE identifier in either INCLUDE or EXCLUDE, but not with both in the same command or subcommand.

- **value**
  A value for the specified OMEGAMON for DB2 PE identifier, or an asterisk (*) indicating all values.

  Identifier values must consist of the following characters: A — Z, #, $, @, >, <, or 0 — 9. If the value you want to include contains a character that is not in this list, use an asterisk in its place.
L The name of a list containing values for the specified OMEGAMON for DB2 PE identifier. The list name must be defined by a LIST command in the same job step.

G The name of a set of values for the selected OMEGAMON for DB2 PE identifier. The set name must be defined by a GROUP command in the same job step.

If a set name is specified in a value block, only that set is processed. If you want all identifier values that are not contained in any set specification to be reduced and reported individually, enter an asterisk (*) in the INCLUDE or EXCLUDE options following the last set name. For example:

```
 INCLUDE
   PRIMAUTH (G(AUTHGRP1)
              G(AUTHGRP2)
              *)
```

This indicates that the authorization IDs contained in the sets AUTHGRP1 and AUTHGRP2 are processed as sets, and all other authorization IDs are processed individually.

R Denotes a range of values beginning with from_value and ending with to_value. The from_value must be less than to_value. The generic form can be used only in the last character position in range values. For example, R(AUTH1*,AUTH2*) is acceptable, but R(AUTH1*,AUTH2) is not.

GT Denotes values greater than the given value.

This is only valid for SQLCODE.

LT Denotes values less than the given value.

This is only valid for SQLCODE.

GE Denotes values equal to, or greater than the given value.

This is only valid for SQLCODE.

LE Denotes values equal to, or less than the given value.

This is only valid for SQLCODE.

Rules

The following table shows which OMEGAMON for DB2 PE identifiers can be used with the different commands and subcommands.

<table>
<thead>
<tr>
<th>OMEGAMON for DB2 PE identifier</th>
<th>ACCT</th>
<th>AUD</th>
<th>I/O</th>
<th>LOCK</th>
<th>RT</th>
<th>SQL</th>
<th>STAT</th>
<th>UTIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE (Agent control element address)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>t,f</td>
<td>t,p</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLASS (DB2 trace class)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>t,f</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONNECT (Connection ID)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>CONNTYPE (Connection type)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>CORRNAME (Correlation name)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>OMEGAMON for DB2 PE identifier</td>
<td>ACCT</td>
<td>AUD</td>
<td>I/O</td>
<td>LOCK</td>
<td>RT</td>
<td>SQL</td>
<td>STAT</td>
<td>UTIL</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td>----</td>
<td>-----</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>CORRNMBR (Correlation number)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>DATABASE (Database name)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATASET (Data set name)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENDUSER (End user ID)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIELD (Comparison with data in a record field)</td>
<td>t,f</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROUP (Group name)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>IFCID (Instrumentation Facility Component Identifier)</td>
<td>t,f</td>
<td>t,p</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSTANCE (Instance number)</td>
<td>r,t,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>t,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>LOCATION (Location name)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>MAINPACK (Main package)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER (Member name)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>ORIGAUTH (Original authorization ID)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>PACKAGE (Package information) or PROGRAM (Program information)</td>
<td>r,t,p,f</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAGESET (Page set name)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLANNANE (Plan name)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>PRIMAUTH (Primary authorization ID) or AUTHID (Authorization ID)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>REQLOC (Requester location)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>RESOURCETYPE (Resource type)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>RMID (Resource manager identifier)</td>
<td>r,t,p,f</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQLCODE</td>
<td>t,f</td>
<td>t</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBSYSTEMID (Subsystem ID)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>THREADTYPE (Thread type)</td>
<td>r,t,p,f</td>
<td>r,t,p,f</td>
<td>r,p</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td>r,t,p</td>
<td></td>
</tr>
<tr>
<td>TRANSACT (End user transaction name)</td>
<td>r,t,p,f</td>
<td>t,p,f</td>
<td>r,p</td>
<td>t,f</td>
<td>t,f</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE (Event type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WSNNAME (End user workstation name)</td>
<td>r,t,p,f</td>
<td>t,p,f</td>
<td>r,t,p,f</td>
<td>t,f</td>
<td>t,p</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

1. The use of PLANNANE as a filter for Accounting reports in a DDF environment can cause unexpected results. See Special considerations for DDF trace data.

2. The commands are abbreviated as follows: ACCT (ACCOUNTING), AUD (AUDIT), I/O (IOACTIVITY), LOCK (LOCKING), RT (RECTRACE), SQL (SQLACTIVITY), STAT (STATISTICS), and UTIL (UTILITY).

3. Subcommands are abbreviated as r (REDUCE), t (TRACE), p (REPORT), and f (FILE), whereas “all” applies to all subcommands.
Considerations when using the DATABASE, PACKAGE, PROGRAM, PAGESET, or RESOURCETYPE identifier

If you use the INCLUDE or EXCLUDE subcommand option with one of these OMEGAMON for DB2 PE identifiers, note that the scope of these identifiers affects only the relevant parts of trace records, but not the entire trace records. This means that all records are processed, but only the parts of the records specified by one of the identifiers are included in or excluded from processing. Consequently, remaining record information (specifically included or not excluded) from all trace records is shown in the resulting reports.

Example: INCLUDE/EXCLUDE with PACKAGE

As an example, take Accounting trace records that might contain information about packages P1, P2, and P3:

- If you specify INCLUDE PACKAGE(P1), information about packages other than P1 is filtered from each trace record. All trace records (possibly containing information about package P1) are considered for report processing. If you specify INCLUDE PACKAGE(Px), where Px is an identifier that is not included in any trace record, the resulting report shows no package information, but all remaining information.
- If you specify EXCLUDE PACKAGE(P1), information about package P1 is filtered from each trace record. All trace records (possibly containing information about packages other than P1) are considered for report processing. If you specify EXCLUDE PACKAGE(Px), where Px is an identifier that is not included in any trace record, the resulting report shows package information, if they exist in the trace records.

With these identifiers, specified parts of the trace records are included, respectively excluded. The trace records themselves, with the remaining parts, pass the filter. Consequently, this information is shown in the resulting reports.

Example: INCLUDE and EXCLUDE: Specifying plan and primary authorization ID

The following example produces an Accounting long report. The only plan reported is QMF311. All primary authorization IDs are reported except those on the list called PRODUSER.

```
LIST (PRIMAUTH(PRODUSER(USER1,USER2)))
ACCOUNTING REDUCE REPORT
  LAYOUT (LONG)
  INCLUDE (PLAN(QMF311))
  EXCLUDE (PRIMAUTH(L(PRODUSER)))
```

INTERVAL subcommand option

The INTERVAL subcommand option defines the interval of time when data is summarized.

Usage

The INTERVAL subcommand option is used to define the interval of time when data is summarized.
INTERVAL is used with the GLOBAL command and the REDUCE subcommand.

**Usage notes**

- If INTERVAL is not specified, the interval specified in the GLOBAL command is used. If no interval is specified in GLOBAL, the default is 0 and all records are summarized and treated as one record.
- INTERVAL processing uses a lot of system resource. Always use the largest interval that meets your reporting requirements. If interval processing is not required, the default INTERVAL (0) is recommended for optimum processing.

**Rules**

- The interval range is from 0 to 99 999 and is specified in minutes.
- An interval of 15 specifies that entries are calculated within each 15-minute period.
- An interval of 0 specifies that data is summarized over the entire reduction period.

**Example: Specifying an interval of two hours**

The following example specifies an interval of two hours:

```
  ...
  REDUCE INTERVAL (120)
  ...
```

**LAYOUT subcommand option**

The LAYOUT subcommand option specifies the name of a report layout.

**Usage**

You can select the layout of Accounting and Statistics model reports and traces.

**Usage notes**

- If none of them suit the requirements at your site, you can tailor your own layouts using the User-Tailored Reporting feature (UTR). For details refer to the [Reporting User’s Guide](#).
- Migration layouts help you identify OMEGAMON for DB2 PE data that was previously shown in the reports of the OMEGAMON Historical Reporter.

**Options**

You can specify one of the supplied layouts or one that you have previously tailored:

**SHORT**

Provides a short layout. SHORT is used by default.

**Note:** If a report does not contain the details that you are looking for (such as thread-related data), run the job again using the LAYOUT subcommand option LONG. You can also use other functions such as Record Trace and SQL Activity to find detailed DB2 trace data.

**LONG**

Provides detailed thread-related data.

**ACCEL**

**Accounting:** Provides detailed thread-related Accelerator activity data.
Statistics: Provides detailed system-related Accelerator activity data.

migration layouts
Supplied migration layouts to help you identify OMEGAMON for DB2 PE data that was previously shown in the reports of the OMEGAMON Historical Reporter. The migration layouts include:

- “Options for OMEGAMON Historical Reporter Accounting reports”
- “Options for OMEGAMON Historical Reporter Statistics reports” on page 4824

user-defined layouts
You can customize your own report layouts by specifying which blocks of data and which fields within the blocks are included, and their relative order. To adapt the reports according to your requirements, you use user-tailored reporting (UTR). With UTR, you can control the volume, contents, and layout of Statistics traces and reports.

For information about tailoring report layouts, see the [Reporting User’s Guide](#).

**Options for OMEGAMON Historical Reporter Accounting reports**

To find information that was previously contained in the Accounting reports of the OMEGAMON Historical Reporter use the LAYOUT subcommand options shown in the following table.

*Table 316. LAYOUT subcommand options for Accounting reports of the OMEGAMON Historical Reporter*

<table>
<thead>
<tr>
<th>LAYOUT subcommand option</th>
<th>OMEGAMON for DB2 PE blocks which contain information previously provided in OMEGAMON Historical Reporter</th>
</tr>
</thead>
</table>
| DDF                      | The Distributed Activity - Requester and Distributed Activity - Server blocks contain information previously provided in OMEGAMON Historical Reporter:  
  - DISTRIBUTED_DATA_FACILITY_ACTIVITY  
  - DETAIL |
| LOCK                     | The Locking block contains information previously provided in OMEGAMON Historical Reporter:  
  - LOCK_ACTIVITY  
  - DETAIL  
  - SUMMARY  
  The Drain/Claim block contains information previously provided in OMEGAMON Historical Reporter:  
  - LOCK_ACTIVITY  
  - DETAIL  
  The Data Sharing Locking block contains information previously provided in OMEGAMON Historical Reporter:  
  - GLOBAL_LOCK_ACTIVITY |
Table 316. LAYOUT subcommand options for Accounting reports of the OMEGAMON Historical Reporter (continued)

<table>
<thead>
<tr>
<th>LAYOUT subcommand option</th>
<th>OMEGAMON for DB2 PE blocks which contain information previously provided in OMEGAMON Historical Reporter</th>
</tr>
</thead>
</table>
| PACK                     | The following blocks:  
  • Package Identification  
  • Times - Class 7 - Package Times  
  • Package Suspensions  
  • Global Locking L-Locks (Package)  
  • Global Locking P-Locks (Package)  
  • SQL Activity (Package)  
  • Buffer Pool Activity (Package)  
  • Locking Activity (Package)  
  contain information previously provided in OMEGAMON Historical Reporter:  
  • DETAIL  
  • PACKAGE_DETAIL |
| POOL                     | The **Buffer Pool Activity** block contains information previously provided in OMEGAMON Historical Reporter:  
  • BUFFER_POOL_ACTIVITY  
  • DETAIL  
  • SUMMARY  
  The **Group Buffer Pool Activity** block contains information previously provided in OMEGAMON Historical Reporter:  
  • GROUP_BUFFER_POOL_ACTIVITY |
Table 316. LAYOUT subcommand options for Accounting reports of the OMEGAMON Historical Reporter (continued)

<table>
<thead>
<tr>
<th>LAYOUT subcommand option</th>
<th>OMEGAMON for DB2 PE blocks which contain information previously provided in OMEGAMON Historical Reporter</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTA</td>
<td>The Query Parallelism block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• PARALLEL_TASKS</td>
</tr>
<tr>
<td></td>
<td>• Query Parallelism (SQL_ACTIVITY)</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td></td>
<td>The Times - Class 1 - Application Time block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• PARALLEL_TASKS</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td></td>
<td>• TIME_SUMMARY</td>
</tr>
<tr>
<td></td>
<td>The Times - Class 2 - DB2 Time block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• PARALLEL_TASKS</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td></td>
<td>• TIME_SUMMARY</td>
</tr>
<tr>
<td></td>
<td>The Times - Class 3 - Suspensions block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• SUMMARY</td>
</tr>
<tr>
<td></td>
<td>• TIME_SUMMARY</td>
</tr>
<tr>
<td></td>
<td>The Highlights block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• Miscellaneous Statements (SQL_ACTIVITY), only traces</td>
</tr>
<tr>
<td></td>
<td>• TERMINATION_SUMMARY</td>
</tr>
<tr>
<td>RID</td>
<td>The RID List block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• RID Pool Access (SQL_ACTIVITY)</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td>RLF</td>
<td>The Resource Limit Facility block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• Limit Origin (RESOURCE_LIMIT_FACILITY_SUMMARY)</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
</tbody>
</table>
Table 316. LAYOUT subcommand options for Accounting reports of the OMEGAMON Historical Reporter (continued)

<table>
<thead>
<tr>
<th>LAYOUT subcommand option</th>
<th>OMEGAMON for DB2 PE blocks which contain information previously provided in OMEGAMON Historical Reporter</th>
</tr>
</thead>
</table>
| STP                      | The **Times - Class 1 - Application Time** block contains information previously provided in OMEGAMON Historical Reporter:  
|                          |   - PARALLEL_TASKS  
|                          |   - DETAIL  
|                          |   - TIME_SUMMARY  
|                          | The **Times - Class 2 - DB2 Time** block contains information previously provided in OMEGAMON Historical Reporter:  
|                          |   - PARALLEL_TASKS  
|                          |   - DETAIL  
|                          |   - TIME_SUMMARY  
|                          | The **Times - Class 3 - Suspensions** block contains information previously provided in OMEGAMON Historical Reporter:  
|                          |   - SUMMARY  
|                          |   - TIME_SUMMARY  
|                          | The **Stored Procedures** block contains information previously provided in OMEGAMON Historical Reporter:  
|                          |   - Stored Procedures (SQL_ACTIVITY)  
|                          |   - DETAIL  
| SQL                      | The **SQL DCL** block contains information previously provided in OMEGAMON Historical Reporter:  
|                          |   - DCL Statements (SQL_ACTIVITY)  
|                          |   - DETAIL  
|                          | The **SQL DDL** block contains information previously provided in OMEGAMON Historical Reporter:  
|                          |   - DDL Statements (SQL_ACTIVITY)  
|                          |   - Miscellaneous Statements (SQL_ACTIVITY)  
|                          |   - DETAIL  
|                          | The **SQL DML** block contains information previously provided in OMEGAMON Historical Reporter:  
|                          |   - DML Statements (SQL_ACTIVITY)  
|                          |   - DETAIL  
| TERM                     | The **Application Termination** block contains information previously provided in OMEGAMON Historical Reporter:  
|                          |   - TERMINATION_SUMMARY  

Chapter 7. Commands 4823
Table 316. LAYOUT subcommand options for Accounting reports of the OMEGAMON Historical Reporter (continued)

<table>
<thead>
<tr>
<th>LAYOUT subcommand option</th>
<th>OMEGAMON for DB2 PE blocks which contain information previously provided in OMEGAMON Historical Reporter</th>
</tr>
</thead>
</table>
| TIME                     | The **Times - Class 1 - Application Time** block contains information previously provided in OMEGAMON Historical Reporter:  
|                           | • PARALLEL_TASKS  
|                           | • DETAIL  
|                           | • TIME_SUMMARY  
|                           | The **Times - Class 2 - DB2 Time** block contains information previously provided in OMEGAMON Historical Reporter:  
|                           | • PARALLEL_TASKS  
|                           | • DETAIL  
|                           | • TIME_SUMMARY  
|                           | The **Times - Class 3 - Suspensions** block contains information previously provided in OMEGAMON Historical Reporter:  
|                           | • SUMMARY  
|                           | • TIME_SUMMARY  
|                           | The **Highlights** block contains information previously provided in OMEGAMON Historical Reporter:  
|                           | • Miscellaneous Statements (SQL_ACTIVITY), only traces  
|                           | • TERMINATION_SUMMARY  
|                           | The **Global Locking L-Locks (Plan)** block contains information previously provided in OMEGAMON Historical Reporter:  
|                           | • SUMMARY  
|                           | • TIME_SUMMARY  
|                           | The **Global Locking P-Locks (Plan)** block contains information previously provided in OMEGAMON Historical Reporter:  
|                           | • SUMMARY  
|                           | • TIME_SUMMARY |

**Options for OMEGAMON Historical Reporter Statistics reports**

To find information that was previously contained in the Statistics reports of the OMEGAMON Historical Reporter use the LAYOUT subcommand options shown in the following table.
<table>
<thead>
<tr>
<th>LAYOUT subcommand option</th>
<th>OMEGAMON for DB2 PE PE blocks which contain information previously provided in OMEGAMON Historical Reporter</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIND</td>
<td>The Plan/Package Processing block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td></td>
<td>• Miscellaneous Statements (SQL_ACTIVITY)</td>
</tr>
<tr>
<td></td>
<td>• Plan (BIND_ACTIVITY)</td>
</tr>
<tr>
<td></td>
<td>• Package (BIND_ACTIVITY)</td>
</tr>
<tr>
<td></td>
<td>The Authorization Management block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• Auth Chk (BIND_ACTIVITY)</td>
</tr>
<tr>
<td>CMD</td>
<td>The DB2 commands block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• COMMAND_ACTIVITY</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td>DDF</td>
<td>The DRDA Remote Locations block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• 2-Phase Commits (DISTRIBUTED_DATA_FACILITY_ACTIVITY)</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td></td>
<td>The Global DDF Activity block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td>LOCK</td>
<td>The Locking Activity block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• LOCK_ACTIVITY</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td></td>
<td>• SUMMARY</td>
</tr>
<tr>
<td></td>
<td>The Data Sharing Locking block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• GLOBAL_LOCK_ACTIVITY</td>
</tr>
<tr>
<td>LOG</td>
<td>The Log Activity block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• LOCK_ACTIVITY</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td>OPCL</td>
<td>The Open/Close Activity block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• OPEN_CLOSE_ACTIVITY</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
</tbody>
</table>
Table 317. LAYOUT subcommand options for Statistics reports of the OMEGAMON Historical Reporter (continued)

<table>
<thead>
<tr>
<th>LAYOUT subcommand option</th>
<th>OMEGAMON for DB2 PE PE blocks which contain information previously provided in OMEGAMON Historical Reporter</th>
</tr>
</thead>
<tbody>
<tr>
<td>POOL</td>
<td>The <strong>Buffer Pool General</strong> block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• General (BUFFER_POOL_ACTIVITY)</td>
</tr>
<tr>
<td></td>
<td>• Query Parallelism (BUFFER_POOL_ACTIVITY)</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td></td>
<td>• SUMMARY</td>
</tr>
<tr>
<td></td>
<td>The <strong>Buffer Pool Read</strong> block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• Read Operations (BUFFER_POOL_ACTIVITY)</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td></td>
<td>• SUMMARY</td>
</tr>
<tr>
<td></td>
<td>The <strong>Buffer Pool Sort/Merge</strong> block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• Sort/Merge (BUFFER_POOL_ACTIVITY)</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td></td>
<td>• SUMMARY</td>
</tr>
<tr>
<td></td>
<td>The <strong>Buffer Pool Write</strong> block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• Write Operations (BUFFER_POOL_ACTIVITY)</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td></td>
<td>• SUMMARY</td>
</tr>
<tr>
<td></td>
<td>The <strong>Group Buffer Pool Activity</strong> block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• GROUP_BUFFER_POOL_ACTIVITY</td>
</tr>
<tr>
<td></td>
<td>The <strong>EDM Pool Activity</strong> block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• EDM_POOL_ACTIVITY</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td>QP</td>
<td>The <strong>Query Parallelism</strong> block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• Query Parallelism (SQL_ACTIVITY)</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
<tr>
<td>STP</td>
<td>The <strong>Stored Procedures</strong> block contains information previously provided in OMEGAMON Historical Reporter:</td>
</tr>
<tr>
<td></td>
<td>• Stored Procedures (SQL_ACTIVITY)</td>
</tr>
<tr>
<td></td>
<td>• DETAIL</td>
</tr>
</tbody>
</table>
Table 317. LAYOUT subcommand options for Statistics reports of the OMEGAMON Historical Reporter (continued)

<table>
<thead>
<tr>
<th>LAYOUT subcommand option</th>
<th>OMEGAMON for DB2 PE PE blocks which contain information previously provided in OMEGAMON Historical Reporter</th>
</tr>
</thead>
</table>
| SQL                      | The SQL DCL block contains information previously provided in OMEGAMON Historical Reporter:  
|                          |  • DCL Statements (SQL_ACTIVITY)  
|                          |  • DETAIL  
|                          |  • SUMMARY  
|                          | The SQL DDL block contains information previously provided in OMEGAMON Historical Reporter:  
|                          |  • DDL Statements (SQL_ACTIVITY)  
|                          |  • DETAIL  
|                          |  • SUMMARY  
|                          |  • Miscellaneous Statements (SQL_ACTIVITY)  
|                          | The SQL DML block contains information previously provided in OMEGAMON Historical Reporter:  
|                          |  • DML Statements (SQL_ACTIVITY)  
|                          |  • DETAIL  
|                          |  • SUMMARY |
| SUBS                     | The Subsystem Services block contains information previously provided in OMEGAMON Historical Reporter:  
|                          |  • SUBSYSTEM_ACTIVITY  
|                          |  • DETAIL |
| TIME                     | The CPU Times block contains information previously provided in OMEGAMON Historical Reporter:  
|                          |  • CPU_TIME_SUMMARY  
|                          |  • DETAIL |

**LEVEL subcommand option**

The LEVEL subcommand option is described in command and subcommand options.

**Usage**

The meaning and usage of LEVEL varies and is described in context with the commands and subcommands using this option.

**LIMIT subcommand option**

The LIMIT subcommand option sets the number of threads processed by SQL Activity Trace.

**Usage**

The LIMIT subcommand option sets the number of threads processed by SQL Activity Trace.

**ORDER subcommand option**

The ORDER subcommand option defines which OMEGAMON for DB2 PE identifiers are used to aggregate records.
Usage

The ORDER subcommand option specifies which OMEGAMON for DB2 PE identifiers are used to aggregate records and, unless the TOP(ONLY) subcommand option is specified for Accounting, identifies the presentation sequence of the report entries.

Usage notes

- You can specify one entry of ORDER for each REPORT subcommand.
- You can order by one, two, or three identifiers separated by a dash, and you can specify up to five sets of the identifiers separated by at least one blank, a comma, or a new line.
- For group-scope Locking reports, the default order is DATABASE-PAGESET. For all other reports, the default for ORDER is PRIMAUTH-PLANNAME.
- MEMBER is automatically added as the second, third, or fourth identifier in group-scope reports.
- In a distributed environment you should order your reports by REQLOC or CONNTYPE. If REQLOC or CONNTYPE are not used in the ORDER subcommand option of REPORT, the accounting portion of all threads, including DBATs, where the combination of OMEGAMON for DB2 PE identifiers is the same are reported as one entry.

Syntax

ORDER Block:

ORDER Block:

<table>
<thead>
<tr>
<th>OMEGAMON for DB2 PE Identifier</th>
<th>Accounting</th>
<th>Audit</th>
<th>I/O Activity</th>
<th>Locking</th>
<th>SQL Activity</th>
<th>Statistics</th>
<th>Utility Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTNAME (Activity)</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BPID (Buffer pool ID)</td>
<td>● ● ● ● ●</td>
<td>●</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLASS (DB2 trace class)</td>
<td>● ● ● ● ●</td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONNECT (Connection ID)</td>
<td>● ● ● ● ●</td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONNTYPE (Connection type)</td>
<td>● ● ● ● ●</td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CORRNAME (Correlation name)</td>
<td>● ● ● ● ●</td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CORRNMBR (Correlation number)</td>
<td>● ● ● ● ●</td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATABASE (Database name)</td>
<td>● ● ● ● ●</td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENDUSER (End user ID)</td>
<td>● ● ● ● ●</td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INSTANCE (Instance number)</td>
<td>● ● ● ● ●</td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTERVAL (Interval)</td>
<td>● ● ● ● ●</td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 318. OMEGAMON for DB2 PE identifiers used with ORDER subcommand option (continued)

<table>
<thead>
<tr>
<th>OMEGAMON for DB2 PE Identifier</th>
<th>Accounting</th>
<th>Audit</th>
<th>I/O Activity</th>
<th>Locking</th>
<th>SQL Activity</th>
<th>Statistics</th>
<th>Utility Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAINPACK (Main package)</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>OBJECT (Object type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>ORIGAUTH (Original authorization ID)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>PACKAGE (Package information) or PROGRAM (Program information)</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAGESET (Page set name)</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>PLANNAME (Plan name)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>PARTNBR (Partition number)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>PRIMAUTH (Primary authorization ID) or AUTHID (Authorization ID)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>REQLOC (Requester location)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>ROLE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>TCONTEXT (Trusted context)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>THREADTYPE (Thread type)</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>TRANSACT (End user transaction name)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>WSNAME (End user workstation name)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Note:
1. For Utility Activity, the ORDER option can be used for both reports and traces.
2. Instance number is applicable to Utility trace only.
3. For Accounting, the ORDER by THREADTYPE can result in reports for thread types as follows:
   - ALLIED - Indicates accumulated data of allied threads only. These are threads that were not involved in any distributed activity. This type belongs to thread type category ALLIED.
   - ALLDDIST - Indicates accumulated data of threads initiated by DB2 and requested data from one or more server locations. This type belongs to thread type category ALLIED_DIST.
   - DBAT - Indicates accumulated data of threads that are initiated, created, and performing work on behalf of a remote (requester) location. This type belongs to thread type category DBAT.
   - DBATD - Indicates accumulated data of DBAT distributed threads. This type belongs to thread type category DBAT.
   - DBATDIPS - Indicates accumulated data of DBAT distributed and copy threads. This type belongs to thread type category DBAT.
   - DBATDIPS - Indicates accumulated data of DBAT distributed and duplicate threads. This type belongs to thread type category DBAT.

Example of the ORDER subcommand option

The following example specifies that two reports are produced:
- Both reports use the SHORT layout by default.
- The first report is ordered by primary authorization ID within plan name within connection ID.
- The second report is ordered by plan name within primary authorization ID.
- Both reports are written to the data set with the default ddname ACRPTDD.

ACCOUNTING
SCOPE subcommand option
The SCOPE subcommand option specifies the scope of the report in a data-sharing environment.

Usage
Use SCOPE to specifies the scope of the report in a data-sharing environment.

Options
MEMBER
In member-scope reports, a data-sharing group’s instrumentation data is presented member by member. The events are reported in the specified ORDER sequence within the DB2 subsystem (member) where they occurred. Member-scope reports are used for DB2 subsystems that are not involved in data sharing.

GROUP
In group-scope reports, instrumentation data belonging to individual members is merged and presented for the entire group. The events are reported in the specified ORDER sequence within the DB2 data-sharing group, regardless of which member of the group actually generated the events.

SORTBY subcommand option
The SORTBY subcommand option is described in command and subcommand options.

Usage
The meaning and usage of SORTBY varies and is described in context with the commands and subcommands using this option.

SPREADSHEETDD subcommand option
The SPREADSHEETDD subcommand is used to write locking related DB2 data to a specified data set.

Usage
The SPREADSHEETDD subcommand option can be used to write locking related DB2 data to a specified data set in a format that can be imported by common spreadsheet programs. This subcommand option is only applicable to the REPORT subcommand of the LOCKING command.

Instead of this subcommand and for statistics and accounting only, you can use the Spreadsheet Input Data Generator utility to create CSV (comma-separated value) data for spreadsheet programs as described in Reporting User’s Guide.

SUMMARIZEBY subcommand option
The SUMMARIZEBY subcommand option is applicable to the SQL Activity report set only.
Usage

Use SUMMARIZEBY to specify the SQL events to be summarized by the REPORT subcommand.

TOP subcommand option

The TOP subcommand option lists all applications or users that have required most use of specific DB2 resources.

Usage

To identify report entries with a high value in certain fields, you can produce an Accounting report or trace with TOP lists. TOP lists are index-like reports at the end of a report or trace pointing out the most interesting entries in the report or trace. You generate such lists using the TOP subcommand option.

Usage notes

- TOP is only used in the Accounting report or trace set.
- Entries with 0 or undetermined values are not shown. Moreover, if your input data contains only 0 or undetermined values for the TOP fields requested, a TOP list is not generated.

Keywords

**ONLY**

Filters a report or trace such that only the main resource consumers are shown, ordered by descending resource value.

**Note:** The TOP(ONLY) subcommand option changes the presentation sequence of Accounting reports and traces. Report and trace entries are ordered according to the TOP resource instead of the timestamp or ORDER subcommand options. The summarization in reports is not affected by the changed sequence caused by TOP filtering.

**n ONLY**

Filters a report or trace such that only the top n entries for the default TOP field are shown, where n is a number.

**TOTAL**

The resource values shown are average values. To get total values, that is, the main resource consumers calculated by taking into account how often they consumed resources, you specify the TOP subcommand option with the TOTAL keyword.

**Note:** TOTAL only applies to reports. If you specify it with a trace, it is ignored.

**n request type**

Produces a trace with a TOP list for the defined number n of the specified request types, such as Getpage requests.

Examples

For more information and examples refer to the Reporting User’s Guide.
TYPE subcommand option
The TYPE subcommand option specifies the activity types reported.

Usage

TYPE is used in the Audit report set to control the type of data reported and in the Utility Activity report set to specify the activity types reported.

WORKLOAD subcommand option
The WORKLOAD subcommand option is described in command and subcommand options.

The meaning and usage of WORKLOAD varies and is described in context with the commands and subcommands using this option.
Chapter 8. Reference information

This section provides reference information.

“Using GROUP to improve Save data set performance” on page 2994
“Comparing original authorization IDs with primary authorization IDs” on page 2995
“Fields affected by roll-up during distributed and parallel tasks” on page 2996
“Using ACCOUNTING REDUCE subcommand options to balance performance and data set space” on page 2997
“Accessibility” on page 2998

What's new in previous editions

This topic summarizes significant enhancements and changes to previous editions of Db2 Performance Expert documentation.

Previous updates

February 2017

Updates to data collection options for ACCTG
Valid values for the ACCTG keyword now include 11. The updated list of values accepted by this keyword are now 1,2,3,7,8,10,11. For more information, see:

• “ACCTG - Near-term history data collection options keyword” on page 328

Updates to PARMGEN workflow and panel navigation
The workflow and panel navigation have changed for PARMGEN. For more information, see:

• “Installing OMEGAMON for DB2 PE from scratch with the most basic configuration” on page 314
• “Configuring Near-Term History with system variable support” on page 322
• “Configuring InfoSphere Optim Performance Manager and Performance Expert Client” on page 322
• “Completing the configuration for z/OS components” on page 405

Updates to migration topics
For more information, see:

• Chapter 4, “Migrating,” on page 863

Upgrading existing PARMGEN runtime environment
Information has been added about how to upgrade in an existing PARMGEN runtime environment to enable support for Db2 12. For more information, see:

• Basic Upgrade Requirements
• SMP/E maintenance and upgrade scenarios
Product delivery changes
Buffer Pool Analyzer is now delivered only with IBM OMEGAMON for Db2 Performance Expert on z/OS.

Updates System Statistics (KDPDBSM) to include DSQL
System Statistics (KDPDBSM) has been updated to include DSQL (Db2 Dynamic SQL Cache Filter Options KDPDSQLF). For more information, see:

- “System Statistics (KDPDBSM)” on page 1749

Updates panels for new wait times in IFCID 316 and 401
For more information, see:

- “EDM Snapshot Dynamic SQL Cache Statement Statistics Detail” on page 1170 (ZEDD3)
- “EDM Snapshot Static SQL Cache Statement Detail” on page 1165 (ZESS3)

Improved in-memory buffer pool
For more information, see:

- “Buffer Pool Detail” on page 1114 (ZBP)
- “Buffer Pool Statistics Detail” on page 1531 (ZHBPD)

Fast insert algorithm
For more information, see:

- “Thread Detail” on page 923 (ZTDTL)
- “Package Detail” on page 1003 (ZPDK)
- “Thread History Detail” on page 1634 (ZHTACT)
- “Thread History Package Detail” on page 1684 (ZHTPKD)

Stabilize and reuse runtime structures for dynamic SQL
For more information, see:

- “Current SQL Counts” on page 951 (ZTSCNT)
- “Thread History SQL Counts” on page 1660 (ZHTSQLS)
- “EDM Pool Information” on page 1136 (ZEDMP)
- “EDM Pool Statistics Detail” on page 1551 (ZHEDD)
- “EDM Snapshot Dynamic SQL Cache Statement Statistics Detail” on page 1170 (ZEDD3)
- “DB2 Command Statistics” on page 1305 (ZCMDS)
- “DB2 Command Statistics Detail” on page 1599 (ZHCMD)
- “SQL/RID Pool/Parallelism/Stored Procedure Information” on page 1283 (ZSQLC)
- “SQL/RID Pool/I/O Parallelism Statistics Detail” on page 1569 (ZHSQD)

Updates to DSNZPARM panels
DSNZPARM panels have been updated to reflect Db2 12 support. For more information, see:

- “DSNZPARM Thread Parameters” on page 1188 (ZPSYS)
- “DSNZPARM Logging Parameters” on page 1194 (ZPLOG)
- “DSNZPARM Authorization, RLF and DDF Parameters” on page 1204 (ZPCTL)
- “DSNZPARM Storage Parameters” on page 1217 (ZPSTL)
Added class 3 wait thread status
For more information, see:
- “DB2 Thread Status Values” on page 1724
- “Filter Options For Thread Activity Displays” on page 1069

Updates to thread analysis
For more information, see:
- “Thread Detail” on page 923
- “Thread History Detail” on page 1634
- “Threads Summary Including Idle Threads” on page 1085

Updates to DSQL/SSQL summary panels
DSQL/SSQL summary panels now display accelerator eligibility and DPS flags. For more information, see:
- “Dynamic SQL Cache Statistics” on page 1158 (ZEDDT)
- “Static SQL Cache Statistics with Package Information” on page 1163 (ZESSK)
- “Dynamic SQL Cache Statement Summary by Key Field” on page 1157 (ZEDD2)

Updates to SQL Activity Report and Trace Blocks
For more information, see:
- “Report and Trace Details” on page 4230
- “Field Descriptions of SQL Activity Detail Report and Trace Details” on page 4231
- “Scan Activity” on page 4256
- “Example of a Member-Scope Audit Detail Report and Trace (Type AUTHCNTL)” on page 3386
- “SQL Activity Trace Summarized by Occurrence, sorted by ELAPSEDTIME” on page 4224

Updates to IFCID descriptions
For more information, see:
- “IFCID 001 - DB2 Command Data” on page 3536
- “IFCID 001 - DDF Data by Location” on page 3542
- “IFCID 001 - QVLS Data” on page 3562
- “IFCID 002 - Accelerator Data - Accelerator Perspective V4 or later” on page 3577
- “IFCID 002 - Accelerator Data - Prior to V4” on page 3568
- “IFCID 002 - Buffer pool activity” on page 3582
- “IFCID 002 - Data Manager Data” on page 3598
- “IFCID 002 - Data Sharing Locking Data” on page 3604
- “IFCID 002 - Dynamic SQL Statement” on page 3607
- “IFCID 002 - EDM Pool Data” on page 3609
- "IFCID 002 - Locking Data" on page 3625
- "IFCID 002 - Group Buffer Pools Activity Data" on page 3615
- "IFCID 002 - Miscellaneous" on page 3628
- "IFCID 002 - Query Parallelism" on page 3631
- "IFCID 002 - RID List Processing" on page 3634
- "IFCID 002 - Service Controller Data" on page 3637
- "IFCID 003 - Buffer Manager Accounting Data" on page 3658
- "IFCID 003 - DDF Data by Location" on page 3663
- "IFCID 003 - Dynamic SQL Statement" on page 3668
- "IFCID 003 - Initial Client/Server Correlation Data" on page 3674
- "IFCID 003 - Instrumentation Accounting Data" on page 3679
- "IFCID 003 - Instrumentation Accounting Data Overflow" on page 3694
- "IFCID 003 - Locking Data" on page 3697
- "IFCID 006 - Read I/O Start" on page 3706
- "IFCID 007 - Read I/O Stop" on page 3707
- "IFCID 018 - Scan End" on page 3720
- "IFCID 021 - Lock Detail" on page 3724
- "IFCID 029 - EDM Request Start" on page 3749
- "IFCID 030 - EDM Request End" on page 3751
- "IFCID 044 - Lock Suspend" on page 3761
- "IFCID 053 - SQL Describe/Commit/Rollback/Remote Statement" on page 3767
- "IFCID 058 - End SQL" on page 3772
- "IFCID 062 - DDL Start" on page 3781
- "IFCID 106 - Data Sharing Parameters" on page 3812
- "IFCID 106 - Distributed Data Facility Parameters" on page 3816
- "IFCID 106 - Log Initialization Parameters (Part 1)" on page 3824
- "IFCID 106 - Miscellaneous installation parameters" on page 3831
- "IFCID 106 - System Initialization Parameters" on page 3873
- "IFCID 127 - Page Wait I/O In Prog (Start)" on page 3909
- "IFCID 128 - Page Wait I/O In Prog (End)" on page 3911
- "IFCID 147 - Data Sharing Accounting Data" on page 3929
- "IFCID 147 - Distributed Header Data" on page 3930
- "IFCID 147 - Instrumentation Accounting Data" on page 3931
- "IFCID 147 - Instrumentation Accounting Data Overflow" on page 3931
- "IFCID 147 - Logging" on page 3934
- "IFCID 147 - Monitor Detail Data" on page 3935
- "IFCID 147 - Thread Correlation Data" on page 3941
- "IFCID 150 - Lock Resource Data" on page 3947
- "IFCID 172 - Deadlock Header" on page 3960
- "IFCID 172 - Unit of Work - Resource" on page 3960
- "IFCID 196 - Timeout Header" on page 3992
Updates to System Parameters descriptions

For more information, see:

- “Application Programming Defaults Panel 1 (DSNTIPF)” on page 4512
- “Application Programming Defaults Panel 2 (DSNTIP4, DSNTIP41)” on page 4517
- “Alter Buffer Pool Command Issued” on page 4609
- “Buffer Pool Parameters” on page 4614
- “Buffer Pool Parameters (DSNTIPI)” on page 4525
- “DB2 Catalog and Directory Panel (DSNTIPA2)” on page 4538
- “DB2 Utilities Parameters (DSNTIP6, DSNTIP61, DSNTIP62)” on page 4539
- “DB2 Version Install (DSNTIPA1)” on page 4546
- “Define Group or Member (DSNTIPK)” on page 4529
- “Distributed Data Facility Panel 1 (DSNTIPR)” on page 4532
- “Example of the System Parameters Report” on page 4491
- “Install DB2 - Resource Limit Facility (DSNTIPO4) (DB2 12)” on page 4547 (new for DB2 12)
- “IRLM Installation Parameters (DSNTIPI)” on page 4549
- “Lock Escalation Parameters (DSNTIP)” on page 4553
- “Operator Functions Installation Parameters (DSNTIPO)” on page 4561
Updates to Accounting report and trace blocks
For more information, see:

- “Accounting Trace - Long” on page 3172
- “Accounting Trace - Short” on page 3040
- “Accounting Report - Long” on page 3067
- “Accounting Report - Short” on page 3020
- “Buffer pool report and trace” on page 3221
- “Distributed Activity - Requester” on page 3228
- “Distributed Activity Requester (Short Report)” on page 3037
- “Distributed Activity Requester (Short Trace)” on page 3064
- “Distributed Activity - Server” on page 3236
- “Distributed Activity Server (Short Report)” on page 3034
- “Distributed Activity Server (Short Trace)” on page 3061
- “Dynamic SQL Statement” on page 3245 (new)
- “General (Short Report)” on page 3026
- “General (Short Trace)” on page 3054
- “Accounting highlights report” on page 3254
- “Accounting highlights trace” on page 3260
- “Initial DB2 Common Server or Universal JDBC Driver Correlation” on page 3272
- “Initial DB2 Common Server Correlation” on page 3270
- “Locking” on page 3277
- “Times - Class 2 - DB2 Time” on page 3347
- “Accounting times - Class 3 - Suspensions” on page 3354
- “Package Buffer Pool Activity - Class 10” on page 3285
- “Package Locking Activity - Class 10” on page 3300
- “Package Times - Class 8 - Suspensions” on page 3304
- “Query Parallelism” on page 3315
- “RID List” on page 3320

Updates to Statistics report and trace blocks
For more information, see: 

- “Other system parameters report” on page 4564
- “Performance and Optimization (DSNTIP8, DSNTIP81)” on page 4576
- “Query Accelerator Preferences (DSNTIP82)” on page 4588
- “Routine Parameters (DSNTIPX)” on page 4591
- “Sizes Panel 1 (DSNTIPD)” on page 4592
- “SQL Object Defaults Panel (DSNTIP7, DSNTIP71, DSNTIP72)” on page 4594
- “SQL Object Defaults Panel (DSNTIP7, DSNTIP71, DSNTIP72)” on page 4594
- “Storage Sizes InstallationParms (DSNTIPC, DSNTIPE, DSNTIPE1)” on page 4598
- “Tracing, Checkpoint & Pseudo-Close Parameters (DSNTIPN)” on page 4604
- “Workfile Database Panel (DSNTIP91)” on page 4608

...
Updates to report reference topics
For more information, see:
- “Group-Scope Traces and Reports” on page 3455
- “Locking Detail Report” on page 3471
- “The Accounting Save-File Utility” on page 879
- “The Statistics Save-File Utility” on page 882
- “OMEGAMON for Db2 PE VSAM Data Sets” on page 4647

Updates to reporting topics
For more information, see:
- “Creating a System Parameters report” on page 2843
- Figure 220 on page 2748
- “Overview of the reporting process” on page 2747
- “ddnames of general data sets” on page 2769
- Figure 241 on page 2784
- “Creating a Statistics trace report” on page 2784
- “Functions and utilities of the Statistics report set” on page 2916
- “Functions and utilities of the Accounting report set” on page 2865

OPTIMIZE subcommand option no longer supported
The ACCOUNTING REDUCE command no longer supports the OPTIMIZE subcommand. For more information, see:
- “ACCOUNTING command with REDUCE subcommand” on page 4698
- “Creating a System Parameters report” on page 2843
- “INPUTDD statement” on page 4680
- “RECTRACE command with FILE subcommand” on page 4744
TOP subcommand now supports new keyword MAXWRKF

The TOP subcommand now supports new keyword MAXWRKF. For more information, see:
- “ACCOUNTING command with TRACE subcommand” on page 4703
- “ACCOUNTING command with REPORT subcommand” on page 4692

Updates to migration topics

For more information, see:
- “ACCOUNTING command with SAVE subcommand” on page 4700
- “STATISTICS command with SAVE subcommand” on page 4764

Updates to Online Monitor field table

For more information, see:
- “Online Monitor field table” on page 342

Db2 9 no longer supported

Db2 Performance Expert no longer supports Db2 9.

Main menu functions no longer supported

The following Db2 Performance Expert main menu functions are not supported for Db2 11 or later:
- Display Thread Activity (option 3.1)
- Display Statistics (option 3.2)
- Display System Parameters (option 3.3)

Updates to messages

The following table shows the messages that have been added or updated for the various components.

Table 319. New and updated messages

<table>
<thead>
<tr>
<th>Component</th>
<th>New</th>
<th>Updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer Pool Analyzer (BPOK)</td>
<td>-</td>
<td>“BPOK5004” on page 4853</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“BPOK5005” on page 4853</td>
</tr>
<tr>
<td>Accounting Report Set (FPEA)</td>
<td>-</td>
<td>“FPEA0801S” on page 4878</td>
</tr>
<tr>
<td>Online Monitor (FPEM)</td>
<td>-</td>
<td>“FPEM138” on page 4952</td>
</tr>
<tr>
<td>Data Server (FPEV)</td>
<td>“FPEV2108E” on page 5028</td>
<td>“FPEVO1871” on page 5004</td>
</tr>
<tr>
<td></td>
<td>“FPEV2109E” on page 5028</td>
<td>“FPEVO1471” on page 4999</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“FPEV0152I” on page 5000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“FPEV0217I” on page 5008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“FPEVO405E” on page 5012</td>
</tr>
<tr>
<td>Migrate/Convert Function (FPEZ)</td>
<td>“FPEZ1015E” on page 5053</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>“FPEZ1016E” on page 5053</td>
<td></td>
</tr>
<tr>
<td>VTAM Display Logic (KO2O)</td>
<td>“KO2O1294E” on page 5111</td>
<td>“KO2O1161E” on page 5107</td>
</tr>
<tr>
<td></td>
<td>“KO2O1163E” on page 5107</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“KO2O1164E” on page 5107</td>
<td></td>
</tr>
<tr>
<td>OMEGAMON PE Subsystem (KO2Z)</td>
<td>“KO2Z9581” on page 5179</td>
<td>“KO2Z669W” on page 5176</td>
</tr>
<tr>
<td></td>
<td>“KO2Z9591” on page 5179</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“KO2Z960E” on page 5179</td>
<td></td>
</tr>
</tbody>
</table>
Support for Db2 12
Db2 Performance Expert now supports Db2 for z/OS 12, including LOB compression, dynamic plan stability, lifted partition limits.

Delivery of service stream updates and enhancements
Updates and enhancements include:
• Additional support for Db2 Analytics Accelerator monitoring
• Removal of the CUA interface to reduce complexity and cost of ownership in the monitoring environment
• Updates to the buffer pool analysis feature

Upgrading the PARMGEN runtime environment
Provides instructions for upgrading the PARMGEN runtime environment to enable support for Db2 12. For more information, see:
• Basic Upgrade Requirements
• SMP/E maintenance and upgrade scenarios

Buffer Pool Analyzer for z/OS now delivered as part of Db2 Performance Expert
Buffer Pool Analyzer for z/OS is no longer available as a standalone product. It is now delivered as part of Db2 Performance Expert. Additionally, the CUA interface is not delivered with Db2 Performance Expert.

System statistics now shows DSQL information
System statistics have been updated to include DSQL (Db2 Dynamic SQL Cache Filter Options KDPDSQLF). For more information, see:
• “System Statistics (KDPSUBSM)” on page 1749

October 2013

New ZPARM fields
ZPARM fields introduced in Db2 11 are added to the VTAM display panels and enable you to verify the configuration of the Db2 subsystem.

Display of correlation ID for thread activity
For thread activity on remote Db2 subsystems, the correlation ID is displayed instead of the job name.

Integrated Db2 Analytics Accelerator support
Support is provided for the Integrated Db2 Analytics Accelerator.

Scheduling and tracking of ATF sessions
You can now track and schedule ATF sessions.

Using GROUP to improve Save data set performance
If you never require separate report entries for one or more OMEGAMON XE for DB2 PE identifiers, you can use GROUP to reduce the uniqueness of the key in the Save data. This can result in fewer reduced records in the Save data set, a smaller Save data set, and improved performance.

The standard key for Save data sets contains a combination of the applicable OMEGAMON XE for DB2 PE identifiers from DB2 instrumentation records. For example, the key for an Accounting save record contains a number of
OMEGAMON XE for DB2 PE identifiers. Because of the uniqueness of the standard key, there can be a very large number of reduced records in a Save data set.

If you never require separate report entries for one or more OMEGAMON XE for DB2 PE identifiers, for example, if you only produce Accounting reports by using ORDER(CONNECT-PRIMAUTH-PLANNAME), you can use groups in INCLUDE REDUCE to obtain the minimum number of records in the Save data set.

The following command stream does not use groups. The resulting Save data set contains reduced records for each unique combination of all of the OMEGAMON XE for DB2 PE identifiers in the key.

```
ACCOUNTING
  REDUCE
  SAVE
```

The following command stream uses groups and minimizes the number of records in the Save data set:

```
GROUP (CORRNAME (ALLCNM(*)))
GROUP (CORRNMBR (ALLCNU(*)))
GROUP (ORIGAUTH (ALLORI(*)))
GROUP (REQLOC (ALLREQ(*)))
ACCOUNTING
  REDUCE
    INCLUDE (CORRNAME (G(ALLCNM)),
              CORRNMBR (G(ALLCNU)),
              ORIGAUTH (G(ALLORI)),
              REQLOC (G(ALLREQ)));
  SAVE
```

The Save data set produced by this command stream contains reduced records for each unique value of the OMEGAMON XE for DB2 PE identifiers that are not grouped, for example, PRIMAUTH and PLANNAME.

During REDUCE processing, the group name is substituted for the original value of the key entry. For example, all records in the reduced data have a correlation name of ALLCNM.

Because the key now contains the group name (not the original value), you cannot use the original values of any of the grouped OMEGAMON XE for DB2 PE identifiers in REPORT or INCLUDE/EXCLUDE in the same command stream or when you restore the data.

---

**Comparing original authorization IDs with primary authorization IDs**

This information explains the difference between original authorization ID and primary authorization ID.

**Original authorization ID**

During connection to DB2 (either by IDENTIFY or SIGNON), an initial authorization value is passed to the connection exit. This value becomes the original authorization ID.
For IDENTIFY:
- If RACF is active, this value is the verified user ID.
- If RACF is not active, this value is blank.

For IMS SIGNON:
- If RACF is active, this value is the terminal user ID.
- If RACF is not active, this value is either the LTERM name or the PSB name.

For CICS SIGNON:
- This value is determined by the user-defined CICS resource control table (RCT).
  The connection (authorization) exit can be either the IBM supplied default or user-written, depending upon whether secondary authorization IDs are used.

**Primary authorization ID**

The primary authorization ID is the value set by the exit. This value is determined according to the following criteria:
- Whether it is an IDENTIFY or a SIGNON
- Whether RACF is active or inactive
- Whether the exit is IBM supplied or user-written
- Whether secondary IDs are being used

Default values can be any of the following:
- The TSO logon ID
- The value of the USER field on the JOB statement
- A default value specified when you install DB2
- The original (unaltered) value

**Note:**
- The original authorization ID should be used when you attempt to establish accountability of DB2 activity, because the primary authorization ID can be an ID other than the user (group name, for example).
- If your subsystem uses authorization ID translation for distributed activity, the AUTHID reported for DBATs is the translated value.

**Comparing secondary IDs with SQL ID**

DB2 uses two other types of authorization IDs:
- Secondary authorization IDs
- SQL ID

If secondary IDs are used, a user-written authorization exit is also required. A secondary list can contain from 1 to 245 secondary IDs. This list is accessed when you establish the primary authorization ID or the SQL authorization ID.

The primary ID and the SQL ID are set during either IDENTIFY or SIGNON. However, only the SQL ID can be changed after connection by the SET CURRENT SQLID statement.

The SQL ID must be either the primary ID or one of the secondary IDs. It is used for implicit name qualifiers, implicit ownership assignment, and GRANT/REVOKE authorization checking.

For more detailed information about authorization IDs, see the IBM Knowledge Center.

Chapter 8. Reference information 4843
Fields affected by roll-up during distributed and parallel tasks

The following table lists fields that are not reported by Accounting reports and traces if roll-up during distributed activity and parallel query tasks is active.

See “Distributed activity” on page 2870 and “Query parallelism considerations” on page 2871 for background information.

Table 320. Fields affected by roll-up

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPACAANM</td>
<td>ACTIVITY NAME</td>
</tr>
<tr>
<td>QPACAANM_VAR</td>
<td>ACTIVITY NAME</td>
</tr>
<tr>
<td>QPACASCH</td>
<td>SCHEMA NAME</td>
</tr>
<tr>
<td>QPACASCH_VAR</td>
<td>SCHEMA NAME</td>
</tr>
<tr>
<td>QPACBJST</td>
<td>CLASS 7: BEGINNING TCB CPU TIME</td>
</tr>
<tr>
<td>QPACCANM</td>
<td>STORED PROCEDURE EVENTS</td>
</tr>
<tr>
<td>QPACCAST</td>
<td>SCHED.PROCEDURE SUSP TIME</td>
</tr>
<tr>
<td>QPACCONT</td>
<td>CONSISTENCY TOKEN</td>
</tr>
<tr>
<td>QPACEJST</td>
<td>ENDING TCB CPU TIME</td>
</tr>
<tr>
<td>QPACSCE</td>
<td>ENDING STORE CLOCK TIME</td>
</tr>
<tr>
<td>QPACSCB</td>
<td>BEGINNING STORE CLOCK TIME</td>
</tr>
<tr>
<td>QPACSCE</td>
<td>ENDING STORE CLOCK TIME</td>
</tr>
<tr>
<td>QPACUDST</td>
<td>SCHED.UDF SUSP TIME</td>
</tr>
<tr>
<td>QTXACLMT</td>
<td>LIMIT IN CPU 16 MICROSEC</td>
</tr>
<tr>
<td>QTXACHUS</td>
<td>HIGHEST CPU 16 MICROSEC USED</td>
</tr>
<tr>
<td>QTXAPREC</td>
<td>RES LIMIT TYPE</td>
</tr>
<tr>
<td>QTXARLID</td>
<td>RLF TABLE ID</td>
</tr>
<tr>
<td>QTXASLMT</td>
<td>LIMIT IN SERVICE UNITS</td>
</tr>
<tr>
<td>QWACNID</td>
<td>NETWORK ID VALUE</td>
</tr>
</tbody>
</table>

Using ACCOUNTING REDUCE subcommand options to balance performance and data set space

OMEGAMON for Db2 PE provides several commands for which the REDUCE subcommand and its options can be used to reduce the volume of data before the data is passed to subsequent other subcommands like REPORT and SAVE.

When OMEGAMON for Db2 PE processes a REDUCE subcommand, it holds its temporary data in a REDUCE data set to relieve virtual storage. This temporary data set is either automatically allocated or, if its placement and size needs to be controlled, explicitly specified as a ccWORK DD statement in your JCL. (cc stands for the report set, respectively the command to which the temporary REDUCE data set is associated, for example, AC for the ACCOUNTING command).

When using REDUCE, it is difficult to determine in advance an appropriate size of the temporary data set. The required size depends mostly on the amount and
complexity of input data to be reduced and on REDUCE subcommand options like FROM/TO, INCLUDE/EXCLUDE, INTERVAL, and BOUNDARY, which influence the reduction factor.

The REDUCE subcommand option CALCULATE helps to reduce a high volume of Accounting data results in unacceptable performance, difficulties to determine adequate ACWORK space, or even abnormally terminated jobs (abend B37).

It provides information about the ACWORK space actually used during a REDUCE step. It can determine an adequate size for the ACWORK data set with regard to the amount and complexity of the data to be reduced. If insufficient ACWORK space is specified, and the job consequently terminates. In this case the CALCULATE option provides information about the size required to successfully complete the job in a second run.

This option is purely performance- and processing-related and does not manipulate data in any way. For the latter purpose use REDUCE subcommand options like FROM/TO, INCLUDE/EXCLUDE, INTERVAL, and BOUNDARY.

For the complete command syntax of ACCOUNTING REDUCE and for more information about the ACWORK DD statement, see the Report Command Reference.

For example, OMEGAMON for Db2 PE, by default, automatically allocates a temporary ACWORK data set to hold output data from the REDUCE subcommand. To control the placement and size of this data set, you can also specify a ddname of ACWORK. However, if the allocated size is too small for the temporary data, REDUCE processing terminates because of insufficient space (abend B37). You have to increase the size of the data set and run the job again, still without knowing an appropriate size.

In this case, you can use the CALCULATE subcommand option to calculate the appropriate size of ACWORK.

```
ACCOUNTING
  REDUCE
    Other REDUCE subcommand options
    CALCULATE
    REPORT
    SAVE

```

With CALCULATE in the command stream, OMEGAMON for Db2 PE counts the number and lengths of records written to ACWORK during ACCOUNTING REDUCE processing.

- If ACWORK is sufficiently sized, REDUCE processing finishes normally and the information message FPEA0800I is shown in DPMLOG, which provides details about the calculations.
  Subsequent subcommands of ACCOUNTING (here, REPORT and SAVE) will be executed.
  You can compare the specified size of ACWORK to the value shown in the message. You might want to adjust your specification to the same dimension, considering a bonus for variations of the input data.
- If the specified size of ACWORK is too small, REDUCE processing stops writing to the data set. However, OMEGAMON for Db2 PE continues counting and calculating until all input data to REDUCE is processed. The error message
FPEA0801S in DPMLOG provides details about the minimum required size of ACWORK. Finally, the job terminates with abend B37.

Subsequent subcommands of ACCOUNTING (here, REPORT and SAVE) will not be executed.

It is recommended that you specify the size of ACWORK to at least the value shown in the message plus 20% . Then, you must rerun the job again.

In both messages the other values describe the amount and quality of processed records. The error message FPEA0801S is accompanied by other error messages indicating a failure to write to ACWORK. For more information, see [Messages](#).

---

**Accessibility**

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use software products successfully.

This index describes the major accessibility features in OMEGAMON XE for DB2 PE, OMEGAMON XE for DB2 PM, and Buffer Pool Analyzer:

- You can operate all features using the keyboard instead of the mouse.
- You can change the system settings for high contrast for all user interface controls and client area contents.

The following sections explain how to use these accessibility features.

**Operating all features by using the keyboard**

You can use keys or key combinations to perform operations that can also be done through mouse actions. All menu items can be accessed from the keyboard. In those cases, the keyboard equivalent appears to the right of the menu item, or the shortcut letter is underlined. Some keyboard items also have shortcuts.

To navigate through a window or dialog by using the keyboard instead of the mouse, use the following keyboard shortcuts:

**Table 321. Navigating through a window or dialog**

<table>
<thead>
<tr>
<th>Navigating through a window or dialog</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access the menu bar in a window</td>
<td>Alt+underlined letter or F10</td>
</tr>
<tr>
<td>Activate a menu item in the menu bar</td>
<td>Enter</td>
</tr>
<tr>
<td>Access controls in a dialog</td>
<td>Alt+underlined letter</td>
</tr>
<tr>
<td>Navigate through the menu bar</td>
<td>Right arrow, left arrow, down arrow, up arrow</td>
</tr>
<tr>
<td>Move to the next set of controls</td>
<td>Tab or Ctrl+Tab</td>
</tr>
<tr>
<td>Move to the previous set of controls</td>
<td>Shift-Tab</td>
</tr>
<tr>
<td>Move within tables</td>
<td>Tab or right arrow, Shift-Tab or left arrow, down arrow, up arrow</td>
</tr>
<tr>
<td>Move within trees</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Expand a tree node</td>
<td>Right arrow</td>
</tr>
<tr>
<td>Collapse a tree node</td>
<td>Left arrow</td>
</tr>
<tr>
<td>Move within list boxes</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Move within combo boxes</td>
<td>Up arrow, down arrow</td>
</tr>
</tbody>
</table>
Table 321. Navigating through a window or dialog (continued)

<table>
<thead>
<tr>
<th>Navigating through a window or dialog</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move to a split bar in a window</td>
<td>F8</td>
</tr>
<tr>
<td>Resize a window by using the split bar</td>
<td>Arrow keys</td>
</tr>
</tbody>
</table>

To perform main tasks in windows by using the keyboard instead of the mouse, use the following keyboard shortcuts:

Table 322. Keyboard shortcuts in a window

<table>
<thead>
<tr>
<th>Task</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Help</td>
<td>F1</td>
</tr>
<tr>
<td>Close the active window</td>
<td>Ctrl+W or Alt+F4</td>
</tr>
<tr>
<td>Exit the application</td>
<td>Ctrl+Q</td>
</tr>
<tr>
<td>Cut</td>
<td>Ctrl+X</td>
</tr>
<tr>
<td>Copy</td>
<td>Ctrl+C</td>
</tr>
<tr>
<td>Paste</td>
<td>Ctrl+V</td>
</tr>
<tr>
<td>Print</td>
<td>Ctrl+P</td>
</tr>
<tr>
<td>Refresh displayed data</td>
<td>F5</td>
</tr>
<tr>
<td>Enter or leave history mode</td>
<td>Ctrl+H</td>
</tr>
<tr>
<td>Move back in history mode</td>
<td>Alt+left arrow</td>
</tr>
<tr>
<td>Move forward in history mode</td>
<td>Alt+right arrow</td>
</tr>
<tr>
<td>Add a new subsystem in System Overview</td>
<td>Ctrl+N</td>
</tr>
<tr>
<td>Add a new configuration in Trace Configurations</td>
<td>Ctrl+N</td>
</tr>
<tr>
<td>Open a report in Buffer Pool Analyzer</td>
<td>Ctrl+O</td>
</tr>
<tr>
<td>Start a simulation process in Buffer Pool Analyzer</td>
<td>Ctrl+I</td>
</tr>
<tr>
<td>Cancel Thread in Thread Summary and Details</td>
<td>Del</td>
</tr>
<tr>
<td>Delete Trace Configuration in Trace Configurations</td>
<td>Del</td>
</tr>
<tr>
<td>Open Trace Configuration</td>
<td>Ctrl+Alt+N</td>
</tr>
<tr>
<td>Open Trace Activation</td>
<td>Ctrl+Alt+A</td>
</tr>
<tr>
<td>Open Exception Processing</td>
<td>Ctrl+Alt+E</td>
</tr>
<tr>
<td>Open System Overview</td>
<td>Ctrl+Alt+O</td>
</tr>
<tr>
<td>Open Buffer Pool Analyzer</td>
<td>Ctrl+Alt+B</td>
</tr>
<tr>
<td>Open DB2 command for the active subsystem</td>
<td>Ctrl+Alt+D</td>
</tr>
<tr>
<td>Open Statistics Details for the active subsystem</td>
<td>Ctrl+Alt+S</td>
</tr>
<tr>
<td>Open System Health for the active subsystem</td>
<td>Ctrl+Alt+H</td>
</tr>
<tr>
<td>Open All Threads in Lock Conflict for the active subsystem</td>
<td>Ctrl+Alt+L</td>
</tr>
<tr>
<td>Open Locking Conflicts for the active subsystem</td>
<td>Ctrl+Alt+C</td>
</tr>
<tr>
<td>Open System Parameters for the active subsystem</td>
<td>Ctrl+Alt+Y</td>
</tr>
<tr>
<td>Open Performance Warehouse for the active subsystem</td>
<td>Ctrl+Alt+P</td>
</tr>
</tbody>
</table>
To perform main tasks in dialogs by using the keyboard instead of the mouse, use the following keyboard shortcuts:

<table>
<thead>
<tr>
<th>Task</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirm a dialog</td>
<td>Enter</td>
</tr>
<tr>
<td>Cancel a dialog</td>
<td>Esc</td>
</tr>
<tr>
<td>Activate a button that has the focus</td>
<td>Spacebar or Enter</td>
</tr>
<tr>
<td>Select and deselect check boxes and radio</td>
<td>Spacebar</td>
</tr>
<tr>
<td>buttons</td>
<td></td>
</tr>
<tr>
<td>Navigate within check box and radio button</td>
<td>Arrow keys</td>
</tr>
<tr>
<td>groups</td>
<td></td>
</tr>
<tr>
<td>Open combination box menu</td>
<td>Alt+down arrows</td>
</tr>
<tr>
<td>Close combination box menu</td>
<td>Esc</td>
</tr>
<tr>
<td>Move up and down in combination box menu</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Activate combination box menu item</td>
<td>Spacebar or Enter</td>
</tr>
<tr>
<td>Move within a list box</td>
<td>Up arrow, down arrow</td>
</tr>
<tr>
<td>Activate a list box entry</td>
<td>Enter</td>
</tr>
<tr>
<td>Move between the pages of a window that</td>
<td>Right arrow, left arrow</td>
</tr>
<tr>
<td>contains tabs if the tab has the focus</td>
<td></td>
</tr>
</tbody>
</table>

### Changing the system settings for high contrast and font size

You can change the system settings for high contrast and font size.

To use specific settings that are designed for easy reading, take these steps:

1. In the OMEGAMON XE for DB2 PE - System Overview window, click Monitor → Configuration.
2. In the Configuration window, click Accessibility.
3. To specify the appearance scheme for high contrast and font size, select one of the following options:
   - To use the default settings, select None.
   - To specify a white background containing black text in normal font size, select Black on white.
   - To specify a white background containing black text in large font size, select Black on white (large font).
   - To specify a black background containing white text in normal font size, select White on black.
   - To specify a black background containing white text in large font size, select White on black (large font).

You have to restart the application before the new settings come into effect.
Chapter 9. Messages

This section provides explanations and possible user actions for each OMEGAMON for Db2 PE and PM message.

“Introduction to OMEGAMON XE for DB2 PE messages” on page 4850
“When you contact IBM support” on page 4852
“BPOK - Buffer Pool Analyzer messages” on page 4852
“DGOK - Workstation client messages” on page 4856
“DGOP - Performance Warehouse messages” on page 4870
“FPEA - Accounting report set messages” on page 4878
“FPEB - User-Tailored Reporting messages” on page 4882
“FPEC - Background Control messages” on page 4885
“FPEE - Exception Processing messages” on page 4913
“FPEF - Interactive Report Facility messages” on page 4916
“FPEI - I/O Activity report set messages” on page 4929
“FPEJ - Installation and Configuration messages” on page 4931
“FPEL - Locking report set messages” on page 4933
“FPEM - Online Monitor messages” on page 4934
“FPEN - Record Trace messages” on page 4978
“FPEP - Spreadsheet Input Data Generator” on page 4978
“FPEQ - Buffer Pool Analyzer messages” on page 4981
“FPER - SQL Activity report set messages” on page 4982
“FPES - Statistics report set messages” on page 4982
“FPET - Utility Activity report set messages” on page 4984
“FPEU - Utility Services messages” on page 4985
“FPEV - Data Server messages” on page 4989
“FPEW - System Parameters report set messages” on page 5041
“FPEX - Audit report set messages” on page 5042
“FPEY - Explain report set messages” on page 5042
“FPEZ - Migrate/Convert function messages” on page 5052
“KDP - Tivoli Enterprise Monitoring Agent (TEMA) for DB2 messages” on page 5053
“KO2D - D5API Collection for TEP and Enhanced 3270UI” on page 5062
“KO2E - Object Analysis messages” on page 5063
“KO2H - Near-Term History Data Collector messages” on page 5068
“KO2I - D5API Framework messages” on page 5075
“KO2M - ISPF messages” on page 5087
“KO2O - VTAM Display Logic messages” on page 5088
“KO2R - Capture Server messages” on page 5132
“KO2S - Storage Manager messages” on page 5140
“KO2X - Cross-Memory Module messages” on page 5143
“KO2Z - OMEGAMON PE Subsystem messages” on page 5144
Introduction to OMEGAMON XE for DB2 PE messages

This information lists all messages and provides additional explanations and possible user actions for each message. The messages are listed in alphanumeric sequence. This section introduces the message layout and describes the structure of message numbers.

The layout of message descriptions

Messages are described according to the following layout:

- **Message number and message text, as provided by the system**
  The message number is described in “The structure of message numbers.”

  The message text provides a short description of the event or problem. Many actual messages contain one or more variable text parts. These parts are shown as numbered message variables in message texts (for example, <V1>). The texts for the variables are given in the explanation of the messages. Variable text for workstation client messages is shown as numbered message variables within curly braces, for example {1}.

- **Explanation**
  A more detailed explanation of the message, or additional information about the message.

- **System Action**
  A description of how the system responds to the event that caused this message. This part might be intentionally missing, if obvious.

- **User Response**
  A description of possible user actions to solve the problem. This part might be intentionally missing, if obvious.

The structure of message numbers

Message numbers have fourfold structure that consists of prefix, subcomponent identifier, number, and severity code.

- **Prefix** A three-character prefix that identifies the product or major component that issues a message.
  - BPO The Buffer Pool Analyzer program prefix.
  - DGO Prefix that identifies workstation client messages.
  - FPE The OMEGAMON XE for DB2 PE program prefix (components from former IBM DB2 Performance Expert product).
  - KDP The Tivoli Enterprise Monitoring Agent (TEMA) for DB2 program prefix
  - KO2 The OMEGAMON XE for DB2 PE program prefix (components from the former OMEGAMON II product).

- **Subcomponent identifier**
  A one-character subcomponent identifier that identifies the subcomponent within a product or major component. For example, in message FPEA1242I, the A identifies the Accounting subcomponent in OMEGAMON XE for DB2 PE.

  - BPO messages use a single subcomponent identifier K, which means that all Buffer Pool Analyzer messages start with BPOK.
  - DGO messages use a single subcomponent identifier K, which means that all workstation client messages start with DGOK.
  - FPE messages use the following subcomponent identifiers:
A  Accounting
B  User-Tailored Reporting (part of Batch feature)
C  Background control
E  Exception processing
F  Interactive Report Facility (part of Batch feature)
I  I/O activity
J  Installation and customization
L  Locking
M  Online Monitor
R  SQL activity
S  Statistics
T  Utility activity
U  Utility services
V  Data Server
W  System Parameters report set
X  Audit
Y  Explain
Z  Migrate/Convert function

KDP messages do not have explicit subcomponent identifiers.

KO2 messages use the following subcomponent identifiers:
A  Reserved for Application Trace Facility (ATF)
C  Reserved for Interface, Cross-Memory, Display Module
D  Reserved for Data Analysis Module
E  Object Analysis
H  Near-Term History Data Collector
I  Reserved for D5API Framework
M  ISPF
O  VTAM Display Logic
P  Reserved for D5API Collectors
R  Capture Server
S  Storage Manager
T  Reserved
U  Reserved for Utility I/O and Data Conversion Routines
X  Cross-Memory Module
Z  OMPE Subsystem

Message number
A unique number within the range of messages from a subcomponent.

Severity
An appending single-letter code that indicates the severity of the message.
I  Informational message that does not require any user action.
W  Warning message that should be analyzed to determine whether the condition can effect the results. Usually, a warning message does not prevent the system from execution.
E  Error message that can be corrected by an appropriate user action (for example, by correcting a command syntax error).
S  Severe error message that results from an abnormal condition and in the abandonment of processing for a command. Other commands in a job stream may still be executed.
U  Unrecoverable error message that results from an abnormal condition and in the abandonment of processing for the entire job. Most internal errors fall into this category.
When you contact IBM support

If you discover an error or receive a message where the user response is “Contact IBM support”, collect the following data before contacting IBM support to assist in determining the cause of the errors:

- The complete list of PTFs and maintenance PUT tapes installed, for DB2 and OMEGAMON XE for DB2 PE.
- The complete dump listing from SYSABEND or SYSUDUMP.
- All error messages, some of which might contain DB2 return codes and reason codes. To interpret the DB2 codes, read *DB2 Messages and Codes*.
- The listing of the SYSLOG data set for the period of time spanning the failure.

If the problem originated in the background (Batch) execution of a report, also collect:

- The complete run listing (including all steps), JCL command stream, SYSPRINT log, job summary log, trace record distribution report, and system parameters report, if available.
- The complete report or trace listing in question.

If the problem originated in the Host Online Monitor, the IRF, or the foreground execution of a report, also collect the following data:

- The complete list of PTFs and maintenance PUT tapes installed for ISPF, in addition to OMEGAMON XE for DB2 PE and DB2.
- The listing of the ISPF log for the session involved in the problem.
- The panel ID, the message number and text of any error messages, and a description of the sequence of events immediately preceding the error.

If the problem originated in OMEGAMON Collector, also collect the following data:

- The SYSPRINT log
- The History data set
- The Exception Events data set
- An SVCDUMP of both the OMEGAMON Collector and the user experiencing the problem when the problem occurred, or as soon after as possible.

With any reported problem, the input data might be needed to perform further problem determination. Save the following data sets:

- The files that were input to the foreground or background execution of OMEGAMON XE for DB2 PE reporting. Save the SMF, GTF, DPMOUT, or Host Online Monitor data sets that were used as input to the report.

**Note:** If a report problem was experienced when executing in foreground, it might be easier to document the problem by executing the same report with the same input data in background to gather the necessary information.

- The Exception Threshold data set. If the problem involves exception processing, save the contents of this data set from the time of the problem onwards.

---

**BPOK - Buffer Pool Analyzer messages**
<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPOK5000</td>
<td>The bpd file does not contain all required information.</td>
<td>The bpd file was generated with an earlier version of Buffer Pool Analyzer.</td>
<td>Update your host version of Buffer Pool Analyzer and generate new bpd files.</td>
</tr>
<tr>
<td>BPOK5001</td>
<td>The size for one or more objects is unknown.</td>
<td>These objects are treated as if they had size zero.</td>
<td>Use the RUNSTATS tools on a regular basis to initialize object sizes.</td>
</tr>
<tr>
<td>BPOK5002</td>
<td>One or more objects are not placed correctly.</td>
<td>[0]</td>
<td>Edit column 'User-defined' to map the respective objects to valid buffer pools.</td>
</tr>
<tr>
<td>BPOK5003</td>
<td>The value supplied for [0] is not a valid decimal number.</td>
<td>A valid decimal number consists of digits and optionally a dot.</td>
<td>Type a valid decimal number in the corresponding field.</td>
</tr>
<tr>
<td>BPOK5004</td>
<td>Negative numbers are not allowed for total sizes.</td>
<td>Negative numbers for storage amounts are not allowed.</td>
<td>Specify storage amounts by using positive numbers.</td>
</tr>
<tr>
<td>BPOK5005</td>
<td>The sum of virtual sizes cannot be zero.</td>
<td>A system without storage does not work correctly.</td>
<td>Specify a virtual pool size and, optionally, a hiperpool size.</td>
</tr>
<tr>
<td>BPOK5006</td>
<td>The program cannot process the data.</td>
<td>Contents of column [0] for chart [1] cannot be loaded.</td>
<td>If the problem persists, contact IBM support.</td>
</tr>
<tr>
<td>BPOK5007</td>
<td>The directory [0] does not exist.</td>
<td>The directory was not created or was deleted.</td>
<td></td>
</tr>
<tr>
<td>BPOK5008</td>
<td>No data view selected.</td>
<td>There is no data view that has the focus.</td>
<td>Select a data view or generate one by double-clicking on a suitable leaf in the tree. Then try again the operation.</td>
</tr>
<tr>
<td>BPOK5009</td>
<td>The file that you opened is corrupted.</td>
<td>Record type is not valid: [0]. Possible values are: 'D', 'B', 'O', 'S'. Processing stopped.</td>
<td>The file was generated in a wrong way, was corrupted during transfer, or was transferred by FTP in a mode other than binary mode.</td>
</tr>
<tr>
<td>BPOK5010</td>
<td>The file that you opened is corrupted.</td>
<td>The record type is not registered: [0]. Record types are registered by a previous create/load statement pair. Processing stopped.</td>
<td></td>
</tr>
<tr>
<td>BPOK5011</td>
<td>The value supplied for [0] is not a valid integer.</td>
<td>Integers consist of digits only.</td>
<td>Enter a valid integer and try again.</td>
</tr>
<tr>
<td>BPOK5012</td>
<td>The value supplied for [0] is out of range.</td>
<td>The range is from [1] to [2].</td>
<td>Enter a number within the range and try again.</td>
</tr>
<tr>
<td>BPOK5013</td>
<td>The relation between the minimum and the maximum value is incorrect.</td>
<td>The maximum value must be greater than the minimum value.</td>
<td>Correct the numbers accordingly.</td>
</tr>
<tr>
<td>BPOK5014</td>
<td>Do you want to save your changed pattern file?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BPOK5015</td>
<td>One or more values of the characteristics data are not valid.</td>
<td>[0]</td>
<td>Correct the values accordingly.</td>
</tr>
<tr>
<td>Code</td>
<td>Message</td>
<td>Explanation</td>
<td>User response</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>BPOK5017</td>
<td>All data values in the requested data view are zero.</td>
<td>Empty data views are not created.</td>
<td></td>
</tr>
<tr>
<td>BPOK5018</td>
<td>Do you want to permanently delete the report?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BPOK5023</td>
<td>The system is out of memory.</td>
<td>The size of the available memory is smaller than the size of the memory required to open the selected input file.</td>
<td>Close all applications that are currently not needed. Then try again the operation.</td>
</tr>
<tr>
<td>BPOK5024</td>
<td>Sorting by table headers will be disabled. A very large number</td>
<td>The amount of data to sort is so great that the sort would take too long.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>of objects are displayed and sorting would be slow.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BPOK5033</td>
<td>The buffer pool data file is not compatible.</td>
<td>The selected buffer pool data file cannot be used for Object Placement because it was generated with a version of Performance Expert or Buffer Pool Analyzer that is no longer supported.</td>
<td>Use bpd files that were created on a host with a supported version of Performance Expert or Buffer Pool Analyzer.</td>
</tr>
<tr>
<td>BPOK5034</td>
<td>Parsing of buffer pool data file failed.</td>
<td>The selected file is not a valid buffer pool data file.</td>
<td>Select buffer pool data files (*.bpd) as input to Object Placement.</td>
</tr>
<tr>
<td>BPOK5035</td>
<td>No entry from list of recommended patterns is selected.</td>
<td>A pattern file is required to map objects to buffer pools.</td>
<td>Select an entry from the list of recommended patterns.</td>
</tr>
<tr>
<td>BPOK5036</td>
<td>No entry from list of user-defined patterns is selected.</td>
<td>A pattern file is required to map objects to buffer pools.</td>
<td>Select an entry from the list of user-defined patterns.</td>
</tr>
<tr>
<td>BPOK5037</td>
<td>No write access to [0].</td>
<td>To overwrite an existing file, write access is required.</td>
<td>Choose a new name for a file to be created or select a file with write access to be overwritten.</td>
</tr>
<tr>
<td>BPOK5038</td>
<td>The bpd files do not contain any data about DB2 table spaces or indexes that can be used for the DBID/OBID translation.</td>
<td>This can happen, for example, if you collect trace data by using SMF or GTF.</td>
<td>When you collect trace data by using SMF or GTF, also collect catalog information by using one of the trace collection methods of Buffer Pool Analyzer. Then generate a bpd file from both input data sets.</td>
</tr>
<tr>
<td>BPOK5100</td>
<td>Incorrect file transfer mode ASCII was used.</td>
<td>The file has been damaged by downloading it in the wrong mode.</td>
<td>Download the file again specifying BINARY mode.</td>
</tr>
<tr>
<td>BPOK5101</td>
<td>Invalid Collect Report Data record format used.</td>
<td>The file was created with STANDARD record format specified.</td>
<td>Create a new trace file specifying SHORT record format.</td>
</tr>
<tr>
<td>BPOK5102</td>
<td>Invalid file type.</td>
<td>The file is a Buffer Pool Analysis bpd file, which cannot be used for simulation.</td>
<td>Simulation requires a trace file created with the Buffer Pool Analysis Collect Report Data function in SHORT format.</td>
</tr>
<tr>
<td>BPOK5103</td>
<td>Invalid file type and incorrect file transfer mode ASCII was used.</td>
<td>The file is a damaged Buffer Pool Analysis bpd file, which has been damaged by downloading it in the wrong mode.</td>
<td>Simulation requires a trace file created with the Buffer Pool Analysis Collect Report Data function in SHORT format. It must be downloaded in BINARY mode.</td>
</tr>
</tbody>
</table>
BPOK5104  Invalid file format.
Explanation:  The file is not a valid Buffer Pool Analysis trace file. It may have been created using the Performance Monitor Collect Report Data function.
User response:  Simulation requires a trace file created with the Buffer Pool Analysis Collect Report Data function in SHORT format.

BPOK5199  Unknown file format.
Explanation:  The file is not a known file format.
User response:  Simulation requires a trace file created with the Buffer Pool Analysis Collect Report Data function in SHORT format.

BPOK5800  Wrong date format.
Explanation:  The date you have typed has the wrong format.
User response:  Use this date format: \{0\} or press the Reset button.

BPOK5801  The start date is later than the begin date.
Explanation:  Change a date or press the Reset button.

BPOK5802  One Date lies out of the recorded time frame.
Explanation:  Change the dates or press the Reset button.

BPOK5803  One of the selected files is not a bpd file.
Explanation:  Remove this file.

BPOK5804  Parsing Process failed.
Explanation:  File \{0\} cannot be parsed. It is corrupted or not a bpd file.

BPOK5805  File exists. New file name has been generated for the result.
Explanation:  The intended file name \{0\} could not be used for the output. The reason for that is that a file with that name already exists. To ensure uniqueness the name \{1\} has been generated for the target.

BPOK5806  Invalid buffer pool name(s) \{0\} entered.
Explanation:  The name(s) \{0\} are not valid DB2 buffer pool name(s).
User response:  Change the buffer pool name(s) in the rule(s) and retry the last action.

BPOK5807  BPD file used for object placement does not match the selected trace file.
Explanation:  Object placement recommendations cannot be used.
User response:  Select a matching trace file.

BPOK5902  The connection to CIMOM failed.
Explanation:  CIM stored procedures returns error code: 2

BPOK5903  The connection to the database failed.
Explanation:  CIM stored procedures returns error code: 3

BPOK5905  The access to CIMOM was disabled.
Explanation:  CIM stored procedures returns error code: 5

BPOK5906  The monitored DB2 instance is not active.
Explanation:  CIM stored procedures returns error code: 6

BPOK5907  The monitored DB2 instance is not started.
Explanation:  CIM stored procedures returns error code: 7

BPOK5908  An SQL error occurred.
Explanation:  CIM stored procedures failed with error code 8. The remote instance is not active or cannot be reached.

BPOK6000  Internal buffer pool analysis error.
Explanation:  You tried to open a buffer pool data (bpd) file with one of the Buffer Pool Analyzer client-based functions, but the bpd file cannot be opened or properly preprocessed. The file might be damaged, does not contain data in the required format (Short or Standard) or data type (Summary or Detail), or was not created by means of the BPACTIVITY FILE command.
User response:  Create a new bpd file, or use another bpd file. If the problem persists, contact IBM support.

If this error occurs when you use the File Transfer Protocol (FTP), also check whether your file transfer program provides the RDW and NORDW command options. If the default is RDW, it might cause a four-byte record descriptor record to be included in the data set being downloaded from the host to the client (which might then cause message BPOK6000). Specify
the NORDW command option to avoid the creation of the descriptor record.

---

The selected DB2 Connect gateway is currently not active. Switch to history mode and select a date and time at which the DB2 Connect gateway was active.

---

**DGOK - Workstation client messages**

<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGOK200</td>
<td>Specify the elapsed time in the format HH:MM:SS.</td>
</tr>
<tr>
<td>DGOK201</td>
<td>Specify an elapsed time value from 00:00:00 through 99:59:59.</td>
</tr>
<tr>
<td>DGOK202</td>
<td>Specify the number of records to be collected as an integer between 0 and 2147483647.</td>
</tr>
<tr>
<td>DGOK203</td>
<td>No free slot to run the trace. Try again later.</td>
</tr>
<tr>
<td>DGOK204</td>
<td>No slot is configured. Contact your database administrator.</td>
</tr>
<tr>
<td>DGOK206</td>
<td>The selected thread stopped before the trace started.</td>
</tr>
<tr>
<td>DGOK207</td>
<td>The selected thread stopped. The report was generated.</td>
</tr>
<tr>
<td>DGOK208</td>
<td>A timeout occurred during report generation. Re-create the report.</td>
</tr>
<tr>
<td>DGOK210</td>
<td>File dgoksqla.xml is corrupted or not accessible. Contact IBM.</td>
</tr>
<tr>
<td>DGOK211</td>
<td>Do you want to delete the trace, job summary, DPMLOG, and trace data sets on the host?</td>
</tr>
<tr>
<td>DGOK221</td>
<td>Specify a value between 00:00:00 and 12:00:00 for the elapsed time.</td>
</tr>
<tr>
<td>DGOK222</td>
<td>SQL Activity Tracing was stopped. No report was generated.</td>
</tr>
<tr>
<td>DGOK223</td>
<td>Specify the flush interval in the format HH:MM:SS.</td>
</tr>
<tr>
<td>DGOK224</td>
<td>Specify a value between 00:00:00 and 12:00:00 for the flush interval.</td>
</tr>
<tr>
<td>DGOK225</td>
<td>SQL Activity Tracing is not supported in history mode.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> In Statistics and Thread, select the snapshot data closest to the time when the error occurred.</td>
</tr>
<tr>
<td>DGOK226</td>
<td>Performance Expert Server did not create any output data set.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> OMEGAMON Collector configuration might not be correct.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Check the SYSPRINT output of the OMEGAMON Collector job or the system log of the host where OMEGAMON Collector is running.</td>
</tr>
<tr>
<td>DGOK227</td>
<td>SQL Activity cannot be launched because no database alias is defined for Performance Warehouse.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> SQL Activity utilizes Collect Report Data, which is now integrated and runs under control of Performance Warehouse.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Use the Performance Warehouse page of the Modify Properties window and define a database alias for Performance Warehouse.</td>
</tr>
<tr>
<td>DGOK228</td>
<td>SQL Activity was stopped by Performance Expert Server.</td>
</tr>
<tr>
<td></td>
<td><strong>Explanation:</strong> OMEGAMON Collector was restarted.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Restart SQL Activity.</td>
</tr>
<tr>
<td>DGOK230</td>
<td>Specify a value greater than zero for the data set size.</td>
</tr>
<tr>
<td>DGOK231</td>
<td>Specify one or more data categories.</td>
</tr>
<tr>
<td>DGOK232</td>
<td>Specify a value between 7 and 16385 for the OP buffer size.</td>
</tr>
<tr>
<td>DGOK233</td>
<td>Specify a valid stop condition.</td>
</tr>
</tbody>
</table>
DGOK234 Specify a trace command.
DGOK235 Specify a member name of the DSG.
DGOK600 An authority problem occurred when the DB2 command was executed.
Explanation: You have insufficient authority to perform the commands.
User response: Verify your authorization scheme. If required, contact your DB2 administrator to extend your authority.
DGOK601 Syntax error.
Explanation: The syntax of the command is incorrect.
User response: Correct the error and try again. See the DB2 Command Reference.
DGOK650 DB2 Performance Expert is already started.
Explanation: Only one DB2 Performance Expert session can run at a time.
User response: Use the DB2 Performance Expert session that is running.
DGOK651 DB2 Performance Expert is already started.
Explanation: Only one DB2 Performance Expert session can run at a time.
User response: Use the DB2 Performance Expert session that is running.
DGOK700 Statement is not explainable.
DGOK702 Your request cannot be performed because you did not specify the local database alias.
Explanation: Optim Query Workload Tuner or Data Studio needs the local database alias of the monitored DB2 subsystem to perform your request.
User response: Specify the local database alias on the DB2 Subsystem page of the DB2 System Properties window.
DGOK704 Optim Query Workload Tuner or Data Studio is not installed.
Explanation: Optim Query Workload Tuner or Data Studio needs to be installed to use the Explain functionality.
User response: Install one of these products and restart DB2 Performance Expert Client.
DGOK710 The statement cannot be explained.
Explanation: The access path can only be shown for Select, Update, Insert, Delete, or Values statements.
DGOK713 Data Studio or Optim Query Workload Client not started.
Explanation: The Data Studio or Optim Query Workload Client is installed but not started. You need to start the client in order to being able to explain the SQL Statement.
User response: Start the Data Studio or Optim Query Workload Client.
DGOK714 Exception encountered during Data Studio or Optim Query Workload Client usage.
Explanation: An internal exception occurred.
User response: Contact IBM support.
DGOK720 Tuning request complete: Job Name [JOB ID] Tuning Jobs URL: [URL]
Explanation: Data Server Manager single query tuning request processed successfully.
User response: Open the link in browser to inspect tuning output for the given Job Name.
DGOK721 Failed to connect Data Server Manager (DSM)
Explanation: Data Server Manager connection service returned an error messsage.
User response: Check the error message and the data entered when configuring the subsystem for DSM integration (DSM information tab in DB2 System Properties window).
DGOK722 Exception encountered during Data Server Manager processing
Explanation: An internal Exception occurred.
User response: Contact IBM support (check diagnostics trace).
DGOK723 Data Server Manager tuning request call failed
Explanation: Tuning WebService call could not complete successfully.
User response: Contact IBM support.
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGOK724</td>
<td>Data Server Manager tuning request call failed</td>
<td>The Data Server Manager Tuning WebService was not able to implicitly create the subsystem connection profile.</td>
<td>Make sure the subsystem URL parameter is specified correctly.</td>
</tr>
<tr>
<td>DGOK725</td>
<td>No EXPLAIN provider is available to explain the query</td>
<td>Data Server Manager (DSM) and Data Studio are not configured/installed on the system.</td>
<td>Install/configure DSM or Data Studio. If both DSM and Data Studio are available, DSM is used to explain the query.</td>
</tr>
<tr>
<td>DGOK1000</td>
<td>Time interval specification is incorrect.</td>
<td>A valid time interval is between 00:00:06 and 09:59:59.</td>
<td>Specify a time interval between 00:00:06 and 09:59:59.</td>
</tr>
<tr>
<td>DGOK1001</td>
<td>The time interval must have the format HH:MM:SS.</td>
<td>The time interval must have the format HH:MM:SS.</td>
<td>Specify a time interval in the format HH:MM:SS, for example, 00:00:30, 00:01:00, or 01:00:00.</td>
</tr>
<tr>
<td>DGOK1002</td>
<td>History snapshots are not available.</td>
<td>A history snapshot does not exist on the host.</td>
<td>Try again later.</td>
</tr>
<tr>
<td>DGOK1003</td>
<td>DB2 Performance Expert Server supports single sort only.</td>
<td>The version of OMEGAMON Collector installed on the host does not support multiple sort.</td>
<td>Install the latest version of OMEGAMON Collector.</td>
</tr>
<tr>
<td>DGOK1004</td>
<td>The request timed out. Try again later.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DGOK1005</td>
<td>The HTML browser cannot be opened.</td>
<td>The browser path specified in the Configuration window is not correct.</td>
<td>Specify a correct path in the Location field on the Preferences page of the Configuration window.</td>
</tr>
<tr>
<td>DGOK1006</td>
<td>Restart the application to make your accessibility change effective.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DGOK1400</td>
<td>The area for the output data is too small. The output data is truncated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DGOK1401</td>
<td>The request resulted in a DB2 abend. Restart the DB2 instance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DGOK1402</td>
<td>The authorization exit in DB2 Performance Expert Server is active. It did not return data.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DGOK1403</td>
<td>A severe error occurred in the authorization exit. Standard authorization checks were used. Verify your authorization exit code.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DGOK1404</td>
<td>The DB2 command failed.</td>
<td>The issued DB2 command was not processed correctly. Possible reasons are authorization failure, processor abend, syntax error, or exceeded output limit.</td>
<td>Check the syntax and ensure that you have the necessary authority to perform this command.</td>
</tr>
<tr>
<td>DGOK1405</td>
<td>A dynamic statement cache error occurred.</td>
<td>You have qualified a statement that was not found in the statement cache.</td>
<td></td>
</tr>
<tr>
<td>DGOK1406</td>
<td>No data returned.</td>
<td>For IFCID 316, data was not returned because the statements did not match the qualification criteria, or because the cache was empty.</td>
<td></td>
</tr>
<tr>
<td>DGOK1407</td>
<td>Data sharing group only: at least one DB2 member did not respond.</td>
<td>The specified member is not a member of the group, or the member is currently not running.</td>
<td>Ensure that all members of the group are running.</td>
</tr>
<tr>
<td>DGOK1408</td>
<td>No buffer pool information available.</td>
<td>The request contained IFCID 254, but a group buffer pool is not connected. The member or subsystem did not return data.</td>
<td>Configure the group buffer pool and try again.</td>
</tr>
</tbody>
</table>
DGOK1409  The authorization verification failed.

Explanation: Possible reasons are:
- Your user ID or password is not correct.
- The performance database of the PE Server subtask does not exist.
- Your user ID does not have monitor 1 or monitor 2 authority.
- You are not authorized to use the KO2PLAN plan.

User response: Verify and correct the possible reasons. Note that user ID and password are case-sensitive.

DGOK1410  DB2 BIND is missing. DB2 Performance Expert Server needs a BIND against DB2.

Explanation: OMEGAMON Collector was changed or updated without the necessary bind against DB2.

User response: Issue the BIND command, then restart OMEGAMON Collector.

DGOK1411  DB2 error.

Explanation: The DB2 request failed, data is not returned.

User response: See the console log for detailed information.

DGOK1412  The maximum number of 500 users is reached or exceeded.

User response: Try again later.

DGOK1413  The returned data is too large. The request was canceled.

DGOK1414  The request was rejected.

Explanation: History data has not yet been collected.

User response: Ensure that the collection of history data is enabled and configured correctly.

DGOK1415  The request was rejected.

Explanation: The history data you requested no longer exists.

User response: Select a more recent history snapshot.

DGOK1416  DB2 Performance Expert Server authorization exit error.

Explanation: The authorization exit did not finish correctly.

User response: Check your authorization exit code, then try again.

DGOK1417  This function must be licensed.

Explanation: This feature is only available if you have a full license.

User response: Purchase a full license to use this feature.

DGOK1418  The DB2 subsystem is not started or cannot communicate.

Explanation: OMEGAMON Collector is running, but the monitored DB2 system is not responding.

User response: Start the DB2 system and ensure that it is responding.

DGOK1419  Logon failed due to CAF connect error.

Explanation: Your logon request was not processed because the connection to Call Attach Facility (CAF) failed.

User response: Verify your DB2 authorization and check the system log for more information.

DGOK1420  Logon failed due to CAF open error.

Explanation: Your logon request was not be processed because the Call Attach Facility (CAF) reported an open error.

User response: Verify your DB2 authorization and check the system log for more information.

DGOK1421  The maximum number of TCP/IP sessions is exceeded.

Explanation: The maximum number of TCP/IP sessions specified in OMEGAMON Collector startup parameter was exceeded.

User response: Close one or more sessions or increase the startup parameter value.

DGOK1422  DB2 is out of memory.

Explanation: The memory or subsystem did not return data.

User response: Restart the DB2 system and ensure that enough memory is available.

DGOK1423  Monitor trace class 1 is not active.

Explanation: The member or subsystem did not return data.

User response: Enable the Monitor trace class 1 in the startup parameter, then try again.
DGOK1424  You are not authorized to receive monitor trace class 2 information.
User response:  Ask your administrator for the necessary privileges.

DGOK1425  The CAF connect failed. The request was rejected.
Explanation:  OMEGAMON Collector cannot verify your authorization because the connection to the Call Attach Facility (CAF) failed.
User response:  Check the z/OS system log for more information.

DGOK1426  The CAF open failed. The request was rejected.
Explanation:  OMEGAMON Collector cannot verify your authorization because a Call Attach Facility (CAF) session cannot be opened.
User response:  Check the system log for more information.

DGOK1427  CRDSTCM does not contain the required DEST(OPX) section.
Explanation:  The START TRACE command sent to OMEGAMON Collector did not contain a DEST(OPX) section, which is necessary to perform this operation.
User response:  Add this section to your command or have it generated.

DGOK1428  Incorrect DSORG. See log.
Explanation:  The data set disposition mode is incorrect. For example, 'Append' was specified for a data set that does not exist.
User response:  Use the correct mode when writing to a data set. The mode depends on whether a data set exists.

DGOK1429  Incorrect RECFM. See log.

DGOK1430  Incorrect LRECL. See log.

DGOK1431  SMS dynamic allocation error. See log.
Explanation:  An SMS data set cannot be opened to receive data.
User response:  See the console log for details.

DGOK1432  The data set is not cataloged. See log. Catalog the data set, then try again.

DGOK1433  The data set already exists. See log. Try another disposition mode such as 'Append' or 'Overwrite'.

DGOK1434  A catalog error occurred. See log.

DGOK1435  A dynamic allocation error occurred. See log.

DGOK1436  An open error occurred. See log.

DGOK1437  Buffer shortage.
Explanation:  OMEGAMON Collector has reached the maximum number of API function calls that can be handled simultaneously.
User response:  Try again later.

DGOK1438  Internal DB2 Performance Expert Server error.
Explanation:  The storage allocation for buffers failed.

DGOK1439  The history request was denied.
Explanation:  The snapshot did not exist in history or was overwritten.
User response:  Specify a different time frame.

DGOK1440  No more information is available.
Explanation:  OMEGAMON Collector has been restarted. The data for this application is lost and cannot be recovered.
User response:  Log off from this subsystem, then log on again.

DGOK1441  Not logged on to DB2 Performance Expert Server
Explanation:  The client application has called an API function without being logged on to OMEGAMON Collector.

DGOK1442  Snapshot data was not received from the host.
Explanation:  OMEGAMON Collector did not return any data.
User response:  Check that OMEGAMON Collector is started.
DGOK1443  The instance is not connected to a DB2 Performance Expert Server. The connection failed.
Explanation: OMEGAMON Collector did not return any data.
User response: Check that OMEGAMON Collector is started.

DGOK1444  DB2 is out of memory.
Explanation: During a DB2 IFI request, DB2 reported a failure obtaining memory.
User response: If you are monitoring a DB2 V7, ensure that APAR PQ58341, PTF UQ66442 is applied. If you are connected to a Data Server of DB2 PM V7, ensure that APAR PQ60353, PTF UQ65800 is applied. If the problem persists, contact IBM support.

DGOK1445  The DB2 connection was lost.
Explanation: OMEGAMON Collector lost its connection to DB2. Possible reason: The thread was canceled or has stopped.
User response: Log off, then log on again. If the problem persists, contact IBM support.

DGOK1446  Server timeout.
Explanation: Server did not respond in the expected time.
User response: Try again later.

DGOK1447  DB2 returned incorrect READS data, the request was canceled.
User response: Contact DB2 support.

DGOK1448  DB2 Performance Expert Server is currently not available, or the wrong port number was specified.
Explanation: This error can occur when you configured a new DB2 and entered a wrong port number in the "Retrieve DB2PM Databases" step.
User response: Verify the port number of your OMEGAMON Collector, and correct it if necessary. Otherwise, restart OMEGAMON Collector.

DGOK1450  Internal DB2 Performance Expert Server error. DB2 Performance Expert Server ran out of memory.
Explanation: The OMEGAMON Collector could not obtain memory.
User response: This can be a temporary problem. Retry the operation. If the problem persists, ask the MVS operator to enlarge the region size of the Data Server and restart the Data Server. If the problem still persists, contact IBM support.

DGOK1451  DB2 Performance Expert Server is not correctly configured or is not started.

DGOK1452  The system name cannot be resolved. (UnknownHostException)
Explanation: The current system is not available or is wrong.
User response: Correct the system name for the current DB2 system, then try again.

DGOK1453  No data retrieved by the server.
Explanation: The Data Server has stopped or was not started. Snapshot related stored procedure does not work.
User response: Restart the Data Server. If the problem persists, stop the Data Server and DB2, then restart DB2 and the Data Server. Wait about one minute before repeating the request from the client.

DGOK1454  To perform this function a JDBC driver is needed.
Explanation: The JDBC DB2 driver cannot be found in the Java classpath. This problem can occur if DB2 Performance Expert was installed before DB2, or if DB2 was reinstalled into a new directory after Performance Expert was installed.

DGOK1455  You are not authorized to access the DB2 PM database tables.
User response: Ask your administrator to add your user ID to the DB2 group authorized to work with the Data Server. Check that the Data Server is correctly configured or is started.

DGOK1456  DB2 or DB2 Performance Expert Server is not started, the monitored instance is not enabled, or DB2 is not started locally.
Explanation:
- The DB2 instance (local or on a server) is not started.
- The Data Server (on which your DB2PM database is located) is not started.
- A monitored instance was disabled.
- The network connection might be lost.
User response: Start the correct service, or enable the instance to be monitored in the Data Server configuration.
<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGOK1457</td>
<td>User ID not valid.</td>
<td>Logon failed because the specified user ID is not valid.</td>
<td>Correct the user ID.</td>
</tr>
<tr>
<td>DGOK1458</td>
<td>Wrong password.</td>
<td>Logon failed because the specified password is wrong.</td>
<td>Correct the password.</td>
</tr>
<tr>
<td>DGOK1459</td>
<td>Password expired.</td>
<td>Logon failed because the specified password expired.</td>
<td>Specify a new password on the host.</td>
</tr>
<tr>
<td>DGOK1460</td>
<td>New password not valid.</td>
<td>Logon failed because the new password is not valid.</td>
<td>Correct your password on the host.</td>
</tr>
<tr>
<td>DGOK1461</td>
<td>User ID not in group.</td>
<td>Logon failed because the specified user ID is not defined to the specified group.</td>
<td>Specify another group ID or ask your administrator to add you to the specified group ID.</td>
</tr>
<tr>
<td>DGOK1462</td>
<td>Password revoked.</td>
<td>Logon failed because the specified password has been revoked.</td>
<td>Ask your administrator to reset your password. Then log on to the host and specify a new password.</td>
</tr>
<tr>
<td>DGOK1463</td>
<td>User ID revoked from group.</td>
<td>Logon failed because access to the specified group has been revoked.</td>
<td>Ask your administrator to give you access to the specified group again.</td>
</tr>
<tr>
<td>DGOK1464</td>
<td>The DB2 subsystem is not available, or the connection was terminated</td>
<td>Logon failed because the connection was terminated when you canceled a thread using the Cancel Thread command.</td>
<td>Log off from this DB2 subsystem and then log on again.</td>
</tr>
<tr>
<td>DGOK1465</td>
<td>Error when cataloging the database.</td>
<td>A user might have attempted to execute a command without having the proper authority, or the specified DB2 connection alias is not correct.</td>
<td></td>
</tr>
<tr>
<td>DGOK1466</td>
<td>The communication with the monitored remote instance failed.</td>
<td>The remote instance might be down or unreachable.</td>
<td></td>
</tr>
<tr>
<td>DGOK1467</td>
<td>The maximum number of concurrent databases have already been started.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DGOK1468</td>
<td>Saving the threshold set failed because of SQL error: [0]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DGOK1469</td>
<td>The stored procedures were not registered correctly or are not</td>
<td></td>
<td>Reconfigure the server.</td>
</tr>
<tr>
<td>DGOK1470</td>
<td>The maximum number of client connections that can be started has</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DGOK1471</td>
<td>The monitored instance is not enabled.</td>
<td>The performance database for the monitored instance was not found at the Data Server.</td>
<td>Enable the monitored instance with PE Config and try again.</td>
</tr>
<tr>
<td>DGOK1472</td>
<td>Thread Details cannot be opened.</td>
<td>Thread Details cannot be opened because the table data is incorrect.</td>
<td></td>
</tr>
<tr>
<td>DGOK2100</td>
<td>Thread stopped.</td>
<td>The selected thread stopped or was terminated.</td>
<td></td>
</tr>
<tr>
<td>DGOK2101</td>
<td>There is no help available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DGOK3300</td>
<td>[0] Details cannot be opened.</td>
<td>[0] Details cannot be opened because the table data is incorrect.</td>
<td>Try again. If the problem persists, contact IBM support.</td>
</tr>
</tbody>
</table>
DGOK3301  [0] cannot be canceled.
Explanation:  The table data is incorrect.
User response:  Close the application and try again. If the problem persists, contact IBM support.

DGOK3302  DB2 Performance Expert Server information is not available.
Explanation:  The Data Server information cannot be received.
User response:  Close the application, then try again. If the problem persists, contact IBM support.

DGOK3303  The selected [0] stopped or was terminated.

DGOK3304  DB2 Performance Expert Server supports single qualifiers only.
Explanation:  The version of the Data Server that is installed on the host does not support more than one qualifier.
User response:  Install the latest Data Server.

DGOK3305  This filter already exists.

DGOK3306  Check at least one item in Thread Type.

DGOK3308  DB2 Performance Expert Server does not support SQL activity tracing.
User response:  Install the latest Data Server.

DGOK3309  SQL activity tracing cannot be started in GLOBAL view.
Explanation:  In GLOBAL view, the list of applications and their performance counter values are aggregated for all database partitions. However, an SQL activity trace can only be created for a single partition.
User response:  Select a single partition or the entire instance (GROUP) from the "Show Data for" list and then start SQL activity tracing for an application.

DGOK3500  Data Sharing Group information is not available.
Explanation:  The subsystem is not a member of a data sharing group.

DGOK3501  History data for the specified date and time is not available.
Explanation:  Data for the date and time specified was probably overwritten by more recent data.

User response:  Wait until the new timestamp list is loaded to see the oldest snapshot.

DGOK3502  History data is not available.
Explanation:  The request was rejected. History data is not available.
User response:  Try again later or restart the Data Server by using the history option.

DGOK3503  Data is not available.
Explanation:  The request cannot be processed because data is not available. Possible reasons:
- Snapshot did not exist or was overwritten.
- History data does not exist.
- The thread was stopped or terminated.
- The filter has no data.
User response:  Respecify the filters and qualification criteria, or specify a different snapshot.

DGOK3504  Function is not supported in demo mode.
User response:  Disable the demo mode, log on to a subsystem, and try again.

DGOK3505  Details window is not visible in Group View.
Explanation:  The selected data is not visible in Group View mode.
User response:  Select a member and try again, or close the Details Window.

DGOK3506  The group scope request might take longer because the server has more than 10 members. Should your request be performed?

DGOK3507  Global or group view is not valid in this context.

DGOK3600  The specified file name is not valid.
User response:  The file is empty or read-only.

DGOK3601  Logon is not possible, the selected DB2 Performance Expert Server [0] is not running.
DGOK3602  The specified subsystem is not configured.
User response: Add this subsystem to the System Overview window, then try again.

DGOK3603  The specified configuration file is not valid.
User response: The file does not exist, is empty, cannot be read, or is not a correct configuration file.

DGOK3604  A DB2 system with the same name is already defined.
User response: If this is the system that you are currently configuring, no further action is required. Otherwise, edit the system or instance name and provide a unique name.

DGOK3605  Type numbers in this field.

DGOK3606  You cannot log on to the selected DB2 system (0) because there is currently no information available about its status.
User response: Wait until the Server Status column in the DB2 system status table shows an up arrow next to the selected DB2 subsystem. Then try to log on again.

DGOK3607  The multiplier must be greater than zero.
Explanation: A multiplier has been set to zero or one of the history types does not exist in the DB2PM.HISTORYDATA table.
User response: Set another multiplier value.

DGOK3608  The DB2 Connection alias (0) is not correct.
Explanation: The DB2 Connection alias name was not specified, is longer than eight characters, or contains a character that is not valid.
User response: Specify a valid DB2 Connection alias.

DGOK3609  The snapshot trace or history parameter cannot be set.
Explanation: The parameter does not exist in the DB2PM.PARAMETER table.

DGOK3610  The selected DB2PM database is not receiving DB2 Connect/gateway information.
Explanation: A DB2PM database can only receive data about a DB2 Connect gateway if Performance Expert Agent for DB2 Connect Monitoring (PE Agent) is installed, configured, and activated at DB2 Connect/gateway. For more details, see Installation and Configuration.
User response: Select a DB2PM database receiving DB2 Connect/gateway information or, if you want to use the selected DB2PM database, install, configure, and activate Performance Expert Agent for DB2 Connect Monitoring (PE Agent) at the appropriate DB2 Connect/gateway.

DGOK3611  This function is not available on multi-partition instances.

DGOK3612  The Performance Warehouse Server is currently not available.
User response: Start the Performance Warehouse server using the Performance Warehouse page of the Modify Properties window.

DGOK3613  Your password or group is too long. Specify a password up to 100 characters or a group of up to eight characters.

DGOK3614  The DB2 system you want to add already exists in this folder.

DGOK3615  A folder with this name already exists. Specify a different name.

DGOK3616  A copy of this DB2 system already exists in this folder.

DGOK3617  To import a DB2 system, you must be logged off from all DB2 systems that are defined to DB2 Performance Expert Client.
User response: Log off from the DB2 systems to which you are logged on, then try again.

DGOK3618  To perform this function, you must first log on to a DB2 system.

DGOK3620  No DB2PM database is selected or all DB2 instances are defined to DB2 Performance Expert Client.

DGOK3621  One or more database aliases already exist in the DB2 Catalog (ie 0).
DGOK3622  The specified DB2 Performance Expert Server does not monitor any DB2 instances.

User response: To enable the Data Server to monitor a DB2 instance, you must first configure this instance. For information about how to configure an instance, see Installation and Configuration.

DGOK3623  The trace is activated but the trace level is 0.

Explanation: Trace data can only be collected with a trace level greater 0.

User response: Specify a trace level from 1 to 5 when you activate a trace.

DGOK3629  You cannot specify any history data storage settings because this parameter does not exist in the DB2PM.PARAMETER or DB2PM.PWHDATA table.

DGOK3630  You specified one or more wrong values for the history data storage settings.

User response: For the storage interval, specify a number from 1 through 24. For the interval for summarizing the history data, specify a number from 1 through 96.

For the start date for history storage, specify a valid date in the form mm.dd.yyyy.

DGOK3631  For the {0} field, specify a value greater than zero.

DGOK3632  You specified a wrong value for the history data storage settings.

User response: For the interval for summarizing the history data, specify a number from 1 through 96.

The interval must be equal to, or greater than, the recording interval you specified on the History page.

DGOK3634  Specify {0}.

DGOK3635  Verify that the e-mail is received in the destination In-Box. If not, verify the specified e-mail (SMTP) server address.

DGOK3636  The database alias ({0}) is not supported by DB2.

Explanation: You cannot specify the host name of your workstation as database alias. This is a DB2 restriction.

User response: Specify another database alias.

DGOK3637  The shortcut ([0]) references a DB2 system that is already deleted. Therefore, this shortcut will be deleted.

DGOK3638  Some monitor switches are not set on "[0]". Therefore, part of the information is not available.

Explanation: One or more of the following monitor switches are not set: [1]
• BUFFERPOOL (DFT_MON_BUFPOOL): Number of reads and writes, time taken.
• LOCK (DFT_MON_LOCK): Lock wait times, deadlocks.
• SORT (DFT_MON_SORT): Number of heaps used, sort performance.
• STATEMENT (DFT_MON_STMT): Start and stop time, statement identification.
• TABLE (DFT_MON_TABLE): Measure of activity (rows read and written).
• UOW (DFT_MON_UOW): Start and end times, completion status.
• TIMESTAMP (DFT_MON_TIMESTAMP): Timestamps.

User response: Set the monitor switches for which you want to see data.

DGOK3639  The library for cataloging databases could not be loaded successfully. Some multiplatform tasks such as defining a DB2 instance are disabled.

User response: This message also pops up if the client is started in a 64-bit instance, but with a 32-bit JRE. Then, you cannot even log on to a monitored system. Install a 64-bit enabled JRE and restart the client.

DGOK3640  The server task is not valid; a logoff has been performed.

Explanation: The client received a return code 8 with reason code X'64' from the data collector task. The data collector returns this error if the user's started task is in an invalid and unrecoverable state. The most common reason is that the data collector ran out of memory. The client cannot recover from this situation because all subsequent requests against the server lead to the same error.

Logging off and on usually frees some resources and allows the user to continue for a while. However, over time, the error recurs.

User response: Stop and restart the data collector.
DGOK3641  A recording interval of less than 30 seconds can cause performance problems at Performance Expert Server. In addition, it can happen that Performance Expert Server does not collect each snapshot. It is recommended that you specify a recording interval of at least 30 seconds. Do you want to leave the recording interval at less than 30 and continue?

User response: Specify the path to the User Exit Program/Script.

DGOK3643  The PE Server subtask tries to call your User Exit Program/Script

User response: Verify that your User Exit Program/Script is called.

DGOK3644  DB2 Visual Explain V8 does not support DB2 9.

DGOK3663  Cannot use an active Performance Warehouse connection to schedule SQL Activity trace processing.

Explanation: The Performance Expert Client was unable to connect to the Performance Warehouse.

User response: Before you start an SQL activity trace, log in to the Performance Warehouse for the Db2 subsystem.

DGOK4000  Wrong values for WARNING or PROBLEM thresholds.

Explanation: The values for WARNING and PROBLEM thresholds are not valid. Possible reasons:

- The WARNING value is greater than or equal to the PROBLEM value.
- The WARNING or PROBLEM values are not specified.
- The PROBLEM value is less than or equal to the WARNING value.

User response: Specify valid threshold values.

DGOK4001  The name for the current threshold is missing.

DGOK4002  The author for current threshold is missing.

DGOK4003  The threshold cannot be copied.

Explanation: A threshold with the same specification already exists.

User response: For an exception field, only two threshold configurations with identical filter criteria are allowed. The criteria can be active and inactive.

DGOK4004  The status cannot be changed.

Explanation: The status cannot be changed to the active state of the current threshold.

User response: The status cannot be changed to active because another active threshold already exists. For an exception field, only one active threshold configuration is allowed.

DGOK4005  The XML file is corrupted.

Explanation: The menu item cannot be found because the XML file is corrupted.

User response: File gui_exceptionmain.xml is corrupted or not accessible. Reinstall the program or contact your IBM representative.

DGOK4006  The XML file is corrupted.

Explanation: The toolbar item cannot be found because the XML file is corrupted.

User response: File gui_exceptionmain.xml is corrupted or not accessible. Reinstall the program or contact your IBM representative.

DGOK4007  Exception Event was started successfully.

DGOK4008  Exception Event was stopped successfully.

DGOK4009  To start exception processing, you must first log on to a DB2 system.

DGOK4010  This Thread does not exist anymore.

DGOK4011  The connection to this subsystem is missing.

Explanation: You must be logged on to the subsystem to receive the event details information.

User response: Log on to the subsystem.
DGOK4012  No Threshold set selected.
Explanation: Periodic Exception Processing requires a Threshold set.
User response: Select a Threshold set with the Threshold set combo box. Create one, if no one exists.

DGOK4013  Exception Event(s) occurred.

DGOK4014  Periodic Exception(s) start(s).

DGOK4015  Periodic Exception(s) stop(s).

DGOK4016  Periodic Exception(s) refreshed.

DGOK4017  Periodic Exceptions refreshed and stopped.

DGOK4018  The selected Threshold set is empty.
Explanation: For starting Periodic Exception Processing, a Threshold set with at least one active Threshold is necessary.
User response: Add an active Threshold to the Threshold set.

DGOK4019  To start periodic exception processing on db2_system, select a threshold set that contains at least one active threshold that is supported by Performance Expert Server.

DGOK4020  To view more information on this exception, you must be logged on to the DB2 system that produced the exception.

DGOK4021  No exception field selected
Explanation: No exception field selected.
User response: Select an exception field.

DGOK4022  Interval is missing.

DGOK4023  [0] is missing.

DGOK4024  E-mail address is not valid.

DGOK4025  Contact with name [0] already exists. Overwrite it?

DGOK4026  Do you want to delete the selected contact?

DGOK4027  No contact selected.

DGOK4028  The value in the [0] field is not valid.
Explanation: The value in the [0] field is not valid, whereby [0] is the label of a numeric entry field.
User response: Specify a number from [1] through [2], whereby [1] is the minimal and [2] is the maximum value.

DGOK4029  The name for the sound file is missing or is not correct.
Explanation: The name for the sound file is missing or is not correct.
User response: Specify an existing sound file.

DGOK4030  Your e-mail specifications are not correct or are not complete.
Explanation: Your e-mail specifications are not correct or are not complete.
User response: To send exception notifications by e-mail, do the following:
1. Specify your e-mail address.
2. Select the destination e-mail address.
3. If the e-mail (SMTP) server requires authentication, select the appropriate check box and specify your server user ID and your password.

DGOK4032  For periodic exception processing on db2_system, the thresholds for the following exception fields are disregarded: exception_field_list
Explanation: The thresholds for the listed exception fields are defined in the selected threshold set but are not active or are not supported by the PE Server subtask.

DGOK4033  Exception event processing cannot be started for '0'.
Explanation: Exception event processing is disabled on the Data Server.
User response: Enable exception event processing on the Exception page of the Data Server Properties window for '0'.

Chapter 9. Messages  4867
DGOK4034 Exception event processing cannot be started for '{0}'.
Explanation: Event monitoring is disabled for all monitored databases.
User response: Enable event monitoring for at least one monitored database by configuring the Data Server.

DGOK4035 Periodic exception processing cannot be started for '{0}'.
Explanation: Periodic exception processing is disabled on the Data Server.
User response: Enable periodic exception processing on the Exception page of the Data Server Properties window for '{0}'.

DGOK4036 The threshold set contains thresholds for operating system counters. These thresholds become active only if the CIM server was enabled during the configuration of Performance Expert Server and the collection of history data is enabled (on the History page of the Performance Expert Server Properties window).

DGOK4037 Exception event processing has been deactivated for "{0}" because it was disabled on Performance Expert Server.

DGOK4038 Periodic exception processing has been deactivated for "{0}" because it was disabled on Performance Expert Server.

DGOK4039 Detailed information for this exception event is no longer available.
Explanation: Detailed information about exception events is stored in a log on the Data Server. If the number of exception events in this log exceeds [0], the oldest exception event entries are removed from the log. The exception event for which you requested detailed information is among those that are already removed from the log.

DGOK4103 The diagnostic information is recorded. Do you want to stop the recording and send the diagnostic information?

DGOK4104 The diagnostic information is recorded. Do you want to stop the recording and save the diagnostic information?

DGOK4105 The diagnostic information was recorded. Do you want to send it?

DGOK4106 The diagnostic information was recorded. Do you want to save it?

DGOK4107 The diagnostic information was not sent. Do you want to delete it?

DGOK4108 The diagnostic information was not saved. Do you want to delete it?

DGOK4109 The selected file already exists. Do you want to overwrite it?

DGOK4110 The diagnostic information cannot be sent. Do you want to save it?

DGOK4111 The diagnostic information cannot be sent. Do you want to save it again?

DGOK4112 The recording of the diagnostic information cannot be started.

DGOK4113 The recording of the diagnostic information cannot be stopped.

DGOK5026 Incorrect timestamp value {0}.
Explanation: Entry does not correspond to format mask [1].
User response: Correct the value.

DGOK5027 Partition field entry {0} not valid.
Explanation: The entry for partition filtering is not a valid regular expression.
User response: Enter an asterisk or a correct regular expression, for example: [1]
<table>
<thead>
<tr>
<th>Message Code</th>
<th>Message Description</th>
<th>Explanation</th>
<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGOK5028</td>
<td>Start and end times do not match.</td>
<td>The end time [0] must be later than start time [1].</td>
<td>Correct the start time or the end time.</td>
</tr>
<tr>
<td>DGOK5029</td>
<td>The provided template is unusable.</td>
<td>The template does not belong to the set of valid templates.</td>
<td>Use a valid template.</td>
</tr>
<tr>
<td>DGOK5031</td>
<td>No performance data exist for any database of the monitored instance.</td>
<td>No database is configured for monitoring, or the monitored instance has not been set up to store history data in the Performance Warehouse, or the monitored instance has been set up to store history data but the end of the first storage interval has not been reached.</td>
<td>Ensure that you have added databases for monitoring to your monitored instance during configuration of the Data Server (peconfig). Further, from Performance Expert Client, check the properties of the monitored instance whether the storage of history data is enabled. Finally, determine whether sufficient time has elapsed to allow for the completion of at least one storage interval. If required, allow for some extra time and try again later.</td>
</tr>
<tr>
<td>DGOK5032</td>
<td>File name not correct.</td>
<td>The provided file name [0] is not valid in your operating system.</td>
<td>Repeat the Save operation and provide a valid file name.</td>
</tr>
<tr>
<td>DGOK5033</td>
<td>The buffer pool data file is not compatible.</td>
<td>The selected buffer pool data file cannot be used for Object Placement because it was generated with a version of Performance Expert or Buffer Pool Analyzer that is no longer supported.</td>
<td>Use bpd files that were created on a host with a supported version of Performance Expert or Buffer Pool Analyzer.</td>
</tr>
<tr>
<td>DGOK5034</td>
<td>Parsing of buffer pool data file failed.</td>
<td>The selected file is not a valid buffer pool data file.</td>
<td>Select buffer pool data files (*.bpd) as input to Object Placement.</td>
</tr>
<tr>
<td>DGOK5902</td>
<td>CIMOM connection failed.</td>
<td>CIM stored procedures returns error code: 2</td>
<td></td>
</tr>
<tr>
<td>DGOK5903</td>
<td>Database connection failed.</td>
<td>CIM stored procedures returns error code: 3</td>
<td></td>
</tr>
<tr>
<td>DGOK5905</td>
<td>CIMOM access disabled.</td>
<td>CIM stored procedures returns error code: 5</td>
<td></td>
</tr>
<tr>
<td>DGOK5906</td>
<td>Monitored DB2 instance not active.</td>
<td>CIM stored procedures returns error code: 6</td>
<td></td>
</tr>
<tr>
<td>DGOK5907</td>
<td>Monitored DB2 instance not started.</td>
<td>CIM stored procedures returns error code: 7</td>
<td></td>
</tr>
<tr>
<td>DGOK5908</td>
<td>SQL Error occurred.</td>
<td>CIM stored procedures failed with error code 8. The remote instance might be down or unreachable.</td>
<td></td>
</tr>
</tbody>
</table>
DGOP - Performance Warehouse messages

**DGOP1** Insufficient information to establish a database connection to Performance Warehouse.

**Explanation:** One or more of the following data is missing:
- Database user ID
- Password
- Database alias
- JDBC driver name

**User response:** Before you can connect to Performance Warehouse, you must specify a database user ID, password, database alias, and JDBC driver.

**DGOP2** Delete the selected object from Performance Warehouse?

**DGOP3** Exit the application?

**DGOP7** There is currently no help available.

**DGOP8** Specify a database alias for the DB2PM database.

**DGOP9** The database schema DB2PM not found.

**Explanation:** A database was connected that does not contain the database schema DB2PM.

**User response:** Check the database alias configuration on Performance Expert Client and the Data Server.

**DGOP10** The Performance Warehouse tables are not found.

**Explanation:** Possible reasons are:
1. Database schema DB2PM does not contain the Performance Warehouse tables.
2. A SCHEMALIST parameter is used to limit data retrieval.
3. The specified database alias refers to a performance database of Performance Expert Version 3.1 or later.

**User response:**
2. Check the file db2cli.ini for any SCHEMALIST parameter specifications to limit the list of schemas that are used for data retrieval.

**DGOP11** Performance Expert Client and Performance Expert Server are not compatible.

**Explanation:** The following list of properties helps to determine the Client and Server versions: [0]

**User response:** Install the compatible versions of Performance Expert Client and Performance Expert Server.

**DGOP12** Performance Warehouse only supports partitioned database systems with one partition.

**Explanation:** Performance Warehouse tried to connect to a partitioned database system with multiple database partitions.

**DGOP13** The partition number of the single-partition database must be 0.

**Explanation:** Performance Warehouse only supports partitioned database systems with one partition. This partition must have partition number 0.

**DGOP14** Performance Warehouse cannot check whether it is compatible with Performance Expert Server.

**Explanation:** To check whether Performance Warehouse is compatible with the Data Server installed, specific version information is required. N/P is shown for the information that is missing: [0]

**User response:** Check whether the Data Server is installed correctly. Install the compatible versions of Performance Expert Client and the Data Server.

**DGOP15** Performance Warehouse could not be connected automatically.

**Explanation:** No database alias is defined for Performance Warehouse.

**User response:** Use the Performance Warehouse page of the Modify Properties window to define a database alias for Performance Warehouse.

**DGOP16** The specified database alias belongs to a DB2PM database on [0].

**Explanation:** None.

**User response:** Delete the created node. Then open the New Performance Warehouse window and create a Performance Warehouse on [0] using the specified database alias.
Performance Warehouse is not available.

Explanation: Possible reasons are:
- The PE Server subtask installation is still in progress or incomplete.
- The database alias that you specified in the New Performance Warehouse window does not reference a Performance Warehouse.
- The specified database alias refers to a performance database of a Performance Expert version 3.1 or later.

User response:
1. Check the status of the PE Server subtask installation.
2. If the installation completed successfully, use the Client Configuration Assistant of DB2 to check the database alias that you specified.

Are you sure you want to remove this Performance Warehouse from the tree view?

The process has been scheduled and activated. [0] Click Process Executions in the folders pane of the Performance Warehouse window to view the progress of the process.

The Performance Warehouse Client cannot be initialized because of temporary inconsistencies of [0] templates.

Explanation: Message parameter [0] is either process, query, or rule-of-thumb.

This error occurs in rare cases when the set of templates is edited by another user while the Performance Warehouse Client initializes. To avoid inconsistencies, the connection is terminated.

User response: Retry to connect.

Specify a name for the process.

Specify a unique name for the process group.

The process group cannot be deleted because one or more of its processes have the status 'active'.

User response: Check the status of all processes and change it to 'in definition', if necessary. Then delete the process group.

Specify a name for the process group.

Process name already exists.

You attempted to create a process with a name that already exists in this group.

User response: Choose a different process name.

Note that the currently selected view might not show all processes in this group.

The process cannot be deleted because it has the status 'active'.

User response: Change the process status to 'in definition', then delete the process.

The process cannot be renamed because it has the status 'active'.

User response: Change the process status to 'in definition', then rename the process.

You cannot add more steps to the selected process.

You tried to add a step to this process but this step does not fit the step sequence of the process. For example, on the Trace on z/OS page, a process can consist of only one step of type CRD. Additional steps are not allowed.

User response: See Monitoring Performance from the Workstation for more information about processes and allowed steps and step sequences.

You cannot add any steps to the selected process because the process has the status 'active'.

User response: Change the process status to 'in definition'. Then add the step.

The process cannot be activated because it does not contain any steps.

User response: Add one or more steps to the process. Then activate the process.
This process is a template and cannot be edited.

**Explanation:** You can use templates only as a basis for your own processes.

**User response:** Copy this process to another process group, then edit it.

The process cannot be copied because a private process group does not exist yet.

**Explanation:** A process cannot be copied to a public process group. It can only be copied to a private process group.

**User response:** Create a private process group and then copy the process to it.

The specified process schedule cannot be stored because the schedule string exceeds the maximum length of [0] characters.


**User response:** Reduce the length of the schedule string by reducing the complexity of the schedule. For example, specify fewer intervals or fewer individual values.

The status of the process cannot be changed because the process is running.

**User response:** Wait until the process has finished or cancel the process. Then try to change the process status.

Specify an input data set for the step.

This step belongs to a process that has the status 'active' and therefore cannot be edited.

**User response:** Change the process status to 'in definition'.

The step cannot be copied because an appropriate private process does not exist yet.

**Explanation:** A step can only be copied to a private process if it fits the step sequence of that process. The position of the copied step has to be the same in the source and target step sequences. You can only copy steps to the end of the target step sequence.

The data set name is not valid.

**Explanation:** A data set name must comply with the following syntax: dsname, dsname(member) or dsname(generation). When you specify a member, the member name must have one through eight alphanumeric characters, with the first character being a letter. When you specify a generation, the generation must be a one-, two-, or three-digit number that is less than, or equal to, 255 and is preceded by a dash (-), for example -111, -23, or -3. If it is 0, you can omit the dash. Each digit can be a number from 0 through 9.

**User response:** Specify a valid data set name.

Alias not found.

**Explanation:** The database alias is wrong or does not exist.

A new alias definition might not be recognized by the client.

You have multiple DB2 instances installed on your workstation, and the DB2 catalog entries are defined in a DB2 instance other than the currently used instance.

**User response:** Correct the database alias for the currently used DB2 system, then try again.

Close and restart the workstation client, then try again.

If you have multiple DB2 instances installed on your workstation, you can force the DB2 instance to be used by specifying the command "set DB2INSTANCE=<your_instance>" in file db2pe.bat, respectively .db2pe under UNIX.

The process has been scheduled. To run the process: Change the process status from "in definition" to "active" in the Process Properties window.

**Explanation:** The Data Server only checks the schedule of activated processes.
<table>
<thead>
<tr>
<th>DGOP1601</th>
<th>Specify at least one input data set for the report.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGOP1602</td>
<td>To create a report, add at least one command with at least one subcommand to the REPORT pane.</td>
</tr>
<tr>
<td>DGOP1603</td>
<td>Add a REPORT or SAVE subcommand to the STATISTICS command. <strong>Explanation:</strong> When you add the REDUCE subcommand, you must also add the REPORT or SAVE subcommand.</td>
</tr>
<tr>
<td>DGOP1604</td>
<td>When you select the Use threshold data set check box in a REPORT, TRACE, or FILE command options pane, you must specify at least one exception threshold data set in the Current data set specification pane.</td>
</tr>
<tr>
<td>DGOP1605</td>
<td>Add a REPORT or SAVE subcommand to the ACCOUNTING command. <strong>Explanation:</strong> When you add the REDUCE subcommand, you must also add the REPORT or SAVE subcommand.</td>
</tr>
<tr>
<td>DGOP1606</td>
<td>Specify a correct range value. The generic form (*) can be used only as last character in a range value.</td>
</tr>
<tr>
<td>DGOP1607</td>
<td>Specify a name for the input data set.</td>
</tr>
<tr>
<td>DGOP1608</td>
<td>Under Temporary DFSORT work file, type a value in both fields or leave both fields empty.</td>
</tr>
<tr>
<td>DGOP1609</td>
<td>Under Temporary trace work file, type a value in both fields or leave both fields empty.</td>
</tr>
<tr>
<td>DGOP1610</td>
<td>The list of input data sets exceeds 175 characters. <strong>User response:</strong> Remove one or more input data sets from the list.</td>
</tr>
<tr>
<td>DGOP1611</td>
<td>Specify minimum and maximum values for the range.</td>
</tr>
<tr>
<td>DGOP1612</td>
<td>Specify a value.</td>
</tr>
<tr>
<td>DGOP1613</td>
<td>Specify a unique name for the input data set.</td>
</tr>
<tr>
<td>DGOP1614</td>
<td>Specify a value that is unique in the list of values.</td>
</tr>
<tr>
<td>DGOP1615</td>
<td>Delete the selected command including its subcommands.</td>
</tr>
<tr>
<td>DGOP1706</td>
<td>The filter criteria shown in the Include field exceed 250 characters. <strong>User response:</strong> Display the Include/Exclude Filter window and remove one or more filter criteria.</td>
</tr>
<tr>
<td>DGOP1707</td>
<td>The filter criteria shown in the Exclude field exceed 250 characters. <strong>User response:</strong> Display the Include/Exclude Filter window and remove one or more filter criteria.</td>
</tr>
<tr>
<td>DGOP1806</td>
<td>The filter criteria shown in the Include field exceed 250 characters. <strong>User response:</strong> Display the Include/Exclude Filter window and remove one or more filter criteria.</td>
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<tr>
<td>DGOP1807</td>
<td>The filter criteria shown in the Exclude field exceed 250 characters. <strong>User response:</strong> Display the Include/Exclude Filter window and remove one or more filter criteria.</td>
</tr>
<tr>
<td>DGOP1855</td>
<td>The filter criteria shown in the Include field exceed 250 characters. <strong>User response:</strong> Display the Include/Exclude Filter window and remove one or more filter criteria.</td>
</tr>
<tr>
<td>DGOP1856</td>
<td>The filter criteria shown in the Exclude field exceed 250 characters. <strong>User response:</strong> Display the Include/Exclude Filter window and remove one or more filter criteria.</td>
</tr>
<tr>
<td>DGOP1857</td>
<td>The filter criteria shown in the Order field exceed 200 characters. <strong>User response:</strong> Display the Order Filter window and remove one or more filter criteria.</td>
</tr>
<tr>
<td>DGOP1858</td>
<td>The filter criteria shown in the Top field exceed 250 characters. <strong>User response:</strong> Display the Top Filter window and remove one or more filter criteria.</td>
</tr>
</tbody>
</table>
If a check box is selected under Filter options, you must select at least one top field.

Specify a name for the group or list.

The name you specified for the group or list is not correct.

Explanation: A group or list name can consist of up to eight characters without embedded spaces and must begin with a character from A to Z. The second to eight characters can be one of the following: A-Z, _, #, $, 0-9, @

User response: Specify a correct group or list name.

Specify a group or list name that is unique within the report.

Add at least one subcommand to the GROUP or LIST command.

Specify at least one value for the selected group or list.

The values shown in the Group values or List values field exceed 50 characters.

User response: Specify shorter values for the group or list or delete one or more values.

Rule-of-thumb group name is missing.

Explanation: Every rule-of-thumb group needs a name.

User response: Specify a rule-of-thumb group name.

The rule-of-thumb group name is not unique.

Explanation: A rule-of-thumb group with this name already exists.

User response: Specify a unique rule-of-thumb group name.

Rule of thumb cluster name is missing.

Explanation: Every rule of thumb cluster needs a name.

User response: Specify a rule of thumb cluster name.

The rule of thumb cluster name is not unique.

Explanation: A rule of thumb cluster with this name exists already in the specified rule-of-thumb group.

User response: Specify a unique rule of thumb cluster name.

This rule of thumb cluster is a template and cannot be edited.

Explanation: You can use templates as a basis for your own rule-of-thumb clusters.

User response: Copy this rule of thumb cluster to another rule of thumb group and edit it.

The rule of thumb cluster cannot be copied because a private rule of thumb group does not exist yet.

Explanation: A rule of thumb cluster cannot be copied to a public rule of thumb group. It can only be copied to a private rule of thumb group.

User response: Create a private rule of thumb group and then copy the rule of thumb cluster to it.

The additional column expression of the rule of thumb cluster is too long.

Explanation: An additional column expression of the rule of thumb cluster can contain a maximum of 400 characters.

User response: Specify a shorter additional column expression of the rule of thumb cluster.

The filter expression of the rule of thumb cluster is too long.

Explanation: A filter expression of the rule of thumb cluster can contain a maximum of 3 000 characters.

User response: Specify a shorter filter expression of the rule of thumb cluster.

The additional column expression of the rule of thumb cluster is syntactically wrong.

Explanation: An additional column expression of the rule of thumb cluster must be a comma-separated list of table columns.

User response: Specify a correct comma-separated list of table columns.
DGOP310  The additional column expression of the rule-of-thumb cluster is syntactically wrong.
Explanation: Each column of the additional column expression must belong to a table of a value expression of a contained rule of thumb.
User response: Specify a correct comma-separated list of table columns.

DGOP311  The additional column expression of the rule of thumb contains redundant columns.
Explanation: All columns of the additional column expression must not occur in a value expression of a contained rule of thumb.
User response: Specify a correct comma-separated list of table columns.

DGOP3204  The rule-of-thumb cannot be copied because an appropriate private rule-of-thumb cluster does not exist yet.
Explanation: A rule-of-thumb cannot be copied to a public rule-of-thumb cluster. It can only be copied to a rule-of-thumb cluster that has the same type as the rule-of-thumb to be copied. The rule-of-thumb that you want to copy must be the first rule-of-thumb in the target private rule-of-thumb cluster or be of the same type as the rule-of-thumbs that already exist in that cluster.
User response: Create a private rule-of-thumb cluster and then copy the rule-of-thumb to it.

DGOP3205  The value expression of the rule of thumb is missing.
Explanation: Every rule of thumb needs a value expression.
User response: Specify a value expression for the rule of thumb.

DGOP3206  The warning threshold of the rule of thumb is missing.
Explanation: Every rule of thumb needs a warning threshold.
User response: Specify a warning threshold for the rule of thumb.

DGOP3207  The problem threshold of the rule of thumb is missing.
Explanation: Every rule of thumb needs a problem threshold.
User response: Specify a problem threshold for the rule of thumb.

DGOP3209  The value expression of the rule of thumb is too long.
Explanation: A rule of thumb value expression can contain a maximum of 800 characters.
User response: Specify a shorter rule of thumb value expression.

DGOP3210  The warning threshold of the rule of thumb is too long.
Explanation: A rule of thumb warning threshold can contain a maximum of 18 characters.
User response: Specify a shorter rule of thumb warning threshold.

DGOP3211  The problem threshold of the rule of thumb is too long.
Explanation: A rule of thumb problem threshold can contain a maximum of 18 characters.
User response: Specify a shorter rule of thumb problem threshold.

DGOP3212  The additional column expression of the rule of thumb is too long.
Explanation: An additional column expression of the rule of thumb can contain a maximum of 400 characters.
User response: Specify a shorter additional column expression of the rule of thumb.

DGOP3213  The warning recommendation of the rule of thumb is too long.
Explanation: A rule of thumb warning recommendation can contain a maximum of 128 characters.
User response: Specify a shorter rule of thumb warning recommendation.

DGOP3214  The problem recommendation of the rule of thumb is too long.
Explanation: A rule of thumb problem recommendation can contain a maximum of 128 characters.
User response: Specify a shorter rule of thumb problem recommendation.
<table>
<thead>
<tr>
<th>DGOP3215</th>
<th>The value expression of the rule of thumb is syntactically wrong.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong> A rule of thumb value expression must be an arithmetic expression.</td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong> Specify a correct arithmetic expression.</td>
<td></td>
</tr>
<tr>
<td>DGOP3216</td>
<td>The additional column expression of the rule of thumb is syntactically wrong.</td>
</tr>
<tr>
<td><strong>Explanation:</strong> An additional column expression of the rule of thumb must be a comma-separated list of table columns.</td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong> Specify a correct comma-separated list of table columns.</td>
<td></td>
</tr>
<tr>
<td>DGOP3217</td>
<td>The warning threshold of the rule of thumb is syntactically wrong.</td>
</tr>
<tr>
<td><strong>Explanation:</strong> A rule-of-thumb warning threshold must be a number.</td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong> Specify a decimal number or an integer.</td>
<td></td>
</tr>
<tr>
<td>DGOP3218</td>
<td>The warning threshold of the rule of thumb is syntactically wrong.</td>
</tr>
<tr>
<td><strong>Explanation:</strong> A rule-of-thumb warning threshold must be a number.</td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong> Specify a decimal number or an integer.</td>
<td></td>
</tr>
<tr>
<td>DGOP3219</td>
<td>The problem threshold of the rule of thumb is syntactically wrong.</td>
</tr>
<tr>
<td><strong>Explanation:</strong> A rule-of-thumb problem threshold must be a number.</td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong> Specify a decimal number or an integer.</td>
<td></td>
</tr>
<tr>
<td>DGOP3220</td>
<td>The problem threshold of the rule of thumb is syntactically wrong.</td>
</tr>
<tr>
<td><strong>Explanation:</strong> A rule-of-thumb problem threshold must be a number.</td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong> Specify a decimal number or an integer.</td>
<td></td>
</tr>
<tr>
<td>DGOP3221</td>
<td>This rule of thumb is a template and cannot be edited.</td>
</tr>
<tr>
<td><strong>Explanation:</strong> You can use templates as a basis for your own rules of thumb.</td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong> Copy this rule of thumb to another rule-of-thumb cluster and edit it.</td>
<td></td>
</tr>
<tr>
<td>DGOP3222</td>
<td>The additional column expression of the rule of thumb is syntactically wrong.</td>
</tr>
<tr>
<td><strong>Explanation:</strong> Each column of the additional column expression must belong to a table used in the value expression.</td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong> Specify a correct comma-separated list of table columns where each column belongs to a table used in the value expression.</td>
<td></td>
</tr>
<tr>
<td>DGOP3223</td>
<td>The additional column expression of the rule of thumb contains redundant columns.</td>
</tr>
<tr>
<td><strong>Explanation:</strong> Each column of the additional column expression must not occur in the value expression.</td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong> Specify a correct comma-separated list of table columns where each column does not occur in the value expression.</td>
<td></td>
</tr>
<tr>
<td>DGOP4003</td>
<td>No data returned for this analysis filter.</td>
</tr>
<tr>
<td>DGOP4005</td>
<td>The minimum length of a variable name is 2 characters.</td>
</tr>
<tr>
<td><strong>Explanation:</strong> A valid name of a variable consists of a colon followed by alphanumeric characters.</td>
<td></td>
</tr>
<tr>
<td>DGOP4006</td>
<td>The rules-of-thumb cluster is empty.</td>
</tr>
<tr>
<td><strong>Explanation:</strong> The cluster contains no rules of thumb.</td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong> Create at least one rule in the empty cluster.</td>
<td></td>
</tr>
<tr>
<td>DGOP4007</td>
<td>You have not specified a value for one or more of these variables: {0}. Are you sure that you want to proceed?</td>
</tr>
<tr>
<td><strong>Explanation:</strong> No values or empty string values have been assigned to the variables shown on the message text.</td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong> Enter correct values for these variables.</td>
<td></td>
</tr>
<tr>
<td>DGOP4101</td>
<td>ROT details not applicable.</td>
</tr>
<tr>
<td><strong>Explanation:</strong> The attention value for the selection is null.</td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong> Make a selection with attention values OK, problem, or warning.</td>
<td></td>
</tr>
<tr>
<td>DGOP4102</td>
<td>Column details not available for the current view.</td>
</tr>
<tr>
<td><strong>Explanation:</strong> There are no attention values for the selected ROT that qualify for current view.</td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong> Extend the view to Warning or All, respectively.</td>
<td></td>
</tr>
</tbody>
</table>
DGOP4103  Row details not available for the current view.

Explanation:  There are no attention values for the selected ROT that qualify for current view.

User response:  Extend the view to Warning or All, respectively.

DGOP4104  No entries qualify for the selected view.

DGOP4105  Column details are only available for columns referring to a timestamp or to rules of thumb.

Explanation:  The selected column has no column details. For example: the column refers to an additional matrix column that is specified in the cluster definition.

User response:  Select the timestamp column to get row details or a column with the name of a rule of thumb to get column details.

DGOP4200  There is currently no help available.

DGOP5003  Delete the selected output data set from Performance Warehouse?

DGOP5004  Type of selected log entry does not match with rule of thumb or query.

DGOP6001  The query group name is missing.

Explanation:  A query group name is not specified, or a name that contains only white-space characters is specified.

User response:  Specify a correct query group name.

DGOP6002  The query group name is not unique.

Explanation:  A query group with this name already exists.

User response:  Specify a unique query group name.

DGOP6101  The query name is missing.

Explanation:  A query name is not specified, or a name that contains only white-space characters is specified.

User response:  Specify a correct query name.

DGOP6102  The query name is not unique.

Explanation:  A query with this name already exists.

User response:  Specify a unique query name.

DGOP6105  This query is a template and cannot be edited.

Explanation:  You can use templates as a basis for your own queries.

User response:  Copy this query to another query group and edit it.

DGOP6106  The query cannot be copied because a private query group does not exist yet.

Explanation:  A query cannot be copied to a public query group. It can only be copied to a private query group.

User response:  Create a private query group and then copy the query to it.

DGOP6107  The query expression (SELECT statement) is missing.

Explanation:  A query expression (SELECT statement) must be specified.

User response:  Specify a query expression (SELECT statement).

DGOP6109  The query expression must start with SELECT.

Explanation:  A query expression must start with SELECT.

User response:  Specify a SELECT statement as query expression.

DGOP6502  The file cannot be opened.

Explanation:  Reasons why the file cannot be opened include:

• The file exists, but in another directory.

• The file or directory is write-protected.

• The file does not exist and cannot be created.

User response:  Select another file name and try again.

DGOP6503  The file cannot be opened.

Explanation:  An I/O exception occurred while opening the file.

User response:  Select another file name and try again.

DGOP6504  Cannot create temporary file in default temporary-file directory (0).

Explanation:  A temporary file cannot be created in the default temporary-file directory.

User response:  Check the file write permissions in the directory security properties.
A file with the name [0] already exists. Do you want to overwrite it?

Explanation: The file chosen already exists and will be overwritten if confirmed.

User response: Click the Yes button if you want the file to be overwritten, otherwise click the No button.

Sorting using the column header only

FPEA - Accounting report set messages

FPEA0600S EXCEPTIONAL CONDITION OCCURRED WHILE PROCESSING ACCOUNTING. MAIN STORAGE ALLOCATION FAILED. RETURN CODE <V1>

Explanation: There was insufficient storage available to continue processing.

• <V1> is the GETMAIN return code.

User response: Increase the region size, and rerun the job.

FPEA0610S EXCEPTIONAL CONDITION OCCURRED WHILE PROCESSING ACCOUNTING. MAIN STORAGE RELEASE FAILED

Explanation: An attempt to release storage failed.

User response: Rerun the job. If the problem recurs, contact IBM support.

FPEA0700S VSAM <V1> FUNCTION FAILED ON DDNAME <V2>. VSAM RETURN CODE <V3>. REASON CODE <V4>

Explanation: A VSAM function failed.

• <V1> is the name of the VSAM function that failed.
• <V2> is the ddname for which the function failed.
• <V3> is the VSAM return code.
• <V4> is the VSAM reason code.

User response: See the VSAM documentation.

FPEA0750S PUT FUNCTION FAILED ON DDNAME <V1> WHILE EXTERNALIZING REDUCED RECORDS

Explanation: An error occurred when writing records to the accounting REDUCE work data set.

• <V1> is the ddname.

User response: Check for system messages detailing the problem.

THE ALLOCATED SPACE FOR ACWORK WAS SUFFICIENT. <V1> BYTES HAVE BEEN WRITTEN TO THE ACWORK DATA SET, CONSUMED BY <V2> RECORDS WITH AN AVERAGE LENGTH OF <V3> AND A MAXIMUM RECORD LENGTH OF <V4>.

Explanation: Input trace data is successfully reduced. The space for the temporary work data set with ddname ACWORK was sufficient to hold all reduced data records.

• <V1> is number of bytes written to ACWORK.
• <V2> is the number of reduced data records (of variable lengths) written to ACWORK.
• <V3> is the average record length of the reduced data records.
• <V4> is the maximum record length of the reduced data records.

User response: The values provided by this message might help to adjust the allocated ACWORK space for ACCOUNTING REDUCE processing. For more information, see the description of REDUCE CALCULATE in the Reporting User’s Guide.

FPEA0801S INSUFFICIENT SPACE WAS ALLOCATED FOR ACWORK. COMPLETELY REDUCED DATA WOULD REQUIRE AN ACWORK OF <V1> BYTES, CONSUMED BY <V2> RECORDS WITH AN AVERAGE LENGTH OF <V3> AND A MAXIMUM RECORD LENGTH OF <V4>.

Explanation: Failure to reduce all input trace data because of insufficient space for the temporary work data set with ddname ACWORK. No output data is written. However, the job continues to determine the necessary ACWORK space.

• <V1> is the number of bytes ACWORK would require to hold all reduced records (provided it is of sufficient size).
• <V2> is the number of reduced data records (of variable lengths) that would be written to ACWORK (provided it is of sufficient size).
• <V3> is the average record length of the reduced data records that has to be expected.
• <V4> is the maximum record length of the reduced data records that has to be expected.

User response: Allocate more space to ACWORK and rerun the job. Allocate about 20% more space than indicated by <V1>. You might specify sufficient primary and secondary work space as options in the SPACE parameter of the ACWORK DD statement. If necessary, specify a multi-volume data set for ACWORK. For more information refer to the Reporting User’s Guide.

FPEA0803I THE INPUT TRACE INCLUDES IFCID 233, 380, OR 381 WHICH IS USED TO IDENTIFY A STORED PROCEDURE OR USER-DEFINED FUNCTION MAIN ROUTINE. A REPORT BY ACTNAME TAKES ACCOUNT OF NESTED CALLS BY ACCUMULATING DATA FOR EACH MAIN ROUTINE INCLUDING ITS SUBROUTINES.

Explanation: IFCID 233, 380, or 381 was found in the input trace and is used for the calculation that is requested by the command ORDER(ACTNAME).

Note:
• IFCID 380 or 381 is preferred, if available, because it uses less system resources when collecting trace data.
• Stored Procedures (SP) and User-Defined Functions (UDF) can be identified.
• Data of subprograms that were called by Stored Procedures or User-Defined Functions are reflected in the output of the main program.
• The report has a view on data by activity type and name, but not by each package. That is why the following package counters of subprograms are not taken into account:
  1. The occurrence of subprograms
  2. The number of package allocations (switches)
  3. The number of rollup threads

This approach also affects some package averages.

FPEA0804I IFCID 233, 380, OR 381 WAS NOT FOUND IN THE INPUT TRACE. THE CALCULATION BY ACTIVITY NAME TREATS SUBPROGRAMS OF A STORED PROCEDURE OR USER-DEFINED FUNCTION AS SEPARATE ACTIVITIES.

Explanation: The calculation that is requested by the command ORDER(ACTNAME) is limited to the usage of IFCID 3 and IFCID 239. These are the standard Accounting IFCIDs for reporting a thread and a package. The main program of a Stored Procedure or User-Defined Function treats their subprograms as separate activities.
FPEA1248I  ACCOUNTING <V1> NUMBER <V2>. THE REQUESTED TOP LIST FOR THIS DB2 SUBSYSTEM WAS NOT PRODUCED BECAUSE THE <V1> DOES NOT CONTAIN ANY NONZERO VALUES IN THE SPECIFIED FIELDS

Explanation: The input data set contained all null or zero values for the top fields for the location specified.

• <V1> is REPORT or TRACE.
• <V2> identifies the report or trace to which the message refers, by the order of the corresponding REPORT or TRACE subcommand.

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.

User response: None.

FPEA2252I  ACCOUNTING FIELD <V1> WAS NOT CALCULATED. A BEGIN TIME WAS ZERO OR THE RESULT WOULD HAVE BEEN NEGATIVE

Explanation: A DB2 application time cannot be calculated because the begin time was either zero or greater than the end time.

• <V1> is the field name.

This message may also occur for fields that are not part of the IBM-provided default report layouts, that is, for fields that are provided via the User-Tailored Reporting feature (UTR).

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.

User response: None.

FPEA2253I  ACCOUNTING FIELD <V1> WAS NOT CALCULATED A TOTAL OF <V2> TIMES. A BEGIN TIME WAS ZERO OR THE RESULT WOULD HAVE BEEN NEGATIVE

Explanation: A DB2 application time cannot be calculated because the begin time was either zero or greater than the end time.

• <V1> is the field name.
• <V2> is the number of times this event occurred.

User response: None.

FPEA4500S  INITIALIZATION FAILED FOR ACCOUNTING LIST. INSUFFICIENT STORAGE AVAILABLE

Explanation: There was insufficient storage available to continue processing.

User response: Increase the region size, and rerun the job.

FPEA4530I  NUMBER OF ORPHANED DBATs FOR LOCATION <V1> IS <V2>

Explanation: The message is printed either at the end of the job for every location if there are any orphaned DBATs, or when the maximum number of orphaned DBATs for all LUWIDs has been exceeded.

• <V1> is the location.
• <V2> is the number of orphaned DBATs.

User response: If the message is printed at end-of-file, no response is required. If the maximum number has been exceeded, do one of the following:

• Provide the missing data.
• Exclude DBATs performed on behalf of non-DB2 requesters.
• Check the job summary log whether the Accounting traces started and ended at approximately the same time. If they did not, run the job again using the beginning and end times of the shortest Accounting trace.

FPEA4531I  GENERAL ACCOUNTING DATA FOR LUWID INSTANCE <V1> IS MISSING. IFCID 3 IS MISSING

Explanation: The package overflow data from an IFCID 239 record cannot be matched with the corresponding IFCID 3. Multiple occurrences of this message indicate incomplete input.

• <V1> is the LUWID instance number.

User response: Check the input and filters.

FPEA4532I  ACCOUNTING DATA FOR A NUMBER OF PACKAGES FOR LUWID <V1> IS MISSING. ONE OR MORE IFCID 239 IS MISSING

Explanation: Some package overflow data on IFCID 239 record(s) was missing. Multiple occurrences of this message indicate incomplete input.

• <V1> is the LUWID number.

User response: Check the input and filters.

FPEA4533S  AN ERROR OCCURRED WHILE ACCESSING A VIRTUAL STORAGE DATA STORE. THE REFERENCE IS <V1>, THE TEXT RETURNED FROM THE DATA STORE IS <V2>
Explanation: An unexpected event occurs while manipulating records in virtual storage. The most likely cause is that insufficient virtual storage is available. Either the program has requested excessive virtual storage, or the region requested was too small or was not satisfied because of the installation limit.

- \(<V1>\) is the reference of the virtual storage data store.
- \(<V2>\) is the text returned from the data store.

User response: Excessive use of virtual storage may be caused by incomplete data being passed to the Accounting subcomponent. One such case arises when related IFCID 3 and 239 records cannot be matched, another when records belonging to the same distributed logical unit of work cannot be matched in a merged trace or report. Ensure that both IFCID 3 and 239 are being included and, if MERGE has been specified, that data for all locations is present. If the data is complete and the problem cannot be resolved by specifying a larger region size, contact IBM support.

FPEA4534I  COORDINATING PARALLEL TASK FOR LUW INSTANCE \(<V1>\) IS NOT REPORTED AS NOT ALL INFORMATION FOR ASSISTING PARALLEL TASKS FROM MEMBER \(<V2>\) IS AVAILABLE

Explanation: The number of assisting parallel tasks belonging to the coordinating parallel task does not match the received number of assisting parallel tasks. A thread is only reported if the coordinating parallel task and all corresponding assisting parallel tasks are available in the job input.

- \(<V1>\) is the LUW instance of the incomplete task.
- \(<V2>\) is the member name of the missing assisting task.

User response: If you wish that the thread is reported, ensure that all IFCID 3 records are available for the coordinating parallel tasks and the assisting parallel tasks.

FPEA4535I  DATA SECTION \(<V1>\), SECTION NUMBER \(<V2>\), \(<V3>\) HAS LENGTH \(<V4>\) INSTEAD OF EXPECTED LENGTH \(<V5>\). FIELD VALUES MIGHT BE INVALID.

Explanation: An incompatibility exists between DB2 and OMEGAMON XE for DB2 PE IFC records.

- \(<V1>\) is the data section name
- \(<V2>\) is the data section number within the IFC
- \(<V3>\) is the IFC number
- \(<V4>\) is the found length of the data section
- \(<V5>\) is the expected length of the data section as defined in the current DB2 macro.

User response: Upgrade DB2 and OMEGAMON XE for DB2 PE to the latest PTFs. Collect new trace data after upgrading and rerun OMEGAMON XE for DB2 PE.

FPEA4536I  INCONSISTENT DATA FOUND FOR LUW: NETWORK ID \(<V1>\), LOGICAL UNIT \(<V2>\), INSTANCE \(<V3>\) WITH ACCOUNTING TIMESTAMP \(<V4>\). IFCID 239 INCLUDES QXPK, QBUF, AND QTXA SECTIONS ALTHOUGH THE QWACPPAR Flag OF IFCID 3 IS ON. THE FLAG DENOTES ROLLUP, BUT ROLLUP DATA SHOULD NOT CONTAIN THESE SECTIONS.

Explanation: The job input includes inconsistent data. General package data is normally accompanied by the additional package level accounting sections QXPK, QBUF, and QTXA. In case of rollup, only a single package section is expected without the additional sections, and the QWACPPAR flag is being set on. At least one record has been found for which these conditions do not match. Use the following parameters to identify the missing task in an Accounting trace:

- \(<V1>\) is the LUW network ID of the missing task.
- \(<V2>\) is the LUW logical unit of the missing task.
- \(<V3>\) is the LUW instance of the missing task.
- \(<V4>\) is the Accounting timestamp of the missing task.

User response: Save the job input and output and contact IBM support.

FPEA4537I  INCONSISTENT DATA FOUND FOR LUW: NETWORK ID \(<V1>\), LOGICAL UNIT \(<V2>\), INSTANCE \(<V3>\) WITH ACCOUNTING TIMESTAMP \(<V4>\). IFCID 239 DOES NOT INCLUDE ALL QXPK, QBUF, AND QTXA SECTIONS ALTHOUGH QWACPPAR Flag OF IFCID 3 IS OFF. THE FLAG DENOTES NO ACTIVE ROLLUP, THEREFORE SECTIONS ARE MISSING.

Explanation: The job input includes inconsistent data. General package data is normally accompanied by the additional package level accounting sections QXPK, QBUF, and QTXA. In case of rollup, only a single package section is expected without the additional sections, and the QWACPPAR flag is being set on. At least one record has been found for which these conditions do not match. Use the following parameters to identify the missing task in an Accounting trace:

- \(<V1>\) is the LUW network ID of the missing task.
- \(<V2>\) is the LUW logical unit of the missing task.
- \(<V3>\) is the LUW instance of the missing task.
- \(<V4>\) is the Accounting timestamp of the missing task.

User response: Save the job input and output and contact IBM support.
A RECORD HAS BEEN DROPPED FROM FURTHER PROCESSING BECAUSE IT CANNOT BE ASSIGNED TO A KNOWN IFCID 3 TYPE.
NETWORK ID <V1>, LOGICAL UNIT <V2>, INSTANCE <V3> WITH ACCOUNTING TIMESTAMP <V4>.

Explanation: An IFCID 3 trace record does not satisfy one of several well defined conditions of DB2. The following characters: <V1>

User response: None.

FPEB - User-Tailored Reporting messages

FPEB000 This command is not recognized
Explanation: The command entered could not be recognized.
User response: Enter a valid command.

FPEB003 <V1> command not valid in this panel
Explanation: The specified command is not valid in this panel.
• <V1> is the command that is not valid.
User response: Enter a valid command for this panel.

FPEB010 An error occurred during an ISPF <V1> service in module <V2>
Explanation: An ISPF error has occurred.
• <V1> is the ISPF service name.
• <V2> is the internal module.
User response: Exit, then restart the application. If the problem recurs, contact IBM support.

FPEB020 Select a number between 1 and 4
Explanation: None.
User response: Enter 1, 2, 3, or 4.

FPEB021 Valid DPMPARMS data set name must be entered
Explanation: Either the specified DPMPARMS data set does not exist, or the specified name is not valid.
User response: Enter the name of a valid DPMPARMS data set.

FPEB022 No layouts exist to modify
Explanation: There were no layouts available to be modified.
User response: This message only occurs if you have not installed the user-tailored reporting feature correctly.

FPEB023 Select a layout using one of the following characters: <V1>

User response: Select the layout you require from the list by entering / or a country-designated character.

FPEB024 Select one or more items to be modified using one of the following characters: <V1>

Explanation: Either no selection was made from the list, more than one item was selected from the list, or a character other than / or a country-designated character was used to select a list item.
• <V1> is / and the country-designated character.
User response: Select the item or items you require from the list by entering / or a country-designated character.

FPEB025 Duplicate order column numbers entered, so no renumbering has occurred
Explanation: The same number was entered in more than one order column.
User response: Change the numbers in the order column.

FPEB026 Block configuration selection must be 1 (yes) or 2 (no)
Explanation: You have selected an block configuration that is not valid.
User response: Enter 1 or 2.

FPEB027 FILLER length must be between 1 and 132
Explanation: The specified FILLER length is not valid.
User response: Enter a FILLER length between 1 and 132.
FPEB028  Internal storage error. Not enough elements of SELECTED_BLK have been allowed for

Explanation: Too many blocks have been selected for processing.
User response: Select fewer blocks.

FPEB029  Internal storage error. Not enough elements of SELECTED_CAT have been allowed for

Explanation: Too many categories have been selected for processing.
User response: Select fewer categories.

FPEB030  The cursor must be positioned on a selected list entry when using the FILLER command

Explanation: The FILLER was added after the row containing the cursor. This row must be a selected row.
User response: Position the cursor on a selected row before issuing the FILLER command.

FPEB031  No blocks can be modified

Explanation: An internal error occurred.
User response: Select a different block.

FPEB032  No fields for the nominated block and category can be modified

Explanation: You cannot modify the fields of the nominated block and category.
User response: Select a different block or category.

FPEB033  No table rows for the nominated block and category can be modified

Explanation: You cannot modify the table rows of the nominated block and category.
User response: Select a different block or category.

FPEB034  No table columns for the nominated block and category can be modified

Explanation: You cannot modify the table columns of the nominated block and category.
User response: Select a different block or category.

FPEB035  No field qualifiers for the nominated block can be modified

Explanation: You cannot modify the field qualifiers of the nominated block and category.
User response: Select a different block.

FPEB036  Changes have been accepted. Press Enter again to continue

Explanation: If you have made any changes, the panel is redisplayed showing the changes.
User response: Press Enter again to continue.

FPEB037  Changes have been accepted. EXIT again to continue

Explanation: If you have made any changes, the panel is redisplayed showing the changes.
User response: Press F3 (Exit) again to continue.

FPEB038  Order must be a number from 1 to 99998. Blank or 99999 to exclude item

Explanation: None.
User response: Enter a number from 1 to 99998 to select an item. Blank out or enter 99999 to exclude an item.

FPEB039  Changes for items with a nonnumeric order number have been ignored

Explanation: You have entered a nonnumeric value in the ORDER column of the IRF/UTR panel. The value has been ignored.
User response: Change the value in the ORDER column or press the same key to continue processing.

FPEB040  Layout name must be entered

Explanation: None.
User response: Enter a layout name (1 to 6 characters).

FPEB041  Layout description must be entered

Explanation: None.
User response: Enter a layout description (1 to 32 characters).

FPEB042  Specify if each new record is to start on a new page

Explanation: None.
User response: Enter 1 if each record is to start on a new page, or 2 if not.
FPEB043 • FPEB087

FPEB043  The layout has been saved
Explanation: The layout has been saved into the DPMPARMS data set.
User response: None.

FPEB044  The layout has not been saved
Explanation: You have canceled layout changes.
User response: None.

FPEB049  Error stowing the DPMPARMS layout member
Explanation: An error occurred during stowing the DPMPARMS directory entry.
User response: Add more directory blocks to the DPMPARMS data set, and try again.

FPEB070  Tailored layout has been migrated to the current version
Explanation: You have selected a user-tailored layout contained in the DPMPARMS data set that belongs to an earlier release. It was automatically migrated to the installed release.
User response: None.

FPEB071  While migrating a tailored layout, an ISPF &lt;V1&gt; service call failed with a return code of &lt;V2&gt;
Explanation: An ISPF error has occurred.
• &lt;V1&gt; is the ISPF service name.
• &lt;V2&gt; is the return code from this service.
User response: Exit, then restart the application. If the problem recurs, contact IBM support.

FPEB080  Browse data set dynamic allocation has reason code x'&lt;V1&gt;'
Explanation: An attempt to dynamically allocate a temporary browse data set failed.
• &lt;V1&gt; is the reason code in hexadecimal notation returned by the dynamic allocation service.
User response: See MVS Messages and Codes (or the corresponding manual of the MVS version you have installed) for assistance. If the problem recurs, see your system programmer or contact IBM support.

FPEB081  Browse data set could not be opened
Explanation: An attempt to open the temporary browse data set has failed.
User response: Check for system messages detailing the problem. Try again, and if the problem recurs, see your system programmer or contact IBM support.

FPEB082  DPMPARMS data set received LMINIT error - &lt;V1&gt;
Explanation: A problem occurred during allocation of the DPMPARMS data set.
• &lt;V1&gt; is the ISPF long message returned by the LMINIT service.
User response: Check for system messages detailing the problem. Try again, and if the problem recurs, see your system programmer or contact IBM support.

FPEB083  DPMPARMS data set received LMOPEN error - &lt;V1&gt;
Explanation: A problem occurred while opening the DPMPARMS data set for write access.
• &lt;V1&gt; is the ISPF long message returned by the LMOPEN service.
User response: Check for system messages detailing the problem. Try again, and if the problem recurs, see your system programmer or contact IBM support.

FPEB084  Error reading the DPMPARMS layout member
Explanation: An attempt to read the DPMPARMS layout member has failed.
User response: Check for system messages detailing the problem. Try again, and if the problem recurs, see your system programmer or contact IBM support.

FPEB085  Error writing the DPMPARMS layout member
Explanation: An attempt to write the layout member to the DPMPARMS data set has failed.
User response: Check for system messages detailing the problem. Try again, and if the problem recurs, see your system programmer or contact IBM support.

FPEB086  DPMPARMS data set dynamic allocation has reason code x'&lt;V1&gt;'
Explanation: An attempt to dynamically allocate the DPMPARMS data set failed.
• &lt;V1&gt; is the reason code in hexadecimal notation returned by the dynamic allocation service.
User response: See MVS Messages and Codes (or the corresponding manual of the MVS version you have installed) for assistance. If the problem recurs, see your system programmer or contact IBM support.

FPEB087  Storage for the user layout could not be allocated
Explanation: An attempt to allocate virtual storage for the user layout to be stored has failed.
**User response:** Check for system messages detailing the problem. Try again, and if the problem recurs, see your system programmer or contact IBM support.

**FPEB088**  
Storage for the modified layout could not be allocated

**Explanation:** An attempt to allocate virtual storage for the modified layout to be stored has failed.

**User response:** Check for system messages detailing the problem. Try again, and if the problem recurs, see your system programmer or contact IBM support.

**FPEB089**  
DPMPARMS data set could not be opened

**Explanation:** An attempt to open the DPMPARMS data set has failed.

**User response:** Check for system messages detailing the problem. Try again, and if the problem recurs, see your system programmer or contact IBM support.

**FPEB091**  
ISPF browse failed

**Explanation:** An ISPF error has occurred attempting to BROWSE the generated layout.

**User response:** Exit, then restart the application. If the problem recurs, contact IBM support.

**FPEB092**  
UTR layout print service failed

**Explanation:** An attempt to write to the browse data set has failed.

**User response:** Check for system messages detailing the problem. Try again, and if the problem recurs, see your system programmer or contact IBM support.

**FPEB093**  
The requested layout could not be loaded

**Explanation:** An attempt to load a default layout into virtual storage has failed.

**User response:** Check for system messages detailing the problem. Try again, and if the problem recurs, see your system programmer or contact IBM support.

**FPEB094**  
Browse data set received LMINIT error - <V1>

**Explanation:** A problem occurred during allocation of the temporary browse data set.

**User response:** Check for system messages detailing the problem. Try again, and if the problem recurs, see your system programmer or contact IBM support.

**FPEC0002U**  
SYSPRINT COULD NOT BE OPENED

**Explanation:** An error occurred when opening SYSPRINT.

**User response:** See your system programmer for assistance.

**FPEC - Background Control messages**

**FPEC0002U**  
SYSPRINT COULD NOT BE OPENED

**Explanation:** An error occurred when opening SYSPRINT.
<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEC0008U</td>
<td>UNABLE TO INITIALIZE LOCATION QUEUE</td>
<td>An error occurred during initialization.</td>
<td>Rerun the job. If the problem recurs, contact IBM support.</td>
</tr>
<tr>
<td>FPEC0020I</td>
<td>INTERNAL ERROR: UNABLE TO PRODUCE MESSAGE &lt;V1&gt;, INTERNAL ERROR CODE &lt;V2&gt;</td>
<td>An error occurred when writing an error message.</td>
<td>Rerun the job. If the problem recurs, contact IBM support.</td>
</tr>
<tr>
<td>FPEC0021S</td>
<td>THE MESSAGE HANDLER WAS UNABLE TO WRITE A MESSAGE TO THE JOB SUMMARY VSAM FILE, VSAM RETURN CODE &lt;V1&gt;, REASON CODE &lt;V2&gt;</td>
<td>An error occurred when writing an error message.</td>
<td>See the VSAM documentation.</td>
</tr>
<tr>
<td>FPEC0022S</td>
<td>UNABLE TO WRITE HEADINGS TO FILE &lt;V1&gt;</td>
<td>An internal exception occurred within DB2 PM.</td>
<td>Rerun the job. If the problem recurs, contact IBM support.</td>
</tr>
<tr>
<td>FPEC0023S</td>
<td>UNABLE TO WRITE A MESSAGE TO FILE &lt;V1&gt;</td>
<td>An error occurred when writing a message to an output data set.</td>
<td>Check for system messages detailing the problem.</td>
</tr>
<tr>
<td>FPEC0024S</td>
<td>UNABLE TO WRITE A MESSAGE TO A &lt;V1&gt; REPORT</td>
<td>An error occurred when writing a message to a report.</td>
<td>Check for system messages detailing the problem.</td>
</tr>
<tr>
<td>FPEC0060U</td>
<td>MAIN STORAGE ALLOCATION FAILED DURING INITIAL SETUP OF ENVIRONMENT</td>
<td>A storage constraint was experienced during execution.</td>
<td>Increase the region size and rerun the job.</td>
</tr>
<tr>
<td>FPEC0610W</td>
<td>CORRELATION TRANSLATION RECORD &lt;V1&gt;: OFFSET FIELD MUST BE NUMERIC IN THE RANGE OF 0 TO 11</td>
<td>&lt;V1&gt; indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred. The values in the fields Name Offset and Number Offset indicate the location where the correlation name or the correlation number begins. To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.</td>
<td>Specify a numeric value in the range of 0 to 11 to indicate the location where the correlation name or the correlation number begins.</td>
</tr>
<tr>
<td>FPEC0611W</td>
<td>CORRELATION TRANSLATION RECORD &lt;V1&gt;: LENGTH FIELD MUST BE NUMERIC IN THE RANGE OF 1 TO 8</td>
<td>&lt;V1&gt; indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred. The values in the fields Name Length and Number Length indicate the length of the correlation name or the correlation number. The length of the correlation name or the correlation number must not exceed 8 bytes including the offset. To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.</td>
<td>Specify a numeric value in the range of 1 to 8 to indicate the length of the correlation name or the correlation number including the offset.</td>
</tr>
<tr>
<td>FPEC0612W</td>
<td>CORRELATION TRANSLATION RECORD &lt;V1&gt;: LENGTH VALUE REQUIRED</td>
<td>&lt;V1&gt; indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred. The value for the fields Name Length or Number Length is missing. The length of the correlation name</td>
<td></td>
</tr>
</tbody>
</table>
or the correlation number must not exceed 8 bytes including the offset.

To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.

**User response:** Specify a numeric value in the range of 1 - 8 to indicate the length of the correlation name or the correlation number including the offset value.

---

**FPEC0613W** CORRELATION TRANSLATION RECORD <V1>: OFFSET VALUE REQUIRED

**Explanation:** <V1> indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred.

The value for the fields Name Offset or Number Offset is missing.

To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.

**User response:** Specify a numeric value in the range of 1 - 11 to indicate the location where the correlation name or the correlation number begins.

---

**FPEC0614W** CORRELATION TRANSLATION RECORD <V1>: SUM OF OFFSET AND LENGTH CANNOT EXCEED 12 BYTES

**Explanation:** <V1> indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred.

The length of the correlation name or the correlation number must not exceed 12 bytes including the offset value.

To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.

**User response:** Correct the input record. This error would never occur if the correlation translation data set editor had been used.

---

**FPEC0615W** CORRELATION TRANSLATION RECORD <V1>: CONNECTION TYPE REQUIRED

**Explanation:** The specification of the connection type is missing.

<V1> indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred.

To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.

**User response:** In the Connection Identifier field, specify the 8-byte connection name that is used by DB2 to identify your environment, for example, CICS, TSO, or IMS.

---

**FPEC0616W** CORRELATION TRANSLATION RECORD <V1>: CONNECTION NAME ERROR

**Explanation:** <V1> indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred.

The value for the field Name Of Correlation Data Set is missing.

To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.

**User response:** Specify a numeric value in the range of 1 - 8 to indicate the location where the correlation name or the correlation number begins.

---

**FPEC0617W** CORRELATION TRANSLATION RECORD <V1>: LOCATION NUMBER ERROR

**Explanation:** <V1> indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred.

The location number must not exceed 8 bytes including the offset value.

To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.

**User response:** Specify a numeric value in the range of 1 - 8 to indicate the location where the correlation name or the correlation number begins.

---

**FPEC0618W** CORRELATION TRANSLATION RECORD <V1>: NUMBER OF RELATIONS ERROR

**Explanation:** <V1> indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred.

The number of relations must not exceed 8 bytes including the offset value.

To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.

**User response:** Specify a numeric value in the range of 1 - 8 to indicate the location where the correlation name or the correlation number begins.

---

**FPEC0619W** CORRELATION TRANSLATION RECORD <V1>: RELATION NUMBER ERROR

**Explanation:** <V1> indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred.

The relation number must not exceed 8 bytes including the offset value.

To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.

**User response:** Specify a numeric value in the range of 1 - 8 to indicate the location where the correlation name or the correlation number begins.

---

**FPEC0620W** CORRELATION TRANSLATION RECORD <V1>: REASON CODE ERROR

**Explanation:** <V1> indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred.

The reason code must not exceed 8 bytes including the offset value.

To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.

**User response:** Specify a numeric value in the range of 1 - 8 to indicate the location where the correlation name or the correlation number begins.

---

**FPEC0621W** CORRELATION TRANSLATION RECORD <V1>: TRANSLATION NAME ERROR

**Explanation:** <V1> indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred.

The value for the field Translation Name is missing.

To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.

**User response:** Specify a numeric value in the range of 1 - 8 to indicate the location where the correlation name or the correlation number begins.

---

**FPEC0622W** CORRELATION TRANSLATION RECORD <V1>: TRANSACTION NAME ERROR

**Explanation:** <V1> indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred.

The value for the field Transaction Name is missing.

To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.

**User response:** Specify a numeric value in the range of 1 - 8 to indicate the location where the correlation name or the correlation number begins.

---

**FPEC0623W** CORRELATION TRANSLATION RECORD <V1>: VERSION ERROR

**Explanation:** <V1> indicates the row number in the CORRDATA member of the DPMPARMS data set where the error occurred.

The value for the field Version is missing.

To ensure the correct specification of the parameters, you can use the Correlation Translation Data Set editor.

**User response:** Specify a numeric value in the range of 1 - 8 to indicate the location where the correlation name or the correlation number begins.

---

**FPEC0901S** SORT HAS ENCOUNTERED AN ERROR DURING EXECUTION THAT DID NOT ALLOW IT TO COMPLETE SUCCESSFULLY

**Explanation:** None.

**User response:** Check the SYOUT file for SORT error messages. See the appropriate Sort documentation for further information. Correct the input and rerun the job.

---

**FPEC0902I** SORT HAS ISSUED AT LEAST ONE INFORMATIONAL MESSAGE DURING PROCESSING. CHECK SYOUT FOR DETAILS

**Explanation:** Sort issued one or more informational or warning messages during processing because one or more single input records were incomplete or not valid. The affected records were discarded by the sort and processing continued. All other records were processed successfully.

**User response:** Look at the SYOUT to see any messages issued by Sort.

One or two incomplete records in several thousand should not make a noticeable difference to any report produced. If too many records were discarded, input data could be incomplete.

---

**FPEC0903I** INPUT DATA SET APPEARS TO BE TERSED

**Explanation:** The data read from the input data set shows characteristics of being compressed with TERSE.

**User response:** If you are sure that the data set specified in the INPUTDD statement is not compressed, ignore this message. Otherwise, decompress the data set and try again.

---

**FPEC0904W** STORAGE ALLOCATION FAILED. NO SMF DECOMPRESSION POSSIBLE.

**Explanation:** The batch reporting utility identified a DB2 SMF trace record that is compressed. The allocation of storage to prepare the decompression fails because of insufficient storage.

**User response:** DB2 allows compression of SMF trace records, which are decompressed by the batch reporting utility. In this case a corrupted SMF record caused a failure in the storage allocation. If the problem persists, contact your DB2 administrator.

---

**FPEC0905W** COMPRESSED RECORD HAS AN INVALID LENGTH. NO SMF DECOMPRESSION POSSIBLE.

**Explanation:** An SMF record has a maximum length of 32 KB. The batch reporter identified a record that
FPEC0906W  •  FPEC1008S

exceeds this length. The record is invalid.

User response: Contact your DB2 administrator.

FPEC0906W  •  FPEC1008S

FPEC0906W  •  FPEC1008S

User response: Correct the JCL and rerun the job.

FPEC1003S  •  OPEN FAILED FOR DDNAME <V1>, DDNAME IN USE

Explanation: A ddname is specified twice (or more) with conflicting purposes.
• <V1> is the ddname for which the error occurred.

User response: Correct the JCL and rerun the job.

FPEC1004E  •  REQUIRED DDNAME <V1> MISSING

Explanation: A required ddname was not in the JCL for the job.
• <V1> is the missing ddname.

User response: Correct the input and rerun the job.

FPEC1005S  •  OPEN FAILED FOR DDNAME <V1>

Explanation: An error occurred while opening a data set. The data set exists, but cannot be opened.
• <V1> is the ddname.

User response: Check for system messages detailing the problem.

FPEC1006E  •  UNABLE TO DYNAMICALLY ALLOCATE DDNAME <V1>, RETURN CODE <V2>, REASON CODE <V3>

Explanation: The listed ddname cannot be allocated dynamically.
• <V1> is the ddname to be allocated.
• <V2> is the return code from DYNALLOC.
• <V3> is the reason code returned from DYNALLOC.

User response: See MVS Messages and Codes (or the corresponding manual of the MVS version you have installed) for an explanation of the return code and reason code.

FPEC1007S  •  UNABLE TO READ FROM SYSIN DATA SET

Explanation: An error occurred while attempting to read from the SYSIN data set.

User response: Check for accompanying messages to correct the error.

FPEC1008S  •  UNABLE TO REALLOCATE SYSIN FOR DB2 LOAD

Explanation: An attempt was made to reallocate SYSIN DD. While the first step (free SYSIN) was successful, the second step (dynamically allocate SYSIN) returned an error.

User response: See your system programmer for assistance.
FPEC1009S UNABLE TO ALLOCATE SYSPRINT FOR DB2 LOAD
Explanation: An error occurred when allocating SYSPRINT.
User response: See your system programmer for assistance.

FPEC1400E ERROR LOADING LOCDATA MEMBER DETAILS
Explanation: An internal error occurred while loading the timezone details from the LOCDATA member of the DPMPARMS data set.
User response: Rerun the job. If the problem recurs, contact IBM support.

FPEC1401E ERROR LOADING MAINPACK MEMBER DETAILS
Explanation: An internal error occurred while loading the mainpack details from the MAINPACK member of the DPMPARMS data set.
User response: Rerun the job. If the problem recurs, contact IBM support.

FPEC1700S VSAM FUNCTION FAILED ON DDNAME <V2>, VSAM RETURN CODE <V3>, REASON CODE <V4>
Explanation: A VSAM function failed.
• <V1> is the name of the VSAM function that failed.
• <V2> is the ddname for which the function failed.
• <V3> is the VSAM return code.
• <V4> is the VSAM reason code.
User response: See the appropriate VSAM documentation.

FPEC1990I APPLICATION CANCELED DUE TO ERRORS LISTED ABOVE
Explanation: Errors occurred during processing.
User response: Examine other messages to determine the cause of the error.

FPEC1997I SYNTAX CHECK OF COMMAND STREAM COMPLETE. ASSOCIATED PROCESSING HAS NOT BEEN SCHEDULED AS NO EXEC COMMAND HAD BEEN SPECIFIED
Explanation: The syntax of the command stream was checked, but no additional processing was performed, because there was no EXEC command.
User response: None.

FPEC1998I SYNTAX CHECK OF COMMAND STREAM COMPLETE. ASSOCIATED PROCESSING HAS NOT BEEN SCHEDULED DUE TO ERRORS DETAILED ABOVE
Explanation: The syntax of the command stream was checked, but no additional processing was performed because of errors in system initialization.
User response: See the error messages listed.

FPEC1999I SYSTEM INITIALIZATION COMPLETE. RETURN CODE <V1>
Explanation: System initialization is completed.
• <V1> is the return code from the system initialization component.
User response: If the return code is zero, no action is required. If the return code is not zero, check other messages to determine the cause of the error.

FPEC2000I COMMAND INPUT FROM DDNAME <V1>
Explanation: The application is reading command input from the specified ddname.
• <V1> is the ddname.
User response: None.

FPEC2004E <V1> VALUE INVALID, VALID RANGE IS <V2> TO <V3>
Explanation: The input value is outside the permissible range.
• <V1> is the input value.
• <V2> is the lower limit of the valid range.
• <V3> is the upper limit of the valid range.
User response: Correct the input and rerun the job.

FPEC2005E <V1> IS AN UNRECOGNIZABLE REPORTING IDENTIFIER KEYWORD. INPUT IGNORED FROM <V1> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD
Explanation: An identifier keyword cannot be recognized. Input was ignored between the error and the next valid command, subcommand, or option.
• <V1> is the unrecognized keyword.
User response: Correct the input and rerun the job.

FPEC2006E INSTALLATION IS INCOMPLETE
Explanation: The licence FMID for OMEGAMON XE for DB2 PE or OMEGAMON XE for DB2 PM is not correctly installed.
User response: If errors occurred during installation,
correct them and try to use the product again.

If OMEGAMON XE for DB2 PE or OMEGAMON XE for DB2 PM installed without errors, and you followed the recommended installation and customization procedures, and the problem persists, contact IBM support.

FPEC2009E  **<V1> PARAMETER MUST BE ALPHANUMERIC**

**Explanation:** The parameter can only contain the characters in the range A to Z, and 0 to 9.
- `<V1>` is the keyword in error.

**User response:** Correct the input and rerun the job.

FPEC2010E  **<V1> HAS ALREADY BEEN SPECIFIED**

**Explanation:** A command was specified more than once in the same command stream.
- `<V1>` is the command that was specified more than once.

**User response:** Remove the occurrences of `<V1>` except for one.

FPEC2011E  **<V1> IS AN UNRECOGNIZABLE TOP PARAMETER KEYWORD. INPUT IGNORED FROM <V1> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD**

**Explanation:** A TOP parameter keyword cannot be recognized. Input was ignored between the error and the next valid command, subcommand, or option.
- `<V1>` is the unrecognized keyword.

**User response:** Correct the input and rerun the job.

FPEC2012E  **<V1> VALUE <V2> INVALID. VALID RANGE <V3> TO <V4>**

**Explanation:** The supplied value of the OMEGAMON XE for DB2 PE identifier is not valid.
- `<V1>` is the OMEGAMON XE for DB2 PE identifier.
- `<V2>` is the value supplied.
- `<V3>` is the lower limit of the valid range.
- `<V4>` is the upper limit of the valid range.

**User response:** Correct the input and rerun the job.

FPEC2013E  **<V1> VALUE <V2> IS NOT NUMERIC**

**Explanation:** The value supplied in the INCLUDE/EXCLUDE or GROUP/LIST specification for the OMEGAMON XE for DB2 PE identifier shown must be numeric.
- `<V1>` is the identifier.
- `<V2>` is the value supplied.

**User response:** Correct the INCLUDE/EXCLUDE or GROUP/LIST specification and rerun the job.

FPEC2014E  **<V1> PARAMETER <V2> IS AN INVALID DDNAME**

**Explanation:** The parameter supplied is not a valid ddname.
- `<V1>` is the option.
- `<V2>` is the value supplied.

**User response:** Correct the input and rerun the job.

FPEC2101E  **RIGHT PARENTHESIS INSERTED TO COMPLETE <V1> COMMAND**

**Explanation:** A closing parenthesis is missing from the end of a command.
- `<V1>` is the command with the missing parenthesis.

**User response:** Correct the input and rerun the job.

FPEC2102E  **GROUP/LIST NAME MUST BE ALPHANUMERIC**

**Explanation:** The GROUP/LIST supplied contains characters other than A-Z or 0-9.

**User response:** Correct the specification and rerun the job.

FPEC2104E  **UNEXPECTED END OF FILE ENCOUNTERED IN <V1> COMMAND**

**Explanation:** The end of the command data set was encountered before the end of the command stream. This error is most commonly caused by a missing closing parenthesis at the end of the command stream.
- `<V1>` is the command where end of file was encountered.

**User response:** Correct the input and rerun the job.

FPEC2105E  **INVALID INPUT ENCOUNTERED IN <V1> COMMAND. INPUT IGNORED FROM <V2> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD**

**Explanation:** A not valid command was encountered. The input between the error and the next valid command was ignored.
- `<V1>` is the command where the incorrect input was encountered.
- `<V2>` is the incorrect input.

**User response:** Correct the input and rerun the job.

FPEC2106E  **<V1> IS AN UNRECOGNIZABLE COMMAND KEYWORD. INPUT IGNORED FROM <V1> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD**

**Explanation:** A command was specified more than once in the same command stream.
- `<V1>` is the command that was specified more than once.

**User response:** Remove the occurrences of `<V1>` except for one.
Explanation: An unrecognizable command was encountered. Input was ignored between the error and the next recognizable command.
• <V1> is the text of the unrecognizable command.

User response: Correct the input and rerun the job.

FPEC2107E <V1> MUST PRECEDE ALL OTHER COMMANDS

Explanation: <V1> is the CASE command, which must be specified before any other command.

User response: Specify the CASE command first.

FPEC2114E SPREADSHEETDD OPTION KEYWORD IS NO LONGER SUPPORTED. INPUT IGNORED FROM SPREADSHEETDD TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD.

Explanation: The SPREADSHEETDD subcommand option keyword is no longer used for STATISTICS.

User response: Use the Spreadsheet input data generator functionality instead.

FPEC2115E RIGHT PARENTHESIS EXPECTED TO CLOSE <V1> SPECIFICATION. <V2> ENCOUNTERED

Explanation: A closing parenthesis is missing from the end of an INCLUDE/EXCLUDE or GROUP/LIST specification.
• <V1> is INCLUDE, EXCLUDE, GROUP, or LIST.
• <V2> is the string encountered where the right parenthesis was expected.

User response: Correct the specification.

FPEC2152E <V1> INVALID FOR GROUP

Explanation: A GROUP specification cannot be made for the identifier shown.
• <V1> is the identifier supplied.

User response: Remove the GROUP specification.

FPEC2153E <V1> IS INVALID FOR AN <V2> SPECIFICATION FOR THIS COMMAND/FUNCTION COMBINATION

Explanation: The identifier shown is not valid for an INCLUDE/EXCLUDE specification for the command and function associated.
• <V1> is the identifier supplied.
• <V2> is INCLUDE or EXCLUDE.

User response: Remove the specification.

FPEC2154E <V1> IS AN INVALID VALUE FOR THREADTYPE

Explanation: The value supplied for THREADTYPE in an INCLUDE/EXCLUDE or GROUP/LIST specification is incorrect.
• <V1> is the incorrect value that was supplied.

User response: See the Report Command Reference for a list of valid values for THREADTYPE. Correct the specification and rerun the job.

FPEC2155E INCLUDE/EXCLUDE ALREADY SPECIFIED FOR <V1>

Explanation: An INCLUDE or EXCLUDE specification has already been made for the identifier shown within the same command and function.
• <V1> is the identifier supplied.

User response: Remove the duplicate INCLUDE or EXCLUDE specification.

FPEC2156E <V1> IS AN INVALID VALUE FOR REQUESTTYPE

Explanation: The value supplied for REQUESTTYPE in an INCLUDE/EXCLUDE or GROUP/LIST specification is not valid.
• <V1> is the incorrect value that was supplied.

User response: See the Report Command Reference for a list of valid values for REQUESTTYPE. Correct the specification and rerun the job.

FPEC2157E VALUE <V1> SUPPLIED FOR <V2> IS TOO LONG

Explanation: The value supplied for the identifier shown in an INCLUDE/EXCLUDE or GROUP/LIST specification is too long.
• <V1> is the value the length of which is too long.
• <V2> is the identifier supplied.

User response: See the Report Command Reference for the maximum permitted length for a value of this identifier.
FPEC2158E  GENERIC VALUES FOR <V1> ARE NOT PERMITTED

Explanation:  Generic values are not permitted for the identifier shown, because they have no meaning.
•  <V1> is the identifier supplied.

User response:  Remove the generic value.

FPEC2159E  <V1> IS AN INVALID VALUE FOR RESOURCETYPE

Explanation:  The value supplied for RESOURCETYPE in an INCLUDE/EXCLUDE or GROUP/LIST specification is not valid.
•  <V1> is the incorrect value that was supplied.

User response:  See the Report Command Reference for a list of valid values for RESOURCETYPE. Correct the specification and rerun the job.

FPEC2160E  <V1> IS AN INVALID VALUE FOR TYPE

Explanation:  An INCLUDE/EXCLUDE or GROUP/LIST specification was made with an unknown type.
•  <V1> is the unknown type.

User response:  See the Report Command Reference for a list of valid types. Correct the specification and rerun the job.

FPEC2163E  THE USE OF > OR < IN <V1> VALUES IS INVALID

Explanation:  The use of > or < for the indicated identifier is not valid.
•  <V1> is the identifier that was supplied.

User response:  Correct the specification and rerun the job.

FPEC2164E  THE * IN A RANGE SPECIFICATION MUST BE THE LAST CHARACTER SPECIFIED

Explanation:  A generic value has been supplied for a range in an INCLUDE/EXCLUDE or GROUP/LIST specification. This generic value specifies multiple ranges, not a single range.

User response:  Ensure that any generic value supplied for either a range from or a range to only has an asterisk (*) as the last character in the ‘range from’ or ‘range to’ value. This ensures that the range specification only defines a single range.

FPEC2165E  VALUE <V1> SUPPLIED FOR A HEX VALUE IS THE WRONG LENGTH OR CONTAINS CHARACTERS OTHER THAN 0-9 OR A-F

Explanation:  An identifier, the values of which should be supplied in an INCLUDE/EXCLUDE or GROUP/LIST specification as hexadecimal, has been supplied a value that is either too long or has characters other than 0-9 or A-F.
•  <V1> is the invalid hexadecimal value supplied.

User response:  Correct the input and rerun the job.

FPEC2166E  RANGE IS NOT PERMITTED FOR IDENTIFIER <V1>

Explanation:  A range specification for the shown identifier is not possible. <V1> is the supplied include/exclude identifier.

User response:  Change the range specification to an enumeration of values or use the asterisk to match multiple values.

FPEC2167E  RANGE OPERATOR <V1> IS NOT VALID FOR IDENTIFIER <V2>

Explanation:  The numeric range operators ‘GT’, ‘GE’, ‘LT’, and ‘LE’ are not valid for the specified OMEGAMON XE for DB2 PE identifier. <V1> is the specified include/exclude identifier.

User response:  Change the specification. Use operator ‘R’ instead to specify a range of values.

FPEC2201E  RIGHT PARENTHESIS INSERTED TO COMPLETE <V1> SUBCOMMAND

Explanation:  A closing parenthesis was missing in a subcommand.
•  <V1> is the subcommand where the parenthesis was missing.

User response:  Correct the input.

FPEC2202E  THE <V1> SUBCOMMAND HAS ALREADY BEEN SPECIFIED <V2> TIMES FOR THIS COMMAND, THE SPECIFICATION IS IGNORED

Explanation:  There are more than the maximum number of occurrences of a subcommand.
•  <V1> is the subcommand in error.
•  <V2> is the maximum number of occurrences.

User response:  Correct the input and rerun the job.
FPEC2203E <V1> SUBCOMMAND IS INVALID FOR <V2>. INPUT IGNORED FROM <V1> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD

Explanation: The subcommand is not available with the command. For example, the REDUCE subcommand is not available with the RECTRACE command. Input was ignored between the error and the next valid command or subcommand.

• <V1> is the subcommand.
• <V2> is the command.

User response: Correct the input and rerun the job.

FPEC2204E UNEXPECTED END OF FILE ENCOUNTERED IN <V1> SUBCOMMAND

Explanation: The end of the input file was encountered before the end of the command stream. This error is most commonly caused by a missing closing parenthesis at the end of the command stream.

• <V1> is the subcommand where end of file was encountered.

User response: Correct the input and rerun the job.

FPEC2205E INVALID INPUT ENCOUNTERED IN <V1> SUBCOMMAND, INPUT IGNORED FROM <V2> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD

Explanation: A subcommand contains invalid input.

• <V1> is the subcommand that contains the error.
• <V2> is the invalid input.

User response: Correct the input and rerun the job.

FPEC2206E <V1> IS AN UNRECOGNIZABLE SUBCOMMAND KEYWORD. INPUT IGNORED FROM <V1> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD

Explanation: An unrecognized keyword was encountered. Input was ignored between the error and the next valid command or subcommand.

• <V1> is the text of the unrecognized subcommand keyword.

User response: Correct the input and rerun the job.

FPEC2301I RIGHT PARENTHESIS INSERTED TO COMPLETE <V1> OPTION

Explanation: A closing parenthesis is missing.

• <V1> is the option where the parenthesis is missing.

User response: Correct the input.

FPEC2302E <V1> OPTION ALREADY SPECIFIED FOR THIS SUBCOMMAND

Explanation: A subcommand option occurred more than once.

• <V1> is the repeated option.

User response: Correct the input and rerun the job.

FPEC2303E <V1> OPTION IS INVALID FOR <V2> <V3>. INPUT IGNORED FROM <V1> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD

Explanation: You cannot use the subcommand option in its current context. For example, you cannot use ORDER subcommand option with the STATISTICS command and its REPORT subcommand.

• <V1> is the subcommand option.
• <V2> is the command.
• <V3> is the subcommand.

User response: Correct the input and rerun the job.

FPEC2304E UNEXPECTED END OF FILE ENCOUNTERED IN <V1> OPTION

Explanation: The end of the input file was encountered before the end of the command stream. This error is most commonly caused by a missing closing parenthesis at the end of the command stream.

• <V1> is the option where end of file was encountered.

User response: Correct the input and rerun the job.

FPEC2305E INVALID INPUT ENCOUNTERED IN <V1> OPTION, INPUT IGNORED FROM <V2> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD

Explanation: The syntax of an option is incorrect.

• <V1> is the name of the option.
• <V2> is the invalid input.

User response: Correct the input and rerun the job.

FPEC2306E <V1> IS AN UNRECOGNIZABLE OPTION KEYWORD. INPUT IGNORED FROM <V1> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD

Explanation: An unrecognized option keyword was encountered. Input was ignored between the unrecognized input and the next valid command, subcommand, or option.

• <V1> is the unrecognized keyword.

User response: Correct the input and rerun the job.
FPEC2307E • FPEC2316I

FPEC2307E  <V1> IS AN INVALID <V2> PARAMETER

Explanation: A keyword cannot be used in its current context. For example, DETAIL is not valid with RECTRACE(TRACE(LEVEL)).
• <V1> is the invalid keyword.
• <V2> is the option that contains the invalid keyword.

User response: Correct the input and rerun the job.

FPEC2308E  <V1> MAXIMUM SPECIFICATION EXCEEDED, EXTRA PARAMETERS IGNORED

Explanation: There are more values for an option than allowed. For example, you can only specify three values for REPORT(ORDER). The first three values are accepted, and any subsequent values are ignored.
• <V1> is the option containing a not valid number of values.

User response: Correct the input and rerun the job.

FPEC2309E  <V1> IS AN UNRECOGNIZABLE LEVEL KEYWORD. INPUT IGNORED FROM <V1> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD

Explanation: An unrecognizable keyword was encountered in the LEVEL option of a REPORT or TRACE subcommand. Input between the error and the next valid command, subcommand, or option was ignored.
• <V1> is the unrecognized keyword.

User response: Correct the input and rerun the job.

FPEC2310E  DUPLICATE INPUT ENCOUNTERED IN <V1> OPTION. INPUT IGNORED FROM <V2> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD

Explanation: A duplicate option was specified, which is not allowed. Input is ignored between the error and the next command, subcommand, or option. Note that AUTHID and PRIMAUTH are treated as the same option. So are PACKAGE and PROGRAM. If both options are specified, they are duplicate.
• <V1> is the name of the option.
• <V2> is the duplicate input.

User response: Correct the input and rerun the job.

FPEC2311E  INVALID DATE SPECIFIED IN <V1> OPTION

Explanation: The specified date is not valid. The date can be in the format mm/dd/yy where mm is an integer in the range 1 to 12, dd is an integer in the range 1 to 31 and valid for the month and year, and yy is an integer in the range 01 to 99. However, depending on the DATEFORMAT parameter, the date can also be specified in a different format.
• <V1> is the option that contains the invalid date.

User response: Correct the input and rerun the job.

FPEC2312E  INVALID TIME SPECIFIED IN <V1> OPTION

Explanation: The specified time is not valid. The time must be in the format hh:mm:ss.th where hh is an integer in the range 0 to 23, mm and ss are integers in the range 0 to 59, and lh is an integer in the range 0 to 99. Trailing zeros can be omitted.
• <V1> is the option that contains the invalid time.

User response: Correct the input and rerun the job.

FPEC2313E  <V1> IS AN UNRECOGNIZABLE TYPE KEYWORD. INPUT IGNORED FROM <V1> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD

Explanation: The keyword specified for TYPE cannot be recognized.
• <V1> is the unrecognized keyword.

User response: Correct the input and rerun the job.

FPEC2314I  REQUESTTYPE IS TRANSLATED INTO THE APPROPRIATE TYPE

Explanation: The OMEGAMON XE for DB2 PE identifier REQUESTTYPE is no longer used and is therefore replaced by its equivalent TYPE.

User response: You might want to change the keyword REQUESTTYPE to TYPE and the type to its equivalent, for example, CLAIM to CLAIMREQ.

FPEC2315E  INCLUDE/EXCLUDE(TYPE) ON TRACE LEVELS OTHER THAN DETAIL IS NOT VALID

Explanation: The INCLUDE/EXCLUDE(TYPE) parameter in a command specification is not valid for a TRACE LEVEL other than DETAIL.

User response: Change the TRACE LEVEL to DETAIL or remove the INCLUDE/EXCLUDE(TYPE) parameter.

FPEC2316I  DUE TO THE EXCLUDE SPECIFICATION ON TYPE THE INCLUDEREQUESTTYPE) CANNOT BE TRANSLATED, THE EXCLUDEREQUESTTYPE) IS IGNORED

Explanation: Both EXCLUDE(TYPE) and INCLUDEREQUESTTYPE) were specified in a LOCKING TRACE command. The EXCLUDE(TYPE) is
executed and INCLUDE(REQUESTTYPE) is ignored.

User response: Correct the specification.

FPEC2317I NOT ALL TYPES ARE APPLICABLE TO THE <V1> SUBCOMMAND

Explanation: The LOCKING command with subcommand <V1> and subcommand option INCLUDE or EXCLUDE is used, however, for the OMEGAMON XE for DB2 PE identifier TYPE (used with INCLUDE or EXCLUDE) an event type is specified that is not applicable with the <V1> subcommand.

• <V1> is the subcommand used with the LOCKING command.

User response: See the Report Command Reference for an explanation of OMEGAMON XE for DB2 PE identifiers and identifiers used with the INCLUDE or EXCLUDE subcommand option.

FPEC2318E TYPE IS NOT VALID FOR INCLUDE OR EXCLUDE WITHIN A LOCKING REPORT

Explanation: INCLUDE/EXCLUDE(TYPE) was specified within a LOCKING REPORT command. This is not valid.

User response: Remove the INCLUDE/EXCLUDE specification for this command.

FPEC2319I REQUESTTYPE IS NO LONGER SUPPORTED FOR INCLUDE OR EXCLUDE WITHIN A LOCKING REPORT. REQUESTTYPE OPTION FOR INCLUDE/EXCLUDE IS IGNORED

Explanation: INCLUDE/EXCLUDE(REQUESTTYPE) was specified within a LOCKING REPORT command. This is no longer supported. The specification is ignored.

User response: None. However, you may wish to remove the INCLUDE/EXCLUDE specification for this command.

FPEC2321I INCLUDE/EXCLUDE(REQUESTTYPE) ON TRACE LEVELS OTHER THAN DETAIL IS IGNORED

Explanation: INCLUDE/EXCLUDE(REQUESTTYPE) was specified within a LOCKING TRACE command. This is no longer supported. The specification is ignored.

User response: None. However, you may wish to remove the INCLUDE/EXCLUDE specification for this command or change LEVEL to DETAIL.

FPEC2323I <V1> IS AN AMBIGUOUS ABBREVIATION IN THIS CONTEXT. <V2> IS ASSUMED

Explanation: The abbreviated option or parameter <V1> is specified in SYSIN. However, <V1> is too short to be unambiguous and can match more than one possible option or parameter. <V2> is assumed for further processing.

User response: If the assumed option or parameter is not correct, specify a longer abbreviation or the full name.

FPEC2341E DDNAME <V1> EXCEEDS 8 CHARACTERS

Explanation: The value specified for a ddname option contains more than eight characters.

• <V1> is the ddname.

User response: Correct the input and rerun the job.

FPEC2342E LAYOUT <V1> EXCEEDS 8 CHARACTERS

Explanation: The value specified for the LAYOUT option contains more than eight characters.

• <V1> is the LAYOUT.

User response: Correct the input and rerun the job.

FPEC2343E GROUP/LIST NAME <V1> EXCEEDS 8 CHARACTERS

Explanation: The value specified for the GROUP/LIST name contains more than eight characters.

• <V1> is the LAYOUT.

User response: Correct the input and rerun the job.

FPEC2361E INVALID LEVEL PARMS FOR REQUESTED FUNCTION

Explanation: The value specified for LEVEL cannot be used in the current context. For example, RECTRACE(LEVEL(DETAIL)) is not valid.

User response: Correct the input and rerun the job.

FPEC2371E INVALID TYPE PARMS FOR REQUESTED FUNCTION

Explanation: The value specified for TYPE cannot be used in the current context. For example, TRANSIT(REPORT(TYPE(AUTHFAIL))) is not valid.

User response: Correct the input and rerun the job.
FPEC2401E • FPEC2508E

FPEC2401E  INCLUDE/EXCLUDE FOR <V1>
INVALID. INPUT IGNORED FROM
<V1> TO NEXT COMMAND,
SUBCOMMAND, OR OPTION
KEYWORD

Explanation: A keyword or value specified in
INCLUDE/EXCLUDE cannot be used in the specified
context. For example, you cannot use
INCLUDE/EXCLUDE(IFCID) with the ACCOUNTING
command. Input is ignored between the invalid
keyword and the next valid command, subcommand,
or option.

• <V1> is the keyword that cannot be used with
INCLUDE/EXCLUDE.

User response: Correct the input and rerun the job.

FPEC2402E  LOCATION IS NOT PERMITTED FOR
GROUP. INPUT IGNORED FROM
LOCATION TO NEXT COMMAND,
SUBCOMMAND, OR OPTION
KEYWORD

Explanation: You cannot use the LOCATION identifier
with the GROUP command.

User response: Correct the input and rerun the job.

FPEC2403E  GROUP COMMANDS CANNOT
CONTAIN REFERENCES TO OTHER
GROUP DEFINITIONS. INPUT
IGNORED FROM G TO NEXT
COMMAND, SUBCOMMAND, OR
OPTION KEYWORD

Explanation: A group cannot contain a group.

User response: Correct the input and rerun the job.

FPEC2404E  REQLOC IS NOT PERMITTED FOR
GROUP. INPUT IGNORED FROM
REQLOC TO NEXT COMMAND,
SUBCOMMAND, OR OPTION
KEYWORD

Explanation: You cannot use the REQLOC identifier
with the GROUP command.

User response: Correct the input and rerun the job.

FPEC2405E  <V1> SPECIFICATION HAS NO
ASSOCIATED VALUES.
SPECIFICATION REJECTED

Explanation: No values were supplied for the GROUP
or LIST specification.

• <V1> is GROUP or LIST.

User response: Correct the input and rerun the job.

FPEC2401E  INVALID TIMEZONE PARAMETER

Explanation: The value specified for TIMEZONE is
not valid. Specify the time adjustment in the form
+hh:mm or -hh:mm, where hh is an integer in the range 0
to 23, and mm is an integer in the range 0 to 59.
Trailing zeros can be omitted.

User response: Correct the input and rerun the job.

FPEC2502E  INVALID PAGESIZE PARAMETER

Explanation: The value specified for PAGESIZE is not
valid. Specify an integer in the range 50 to 999.

User response: Correct the input and rerun the job.

FPEC2503E  <V1> OPTION ALREADY SPECIFIED
FOR GLOBAL

Explanation: An option keyword was specified twice
in the GLOBAL command.

• <V1> is the keyword that was specified twice.

Note that GLOBAL(DB2ID(XXXX)) is interpreted as
GLOBAL(INCLUDE(DB2ID(XXXX))).

User response: Correct the input and rerun the job.

FPEC2504I  RECHOLD OPTION IS OBSOLETE
AND IS IGNORED

Explanation: None.

User response: None.

FPEC2505E  <V1> IS AN INVALID DB2ID

Explanation: The value specified for DB2ID is not valid.

• <V1> is the invalid value.

User response: Correct the input and rerun the job.

FPEC2506E  <V1> IS AN INVALID LOCATION

Explanation: The value specified for LOCATION is
not valid.

• <V1> is the invalid value.

User response: Correct the input and rerun the job.

FPEC2508E  NO TIMEZONE PARAMETERS
AVAILABLE FOR <V1>

Explanation: A location has been specified with the
TIMEZONE option that is not listed in the LOCDATA
member of DPMPARMS.

• <V1> is the invalid location.

User response: Specify a valid location with
TIMEZONE, or add the specified location to
LOCDATA.
FPEC2509E <V1> IS AN UNRECOGNIZED PRESORTED KEYWORD. INPUT IGNORED FROM <V1> TO NEXT COMMAND KEYWORD

Explanation: An invalid parameter was supplied with PRESORTED option.
• <V1> is the invalid keyword.

User response: Specify a valid keyword with PRESORTED option.

FPEC2510I GLOBAL LOCATION/DB2ID OPTION NO LONGER SUPPORTED. MAKE AN APPROPRIATE GLOBAL INCLUDE SPECIFICATION. SPECIFICATION IGNORED

Explanation: The GLOBAL LOCATION and GLOBAL DB2ID options are not supported in this version.

User response: Correct the input.

FPEC2511E <V1> IS AN UNRECOGNIZED SPANINC KEYWORD. INPUT IGNORED FROM <V1> TO NEXT COMMAND KEYWORD

Explanation: An invalid keyword was supplied with the SPANINC subcommand. <V1> is the invalid keyword.

User response: Specify a valid keyword with SPANINC subcommand.

FPEC2513I OPTION DSETSTAT IS NO LONGER SUPPORTED FOR STATISTICS <V1> SUBCOMMAND IN CONJUNCTION WITH OPTION INTERVAL(X), X > 0. OPTION DSETSTAT IS IGNORED.

Explanation: Statistics interval processing with intervals > 0 can only be applied to IFCIDs 1, 2, 225 and 369 that are externalized by DB2 every minute. IFCID 199 externalization is controlled by system parameter STATIME and may range from 1 to 60 minutes. <V1> is the REPORT or SAVE command.

User response: Remove the DSETSTAT option from the subcommand.

FPEC2555E LEVEL OPTION HAS BEEN SPECIFIED WITH LAYOUT, SORTBY, SUMMARIZEBY, OR WORKLOAD. POTENTIALLY AMBIGUOUS SPECIFICATION REJECTED

Explanation: The old LEVEL option is internally translated into LAYOUT, SORTBY, SUMMARIZEBY, or WORKLOAD specifications as appropriate. If LEVEL is supplied with any of these options, the specification is rejected.

User response: Correct the specification and rerun the job.

FPEC2602E RANGE TO VALUE IS GREATER THAN RANGE FROM VALUE

Explanation: A range specified in INCLUDE or EXCLUDE is not valid.

User response: Correct the input and rerun the job.

FPEC2603E GROUP/LIST BY <V1> INVALID, INPUT IGNORED FROM <V1> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD

Explanation: The identifiers shown are not valid with GROUP or LIST.
• <V1> is the identifier.
• <V2> is the next identifier.

User response: Correct the input and rerun the job.

FPEC2604E <V1> PREVIOUSLY SPECIFIED FOR INCLUDE/EXCLUDE. INPUT IGNORED FROM <V1> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD

Explanation: The same identifier keyword was used more than once with INCLUDE or EXCLUDE. A keyword can be used once in either INCLUDE or EXCLUDE.
• <V1> is the identifier.

User response: Correct the input and rerun the job.

FPEC2701E <V1> OPTION ALREADY SPECIFIED FOR <V2> COMMAND

Explanation: An option keyword cannot be used in its current context. It has already been used with this command.
• <V1> is the duplicated option keyword.
• <V2> is the command that contains the duplicated keyword.

User response: Correct the input and rerun the job.

FPEC2702E OPTION <V1> MISSING IN <V2> COMMAND

Explanation: A required option has not been specified with this command.
• <V1> is the required option.
• <V2> is the command in which the option is missing.

User response: Correct the input and rerun the job.
FPEC2703E • FPEC2867I

FPEC2703E <V1> OPTION INVALID FOR <V2> COMMAND
Explanation: An option keyword cannot be used with this command. For example, RECTRACE(TRACE(TYPE)).
• <V1> is the invalid option keyword.
• <V2> is the command that contains the invalid keyword.
User response: Correct the input and rerun the job.

FPEC2704I <V1> IS NOT AVAILABLE TO <V2>. INPUTDD IS ASSUMED
Explanation: A not valid ddname was specified on the EXEC option of the DUMP or TAPECOPY command. INPUTDD is the only valid ddname for the EXEC option. The command is processed using INPUTDD.
• <V1> is the invalid ddname.
• <V2> is DUMP or TAPECOPY.
User response: Specify INPUTDD on the EXEC option, or do not specify the EXEC option.

FPEC2750I ORDER OPTION NO LONGER AVAILABLE FOR SQL ACTIVITY
Explanation: The SQLTRACE ORDER is no longer supported and has been ignored.
User response: Correct the input.

FPEC2851I OBSOLETE TYPE FOUND, TYPE IGNORED
Explanation: COMMAND, SQL, and UNASSIGNED are obsolete types, but one of these was entered.
User response: Enter a valid type.

FPEC2860E <V1> IS AN UNRECOGNIZABLE SORTBY PARAMETER. INPUT IGNORED FROM <V1> TO NEXT COMMAND KEYWORD
Explanation: An unrecognized SORTBY parameter has been supplied.
• <V1> is the unrecognized SORTBY parameter.
User response: Correct the input and rerun the job.

FPEC2861E <V1> IS AN INVALID SORTBY PARAMETER FOR THIS COMMAND. INPUT IGNORED FROM <V1> TO NEXT COMMAND, SUBCOMMAND, OR OPTION KEYWORD
Explanation: The SORTBY parameter supplied is not valid for this command.
• <V1> is the unrecognized SORTBY parameter.
User response: Correct the input and rerun the job.

FPEC2862E <V1> IS AN UNRECOGNIZABLE SUMMARIZEBY PARAMETER. INPUT IGNORED FROM <V1> TO NEXT COMMAND KEYWORD
Explanation: An unrecognized SUMMARIZEBY parameter has been supplied.
• <V1> is the unrecognized SUMMARIZEBY parameter.
User response: Correct the input and rerun the job.

FPEC2864I LAYOUT <V1> SUPPLIED IS LONGER THAN SIX CHARACTERS. OPTION IGNORED
Explanation: The LAYOUT parameter supplied is too long.
• <V1> is the LAYOUT parameter supplied.
User response: Correct the input.

FPEC2865E <V1> IS AN UNRECOGNIZABLE WORKLOAD PARAMETER. INPUT IGNORED FROM <V1> TO NEXT COMMAND KEYWORD
Explanation: An unrecognized WORKLOAD parameter has been supplied.
• <V1> is the unrecognized WORKLOAD parameter.
User response: Correct the input and rerun the job.

FPEC2866E NONE SPECIFICATION FOR WORKLOAD CONFLICTS WITH OTHER WORKLOAD PARAMETERS. WORKLOAD SPECIFICATION REJECTED
Explanation: WORKLOAD (NONE) has been supplied with another WORKLOAD parameter. This ambiguous specification is rejected.
User response: Correct the WORKLOAD option and rerun the job.

FPEC2867I LEVEL SPECIFICATION FOR ACCOUNTING SUPERSEDED IN THIS RELEASE BY THE LAYOUT, EXCEPTION/NOEXCEPTION, AND MERGE/NOMERGE OPTIONS
Explanation: The LEVEL option of the ACCOUNTING command has been replaced by the other options shown.
User response: Correct the input as required.
FPEC2868I  LEVEL SPECIFICATION FOR STATISTICS SUPERSEDED IN THIS RELEASE BY THE LAYOUT AND EXCEPTION/NOEXCEPTION OPTIONS

Explanation: The LEVEL option of the STATISTICS command has been replaced by the other options shown.

User response: Correct the input as required.

FPEC2869I  LEVEL SPECIFICATION FOR SQLACTIVITY SUPERSEDED IN THIS RELEASE BY THE SUMMARIZEBY AND WORKLOAD OPTIONS

Explanation: The LEVEL option of the SQLACTIVITY command has been replaced by the other options shown.

User response: Correct the input as required.

FPEC2870I  SUMMARIZEBY(OCCURRENCE) IN REPORT WOULD PROVIDE EXCESSIVE DETAIL. SPECIFICATION IGNORED

Explanation: The use of SUMMARIZEBY by OCCURRENCE in REPORT is considered excessive.

User response: Correct the input and rerun the job.

FPEC2871E  SCOPE PARAMETER <V1> SUPPLIED IS INVALID. SPECIFICATION REJECTED

Explanation: An invalid parameter was passed for the SCOPE option.

User response: Correct the input and rerun the job. For further information, see the Report Command Reference.

FPEC2872E  SORT FIELD <V1> IS INVALID BECAUSE A SORT FIELD IDENTIFIER HAS ALREADY BEEN SPECIFIED

Explanation: A sort field has already been specified with the SORTBY option of the ORDER parameter. Only one sort field is allowed. <V1> is the redundant sort field.

User response: Remove redundant sort field specifications from the BPACTIVITY command.

FPEC2873E  IDENTIFIER <V1> IS NOT ALLOWED. A SORT FIELD IDENTIFIER HAS ALREADY BEEN SPECIFIED. THE SORT FIELD HAS TO BE THE LAST PARAMETER IN THE SORTBY OPTION.

Explanation: The specified identifier is not valid because a sort field has already been specified. The sort field is always the last value specified with the SORTBY option.

User response: Correct the SORTBY option of the BPACTIVITY command so that the order identifiers are listed first and the sort field is the last value.

FPEC2874E  SORTBY IDENTIFIER <V1> EXCEEDS MAXIMUM COUNT OF IDENTIFIERS. COUNT OF IDENTIFIERS IN SORTBY OPTION MUST BE LESS THAN THE COUNT OF IDENTIFIERS IN ORDER OPTION.

Explanation: You cannot specify more SORTBY identifiers than the number of identifiers specified for the ORDER option.

User response: Correct the SORTBY option so that it contains fewer identifiers than the ORDER option.

FPEC2875E  SORTBY IDENTIFIER <V1> DOES NOT MATCH IDENTIFIER <V2> AT THE MATCHING POSITION OF THE ORDER OPTION.

Explanation: Specified SORTBY identifiers must match the specified identifiers for the ORDER option. <V1> is the specified SORTBY identifier, <V2> is the specified ORDER identifier at the same position.

User response: Correct the identifiers for the SORTBY option to match the identifiers for the ORDER option.

FPEC2876E  SORT FIELD IDENTIFIER <V1> IS NOT ALLOWED FOR LEVEL (<V2>).

Explanation: Sort fields cannot be specified for all levels of reporting. The specified identifier is not valid for this report level. <V1> is the sort field specified with the SORTBY option, <V2> is the report level specified with the LEVEL option.

User response: Correct the SORTBY option and use a supported sort field for the selected LEVEL.

FPEC2877E  ORDER PARAMETER MUST BE BPID-QPAGESET FOR LEVEL(SUMMARY)

Explanation: For summary reports only ORDER parameter BPID-PAGESET is allowed.

User response: Correct the ORDER parameter.
FPEC2878E  NO SORT FIELD PARAMETER SPECIFIED WITH THE SORTBY OPTION. THE LAST PARAMETER IN THE SORTBY OPTION MUST BE A SORT FIELD.

Explanation: No sort field was specified with the SORTBY option.
User response: Correct the SORTBY option.

FPEC2879E  The REPORT subcommand must be used with the LEVEL(SUMMARY) option if FILE LEVEL(SUMMARY) is also specified

Explanation: FILE LEVEL(SUMMARY) results in detailed data being removed from the input stream. Detail data is required by the REPORT subcommand if LEVEL(DETAIL) is specified or if the LEVEL option is not specified, because DETAIL is the default value. Therefore these combinations are not supported.
User response: Correct the input and rerun the job.

FPEC2902E  INVALID DELIMITER FOUND IN FIELD COMMAND

Explanation: The delimiter used in the FIELD command is not valid.
User response: Correct the input and rerun the job.

FPEC2908E  END OF FILE ENCOUNTERED READING SQL STATEMENT. ENSURE THAT STATEMENT IS TERMINATED BY ";"

Explanation: An SQL statement was not terminated with a semicolon (;).
User response: Correct the input and rerun the job.

FPEC2909E  SQL STATEMENT SUPPLIED EXCEEDS 32700 BYTES. STATEMENT TRUNCATED

Explanation: SQL statements that exceed 32700 bytes are truncated. Truncated SQL statements most likely cause processing errors.
User response: Use an SQL statement that does not exceed 32700 bytes and rerun the job.

FPEC2910E  INVALID INPUT <V1> IN EXPLAIN <V2> COMMAND

Explanation: The value supplied in the EXPLAIN command is not valid.
• <V1> is the invalid input.
• <V2> is one of the EXPLAIN keywords:
  – PLAN
  – PACKAGE
User response: Correct the input.

FPEC2911E  UNEXPECTED END OF FILE ENCOUNTERED IN EXPLAIN COMMAND

Explanation: The specified EXPLAIN command is not complete.
User response: Complete the EXPLAIN command specification. See the Report Command Reference for EXPLAIN syntax diagrams.

FPEC2912E  UNEXPECTED KEYWORD FOLLOWS EXPLAIN. PLAN, PACKAGE, QMFQUERY, QUERYNO, OR SQLSTATEMENT EXPECTED

Explanation: The supplied EXPLAIN keyword is not valid.
User response: Correct the input. Valid keywords are:
• PLAN
• PACKAGE
• QMFQUERY
• QUERYNO
• SQLSTATEMENT.

FPEC2913E  PLAN NAME EXPECTED BUT <V1> ENCOUNTERED

Explanation: An invalid plan name was supplied.
• <V1> is the invalid plan name.
User response: Enter a valid plan name.

FPEC2914E  PLANNAME PARAMETER <V1> SUPPLIED IS TOO LONG

Explanation: <V1> is the invalid plan name parameter.
The length of this value must not exceed 8 characters.
User response: Specify a value with a maximum length of 8 characters.

FPEC2915E  PACKAGE EXPECTED BUT <V1> ENCOUNTERED

Explanation: An invalid package was supplied.
• <V1> is the invalid package.
User response: Enter a valid package.
FPEC2916E  QUERY NUMBER EXPECTED BUT <V1> ENCOUNTERED

Explanation:  A not valid query number was supplied.
• <V1> is the invalid query number.
User response:  Enter a valid query number.

FPEC2917E  SQL STATEMENT EXPECTED BUT <V1> ENCOUNTERED

Explanation:  A not valid SQL statement was supplied.
• <V1> is the invalid string supplied.
User response:  Enter a valid SQL statement.

FPEC2918E  EXPLAIN <V1> OPTION <V2> ALREADY SPECIFIED

Explanation:  In the list of options, <V2> is detected two or more
times, however, this option can be specified only once.
User response:  Remove all specifications of option <V2> except for one.

FPEC2919E  OPTION <V1> NOT VALID FOR EXPLAIN <V2>

Explanation:  A not valid option was supplied with the EXPLAIN keyword.
• <V1> is the invalid option.
• <V2> is the EXPLAIN keyword.
User response:  Correct the input.

FPEC2920E  BOTH COLLECTION AND PACKAGE ID MUST BE SUPPLIED FOR AN EXPLAIN PACKAGE REQUEST

Explanation:  None.
User response:  Specify a collection ID and a package ID for the EXPLAIN PACKAGE specification.

FPEC2921E  ONE OR MORE OF THE COMPONENTS OF THE PACKAGE SPECIFICATION EXCEED THE PERMITTED MAXIMUM

Explanation:  For the parameters Location, Collection, and Package_ID, the maximum length is 18 characters. For the parameter Package_Version_ID, the maximum length is 39 characters.
User response:  Specify values within the limit for the maximum length.

FPEC2922E  QUERY NUMBER <V1> SUPPLIED IS TOO BIG

Explanation:  The query number supplied is longer than 10 characters. Such a number cannot identify a PLAN_TABLE row.
• <V1> is the query number supplied.
User response:  Correct the input and rerun the job.

FPEC2940E  ACCTYPE PARAMETER <V1> SUPPLIED IS INVALID. VALID ACCTYPE VALUES ARE: ALL, MATCHING, NONMATCH, OR TABSCAN

Explanation:  None.
• <V1> is the invalid ACCTYPE parameter supplied.
User response:  Enter a valid ACCTYPE parameter.

FPEC2941E  THE SPECIFIED VALUE <V1> FOR THE DBRM PARAMETER IS TOO LONG.

Explanation:  None.
• <V1> is the invalid value for the DBRM parameter. This value must not exceed 8 characters.
User response:  Specify a value with a maximum length of 8 characters.

FPEC2942E  THE SPECIFIED VALUE <V1> FOR THE DBRM PARAMETER IS INVALID.

Explanation:  None.
• <V1> is the invalid value for the DBRM parameter. This value must be alphabetic.
User response:  Specify an alphabetic value for the DBRM parameter.

FPEC2943E  FORCE PARAMETER <V1> SUPPLIED IS INVALID. VALID FORCE VALUES ARE: YES OR NO

Explanation:  None.
• <V1> is the invalid FORCE parameter.
User response:  Enter YES or NO.

FPEC2944E  FIRST PARAMETER <V1> SUPPLIED IS INVALID. FIRST PARAMETER MUST BE NUMERIC IN THE RANGE 0 - 9999999

Explanation:  None.
• <V1> is the invalid FIRST parameter.
User response:  Enter a value in the range 0 to 9999999.
<table>
<thead>
<tr>
<th>Error Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEC2945E</td>
<td>FORMAT PARAMETER &lt;V1&gt; SUPPLIED IS INVALID. VALID FORMAT VALUES ARE: YES OR NO</td>
</tr>
<tr>
<td>Explanation:</td>
<td>&lt;V1&gt; is the invalid FORMAT parameter.</td>
</tr>
<tr>
<td>User response:</td>
<td>Enter YES or NO.</td>
</tr>
<tr>
<td>FPEC2946E</td>
<td>GEN PARAMETER &lt;V1&gt; SUPPLIED IS INVALID. GEN MUST BE NUMERIC IN THE RANGE 1 - 99</td>
</tr>
<tr>
<td>Explanation:</td>
<td>&lt;V1&gt; is the invalid GEN parameter.</td>
</tr>
<tr>
<td>User response:</td>
<td>Enter a value in the range 1 to 99.</td>
</tr>
<tr>
<td>FPEC2947E</td>
<td>HOSTVAR PARAMETER &lt;V1&gt; SUPPLIED IS INVALID. HOSTVAR VALUES ARE: YES OR NO</td>
</tr>
<tr>
<td>Explanation:</td>
<td>&lt;V1&gt; is the invalid HOSTVAR parameter.</td>
</tr>
<tr>
<td>User response:</td>
<td>Enter YES or NO.</td>
</tr>
<tr>
<td>FPEC2948E</td>
<td>SSID PARAMETER &lt;V1&gt; SUPPLIED IS TOO LONG</td>
</tr>
<tr>
<td>Explanation:</td>
<td>&lt;V1&gt; is the invalid value for the SSID parameter. This value must not exceed 4 characters.</td>
</tr>
<tr>
<td>User response:</td>
<td>Specify a value with a maximum length of 4 characters.</td>
</tr>
<tr>
<td>FPEC2949E</td>
<td>INDEXES PARAMETER &lt;V1&gt; SUPPLIED IS INVALID. VALID INDEXES VALUES ARE: ALL, YES, OR NO</td>
</tr>
<tr>
<td>Explanation:</td>
<td>None.</td>
</tr>
<tr>
<td>User response:</td>
<td>Enter ALL, YES, or NO.</td>
</tr>
<tr>
<td>FPEC2950E</td>
<td>LAST PARAMETER &lt;V1&gt; SUPPLIED IS INVALID. LAST PARAMETER MUST BE NUMERIC IN THE RANGE 0 - 9999999</td>
</tr>
<tr>
<td>Explanation:</td>
<td>None.</td>
</tr>
<tr>
<td>User response:</td>
<td>Enter a value in the range 0 to 9999999.</td>
</tr>
<tr>
<td>FPEC2951E</td>
<td>LOCATION PARAMETER &lt;V1&gt; SUPPLIED IS INVALID. LOCATION VALUE MUST BE ALPHABETIC</td>
</tr>
<tr>
<td>Explanation:</td>
<td>None.</td>
</tr>
<tr>
<td>User response:</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEC2952E</td>
<td>LOCATION PARAMETER &lt;V1&gt; SUPPLIED IS TOO LONG</td>
</tr>
<tr>
<td>Explanation:</td>
<td>&lt;V1&gt; is the invalid value for the LOCATION parameter. This value must not exceed 16 characters.</td>
</tr>
<tr>
<td>User response:</td>
<td>Specify a value with a maximum length of 16 characters.</td>
</tr>
<tr>
<td>FPEC2953E</td>
<td>LEVEL PARAMETER &lt;V1&gt; SUPPLIED IS INVALID. VALID LEVEL VALUES ARE: DETAIL, BASIC, INDEXES, KEYDIST, SQL, SUMMARY, OR NORAWXPL</td>
</tr>
<tr>
<td>Explanation:</td>
<td>None.</td>
</tr>
<tr>
<td>User response:</td>
<td>Enter one of the valid LEVEL parameters listed in the message.</td>
</tr>
<tr>
<td>FPEC2954E</td>
<td>PACKAGES PARAMETER &lt;V1&gt; SUPPLIED IS INVALID. PACKAGES ARE: ALL, YES, OR NO</td>
</tr>
<tr>
<td>Explanation:</td>
<td>None.</td>
</tr>
<tr>
<td>User response:</td>
<td>Enter ALL, YES, or NO.</td>
</tr>
<tr>
<td>FPEC2955E</td>
<td>SQLID PARAMETER &lt;V1&gt; SUPPLIED IS INVALID. SQLID VALUE MUST BE ALPHABETIC</td>
</tr>
<tr>
<td>Explanation:</td>
<td>None.</td>
</tr>
<tr>
<td>User response:</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEC2956E</td>
<td>SQLID PARAMETER &lt;V1&gt; SUPPLIED IS TOO LONG</td>
</tr>
<tr>
<td>Explanation:</td>
<td>&lt;V1&gt; is the invalid value for the SQLID parameter. This value must not exceed 8 characters.</td>
</tr>
<tr>
<td>User response:</td>
<td>Specify a value with a maximum length of 8 characters.</td>
</tr>
<tr>
<td>FPEC2957E</td>
<td>PLANNAME PARAMETER &lt;V1&gt; SUPPLIED IS INVALID. PLANNAME VALUE MUST BE ALPHABETIC</td>
</tr>
<tr>
<td>Explanation:</td>
<td>None.</td>
</tr>
<tr>
<td>User response:</td>
<td>Correct the input.</td>
</tr>
</tbody>
</table>
FPEC2958E  PLANNAME PARAMETER <V1> SUPPLIED IS TOO LONG
Explanation: None.
• <V1> is the invalid PLANNAME parameter.
User response: Correct the input.

FPEC2959E  AUTHID PARAMETER <V1> SUPPLIED IS TOO LONG
Explanation: None.
• <V1> is the invalid AUTHID parameter.
User response: Correct the input.

FPEC2960E  TABLE PARAMETER <V1> SUPPLIED IS TOO LONG
Explanation: None.
• <V1> is the invalid TABLE parameter.
User response: Correct the input.

FPEC2961E  OWNER PARAMETER <V1> SUPPLIED IS INVALID. OWNER VALUE MUST BE ALPHABETIC
Explanation: A not valid OWNER parameter was specified.
• <V1> is the OWNER parameter supplied.
User response: Correct the input and rerun the job.

FPEC2962E  OWNER PARAMETER <V1> SUPPLIED IS TOO LONG
Explanation: None.
• <V1> is the OWNER parameter supplied.
User response: Correct the input and rerun the job.

FPEC2963E  PACKLIMIT PARAMETER <V1> SUPPLIED IS INVALID. PACKLIMIT VALUE MUST BE NUMERIC IN THE RANGE 0 TO 99999
Explanation: An invalid PACKLIMIT parameter was specified.
• <V1> is the PACKLIMIT parameter supplied.
User response: Specify a value from 0 through 99 999 for the PACKLIMIT parameter.

FPEC2964E  DEGREE PARAMETER <V1> SUPPLIED IS INVALID. VALID DEGREE VALUES ARE: ANY, DSJ, ESJ, OR 1
Explanation: A not valid DEGREE parameter was supplied.
• <V1> is the DEGREE parameter supplied.
User response: Correct the input by supplying one of the listed values and rerun the job.

FPEC2965E  INDATABASE PARAMETER <V1> SUPPLIED IS INVALID. INDATABASE VALUE MUST BE ALPHABETIC
Explanation: A not valid INDATABASE parameter was supplied.
• <V1> is the invalid INDATABASE parameter supplied.
User response: Correct the input and rerun the job.

FPEC2966E  INDATABASE PARAMETER <V1> SUPPLIED IS TOO LONG
Explanation: The INDATABASE parameter supplied exceeds the maximum allowable length of 18 characters.
• <V1> is the invalid INDATABASE parameter supplied.
User response: Correct the input and rerun the job.

FPEC2967E  KEYDICTIONARY PARAMETER <V1> SUPPLIED IS INVALID. VALID KEYDICTIONARY VALUES ARE: YES OR NO
Explanation: None.
• <V1> is the invalid KEYDICTIONARY parameter supplied.
User response: Enter YES or NO, respectively Y or N.

FPEC2968E  REPLACE PARAMETER <V1> SUPPLIED IS INVALID. VALID REPLACE VALUES ARE: YES OR NO
Explanation: None.
• <V1> is the invalid REPLACE parameter supplied.
User response: Enter YES or NO, respectively Y or N.

FPEC2969E  DATABASE PARAMETER <V1> SUPPLIED IS TOO LONG
Explanation: The DATABASE parameter supplied exceeds the maximum allowable length of 18 characters.
• <V1> is the invalid DATABASE parameter supplied.
User response: Correct the input and rerun the job.

FPEC2990I  PARM SPECIFICATION OBSOLETE IN THIS RELEASE. SPECIFICATION IGNORED
Explanation: The PARM command is no longer used.
User response: None.
<table>
<thead>
<tr>
<th>FPEC3001E</th>
<th>ERROR INITIALIZING CORRELATION PROCESSING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>An error was found in the correlation translation data set.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input and rerun the job.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEC3011E</th>
<th>&lt;V1&gt; &lt;V2&gt; FROM DATE/TIME IS EQUAL TO OR LATER THAN TO DATE/TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>The specified FROM date and time is equal to or later than the TO date and time.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V1&gt; is the command that contains the error.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V2&gt; is the subcommand that contains the error.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input and rerun the job.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEC3012E</th>
<th>REQUESTED FUNCTIONAL SPECIFICATION FOR &lt;V1&gt; IS IMPROPER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>The combination of commands would not give a result. There are probably commands missing from the input, or an improper subcommand combination has been specified.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V1&gt; is the command containing the combination.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input and rerun the job.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEC3014E</th>
<th>SAVE REQUESTED FOR &lt;V1&gt; HAS BEEN CANCELED BECAUSE NO REDUCE WAS REQUESTED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>A SAVE subcommand was not processed because there was no new data to save. This message is printed if there are only RESTORE, REPORT, and SAVE subcommands in the command stream.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V1&gt; is the command that contains the SAVE subcommand.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input and rerun the job.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEC3017E</th>
<th>DATA FROM RESTORE DDNAME &lt;V1&gt; IS FOR &lt;V3&gt;, &lt;V2&gt; DATA IS EXPECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>The data in the restore data set is not from the report set being processed. For example, the command being processed is ACCOUNTING(RESTORE), and the restore data set contains statistics data.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V1&gt; is the ddname for the restore data.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V2&gt; is the name of the report set being processed.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V3&gt; is the report set to which the data belongs.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input and rerun the job.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEC3018E</th>
<th>&lt;V1&gt; DATA HAS WRONG PRODUCT VERSION. MIGRATION REQUIRED BEFORE USE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>The data in the restore data set is not compatible with this release. Data from earlier versions must be migrated before being restored.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V1&gt; is the ddname for the restore data.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Use the save-file utility MIGRATE function to change the data to the correct format.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEC3019I</th>
<th>&lt;V1&gt; RESTORE DATA BOUNDARY DIFFERENT TO REDUCE, &lt;V2&gt; REDUCE BOUNDARY SET TO &lt;V3&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>The boundary used to reduce the data in the restore data set was different to the REDUCE(BOUNDARY) specification in the job stream. When combining restored data and newly reduced data, the boundary of restored data must be the same as newly reduced data. The REDUCE(BOUNDARY) is adjusted to match the boundary of the restored data, and processing continues.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V1&gt; is the ddname for the restore data.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V2&gt; is the report set containing the incorrect setting for BOUNDARY.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V3&gt; is the adjusted value for REDUCE(BOUNDARY).</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input if required.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEC3020I</th>
<th>&lt;V1&gt; RESTORE DATA INTERVAL DIFFERENT TO REDUCE, &lt;V2&gt; REDUCE INTERVAL SET TO &lt;V3&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>The interval used to reduce the data in the restore data set was different to the REDUCE(INTERVAL) specification in the job stream. When combining restored data and newly reduced data, the interval of restored data must be the same as newly reduced data. The REDUCE(INTERVAL) is adjusted to match the boundary of the restored data, and processing continues.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V1&gt; is the ddname for the restore data.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V2&gt; is the report set containing the incorrect setting for INTERVAL.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V3&gt; is the adjusted value for REDUCE(INTERVAL).</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input if required.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEC3021E</th>
<th>&lt;V1&gt; &lt;V2&gt; TO TIME CANNOT BE 00:00:00.00</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>00:00:00.00 is a not valid TO time.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V1&gt; is the command that contains the invalid time.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V2&gt; is the subcommand that contains the invalid time.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input and rerun the job.</td>
</tr>
</tbody>
</table>
FPEC3022E  DATA FROM DDNAME <V1> IS NOT RECOGNIZED
Explanation: The data in the restore data set is unrecognizable.
• <V1> is the ddname for the restore data.
User response: Supply the correct file or an empty file for the specified ddname, and rerun the job.

FPEC3026I  <V1> REPORT COMMAND REQUIRES MERGE DATA. MERGE OPTION SET ON FOR REDUCE
Explanation: REDUCE(MERGE) was automatically set on.
• <V1> is the report set command.
User response: None.

FPEC3027I  <V1> SAVE REQUESTED AND RESTORE FILE CONTAINS MERGE DATA. MERGE OPTION SET ON FOR REDUCE
Explanation: The Save data set contains merged data. The MERGE option was automatically set on for REDUCE to maintain a complete set of merged data in the Save data set.
• <V1> is the report set command.
User response: None.

FPEC3028E  <V1> RESTORE FILE DOES NOT ContAIN MERGE DATA REQUIRED FOR REPORT COMMAND
Explanation: The report cannot be generated from the restored file.
• <V1> is the report set command.
User response: Specify MERGE in the REDUCE subcommand and reduce the data again.

FPEC3029I  SYSPRMDD REPLACEMENT SPECIFIED IN GLOBAL BUT NO DD STATEMENT FOR <V1> SUPPLIED
Explanation: The GLOBAL SYSPRMDD option has been supplied to override the System Parameters report ddname, but the ddname supplied has not been specified in the JCL.
• <V1> is the overriding ddname supplied.
User response: Correct the JCL as required.

FPEC3030E  SYSPRMDD OPTION IN GLOBAL COMMAND IS INVALID WHEN SYSPARMS COMMAND IS USED
Explanation: When the new SYSPARMS command is used to request a system parameters trace or execute a file operation, the GLOBAL option SYSPRMDD is no longer allowed to redefine the ddname for the system parameters trace.
User response: Remove the SYSPRMDD option from the GLOBAL command if you use the SYSPARMS command. To request a system parameters trace, use the SYSPARMS TRACE command with the appropriate ddname.

FPEC3031E  SYSTEM PARAMETERS DDNAME <V1> IS INVALID WHEN SYSPARMS COMMAND IS USED
Explanation: In the past, the system parameters ddname statement (or its equivalent specified via GLOBAL SYSPRMDD(newdd)) was used to request a system parameters trace in batch reports. Now you can achieve the same by using the new SYSPARMS command with its TRACE option. If you use this new command, you can no longer use the old system parameters ddname statement in the same JCL step. You must decide for either the SYSPARMS command or the system parameters ddname statement.
• <V1> is the system parameters ddname you have specified in your JCL.
User response: Remove the SYSPRMDD line and, if specified, the GLOBAL option SYSPRMDD from your JCL and use the SYSPARMS TRACE command instead.

FPEC3032I  <V1> SHOULD NO LONGER BE USED. USE THE SYSPARMS TRACE COMMAND INSTEAD
Explanation: This message is displayed when your JCL contains a system parameters ddname statement (or an equivalent command renamed by the GLOBAL option SYSPRMDD) to start a system parameters trace. Use the SYSPARMS with the trace TRACE option.
• <V1> is the system parameters ddname you have specified in your JCL.
User response: None, but you should remove the SYSPRMDD line and, if specified, the GLOBAL option SYSPRMDD from your JCL and use the SYSPARMS TRACE command instead.

FPEC3033W  DISTDD OPTION IN GLOBAL COMMAND IS NO LONGER SUPPORTED. OPTION WILL BE IGNORED DURING GLOBAL COMMAND PROCESSING.
Explanation: The option DISTDD is no longer used in the GLOBAL command.
User response: None.
FPEC3034E  USAGE OF SYTRCDD1 NOT ALLOWED IN SYSPRMDD GLOBAL OPTION

Explanation: SYTRCDD1 is a reserved name for the SYSPARMS command. It cannot be used in the SYSPRMDD GLOBAL option.

User response: Correct your input JCL. Either use another ddname in GLOBAL SYSPRMDD or use the SYSPARMS command (preferably).

FPEC3151E  <V1> REFERENCE <V2> FOR <V3> CANNOT BE FOUND

Explanation: The GROUP or LIST reference indicated for the identifier shown has not been supplied.
• <V1> is GROUP or LIST.
• <V2> is the GROUP or LIST name.
• <V3> is the identifier.

User response: Correct the input and rerun the job.

FPEC3152E  NESTING LEVEL OF GROUPS/LISTS WITHIN AN INCLUDE/EXCLUDE HAS EXCEEDED <V1>

Explanation: There are too many GROUP or LIST specifications within an INCLUDE or EXCLUDE specification.

User response: Correct the specification and rerun the job.

FPEC3153E  CIRCULAR REFERENCE OR MULTIPLE REFERENCE TO <V1> <V2> <V3> WITHIN GLOBAL INCLUDE/EXCLUDE SPECIFICATION

Explanation: A GROUP or LIST reference within a GLOBAL INCLUDE/EXCLUDE specification contains a reference to itself.
• <V1> is the identifier.
• <V2> is GROUP or LIST.
• <V3> is the GROUP or LIST name.

User response: Correct the input and rerun the job.

FPEC3154E  FIELD REFERENCE <V1> CANNOT BE FOUND

Explanation: The field reference indicated cannot be found.
• <V1> is the field reference.

User response: Correct the input and rerun the job.

FPEC3155E  CIRCULAR REFERENCE OR MULTIPLE REFERENCE TO <V1> <V2> <V3> WITHIN GLOBAL INCLUDE/EXCLUDE SPECIFICATION

Explanation: A GROUP or LIST reference within a GLOBAL INCLUDE/EXCLUDE specification contains a reference to itself.
• <V1> is the identifier.
• <V2> is GROUP or LIST.
• <V3> is the GROUP or LIST name.

User response: Correct the input and rerun the job.

FPEC4000E  RECORD PROCESSING PHASE HAS BEEN UNSUCCESSFUL

Explanation: The record processing phase did not complete its function successfully.

User response: Check for messages detailing the problem.

FPEC4001E  RECORD PROCESSING INITIALIZATION FAILED FOR <V1>

Explanation: The initialization of record processing failed for the specified report set.
• <V1> is the name of the report set.

User response: Check for messages detailing the problem.

FPEC4002E  <V1> FAILED DURING THE RECORD PROCESSING PHASE

Explanation: The record processing phase of the specified report set failed. Processing terminates at the end of the record processing phase or after the record processing phases of other report set specifications, if present in the job.
• <V1> is the name of the report set.

User response: Check for messages detailing the problem. If the problem recurs, contact IBM support.

FPEC4004E  INVALID RDW FOUND IN RECORD <F1>, PROCESSING TERMINATED

Explanation: The record processing terminated because invalid input record with RDW=0 was encountered.
• <F1> is the number of the invalid input record.

User response: Try to copy input data set with invalid RDW encountered to another data set. It should fix the problem.
FPEC4003I  RECORD PROCESSING TERMINATION FAILED FOR <VI>

• <VI> is the name of the report set.

User response: Check for system messages detailing the problem.

FPEC4005I  NUMBER OF RECORDS PROCESSED WITHOUT A CPU HEADER WAS <VI>

Explanation: The DB2 CPU header was not present in some (or all) input records. TCB times cannot be calculated without the CPU header.
• <VI> is the number of records where the CPU header was expected but not present.

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.

User response: The CPU header is written by DB2 when it generates the instrumentation data. Ensure that the CPU header is requested in the START TRACE command. See the description of the DB2 START TRACE command in the Reporting User’s Guide for more information about when the CPU header is required.

FPEC4010I  NUMBER OF RECORDS PROCESSED WITHOUT A CORRELATION HEADER WAS <VI>

Explanation: The DB2 correlation header was not present in some (or all) input records. DB2 cannot obtain the correlation ID and other information when the correlation header is not present.
• <VI> is the number of records that did not have a correlation header.

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.

User response: The correlation header is written by DB2 when it generates the instrumentation data. Ensure that the correlation header is requested in the DB2 START TRACE command. See the Report Reference for more information about when the correlation header is required.

FPEC4015I  NUMBER OF RECORDS FROM UNSUPPORTED RELEASES OF DB2 WAS <VI>

Explanation: The input data contained instrumentation data from a DB2 version that is not supported by this product.
• <VI> is the number of instrumentation records that were discarded.

User response: None.

FPEC4020I  NUMBER OF RECORDS FROM UNSUPPORTED PRODUCT RELEASES WAS <VI>

Explanation: The input data contained data from other OMEGAMON XE for DB2 PE or OMEGAMON XE for DB2 PM versions that could not be processed.
• <VI> is the number of records discarded.

User response: None.

FPEC4025I  NUMBER OF INCOMPLETE GTF SPANNED RECORDS DISCARDED WAS <VI>

Explanation: The record length used by GTF cannot accommodate the longer DB2 instrumentation records, so GTF splits the data over a number of records. The program did not find all the record segments necessary to reconstruct the DB2 instrumentation record and discarded the incomplete data.
• <VI> is the number of records discarded.

User response: None.

FPEC4030W  IFCID <VI>, DATA SECTION <V2>, REPEATING GROUP <V3>, FIELD <V4> HAS A LENGTH OF <V5>, EXCEEDING THE ALLOWED LENGTH OR EXCEEDING THE DATA SECTION LENGTH <V6>. FIELD <V4> IS IGNORED FROM FURTHER PROCESSING.

Explanation: For some IFCIDs, DB2 provides long names with variable length.

For a particular data section field, the internal integrity validation for a long string failed. Processing continues assuming that a long name is not provided.
• <VI> is the DB2 IFCID number.
• <V2> is the name of the data section.
• <V3> is the repeating group number of the DB2 data section.
• <V4> is the name of the field within the DB2 data section.
• <V5> is the value for the length of the long name that is found in the DB2 data section.
• <V6> is the value of the length of the DB2 data section.

User response: Contact IBM Support to validate the data that is supplied by DB2.
FPEC4035W • FPEC4060I

FPEC4035W MORE THAN <V1> LONG STRINGS QUALIFYING FOR UNIQUE NAME PROCESSING FOUND IN THE INPUT DATA. THIS CAN INDICATE AN INPUT DATA PROBLEM. UNIQUE NAME PROCESSING HAS BEEN SUSPENDED TO PREVENT PERFORMANCE DEGRADATION.

Explanation: This message might be displayed in conjunction with message FPEC4030W.

The Batch Reporter program complements long names with the unique short names to be presented correctly in the reports and traces. However, if too many pairs of long names and short names are accumulated, the Batch Reporter performance might degrade considerably.

A reasonable number of internally stored unique long names is exceeded. Processing continues, however, instead of adding unique short names, the long names are truncated and added as short names.

<V1> is the number of internally stored unique long names.

User response: Contact IBM Support to validate the data that is supplied by DB2.

FPEC4040W DATABASE/PAGESET <V1> HAS TRANSLATION DATA MISSING BETWEEN <V2> AND <V3>, TRANSLATIONS TO <V4> MAY HAVE BEEN MADE WHERE THE ACTUAL NAMES WERE <V5>

Explanation: Some DBID/OBID translation data is missing. The DBID or OBID changed, but the exact time of the change is unknown. DBIDs and OBIDs may have been translated based on the old data rather than the new.

• <V1> is the name of the database or page set.
• <V2> is the timestamp of the last record before the missing data.
• <V3> is the timestamp of the first record after the missing data.
• <V4> is the old name.
• <V5> is the new name.

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.

User response: None.

FPEC4045W DATABASE/PAGESET TRANSLATION ROUTINE DETECTED <V1> MISSING IFCID=107 OPEN RECORDS

Explanation: Some translations may not have been made correctly.

This message is printed if open and close records for a DBID or OBID are out of sequence. For example, this message is printed if there are two successive close records for the same DBID or OBID. There could be a gap in the input data, or records may have been lost during collection.

• <V1> is the number of missing IFCID 107 records.

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.

User response: None.

FPEC4050W DATABASE/PAGESET TRANSLATION ROUTINE DETECTED <V1> MISSING IFCID=107 CLOSE RECORDS

Explanation: DBID/OBID translation data is missing. Some translations may not have been made correctly.

This message is printed if open and close records for a DBID or OBID are out of sequence. For example, this message is printed if there are two successive open records for the same DBID or OBID. There could be a gap in the input data, or records may have been lost by SMF or GTF.

• <V1> is the number of missing IFCID 107 records.

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.

User response: None.

FPEC4055W DATABASE/PAGESET TRANSLATION ROUTINE WAS UNABLE TO PERFORM <V1> TRANSLATIONS

Explanation: Some (or all) DBIDs and OBIDs could not be translated to their eight-character name. This is most commonly caused by missing IFCID 105 or IFCID 107 data. DB2 Trace may not have been started correctly, or the records could have been lost.

• <V1> is the number of translations that could not be performed.

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.

User response: None.

FPEC4060I DB2 START TRACE NUMBER <V1>
DB2 SUBSYSTEM ID = <V2> TEXT = <V3>

Explanation: A DB2 START TRACE command was detected.
• <V1> is the trace number.
• <V2> is the DB2 subsystem ID.
• <V3> is the text of the command.

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.

User response: None.

FPEC4065I  DB2 STOP TRACE NUMBER <V1> DB2 SUBSYSTEM ID = <V2> TEXT = <V3>

Explanation: A DB2 STOP TRACE command was detected.
• <V1> is the trace number.
• <V2> is the DB2 subsystem ID.
• <V3> is the text of the command.

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.

User response: None.

FPEC4070I  LOCATION <V1> HAS RECORDS FOR MORE THAN ONE DB2 SUBSYSTEM. RECORDS FROM SUBSYSTEM <V2> PROCESSED, OTHER SUBSYSTEMS REJECTED

Explanation: Two (or more) different DB2IDs were detected with the same DB2 location name. Records for the second (or subsequent) DB2 subsystem were not processed.
• <V1> is the location name.
• <V2> is the first DB2ID for the DB2 location.

User response: None.

FPEC4075U  LOCATION LIST HAS NOT BEEN INITIALIZED BY RECORD PROCESSING

Explanation: An internal processing error occurred.
User response: Rerun the job. If the problem recurs, contact IBM support.

FPEC4080U  INITIALIZATION FAILED FOR RECORD PROCESSING LIST 1. INSUFFICIENT STORAGE AVAILABLE

Explanation: There was not sufficient storage available to continue processing.
User response: Increase the region size and rerun the job.

FPEC4085U  EXCEPTIONAL CONDITION OCCURRED WHILE RECORDING A SUMMARY. INSUFFICIENT STORAGE AVAILABLE

Explanation: There was not sufficient storage available to continue processing.
User response: Increase the region size and rerun the job.

FPEC4090U  EXCEPTIONAL CONDITION OCCURRED WHILE RECORDING AN OPEN. INSUFFICIENT STORAGE AVAILABLE

Explanation: There was not sufficient storage available to continue processing.
User response: Increase the region size and rerun the job.

FPEC4095U  EXCEPTIONAL CONDITION OCCURRED WHILE RECORDING A CLOSE. INSUFFICIENT STORAGE AVAILABLE

Explanation: There was not sufficient storage available to continue processing.
User response: Increase the region size and rerun the job.

FPEC4100U  INSUFFICIENT STORAGE AVAILABLE FOR GTF RECORD WORKAREA

Explanation: There was not sufficient storage available to continue processing.
User response: Increase the region size and rerun the job.

FPEC4105U  EXCEPTIONAL PROCESSING CONDITION WHILE GENERATING RECORD PROCESSING LIST 2. VLIST RETURN CODE <V1>

Explanation: There was not sufficient storage available to continue processing.
• <V1> is the VLIST return code.
User response: Increase the region size and rerun the job.

FPEC4115U  INITIALIZATION FAILED FOR RECORD PROCESSING LIST 3. INSUFFICIENT STORAGE AVAILABLE

Explanation: There was not sufficient storage available to continue processing.
User response: Increase the region size and rerun the job.
FPEC4120U • FPEC4210W

FPEC4120U  EXCEPTIONAL PROCESSING CONDITION WHILE GENERATING RECORD PROCESSING LIST 3. INSUFFICIENT STORAGE AVAILABLE

Explanation: There was not sufficient storage available to continue processing.

User response: Increase the region size and rerun the job.

FPEC4135U  INITIALIZATION FAILED FOR RECORD PROCESSING LIST 4. INSUFFICIENT STORAGE AVAILABLE

Explanation: There was not sufficient storage available to continue processing.

User response: Increase the region size and rerun the job.

FPEC4140U  EXCEPTIONAL PROCESSING CONDITION WHILE GENERATING RECORD PROCESSING LIST 4. INSUFFICIENT STORAGE AVAILABLE

Explanation: There was not sufficient storage available to continue processing.

User response: Increase the region size and rerun the job.

FPEC4150E  TRACE RECORD COULD NOT BE CONVERTED FROM UNICODE TO EBCDIC. CONVERSION SERVICES MAY NOT BE INSTALLED CORRECTLY.

Explanation: A trace record from DB2 using Unicode strings was encountered and could not be converted to EBCDIC for further processing and presentation.

User response: Check that the z/OS Support for Unicode is installed correctly and provides conversions from CCSID 1208 to the destination EBCDIC CCSID.

FPEC4200E  OUT-OF-SEQUENCE RECORD FOUND. ACE ADDRESS: <V1> IFCID: <V2>

Explanation: PRESORTED has been specified in the GLOBAL command, but the input data set has not previously been sorted, and an out-of-sequence record has been detected.

• <V1> is the ACE address of the out-of-sequence record.
• <V2> is the IFCID of the out-of-sequence record.

User response: If this record is required, rerun the job without the PRESORTED option.

FPEC4205E  AN OUT-OF-SEQUENCE RECORD HAS BEEN FOUND

Explanation: PRESORTED (ENFORCE) has been specified on the GLOBAL command, but the input data set has not previously been sorted, and an out-of-sequence record has been detected. The processing is terminated.

User response: Do one of the following:
• Specify PRESORTED (ACCEPT) to ignore out-of-sequence records and rerun the job.
• Omit the keyword PRESORTED from the GLOBAL command and rerun the job.
• Sort the input data set before invoking DB2 PM and use the sorted data as input.

FPEC4210W  NUMBER OF OUT-OF-SEQUENCE RECORDS WAS <V1> <V2>

Explanation: GLOBAL PRESORTED (ACCEPT) has been specified, but out-of-sequence records were encountered in the input data.

• <V1> is the number of records discarded.

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.

User response: Check the message log for details of the records discarded. If necessary, rerun the job without the PRESORTED option.

FPEC4215W  NUMBER OF OUT-OF-SEQUENCE RECORDS FOR IFCID <V1> WAS <V2>

Explanation: The program was executed specifying the GLOBAL PRESORTED(ACCEPT) option and out-of-sequence records were encountered. This message shows the number of out-of-sequence records of each IFCID which were encountered. It is recommended that the PRESORTED(ACCEPT) option is only used with the Accounting report set. Out-of-sequence records of other report sets are ignored, and the integrity of the output may be in doubt.

A record is out of sequence if its key (location, timestamp) is less than that of the record with the highest key already processed.

• <V1> is the IFCID.
• <V2> is the number of out-of-sequence records.

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.
User response: When running accounting, no response is necessary. If the ignored out-of-sequence records were required by the report set you requested, rerun the job specifying PRESORTED(NO).

FPEC5000E  MERGE PROCESSING PHASE HAS BEEN UNSUCCESSFUL
Explanation: The merge processing phase did not complete successfully.
User response: Check for messages detailing the problem.

FPEC5001E  MERGE PROCESSING INITIALIZATION FAILED FOR <V1>
Explanation: The initialization of merge processing failed for the specified report set.
  • <V1> is the name of the report set.
User response: Check for messages detailing the problem.

FPEC5002E  <V1> FAILED DURING THE MERGE PROCESSING PHASE
Explanation: The merge processing phase of the specified report set failed. Processing terminates at the end of the merge processing phase or after the merge processing phases of other report set specifications, if present in the job.
  • <V1> is the name of the report set.
User response: Check for messages detailing the problem. If the problem recurs, contact IBM support.

FPEC5003I  MERGE PROCESSING TERMINATION FAILED FOR <V1>
Explanation: The termination of merge processing failed for the specified report set. Processing continues.
  • <V1> is the name of the report set.
User response: Check for messages detailing the problem.

FPEC6000E  REPORT PROCESSING PHASE HAS BEEN UNSUCCESSFUL
Explanation: The report processing phase did not complete its function successfully.
User response: Check for messages detailing the problem.

FPEC6001E  REPORT PROCESSING INITIALIZATION FAILED FOR <V1>
Explanation: The initialization of report processing failed for the specified report set.
  • <V1> is the name of the report set.

User response: Check for messages detailing the problem.

FPEC6002E  <V1> FAILED DURING THE REPORT PROCESSING PHASE
Explanation: The report processing phase of the specified report set failed. Processing terminates at the end of the report processing phase or after the report processing phases of other report set specifications, if present in the job.
  • <V1> is the name of the report set.
User response: Check for messages detailing the problem.

FPEC6003I  REPORT PROCESSING TERMINATION FAILED FOR <V1>
  • <V1> is the name of the report set.
User response: Check for messages detailing the problem.

FPEC6005S  AN ERROR OCCURRED WHILE READING THE RESTORE FILE <V1>, VSAM RETURN CODE <V2>, REASON CODE <V3>
Explanation: None.
  • <V1> is the name of the RESTORE file.
  • <V2> is the VSAM return code.
  • <V3> is the reason code.
User response: See the appropriate VSAM documentation.

FPEC6010S  OPEN FAILED FOR SAVE FILE <V1>, DDNAME IN USE
Explanation: A ddname is specified twice (or more) with conflicting purposes.
  • <V1> is the name of the Save File data set.
User response: Correct the JCL and rerun the job.

FPEC6011S  OPEN FAILED FOR SAVE FILE <V1>
Explanation: An error occurred when opening a data set. The data set exists, but could not be opened.
  • <V1> is the name of the Save File data set.
User response: See the previous messages detailing the problem.

FPEC6012S  THE INITIAL WRITE TO THE SAVE FILE <V1> FAILED. VSAM RETURN CODE <V2>, REASON CODE <V3>
Explanation: An internal processing error occurred during execution.
• `<V1>` is the ddname for the Save data set.
• `<V2>` is the VSAM return code.
• `<V3>` is the VSAM reason code.

User response: See the appropriate VSAM documentation.

**FPEC9101S** `<V1>` `<V2>` USER-TAILORED LAYOUT `<V3>` COULD NOT BE FOUND, AND IS NOT A RECOGNIZED DEFAULT LAYOUT

Explanation: The user-tailored layout specified does not exist in your DPMPARMS data set.
• `<V1>` is the name of the report set.
• `<V2>` is the function.
• `<V3>` is the layout name.

User response: Ensure the layout is copied to the DPMPARMS data set.

**FPEC9102S** `<V1>` `<V2>` DEFAULT LAYOUT `<V3>` COULD NOT BE FOUND WITH THE EXPECTED LOAD MODULE NAME OF `<V4>`

Explanation: None.
• `<V1>` is the name of the report set.
• `<V2>` is the function.
• `<V3>` is the layout name.
• `<V4>` is the load module name.

User response: See your system programmer.

**FPEC9103S** `<V1>` `<V2>` LAYOUT `<V3>` REQUIRES A MINIMUM PAGE SIZE OF `<V4>`, THE GLOBAL PAGESIZE IS `<V5>`

Explanation: None.
• `<V1>` is the name of the report set.
• `<V2>` is the function.
• `<V3>` is the layout name.
• `<V4>` is the global page size required.
• `<V5>` is the current global page size.

User response: Either tailor the layout to use less space, or increase the global page size.

**FPEC9104S** MEMBER `<V1>` APPEARS IN DPMPARMS, BUT IS NOT A VALID USER-TAILORED LAYOUT

Explanation: The member `<V1>` was not generated using the UTR feature, and cannot be used.

User response: Generate the layout using UTR.

**FPEC9105S** MEMBER `<V1>` IS A CORRUPT USER-TAILORED LAYOUT

Explanation: The member `<V1>` has been edited outside the UTR feature.

User response: Re-create the layout using UTR.

**FPEC9106S** UNABLE TO ALLOCATE STORAGE TO PERFORM USER-TAILORED REPORTING

Explanation: There was insufficient storage available to continue processing.

User response: Increase the region size and rerun the job.

**FPEC9107S** UNABLE TO ACCESS THE DPMPARMS PDS DIRECTORY WHEN SEARCHING FOR A USER-TAILORED LAYOUT

Explanation: This is an I/O problem.

User response: See the previous messages detailing the problem.

**FPEC9108S** MEMBER `<V1>` COULD NOT BE READ FROM THE DPMPARMS PDS

Explanation: This is an I/O problem.
• `<V1>` is the DPMPARMS member name.

User response: See the previous messages detailing the problem.

**FPEC9109S** MEMBER `<V1>` COULD NOT BE READ FROM THE DPMPARMS PDS

Explanation: This is an I/O problem.
• `<V1>` is the DPMPARMS member name.

User response: See the previous messages detailing the problem.

**FPEC9110S** `<V1>` `<V2>` DEFAULT LAYOUT `<V3>` CANNOT BE LOADED BECAUSE LOAD MODULE NAME `<V4>` DOES NOT BELONG TO THE CURRENT PRODUCT VERSION

Explanation: A default layout from an earlier version was detected.
• `<V1>` is the name of the report set.
• `<V2>` is the function.
• `<V3>` is the layout name.
• `<V4>` is the load module name.

User response: Use one of the default layouts supplied with this product.

**FPEC9200I** `<V1>` REDUCE COMPLETED.

Explanation: None.
• `<V1>` is the name of the report set.
FPEC9201I • FPEE0918W

User response: None.

FPEC9201I  <V1> REDUCE COMPLETED. NO DATA WAS REDUCED

Explanation: None.
• <V1> is the name of the report set.

User response: None.

FPEC9203E  DPM0 CONVERSION FAILED. IFCID CONTAINS INVALID DATA. CORRUPTED RECORD IS DISCARDED FROM FURTHER PROCESSING. REASON CODE: <V1>

Explanation: An input record contains incorrect data. This input record is discarded from further processing. The corresponding subsystem ID and the record timestamp are included in your JOBSUMDD.
• <V1> is the reason code

User response: Check whether your input data is damaged. For example, transmission errors might be the reason for damaged input data. If possible, recollect the data.
If the error remains, specify ERRDMPDD in your Job to collect the corrupted input data in a service dataset. For further details, see Reporting Command Reference.
If the problem persists, contact IBM support.

FPEE - Exception Processing messages

FPEE0001E  EXCEPTION PROCESSING TERMINATED ABNORMALLY. INTERNAL ERROR IN MODULE <V1>, ERROR CODE <V2>

Explanation: An internal processing condition occurred during execution.
• <V1> is the name of the module.
• <V2> is the error code.

User response: Rerun the job. If the problem recurs, contact IBM support and quote the error code.

FPEE0012E  FILE RECORD WAS NOT WRITTEN, DDNAME = <V1>, RETURN CODE = <V2>

Explanation: An attempt to write an exception file record failed.
• <V1> is the ddname for which the failure occurred.
• <V2> is the return code.

User response: Check that the DD statement for the ddname is valid, and that there is sufficient space available.

FPEE0014I  EXCEPTIONS LOG FILE COMPLETE. <V1> RECORDS WRITTEN TO DDNAME <V2>

Explanation: Exception log file processing is completed.
• <V1> is the number of records written.
• <V2> is the ddname to which the records were written.

User response: None.

FPEE0600S  EXCEPTIONAL CONDITION OCCURRED WHILE PROCESSING EXCEPTIONS. LIST STORAGE ALLOCATION FAILED

Explanation: Not enough storage was available to continue exception processing.

User response: Increase the region size.

FPEE0610S  EXCEPTIONAL CONDITION OCCURRED WHILE PROCESSING EXCEPTIONS. LIST STORAGE RELEASE FAILED

Explanation: An error occurred when attempting to release storage.

User response: Rerun the job. If the problem recurs, contact IBM support.

FPEE0915W  ERROR ATTEMPTING TO ALLOCATE OR OPEN THE <V1> DATA SET.

Explanation: The indicated data set could not be allocated or opened for exception processing. Possible reasons are:
• The data set does not exist.
• The OMEGAMON Collector is not authorized to access the data set.
• The data set has wrong LRECL or RECFM definitions.

User response: Verify the indicated reasons, correct them, and rerun the job. If the problem recurs, contact IBM support.

FPEE0918W  THRESHOLD FIELD <V1> IS IN ERROR. EVENT <V2> IS INVALID

Explanation: The field name entered in the exception threshold data set is not valid.
• <V1> is the threshold field.
• <V2> is the event.

User response: Correct the field in the exception threshold data set and rerun the job.
FPEE0919W • FPEE0928W

FPEE0919W  THRESHOLD FIELD <V1> IS IN ERROR. THE FIELD IS NOT VALID FOR ENVIRONMENT <V2>

Explanation: The field name entered in the exception threshold data set is not valid for this environment.
•  <V1> is the threshold field.
•  <V2> is the environment.

User response: Edit the field in the exception threshold data set and rerun the job.

FPEE0920W  THRESHOLD FIELD <V1> IS IN ERROR. THE FIELD NAME IS INVALID

Explanation: The field name entered in the exception threshold data set has invalid syntax.
•  <V1> is the threshold field.

User response: Correct the field in the exception threshold data set and rerun the job.

FPEE0921W  THRESHOLD FIELD <V1> IS IN ERROR. FIELD <V2> IS INVALID FOR THIS RELEASE OF DB2

Explanation: The field name entered is not valid for any release of DB2.
•  <V1> is the threshold field.
•  <V2> is the threshold field.

User response: Remove the field from the exception threshold data set.

FPEE0922W  THRESHOLD FIELD <V1> IS IN ERROR. FIELD IS INVALID FOR EVENT <V2>

Explanation: The field name entered in the exception threshold data set is not valid for the event specified.
•  <V1> is the threshold field.
•  <V2> is the event.

User response: Change the field name or the event in the exception threshold data set.

FPEE0923W  THRESHOLD FIELD <V1> IS IN ERROR. NUMERIC VALUE <V2> NOT VALID

Explanation: A not valid numeric value has been specified for this field in the exception threshold data set.
•  <V1> is the threshold field.
•  <V2> is the numeric value.

User response: Change the value or remove the field from the exception threshold data set.

FPEE0924W  THRESHOLD FIELD <V1> IS IN ERROR. OPERATOR <V2> IS INVALID

Explanation: A not valid operator has been specified for this field in the exception threshold data set.
•  <V1> is the threshold field.
•  <V2> is the invalid operator.

User response: Change the specified operator or remove the field from the exception threshold data set.

FPEE0925W  THRESHOLD FIELD <V1> IS IN ERROR. FIELD CANNOT BE QUALIFIED

Explanation: The field can be qualified, but the buffer, DDF, or package qualifier has an incorrect format.
•  <V1> is the threshold field.

User response: Change the qualifier or remove the field from the exception threshold.

FPEE0926W  THRESHOLD FIELD <V1> IS IN ERROR. QUALIFIER <V2> IS NOT VALID

FPEE0927W  THRESHOLD FIELD <V1> IS IN ERROR. TIME VALUE <V2> IS INVALID

Explanation: A not valid time value has been specified for this field in the exception threshold data set.
•  <V1> is the threshold field.
•  <V2> is the invalid time value.

User response: Change the value or remove the field from the exception threshold data set.

FPEE0928W  THRESHOLD FIELD <V1> IS IN ERROR. TIME VALUE IS NOT VALID FOR THIS FIELD

Explanation: A time value was entered, but the field does not have a time format.
•  <V1> is the threshold field.

User response: Correct the format or remove the field from the exception threshold data set.
<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
<th>Exception</th>
<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEE0931W</td>
<td>THRESHOLD FIELD &lt;V1&gt; IS IN ERROR. COMPARE BASIS &lt;V2&gt; IS INVALID</td>
<td>The compare basis is not one of ‘V’, ‘M’, ‘S’, ‘C’, or ‘O’.</td>
<td>Correct the compare basis for the field.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• &lt;V1&gt; is the threshold field.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• &lt;V2&gt; is the invalid compare basis.</td>
<td></td>
</tr>
<tr>
<td>FPEE0932W</td>
<td>THRESHOLD FIELD &lt;V1&gt; IS IN ERROR. BOTH VALUES ARE BLANK</td>
<td>A non-blank field must be entered in either the problem or warning field.</td>
<td>Correct the field in the exception threshold data set.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• &lt;V1&gt; is the threshold field.</td>
<td></td>
</tr>
<tr>
<td>FPEE0942W</td>
<td>THRESHOLD FIELD &lt;V1&gt; IS IN ERROR. FIELD IS NOT A VALID EXCEPTION FIELD</td>
<td>The field entered cannot be used for exception processing.</td>
<td>Remove the field from the exception threshold data set.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• &lt;V1&gt; is the threshold field.</td>
<td></td>
</tr>
<tr>
<td>FPEE5100E</td>
<td>BOTH WARNING AND PROBLEM VALUES MUST BE SPECIFIED</td>
<td>None.</td>
<td>Supply both warning and problem values.</td>
</tr>
<tr>
<td>FPEE5200W</td>
<td>THRESHOLD FIELD &lt;V1&gt; IS IN ERROR. THE ENVIRONMENT REPORT IS NOT SUPPORTED</td>
<td>The field is valid only for batch report, but the problem or warning value is an asterisk. The field is ignored for exception profiling.</td>
<td>Specify a valid threshold value instead of the asterisk.</td>
</tr>
<tr>
<td>FPEE5300E</td>
<td>WARNING VALUE MUST BE GREATER THAN PROBLEM VALUE</td>
<td>None.</td>
<td>Enter a warning value that is greater than the problem value.</td>
</tr>
<tr>
<td>FPEE5500I</td>
<td>NO VALID INPUT RECORDS ENCOUNTERED</td>
<td>No records in the exception threshold data set were valid.</td>
<td>Check the exception threshold data set for invalid field values.</td>
</tr>
<tr>
<td>FPEE5604I</td>
<td>THRESHOLD DATA SET FROM PREVIOUS RELEASE IS USED</td>
<td>The threshold data set has a format that was valid for prior versions. It has been reformatted to the format of the current version.</td>
<td>None. If you want to avoid this message, use the threshold data set editor to change the format.</td>
</tr>
<tr>
<td>FPEE5605I</td>
<td>NO EXCEPTION THRESHOLD CALCULATED. REASON CODE &lt;V1&gt;</td>
<td>The job has ended without having calculated any exception threshold values.</td>
<td>Provide valid data to INPUTDD and rerun the job.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• &lt;V1&gt; is the reason code.</td>
<td></td>
</tr>
</tbody>
</table>

Chapter 9. Messages 4915
FPEF - Interactive Report Facility messages

FPEF000  This command is not recognized
Explanation: A not valid command was entered on the command line or via a function key.
User response: Enter a valid command.

FPEF001  This command does not accept parameters
Explanation: The command entered on the command line or via a function key does not accept parameters, but parameters were supplied.
User response: Correct the input.

FPEF002  This command accepts only a single parameter
Explanation: The command entered on the command line or via a function key only accepts one parameter, but more than one was supplied.
User response: Correct the input.

FPEF003  This command requires parameters
Explanation: The command entered on the command line or via a function key required parameters, but none were supplied.
User response: Correct the input.

FPEF004  <V1> command not valid in this panel
Explanation: The command entered on the command line is not valid in this panel.
• <V1> is the command.
User response: Enter a valid command.

FPEF005  Enter a value for Location or Group
Explanation: Both LOCATION and GROUP fields are blank.
User response: Enter a value in either or both fields.

FPEF009  Command generation already in progress in this ISPF logical screen
Explanation: An attempt was made to perform IRF selections, but the function was already active on this ISPF logical screen. You can have only one IRF selection function active on a logical screen at a time.
User response: Close the application. If the problem recurs, terminate the ISPF logical screen.

FPEF010  Enter a / or <V1> to select
Explanation: A value other than a / or a country-designated character was used in the field at the cursor position.
• <V1> is the country-designated character.
User response: Enter a / or the country-designated character to select.

FPEF011  Enter one of the listed values
Explanation: A not valid value was entered in the field at the cursor position, and adjacent to the message.
User response: Enter a value from the list displayed in the panel.

FPEF012  Field must be completed
Explanation: The field at the cursor position must be completed.
User response: Enter a value for the field.

FPEF013  Prompt is not available for this field
Explanation: The PROMPT command is not valid for the field at the cursor position.
User response: Valid options can be determined using the HELP command.

FPEF014  This is not a valid data set name
Explanation: A data set name qualifier must begin with an alphabetic character, @, #, or $. The remaining characters must be either alphanumeric or a hyphen (-).
User response: Enter a valid data set name.

FPEF015  This is not a valid value for this field
Explanation: The value entered in the field at the cursor position is not valid.
User response: Enter a valid value.

FPEF016  This value must be numeric
Explanation: The value entered in the field at the cursor position is not numeric.
User response: Enter a numeric value.

FPEF017  This value must be numeric in the range <V1> to <V2>
Explanation: The field at the cursor position contains a numeric value outside the valid range.
• <V1> is the lower limit.
• <V2> is the upper limit.

User response: Enter a numeric value in the valid range.

FPEF018 This is not a valid name
Explanation: A name must begin with an alphabetic character, @, #, or $. The remaining characters must be alphanumeric.

User response: Enter a valid name.

FPEF019 Enter 1 for yes or 2 for no
Explanation: A value other than 1 or 2 was used in the field at the cursor position.

User response: Enter 1 or 2.

FPEF020 Enter a / or <V1> to select one or more items from the list
Explanation: A value other than / or a country-designated character was used in the field at the cursor position.

User response: Enter a / or a country-designated character to select.

FPEF021 Enter a / or <V1> to select, or overtype with space to delete
Explanation: A value other than / or a country-designated character was used in the field at the cursor position.

User response: Enter a / or a country-designated character to select.

FPEF022 No Type matches this value. Valid types are IRLMREQ, CLAIMREQ, DRAINREQ, PLOCKREQ, IRLMSUSP, DRAINSUSP, LATCHSUSP, IRLMRFS, DRAINRES, LATCHRES, TIMEOUT, DEADLOCK, LOCKSUMMARY, and LOCKA VOID
Explanation: A value other than those listed in the message was used in the field at the cursor position.

User response: Enter a correct value.

FPEF023 Enter a / or <V1> to browse or edit extension information
Explanation: A value other than / or a country-designated character was used in the field at the cursor position.

User response: Enter a / or a country-designated character to select.
FPEF031 • FPEF046

FPEF031 No Thread Type matches this field value. Valid Thread Types are ALLIED, ALLIED_DIST, and DBA
Explanation: The thread type entered does not match any valid thread type.
User response: Enter a correct value.

FPEF032 Both value 1 and value 2 are specified - either set type to 3 or remove value 2
Explanation: Because range values have been entered, type should not be entered.
User response: Either set type to 3 or remove the range value 2.

FPEF033 This value must be hexadecimal representation (0-9, a-f)
Explanation: The field at the cursor position must contain a character representation of a hexadecimal value. Valid characters are 0 to 9 and A to F.
User response: Correct the input.

FPEF034 This value must have a length of <V1> exactly
Explanation: The field at the cursor position must contain a set number of characters.
• <V1> is the required number of characters.
User response: Correct the input.

FPEF035 The maximum length for this value is <V1>
Explanation: The field at the cursor position contains an entry that is too long.
• <V1> is the maximum number of characters.
User response: Correct the input.

FPEF036 Generic * is not allowed with Group and List names
Explanation: You cannot use the generic form (*) in GROUP or LIST names.
User response: Correct the input.

FPEF037 Group and List values must start with a character (A-Z)
Explanation: None.
User response: Correct the input.

FPEF038 Generic * can only suffix a range value
Explanation: For ranges, the generic character * can only be the last character. For example, ABC* is valid; AB*D is not.
User response: Correct the input.

FPEF039 The TO range must be greater than the FROM range
Explanation: None.
User response: Correct the input.

FPEF040 Year must be numeric in the range 0 to 99
Explanation: None.
User response: Enter a correct value.

FPEF041 Month must be numeric in the range 1 to 12
Explanation: None.
User response: Enter a correct value.

FPEF042 Day must be numeric in the range 1 to 31
Explanation: None.
User response: Enter a correct value.

FPEF043 Hours must be numeric in the range 0 to 23
Explanation: None.
User response: Enter a correct value.

FPEF044 Minutes must be numeric in the range 0 to 59
Explanation: None.
User response: Enter a correct value.

FPEF045 Seconds must be numeric in the range 0 to 59
Explanation: None.
User response: Enter a correct value.

FPEF046 Fractions must be numeric in the range 0 to 99
Explanation: None.
User response: Correct the input.
FPEF047  Timezone adjustment sign must be + or -.
Explanation:  None.
User response:  Correct the input.

Explanation:

FPEF048  Minutes must be numeric in the range 00 to 59
Explanation:  None.
User response:  Enter a correct value.

FPEF049  Specify the FROM range
Explanation:  None.
User response:  Enter the FROM range.

FPEF051  The day value is invalid for this month and year combination
Explanation:  None.
User response:  Enter a valid day, month, and year combination.

FPEF052  The end date must be later than or equal to the start date
Explanation:  None.
User response:  Change the start date or end date to comply.

FPEF053  The end time must be later than or equal to the start time
Explanation:  None.
User response:  Change the start time or end time to comply.

FPEF054  The end date and time must be later than or equal to the start date and time
Explanation:  None.
User response:  Change the start date and time or end date and time to comply.

FPEF055  When NONE is selected, other selections are not valid. Either delete NONE or delete all remaining selections
Explanation:  None.
User response:  Delete NONE or delete all remaining selections.

FPEF056  The maximum length for the location id part of package name is 16. Package name comprises location.collection.package
Explanation:  The maximum length of the location ID exceeds 16 characters.
User response:  Enter a location ID up to 16 characters in length.

FPEF057  The maximum length for the collection id part of package name is 18. Package name comprises location.collection.package
Explanation:  The maximum length of the collection ID exceeds 18 characters.
User response:  Enter a collection ID up to 18 characters in length.

FPEF058  The maximum length for the package id part of package name is 18. Package name comprises location.collection.package
Explanation:  The maximum length of the package ID exceeds 18 characters.
User response:  Enter a package ID up to 18 characters in length.

FPEF059  Package name can only be comprised of 3 parts: location id, collection id, and package id
Explanation:  None.
User response:  Correct the input.

FPEF060  <V1>
Explanation:  This message is returned by the LMINIT service of ISPF/PDF Library Access Services or the LISTDSI function of TSO/E. The message can be accompanied by other messages.
•  <V1> is the text of the message.
User response:  Correct the problem indicated by the message.

FPEF061  Data set organization must be partitioned
Explanation:  A not valid data set was specified when saving or recalling IRF selections. The data set was not partitioned.
User response:  Correct the data set specifications.
FPEF062  Data set must contain 80 byte fixed length records
Explanation: A not valid data set was specified when saving or recalling IRF selections. The specified data set does not contain 80-byte fixed length records.
User response: Correct the data set specification.

FPEF063  Data set is empty
Explanation: The data set specified when recalling IRF selections contains no data.
User response: Specify another data set.

FPEF064  Member not found
Explanation: The member specified in the recall request for IRF selections was not found.
User response: Correct the data set and member specifications.

FPEF065  The specified pattern produced no matching members
Explanation: A pattern with no matching members was specified when recalling IRF selections.
User response: Specify another pattern or member name.

FPEF066  Member does not contain a valid IRF selection table
Explanation: When recalling IRF selections, the selected member did not contain an IRF selection table.
User response: Correct the data set and member specifications.

FPEF067  Replacement canceled
Explanation: When saving IRF selections, a member name was specified that already existed, and the user requested that the member not be replaced.
User response: None.

FPEF068  Member name must be blank for a sequential data set
Explanation: When trying to save a job stream, a member name was specified for a sequential data set.
User response: Blank the member name.

FPEF069  Member name must be specified for partitioned data set
Explanation: When trying to save a job stream, a member name was not specified for a partitioned data set.
User response: Enter the member name.

FPEF070  Job stream replaced in <V1>
Explanation: The job stream was successfully saved to an existing data set. The previous contents were replaced.
• <V1> is the name of the data set where the job stream was replaced.
User response: None.

FPEF071  Job stream saved into <V1> has failed
Explanation: Job stream save or replace function failed. This is typically accompanied by other messages indicating the problem.
• <V1> is the name of the data set where the job stream was being saved.
User response: Correct the problems indicated by the accompanying messages.

FPEF072  Job stream saved into <V1>
Explanation: The job stream was successfully saved.
• <V1> is the name of the partitioned data set.
User response: None.

FPEF073  IRF selection <V1> recalled from <V2>
Explanation: IRF selections were successfully recalled.
• <V1> is the name of the member that contained the selections.
• <V2> is the name of the data set that contained the selections.
User response: None.

FPEF074  IRF selection <V1> saved into <V2>
Explanation: IRF selections were successfully saved into a PDS member.
• <V1> is the name of the member.
• <V2> is the name of the partitioned data set.
User response: None.

FPEF075  IRF selection <V1> replaced in <V2>
Explanation: IRF selection was successfully saved to an existing data set. The previous member contents were replaced.
• <V1> is the name of the member where the selections were replaced.
• <V2> is the name of the data set where the selections were replaced.
User response: None.
<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
<th>Explanation</th>
<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEF076</td>
<td>Unable to save selections in data set &lt;V1&gt;. ISPF message is: &lt;V2&gt;</td>
<td>An error was encountered when saving your selections.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• &lt;V1&gt; is the name of the data set where the selections were being saved.</td>
<td>• &lt;V2&gt; is the error message returned by ISPF.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Correct the error indicated by the ISPF message.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF077</td>
<td>Unable to open data set</td>
<td>An error occurred in opening the data set.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Ensure that the data set exists.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF078</td>
<td>Edit error, data may not have been saved correctly</td>
<td>A severe error occurred when editing the data set. The data may not have been saved correctly.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Browse the data set using ISPF to check if the data has been successfully saved. If this is not the case, correct the edit error and try again.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF079</td>
<td>This field needs to be qualified with a group buffer pool ID</td>
<td>A group buffer pool ID qualifier is required for this field name.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Correct the input.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF080</td>
<td>Field identifier invalid - use PROMPT command for a list</td>
<td>The field identifier at the cursor position is not valid. Use the PROMPT command to select from a list of valid values.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Correct the input.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF081</td>
<td>This field needs to be qualified with a buffer pool ID</td>
<td>A buffer pool ID qualifier is required for this field name.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Correct the input.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF082</td>
<td>This field must not have a qualifier</td>
<td>A buffer pool qualifier is not valid for this field name.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> None.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF083</td>
<td>Field qualifier invalid - use PROMPT command for a list</td>
<td>The qualifier at the cursor position is not valid. Use the PROMPT command to select from a list of valid values.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Correct the input.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF084</td>
<td>The qualifier must be a location name or omitted</td>
<td>The qualifier at the cursor position should be a location name or not specified.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Correct the input.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF085</td>
<td>Location name must begin with a character</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Correct the input.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF086</td>
<td>Location name must only contain letters, digits, and national characters</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Correct the input.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF087</td>
<td>The qualifier must be a valid package name or omitted</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Correct the input.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF088</td>
<td>This field must be qualified with a Resource Limit Facility qualifier</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> Correct the input.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF089</td>
<td>Enter field name before using PROMPT command on qualifier</td>
<td>None.</td>
<td>Enter a field name, then use PROMPT.</td>
</tr>
<tr>
<td></td>
<td><strong>User response:</strong> None.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FPEF090</td>
<td>Qualifier for this field is optional. No list is available</td>
<td>None.</td>
<td>None.</td>
</tr>
</tbody>
</table>
FPEF091  <V1>
Explanation: An error occurred while trying to view the command stream.
User response: Correct the problem indicated by the ISPF message.

FPEF092  There is nothing to BROWSE for the selection
Explanation: There is no data available for the BROWSE command to process.
User response: Ensure that selections or entries have been made before using the BROWSE command.

FPEF093  Job submission has been successful
Explanation: The job has been successfully submitted in background execution mode.
User response: None.

FPEF094  Job submission has failed
Explanation: The job submission in background execution mode has not been successful. This message is preceded by one or more TSO/E messages.
User response: See z/OS TSO/E Messages for an explanation of the TSO/E messages. Correct the problem indicated by the TSO/E messages.

FPEF095  '*' is not permitted for this function
Explanation: None.
User response: Correct the input.

FPEF100  Groups are not allowed for this identifier
Explanation: The identifier supplied cannot be used in a GROUP specification.
User response: Use a valid identifier in the GROUP specification.

FPEF101  Lists are not allowed for this identifier
Explanation: The identifier supplied cannot be used in a LIST specification.
User response: Use a valid identifier in the LIST specification.

FPEF102  Groups are not allowed within Groups
Explanation: None.
User response: Correct the input.

FPEF103  You cannot add and select or delete entries at the same time
Explanation: None.
User response: Correct the input.

FPEF104  Identifiers have been repeated
Explanation: More than one specification of the same identifier has been used.
User response: Correct the input.

FPEF105  Location must be alphanumeric beginning with an alphabetic character
Explanation: A not valid location was specified.
User response: Correct the input.

FPEF106  Select numbers from the code list
Explanation: None.
User response: Select a code from the list shown.

FPEF107  Utility allows only one group of up to three order selections. Use Order 1 only
Explanation: The Utility Activity report set only allows the first group of identifiers to be selected.
User response: Specify up to three identifiers in the Order 1 row only.

FPEF110  This file cannot be directed to the terminal
Explanation: VSAM or partitioned data sets cannot be directed to the terminal.
User response: Correct the data set information.

FPEF111  This file cannot be directed to SYOUT
Explanation: Input, VSAM, or partitioned data sets cannot be directed to SYSOUT.
User response: Correct the data set information.

FPEF112  This file cannot be set to DUMMY
Explanation: DUMMY cannot be specified for VSAM or partitioned data sets.
User response: Correct the data set information.

FPEF113  DUMMY cannot be part of concatenated data sets
Explanation: DUMMY cannot be concatenated with other data sets.
User response: Do not include DUMMY as a specified data set for concatenation.

FPEF114 This DDNAME cannot have concatenated data sets
Explanation: You cannot concatenate output or VSAM data sets.
User response: Specify only one data set for this ddname.

FPEF115 This is not in valid JCL format
Explanation: A JCL syntax error has been detected.
User response: Correct the input.

FPEF116 Extension information exists. You cannot remove the first line
Explanation: Multiple data set information lines exist. Data set information must be present on the first line.
User response: Either erase all lines or add information on the first line.

FPEF117 Extension information exists. Not all lines are in the same format
Explanation: Multiple data set information lines exist. The first data set information line has been changed into a different format. However, the subsequent lines are still in the original format.
User response: Either change the first line back into the original format, or change the subsequent lines into the same format as the first line.

FPEF119 Enter data set information before requesting extension data
Explanation: Extension information can only be requested in foreground if the data set information contains a data set name.
User response: Remove the select action code from the field or change the data set information to a data set name.

FPEF120 DDNAME could not be allocated
Explanation: The file could not be allocated. This message is preceded by TSO/E messages.
User response: See z/OS TSO/E Messages for an explanation of TSO/E messages.

FPEF121 DDNAME SYSIN could not be allocated
Explanation: The SYSIN file containing the command stream could not be allocated. This message is preceded by TSO/E messages. See z/OS TSO/E Messages for an explanation of TSO/E messages.
User response: Correct the error indicated by the TSO/E messages.

FPEF122 DDNAMEs could not be freed
Explanation: Files could not be freed.
User response: Correct the error indicated by the TSO/E messages and free the files.

FPEF123 DB2 PM has been executed. Return code was <V1>
Explanation: A foreground execution has completed its function.
• <V1> is the return code.
User response: None.

FPEF124 <V1>
Explanation: An error was detected when attempting to run the application in foreground execution mode. This message is preceded by TSO/E messages.
• <V1> is the text of the message.
User response: See z/OS TSO/E Messages for an explanation of TSO/E messages.

FPEF125 Data set <V1> is empty
Explanation: An attempt has been made to browse an output data set specified during foreground execution, which contains no data.
• <V1> is the name of the output data set.
User response: None.

FPEF126 Unable to browse data set. ISPF message is: <V1>
Explanation: An error occurred while attempting to browse the data set.
• <V1> is the text of the ISPF message.
User response: Correct the error indicated by the ISPF message.

FPEF127 Performance Expert has been invoked - please stand by
Explanation: The application is started in foreground execution mode.
User response: None.
FPEF128 • FPEF150

FPEF128  This information format cannot have extension information.
Explanation: An attempt has been made to specify extension information for an output data set in foreground mode. Only input data sets can have extension information.
User response: Correct the input.

FPEF130  <V1> is not a valid action code. Valid codes are: I, <V2>, I, R, D, C, M, A, and B.
Explanation: An action code other than those listed was used.
• <V1> is the invalid action code.
• <V2> is the country-designated character.
User response: Use a valid action code.

FPEF131  <V1> is not a valid action code. Valid codes are: I, R, D, C, M, A, and B.
Explanation: An action code other than those listed was used.
• <V1> is the invalid action code.
User response: Use a valid action code.

FPEF132  Use I action code to insert rows. Use Insert only when no rows exist.
Explanation: None.
User response: Use I to insert rows.

FPEF133  Invalid SORT column specified.
Explanation: None.
User response: Specify a valid sort column.

FPEF134  Invalid FIND command. Syntax: 'Find column argument (operator)'.
Explanation: None.
User response: Correct the syntax.

FPEF135  Invalid FIND column specified.
Explanation: None.
User response: Specify a valid find column.

FPEF136  Invalid FIND operator. Valid operators are: EQ, NE, LT, GE, GT, and LE.
Explanation: None.
User response: Specify a valid operator.

FPEF137  Move/Copy is pending. Complete MOVE or COPY command, or 'RESET' command.
Explanation: None.
User response: Complete the MOVE or COPY command or use RESET.

FPEF138  <V1> is not a valid line command. Either correct it or blank it out.
Explanation: None.
• <V1> is the invalid line command.
User response: Correct the input or blank it out.

FPEF140  Command conflict. Complete BLOCK command before entering other commands.
Explanation: None.
User response: Complete the BLOCK command.

FPEF141  BLOCK command has an invalid amount.
Explanation: None.
User response: Correct the input.

FPEF142  BLOCK command incomplete. Enter a matching command to complete the BLOCK command pair.
Explanation: None.
User response: Correct the input.

FPEF143  BLOCK command has an invalid numeric amount.
Explanation: None.
User response: Correct the input.

FPEF144  An RR command has an invalid amount.
Explanation: None.
User response: Correct the input.

FPEF150  REPLACE should not be specified without the TABLE command.
Explanation: REPLACE is a subcommand of TABLE. Therefore, REPLACE is meaningless unless you have specified TABLE as well.
User response: Specify REPLACE together with the TABLE command.
FPEF151 User ID should be 8 characters or less
Explanation: None.
User response: Specify USERID with a length of 8 characters or less.

FPEF152 Table name should be 10 characters or less
Explanation: None.
User response: Specify TABLE NAME with a length of 10 characters or less.

FPEF153 KEEPDICTIONARY should not be specified without the TABLE command
Explanation: KEEPDICTIONARY is a subcommand of TABLE. Therefore, KEEPDICTIONARY is meaningless unless you have specified TABLE as well.
User response: Specify KEEPDICTIONARY together with the TABLE command.

FPEF501 This character is invalid. Valid characters are A-Z, @, #, $, and *
Explanation: A not valid character has been entered at the cursor position. Valid characters are identified in the message text.
User response: Correct the input.

FPEF502 This character is invalid. Valid characters are A-Z, @, #, and $
Explanation: A not valid character has been entered at the cursor position. Valid characters are identified in the message text.
User response: Correct the input.

FPEF503 This character is invalid. Valid characters are A-Z, 0-9, @, #, $, _, –, and *
Explanation: A not valid character has been entered at the cursor position. Valid characters are identified in the message text.
User response: Correct the input.

FPEF504 No connection type matches this field value. Valid connection types are TSO, DB2CALL, CICS, DLI-BTCH, IMS-MFP, IMS-BMP, IMS-TBMP, IMS-CNTL, SYST-DIR, and APPL-DIR
Explanation: A not valid connection type has been entered. The valid connection types are identified in the message text.
User response: Correct the input.

FPEF505 Location name begins with a < and must end with a > or *
Explanation: Location names can be enclosed in ‘less than’ (<) and ‘greater than’ (>) symbols. The name at the cursor position did not end with a > or a *
User response: Correct the input.

FPEF506 This character is invalid. Valid characters are A-Z, @, #, $, <, and *
Explanation: A not valid character has been entered at the cursor position. Valid characters are identified in the message text.
User response: Correct the input.

FPEF507 This character is invalid. Valid characters are A-Z, 0-9, @, #, $, _, and –
Explanation: A not valid character has been entered at the cursor position. Valid characters are identified in the message text.
User response: Correct the input.

FPEF508 Location name begins with a < and must end with a >
Explanation: Location names can be enclosed in ‘less than’ (<) and ‘greater than’ (>) symbols. The name at the cursor position did not end with a >.
User response: Correct the input.

FPEF509 An * may not be followed by other characters
Explanation: An * can only appear on its own without any following characters.
User response: Correct the input.

FPEF510 This character is invalid. Valid characters are A-Z, 0-9, @, #, $, _, –, *, and .
Explanation: A not valid character has been entered at the cursor position. Valid characters are identified in the message text.
User response: Correct the input.

FPEF511 This character is invalid. Valid characters are A-Z, 0-9, @, #, $, <, and *
Explanation: A not valid character has been entered at the cursor position. Valid characters are identified in the message text.
User response: Correct the input.
This character is invalid. Valid characters are A-Z, 0-9, @, #, $, and *

Explanation: A not valid character has been entered at the cursor position. Valid characters are identified in the message text.

User response: Correct the input.

Editing already in progress in this ISPF logical screen

Explanation: An attempt was made to perform Data Set Maintenance, but the function was already active on this ISPF logical screen. You can have only one Data Set Maintenance selection function active on a logical screen at a time.

User response: Close, then restart the application. If the problem recurs, terminate the ISPF logical screen.

Member name should not be specified

Explanation: The correlation data set that is being used by Data Set Maintenance is sequential and does not require a member name.

User response: Correct the input.

Member name required when data set is partitioned

Explanation: The correlation data set which is being used by Data Set Maintenance is partitioned and requires a member name to be specified.

User response: Correct the input.

Data set must be partitioned

Explanation: The DPMPARMS data set must be partitioned.

User response: Correct the data set specification.

Data set record format must be fixed

Explanation: The correlation and DPMPARMS data sets must have fixed-length records.

User response: Correct the data set specification.

Data set record format must be variable

Explanation: The exception threshold data set must have variable-length records.

User response: Correct the data set specification.

An error occurred while updating the data set. ISPF message is: <V1>

Explanation: An unexpected error occurred when updating the data set. This can be accompanied by other messages.

User response: Correct the condition indicated by the other messages and try again.

Member is being updated by you or another user

Explanation: None.

User response: Wait until the member is available.

Offset field must be numeric in the range of 0 to 11

Explanation: None.

User response: Correct the input.

Length field must be numeric in the range of 1 to 8

Explanation: None.

User response: Correct the input.

Length value required when offset is specified

Explanation: None.

User response: Correct the input.

Offset value required when length is specified

Explanation: None.

User response: Correct the input.

Sum of offset and length cannot exceed 12 bytes

Explanation: None.

User response: Correct the input.
<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEF616</td>
<td>Specify all blanks or all zeros for default translation</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEF617</td>
<td>Length field must be numeric in the range of 0 to 8</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEF618</td>
<td>Error initializing correlation processing. Error detected in member CORRDATA in data set <code>&lt;V1&gt;</code></td>
<td>An error was detected in the correlation translation data set.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEF622</td>
<td>Generic * only allowed as the last character</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEF624</td>
<td>Compare must be '&gt;' or '&lt;'</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEF625</td>
<td>Value cannot be a negative number</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEF626</td>
<td>Value cannot be zero when compare is '&lt;'</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEF627</td>
<td>A value must be specified for warning, problem, or both</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEF628</td>
<td>Warning must be less than problem when compare is '&gt;'</td>
<td>You cannot specify a higher value for warning than for problem when the operator is &gt;.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEF629</td>
<td>Warning must be greater than problem when compare is '&lt;'</td>
<td>You cannot specify a higher value for problem than for warning when the operator is &lt;.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEF630</td>
<td>DB2 names must begin with a letter</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEF631</td>
<td>Invalid character found in DB2 name</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEF632</td>
<td>There is no entry following the one currently displayed</td>
<td>You have reached the last panel of exception field details.</td>
<td>None.</td>
</tr>
<tr>
<td>FPEF633</td>
<td>There is no previous entry, this is the first entry</td>
<td>You have reached the first panel of exception field details.</td>
<td>None.</td>
</tr>
<tr>
<td>FPEF634</td>
<td>The format of the exception threshold data set will be converted to the current format</td>
<td>None.</td>
<td>None. If you wish to prevent the conversion, press F12.</td>
</tr>
<tr>
<td>FPEF640</td>
<td>Location names should begin with a letter</td>
<td>None.</td>
<td>Correct the input.</td>
</tr>
<tr>
<td>FPEF641</td>
<td>Invalid character found in location name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>None.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF642</th>
<th>Enter either 1 or 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF643</th>
<th>Package fields are not supported per commit, minute, or second basis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF651</th>
<th>Logical record length should be at least 184</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>An exception threshold data set must have a record length of 184 or greater.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the data set specification.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF652</th>
<th>Data set should be sequential or partitioned</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>An exception threshold data set must be sequential or partitioned.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the data set specification.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF653</th>
<th>Logical record length must be 80</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>A data set has been specified for location or correlation translation data set maintenance which does not have a logical record length of 80.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the data set specification.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF654</th>
<th>Unable to enqueue data set. ISPF message is: &lt;V1&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>An error occurred while attempting to enqueue the data set requested for data set maintenance.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V1&gt; is the text of the ISPF message.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the error indicated by the ISPF message.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF701</th>
<th>This value must be a percentage, for example 10.00 is 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF702</th>
<th>This is an incorrect SYOUT specification for foreground processing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF703</th>
<th>This is an input data set and cannot be directed to SYOUT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF704</th>
<th>This is an incorrect SYOUT specification for background processing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Correct the input.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF990</th>
<th>The application identifier &lt;V1&gt; is incorrect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>You are invoking an EXEC with a NEWAPPL of FPEF. You should not invoke this EXEC with the NEWAPPL keyword.</td>
</tr>
<tr>
<td></td>
<td>• &lt;V1&gt; is FPEF.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Delete the copy of FPEFPROF in your ISPF profile data set, then invoke this EXEC again.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF991</th>
<th>This application dialog is executing on an unsupported release of ISPF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>You are executing OMEGAMON XE for DB2 PE on a release of ISPF before version 3 release 5.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>The minimum requirement for the current OMEGAMON XE for DB2 PE version is ISPF 3.5.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF992</th>
<th>The ISPF command table is not current</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>The EXIT and CANCEL commands are not defined in the ISPF command table ISPCMD. The most common reason for the missing commands is that in a prior release of ISPF (which did not have the commands EXIT and CANCEL) the ISPCMD command table was customized. When the updated release of ISPF was installed, rather than customizing the new ISPCMD command table, the one for the previous release was carried over.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Install the correct version of ISPCMD and perform whatever customization is necessary.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FPEF993</th>
<th>The RKO2EXEC library is not available</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation:</strong></td>
<td>The RKO2EXEC library has not been allocated to either the SYSEXEC or SYSPROC files. This problem should only occur in an MVS/XA environment.</td>
</tr>
</tbody>
</table>
User response: If your environment is MVS/XA, ensure that the RKO2EXEC library (or its contents) is available in either the SYSEXEC or SYSPROC files. If your environment is not MVS/XA, then the FPEJINIT EXEC has been incorrectly modified or the installation of OMEGAMON XE for DB2 PE is incomplete. See your system programmer for assistance.

FPEF994 The application profile pool is unusable
Explanation: The FPEFPROF member in your ISPF profile data set does not contain the name of the OMEGAMON XE for DB2 PE profile extension pool. This situation should only occur when the FPEFPROF member was created by an application other than OMEGAMON XE for DB2 PE, or the product version of the FPEFPROF has been corrupted.
User response: Delete the FPEFPROF member from your ISPF profile data set and then restart OMEGAMON XE for DB2 PE. If the problem recurs, contact IBM support.

FPEF995 Incompatible application profile pool detected
Explanation: The currently active OMEGAMON XE for DB2 PE profile extension pool is incompatible with the OMEGAMON XE for DB2 PE application being started. This can happen when ISPF opens profile extension pools in shared mode, so the first opened pool is used by all subsequent executions of OMEGAMON XE for DB2 PE. OMEGAMON XE for DB2 PE releases are only backward compatible, not forward compatible.
User response: Start the latest release level OMEGAMON XE for DB2 PE application first, then start other OMEGAMON XE for DB2 PE applications.

FPEI - I/O Activity report set messages

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
<th>Explanation</th>
<th>User response</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEI0001W I/O ACTIVITY IS MISSING THE END RECORD FOR IFCID &lt;V1&gt;. EVENT IS BUFFER POOL READ</td>
<td>The beginning of the buffer pool read event was detected during I/O activity reduction, and no matching end event was found. The record is ignored.</td>
<td>None</td>
<td>&lt;V1&gt; is the begin-event record identification number.</td>
<td></td>
</tr>
<tr>
<td>FPEI0002W I/O ACTIVITY IS MISSING THE END RECORD FOR IFCID &lt;V1&gt;. EVENT IS BUFFER POOL WRITE</td>
<td>The beginning of the buffer pool write event was detected during I/O activity reduction, and no matching end event was found. The record is ignored.</td>
<td>None</td>
<td>&lt;V1&gt; is the begin-event record identification number.</td>
<td></td>
</tr>
<tr>
<td>FPEI0003W I/O ACTIVITY IS MISSING THE END RECORD FOR IFCID &lt;V1&gt;. EVENT IS EDM POOL REQUEST</td>
<td>The beginning of the EDM pool request event was detected during I/O activity reduction, and no matching end event was found. The record is ignored.</td>
<td>None</td>
<td>&lt;V1&gt; is the begin-event record identification number.</td>
<td></td>
</tr>
</tbody>
</table>
FPEI0006W   I/O ACTIVITY IS MISSING THE END RECORD FOR IFCID <V1>. EVENT IS ACTIVE LOG WRITE I/O

Explanation: The beginning of the active log Write I/O event was detected during I/O activity reduction, and no matching end event was found. The record is ignored.

User response: None.

FPEI0007W   I/O ACTIVITY IS MISSING THE END RECORD FOR IFCID <V1>. EVENT IS ARCHIVE LOG WRITE I/O

Explanation: The beginning of the archive log Write I/O event was detected during I/O activity reduction, and no matching end event was found. The record is ignored.

User response: None.

FPEI0008W   I/O ACTIVITY IS MISSING THE END RECORD FOR IFCID <V1>. EVENT IS ARCHIVE LOG READ I/O

Explanation: The beginning of the archive log Read I/O event was detected during I/O activity reduction, and no matching end event was found. The record is ignored.

User response: None.

FPEI0009W   I/O ACTIVITY IS MISSING THE END RECORD FOR IFCID <V1>. EVENT IS BSDS WRITE I/O

Explanation: The beginning of the BSDS Write I/O event was detected during I/O activity reduction, and no matching end event was found. The record is ignored.

User response: None.

FPEI0100S   THE SPECIFIED ORDERING SEQUENCE IS NOT SUPPORTED.

Explanation: If the ordering sequence contains PARTNBR together with other criteria the buffer pool report will only be ordered and created if PARTNBR is preceded by PAGESET.

User response: If PARTNBR is your favourite criteria then specify an order sequence that contains PAGESET before PARTNBR. Then rerun the job.

FPEI0600S   EXCEPTIONAL CONDITION OCCURRED WHILE PROCESSING I/O ACTIVITY. MAIN STORAGE ALLOCATION FAILED

Explanation: There was insufficient storage available to continue processing.

User response: Increase the region size and rerun the job.

FPEI0610S   EXCEPTIONAL CONDITION OCCURRED WHILE PROCESSING I/O ACTIVITY. MAIN STORAGE RELEASE FAILED

Explanation: An attempt to release main storage failed.

User response: Rerun the job. If the problem recurs, contact IBM support.

FPEI0750S   PUT FUNCTION FAILED ON DDNAME <V1> WHILE EXTERNALIZING REDUCED RECORDS

Explanation: An error occurred when writing records to the I/O activity REDUCE work data set.

User response: Check for system messages detailing the problem.

FPEI1241I   I/O ACTIVITY REDUCE COMPLETE

Explanation: I/O activity REDUCE processing is completed.

User response: None.

FPEI4000I   NO DATA TO REDUCE FOR I/O ACTIVITY

Explanation: There was no data available for the IOACTIVITY(REDUCE) subcommand.

User response: Check the INCLUDE/EXCLUDE and FROM/TO specifications in REDUCE and GLOBAL.

FPEI4500S   INITIALIZATION FAILED FOR I/O ACTIVITY LIST. INSUFFICIENT STORAGE AVAILABLE

Explanation: There was insufficient storage available to continue processing.

User response: Increase the region size and rerun the job.
EXCEPTIONAL PROCESSING CONDITION WHILE GENERATING I/O ACTIVITY LIST. INSUFFICIENT STORAGE AVAILABLE

Explanation: There was insufficient storage available to continue processing.

**FPEJ - Installation and Configuration messages**

- **FPEJ000**  This field must be completed
  
  Explanation: The field at the cursor position must not be blank.
  
  User response: Enter a valid value.

- **FPEJ001**  Invalid name - type up to 8 alphanumeric characters, the first of which must be alphabetic
  
  Explanation: The value entered into this field is not valid.
  
  User response: Enter an alphanumeric value with a length of up to 8 characters where the first character is alphabetic.

- **FPEJ002**  Invalid name - type up to 4 alphanumeric characters, the first of which must be alphabetic
  
  Explanation: The subsystem name is not valid.
  
  User response: Enter an alphanumeric value with a length of up to 4 characters where the first character is alphabetic.

- **FPEJ003**  Invalid data set name - type one or more qualifiers separated by periods. Each qualifier must be up to 8 alphanumeric characters, the first of which must be alphabetic
  
  Explanation: The load library data set name is not valid.
  
  User response: Enter a valid data set name into the field.

- **FPEJ004**  Use '/' to select this option
  
  Explanation: The option was selected using a character other than a slash (/).
  
  User response: Enter a slash (/) to select the option or leave the selection field blank.

- **FPEJ007**  User requested CANCEL - no customization values have been saved
  
  Explanation: The customization dialog was canceled by the user. The customization values remain unchanged.
  
  User response: None.

- **FPEJ008**  Customization values have been saved
  
  Explanation: The previous customization values have been replaced.
  
  User response: None.

- **FPEJ009**  ISPF encountered an error performing a <V1> on the profile pool extension table <V2> in the data set <V3>. The return code was <V4>. The ISPF message was <V5>
  
  Explanation: An unexpected ISPF error occurred.
  
  - <V1> is the name of the ISPF function.
  - <V2> is the name of the table.
  - <V3> is the name of the data set where the table resides.
  - <V4> is the return code.
  - <V5> is the associated ISPF error message.
  
  User response: Ensure that you are authorized to update the data set and try again. If the problem recurs, contact IBM support.

- **FPEJ010**  The command that was entered is not recognized
  
  Explanation: The customization dialog could not recognize the command entered.
  
  User response: Enter a valid command.

- **FPEJ011**  The indicated value has an incorrect number of decimal digits
  
  Explanation: The value typed into the field is not valid.
  
  User response: Enter a valid value.

- **FPEJ012**  The indicated value is not acceptable because it is higher than the maximum permitted or negative
  
  Explanation: The value typed into the field is not valid.
User response: Enter a valid value.

FPEJ013 The indicated value is not acceptable because it is not numeric
Explanation: The value typed into the field is not valid.
User response: Enter a valid numeric value.

FPEJ014 The Diagnosis Rules of Thumb have not been saved
Explanation: The user canceled the diagnosis rules of thumb dialog but not the whole customization dialog. All customization values except for the diagnosis rules of thumb have been replaced.
User response: None.

FPEJ015 ISPF encountered an error performing a <V1> on the profile pool extension table (<V2>) in the data set <V3>. The return code was <V4>. The ISPF message was <V5>. The parameters have not been saved
Explanation: An unexpected ISPF error has occurred.
  • <V1> is the name of the ISPF function.
  • <V2> is the name of the table.
  • <V3> is the name of the data set where the table resides.
  • <V4> is the return code.
  • <V5> is the ISPF message.
User response: Ensure that you are authorized to update the data set and try again.

FPEJ016 The Diagnosis Rules of Thumb have been saved
Explanation: The previous rules-of-thumb values have been replaced.
User response: None.

FPEJ017 The customization values have not been changed
Explanation: You have not changed the customization values.
User response: None.

FPEJ019 The <V1> module call was with the wrong key <V2>
Explanation: You have invoked the OMEGAMON XE for DB2 PE activation module using a not valid key.
  • <V1> is the name of the module invoked.
  • <V2> is the key passed to the module.
User response: Invoke the OMEGAMON XE for DB2 PE activation module using the same key as provided in the exec procedure on the SMPE tape.

FPEJ020 Dynamic allocation of SYSIN work data set failed. RC <V1>. The Performance Expert Try mode is not activated
Explanation: The OMEGAMON XE for DB2 PE activation module tries to dynamically allocate a temporary data set to ddname SYSIN with disposition NEW. The MVS service returns with a bad return code. The activation module terminates. No action is performed.
  • <V1> is the return code.
User response: Ensure that standard dynamic allocation within a program works and that SYSIN can be used as ddname.

FPEJ021 Dynamic allocation of DB2 PE load library <V1> failed. RC <V2>. The Performance Expert Try mode is not activated
Explanation: The OMEGAMON XE for DB2 PE activation module tries to dynamically allocate the OMEGAMON XE for DB2 PE load library to ddname SYSLIB with disposition SHR. The MVS service returns with a bad return code. The activation module terminates. No action is performed.
  • <V1> is the name of the load library.
  • <V2> is the return code.
User response: Ensure that you enter the invocation exec fully qualified and that the OMEGAMON XE for DB2 PE load library has the same high-level qualifiers as the invocation exec.

FPEJ022 The module containing the Try program authorization has been corrupted. The Performance Expert Try mode of is not activated
Explanation: The data on the activation module controlling the try mode is different from the data on the delivery tape. No action is performed.
User response: Reinstall the product.

FPEJ023 The update of DB2 Performance Expert load library <V1> failed. The Performance Expert Try mode is not activated
Explanation: A fatal error has occurred. The reason of the failure is reported by one or more preceding MVS system messages.
  • <V1> is the name of the load library.
User response: Ensure that OMEGAMON XE for DB2 PE is installed properly as described in the program directory. Resolve the reason of the failure following the advise of the MVS system messages.
| FPEJ024 | The Performance Expert Try mode has already been activated |
| Explanation: The mask for the try mode has already been set by an earlier execution of this exec. No action is performed. |
| User response: If OMEGAMON XE for DB2 PE functions can no longer be processed because the try time has ended, contact the person responsible for ordering OMEGAMON XE for DB2 PE. |

| FPEJ025 | Open, Write, or Close to SYSIN work data set failed. RC <V1>. The Performance Expert Try mode is not activated |
| Explanation: When trying to write to the temporary data set allocated to ddname SYSIN, the MVS data access services reported an error, which is indicated by the return code. No action is performed. |
| User response: Correct the error that caused the MVS access services failure. |

| FPEJ029 | The Performance Expert Try mode has been successfully activated |
| Explanation: You have set the try mode of OMEGAMON XE for DB2 PE. All functions are available until the end of the try time. |
| User response: None. |

| FPEJ030 | The unit group name has been successfully changed to <V1> |
| Explanation: None. |
| User response: None. |

| FPE0750S | PUT FUNCTION FAILED ON DDNAME <V1> WHILE EXTERNALIZING REDUCED RECORDS |
| Explanation: An error occurred when writing records to the locking REDUCE work data set. |
| User response: Check for system messages detailing the problem. |

| FPE1241I | LOCKING REDUCE COMPLETE |
| Explanation: Locking REDUCE processing is completed. |
| User response: None. |

| FPE1245I | LOCKING <V1> COMPLETE. <V2> RECORDS WRITTEN TO DDNAME <V3> |
| Explanation: Locking function is completed. |
FPEL1246S • FPEL1247S

- <V1> is the function type.
- <V2> is the number of records written.
- <V3> is the ddname to which the records are written.

User response: None.

FPEL1246S UNSUCCESSFUL ATTEMPT WRITING TO FILE DATA SET FOR LOCKING

Explanation: An error occurred when writing to the File data set.
User response: Check for system messages detailing the problem.

FPEL1247S UNSUCCESSFUL ATTEMPT WRITING TO THE SPREADSHEET DATA SET OF LOCKING

Explanation: An error occurred when writing to the SPREADSHEET data set.
User response: Check for system messages in DPMLOG detailing the problem.

FPEL4000I NO DATA TO PROCESS FOR LOCKING

FPEM - Online Monitor messages

FPEM0005W Data not available. Monitor trace may not be active

Explanation: The DB2 monitor trace might not be active for the DB2 subsystem to which you are currently connected. Monitor trace class 1 must be active for the Online Monitor to operate successfully.
User response: If the monitor trace is not active, start the monitor trace. Class 1 is required; classes 2 and 3 are optional.

FPEM001 <V1> command not valid in this panel. Valid commands are DB2, COLLECT, LOOK, REINIT, OPTIONS, and HISTORY

Explanation: The command you entered is not available in the current panel.
- <V1> is the command you entered.
User response: Enter one of the following commands:
  DB2 To enter a DB2 command
  COLLECT To display the Report Data menu
  LOOK To display the Look Selections menu
  REINIT To restart the exception processor
  OPTIONS To set default options
  HISTORY To display HISTORY status or invoke HISTORY mode.

FPEM002 Unrecognized command. Valid commands for this panel are DB2, COLLECT, LOOK, REINIT, OPTIONS, and HISTORY

Explanation: The command you entered could not be recognized.
User response: Enter one of the following commands:
  DB2 To enter a DB2 command
  COLLECT To display the Report Data menu
  LOOK To display the Look Selections menu
  REINIT To restart the exception processor
  OPTIONS To set default options
  HISTORY To display HISTORY status or invoke HISTORY mode.

FPEM003 Jump selection <V1> is not valid. Enter a valid selection

Explanation: The menu selection you entered was not valid.
- <V1> is the jump selection you entered.
User response: Correct the input.

FPEM004 Enter a valid selection

FPEM005W FPEM - Online Monitor messages
Explanation: The menu selection you entered was not valid.
User response: Correct the input.

FPEM005 Data not available. Monitor trace may not be active
Explanation: The DB2 monitor trace might not be active for the DB2 subsystem to which you are currently connected. Monitor trace class 1 must be active for the Online Monitor to operate successfully.
User response: If the monitor trace is not active, start the monitor trace. Class 1 is required; classes 2 and 3 are optional.

FPEM0060W No history data found
Explanation: No history data was found for the function being monitored. In the case of thread details, this message is issued if the thread has terminated.
User response: None.

FPEM0061W Partial history data returned
Explanation: None.
User response: None.

FPEM0062E Unable to allocate return area
Explanation: An error occurred in the allocation of storage for the return area.
User response: See your system programmer.

FPEM0063W Near-term history data is no longer available. Current data now being obtained
Explanation: None.
User response: None.

FPEM006 Enter 1 or 2
Explanation: None.
User response: Enter 1 or 2.

FPEM0070E The server is not active
Explanation: None.
User response: Start the server.

FPEM0071E You have been disconnected from the server
Explanation: None.
User response: If you require the history function, go to OPTIONS and select a server if available, otherwise, no action is required.

FPEM0073E You have not been connected to DB2 yet
Explanation: None.
User response: None.

FPEM007 The Online Monitor is not active
Explanation: The DB2, LOOK, or REINIT command has been entered, but the Online Monitor is not currently active.
User response: Activate the Online Monitor.

FPEM008 Enter 1 (Mod) or 2 (Old)
Explanation: The data set disposition must be 1 or 2.
User response: Enter 1 or 2.

FPEM009 Select only one item from the list
Explanation: Multiple item selections are not allowed.
User response: Select one item from the list.

FPEM011 An unusual condition has occurred in one of the Collect facility subtasks. Check Collect Messages for subtask <V1>
Explanation: A problem has been detected in a collect facility subtask.
• <V1> is the name of the collect facility subtask.
User response: Review the collect facility message log and take the appropriate action.

FPEM012 An unusual condition has occurred in the Periodic Exception subtask. Check the Periodic Exception Message Log
Explanation: A problem has been detected in the periodic exception subtask.
User response: Review the periodic message log and take the appropriate action.

FPEM013 The Collect facility subtask <V1> has had an OP buffer overrun
Explanation: An OP buffer overrun has occurred during the execution of the collect facility subtask.
• <V1> is the name of the collect facility subtask.
User response: None. However, if OP buffer overflows occur frequently, then the following ISPF profile pool variables should be modified during installation of the Online Monitor:
MAIFIBUF
This variable defaults to 512 KB and represents the OP buffer size for DB2 to use.

MAREADAT
This variable defaults to 410 KB and represents the OP buffer threshold value. When the OP buffer reaches this threshold value, DB2 notifies the subtask which, in turn, will issue a READA command to copy the trace records.

FPEM014  An unusual condition has occurred in the exception notification subtask of the Collect facility
Explanation: The exception notification subtask of the Collect facility that checks for periodic exceptions and exception events has failed. Insufficient region size of your TSO/E session may be the primary cause of this problem.
User response: Increase the region size of the TSO/E session or terminate concurrently running ISPF applications before trying to restart the Collect facility. If the problem recurs, contact IBM support and quote any messages that appear in the panel.

FPEM015  An error has occurred initializing the Collect facility subtask <V1>
Explanation: A problem has been detected during initialization of the Collect facility subtask, because there was insufficient storage available.
User response: Increase the region size and try again. If the problem recurs, contact IBM support.

FPEM016 <V1> command not valid in this panel. Valid commands are COLLECT, LOOK, REINIT, OPTIONS, and HISTORY
Explanation: The command you entered is not available in the current panel.
User response: Enter one of the following commands:
- COLLECT To display the Report Data menu
- LOOK To display the Look Selections menu
- REINIT To restart the exception processor
- OPTIONS To set default options
- HISTORY To display HISTORY status or invoke HISTORY mode.

FPEM017 Unrecognized command. Valid commands for this panel are COLLECT, LOOK, REINIT, OPTIONS, AND HISTORY
Explanation: The command you entered could not be recognized.
User response: Enter one of the following commands:
- COLLECT To display the Report Data menu
- LOOK To display the Look Selections menu
- REINIT To restart the exception processor
- OPTIONS To set default options
- HISTORY To display HISTORY status or invoke HISTORY mode.

FPEM018 DB2 command not allowed because it is already active
Explanation: You must not invoke this DB2 command from a panel displayed by the DB2 command.
User response: Exit the DB2 output panel, then reissue the DB2 command.

FPEM019 Subtask <V1> was not attached (RC <V2>). The application cannot continue.
Explanation: OMEGAMON XE for DB2 PE stopped because an error occurred during the ATTACH of a subtask.
User response: See the z/OS MVS Programming: Authorized Assembler Services Reference for an explanation of the return code from the ATTACH macro.

FPEM020 This command is not available from this function
Explanation: The function you are in does not recognize the command entered.
User response: Try another command or exit the function.

FPEM021 Maximum DB2 command functions exceeded
Explanation: The maximum number of nested DB2 functions has been exceeded.
User response: Return to the Main Menu and resume the DB2 function.

FPEM022 Internal error - DB2 command output table not created
Explanation: An internal error has been detected in the DB2 command function.
User response: Try to issue the command again. If the problem recurs, contact IBM support.

FPEM024 Subsystem <V1> not available. RC <V2>, REASON <V3>
Explanation: A DB2 command has been issued, but the Online Monitor is not connected to DB2.
• <V1> is the DB2 subsystem ID.
• <V2> is the Call Attach Facility (CAF) return code.
• <V3> is the CAF reason code.
User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes to determine why connection to DB2 failed, and respond accordingly.

FPEM030 <V1> command not valid in this panel. Valid commands are DB2, REINIT, OPTIONS, HISTORY, and COLLECT
Explanation: The command you entered is not available in the current panel.
• <V1> is the command you entered.
User response: Enter one of the following commands:
DB2 To enter a DB2 command
REINIT To restart the exception processor
OPTIONS To set default options
HISTORY To display history status
COLLECT To display the Report Data menu.

FPEM031 Unrecognized command. Valid commands for this panel are DB2, REINIT, OPTIONS, HISTORY, and COLLECT
Explanation: An unrecognized command was entered.
User response: Enter one of the following commands:
DB2 To enter a DB2 command
REINIT To restart the exception processor
OPTIONS To set default options
HISTORY To display history status
COLLECT To display the Report Data menu.

FPEM032 LOOK command not allowed because it is already active
Explanation: The LOOK command cannot be invoked within the LOOK function.
User response: Return to the LOOK selection menu to select the LOOK function required.

FPEM033 Invalid selection <V1>. Valid selections are 1 through 3
Explanation: A not valid selection code was entered.
• <V1> is the selection you entered.
User response: Correct the input.

FPEM035 No periodic exception messages have been written
Explanation: None.
User response: None.

FPEM036 No periodic exceptions have occurred
Explanation: None.
User response: None.

FPEM037 Selected exception does not match current SSID <V1>
Explanation: The exception you wish to select does not occur in this subsystem.
• <V1> is the DB2 subsystem ID.
User response: Change your subsystem to the SSID where the exception occurred by selecting Options on the Online Monitor Main Menu, and then DB2 Subsystem.

FPEM038 No display exceptions have occurred
Explanation: None.
User response: None.

FPEM039 Invalid selection <V1>. Valid selections are 1 through 6
Explanation: The selection made was not valid.
• <V1> is the invalid selection.
User response: Enter a valid selection.

FPEM040 Autodisplay activated. Refresh every <V1>. Press ATTN to terminate
Explanation: Autodisplay has just been activated.
• <V1> is the interval duration.
• <V2> is the interval unit in seconds or minutes.
User response: None.
FPEM041  Autodisplay. Refresh every <V1> <V2>. Press ATTN to terminate

Explanation: Autodisplay is active.
• <V1> is the AUTODISPLAY interval duration.
• <V2> is the AUTODISPLAY interval unit in seconds or minutes.

User response: To cancel autodisplay, press the ATTN key.

FPEM042  Autodisplay terminated

Explanation: None.

User response: None.

FPEM043  Autodisplay interval must be numeric in the range 1 to 7200 seconds or 1 to 120 minutes

Explanation: A not valid interval has been entered for the AUTO command.

User response: Specify one of the following:
• 1 to 7200 when seconds is the unit.
• 1 to 120 when minutes is the unit.

FPEM044  Autodisplay units must be SECONDS or MINUTES or any valid abbreviation

Explanation: Autodisplay units must be expressed in terms of seconds or minutes.

User response: Enter SECONDS or MINUTES or any valid abbreviation.

FPEM045  Extra parameters following AUTO command

Explanation: The autodisplay command accepts only two parameters.

User response: See Monitoring Performance from ISPF for AUTO command usage.

FPEM046  Autodisplay interval must be numeric in the range 1 to 7200 seconds

Explanation: The autodisplay interval is not within allowable boundaries.

User response: Specify an autodisplay interval in the correct range.

FPEM047  Autodisplay interval must be numeric in the range 1 to 120 minutes

Explanation: The autodisplay interval is not within allowable boundaries.

User response: Specify an autodisplay interval in the correct range.

FPEM048  Autodisplay activated. Refresh every <V1> <V2>. History interval is <V3> seconds. Press ATTN to terminate

Explanation: Autodisplay has just been activated.
• <V1> is the interval duration.
• <V2> is the interval unit in seconds or minutes.
• <V3> is the HISTORY interval in seconds.

User response: None.

FPEM049  Autodisplay. Refresh every <V1> <V2>. History interval is <V3> seconds. Press ATTN to terminate

Explanation: Autodisplay is active.
• <V1> is the AUTODISPLAY interval duration.
• <V2> is the AUTODISPLAY interval unit in seconds or minutes.
• <V3> is the HISTORY interval in seconds.

User response: To cancel autodisplay, press the ATTN key.

FPEM0500E  Subsystem <V1> is invalid. CAF RC <V2>, REASON <V3>

Explanation: An attempt was made to connect to a DB2 subsystem that does not exist.
• <V1> is the invalid subsystem name.
• <V2> is the Call Attach Facility (CAF) return code.
• <V3> is the DB2 reason code.

User response: Specify a valid DB2 subsystem ID for the MVS system that you are currently working on, using the global parameters function.

FPEM0501E  DB2 release is <V1>, DB2 loadlib (dsnload) release is <V2>

Explanation: The release level of the DB2 subsystem is not compatible with the DB2 load library currently allocated to your TSO/E session.
• <V1> is the DB2 release.
• <V2> is the DSNLOAD release.

User response: Be sure that the DB2 load library allocated to your TSO/E session is the same release level as the DB2 subsystem that you are connected to. The DB2 load library must not be allocated using LIBDEF.

FPEM0502E  DB2 subsystem <V1> is not available. CAF RC <V2>, REASON <V3>

Explanation: An attempt was made to connect to a DB2 subsystem that is valid, but is not currently running.
• <V1> is the name of the DB2 subsystem.
• <V2> is the Call Attach Facility (CAF) return code.
• <V3> is the CAF reason code.

User response: Start the DB2 subsystem or connect to
a subsystem that is already active.

**FPEM0503E**  You are not authorized to access DB2 subsystem `<V1>`

**Explanation:** You do not have the access authority needed to connect to the requested DB2 subsystem. The most common cause is that you are not defined by RACF as having access to the subsystem.

- `<V1>` is the subsystem ID of the DB2 subsystem in question.

**User response:** Notify your security administrator.

**FPEM0505E**  You are not authorized to execute plan `<V1>`

**Explanation:** You do not have the DB2 authority needed to execute the requested DB2 plan.

- `<V1>` is the DB2 plan name.

**User response:** Notify your security administrator.

**FPEM0506E**  Currently allocated DB2 version not supported by Performance Expert

**Explanation:** An attempt was made to connect to a DB2 version allocated to the user session that is not supported by your OMEGAMON XE for DB2 PE. In general, a higher DB2 version is not supported by a lower version of OMEGAMON XE for DB2 PE. Lower DB2 versions can be supported. For further information on which DB2 versions are supported by your OMEGAMON XE for DB2 PE, see the manuals of the OMEGAMON XE for DB2 PE version you are using.

**User response:** Leave the Host Online Monitor and allocate the libraries of a supported DB2 version.

**FPEM0507E**  Only one task in this ISPF logical session can be connected to DB2

**Explanation:** An attempt has been made to start a second DSN or Call Attach Facility (CAF) connection to DB2 from one ISPF logical screen. This error may occur if you attempt to start a second Online Monitor session or start, for example, SPUFI and a second Online Monitor session in one ISPF logical screen.

**User response:** Exit the second Online Monitor session.

**FPEM051**  `<V1>` command not valid in this panel.

Valid commands are DB2, LOOK, COLLECT, OPTIONS, and HISTORY

**Explanation:** The command you entered is not available in the current panel.

- `<V1>` is the command you entered.

**User response:** Enter one of the following commands:

- `DB2`  To enter a DB2 command
- `LOOK`  To display the Look Selections menu

Chapter 9. Messages  4939
<table>
<thead>
<tr>
<th>Error Code</th>
<th>Description</th>
<th>Explanation</th>
<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEM0517E</td>
<td>IFCID is not valid/available on this DB2 subsystem</td>
<td>The Online Monitor issued a request for an IFCID from DB2 IFI, but the IFCID was not recognized by DB2. This should not happen on a normal DB2 subsystem.</td>
<td>Apply necessary DB2 maintenance.</td>
</tr>
<tr>
<td>FPEM0518E</td>
<td>Nonzero IFI return code. RC &lt;V1&gt;, REASON &lt;V2&gt;</td>
<td>A severe DB2 IFI error has been detected.</td>
<td>Enter a valid command.</td>
</tr>
<tr>
<td>FPEM0519E</td>
<td>Performance Expert has been disconnected from DB2 prior to CAF call. RC &lt;V1&gt;, REASON &lt;V2&gt;</td>
<td>During execution the connection to DB2 has been terminated. This might indicate some abnormal condition in DB2.</td>
<td>Examine the DB2 activity log to find out why the connection was lost. For further information, see also DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed).</td>
</tr>
<tr>
<td>FPEM0522E</td>
<td>Invalid request passed to the Data Movement PC routine</td>
<td>None.</td>
<td>Contact IBM support.</td>
</tr>
<tr>
<td>FPEM0525E</td>
<td>Server User Manager task has terminated due to errors. Connection and Exception functions are not available</td>
<td>None.</td>
<td>Contact IBM support.</td>
</tr>
<tr>
<td>FPEM0528W</td>
<td>User Authorization exit returns no data</td>
<td>According to the authorization specified for your user ID in the user authorization exit there is no data to be returned to you.</td>
<td>None.</td>
</tr>
<tr>
<td>FPEM0549W</td>
<td>Severe error occurred in User Authorization exit</td>
<td>The user authorization exit failed with a severe error.</td>
<td>Contact your system programmer.</td>
</tr>
</tbody>
</table>

*User response:* Enter one of the following commands:
- **DB2** To enter a DB2 command
- **LOOK** To display the Look Selections menu
- **COLLECT** To display the Report Data menu
- **OPTIONS** To set default options
- **HISTORY** To display history status.
Unrecognized command. Valid command for this panel is DB2.

Explanation: The text you entered is not a recognized DB2 or OMEGAMON XE for DB2 PE command. The only command you can use here is DB2.

User response: Use DB2 to enter a DB2 command.

The Collect Report Data facility is not active

Explanation: The OMEGAMON XE for DB2 PE Collect Report Data function is not active.


No history data found

Explanation: No history data was found for the function being monitored. In the case of thread details, this message is issued if the thread has terminated.

User response: None.

Partial history data returned

Explanation: None.

User response: None.

Offset field must be numeric in the range of 0 to 11

Explanation: Correlation name and correlation number offset field must be numeric in the range of 0 to 11.

User response: Correct the input record.

To avoid this error, use the maintain parameter data sets facility on the ISPF monitor to specify correlation name translation.

Length field must be numeric in the range of 1 to 8

Explanation: Correlation name and correlation number length field must be numeric in the range of 1 to 8.

User response: Correct the input record. This error would never occur if the correlation translation data set editor had been used.

Length value required

Explanation: Correlation name and correlation number length value is required.

User response: Correct the input record. This error would never occur if the correlation translation data set editor had been used.

Offset value required

Explanation: Correlation name and correlation number offset value is required.

User response: Correct the input record. This error would never occur if the correlation translation data set editor had been used.

Sum of offset and length cannot exceed 12 bytes

Explanation: Sum of offset and length cannot exceed 12 bytes for correlation name and correlation number.

User response: Correct the input record. This error would never occur if the correlation translation data set editor had been used.

Connection type required

Explanation: None.

User response: Correct the input record. This error would never occur if the correlation translation data set editor had been used.

Unable to allocate return area

Explanation: An error occurred in the allocation of storage for the return area. The reason is that there is not enough storage assigned to the task to acquire storage for the DB2 interface return area for your Online Monitor requests.

User response: Ask your system programmer to increase the region size of the Performance Expert Server task.

Near-term history data is no longer available. Current data now being obtained

Explanation: None.

User response: None.

The server is not active

Explanation: None.

User response: Start the server.

You have been disconnected from the server

Explanation: None.

User response: If you require the history function, go to OPTIONS and select a server if available, otherwise, no action is required.
**FPEM072**  DYNALLOC returned return code \(<V1>\), reason code \(x'\<V2>\)', SMS reason code \(<V3>\)

**Explanation:** An unusual condition occurred during data set allocation in a system that has SMS installed. The most likely reason for this error is the attempt to create a data set that already exists or the attempt to use a data set that does not exist.

- \(<V1>\) is the return code.
- \(<V2>\) is the reason code.
- \(<V3>\) is the SMS reason code.

**User response:** See *MVS Messages and Codes* (or the corresponding manual of the MVS version you have installed) for an explanation of the return code and reason code.

---

**FPEM073**  You have not been connected to DB2 yet

**Explanation:** None.

**User response:** None.

---

**FPEM074**  No data to display

**Explanation:** No qualifications have been specified in the DCPARMS (Data Collector Parameter) data set for the History function.

**User response:** None.

---

**FPEM075**  Data set not cataloged

**Explanation:** The dynamic allocation routine was called to allocate a data set that was expected to already exist in the catalog.

**User response:** Correct the data set name to one that exists, or change the disposition to 3 to allocate a new data set.

---

**FPEM076**  Specified volume or acceptable volume not mounted

**Explanation:** The specified volume or an acceptable volume is not mounted, and the user does not have volume mounting authorization. This message can be issued if the allocation exceeds the maximum allocation that is allowed by SMS. OMEGAMON XE for DB2 PE tries to allocate 100 blocks of primary space and 500 blocks of secondary space on SYSDA. The problem can be circumvented by pre-allocating the data set. This message should be accompanied by a system message indicating the volume that was requested.

**User response:** See your system programmer for assistance.

---

**FPEM077**  DYNALLOC returned Return code \(<V1>\), Reason code \(x'\<V2>\)'

**Explanation:** An unusual condition occurred during data set allocation.

- \(<V1>\) is the return code.
- \(<V2>\) is the reason code.

**User response:** See *MVS Messages and Codes* (or the corresponding manual of the MVS version you have installed) for an explanation of the return code and reason code.

---

**FPEM078**  Data set already exists

**Explanation:** You cannot create a data set with this name.

**User response:** Specify the name of a data set that does not exist.

---

**FPEM079**  Catalog Error: Data set name conflicts with existing data set name or user is not authorized to perform the operation

**Explanation:** A catalog attempt was not successful.

**User response:** Use another data set name or see your system programmer for assistance.

---

**FPEM080**  System abend occurred for \(<V1>\). Abend code \(<V2>\), reason code \(<V3>\)

**Explanation:** When performing I/O on the data set, a system abend occurred. The data set is closed. Its data might be lost.

- \(<V1>\) is the data set name.
- \(<V2>\) is the abend code.
- \(<V3>\) is the reason code.

**User response:** See *MVS Messages and Codes* for an explanation of the abend code and reason code.

---

**FPEM0800I**  Task started at \(<V1>\) for DB2 subsystem \(<V2>\)

**Explanation:** The asynchronous Collect task has been started and is waiting for the start trigger condition to be met.

- \(<V1>\) is the date and time when the task started.
- \(<V2>\) is the DB2 subsystem.

**User response:** None.

---

**FPEM0801I**  Task stopped at \(<V1>\)

**Explanation:** The asynchronous Collect task has stopped and is waiting for the user to start the task again.

**User response:** None.
FPEM0802E  SQL return code –<V1> reading catalog info, trace stopped

FPEM0803E  Destination <V1> has become inactive
Explanation: The OPx destination used for the trace facility has become inactive, and data is no longer being written to the trace data set. One possible cause is that all traces that had <V1> as their destination have been stopped.
• <V1> is the OPx destination.
User response: None.

FPEM0804I  FPEM0804I Task stop trigger is: <V1>
Explanation: <V1> includes the following stop trigger criteria:
• By timestamp
• By user request
• By termination
• By number of records
• By IFCID
• By number of IFCIDs
• After START TRACE error
• After READA error
• After WRITE RECORD error
This message is often accompanied by another message that describes the problem in detail and the appropriate course of action.

FPEM0806W  FPEM0806W <V1> records are not written to <V2>. The maximum record length of one of these records is <V3>.
Explanation: This message shows the number of records that is not written to the output data set.
• <V1> is the number of records that is not written to the output data set.
• <V2> is the name of the output data set that is used to collect the trace data.
• <V3> is the maximum length of the trace data record that is not written to the output data set.
This message is often accompanied by another message that describes the problem in detail and the appropriate course of action.
User response: To write the complete trace data to the output data set, follow these steps:
1. Allocate a new output data set to collect the trace data.
2. Increase the record length of the output data set to at least the maximum length of the trace data record that could not be written to the output data set.

3. Restart the trace.

FPEM0807I  The OP buffer high water mark is <V1>.
Explanation: DB2 fills the OP buffer that is assigned to the Collect task. The Collect task issues a READA command to read the OP buffer. <V1> is the maximum number of bytes used.
User response: None.

FPEM081 I/O error occurred for <V1>. System information: <V2>
Explanation: When performing I/O on the data set, a system error occurred. The SYNAD exit was invoked. The data set is closed and data might be lost.
• <V1> is the data set name.
• <V2> is the system message produced by the SYNADAF data administration macro.
User response: See the message buffer format produced by the SYNADAF macro for a description of the error.

FPEM0811I  Task start trigger is: <V1>
Explanation: This message is accompanied by messages FPEM0800I and FPEM0819I. Depending on one of the following start triggers, DB2 data is collected accordingly:
Time  When the user-specified time is met.
Periodic Exception  When the Periodic Exception task finds a field that is in exception status, and if this field matches the user-specified field.
Exception Event  When the Data Server finds an exception event that matches the user-specified exception event.
Immediate Start  Immediately.

FPEM0813I  DB2 traces to <V1> started at <V2>
Explanation: The Collect task start trigger criteria have been met, and the DB2 traces have been started. This message is accompanied by one or both of the DB2 messages DSNW130I and DSN9022I.
• <V1> is the OPx buffer that was allocated to this Collect task by DB2, where n = 1 to 8. DB2 can allocate 1 to 8 buffers.
• <V2> is the date and time when the DB2 traces started.
User response: None.
**FPEM0814I • FPEM0821I**

**FPEM0814I  DB2 traces to <V1> stopped at <V2>**

**Explanation:** The DB2 traces have been stopped because one or more Collect task stop trigger criteria have been met.
- <V1> is the OPn buffer that was allocated to this Collect task by DB2, where n = 1 to 8. DB2 can allocate 1 to 8 buffers.
- <V2> is the date and time when the DB2 traces were stopped.

**User response:** None.

**FPEM0815I  <V1> records written to ' <V2> '**

**Explanation:** This message indicates the number of records written by the Collect subtask between the most recent DB2 trace start and stop messages.
- <V1> is the number of records written to the output data set.
- <V2> is the name of the data set where the DB2 trace data is to be written.

**User response:** None.

**FPEM0816E  Collect data set is full**

**Explanation:** The Collect subtask cannot write any more records to the output data set because it is full.

**User response:** If you wish to collect more records, allocate a larger data set and restart the Collect subtask. If required, reconfigure the task, for example, the start criteria.

**FPEM0817E  No free OP buffers available at <V1>**

**Explanation:** All OP buffers are in use, so the Collect subtask could not start any DB2 traces.

**User response:** Restart the Collect subtask when an OP buffer becomes available.

**FPEM0818E  An error occurred starting the DB2 traces above**

**Explanation:** An error occurred when the Collect subtask attempted to start one or more DB2 traces.

**User response:** This message is accompanied by a DB2 message which explains the problem and determines the user response.

**FPEM0819I  Task description is: <V1>**

**Explanation:** <V1> is the name of the Collect subtask.

A default name is initially assigned to this subtask. You can change the default name on the main Collect facility menu.

This message is always accompanied by message FPEM0800I.

**FPEM082  Error occurred during DYNALLOC de-allocation of <V1>. Return code <V2>, reason code <V3>**

**Explanation:** When performing a dynamic data set de-allocation, an error occurred.
- <V1> is the data set name.
- <V2> is the return code.
- <V3> is the reason code.

**User response:** See MVS Messages and Codes (or the corresponding manual of the MVS version you have installed) for an explanation of the return code and reason code.

**FPEM0820I  <V1> buffer overflows occurred**

**Explanation:** DB2 has filled up the OP buffer that is assigned to this Collect subtask. This message is accompanied by message FPEM0821I, which indicates how many records were lost because of the OP buffer being full.
- <V1> is the number of times DB2 has filled up the OP buffer since this Collect subtask was most recently started.

**User response:** If OP buffer overflows occur frequently, then the following ISPF profile pool variables should be modified during installation of the Online Monitor:

**MAIFIBUF**

This variable defaults to 512 KB and represents the OP buffer size for DB2 to use.

**MAREADAT**

This variable defaults to 410 KB and represents the OP buffer threshold value. When the OP buffer reaches this threshold value, DB2 notifies the subtask which, in turn, will issue a READA command to copy the trace records.

**FPEM0821I  <V1> records lost**

**Explanation:** Records got lost due to the OP buffer being full. No more records can be written until the OP buffer is cleared out by a DB2 READA command. This message should be accompanied by message FPEM0820I.
- <V1> is the number of records lost since this Collect subtask was most recently started.

**User response:** If OP buffer overflows occur frequently, then the following ISPF profile pool variables should be modified during installation of the Online Monitor:

**MAIFIBUF**

This variable defaults to 512 KB and represents the OP buffer size for DB2 to use.

**MAREADAT**

This variable defaults to 410 KB and represents the OP buffer threshold value. When the OP buffer reaches this threshold value, DB2 notifies the subtask which, in turn, will issue a READA command to copy the trace records.
<table>
<thead>
<tr>
<th>Error Code</th>
<th>Description</th>
<th>User Response</th>
<th>System Messages</th>
</tr>
</thead>
</table>
| FPEM0822E          | Error allocating Collect data set. Reason code **<V1>**                                            | **Explanation:** The output data set used by the Collect facility subtask could not be allocated.  
• **<V1>** is the reason code which identifies why the allocation failed.  
**User response:** See MVS Messages and Codes (or the corresponding manual of the MVS version you have installed) to determine the course of action to be taken. |
| FPEM0823E          | Error opening Collect data set with return code **<V1>**                                           | **Explanation:** The output data set used by the Collect facility subtask could not be opened.  
• **<V1>** is the return code which identifies why the open failed:  
  4 The data set was opened successfully, but warning messages were issued.  
  8 The data set could not be opened.  
  12 The data set was already opened.  
**User response:** This message is often accompanied by a system message which details the problem and the course of action. If the data set was already opened, ensure that the same data set is not used by another Collect subtask you have started. If this is the case, then a different data set should be allocated to the Collect subtask that failed. |
| FPEM0824E          | Error writing a record to the output data set with return code **<V1>**                            | **Explanation:** The output data set used by the Collect facility subtask could not be written to.  
• **<V1>** is the return code which identifies why the PUT function failed (8 indicates an error while writing to the data set).  
**User response:** This error should be accompanied by a system message detailing the problem and the course of action. Check the appropriate log information. If the log indicates that the data set is full, define a larger data set, use the OVERWRITE disposition on the Trigger Immediately panel (FPEMAP41), and select the START action again on the Collect Report Data panel (FPEMAP00). |
| FPEM0825E          | Error allocating Collect data set. Record length **<V1>** of **<V2>** is inappropriate. Length should be at least 4092 |
| FPEM083            | **<V1>** is full. The data set has been closed. Some data may be lost. Abend code **<V2>**, reason code **<V3>** |
| FPEM0832W          | GETMAIN FAILURE OF **<V1>** KB FOR READA BUFFER. RC **<V2>**                                       |
| FPEM0834E          | NO READA BUFFER FREED FOR REUSE. COLLECT REPORT DATA IS STOPPED                                    |
| FPEM084            | Space abend occurred while closing **<V2>**. Some data may be lost. Abend code **<V2>**, reason code **<V3>** |

**Explanation:** While closing a data set, a system abend
occurred due to insufficient space. The data set is left in a closed state.

- `<V1>` is the data set name.
- `<V2>` is the abend code.
- `<V3>` is the reason code.

**User response:** See MVS Messages and Codes for an explanation of the abend code and reason code.

---

**FPEM085**  
A record was not added to `<V1>` because it was too long. The data set is still open. Abend code `<V2>`, reason code `<V3>`

**Explanation:** A record with a length that is larger than the data set record length cannot be added to the data set.

- `<V1>` is the data set name.
- `<V2>` is the abend code.
- `<V3>` is the reason code.

**User response:** If all records are needed, allocate a data set with a larger record length.

---

**FPEM086**  
Error attempting to open data set

**Explanation:** An error occurred while opening a data set.

**User response:** None.

---

**FPEM0860I**  
Compressing started at `<V1>`

**Explanation:**
- `<V1>` is the start date and time.

---

**FPEM0861I**  
Compressing stopped at `<V1>`

**Explanation:**
- `<V1>` is the stop date and time.

---

**FPEM0862E**  
Error allocating data set for compressed data. Reason code `<V1>`

**Explanation:** The output data set used by the Collect facility subtask could not be allocated. Typical causes are: The data set already exists, not enough space, or access is denied.

- `<V1>` is the reason code which identifies why the allocation failed.

**User response:** See MVS Messages and Codes (or the corresponding manual of the MVS version you have installed) to determine the course of action to be taken.

---

**FPEM0865E**  
Error during data set compression. Reason code `<V1>`

**User response:** See the TERSEMV messages, which are usually following message FPEM0866I, for possible reasons.

---

**FPEM0866I**  
STARTING TERSE `<V1>` `<V2>`

**Explanation:** Multiple messages from the TRSMAIN utility might follow, showing the exec parameters used.

If this message does not show a return code of 0, which indicates an error from the TRSMAIN utility, several TERSEMV messages are followed.

**User response:** See MVS Messages and Codes (or the corresponding manual of the MVS version you have installed) to determine the course of action to be taken.

---

**FPEM0867E**  
Compression will be not started. Reason code `<V1>`

**User response:** See message FPEM0866I for possible reasons and actions.

---

**FPEM087**  
Data set is already open

**Explanation:** None.

**User response:** None.

---

**FPEM088**  
Space abend occurred while closing the Exception Log data set. Some data may be lost

**Explanation:** None.

**User response:** None.

---

**FPEM089**  
Space abend occurred while closing the Exception File data set. Some data may be lost

**Explanation:** None.

**User response:** None.

---

**FPEM090**  
Error occurred loading I/O module. Abend code `<V1>`, reason code `<V2>`

**Explanation:** When loading the I/O module, a system abend occurred.

- `<V1>` is the abend code.
- `<V2>` is the reason code.

**User response:** See MVS Messages and Codes for a detailed explanation of the abend code and reason code.

---

**FPEM091**  
Insufficient storage available for I/O initialization

**Explanation:** When attempting to initialize I/O processing, there was not enough virtual storage available.

**User response:** Increase the region size of the user's TSO/E address space.
FPEM0914W  Error attempting to write to the exception log

Explanation: An error occurred when writing to the exception log. The log record was not written.

User response: See the accompanied system message in the asynchronous message log for action.

FPEM0918W  Threshold field <V1> is in error. Event <V2> is invalid

Explanation: The Online Monitor detected a not valid event in the Exception Threshold data set.
  • <V1> is the threshold field.
  • <V2> is the invalid event name you specified.

User response: Specify one of the following event types:
  STAT For statistics events
  THRD For thread activity events
  ACCT For accounting events.

FPEM0919W  Threshold field <V1> is in error. The field is not valid for environment <V2>

Explanation: A batch-only field cannot be used in an online environment, and an online-only field cannot be used in a batch environment.
  • <V1> is the threshold field.
  • <V2> is the environment.

User response: If the threshold data set is used in either batch or online environment, delete references to fields that are not applicable.

FPEM0920W  Threshold field <V1> is in error. The field name is invalid

Explanation: The Online Monitor detected a not valid field name in the Exception Threshold data set.
  • <V1> is the invalid field name.

User response: Correct the error.

FPEM0921W  Threshold field <V1> is in error. Field is invalid for DB2 <V2>

Explanation: The field name is not valid for the release of the DB2 subsystem to which you are connected.
  • <V1> is the threshold field name.
  • <V2> is the release of the DB2 subsystem.

User response: Enter a valid field name.

FPEM0922W  Threshold field <V1> is in error. Field is invalid for event <V2>

Explanation: The field name specified in the Exception Threshold data set does not correspond with the event (for example, a statistics field was specified for a THRD event).
  • <V1> is the field name.
  • <V2> is the event.

User response: Correct the error.

FPEM0923W  DUMMY is not acceptable for this data set

Explanation: The Exception Threshold data set must be specified.

User response: Enter the name of the valid data set.

FPEM0938W  Error attempting to write to the exception file

Explanation: An error occurred when writing to the Exception Log file. The log file record was not written.

User response: See the accompanied system message in the asynchronous message log for action.

FPEM0939E  The Periodic Exception Processor has terminated and cannot be restarted. Exit from the Online Monitor before retrying

Explanation: An earlier error caused the periodic exception processor to terminate.

User response: Exit from the Online Monitor before trying to start the periodic exception processor again. If the problem recurs, contact IBM support.

FPEM093E  The Periodic Exception Processor has terminated and cannot be restarted. Exit from the Online Monitor before retrying

Explanation: An earlier error caused the periodic exception processor to terminate.

User response: Exit from the Online Monitor before trying to start the periodic exception processor again. If the problem recurs, contact IBM support.

FPEM094  Data set organization (<V1>) of <V2> is inappropriate. Valid values: <V3>

Explanation: The specified data set has a not valid data set organization. The required DSORG is physical sequential (PS).
  • <V1> is the specified data set organization (DSORG).
  • <V2> is the data set name.
  • <V3> is a list of valid data set organizations (DSORG).

User response: Allocate a data set with a PS organization.
FPEM0944I  Periodic Exception Processor started at <V1>

Explanation: The periodic exception processor is started.
* <V1> is the date and time at which the periodic exception processor started.

User response: None.

FPEM0945I  PERIODIC EXCEPTION PROCESSOR STOPPED AT <V1>

Explanation: The periodic exception processor is stopped.
* <V1> is the date and time at which the periodic exception processor stopped.

User response: None.

FPEM095  Record format (<V1>) of <V2> is inappropriate. Record format should be variable.

Explanation: The specified data set has a not valid record format. The required format is variable (V) or variable blocked (VB).
* <V1> is the specified record format.
* <V2> is the data set name.

User response: Allocate a data set with a V or VB record format.

FPEM096  Record length (<V1>) of <V2> is inappropriate. Length should be at least <V3>

Explanation: The specified data set has a record length (LRECL) that is too small.
* <V1> is the specified LRECL.
* <V2> is the data set name.
* <V3> is the minimum LRECL for this file.

User response: Correct the LRECL.

FPEM097  Member name should not be specified when the data set is sequential

Explanation: The data set has been defined as sequential. No member name should be specified.

User response: Specify the correct data set.

FPEM098  Member name should be specified when the data set is partitioned

Explanation: The data set has been defined as partitioned. A member name should be specified.

User response: Specify the correct data set.

FPEM099  Internal error occurred - code is <V1>

Explanation: An unexpected program error has occurred.
* <V1> is the internal error code.

User response: If the problem recurs, contact IBM support and quote the internal error code.

FPEM100  Unrecognized command. Valid commands for this panel are AUTO, REINIT, DB2, LOOK, COLLECT, HISTORY, OPTIONS, and PURGE

Explanation: The command you entered is not recognized.

User response: Enter one of the following commands:
  AUTO  To activate the autodisplay function
  REINIT To restart the exception processor
  DB2   To enter a DB2 command
  LOOK  To display the Look Selections menu
  COLLECT To display the Report Data menu
  HISTORY To display HISTORY status or invoke HISTORY mode
  OPTIONS To set default options
  PURGE To purge a thread currently processing in the DB2 subsystem.

FPEM101  <V1> command not valid in this panel. Valid commands for this panel are AUTO, REINIT, DB2, LOOK, COLLECT, HISTORY, OPTIONS, and PURGE

Explanation: The command you entered is not available in the current panel.
* <V1> is the command you entered.

User response: Enter one of the following commands:
  AUTO  To activate the autodisplay function
  REINIT To restart the exception processor
  DB2   To enter a DB2 command
  LOOK  To display the Look Selections menu
  COLLECT To display the Report Data menu
  HISTORY To display HISTORY status or invoke HISTORY mode
  OPTIONS To set default options
### PURGE

To purge a thread currently processing in the DB2 subsystem.

---

### FPEM102

**The selected thread has terminated.**<br>Details are no longer available

**Explanation:** None.

**User response:** None.

---

### FPEM103

**Insufficient storage available for thread processing**

**Explanation:** When attempting to initialize the Thread Activity display, there was not enough virtual storage available.

**User response:** Increase the region size of the user’s TSO/E address space.

As a principle solution you can increase the size of the internal storage area that the Online Monitor uses to hold data for the selected purpose. For more information see Monitoring Performance from ISPF, Online Monitor options, Online Monitor Memory Usage window.

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### FPEM104

**No locks are currently held or suspended for this resource. If the thread you selected is no longer active, values for that thread remain available and will not be affected by refreshing this panel**

**Explanation:** The resource that the selected thread was holding, or was in a suspended state against, is no longer held by any thread. It is possible that the selected thread has terminated. However, because this panel displays information about a resource, you can continue to monitor the resource without losing the information gathered when the thread details were last refreshed. If you exit from this panel, the other panels relating to the thread will be unchanged.

**User response:** None.

---

### FPEM105

**The thread you selected no longer holds this resource. If the thread you selected is no longer active, values for that thread remain available and will not be affected by refreshing this panel**

**Explanation:** The resource that the selected thread was holding, or was in a suspended state against, is no longer held by that thread (another thread holds a lock which keeps yours out). It is possible that the selected thread has terminated. However, because this panel displays information about a resource, you can continue to monitor the resource without losing the information gathered when the thread details were last refreshed. If you exit from this panel, the other panels relating to the thread will be unchanged.

---

### FPEM106

**No threads were found matching the current qualify values**

**Explanation:** There are no threads available that match your selection.

**User response:** Change the qualify values and try again, or keep trying with the selected qualify values.

---

### FPEM107

**Insufficient storage to return locking data. IFI RC <V1>, REASON <V2>**

**Explanation:** This warning message indicates that DB2 has insufficient storage to process more than 32 KB of locking data. Up to 32 KB of locking data is returned.

- <V1> is the IFI return code.
- <V2> is the reason code.

**User response:** None. For further information, see DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed).

---

### FPEM108

**Unrecognized command. Valid commands for this panel are SORT, QUALIFY, RESET, AUTO, REINIT, DB2, LOOK, COLLECT, HISTORY, OPTIONS, and PURGE**

**Explanation:** The command you entered is not recognized in the current panel.

**User response:** Enter one of the following commands:

- **SORT** To specify the order in which threads are displayed in this panel
- **QUALIFY** To limit the number of threads shown in this panel
- **RESET** To disable qualify and sort functions
- **AUTO** To activate the autodisplay function
- **REINIT** To restart the exception processor
- **DB2** To enter a DB2 command
- **LOOK** To display the Look Selections menu
- **COLLECT** To display the Report Data menu
- **HISTORY** To display HISTORY status or invoke HISTORY mode
- **OPTIONS** To set default options
- **PURGE** To purge a thread currently processing in the DB2 subsystem.
FPEM109 <V1> command not valid in this panel.
Valid commands are SORT, QUALIFY, RESET, AUTO, REINIT, DB2, LOOK, COLLECT, HISTORY, OPTIONS, and PURGE.

Explanation: The command you entered is not valid in the current panel.
• <V1> is the command you entered.
User response: Enter one of the following commands:
Sort To specify the order in which threads are displayed in this panel
Qualify To limit the number of threads shown in this panel
Reset To disable qualify and sort functions
Auto To activate the autodisplay function
Reinit To restart the exception processor
Db2 To enter a DB2 command
Look To display the Look Selections menu
Collect To display the Report Data menu
History To display HISTORY status or invoke HISTORY mode
Options To set default options
Purge To purge a thread currently processing in the DB2 subsystem.

FPEM110 Field order must be numeric in the range 1 to 15
Explanation: The value entered is not within the valid range.
User response: Correct the input.

FPEM111 The same order has been specified for more than one field
Explanation: An attempt has been made to specify a sort with two fields at the same level.
User response: Check the sort panel for the duplicate sort order.

FPEM112 Sort sequence must be specified as 1 (Ascending) or 2 (Descending)
Explanation: A not valid sort sequence has been entered.
User response: Specify the sort sequence as 1 or 2.

FPEM113 Sort sequence must be specified as ASCENDING or DESCENDING or any valid abbreviation
Explanation: The sort sequence has not been specified correctly.
User response: Specify the sort sequence as ASCENDING or DESCENDING or any valid abbreviation.

FPEM114 Command contains an unrecognized field identifier. Valid values are PRIMAUTH, PLANNAME, COLLECTION, PROGRAM, CORRELATION, CONNECT, CONNTYPE, REQLOC, STATUS, REQUESTS, C1ELAPSED, C1CPU, C2ELAPSED, C2CPU, and C3ELAPSED. Valid abbreviations can be used
Explanation: The command entered cannot be recognized.
User response: Enter one of the stated values or one of the applicable abbreviations.

FPEM115 Command contains an invalid field identifier abbreviation. The shortest permitted truncations are PRI, PL, COL, PRO, COR, CONNE, CONNT, REQL, S, REQU, C1E, C1C, C2E, C2C, and C3
Explanation: The command entered cannot be recognized.
User response: Enter one of the stated values.

FPEM116 At least one order field must be specified. To use the default parameters, cancel this panel and deactivate the sort command if it is active
Explanation: No order has been entered for the sort.
User response: Specify a sort order or use the cancel function to exit the panel.

FPEM117 More than 32 KB of locking data exists. Only up to 32 KB of locking data can be returned. IFI RC <V1> REASON <V2>. See DB2 MSGS/CODES
Explanation: A DB2 limitation has been reached, and a maximum of 32 KB of locking information is returned.
• <V1> is the DB2 IFI return code.
• <V2> is the DB2 IFI reason code.
User response: None. For further information, see DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed).
<table>
<thead>
<tr>
<th>Message</th>
<th>Description</th>
</tr>
</thead>
</table>
| FPEM118 | The selected entry does not represent a thread.  
**Explanation:** You have requested a thread display for an entry that does not represent a thread.  
**User response:** Select only entries that represent threads. |
| FPEM120 | The QUALIFY command accepts one optional parameter, which can be on or off or any valid abbreviation.  
**Explanation:** None.  
**User response:** If using a parameter with the Qualify command, ensure it is ON or OFF or any valid abbreviation. |
| FPEM121 | Invalid character. Must be alphabetic.  
**Explanation:** A not valid character has been entered.  
**User response:** Enter an alphabetic character. |
| FPEM122 | At least one Thread Status must be specified.  
**Explanation:** None.  
**User response:** Enter a thread status. |
| FPEM123 | At least one Thread Type must be specified.  
**Explanation:** None.  
**User response:** Enter a thread type. |
| FPEM130 | An SQL error has occurred. SQL CODE <V1>. As a result, some DBID/OBID translations may not have been performed.  
**Explanation:** While trying to perform SQL functions, a failure occurred.  
* <V1> is the SQL code.  
**User response:** See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for information about the SQL code. |
| FPEM131 | Unrecognized command. Valid commands for this panel are AUTO, REINIT, DB2, LOOK, COLLECT, HISTORY, OPTIONS, EXPLAIN, and PURGE.  
**Explanation:** The command you entered is not recognized.  
**User response:** Enter one of the following commands:  
**AUTO** To activate the autodisplay function  
**REINIT** To restart the exception processor  
**DB2** To enter a DB2 command  
**LOOK** To display the Look Selections menu  
**COLLECT** To display the Report Data menu  
**HISTORY** To display HISTORY status or invoke HISTORY mode  
**OPTIONS** To set default options  
**EXPLAIN** To explain the current SQL statement  
**PURGE** To purge a thread currently processing in the DB2 subsystem. |
| FPEM132 | <V1> command not valid in this panel. Valid commands are AUTO, REINIT, DB2, LOOK, COLLECT, HISTORY, OPTIONS, EXPLAIN, and PURGE.  
**Explanation:** The command you entered is not recognized in the current panel.  
* <V1> is the SQL code.  
**User response:** Enter one of the following commands:  
**AUTO** To activate the autodisplay function  
**REINIT** To restart the exception processor  
**DB2** To enter a DB2 command  
**LOOK** To display the Look Selections menu  
**COLLECT** To display the Report Data menu  
**HISTORY** To display HISTORY status or invoke HISTORY mode  
**OPTIONS** To set default options  
**EXPLAIN** To explain the current SQL statement  
**PURGE** To purge a thread currently processing in the DB2 subsystem. |
| FPEM133 | <V1> command not valid for this release of DB2.  
**Explanation:** The specified command is not supported by the DB2 subsystem you are connected to. The only valid command is PURGE.  
* <V1> is the unsupported command.  
**User response:** None. |

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**Chapter 9. Messages**
### FPEM134
No return area from DB2 to indicate the outcome of the command entered. IFI RC \(<V1>\), REASON \(<V2>\). See DB2 MSGS/CODES.

**Explanation:** The PURGE command has failed, and DB2 has not supplied an explanation why, except for the return code and reason code provided by the DB2 IFI facility.
- \(<V1>\) is the DB2 IFI return code.
- \(<V2>\) is the DB2 IFI reason code.

**User response:** See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.

### FPEM135
A thread has to be selected for the \(<V1>\) command.

**Explanation:** The PURGE command must know which thread is to be canceled.
- \(<V1>\) is the PURGE command.

**User response:** Select a thread from the list displayed when the PURGE command is entered.

### FPEM136
No thread has been created for this agent, so cannot be purged.

**Explanation:** Only threads performing work in DB2 can be canceled by the PURGE command.

**User response:** Select a thread that is not in I/S status.

### FPEM138
An SQL error has occurred. SQL CODE -805. The packages FPEVDB2S, DGOVDB2S, DGOVSDBO, and DGOVSDOB must be rebound.

**Explanation:** While trying to perform SQL functions, a failure occurred.

**User response:** See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for information about the SQL code.

### FPEM140
Reset successful. Sort and qualify are now off.

**Explanation:** None.

**User response:** None.

### FPEM141
Reset successful. Sort and qualify are now off. Extra parameters have been ignored.

**Explanation:** The commands typed in after reset have been ignored.

**User response:** Reenter the commands typed in after RESET.

### FPEM142
No history data found. Selected thread has terminated.

**Explanation:** None.

**User response:** None.

### FPEM200
Invalid command. Valid commands are AUTO, DB2, DELTA, HISTORY, INTERVAL, LOOK, COLLECT, OPTIONS, REINIT, and RESET.

**Explanation:** The command you entered is not available in the current panel.

**User response:** Enter one of the following commands:
- **AUTO** To activate the autodisplay function
- **DB2** To enter a DB2 command
- **DELTA** To view system-wide DB2 activity in time slices
- **HISTORY** To display HISTORY status or invoke HISTORY mode
- **INTERVAL** To view an accumulation of statistics data from a specified point in time
- **LOOK** To display the Look Selections menu
- **COLLECT** To display the Report Data menu
- **OPTIONS** To set default options
- **REINIT** To restart the exception processor
- **RESET** To revert to regular mode.

### FPEM2006E
The product installation is incomplete.

**Explanation:** The licence FMID is not correctly installed.

**User response:** If errors occurred during installation, correct them and try to use the product again. If OMEGAMON XE for DB2 PE, or OMEGAMON XE for DB2 PM, installed without errors, and you followed the recommended installation and customization procedures, and the problem persists, contact IBM support.

### FPEM202
One or more fields have not been formatted for display due to an internal error. Fields marked with ? are the fields not formatted - other fields have been formatted correctly.

**Explanation:** An internal error occurred when formatting data for display. The fields that could not be formatted contain a question mark.
User response:  If the problem recurs, contact IBM support.

FPEM203  Statistics interval processing started
Explanation:  Statistics interval processing has been activated by the INTERVAL command.
User response:  None.

FPEM204  Statistics interval processing stopped by RESET command
Explanation:  Statistics interval processing has been stopped by the RESET command. The data displayed on the Statistics panel are the accumulated values since DB2 startup.
User response:  None.

FPEM205  Statistics delta processing started
Explanation:  Statistics delta processing has been activated by the DELTA command.
User response:  None.

FPEM206  Statistics delta processing stopped by RESET command
Explanation:  Statistics delta processing has been stopped by the RESET command. The data displayed on the Statistics panel are the accumulated values since DB2 startup.
User response:  None.

FPEM207  Insufficient storage available for Statistics processing
Explanation:  When attempting to initialize statistics, there was not enough storage available.
User response:  Increase the region size of the user’s TSO/E address space.

FPEM208  RESET command ignored - interval or delta not active
Explanation:  The RESET function is valid only after starting Statistics Interval or Delta processing.
User response:  None.

FPEM209  Statistics Internal Error while formatting buffer pools
Explanation:  An error occurred while formatting the buffer pool data.
User response:  This is an internal error. If the condition recurs, contact IBM support and quote the internal error number.

FPEM210  Insufficient storage available for delta processing
Explanation:  There was not enough storage available when Delta processing was initialized.
User response:  Increase the region size of the user’s TSO/E address space.

FPEM211  Insufficient storage available for interval processing
Explanation:  There was not enough storage available when Interval processing was initialized.
User response:  Increase the virtual storage of the user’s TSO/E address space.

FPEM212  Unrecognized command. Commands valid for statistics are AUTO, DB2, DELTA, HISTORY, INTERVAL, LOOK, COLLECT, OPTIONS, REINIT, and RESET
Explanation:  The command you entered is not available in the current panel.
User response:  Enter one of the following commands:
AUTO  To activate the autodisplay function
DB2   To enter a DB2 command
DELTA To view system-wide DB2 activity in time slices
HISTORY To display HISTORY status or invoke HISTORY mode
INTERVAL  To view an accumulation of statistics data from a specified point in time
LOOK   To display the Look Selections menu
COLLECT To display the Report Data menu
OPTIONS  To set default options
REINIT To restart the exception processor
RESET  To revert to regular mode.

FPEM213  Autodisplay activated. Refresh every <V1> <V2>. Press ATTN to terminate
Explanation:  AUTODISPLAY is active.
• <V1> is the interval duration.
• <V2> is the interval unit in seconds or minutes.
User response:  To cancel AUTODISPLAY, press the ATTN key.
FPEM214 • FPEM229

FPEM214  Autodisplay. Refresh every <V1> <V2>. Press ATTN to terminate
Explanation: AUTODISPLAY is active.
• <V1> is the interval duration.
• <V2> is the interval unit in seconds or minutes.
User response: To cancel AUTODISPLAY, press the ATTN key.

FPEM215  Statistics interval processing started. Extra parameters ignored
Explanation: Parameters typed in the command line following the INTERVAL command have been ignored.
User response: None.

FPEM216  Statistics interval processing stopped by RESET command. Extra parameters ignored
Explanation: Parameters typed in the command line following the RESET command have been ignored.
User response: None.

FPEM217  Statistics delta processing started. Extra parameters ignored
Explanation: Parameters typed in the command line following the DELTA command have been ignored.
User response: None.

FPEM218  Statistics delta processing stopped by RESET command. Extra parameters ignored
Explanation: Parameters typed in the command line following the RESET command have been ignored.
User response: None.

FPEM219  DB2 restart detected. Autodisplay terminated
Explanation: A DB2 restart has resulted in a new base time for calculation of statistics by DB2.
User response: Restart Autodisplay if required.

FPEM220  DB2 restart detected. Autodisplay and delta processing terminated
Explanation: Statistics deltas cannot be calculated across a DB2 restart.
User response: Restart Delta processing and Autodisplay if required.

FPEM221  DB2 restart detected. Delta processing terminated
Explanation: Statistics deltas cannot be calculated across a DB2 restart.
User response: Restart Delta processing if required.

FPEM222  DB2 restart detected. Autodisplay and interval processing terminated
Explanation: Statistics deltas cannot be calculated for an interval spanning a DB2 restart.
User response: Restart Autodisplay and interval processing if required.

FPEM223  DB2 restart detected. Interval processing terminated
Explanation: Statistics deltas cannot be calculated for an interval spanning a DB2 restart.
User response: Restart interval processing if required.

FPEM229  Not all data displayed. Limited support for: <V1>.
Explanation: Not all data returned by DB2 within IFCIDs are displayed on the Online Monitor panels.
• <V1> is the reason for the limitation
The following list shows the keywords for the reasons:

Multiple IFCID 2
For buffer pool information DB2 10 returns one or more IFCIDs 2. Only information from the first IFCID 2 is displayed on the panels. Further IFCIDs 2 are ignored.

User response: None.

FPEM250  Invalid date. Required format is: <V1>
Explanation: The date entered is not valid.
• <V1> is the valid date format.
User response: Enter a valid date.

FPEM251  Invalid time. Required format is: HH:MM:SS
Explanation: The time entered is not valid.
User response: Enter a valid time.

FPEM252  History Date/Time is in the future
Explanation: History date and time must be in the past.
User response: Reenter the date and time.
FPEM253  History is not active
Explanation: A history function could not be used because you are not connected to an active Data Server. To use history, a server must be installed for the DB2 subsystem you are using.
User response: Select the Options panel from the Online Monitor main menu. Select the DB2 Subsystem panel and check that the Data Server for your DB2 subsystem has been started. If necessary, start the appropriate server and then reenter the panel. Connect to the server by selecting it from the subsystem list.

FPEM254  History time is invalid. Required format is: HH:MM:SS
Explanation: The history time entered is not valid.
User response: Enter a valid history time.

FPEM255  History date is invalid. Required format is: <V1>
Explanation: The history date entered is not valid.
User response: Enter a valid history date.

FPEM256  Syntax error in HISTORY command. Valid formats are: HISTORY, HISTORY BACK, HISTORY FORWARD, HISTORY OFF, HISTORY <V1>, HH:MM:SS, HISTORY <V2>, and HISTORY HH:MM:SS
Explanation: None.
User response: Enter a valid HISTORY command.

FPEM257  Error in HISTORY command. Date/Time entered is in the future
Explanation: History date and time must be in the past.
User response: Reenter the date and time.

FPEM301  Group buffer pool <V1> has been deleted
Explanation: Group buffer pool information could not be refreshed.
User response: None.

FPEM302  DPMOUT record has not formatted successfully
Explanation: A severe error has occurred during formatting of the DPMOUT record.
User response: This is an internal error. If the condition recurs, contact IBM support.

FPEM303  ISPF variables have not formatted successfully
Explanation: A severe error has occurred during formatting of ISPF variables.
User response: This is an internal error. If the condition recurs, contact IBM support and quote the internal error number.

FPEM304  Insufficient storage available for DPMOUT record formatting
Explanation: When attempting to allocate storage for record formatting, the TSO/E region size was too small.
User response: Increase the region size of the user’s TSO/E address space.

FPEM307  System Parameters internal error <V1>
Explanation: None.
User response: If the problem recurs, contact IBM support and quote the internal error code.

FPEM308  Insufficient storage during System Parameters initialization
Explanation: There is insufficient storage for system parameters use.
User response: Increase the region size of the user’s TSO/E address space.

FPEM309  Buffer pool <V1> has been deleted
Explanation: Buffer pool information could not be refreshed.
User response: None.

FPEM404  Monitor write function disabled
Explanation: The monitor write function was deactivated by the global parameters function.
User response: None.
FPEM405  Monitor write function enabled
Explanation: The monitor write function was activated by the global parameters function.
User response: None.

FPEM411  Enter valid subsystem ID
Explanation: The DB2 subsystem ID contains invalid characters.
User response: Enter a valid DB2 subsystem ID.

FPEM412  Enter valid data set name
Explanation: The field does not contain a valid data set name.
User response: Enter a valid data set name.

FPEM413  Enter 1 or 2
Explanation: None.
User response: Enter 1 or 2.

FPEM414  Enter a valid Plan Name
Explanation: None.
User response: Enter a valid plan name.

FPEM415  Select only one server from the list
Explanation: None.
User response: Select one from the list.

FPEM416  Enter 1, 2, or 3
Explanation: A not valid number was entered into the disposition field.
User response: Enter 1, 2, or 3.
1 The current data is appended to previous data.
2 The current data replaces any previous data.
3 The data set is allocated for the user.

FPEM420  Memory size must be numeric in the range 1 to 4 (in MB)
Explanation: You specified a value that is not allowed.
User response: Specify either 1, 2, 3, or 4.

FPEM500  Subsystem <V1> is invalid. CAF RC <V2>, REASON <V3>
Explanation: An attempt was made to connect to a DB2 subsystem that does not exist.
• <V1> is the invalid subsystem name.

• <V2> is the Call Attach Facility (CAF) return code.
• <V3> is the DB2 reason code.
User response: Specify a valid DB2 subsystem ID for the MVS system that you are currently working on, using the global parameters function.

FPEM501  DB2 release is <V1>, DB2 loadlib (dsnload) release is <V2>
Explanation: The release level of the DB2 subsystem is not compatible with the DB2 load library currently allocated to your TSO/E session.
• <V1> is the DB2 release.
• <V2> is the DSNLOAD release.
User response: Be sure that the DB2 load library allocated to your TSO/E session is the same release level as the DB2 subsystem that you are connected to. The DB2 load library must not be allocated using LIBDEF.

FPEM502  DB2 subsystem <V1> is not available.
CAF RC <V2>, REASON <V3>
Explanation: An attempt was made to connect to a DB2 subsystem that is valid, but is not currently running.
• <V1> is the name of the DB2 subsystem.
• <V2> is the Call Attach Facility (CAF) return code.
• <V3> is the CAF reason code.
User response: Start the DB2 subsystem or connect to a subsystem that is already active.

FPEM503  You are not authorized to access DB2 subsystem <V1>
Explanation: You do not have the access authority needed to connect to the requested DB2 subsystem. The most common cause is that you are not defined by RACF as having access to the subsystem.
• <V1> is the subsystem ID of the DB2 subsystem in question.
User response: Notify your security administrator.

FPEM504  The server subsystem <V1> is not present. Performance Expert may not be installed correctly
Explanation: The Performance Expert subsystem has not been installed correctly.
• <V1> is the server subsystem ID.
User response: Check the subsystem ID or reinstall correctly.
You are not authorized to execute plan <V1>

Explanation: You do not have the DB2 authority needed to execute the requested DB2 plan.
• <V1> is the DB2 plan name.
User response: Notify your security administrator.

Currently allocated DB2 version not supported by DB2 PE

Explanation: An attempt was made to connect to a DB2 version allocated to the user session that is not supported by your OMEGAMON XE for DB2 PE. In general, a higher DB2 version is not supported by a lower version of OMEGAMON XE for DB2 PE. Lower DB2 versions can be supported. For further information on which DB2 versions are supported by your OMEGAMON XE for DB2 PE, see the manuals of the OMEGAMON XE for DB2 PE version you are using.
User response: Leave the Online Monitor and allocate the libraries of a supported DB2 version.

Only one task in this ISPF logical session can be connected to DB2

Explanation: An attempt has been made to start a second DSN or Call Attach Facility (CAF) connection to DB2 from one ISPF logical screen. This error may occur if you attempt to start a second Online Monitor session or start, for example, SPUFI and a second Online Monitor session in one ISPF logical screen.
User response: Exit the second Online Monitor session.

DB2 subsystem <V1> is stopping, please end your session

Explanation: The DB2 subsystem is terminating.
• <V1> is the name of the DB2 subsystem.
User response: End your session.

DB2 subsystem <V1> is abnormally terminating, please end your session

Explanation: The DB2 subsystem is abnormally terminating.
• <V1> is the name of the DB2 subsystem.
User response: End your session.

No DB2 subsystem ID (SSID) has been specified. Select the Options function to specify a subsystem

Explanation: You have not previously specified a DB2 subsystem ID on the Online Monitor panels.
User response: Select Options, then DB2 Subsystem to supply a DB2 subsystem ID.

Nonzero CAF return code. RC <V1>, REASON <V2>

Explanation: A DB2 call attach error has been detected.
• <V1> is the return code.
• <V2> is the reason code.
User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.

SQL error <V1> received

Explanation: None.
• <V1> is the SQL error code.
User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed).

Internal error <V1> while adding a message to the DB2I queue

Explanation: None.
• <V1> is the SQL error code.
User response: Contact IBM support.

You cannot change the DB2 subsystem while trace is active

Explanation: None.
User response: Either wait until the trace has completed, or stop the trace. Then change to the new DB2 subsystem.

Abends have stopped the monitor trace. Restart the trace

Explanation: Abends in DB2 have caused the DB2 monitor trace to stop.
User response: Check the cause of the abend in DB2 and restart the monitor trace.

MONITOR1, MONITOR2, or SYSADM authority is needed to use DB2 IFI

Explanation: You do not have the authority needed to execute the DB2 IFI functions used by the Online Monitor. You require MONITOR1, MONITOR2, or SYSADM privilege.
User response: Notify your security administrator.
FPEM517  IFCID <V1> is not valid/available on this DB2 subsystem

Explanation: The Online Monitor issued a request for an IFCID from DB2 IFI, but the IFCID was not recognized by DB2. This should not happen on a normal DB2 subsystem.

User response: Apply necessary DB2 maintenance.

FPEM518  Nonzero IFI return code. RC <V1>, REASON <V2>

Explanation: A severe DB2 IFI error has been detected.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes. If the problem recurs, contact IBM support.

FPEM519  The connection to DB2 was lost prior to CAF call. RC <V1>, REASON <V2>

Explanation: OMENAMON XE for DB2 PE lost the connection to DB2.

User response: Examine the DB2 activity to determine the cause of the disconnection. For further information, see also DB2 Messages and Codes (or the corresponding DB2 version you have installed).

FPEM520  UDA allocation failed. Connection to server failed. Connection will be made to DB2

Explanation: None.

User response: Check the Data Server log for preceding messages or abends. If the problem recurs, contact IBM support.

FPEM521  SRB allocation failed. Connection to server failed. Connection will be made to DB2

Explanation: None.

User response: Check the Data Server log for error messages. If the problem recurs, contact IBM support.

FPEM522  Invalid request passed to the Data Movement PC routine

Explanation: None.

User response: Contact IBM support.

FPEM523  No connect or disconnect routine available

Explanation: None.

User response: Contact IBM support.

FPEM524  Server User Manager task has terminated due to errors. Connection and Exception functions are not available

Explanation: An internal error occurred.

User response: Check the Data Server log for error messages. If the problem recurs, contact IBM support.

FPEM525  Server internal error. CODE <V1>, REASON <V2>

Explanation: An internal error occurred.

User response: Check the Data Server log for error messages. If the problem recurs, contact IBM support.

FPEM526  Server DIV internal error. CODE <V1>

Explanation: An internal error occurred.

User response: Check the Data Server log for error messages. If the problem recurs, contact IBM support.

FPEM527  Server HISTORY internal error. CODE <V1>

Explanation: An internal error occurred.

User response: Check the Data Server log for error messages. If the problem recurs, contact IBM support.

FPEM528  TCB token storage could not be allocated. Connection to server failed. Connection will be made to DB2

Explanation: An internal error occurred.

User response: Check the Data Server log for preceding messages or abends. If the problem cannot be corrected and recurs, contact IBM support.

FPEM529  UDA allocation failed

Explanation: An internal error occurred.

User response: Check the Data Server log for preceding messages or abends. If the problem cannot be corrected and recurs, contact IBM support.
FPEM531  SRB allocation failed
Explanation: An internal error occurred.
User response: Check the Data Server log for preceding messages or abends. If the problem cannot be corrected and recurs, contact IBM support.

FPEM532  You are not authorized to connect to the server
Explanation: You do not have MONITOR1, MONITOR2, or SYSADM authority.
User response: Obtain these authorities.

FPEM533  SQL reason code of <V1> was received
Explanation: A negative SQL code was entered while the server was checking user authorities.
User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the SQL reason code.

FPEM534  Invalid request passed to the Data Movement PC routine
Explanation: An internal error occurred.
User response: Check the Data Server log for preceding messages or abends. If the problem cannot be corrected and recurs, contact IBM support.

FPEM535  You are not authorized to connect to the selected maintenance server
Explanation: You are not in the AdminUser list for this server.
User response: Add your user ID to the AdminUser list.

FPEM536  You are not authorized to connect to the server, possibly because the Monitor Trace is not active
Explanation: You were not granted authorization to connect to DB2. If you are a SYSADM, the system could not determine this due to a missing 106 IFCID.
User response: If you are a SYSADM, start the monitor trace, then you can connect as normal. Otherwise you do not have the required authorization to connect.

FPEM538  TCB token storage could not be allocated
Explanation: An internal error occurred.
User response: Check the Data Server log for preceding messages or abends. If the problem cannot be corrected and recurs, contact IBM support.

FPEM539  Unknown return code set by the server
Explanation: An internal error occurred.
User response: Check the console messages. If the problem cannot be corrected and recurs, contact IBM support.

FPEM540  Subsystem internal error. SSI return code <V1>
Explanation: An internal error occurred.
User response: Ensure that the subsystem is installed correctly.

FPEM541  Subsystem internal error. SSI was able to pass the request to the subsystem but received SSOB return code <V1>
Explanation: An internal error occurred.
User response: Ensure that the subsystem is installed correctly.

FPEM542  Subsystem internal error due to server not of matching type to swap subsystems
Explanation: An internal error occurred.
User response: Ensure that the subsystem is installed correctly.

FPEM543  Subsystem internal error due to <V1> not attached to any server
Explanation: An internal error occurred.
User response: Ensure that the subsystem is installed correctly.

FPEM544  Subsystem internal error. Unknown return code <V1>
Explanation: An internal error occurred.
User response: Ensure that the subsystem is installed correctly.

FPEM545  Error during Disconnect from server PC routine. Return code <V1>
Explanation: An internal error occurred.
User response: Check the Data Server log for preceding messages or abends. If the problem cannot be corrected and recurs, contact IBM support.
be corrected and recurs, contact IBM support.

**FPEM546** The area for handling all IFCID records is not large enough. \(<V1>\) IFCID records are SUPPRESSED

**Explanation:** Some IFCID records are ignored by the thread display function. In case of thread summary display, not all threads are shown. In thread detail, the missing information adheres to locked resources. The information SUPPRESSED is in ascending importance of locked resources: single held locks, multiple held locks, locks with suspensions.

\* \(<V1>\) is the number of records ignored.

**User response:** In case of thread summary, select the appropriate qualification, which shows the threads of interest but reduces the amount of IFCID data.

As a principle solution you can increase the size of the internal storage area that the Online Monitor uses to hold data for the selected purpose. For more information see *Monitoring Performance from ISPF*, Online Monitor options, Online Monitor Memory Usage window.

**FPEM547** Nonzero IFI return code. RC 4, REASON 00E60802. The IFCID return area is not large enough to accommodate all records from READS

**Explanation:** Some IFCID records are ignored by the thread display function. In case of thread summary display, not all threads are shown. In thread detail, the missing information adheres to locked resources. RC 4 and REASON 00E60802 are the return code and reason code from the DB2 READS call.

**User response:** In case of thread summary, select the appropriate qualification, which shows the threads of interest but reduces the amount of IFCID data.

**FPEM550** Function \(<V1>\) is not supported for subsystem \(<V2>\) DB2 \(<V3>\).

**Explanation:** The release level of the DB2 subsystem is not supported by this version of OMEGAMON for Db2 PE.

\(<V1>\) denotes the unsupported function.

\(<V2>\) denotes the ID of the subsystem.

\(<V3>\) denotes the DB2 version.

The following list shows the keywords for the affected functions:

**THREAD**
- Display Thread Activity

**STATISTIC**
- Display Statistics

**SYSPARM**
- Display System Parameters

**FPEM600** The collect subtask "\(<V1>\)" has terminated

**Explanation:** The collect subtask has terminated.

\* \(<V1>\) is the collect subtask.

**User response:** Exit from the Online Monitor before trying to start the collect subtask again. If the problem recurs, contact IBM support.

**FPEM601** The exception processor subtask has terminated

**Explanation:** The exception processor has terminated.

**User response:** Exit from the Online Monitor before trying the function again. If the problem recurs, contact IBM support.

**FPEM602** The collect exception notification subtask has terminated

**Explanation:** The collect exception notification subtask has terminated. Insufficient region size of your TSO/E session may be the primary cause of this problem.

**User response:** Increase the region size of the TSO/E session or terminate concurrently running ISPF applications before trying to restart the collect exception notification subtask again. If the problem recurs, contact IBM support.

**FPEM650** Insufficient storage

**Explanation:** There is not sufficient virtual storage available to perform a diagnosis.

**User response:** Increase the amount of storage.

**FPEM651** Diagnosis requires elapsed times for DB2 suspensions. These are not present or zero. Accounting or Monitor classes 2 and 3 may not be active or the thread may not have experienced suspensions

**Explanation:** There are minimum data requirements to perform a diagnosis. This message occurs if accounting or monitor classes 2 and 3 are not started or if they are started but no suspensions exist.

**User response:** Start the DB2 monitor or Accounting trace for the required classes.
The thread must have performed some buffer activity before it can be diagnosed.

**Explanation:** There are minimum data requirements to perform a diagnosis. In this case, some areas of the trace data provided by DB2 are empty due to insufficient buffer activity by the thread.

**User response:** The thread is not diagnosable. This applies, for example, if data regarding the use of buffer pools does not yet exist.

---

Unrecognized command. Valid commands for this panel are REINIT, DB2, LOOK, EXPLAIN, COLLECT, and OPTIONS.

**Explanation:** The command you entered is not available in the current panel.

- `<V1>` is the command you entered.

**User response:** Enter one of the following commands:

- **REINIT** To restart the exception processor
- **DB2** To enter a DB2 command
- **LOOK** To display the Look Selections menu
- **EXPLAIN** To explain the current SQL statement
- **COLLECT** To display the Report Data menu
- **OPTIONS** To set default options.

---

No command allowed for this panel.

**Explanation:** You have entered a command, that is not allowed for this panel.

**User response:** Select a thread or press a valid function key, but do not enter a command.

---

Please wait. Invoking Explain ...

**Explanation:** Online Monitor Explain is being invoked.

**User response:** None.

---

Valid selection characters are: `<V1>`

**Explanation:** An SQL statement can only be selected by using a `/` or a country-designated character.

**User response:** Use either `/` or `S` to select the statement to be explained.

---

Valid choices are: 1 for yes, 2 for no

**Explanation:** Only 1 or 2 can be used in this field. 1 indicates that the Options panel is to be displayed every time. 2 indicates that the Options panel is only displayed if you enter `explain options`.

**User response:** None.

---

Only valid optional parameter for Explain is 'OPTIONS'

**Explanation:** The only valid parameter for the EXPLAIN command is OPTIONS.

**User response:** Enter either `explain` or `explain options`.

---

Only 1 SQL statement can be selected for Explain

**Explanation:** More than one SQL statement has been selected for Explain from the summary panel.

**User response:** Select only one SQL statement to be explained.

---

Range commands incomplete or conflicting

**Explanation:** The range commands E, En, or EE have been entered incorrectly.

**User response:** See Monitoring Performance from ISPF for a description of proper usage of the range commands.

---

No explainable SQL statements found in source code

**Explanation:** No SQL statements eligible for Explain were found in the source module.

**User response:** See Monitoring Performance from ISPF for a description of the SQL statements that are eligible for Explain.

---

No SQL statements eligible for Explain found in source

**Explanation:** No SQL statements eligible for Explain were found in the range of the specified source lines.

**User response:** See Monitoring Performance from ISPF for a description of the SQL statements that are eligible for Explain, and alter the range of the Explain to include eligible SQL statements.
| FPEM688 | SQL statement found that is greater than the maximum size  
Explanation: An SQL statement greater than the defined maximum has been detected.  
User response: Reduce the size of the statement at cursor position. |
| FPEM691 | Only valid command is 'OPTIONS'  
Explanation: A command other than 'OPTIONS' has been entered on the SQL statement summary panel.  
User response: Use the OPTIONS command for altering the Source Explain options. |
| FPEM692 | Error <V1> during ISPF table initialization  
Explanation: An error occurred during processing of an ISPF table command.  
• <V1> is the error code.  
User response: Ensure that the ISPF table libraries are allocated and that the allocated libraries are not full. |
| FPEM693 | Error <V1> during ISPF panel processing  
Explanation: An error occurred during processing of an ISPF panel.  
• <V1> is the error code.  
User response: Ensure that the ISPF panel libraries are allocated. |
| FPEM694 | SQL text not loaded. Problem reading text from ISPF table  
Explanation: An error has occurred while loading an SQL statement from an ISPF table in Online Monitor Explain.  
• <V1> is the return code.  
User response: Ensure that the ISPF table libraries are correctly allocated. |
| FPEM700 | Command <V1> is not valid here. Valid commands are DB2, LOOK, COLLECT, REINIT, OPTIONS, and HISTORY  
Explanation: The command you entered is not available in the current panel.  
• <V1> is the command you entered.  
User response: Enter one of the following commands: DB2 To enter a DB2 command  
LOOK To display the Look Selections menu  
COLLECT To display the Report Data menu  
REINIT To restart the exception processor. |
| FPEM701 | Command <V1> is not recognized. Valid commands are DB2, LOOK, COLLECT, REINIT, OPTIONS, and HISTORY  
Explanation: The command you entered could not be recognized.  
• <V1> is the unrecognized command.  
User response: Enter one of the following commands: DB2 To enter a DB2 command  
LOOK To display the Look Selections menu  
COLLECT To display the Report Data menu  
REINIT To restart the exception processor  
OPTIONS To set default options  
HISTORY To display HISTORY status. |
| FPEM702 | Error connecting to <V1>. SQL CODE <V2>  
Explanation: An attempt to connect to a remote server failed.  
• <V1> is the remote server.  
• <V2> is the SQL code.  
User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the stated SQL code and contact your system programmer. |
| FPEM703 | Error resetting connection to <V1>. SQL CODE <V2>  
Explanation: An attempt to reset connection to a remote server failed. Online Monitor Explain is still connected to the current server.  
• <V1> is the remote server.  
• <V2> is the SQL code.  
User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the stated SQL code. |
| FPEM704 | Error setting current SQLID. SQL CODE <V1>  
Explanation: An attempt to set the current SQLID failed.  
• <V1> is the SQL code.  
User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the stated SQL code. |
FPEM705  Error setting current degree. SQL CODE <V1>

**Explanation:** An attempt to set the current degree failed.
- <V1> is the SQL code.

**User response:** See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the stated SQL code.

FPEM706  Unexpected SQL error. SQL CODE <V1>

**Explanation:** An unexpected SQL error occurred.
- <V1> is the SQL code.

**User response:** See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the stated SQL code.

FPEM707  Error locating current degree value for DBRM/package. SQL CODE <V1>. Current degree setting will default to 1

**Explanation:** An attempt to extract the degree from the system catalogs for the DBRM/package returned an error. The current degree setting defaults to 1.
- <V1> is the SQL code.

**User response:** See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the stated SQL code.

FPEM708  Error setting Current Degree. SQL CODE <V1>. Processing to continue

**Explanation:** An attempt to set the current degree for Explain of a DBRM package returned an error. Processing continues without the current degree being set to the value extracted from the system catalogs for the DBRM package.
- <V1> is the SQL code.

**User response:** See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the stated SQL code.

FPEM710  Enter a selection from 1 to 4

**Explanation:** None.

**User response:** Enter a valid number.

FPEM711  There are no matching rows in table <V1>

**Explanation:** No rows were found that match your selection criteria.
- <V1> is the table name.

**User response:** Change the selection criteria.

FPEM712  The table <V1> could not be accessed

**Explanation:** None.
- <V1> is the table name.

**User response:** None.

FPEM713  Select just one row from the list of plan table entries

**Explanation:** None.

**User response:** Select only one row.

FPEM714  The query number must be numeric or blank

**Explanation:** None.

**User response:** Enter a valid query number, or blank to use the default query number.

FPEM715  Select just one package from the list

**Explanation:** None.

**User response:** Select only one package from the list.

FPEM716  Select just one statement from the list

**Explanation:** None.

**User response:** Select only one statement from the list.

FPEM717  There are no matching packages

**Explanation:** No packages were found that match your selection criteria.

**User response:** Change the selection criteria.

FPEM718  No SQL statements were found for this package

**Explanation:** The package has been bound but does not contain any SQL statements.

**User response:** Select a different package.

FPEM719  The plan table owner must be a valid name. Wildcard characters are not accepted

**Explanation:** None.

**User response:** Enter the correct OWNER of the plan table, or leave blank to use your own plan table.

FPEM720  Select just one DBRM from the list

**Explanation:** None.

**User response:** Select only one DBRM from the list.
The SQL statement text has not changed. The statement will not be explained.

Explanation: You canceled from the editor.

User response: To explain dynamically, use END from the edit session.

The temporary data set V1 is in use.

Explanation: None.

User response: Try again, and if the problem recurs, see your system programmer or contact IBM support.

A severe error occurred while editing data set V1.

Explanation: An error occurred while editing the specified data set.

User response: Try again, and if the problem recurs, see your system programmer or contact IBM support.

The SQL statement text is too long. The text has been truncated.

Explanation: None.

User response: Shorten the SQL statement.

There are remote packages in this plan. The count of SQL statements does not include the statements from the remote packages.

Explanation: None.

User response: None.

There are no matching DBRMs.

Explanation: No DBRMs were found that match your selection criteria.

User response: Reenter the DBRM and plan name.

No SQL statements were found for this DBRM.

Explanation: The DBRM was bound but does not contain SQL statements.

User response: Select a different DBRM.

No partition information was found for this table space.

Explanation: None.

User response: None.

Select just one index from the list.

Explanation: None.

User response: None.

No index information was found for this table.

Explanation: The table has no indexes.

User response: None.

Select just one index partition from the list.

Explanation: None.

User response: None.

No key column information was found for this column.

Explanation: A FETCH from the OMEGAMON XE for DB2 PE copy or view of the DB2 system catalog SYSKEYS table (DGO_SYSKEYS) returned no rows. The DGO_SYSKEYS table can be created using the installation member FPEYCV71, or it can be a shadow catalog table copied from SYSIBM.SYSKEYS. If it is a shadow catalog table, it must be refreshed regularly.

User response: Run a query against the DGO_SYSKEYS table, such as:
```sql
SELECT COLNAME, ORDERING, COLSEQ
FROM hlq.DGO_SYSKEYS
WHERE IXCREATOR = 'PEABPV'
  AND IXNAME = 'XPE2VMAN'
ORDER BY COLSEQ;
```

and compare the result with a similar query against the SYSIBM.SYSKEYS table. If there are differences, use the sample job FPEYRSQL to refresh the DGO_SYSKEYS table.

---

**FPEM750** There is no key column distribution information available  
**Explanation:** None.  
**User response:** None.

---

**FPEM751** The table <V1> could not be accessed  
**Explanation:** None.  
• <V1> is the table name.  
**User response:** See your DB2 system administrator.

---

**FPEM752** This statement has no host variables  
**Explanation:** The explained statement has no host variables or was dynamically explained.  
**User response:** None.

---

**FPEM753** Output truncated  
**Explanation:** The output work area is restricted to 800 lines (64 KB). The output is therefore truncated after 800 lines.  
**User response:** Use Batch SQL statement Explain to get the full Explain output for the SQL statement.

---

**FPEM754** There is no column group distribution information available  
**Explanation:** Either the column group distribution information is not available or the DB2 version is less than 5.  
**User response:** None.

---

**FPEM756** An existing PLAN_TABLE entry for this statement was not found. The statement has been dynamically explained  
**Explanation:** None. However, this message may also appear when explaining an SQL statement from thread activity and an existing entry was found in the PLAN_TABLE.  
**User response:** In the latter case, to find the access path information determined at bind time, use option 2 or option 3 from the Explain menu, depending on whether a package or DBRM, respectively, is being used.

---

**FPEM757** This statement was explained at bind time  
**Explanation:** None.  
**User response:** None.

---

**FPEM758** This statement was dynamically explained  
**Explanation:** None.  
**User response:** None.

---

**FPEM759** Your plan table is no longer valid. Exit and reenter Explain to re-create the PLAN_TABLE  
**Explanation:** None.  
**User response:** Exit and reenter Explain to re-create the plan table. If this is not successful, delete the plan table and reenter Explain.

---

**FPEM760** The SQL statement is not recognized or cannot be explained. Only SELECT, INSERT, UPDATE, and DELETE statements can be explained  
**Explanation:** If the SQL statement contains the correct SELECT, INSERT, UPDATE, and DELETE statements, it is possible that a comment is embedded within the SQL statement. In this case, remove the embedded comments and rerun the job.  
**User response:** See DB2 SQL Reference.

---

**FPEM761** Your PLAN_TABLE has been successfully altered to DB2 <V1> format  
**Explanation:** None.  
• <V1> is the DB2 release.  
**User response:** None.

---

**FPEM762** A DB2 <V1> PLAN_TABLE has been created  
**Explanation:** None.  
• <V1> is the DB2 release.  
**User response:** None.

---

**FPEM763** Your PLAN_TABLE is invalid. Dynamic explains will not be performed  
**Explanation:** None.  
**User response:** Exit Explain and delete your plan table. Reenter Explain to re-create a new plan table.
<table>
<thead>
<tr>
<th>Code</th>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEM773</td>
<td>Enter a valid database and table space name. Leave blank to use default names</td>
<td>Explaination: None.</td>
</tr>
<tr>
<td>FPEM774</td>
<td>The database or table space does not exist</td>
<td>User response: Use a different database and table space name.</td>
</tr>
<tr>
<td>FPEM775</td>
<td>&lt;V1&gt; not authorized to access &lt;V2&gt;.plan_table</td>
<td>User response: Obtain authority to access the plan table.</td>
</tr>
<tr>
<td>FPEM776</td>
<td>&lt;V1&gt; not authorized to create table in &lt;V2&gt;</td>
<td>User response: Obtain authority to create the plan table.</td>
</tr>
<tr>
<td>FPEM777</td>
<td>&lt;V1&gt; not authorized to access &lt;V2&gt;.PLAN_TABLE. Statement dynamically explained</td>
<td>User response: See your database administrator to get access to the PLAN_TABLE related to the selected package or plan.</td>
</tr>
<tr>
<td>FPEM780</td>
<td>Subsystem &lt;V1&gt; is invalid. CAF RC &lt;V2&gt;, REASON &lt;V3&gt;</td>
<td>User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.</td>
</tr>
<tr>
<td>FPEM781</td>
<td>DB2 subsystem &lt;V1&gt; is not available. CAF RC &lt;V2&gt;, REASON &lt;V3&gt;</td>
<td>User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.</td>
</tr>
<tr>
<td>FPEM782</td>
<td>You are not authorized to access DB2 subsystem &lt;V1&gt;</td>
<td>User response: See your DB2 system administrator.</td>
</tr>
<tr>
<td>FPEM783</td>
<td>You are not authorized to execute plan &lt;V1&gt;</td>
<td>User response: See your DB2 system administrator.</td>
</tr>
<tr>
<td>FPEM784</td>
<td>Only one task in this ISPF logical session can be connected to DB2</td>
<td>User response: Exit OMEGAMON XE for DB2 PE and reenter. If the problem recurs, contact IBM support.</td>
</tr>
<tr>
<td>FPEM785</td>
<td>DB2 PE has been disconnected from DB2 prior to CAF call. RC &lt;V1&gt;, REASON &lt;V2&gt;</td>
<td>User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.</td>
</tr>
<tr>
<td>FPEM786</td>
<td>DB2 release is not compatible with the DB2 loadlib (dsnload) release</td>
<td>User response: Use the correct DB2 LOADLIB (DSNLOAD) release.</td>
</tr>
</tbody>
</table>
FPEM787  Nonzero CAF return code. RC <V1>, REASON <V2>

Explanation:  None.
  • <V1> is the Call Attach Facility (CAF) return code.
  • <V2> is the CAF reason code.

User response:  See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.

FPEM790  An unexpected error has occurred in module <V1>. The error code is <V2>

Explanation:  None.
  • <V1> is the module detecting the error.
  • <V2> is the internal error code.

User response:  See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the error code.

FPEM791  An ISPF <V1> service in module <V2> has returned code <V3>

Explanation:  None.
  • <V1> is the ISPF service name.
  • <V2> is the module detecting the error.
  • <V3> is the ISPF return code.

User response:  See the OS/390 ISPF Services Guide for an explanation of the ISPF return code. If the problem recurs, contact IBM support.

FPEM792  Storage allocation failed for the Explain module

Explanation:  An error occurred while allocating storage for the Explain module.

User response:  Exit DB2 PE, and try again. If the problem recurs, contact IBM support.

FPEM793  The explain connection to DB2 subsystem <V1> failed. CAF return code <V2>, reason code <V3>

Explanation:  None.
  • <V1> is the DB2 subsystem.
  • <V2> is the Call Attach Facility (CAF) return code.
  • <V3> is the reason code.

User response:  See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.

FPEM794  No entry found for <V1>,<V2> in SYSIBM.SYSTABLES catalog

Explanation:  This message is displayed if a table was not found in the SYSIBM.SYSTABLES catalog.
  • <V1> is the table creator.
  • <V2> is the table name.

User response:  None.

FPEM800  Please wait. Invoking Collect Report Data ...

Explanation:  The Online Monitor Collect Report Data function is being invoked.

User response:  None.

FPEM802  The DB2T storage area has not yet been allocated by the Collect subtask "<V1>"

Explanation:  The Collect facility sets up the DB2 START TRACE commands in this DB2T storage area. However, the Collect subtask was not able to create the storage area.
  • <V1> is the Collect subtask.

User response:  Run the Online Monitor in a larger region space.

FPEM803  Destination <V1> has become inactive

Explanation:  The OPx destination used for the trace facility has become inactive, and data is no longer being written to the trace data set. One possible cause is that all traces that had <V1> as their destination have been stopped.
  • <V1> is the OPx destination.

User response:  None.

FPEM804  Enter 1 (select), 2 (repeat), 3 (delete), or 4 (insert)

Explanation:  None.

User response:  Correct the error.

FPEM806  Collect Facility failed to save the user selections ISPF profile table. ISPF service <V1> returned code <V2> with message <V3>

Explanation:  When a user exits from the collect facility, any changes made to the table of user selections (as a result of configuring collect tasks) are saved in their ISPF profile. This message is issued when an error occurs in trying to save these details in the user’s ISPF profile.
  • <V1> is the name of the ISPF service.
  • <V2> is the return code from the ISPF service.
  • <V3> is the message that is issued by ISPF to explain the problem.
**User response:** Take note of the message issued by ISPF and respond accordingly. The following are possible reasons for this message:
- The ISPF profile data set is full.
- The ISPF profile data set does not have enough directory entries.

<table>
<thead>
<tr>
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<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEM809</td>
<td>Collect Report Data stopped because of an error and cannot be restarted. Exit the application, then restart.</td>
</tr>
</tbody>
</table>

**Explanation:** The trace facility is unavailable due to a previous failure.

**User response:** Exit, then restart OMEGAMON XE for DB2 PE before trying to start the trace facility again. If the problem persists, contact IBM support.

<table>
<thead>
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<th>Code</th>
<th>Message</th>
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<tbody>
<tr>
<td>FPEM810</td>
<td>Trace destination (&lt;V1&gt;) is unavailable to you. RC (&lt;V2&gt;), REASON (&lt;V3&gt;). Either this OP destination is owned by another task, or you do not have the appropriate Monitor Class Authority</td>
</tr>
</tbody>
</table>

**Explanation:** You cannot start a trace for the OP destination specified.
- \(<V1>\) is an OP buffer destination.
- \(<V2>\) is a READA return code.
- \(<V3>\) is a READA reason code.

**User response:** See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.

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<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEM811</td>
<td>You cannot leave Collect Report Data while trace is active</td>
</tr>
</tbody>
</table>

**Explanation:** None.

**User response:** Either wait until the trace has completed, or stop the trace.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
</table>
| FPEM812 | The DB2T storage area for Stop Trace commands has not yet been allocated by the Collect subtask "\(<V1>\)"

**Explanation:** The Collect facility sets up the DB2 STOP TRACE commands in this DB2T storage area. However, the Collect subtask was not able to create the storage area.
- \(<V1>\) is the name of the Collect subtask.

**User response:** Run the Online Monitor in a larger region space.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEM820</td>
<td>Command (&lt;V1&gt;) is not recognized. Valid commands are DB2, LOOK, REINIT, OPTIONS, and HISTORY</td>
</tr>
</tbody>
</table>

**Explanation:** A not valid command was entered at the command line.

**User response:** Enter one of the following commands:
- **DB2** To enter a DB2 command
- **LOOK** To display the Look Selections menu
- **REINIT** To restart the exception processor
- **OPTIONS** To set default options
- **HISTORY** To display HISTORY status or invoke HISTORY mode.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEM822</td>
<td>Valid selections are 1, 2, 3, and 4</td>
</tr>
</tbody>
</table>

**Explanation:** A not valid selection was made on the Collect Facility main panel.

**User response:** Select one of the listed selection codes and press Enter.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEM823</td>
<td>Valid selections are 1, 2, and 3</td>
</tr>
</tbody>
</table>

**Explanation:** A not valid selection was entered into the data set disposition field.

**User response:** Enter 1, 2, or 3.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEM824</td>
<td>Enter a Task Description</td>
</tr>
</tbody>
</table>

**Explanation:** The task description field on the Collect facility main panel is blank.

**User response:** Enter a meaningful task description.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEM825</td>
<td>Select at least one report set</td>
</tr>
</tbody>
</table>

**Explanation:** No selections were made on the Report Selection panel.

**User response:** Select one or more report sets.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEM826</td>
<td>Generics are not allowed</td>
</tr>
</tbody>
</table>

**Explanation:** An * was typed into one of the identifiers on the Trace Qualification panel.

**User response:** Enter the full qualifier name or names.

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEM827</td>
<td>The cursor must be on the 'For ifcid ...' field to use the PROMPT command</td>
</tr>
</tbody>
</table>

**Explanation:** The PROMPT command was issued, and the cursor was not on a field to which the PROMPT command applies.

**User response:** Place the cursor on the field marked with + and reissue the PROMPT command.
FPEM828 Enter a valid data set name
Explanation: The data set name entered has a not valid format.
User response: Enter a valid data set name following the IBM naming conventions.

FPEM829 Enter the time in 24-hour clock notation
Explanation: The trace task start trigger time is not valid.
User response: Enter a time in 24-hour clock notation where hours are in the range of 0-23, minutes 0-59, and seconds 0-59.

FPEM831 The cursor must be on either the 'Field...' or 'For ifcid...' field to use the PROMPT command
Explanation: The PROMPT command was issued, and the cursor was not on a field to which the PROMPT command applies.
User response: Place the cursor on the field marked with + and reissue the PROMPT command.

FPEM832 Enter a field name
Explanation: The exception field name is required but it is blank.
User response: Enter the name of a valid exception field. Use the PROMPT command to display a list of valid fields. * is a valid value to represent any field.

FPEM833 Select at least one starting exception event
Explanation: No starting trigger fields have been selected on the Trigger By Exception Event panel.
User response: Select at least one start trigger value.

FPEM834 Select at least one of the stop conditions 'Elapsed time' or 'Number of records collected' to ensure the Collect task will stop
Explanation: One or both of the conditions ‘elapsed time’ and ‘record collected’ must be specified to ensure that the trace task will stop.
User response: Select one or both of these stop conditions.

FPEM835 A valid IFCID is required when 'Number of IFCIDs collected' is selected
Explanation: The stop condition ‘number of IFCIDs’ was selected, but no IFCID value was entered or the value entered is not numeric.
User response: Enter a valid IFCID number. Use the PROMPT command to display a list of valid IFCIDs.

FPEM836 Command <V1> is not recognized. Valid commands are END and CANCEL
Explanation: The text you entered is not recognized as a valid DB2 or OMEGAMON XE for DB2 PE command.
User response: Correct the input.

FPEM837 Valid selections are 1 and 2
Explanation: You specified an incorrect value.
User response: Select 1 or 2.

FPEM840 Collect Report Data is already active on this screen
Explanation: The Collect facility is already active on this ISPF screen.
User response: Exit the current screen until control is returned to the Collect facility.

FPEM841 Collect task '<V1>' must be configured before the status and messages can be displayed
Explanation: Status and messages for a trace task are not available until the task is configured.
• <V1> is the Collect task.
User response: Configure the task.

FPEM842 Collect task '<V1>' has terminated, so cannot be restarted
Explanation: The asynchronous trace task has terminated and therefore cannot be restarted.
• <V1> is the Collect task.
User response: To restart the task, exit and reenter the Online Monitor.

FPEM843 Collect task '<V1>' is in error, so cannot be restarted
Explanation: An unusual error has occurred that prevents the asynchronous task from running.
• <V1> is the Collect task.
User response: See the trace messages. Exit and reenter the Online Monitor to restart the task.

FPEM844 Collect task '<V1>' must be configured before it can be started
Explanation: The trace task cannot be started without a configuration.
• <V1> is the Collect task.
User response: Configure the task before you start it.

FPEM845  Collect task '<V1>' has already been started
Explanation: The trace task has already been started and is either collecting data or waiting for a start trigger.
• <V1> is the Collect task.
User response: Correct the selection.

FPEM846  Collect task '<V1>' has not yet been configured
Explanation: The trace task cannot be stopped because it has not yet been configured.
• <V1> is the Collect task.
User response: Correct the selection.

FPEM847  Collect task '<V1>' must be started before it can be stopped
Explanation: The trace task cannot be stopped because it has not yet been started.
• <V1> is the Collect task.
User response: Correct the selection.

FPEM848  Collect task '<V1>' must be stopped before it can be reconfigured
Explanation: The trace task cannot be reconfigured while it is running.
• <V1> is the Collect task.
User response: Stop the task before you reconfigure it.

FPEM850  Select at least one Report Class
Explanation: No selections were made on the Report Selection panel.
User response: Select one or more reports.

FPEM851  Select at least one IFCID
Explanation: No selections were made on the IFCID Selection panel.
User response: Select one or more IFCIDs.

FPEM852  Enter at least one identifier in this panel
Explanation: No identifiers have been entered on the Trace Qualification panel.
User response: Enter at least one identifier on the Trace Qualification panel.

FPEM853  Only one set of DB2 qualifiers may have more than one qualifying value entered
Explanation: Two or more identifiers have been entered in more than one group on the Trace Qualification panel.
User response: Only one group of identifiers may have two or more entries.

FPEM854  Elapsed time is invalid
Explanation: The user has chosen to stop the trace task after an elapsed time, but the time entered is zero or blank.
User response: Enter a time in seconds in the range of 1 to 99 999.

FPEM855  Number of records is invalid
Explanation: The user has chosen to stop the trace task after a number of records have been collected, but the number entered is zero or blank.
User response: Enter a number in the range of 1 to 99 999.

FPEM856  Number of IFCIDs collected is invalid
Explanation: The user has chosen to stop the trace task after a number of IFCIDs have been collected, but the number entered is zero or blank.
User response: Enter a number in the range of 1 to 9 999.

FPEM857  IFCID number is invalid
Explanation: The user has chosen to stop the trace task after a particular IFCID has been collected, but the IFCID specified is zero or blank.
User response: Enter a valid IFCID.

FPEM858  '<V1>' command not valid in this panel.
Valid commands are DB2, LOOK, REINIT, OPTIONS, and HISTORY
Explanation: The command you entered is not available in the current panel.
• <V1> is the command you entered.
User response: Enter one of the following commands:
DB2  To enter a DB2 command
LOOK To display the Look Selections menu
REINIT To restart the exception processor
OPTIONS To set default options
To display HISTORY status or invoke HISTORY mode.

**FPEM859**  You will not receive information about asynchronous I/Os

**Explanation:** Qualifying the plan or the authorization ID in the DB2 START TRACE command for performance trace class 4 restricts the data that DB2 produces to your task TCB and omits all asynchronous tasks including Sequential Prefetch.

**User response:** To ensure that all Sequential Prefetch related I/O is traced by DB2 and subsequently reported by DB2 PE, do not qualify by plan or by authorization ID.

**FPEM860**  Select one item only

**Explanation:** When using the Prompt facility for IFCIDs from the Trigger panels, more than one item was selected from the list displayed.

**User response:** Select only one item from the list.

**FPEM861**  The IFCID value '<V1>' is invalid - use the PROMPT command for a list

**Explanation:** The IFCID entered does not exist.

- '<V1>' is the invalid IFCID value.

**User response:** Enter a valid IFCID number or use the PROMPT command to display a list of valid IFCIDs.

**FPEM862**  The IFCID value '<V1>' is not available. It has been excluded in Collect Configuration

**Explanation:** The IFCID entered is not available. The IFCID has been excluded by selections made in Trace Configuration.

- '<V1>' is the invalid IFCID value.

**User response:** Enter a valid IFCID number or use the PROMPT command to display a list of valid IFCIDs. If the IFCID you wish to enter does not appear on this list, then the configuration must be changed.

**FPEM863**  Select one report set

**Explanation:** No selections were made on the Report Set Selection panel.

**User response:** Select one report set.

**FPEM864**  Select one report class

**Explanation:** No selections were made on the Report Set Selection panel.

**User response:** Select one report.

**FPEM865**  Select one IFCID

**Explanation:** No selections were made on the IFCID Selection panel.

**User response:** Select one IFCID.

**FPEM866**  This is the only IFCID available. Others were excluded in Collect Configuration

**Explanation:** When the PROMPT command was issued on the IFCID field, the system found only one IFCID that qualified for selection. The selection panels are bypassed, and this IFCID is displayed.

**User response:** None.

**FPEM867**  The field identifier '<V1>' is invalid - use the PROMPT command for a list

**Explanation:** The exception field entered does not exist.

- '<V1>' is the invalid field identifier.

**User response:** Enter a valid exception field name or use the PROMPT command to display a list of valid exception fields.

**FPEM868**  No messages have been written for the Collect subtask '<V1>'

**Explanation:** There are no trace task messages to view.

- '<V1>' is the Collect subtask.

**User response:** None.

**FPEM869**  The message list has not been created for the Collect subtask '<V1>'

**Explanation:** There is no message area into which the trace task can write its messages.

**User response:** Exit and reenter 'Status and Messages'. The trace task then allocates the message area as part of its startup routine.

**FPEM870**  Interval time must be in range of 1 through 1440 minutes

**Explanation:** The time interval selected is outside the valid range.

**User response:** Specify a time interval between 1 and 1440 minutes.

**FPEM871**  Active time must be in range of 1 through 3600 seconds

**Explanation:** The active time selected is outside the valid range.

**User response:** Specify an active time between 1 and 3600 seconds.
### FPEM872 • FPEM902

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEM872</td>
<td>File format must be 1, 2 or 3</td>
<td>You specified a value for the file disposition that is not valid.</td>
<td>Specify the file disposition as follows:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 To append to the specified data set</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 To overwrite the specified data set</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 To allocate a new data set</td>
</tr>
<tr>
<td>FPEM873</td>
<td>Size of OP buffer must be between 8 KB and 1024 KB</td>
<td>The size of the specified output buffer is outside the acceptable range.</td>
<td>Specify a valid size for the output buffer.</td>
</tr>
<tr>
<td>FPEM874</td>
<td>&lt;V1&gt; command not valid in this panel. Valid commands are END and CANCEL</td>
<td></td>
<td>You can only stop a trace from this panel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>You can only stop a trace from this panel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>User response: None.</td>
</tr>
<tr>
<td>FPEM880</td>
<td>Buffer size incorrect</td>
<td>The OP buffer size should be in the range 8 KB - 1024 KB.</td>
<td>Specify a valid size for the output buffer.</td>
</tr>
<tr>
<td>FPEM881</td>
<td>The data type is incorrect, use 1, 2, or 3</td>
<td>You specified an incorrect value.</td>
<td>Specify the report data required, as follows:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 Detail</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 Summary data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 Catalog data only</td>
</tr>
<tr>
<td>FPEM882</td>
<td>The start type is incorrect, use 1 or 2</td>
<td>You specified an incorrect value.</td>
<td>Specify the start type as follows:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 To start collection immediately</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 To start collection at a specified time.</td>
</tr>
<tr>
<td>FPEM884</td>
<td>Interval time must be between 0 and 1440 minutes</td>
<td></td>
<td>Enter a valid interval time value, in the range 0-1 440.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>User response: None.</td>
</tr>
<tr>
<td>FPEM885</td>
<td>Active time must be between 0 and 3600 seconds</td>
<td></td>
<td>Enter a valid active time value, in the range 0-3 600.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>User response: None.</td>
</tr>
<tr>
<td>FPEM886</td>
<td>Interval time is less than active time</td>
<td></td>
<td>Enter a time between 0 and 1 440 seconds, that is greater than the active time specified.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>User response: None.</td>
</tr>
<tr>
<td>FPEM900</td>
<td>Changes have been accepted</td>
<td>The changes you made in the panel have been validated and accepted.</td>
<td>User response: None.</td>
</tr>
<tr>
<td>FPEM901</td>
<td>&lt;V1&gt; command not valid in this panel. Valid commands are DB2, LOOK, COLLECT, OPTIONS, and HISTORY</td>
<td>The command you entered is not available in the current panel.</td>
<td>Enter one of the following commands:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>You can only stop a trace from this panel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>User response: None.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>You can only stop a trace from this panel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>User response: None.</td>
</tr>
</tbody>
</table>

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4972  IBM Db2 Performance Expert on z/OS
COLLECT
To display the Report Data menu

OPTIONS
To set default options

HISTORY
To display HISTORY status.

FPEM903 Exception log data set names must be different

Explanation: The periodic and display Exception Log data set names must be different when connected to a Data Server.
User response: Use unique data set names.

FPEM904 Exception file data set names must be different

Explanation: The periodic and display Exception File data set names must be different when connected to a Data Server.
User response: Use unique data set names.

FPEM905 Display exceptions found. <V1> total <V2> problem

Explanation: The Display Exception Processor has found exception conditions on the current panel.
• <V1> is the total number of exceptions.
• <V2> is the number of exceptions classified as problems.
User response: Use the LOOK command to look at a list of display exceptions.

FPEM907 Periodic interval must be numeric in the range 1 to 7200 seconds

Explanation: The periodic interval is not within allowable boundaries.
User response: Specify a periodic interval in the correct range.

FPEM908 Periodic interval must be numeric in the range 1 to 120 minutes

Explanation: The periodic interval is not within allowable boundaries.
User response: Specify a periodic interval in the correct range.

FPEM909 The Exception Processor has terminated normally

Explanation: The Online Monitor Exception Processor has been terminated from the Exception Processor panel (FPEMXP00).
User response: None.

FPEM910 <V1> periodic warning exceptions found

Explanation: The Periodic Exception Processor has detected warning exceptions.
• <V1> is the number of periodic exceptions.
User response: Use the LOOK command to look at the periodic exceptions.

FPEM911 Display exceptions found. <V1> total, <V2> problem

Explanation: The Display Exception Processor has found exception conditions on the current panel.
• <V1> is the total number of exceptions.
• <V2> is the number of exceptions classified as problems.
User response: Use the LOOK command to look at a list of display exceptions.

FPEM912 Error attempting to close the Exception log

Explanation: An error occurred when closing the exception log.
User response: None.

FPEM913 Error attempting to close the Exception File

Explanation: An error occurred when closing the Exception Log file.
User response: None.

FPEM914 Error attempting to write to the Exception log

Explanation: An error occurred when writing to the exception log. The log record was not written.
User response: See the accompanied system message in the asynchronous message log for action.

FPEM915 Invalid data set name

Explanation: The data set name specified does not conform to MVS standards.
User response: Enter a valid data set name.

FPEM917 Unable to open vlist <V1>. RC <V2>

Explanation: The Online Monitor detected an internal error.
• <V1> is the VLIST name.
• <V2> is the return code.
User response: If the problem recurs, contact IBM support.
FPEM918 | Event name <V1> is invalid
---|---
**Explanation:** The Online Monitor detected a not valid event in the exception threshold data set.
- <V1> is the invalid event name you specified.

**User response:** Specify one of the following event types:
- **STAT** For statistics events
- **THRD** For thread activity events
- **ACCT** For accounting events.

FPEM919 | Field name <V1> is supported only by DB2 PE batch
---|---
**Explanation:** The field name specified in the exception threshold data set is valid only in the batch component.
- <V1> is the invalid field name.

**User response:** None.

FPEM924 | Comparison operator <V1> is invalid
---|---
**Explanation:** The comparison operator is not valid.
- <V1> is the specified comparison operator.

**User response:** Specify one of the following:
- > (greater than)
- < (less than).

FPEM925 | Field name <V1> cannot be qualified
---|---
**Explanation:** An attempt was made to qualify a field, but the field is not eligible for qualification.
- <V1> is the name of the field.

**User response:** Correct the error.

FPEM926 | Field qualifier <V1> is invalid
---|---
**Explanation:** The field qualification specified in the exception threshold data set is not valid.
- <V1> is the specified field qualifier.

**User response:** Specify one of the following field qualification values:
- **BPn** 4 KB buffer pool number (0 ≤ n ≤ 49)
- **BP32K** 32 KB buffer pool
- **BP32Kn** 32 KB buffer pool number (0 ≤ n ≤ 9)
- **ANY** Any buffer pool
- **TOT** The total of all buffer pools
- **TOT4K** The total of all 4 KB buffer pools
- **TOT32K** The total of all 32 KB buffer pools.

FPEM927 | <V1> is an invalid time value
---|---
**Explanation:** The time value specified for a field in the exception threshold data set is not valid.
- <V1> is the specified time value.

**User response:** Correct the error.

FPEM928 | A time value is not valid for field <V1>
---|---
**Explanation:** A time value was specified for a field in the exception threshold data set that is not a time field.
- <V1> is the name of the field.

**User response:** Correct the error.

FPEM929 | Exception Processor initialized with errors
---|---
**Explanation:** The Online Monitor exception processor was initialized, but errors were detected during initialization. These errors were not severe enough to keep the exception processor from being initialized, but
the threshold entries in error were discarded. The errors are listed in the panel.

**User response:** Correct the errors.

---

### FPEM930 Exception Processor has been initialized

**Explanation:** The Online Monitor exception processor was initialized successfully.

**User response:** None.

### FPEM931 Comparison basis <V1> is invalid

**Explanation:** The comparison basis specified in the exception threshold data set is not valid.

- <V1> is the specified comparison basis.

**User response:** Specify one of the following:

- V: Check field value against an absolute value
- M: Check field value on a per-minute basis
- S: Check field value on a per-second basis
- C: Check field value on a per-commit basis.

### FPEM932 Both problem value and warning value are blank

**Explanation:** Both the problem threshold value and the warning threshold value are blank.

**User response:** Specify a problem threshold value or a warning threshold value or both.

### FPEM933 Invalid compare basis for a package field

**Explanation:** Valid compare bases are OCCUR and VALUE.

**User response:** Correct the input.

### FPEM934 Per occur compare basis is valid for batch only

**Explanation:** None.

**User response:** Correct the input.

### FPEM935 No valid threshold records

**Explanation:** All the records in the threshold data set specified on the Exception Processor panel (FPEMEP00 or FPEMEP02) are in error. The exception processor is not initialized when this occurs. The records in error and the reasons for the error are listed.

**User response:** Correct the errors.
FPEM943  The exception threshold data set is empty
Explanation:  The threshold data set does not contain any records.
User response:  Add records to the threshold data set or specify another threshold data set name.

FPEM944  Periodic Exception Processor started at <V1>
Explanation:  The periodic exception processor is started.
  • <V1> is the date and time at which the periodic exception processor started.
User response:  None.

FPEM945  Periodic Exception Processor stopped at <V1>
Explanation:  The periodic exception processor is stopped.
  • <V1> is the date and time at which the periodic exception processor stopped.
User response:  None.

FPEM946  Threshold data set from previous release is used
Explanation:  The threshold data set from a previous release is being used. New identifiers have defaulted to accept all values.
User response:  Convert the threshold data set using the threshold data editor to take full advantage of the new identifiers.

FPEM947  REINIT command not executed, Exception Processor not active
Explanation:  The REINIT command can only be used if the exception processor is active.
User response:  Use the Exception processor panel (FPEMXP00) to start the exception processor.

FPEM948  <V1> display problems. <V2> periodic problems
Explanation:  Display or periodic exceptions have been found. This message is displayed if the Disable Auto option is set to N and problem exceptions have been found.
  • <V1> is the number of display problems.
  • <V2> is the number of periodic problems.
User response:  None.

FPEM949  The Threshold data set contains records only valid for Batch
Explanation:  There are no records in the exception threshold data set with an environment field that is either O or Z, or there are such records, but they are commented out.
User response:  Initialize the exception processor with an exception threshold data set that contains threshold records valid for the Online Monitor.

FPEM950  <V1> periodic warning exceptions found
Explanation:  Periodic warning exceptions have been found.
  • <V1> is the total number of periodic warning exceptions.
User response:  Press F4 to look at the exceptions.

FPEM951  Exception event details are not supported
Explanation:  No details about a selected IFCID, respectively exception event, can be reported because the ISPF Online Monitor runs in DB2 10 toleration mode only.
User response:  None.

FPEM952  REINIT command not allowed until previous command is completed
Explanation:  The REINIT command cannot be entered until the previous command has completed its function.
User response:  Press F3 and then enter the REINIT command.

FPEM953  Exception Event processor started at <V1>
Explanation:  None.
  • <V1> is the start time of the exception event processor.
User response:  None.

FPEM954  Exception Event processor stopped at <V1>
Explanation:  None.
  • <V1> is the end time of the exception event processor.
User response:  None.
<table>
<thead>
<tr>
<th>Message Code</th>
<th>Description</th>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEM955</td>
<td>Log or File error occurred. Check Periodic Message List</td>
<td>Periodic exception processing caused an I/O error while trying to write records to log or file data set.</td>
<td>Check the periodic message list using the Look panel to see what caused the error.</td>
</tr>
<tr>
<td>FPEM956</td>
<td>Authorization failure details not found</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>FPEM957</td>
<td>No exception events have occurred</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>FPEM958</td>
<td>No authorization failures have occurred</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>FPEM959</td>
<td>Exception event details not found</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>FPEM995</td>
<td>One or more online application subtasks could not be attached</td>
<td>An error occurred during application startup.</td>
<td>Refer to accompanying messages to detail the problem.</td>
</tr>
<tr>
<td>FPEM996</td>
<td>No data returned, so unable to process the request</td>
<td>An unexpected error has occurred.</td>
<td>Contact IBM support.</td>
</tr>
<tr>
<td>FPEM997</td>
<td>The program is already active for this logical screen</td>
<td>You are already running OMEGAMON XE for DB2 PE. You can only have one session of this program open at a time. This can happen also when the application stopped due to an error.</td>
<td>Close the session, or close and restart ISPF, then restart OMEGAMON XE for DB2 PE.</td>
</tr>
<tr>
<td>FPEM998</td>
<td>The application cannot continue because DB2 interface module $&lt;V1&gt;$ cannot be loaded</td>
<td>The DB2 load library containing module $&lt;V1&gt;$ is not in the program search path. $&lt;V1&gt;$ is the DB2 interface module.</td>
<td>Put the DB2 load library SDSNLOAD into the search path for load libraries, either by link list concatenation, by allocation to ISPLLIB, or by TSOLIB ACTIVATE.</td>
</tr>
<tr>
<td>FPEM999</td>
<td>The application cannot continue because of insufficient storage</td>
<td>None.</td>
<td>Increase the region size of the TSO/E session, or terminate concurrently running ISPF applications.</td>
</tr>
</tbody>
</table>
FPEN - Record Trace messages

**FPEN1246S**  
**UNSUCCESSFUL ATTEMPT WRITING TO THE FILE DATA SET OF RECORD TRACE**

**Explanation:** An error occurred while writing data to the Record trace File data set.

**User response:** Check for system messages detailing the problem.

FPEP - Spreadsheet Input Data Generator

**FPEP1000E**  
**THE INPUT PARAMETERS ‘<V1>’ SPECIFY AN INVALID REQUEST.**  
**REASON <V2>**

**Explanation:** The Spreadsheet Input Data Generator is invoked with invalid input parameters.
- `<V1>` is the string of input parameters.
- `<V2>` is the reason code.

The following reason codes might occur:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Invalid length. You can use only one blank between parameters.</td>
</tr>
<tr>
<td>24</td>
<td>Invalid value for TYPE. Use one of the following values:</td>
</tr>
<tr>
<td></td>
<td>• AFBU</td>
</tr>
<tr>
<td></td>
<td>• AFD</td>
</tr>
<tr>
<td></td>
<td>• AFG</td>
</tr>
<tr>
<td></td>
<td>• AFGP</td>
</tr>
<tr>
<td></td>
<td>• AFPK</td>
</tr>
<tr>
<td></td>
<td>• AFXC</td>
</tr>
<tr>
<td></td>
<td>• ASBU</td>
</tr>
<tr>
<td></td>
<td>• ASD</td>
</tr>
<tr>
<td></td>
<td>• ASGE</td>
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<tr>
<td></td>
<td>• ASGP</td>
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<tr>
<td></td>
<td>• ASPK</td>
</tr>
<tr>
<td></td>
<td>• ASRF</td>
</tr>
<tr>
<td></td>
<td>• ASXC</td>
</tr>
<tr>
<td></td>
<td>• SBU</td>
</tr>
<tr>
<td></td>
<td>• SDD</td>
</tr>
<tr>
<td></td>
<td>• SGBP</td>
</tr>
<tr>
<td></td>
<td>• SGEN</td>
</tr>
<tr>
<td></td>
<td>• SSET</td>
</tr>
<tr>
<td></td>
<td>• SXCL</td>
</tr>
<tr>
<td>44</td>
<td>Invalid value for DELIM. You must use a comma (,) or a semicolon (;).</td>
</tr>
<tr>
<td>48</td>
<td>Invalid value for DECSEP. You must use a comma (,) or a period (.).</td>
</tr>
<tr>
<td>52</td>
<td>Invalid values for DELIM and DECSEP. You must use different values for these parameters.</td>
</tr>
</tbody>
</table>

**User response:** Correct the invalid input parameters and rerun the Spreadsheet Input Data Generator.

**FPEP1001I**  
**TYPE <V1> HAS BEEN REQUESTED.**

**Explanation:** The Spreadsheet Input Data Generator is invoked for type `<V1>`.

`<V1>` is the type of data for which a spreadsheet is requested. The type is related to the Performance Database tables and parts that are delivered in the RKO2SAMP / TKO2SAMP library.

**User response:** None.

**FPEP1002I**  
**CSV CREATION FOR TYPE <V1> STARTED.**

**Explanation:** The Spreadsheet Input Data Generator started to create spreadsheet data for type `<V1>`. `<V1>` is the type of data. It is related to the Performance Database tables and parts that are delivered in the RKO2SAMP / TKO2SAMP library.

**User response:** None.

**FPEP1003E**  
**FILE <V1>: ALLOCATION OF INTERNAL STRUCTURES FAILED AT START OF PROCESSING.**

**Explanation:** The Spreadsheet Input Data Generator failed to allocate internal structures for the file at the start of processing.

`<V1>` is the name of the file.

**User response:** Check that the file records have the correct format.

**FPEP1004E**  
**DEALLOCATION OF INTERNAL STRUCTURES FAILED AT END OF PROCESSING.**

**Explanation:** The Spreadsheet Input Data Generator
failed to deallocate internal structures at the end of processing.

User response: Check the system output. Contact IBM Support to report this problem.

FPEP1005E  UNABLE TO OPEN FILE <V1>.
Explanation: An error occurred when opening the file.
<V1> is the name of the file.
User response: Check that the file exists and that it is in the correct format.

FPEP1006E  UNABLE TO WRITE OUTPUT FILE.
Explanation: An error occurred when writing to the output file.
User response: Check that the INPUT file contains valid records, for example:
• If a statistics type Sxxx is selected: statistics FILE records or converted statistics SAVE-FILE records
• If an accounting type AFxx is selected: accounting FILE records
• If an accounting type ASxx is selected: converted accounting SAVE-FILE records.

FPEP1007I  FILE <V1>: ALLOCATION OF INTERNAL STRUCTURES FINISHED.
Explanation: The allocation of internal structures for the file finished.
<V1> is the name of the file.
User response: None.

FPEP1008I  RECORDS IN: <V1>: RECORDS OUT: <V2> (INCL. HEADER ROW).
Explanation: <V1> is the number of input records processed.
<V2> is the number of records that are written to the output file.
User response: None.

FPEP1010I  CSV CREATION FOR TYPE <V1> HAS FINISHED.
Explanation: The Spreadsheet Input Data Generator finished the creation of spreadsheet data for type <V1>.
<V1> is the type of data. It is related to the Performance Database tables and parts that are delivered in the RKO2SAMP / TKO2SAMP library.
User response: None.

FPEP1011E  CSV CREATION FOR TYPE <V1> FAILED.
Explanation: The Spreadsheet Input Data Generator cannot create spreadsheet data for type <V1>.
<V1> is the type of data. It is related to the Performance Database tables and parts that are delivered in the RKO2SAMP / TKO2SAMP library.

User response: Check the system output and correct the problem.

FPEP1012E  INVALID INPUT RECORD IN LINE <V1> FOR TYPE <V2>.
Explanation: The Spreadsheet Input Data Generator detected an invalid record. Therefore it cannot create spreadsheet data for type <V2>.
• <V1> is the line of the invalid record in the INPUT file.
• <V2> is the type of data. It is related to the Performance Database tables and parts that are delivered in the RKO2SAMP / TKO2SAMP library.
User response: Check that the INPUT file contains valid records, for example:
• If a statistics type Sxxx is selected: statistics FILE records or converted statistics SAVE-FILE records
• If an accounting type AFxx is selected: accounting FILE records
• If an accounting type ASxx is selected: converted accounting SAVE-FILE records.

FPEP1015E  FILE <V1>: INVALID TOKEN <V2> ENDING AT POSITION <V3> IN LINE <V4>. TOKEN <V5> EXPECTED.
Explanation: The Spreadsheet Input Data Generator detected a syntactical error when processing input data.
• <V1> is the input file.
• <V2> is the invalid token.
• <V3> is the ending position of the invalid token.
• <V4> is the line in the input file of the invalid token.
• <V5> is the expected token.
User response: Check the input file and correct the problem.

FPEP1016E  FILE <V1>: INVALID COLUMN <V2> USED IN WHEN CLAUSE.
Explanation: The Spreadsheet Input Data Generator detected an invalid column in the WHEN clause of a DB2 load statement.
• <V1> is the input file.
• <V2> is the invalid column.
User response: Check the input file and correct the problem.

FPEP1017E  FILE <V1>: INVALID COLUMN <V2> USED IN DEFAULTIF CLAUSE.
Explanation: The Spreadsheet Input Data Generator detected an invalid column in a DEFAULTIF clause of a DB2 load statement.
• <V1> is the input file.
• <V2> is the invalid column.
User response: Check the input file and correct the problem.

FPEP1018E  FILE <V1>: INVALID COLUMN <V2> 
USED IN A NULLIF CLAUSE.

Explanation: The Spreadsheet Input Data Generator detected an invalid column in a NULLIF clause of a DB2 load statement.
• <V1> is the input file.
• <V2> is the invalid column.
User response: Check the input file and correct the problem.

FPEP1020E  FILE <V1>: INVALID COLUMN <V2> 
USED IN FIELD SELECTION LIST.
COLUMN NOT FOUND IN BPART.

Explanation: The Spreadsheet Input Data Generator detected an invalid column in the field selection list. This column is not specified in the metadata B-part.
• <V1> is the input file.
• <V2> is the invalid column.
User response: Check the input file. For example, make sure that the correct metadata part is used or that the correct column is specified in the field selection list.

FPEP1021E  FILE <V1>: INVALID FIELD <V2> 
USED IN FIELD SELECTION LIST.
FIELD NOT FOUND IN BPART.

Explanation: The Spreadsheet Input Data Generator detected an invalid field in the field selection list. This field is not specified in the metadata B-part.
• <V1> is the input file.
• <V2> is the invalid field.
User response: Check the input file. For example, make sure that the correct metadata part is used or that the correct field is specified in the field selection list.

FPEP1022E  FILE <V1>: INVALID COLUMN <V2> 
USED IN FIELD SELECTION LIST.
COLUMN NOT FOUND IN LPART.

Explanation: The Spreadsheet Input Data Generator detected an invalid column in the field selection list. This column is not specified in the load statement (L-part).
• <V1> is the input file.
• <V2> is the invalid field.
User response: Check the input file and correct the problem.

FPEP1023E  FILE <V1>: INVALID FORMAT <V2> 
USED IN FIELD SELECTION LIST.

Explanation: The Spreadsheet Input Data Generator detected an invalid format function in the field selection list.
• <V1> is the input file.
• <V2> is the invalid format.
User response: Check the input file and use a valid format function. Valid format functions are MB, P2MB, HEX, or S2T.

FPEP1024E  FILE <V1>: INVALID FORMAT <V2> 
USED IN FIELD SELECTION LIST FOR 
FIELD <V3>. ENTRY MUST BE BLANK 
FOR TYPE <AGGR>.

Explanation: The Spreadsheet Input Data Generator detected an invalid format function in the field selection list. Fields with type AGGR must not have a format function.
• <V1> is the name of the input file.
• <V2> is the name of the invalid format.
• <V3> is the name of the field.
User response: Check the input file and remove the format function.
FPEQ - Buffer Pool Analyzer messages

FPEQ7035E  FILE RECORD WAS NOT WRITTEN.
DDNAME = <V1>, RETURN CODE = <V2>

Explanation: An error occurred when attempting to write a record to the buffer pool File data set.
- <V1> is the ddname for the data set.
- <V2> is the return code from the write operation.
User response: Check the data set allocation.

FPEQ7502S  EXCEPTION OCCURRED DURING WRITING TO WORK FILE. <V1> OF <V2> RECORDS ALREADY WRITTEN.

Explanation: Not enough data set space allocated for the amount of data to be written.
User response: Allocate more data set space. Use the actual allocation size and the values shown in the message to determine the minimum space required. Retry the operation.

FPEQ7600S  EXCEPTIONAL CONDITION OCCURRED DURING BUFFER POOL ACTIVITY PROCESSING. MAIN STORAGE ALLOCATION FAILED

Explanation: There was not enough storage available to continue buffer pool activity processing.
User response: See the DB2 system catalog. From the catalog tables SYSIBM.SYSTABLESPACE and SYIBM.SYSINDEXES determine the numbers of objects/rows to be read. Compare the sum of these numbers with the number of records read and increase the region size accordingly. Run the job again.

Chapter 9. Messages  4981
**FPEQ7610S** • **FPES0010W**

User response: Increase the region size, and rerun the job.

---

**FPER - SQL Activity report set messages**

**FPER0600S** EXCEPTIONAL CONDITION OCCURRED DURING SQL ACTIVITY PROCESSING. MAIN STORAGE ALLOCATION FAILED

Explanation: There was not enough storage available to continue SQL activity processing.

User response: Increase the region size and rerun the job.

---

**FPER3270S** EXCEPTIONAL CONDITION OCCURRED DURING SQL ACTIVITY PROCESSING. INTERNAL ERROR CODE <V1>

Explanation: An internal error occurred.

- <V1> is the internal error code.

User response: If the internal error code is OVERFLOW, rerun the job and try one or more of the following actions to reduce the amount of data for an SQL Activity trace:
  - Use the FROM/TO options for the GLOBAL command to specify a limited time interval.
  - Rather than specifying WORKLOAD(ALL) in the TRACE subcommand, make an appropriate selection, for example, WORKLOAD(IO).
  - Rather than collecting a large amount of data in one trace, specify the TRACE subcommand repeatedly (you can repeat it up to five times) to spread the information over several traces.

For all other internal error codes, rerun the job. If the problem recurs, contact IBM support and quote the internal error code.

---

**FPES - Statistics report set messages**

**FPES0005W** STATISTICS RECORD WITH IFCID 0002, SEQNO = <V1> MISSING. IFCID 0001, SEQNO = <V2> IGNORED. AFFECTING FUNCTIONS: <V3>

Explanation: An IFCID 0001 record was found without a matching IFCID 0002 record, and was ignored.

- <V1> is the sequence number of the missing record.
- <V2> is the sequence number of the unmatched record.
- <V3> is REDUCE or TRACE/FILE.

User response: None.

---

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.
without a matching IFCID 0001 record, and was ignored.
• <V1> is the sequence number of the missing record.
• <V2> is the sequence number of the unmatched record.
• <V3> is REDUCE or TRACE/FILE.

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.

User response: None.

FPES0015I A DB2 RESTART HAS BEEN DETECTED. STATISTICS COUNTERS RESET. AFFECTING FUNCTIONS: <V1>, NEW BEGIN RECORD IFCID <V2>, SEQNO = <V3>

Explanation: A DB2 restart has been detected (the sequence number of the end record pair was lower than the begin record pair). Because a statistics delta calculation would result in negative values, the current begin record pair is discarded, and processing continues.
• <V1> is REDUCE or TRACE/FILE.
• <V2> is the IFCID number of the record where the restart was detected.
• <V3> is the sequence number of the record pair that is used as the new begin records.

Note that, depending on the operational situation, an additional line indicating the location, group, subsystem ID, member, date, and time may be displayed immediately following the message number.

User response: None.

FPES0020I STATISTICS REDUCE COMPLETE

Explanation: Statistics REDUCE processing is completed.

User response: None.

FPES0025I STATISTICS FILE COMPLETE. <V1> RECORDS WRITTEN TO DDNAME <V2>

Explanation: A STATISTICS FILE subcommand has completed its function.
• <V1> is the number of records written.
• <V2> is the destination ddname.

User response: None.
FPES0060W • FPET1040W

**User response:** Check for system messages detailing the problem.

---

**FPES0060W** A STATISTICS <V1> DELTA CALCULATION RESULTED IN NEGATIVE VALUES. BEGIN RECORD IFC SEQNO = <V2>

**Explanation:** The calculation for a statistics delta record resulted in negative values. The results are ignored and processing continues.

- `<V1>` is REDUCE or TRACE/FILE.
- `<V2>` is the sequence number of the begin records.

**User response:** None.

---

**FPES0065U** EXCEPTIONAL PROCESSING CONDITION WHILE GENERATING STATISTICS LIST 1. INSUFFICIENT STORAGE AVAILABLE

**Explanation:** There was not enough storage available for statistics processing to continue.

**User response:** Increase the region size and rerun the job.

---

**FPES0070U** INITIALIZATION FAILED FOR STATISTICS LIST 1. INSUFFICIENT STORAGE AVAILABLE

**Explanation:** There was not enough storage available for statistics processing to continue.

**User response:** Increase the region size and rerun the job.

---

**FPET - Utility Activity report set messages**

**FPET0600S** EXCEPTIONAL CONDITION OCCURRED DURING UTILITY ACTIVITY PROCESSING. MAIN STORAGE ALLOCATION FAILED

**Explanation:** There was not enough storage available for utility activity processing to continue.

**User response:** Increase the region size and rerun the job.

---

**FPET0610S** EXCEPTIONAL CONDITION OCCURRED DURING UTILITY ACTIVITY PROCESSING. MAIN STORAGE RELEASE FAILED

**Explanation:** An attempt to free storage failed.

**User response:** Rerun the job. If the problem recurs, contact IBM support.

---

**FPET1020I** UNABLE TO CORRECTLY PRINT HEADER FOR UTILITY ACTIVITY REPORT

**Explanation:** An error occurred while attempting to print the header on a Utility Activity report.

**User response:** Rerun the job. If the problem recurs, contact IBM support.

---

**FPET1030W** THE INTERNAL LIMIT OF PHASES THAT CAN BE PROCESSED HAS BEEN EXCEEDED. PROCESSING CONTINUES WITH <V1> REGISTERED PHASES WITHOUT ADDITIONAL ONES.

**Explanation:** Processing is limited to `<V1>` phases. New phases found after reaching this limit cannot be processed.

**User response:** Ensure that the input trace data does not include more than the maximum number of phases.

---

**FPET1040W** THE INTERNAL LIMIT OF SUBTASKS THAT CAN BE PROCESSED HAS BEEN EXCEEDED. PROCESSING CONTINUES WITH <V1> REGISTERED SUBTASKS WITHOUT ADDITIONAL ONES.

**Explanation:** Processing is limited to `<V1>` subtasks. New subtasks found after reaching this limit cannot be processed.

**User response:** Ensure that the input trace data does not include more than the maximum number of subtasks. For example, check and adapt the PARALLEL option of the COPY or RECOVER utility when collecting DB2 trace data.
**FPET3270E**  EXCEPTIONAL CONDITION OCCURRED DURING UTILITY ACTIVITY PROCESSING. INTERNAL ERROR CODE `<V1>`  

**Explanation:**  An internal error occurred.  
• `<V1>` is the internal error code.  

**User response:**  Rerun the job. If the problem recurs, contact IBM support and quote the internal error code.

---

**FPET4500E**  INITIALIZATION FAILED FOR UTILITY ACTIVITY LIST. INSUFFICIENT STORAGE AVAILABLE  

**Explanation:**  There was insufficient storage available to continue processing.  

**User response:**  Increase the region size and rerun the job.

---

## FPEU - Utility Services messages

<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEU0001U</td>
<td>UNABLE TO LOAD BASE SERVICES</td>
</tr>
<tr>
<td>Explanation:</td>
<td>An error occurred during initialization.</td>
</tr>
<tr>
<td>User response:</td>
<td>Rerun the job. If the problem recurs, see your system programmer or contact IBM support.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEU0002U</td>
<td>UNABLE TO LOAD NLS SUPPORT MODULE</td>
</tr>
<tr>
<td>Explanation:</td>
<td>An error occurred during initialization of NLS support.</td>
</tr>
<tr>
<td>User response:</td>
<td>Rerun the job. If the problem recurs, see your system programmer or contact IBM support.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEU0003S</td>
<td><code>&lt;V1&gt;</code> IS AN INVALID VALUE IN THE DATEFORMAT PARAMETER</td>
</tr>
</tbody>
</table>
| Explanation: | The value supplied in the DATEFORMAT parameter is not valid.  
• `<V1>` is the invalid value. |
| User response: | The DATEFORMAT parameter must be eight characters long and contain one each of DD, MM, and YY for the day, month, and year, respectively. You can specify the day, month, and year in any order. A single character delimiter is also required in the third and sixth positions. |

<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEU0004S</td>
<td>DATEFORMAT PARAMETER VALUE <code>&lt;V1&gt;</code> HAS BEEN SPECIFIED MORE THAN ONCE</td>
</tr>
</tbody>
</table>
| Explanation: | The value for day (DD), month (MM), or year (YY) has been specified more than once.  
For example, a DATEFORMAT of DD-DD-YY was specified.  
• `<V1>` is the duplicated DATEFORMAT parameter value. |
| User response: | Correct the JCL and rerun the job. |

<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEU0005S</td>
<td><code>&lt;V1&gt;</code> IS AN INVALID DELIMITER IN THE DATEFORMAT PARAMETER</td>
</tr>
</tbody>
</table>
| Explanation: | Valid delimiters are the “/”, “-”, or “.” characters.  
• `<V1>` is the invalid delimiter. |
| User response: | Use a valid delimiter. |

<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEU0006I</td>
<td>DATEFORMAT PARAMETER OF <code>&lt;V1&gt;</code> HAS BEEN ACCEPTED</td>
</tr>
</tbody>
</table>
| Explanation: | The supplied DATEFORMAT parameter was accepted.  
• `<V1>` is the accepted DATEFORMAT parameter. |
| User response: | None. |

<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEU0007U</td>
<td>UNABLE TO LOAD ISPF SUPPORT MODULE</td>
</tr>
<tr>
<td>Explanation:</td>
<td>The ISPF services are required to run OMEGAMON XE for DB2 PE but the support module could not be loaded. This message should be accompanied by another message indicating the problem.</td>
</tr>
<tr>
<td>User response:</td>
<td>See the accompanying message to correct the error.</td>
</tr>
</tbody>
</table>

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<th>Code</th>
<th>Message Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEU0008U</td>
<td>UNABLE TO USE ISPF SERVICES</td>
</tr>
<tr>
<td>Explanation:</td>
<td>The ISPF services are required to run OMEGAMON XE for DB2 PE but could not be used. This message should be accompanied by another message indicating the problem.</td>
</tr>
<tr>
<td>User response:</td>
<td>See the accompanying message to correct the error.</td>
</tr>
</tbody>
</table>

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<th>Message Description</th>
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</thead>
<tbody>
<tr>
<td>FPEU0009S</td>
<td>PROCESSING HAS BEEN TERMINATED DUE TO PREVIOUS ERRORS</td>
</tr>
<tr>
<td>Explanation:</td>
<td>None.</td>
</tr>
<tr>
<td>User response:</td>
<td>Check the previous error messages, correct the input, and rerun the job.</td>
</tr>
</tbody>
</table>

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<tr>
<th>Code</th>
<th>Message Description</th>
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</thead>
<tbody>
<tr>
<td>FPEU0011U</td>
<td>UNABLE TO INIT BASE SERVICES</td>
</tr>
<tr>
<td>Explanation:</td>
<td>An error occurred during initialization of the base services. This message should be accompanied by another message indicating the problem.</td>
</tr>
<tr>
<td>User response:</td>
<td>See the accompanying message to correct the error.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEU0015I</td>
<td>SECOND SESSION NOT SUPPORTED</td>
</tr>
</tbody>
</table>

---

Chapter 9. Messages 4985
Explanation: A second session of the OMEGAMON for DB2 PE ISPF Online Monitor is started in an ISPF split screen. This second session is not supported.

User response: None.

FPEU0020E UNABLE TO ALLOCATE VIRTUAL STORAGE. GETMAIN RETURN CODE: <V1>, STORAGE REQUESTED: <V2>, SUBPOOL: <V3>, LOCATION: <V4>

Explanation: An error occurred attempting to allocate virtual storage.
• <V1> is the GETMAIN return code.
• <V2> is the STORAGE length.
• <V3> is the SUBPOOL.
• <V4> is the location.

User response: Rerun the job. If the problem recurs, contact IBM support.

FPEU0021W UNABLE TO FREE VIRTUAL STORAGE. FREEMAIN RETURN CODE: <V1>, STORAGE ADDRESS: <V2>, STORAGE LENGTH: <V3>, SUBPOOL: <V4>

Explanation: An error occurred attempting to free virtual storage.
• <V1> is the FREEMAIN return code.
• <V2> is the STORAGE address.
• <V3> is the STORAGE length.
• <V4> is the SUBPOOL.

User response: Rerun the job. If the problem recurs, contact IBM support.

FPEU0022W UNABLE TO RELEASE VIRTUAL STORAGE FROM SUBPOOL <V2>. FREEMAIN RETURN CODE: <V1>

Explanation: An error occurred attempting to release virtual storage.
• <V1> is the FREEMAIN return code.
• <V2> is the SUBPOOL.

User response: Rerun the job. If the problem recurs, contact IBM support.

FPEU0025E AN ERROR OCCURRED DURING DYNALLOC. DYNALLOC RETURN CODE: <V1>, ERROR REASON CODE: <V2>, INFORMATION REASON CODE: <V3>

Explanation: An error occurred during dynamic allocation.
• <V1> is the DYNALLOC return code.
• <V2> is the error reason code.
• <V3> is the information reason code.

User response: See MVS Messages and Codes (or the corresponding manual of the MVS version you have installed) for an explanation of the return code and reason codes. If the problem recurs, contact IBM support.

FPEU0027E UNABLE TO LINK TO MODULE <V1>. ABEND CODE <V2>

Explanation: A link could not be made to the load module required for OMEGAMON XE for DB2 PE.
• <V1> is the name of the module.
• <V2> is the abend code returned from the system.

User response: See MVS Messages and Codes.

FPEU0028E UNABLE TO LOAD MODULE <V1>. ABEND CODE <V2>

Explanation: A load module required to run OMEGAMON XE for DB2 PE could not be loaded into virtual storage.
• <V1> is the name of the load module.
• <V2> is the abend code returned from the system.

User response: See MVS Messages and Codes for an explanation of the system abend code.

FPEU0029W UNABLE TO DELETE MODULE <V1>. RETURN CODE <V2>

Explanation: A load module previously loaded by OMEGAMON XE for DB2 PE could not be deleted from virtual storage.
• <V1> is the load module not dropped.
• <V2> is the return code from SVC 9.

User response: Contact IBM support.

FPEU0040W VSAM FILE <V1> WAS OPENED SUCCESSFULLY BUT A WARNING WAS ISSUED. VSAM RETURN CODE: <V2>, VSAM REASON CODE: <V3>

Explanation: None.
• <V1> is the name of the VSAM file.
• <V2> is the VSAM return code.
• <V3> is the VSAM reason code.

User response: See the appropriate VSAM documentation.

FPEU0041E VSAM FILE <V1> COULD NOT BE OPENED. VSAM RETURN CODE: <V2>, VSAM REASON CODE: <V3>

Explanation: None.
• <V1> is the name of the VSAM file.
• <V2> is the VSAM return code.
• <V3> is the VSAM reason code.

User response: See the appropriate VSAM documentation.
FPEU0042E FILE <V1> COULD NOT BE OPENED. SYSTEM ABEND CODE: <V2>

Explanation: None. 
• <V1> is the file name 
• <V2> is the system abend code 

User response: See the operating system documentation for an explanation of the system abend. If the problem recurs, contact IBM support.

FPEU0043E FILE <V1> WAS NOT OPENED. IT HAS AN INCORRECT RECORD FORMAT

Explanation: None. 
• <V1> is the file name. 

User response: Allocate the file with the correct record format. See the Report Command Reference for more information. The record formats are described in “The Performance Expert command Stream”, section “DD Statements”.

FPEU0044E FILE <V1> WAS NOT OPENED. IT HAS AN INCORRECT RECORD LENGTH

Explanation: None. 
• <V1> is the file name. 

User response: Allocate the file with the correct record length. See the Report Command Reference for more information.

FPEU0045E UNABLE TO READ FROM FILE <V1>. SYSTEM ABEND CODE: <V2>

Explanation: An error occurred while reading from a file. 
• <V1> is the file name. 
• <V2> is the system abend code. 

User response: See MVS Messages and Codes for an explanation of the system abend code. If the problem recurs, contact IBM support.

FPEU0046E UNABLE TO READ FROM FILE <V1>. SYSTEM MESSAGE BUFFER: <V2>

Explanation: An error occurred while reading from a file. 
• <V1> is the file name. 
• <V2> is the system message buffer. 

User response: See the SYNADAF macro in DSFSMS/MVS Macro Instruction for Data Set for the system message buffer code.

FPEU0047E UNABLE TO WRITE TO FILE <V1>. SYSTEM ABEND CODE: <V2>

Explanation: An error occurred while writing to a file. 
• <V1> is the file name. 
• <V2> is the system abend code. 

User response: See MVS Messages and Codes for an explanation of the system abend code. If the problem recurs, contact IBM support.

FPEU0048E UNABLE TO WRITE TO FILE <V1>. SYSTEM MESSAGE BUFFER: <V2>

Explanation: An error occurred while writing to a file. 
• <V1> is the file name. 
• <V2> is the system message buffer. 

User response: See the SYNADAF macro in DSFSMS/MVS Macro Instruction for Data Set for the system message buffer code.

FPEU0049E VSAM FILE <V1> COULD NOT BE CLOSED. VSAM REASON CODE: <V2>

Explanation: An error occurred closing the VSAM file. 
• <V1> is the VSAM file. 
• <V2> is the VSAM reason code. 

User response: See the appropriate VSAM documentation.

FPEU0050E FILE <V1> COULD NOT BE CLOSED. SYSTEM ABEND CODE: <V2>

Explanation: An error occurred closing a file. 
• <V1> is the file name. 
• <V2> is the system abend code. 

User response: See MVS Messages and Codes for an explanation of the system abend code. If the problem recurs, contact IBM support.

FPEU0051E FILE <V1> COULD NOT BE CLOSED. SYSTEM MESSAGE BUFFER: <V2>

Explanation: An error occurred closing a file. 
• <V1> is the file name. 
• <V2> is the system message buffer. 

User response: See the SYNADAF macro in DSFSMS/MVS Macro Instruction for Data Set for the system message buffer code.

FPEU0052E UNABLE TO EXTRACT DIRECTORY INFORMATION FOR MEMBER <V1> IN FILE <V2>. RETURN CODE <V3>, REASON CODE <V4>

Explanation: None. 
• <V1> is the member name. 
• <V2> is the file name.
**FPEU0053E • FPEU0202S**

- `<V3>` is the return code.
- `<V4>` is the reason code.

**User response:** See the BLDL macro in DSFSMS/MVS Macro Instruction for Data Set for the system message buffer code.

---

**FPEU0053E UNABLE TO FIND MEMBER <V1> IN FILE <V2>, RETURN CODE <V3>, REASON CODE <V4>**

**Explanation:** None.

- `<V1>` is the module name.
- `<V2>` is the file name.
- `<V3>` is the return code.
- `<V4>` is the reason code.

**User response:** See the FIND macro in DSFSMS/MVS Macro Instruction for Data Set for the system message buffer code.

---

**FPEU0060E CODEPAGE TRANSLATION FAILED WITH RETURN CODE <V1>, REASON CODE <V2>.**

**Explanation:** The codepage translation failed. The z/OS Support for Unicode has returned the specified values. `<V1>` is the return code from z/OS Support for Unicode, `<V2>` is the reason code from z/OS Support for Unicode.

DB2 trace records might contain strings in Unicode (UTF-8) format. OMEGAMON XE for DB2 PE uses the z/OS Support for Unicode to convert these strings to other CCSIDs for output to reports. This requires that the z/OS Support is set up correctly on the system where OMEGAMON XE for DB2 PE is executed. On a system where DB2 is installed this will be the case automatically because DB2 also requires this support.

User response: Check that the z/OS Support for Unicode is installed correctly and provides conversions from CCSID 1208 to the destination EBCDIC CCSID 500. Check the system log for additional messages.

---

**FPEU0100S INFORMATION FOR PROBLEM ANALYSIS BY SUPPORT: REFERENCE IS MODULE <V1>, CODE=<V2>**

**Explanation:** This message does not necessarily indicate an error condition. It is used to assist internal analysis of problems if reported to IBM.

**User response:** Look at the messages immediately preceding and following this message. Contact IBM support if one of these messages indicates a problem that cannot be solved.

---

**FPEU0101S INTERNAL ERROR IN MODULE <V1>, CODE=<V2>, DIAGNOSTIC DATA=<V3>**

**Explanation:** An internal error occurred because a task that is normally started by the data collector for the OMEGAMON XE for DB2 PE Client was started manually. Data collector started tasks are started by OMEGAMON XE for DB2 PE when needed, and must not be started manually.

- `<V1>` is the module name.
- `<V2>` is the error code.
- `<V3>` is the diagnostic data.

**User response:** If the problem recurs, contact IBM support.

---

**FPEU0200S DB2 CAF SUPPORT CANNOT BE LOADED. DB2 LOAD LIBRARY MAY NOT BE SPECIFIED IN STEPLIB**

**Explanation:** OMEGAMON XE for DB2 PE could not load the Call Attach Facility (CAF) support modules. One possible reason is that the DB2 load library is missing in the STEPLIB DD statement.

**User response:** Determine why OMEGAMON XE for DB2 PE cannot load the required modules. Resubmit the job.

---

**FPEU0201S CALL ATTACH FUNCTION <V1> FAILED, RETURN CODE <V2>, REASON CODE <V3>**

**Explanation:** A problem was encountered while establishing a connection to DB2.

- `<V1>` is the Call Attach Facility (CAF) function.
- `<V2>` is the return code.
- `<V3>` is the reason code.

**User response:** See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.

---

**FPEU0202S UNICODE CONVERSION SUPPORT CANNOT BE LOADED. Z/OS SUPPORT FOR UNICODE MAY NOT BE INSTALLED CORRECTLY.**

**Explanation:** The z/OS Support for Unicode could not be loaded to perform a required codepage translation. Program execution is terminated.

DB2 trace records might contain strings in Unicode (UTF-8) format. OMEGAMON XE for DB2 PE uses the z/OS Support for Unicode to convert these strings to other CCSIDs for output to reports. This requires that the z/OS Support is set up correctly on the system where OMEGAMON XE for DB2 PE is executed. On a system where DB2 is installed this will be the case automatically because DB2 also requires this support.
User response: Check that the z/OS Support for Unicode is installed correctly and provides conversions from CCSID 1208 to the destination EBCDIC CCSID. Check the system log for additional messages.

**Explanation:** This version of OMEGAMON for Db2 PE does not support DB2 accelerator trace data version 4. Therefore the accelerator information in batch reports, statistics, and record trace does not include all performance-related fields.

User response: To receive complete information about accelerator monitoring, install the latest version of OMEGAMON for Db2 PE.

---

# FPEV - Data Server messages

<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEV0000I</td>
<td>DATA SERVER INITIALIZATION BEGINS - &lt;V1&gt;</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>FPEV0001S</td>
<td>MVS MUST BE ESA 3.1.3 OR LATER</td>
<td>None.</td>
<td>Install the correct release of MVS.</td>
</tr>
<tr>
<td>FPEV0002S</td>
<td>&lt;V1&gt; INTERNAL ERROR. NUMBER &lt;V2&gt;, CODE &lt;V3&gt;</td>
<td>An internal error occurred.</td>
<td></td>
</tr>
<tr>
<td>FPEV0003S</td>
<td>&lt;V1&gt; GETMAIN &lt;V2&gt; FAILED. SIZE &lt;V3&gt;, RC &lt;V4&gt;</td>
<td>There is insufficient storage.</td>
<td></td>
</tr>
<tr>
<td>FPEV0004S</td>
<td>&lt;V1&gt; ATTACH FAILED FOR MODULE &lt;V2&gt;</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>FPEV0005S</td>
<td>&lt;V1&gt; ISPF OLM SUBSYSTEM INITIALIZATION FAILED</td>
<td>Cross-memory initialization failed.</td>
<td></td>
</tr>
<tr>
<td>FPEV0006I</td>
<td>DATA SERVER INITIALIZATION COMPLETE</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>FPEV0007I</td>
<td>DATA SERVER ENDED</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>FPEV0008S</td>
<td>&lt;V1&gt; LOAD FOR MODULE &lt;V2&gt; FAILED</td>
<td>Load for the specified module failed.</td>
<td></td>
</tr>
<tr>
<td>FPEV0011I</td>
<td>DATA SERVER IS STOPPING</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>FPEV0013I</td>
<td>&lt;V1&gt; TASK &lt;V2&gt; BEING REATTACHED</td>
<td>Task may have terminated and is being reattached.</td>
<td></td>
</tr>
</tbody>
</table>

---

**User response:** None.

**Explanation:** None.

**User response:** None.

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**User response:** None.

**Explanation:** None.

**User response:** None.
FPEV0014E • FPEV0025E

FPEV0014E <V1> HISTORY TASK COULD NOT BE REINITIALIZED RC <V2>

Explanation: History reinitialization failed.
• <V1> is the DB2 subsystem ID.
• <V2> is the return code.

User response: Check the log for preceding messages or abend codes. If the problem cannot be corrected and recurs, contact IBM support.

FPEV0015W <V1> SERVER INSTANCE ALREADY STARTED FOR THIS DB2 SUBSYSTEM

Explanation: None.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0016E <V1> TOKEN <V2> IS NOT RECOGNIZED

Explanation: The token or keyword is not valid for the Data Server parameter.
• <V1> is the DB2 subsystem ID.
• <V2> is the token.

User response: Correct the input.

FPEV0017E <V1> VALUE <V2> LESS THAN MINIMUM OF <V3> FOR KEYWORD <V4>

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the value entered.
• <V3> is the minimum value.
• <V4> is the keyword.

User response: Correct the input.

FPEV0018E <V1> VALUE <V2> EXCEEDS MAXIMUM OF <V3> FOR KEYWORD <V4>

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the value entered.
• <V3> is the maximum value.
• <V4> is the keyword.

User response: Correct the input.

FPEV0019E <V1> <V2> FOUND, BUT <V3> EXPECTED FOR KEYWORD <V4>

Explanation: An invalid parameter was entered for the specified keyword.
• <V1> is the DB2 subsystem ID.
• <V2> is the parameter entered by the user.
• <V3> is the expected parameter.
• <V4> is the keyword.

User response: Correct the input.

FPEV0020E <V1> <V2> IS INVALID FOR KEYWORD <V3>

Explanation: An invalid parameter was entered for the specified keyword.
• <V1> is the DB2 subsystem ID.
• <V2> is the parameter entered by the user.
• <V3> is the keyword.

User response: Correct the input.

FPEV0021S END OF LINE FOUND BEFORE END OF <V2> PARAMETER

Explanation: The command in one of the RKD2PAR data set members is incomplete.
• <V1> is the DB2 subsystem ID.
• <V2> is the parameter or keyword.

User response: Correct the input.

FPEV0022E <V1> NUMERIC VALUE EXPECTED. <V2> FOUND FOR KEYWORD <V3>

Explanation: An invalid parameter was entered for the specified keyword.
• <V1> is the DB2 subsystem ID.
• <V2> is the parameter that was entered by the user.
• <V3> is the keyword.

User response: Correct the input.

FPEV0024E <V1> TASK <V2> IS NOT BEING REATTACHED DUE TO REPEATED ERRORS

Explanation: Repeated abends occurred.
• <V1> is the DB2 subsystem ID.
• <V2> is the task.

User response: It may be necessary to stop and restart the Data Server using the MODIFY command. Check the log for preceding messages or abend codes. If the problem cannot be corrected and recurs, contact IBM support.

FPEV0025E <V1> <V2> IS TOO LONG FOR KEYWORD <V3>

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the parameter entered by the user.
• <V3> is the keyword.

User response: Correct the input.
installation process and restart the Data Server.

FPEV0043I  <V1> HISTORY=NV2>
Explanation: This message is issued in response to a DISPLAY command.
• <V1> is the Db2 subsystem ID.
• <V2> is:
  YES History data is being collected.
  NO History data is not being collected. If HISTORY=NO you can disregard message FPEV00505W for the same Db2 subsystem if it appears in the job log.
User response: None.

FPEV0045I  <V1> - STATISTICS IS BEING COLLECTED, INTERVAL=SV2> SECONDS
Explanation: This message is issued in response to a DISPLAY command or during the Data Server startup.
• <V1> is the DB2 subsystem ID.
• <V2> is the interval in which this data is gathered by the Data Server.
User response: None.

FPEV0047I  <V1> - SYSTEM PARAMETERS ARE BEING COLLECTED, INTERVAL=SV2> SECONDS
Explanation: This message is issued in response to a DISPLAY command or during the Data Server startup.
• <V1> is the DB2 subsystem ID.
• <V2> is the interval in which this data is gathered by the Data Server.
User response: None.

FPEV0049I  <V1> - THREAD SQL TEXT IS BEING COLLECTED, INTERVAL=SV2> SECONDS
Explanation: This message is issued in response to a DISPLAY command or during the Data Server startup.
• <V1> is the DB2 subsystem ID.
• <V2> is the interval in which this data is gathered by the Data Server.
User response: None.

FPEV0051I  <V1> - THREAD DETAIL IS BEING COLLECTED, INTERVAL=SV2> SECONDS
Explanation: This message is issued in response to a DISPLAY command or during the Data Server startup.
• <V1> is the DB2 subsystem ID.
• <V2> is the interval in which this data is gathered by the Data Server.
User response: None.

FPEV0052I  <V1> - THREAD LOCKING IS BEING COLLECTED, INTERVAL=SV2> SECONDS
Explanation: This message is issued in response to a DISPLAY command or during the Data Server startup.
• <V1> is the DB2 subsystem ID.
• <V2> is the interval in which this data is gathered by the Data Server.
User response: None.

FPEV0053I  <V1> - THERE ARE <V2> HISTORY QUALIFICATIONS ACTIVE. PRIMAUTH PLANNAME CONNECTION ID CORRELATION NAME
Explanation: This message is issued in response to a DISPLAY command.
• <V1> is the DB2 subsystem ID.
• <V2> is the number of active history qualifications.
User response: None.

FPEV0054I  <V1> <V2> <V3> <V4> <V5>
Explanation: This message is issued in response to a DISPLAY command.
• <V1> is the DB2 subsystem ID.
• <V2> is the plan name.
• <V3> is the primary authorization ID.
• <V4> is the connection ID.
• <V5> is the correlation ID.
User response: None.

FPEV0056I  <V1> - SHDATASETSIZE=SV2> MEGABYTES
Explanation: This message is issued in response to a DISPLAY command.
• <V1> is the DB2 subsystem ID.
• <V2> is the number of pages.
User response: None.

FPEV0057I  <V1> DISPLAY COMMAND OUTPUT ENDS
Explanation: This message is issued in response to a DISPLAY command.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV0058I  <V1> NO CURRENT USERS
Explanation: This message is issued in response to a DISPLAY command.
• <V1> is the DB2 subsystem ID.
User response: None.
FPEV0059E  <V1>  DB2 INTERFACE TASK DID NOT RESPOND TO TERMINATION REQUEST

Explanation:  When the Data Server is stopped, the connection between DB2 and the Data Server does not terminate correctly.
   •  <V1>  is the DB2 subsystem ID.

User response:  None.

FPEV0060E  <V1>  USER MANAGER TASK DID NOT RESPOND TO TERMINATION REQUEST

Explanation:  When the Data Server is stopped, the connection between the user manager and the Data Server does not terminate correctly.
   •  <V1>  is the DB2 subsystem ID.

User response:  None.

FPEV0062E  <V1>  HISTORY MANAGER TASK DID NOT RESPOND TO TERMINATION REQUEST

Explanation:  When the Data Server is stopped, the connection between the history manager and the Data Server does not terminate correctly.
   •  <V1>  is the DB2 subsystem ID.

User response:  None.

FPEV0063S  <V1>  DB2 INTERFACE INITIALIZATION DID NOT COMPLETE WITHIN <V2> SECONDS OF SERVER INSTANCE STARTUP

Explanation:  None.
   •  <V1>  is the DB2 subsystem ID.
   •  <V2>  is the number of seconds.

User response:  The Data Server thread may be queued at thread creation. Restart the Data Server. Check the log for preceding messages or abend codes. If the problem cannot be corrected and recurs, contact IBM support.

FPEV0064I  <V1>  CAF ERROR WHEN DB2 INTERFACE ATTEMPTED TO CONNECT TO DB2 CAF. RC <V2>, REASON <V3>

Explanation:  None.
   •  <V1>  is the DB2 subsystem ID.
   •  <V2>  is the Call Attach Facility (CAF) return code.
   •  <V3>  is the CAF reason code.

User response:  See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.

FPEV0065S  <V1>  LX RESERVE FAILED. RC <V2>

Explanation:  An error occurred when attempting to reserve a linking index. The Data Server terminates.
   •  <V1>  is the DB2 subsystem ID.
   •  <V2>  is the return code.

User response:  Check the log for preceding messages or abend codes and restart the Data Server. If the problem cannot be corrected and recurs, contact IBM support.

FPEV0066I  <V1> - <V2> EXCEPTION EVENTS

Explanation:  Issued in response to a DISPLAY command.
   •  <V1>  is the DB2 subsystem ID.
   •  <V2>  is the exception event type, as follows:

- AUTHFAIL  Collecting events with:
  START TRACE(STAT) CLASS(4) DEST(OPx)

- CF REBUILD  Collecting coupling facility events with:
  START TRACE(STAT) CLASS(4) DEST(OPx)

- DDF  Collecting events with:
  START TRACE(PERM) CLASS(1) DEST(OPx)

- DEADLOCK  Collecting deadlocks events with:
  START TRACE(PERM) CLASS(6) DEST(OPx) IFCID(196)

- DSEXTENT  Collecting dataset extent events with:
  START TRACE(STAT) CLASS(3) DEST(OPx)

- EDMPOOL  Collecting events with:
  START TRACE(AUDIT) CLASS(1) DEST(OPx)

- GBLTRACE  Collecting global trace events with:
  START TRACE(PERFM) CLASS(30) DEST(OPx) IFCID(90)

- LOGSPACE  Collecting log space shortage events with:
  START TRACE(STAT) CLASS(3) DEST(OPx)

- TIMEOUT  Collecting events with:
  START TRACE(PERM) CLASS(6) DEST(OPx) IFCID(172)

- URPROBLEM  Collecting unit of recovery problem events with:
  START TRACE(STAT) CLASS(3) DEST(OPx)

User response:  None.
FPEV0067I  <V1> DB2COMMAND='<V2>'

Explanation: The DB2 command issued on a locally connected subsystem has failed.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the DB2 command.
  • <V3> is the IFI return code.
  • <V4> is the IFI reason code.

User response: For a more detailed description of the problem, see the DB2 9 Administration Guide.

FPEV0068I  <V1> <V2>

Explanation: Informational message.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the resulting output upon issuing a DB2 command.

User response: None.

FPEV0069I  <V1> IFI ERROR WHEN ISSUING DB2COMMAND ' <V2>', IFI RC <V3>, REASON <V4>

Explanation: None.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the IFI return code.
  • <V3> is the IFI reason code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.

FPEV0070S  <V1> DB2 SUBSYSTEM ID NOT SPECIFIED

Explanation: None.
  • <V1> is the DB2 subsystem ID.

User response: Specify a DB2 subsystem and restart the Data Server.

FPEV0071I  <V1> COMMAND: <V2>

Explanation: This is the command text processed by the Data Server.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the command entered.

User response: None.

FPEV0072W  <V1> THIS PARAMETER CANNOT BE CHANGED FROM THE CONSOLE

Explanation: None.
  • <V1> is the DB2 subsystem ID.

User response: None.

FPEV0076W  <V1> DB2 INTERFACE IFI READS DID NOT COMPLETE WITHIN <V2> SECONDS

Explanation: None. The Data Server will attempt the READS operation again.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the number of seconds.

User response: None.

FPEV0080I  <V1> DB2 SUBSYSTEM <V2> STOPPED <V3>

Explanation: None.
  • <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
  • <V2> is the DB2 subsystem ID.
  • <V3> is the reason for the DB2 subsystem to stop:
    QUIESCE
      Normal stop of the DB2 subsystem. Current threads can run to completion, and new threads can be allocated to an application that is running.
    FORCE
      Normal stop of the DB2 subsystem. No new threads are allocated, and work on existing threads is rolled back.
    ABTERM
      Abnormal stop of the DB2 subsystem.

User response: None.

FPEV0081I  <V1> DB2 SUBSYSTEM <V2> STARTED

Explanation: None.
  • <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
  • <V2> is the DB2 subsystem ID.

User response: None.

FPEV0093I  <V1> DATA SERVER INTERNAL TRACE STATUS:

Explanation: This message is displayed in response to a DISPLAY command.
  • <V1> is the DB2 subsystem ID.

User response: None.

FPEV0098I  <V1> DATA SERVER TRACE=<V2>

Explanation: This message is displayed in response to a DISPLAY command.
  • <V1> is the DB2 subsystem ID.
  • <V2> is:
    ON The Data Server trace is active.
    OFF The Data Server trace is not active.

User response: None.
If the IBM-supplied user exit routine FPEMUPXT was modified in your installation, this message may be different or missing.

User response: None.

FPEV0102W <V1> PURGE COMMAND ALLOWS SPECIFICATION OF ONE "USER-ID/GROUP-ID" ONLY. ANY ADDITIONAL SPECIFICATION OF "USER-ID/GROUP-ID" IS IGNORED

Explanation: This message is displayed in response to a PURGE command that has failed. The operator has tried to specify more than one USER-ID/GROUP-ID to be purged, but only one is allowed.

User response: Specify only one USER-ID/GROUP-ID.

FPEV0103E <V1> GLOBAL SERVICES MAIN TASK DID NOT RESPOND TO TERMINATION REQUEST

Explanation: When the Data Server was stopped, the global services main task did not end correctly.

User response: None.

FPEV0104E <V1> UAS0 MAIN TASK DID NOT RESPOND TO TERMINATION REQUEST

Explanation: When the Data Server was stopped, the UAS0 main task did not end correctly.

User response: None.

FPEV0105E <V1> UAS0 MAIN TASK DID NOT RESPOND TO TERMINATION REQUEST

Explanation: When the Data Server was stopped, the UAS0 main task did not end correctly.

User response: None.

FPEV0106I <V1> CCP=<V2>

Explanation: This message is displayed in response to a DISPLAY command.

User response: None.
FPEV0107I  

Explanation: This message is displayed in response to a DISPLAY command.

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is the CCP (collect CPU parallelism) data space size in page units.

User response: None.

FPEV0108E  

Explanation: This message is issued in response to a DISPLAY command or during the Data Server startup if `<V1>` is not a data sharing group member. Therefore, the command cannot be executed on DB2 member `<V3>`.  

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is the DB2 command specified when the Data Server was started.
- `<V3>` is the DB2 member in the data sharing group for which the command was executed.

User response: Remove the command from the Data Server startup file, or remove the DB2 member `<V3>` if the command should be executed on a local DB2 subsystem.

FPEV0109I  

Explanation: The DB2 command issued on member `<V3>` has failed.  

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is the DB2 command.
- `<V3>` is the DB2 member in the data sharing group for which the command was executed.
- `<V4>` is the IFI return code.
- `<V5>` is the IFI reason code.

User response: For a more detailed description of the problem, see the DB2 9 Administration Guide.

FPEV0110I  

Explanation: This message is issued in response to a DISPLAY command or during the Data Server startup.  

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is:
  
  **YES** The data sharing group is monitored if the subsystem referenced by `<V1>` is connected to a data sharing group.
  
  **NO** Only the DB2 subsystem `<V1>` is monitored, even if connected to a data sharing group.

User response: None.

FPEV0111I  

Explanation: This message is issued in response to a DISPLAY command or during the Data Server startup.  

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is the DB2 command specified when the Data Server was started.
- `<V3>` is the DB2 member in the data sharing group for which the command was executed (optional).

User response: None.

FPEV0112I  

Explanation:  

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is:
  
  **YES** A user-provided exit is used to restrict the user’s authority to specific areas, for example, statistics data only or thread data only.
  
  **NO** The DB2 security scheme is used to restrict the user’s authority.

User response: None.

FPEV0113S  

Explanation: This message is issued during the Data Server startup if the data collector cannot access the required DB2 plan. It is the result of the following DB2 reason codes:

**00F30034**

DB2 plan authorization failure or plan is not available

**00F30040**

Resource is not available or unknown  

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is the plan name as it was specified in the startup parameter PLANNAME.

User response: Ensure that the Data Server plans are installed and that access is granted to the Data Server user ID.

FPEV0114I  

Explanation: This message is issued during the startup of the PE Server subtask.  

- `<V1>` is the date and the time when the PE Server subtask is compiled.
- `<V2>` is the APAR number of the installed PE Server subtask service level.

User response: None.
FPEV0115I  <V1> - SQLCACHE IS BEING COLLECTED, INTERVAL=<V2> SECONDS

Explanation: This message is issued in response to a DISPLAY command or during the Data Server startup.
• <V1> is the DB2 subsystem ID.
• <V2> is the interval in which this data is gathered by the Data Server.

User response: None.

FPEV0116I  <V1> - DATA SET STATISTICS IS BEING COLLECTED, INTERVAL=<V2> SECONDS

Explanation: This message is issued in response to a DISPLAY command or during the Data Server startup.
• <V1> is the DB2 subsystem ID.
• <V2> is the interval in which this data is gathered by the Data Server.

User response: None.

FPEV0118S  <V1> DB2 <V2> IS NOT SUPPORTED BY THIS VERSION OF OMEGAMON XE DB2 PE.

Explanation: You have tried to monitor a DB2 subsystem version that is not supported by this version of OMEGAMON XE DB2 PE. This can happen if your DB2 version is much older than your OMEGAMON XE DB2 PE version or if your OMEGAMON XE DB2 PE version is older than the DB2 version you want to monitor.
• <V1> is the DB2 subsystem ID.
• <V2> is the DB2 version and release.

User response: Depending on the reason for this message, install a higher OMEGAMON XE DB2 PE version or upgrade your DB2 subsystem.

FPEV0119I  <V1> USER NOT ALLOWED TO EXECUTE OMEGAMON XE DB2 PE OPERATOR COMMANDS. COMMAND CANCELED

Explanation: This is an internal message which is not displayed on the system.

User response: None.

FPEV0121I  <V1> KEYWORD <V2> IS OBSOLETE AND IGNORED, USE <V3> INSTEAD

Explanation: The obsolete keyword <V2> was found in the Data Server parmlib RKD2PAR. The keyword <V3> is used instead.
• <V1> is the DB2 subsystem ID.
• <V2> is the obsolete keyword.
• <V3> is the keyword that is used instead of the one that has become obsolete.

User response: To avoid this message in future, remove the obsolete keyword from the Data Server parmlib. Refer to DB2 Installation Guide manual for further information about keyword <V3>.

FPEV0122I  <V1> - MAXIMUM NUMBER OF PARALLEL SESSIONS=<V2>

Explanation: This message is shown during the Data Server startup or in response to a DISPLAY command. It is ignored.
• <V1> is the DB2 subsystem ID.
• <V2> is the maximum allowed number of simultaneous sessions (APPC and TCP/IP).

User response: None.

FPEV0123I  <V1> SESSION INFORMATION - BEGIN

Explanation: This message is displayed in response to a DISPLAY command.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0124I  <V1> SESSION STATUS UID DETAILS

Explanation: This message is displayed in response to a DISPLAY command. The Data Server was started without support for workstation clients (for example, TCP/IP or APPC).
• <V1> is the DB2 subsystem ID.
• <V2> is the number of the session manager.
• <V3> is the status of the session manager. It can be:
  INACT The session manager is not active.
  TCP/IP-M The client is connected to the session manager via TCP/IP and is using the multi-user mode.
  TCP/IP-S The client is connected to the session manager via TCP/IP and is using the single-user mode.
  APPC-S The client is connected to the session manager via APPC and is using the single-user mode.
  PEND-M The session manager is inactive and waiting for outstanding DB2 responses. The client previously connected was using the multi-user mode.

User response: None.
PEND-S
The session manager is inactive and waiting for outstanding DB2 responses. The client previously connected was using the single-user mode.

• <V4> is the user ID of the connected client.
• <V5> is detailed information about the client connection. It can be:
  IP: xxx.xxx.xxx.xxx:YYYYY
  The client session was established via TCP/IP. xxx.xxx.xxx.xxx is the TCP/IP address of the client and yyyyy the port number of the client.
  LU: xxx
  The client session was established via APPC. xxx is the LU name of the connected client.

User response: None.

FPEV0126I <V1> SESSION INFORMATION - END
Explanation: This message is displayed in response to a DISPLAY command.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV0127I <V1> NO ACTIVE SESSIONS BECAUSE NO COMMUNICATION INTERFACE IS ACTIVE

FPEV0128S <V1> CONNECT TO DB2 FAILED. MONITOR TRACE IS NOT STARTED
Explanation: This message is issued during the Data Server startup because the Monitor trace is not active.
• <V1> is the DB2 subsystem ID.
User response: Issue a DB2 START TRACE command for monitor class 1.

FPEV0129I <V1> PERFORMANCEWAREHOUSE=<V2>
Explanation: This message is issued in response to a DISPLAY command.
• <V1> is the DB2 subsystem ID.
• <V2> is: YES Performance Warehouse is active. NO Performance Warehouse is inactive.
User response: None.

FPEV0130E <V1> DATASERVERHLQ NOT SPECIFIED
Explanation: This message is shown during the Data Collector startup.
• <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
User response: Specify the high-level qualifier for work data sets for the OMEGAMON Collector and the Performance Warehouse function. For further information on how to set up the OMEGAMON Collector, see Installation and Configuration and the Configuration Tool (formerly ICAT) online help.

FPEV0131E PERFORMANCEWAREHOUSE ADDRESSSPACENAME NOT SPECIFIED FOR SERVER INSTANCE <V2>
Explanation: This message is shown during the Data Server startup, if startup parameter PERFORMANCEWAREHOUSE is set, but required startup parameter PERFORMANCEWAREHOUSEADDRESSSPACENAME is missing.
User response: Specify the name for the Performance Warehouse JCL. For further information on how to set up the Data Server for the Performance Warehouse, see Installation and Configuration or the Configuration Tool (formerly ICAT) online help.

FPEV0133I <V1> - PERFORMANCEWAREHOUSE ADDRESSSPACENAME=<V2>

FPEV0134W <V1> PARAMETER <V2> CANNOT BE SPECIFIED AS STARTUP PARAMETER, IT IS IGNORED
Explanation: This message is issued during the Data Server startup, if a parameter was specified that is only accepted as MODIFY command via the system console.
• <V1> is the DB2 subsystem ID.
• <V2> is the parameter you tried to set.
User response: Remove the parameter from the Data Server parmlib RKD2PAR.

FPEV0135W <V1> PERFORMANCEWAREHOUSE IS NOT REQUESTED. THE COMMAND IS IGNORED
Explanation: This message is issued in response to a MODIFY command. You tried to stop the Performance Warehouse function, but this function is already stopped.
• <V1> is the DB2 subsystem ID.
User response: None.
FPEV0136W <V1> PERFORMANCE WAREHOUSE IS ACTIVE. THE COMMAND IS IGNORED

Explanation: This message is issued in response to a MODIFY command. You tried to start the Performance Warehouse function while this function is already active.
  • <V1> is the DB2 subsystem ID.

User response: If you tried to start the Performance Warehouse function in forced mode, stop it first and then restart it in forced mode.

FPEV0137E LICENSE NOT FOUND

Explanation: The license FMID for OMEGAMON XE for DB2 PE is not correctly installed.

User response: If errors occurred during installation, correct them and try to use OMEGAMON XE for DB2 PE again.
If OMEGAMON XE for DB2 PE installed without errors, and you followed the recommended installation and customization procedures, and the problem persists, contact IBM support.

FPEV0140E <V1> <V2> IS TOO SHORT FOR KEYWORD <V3>

Explanation:
  • <V1> is the DB2 subsystem ID.
  • <V2> is the parameter you tried to set.
  • <V3> is the keyword.

User response: Correct the input.

FPEV0141I <V1> - FILE I/O TRACE=<V2>

Explanation: This message is issued in response to a DISPLAY command.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the option (Yes or NO) specified with the command.

User response: None.

FPEV0143I <V1> - DB2C SYSTEM IS BEING COLLECTED, INTERVAL=<V2> SECONDS

Explanation: This message is issued in response to a DISPLAY command or during the Data Server startup.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the interval in which this data is gathered by the Data Server.

User response: None.

FPEV0145I <V1> - DB2C APPLICATION IS BEING COLLECTED, INTERVAL=<V2> SECONDS

Explanation: This message is issued in response to a DISPLAY command or during the Data Server startup.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the interval in which this data is gathered by the Data Server.

User response: None.

FPEV0146I <V1> AUTOMATICAGENTUPDATE =<V2>

Explanation: This message is issued in response to an AUTOMATICAGENTUPDATE command or during the Data Server startup.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the option (Yes or NO) specified with the command.

User response: None.

FPEV0147I <V1> BIND FOR MODULE FPEVWRPA IS MISSING. NO DB2 CONNECT DATA IS COLLECTED

Explanation: This message is issued when access to a Performance Expert DB2 table is intended without proper bind of the corresponding DBRM.
  • <V1> is the DB2 subsystem ID.

User response: Issue the corresponding BIND command or run the corresponding bind job, then restart the Data Server.

FPEV0148E <V1> VALUE EXCEEDS MAXIMUM OF <V2> FOR KEYWORD <V3>

Explanation: None.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the maximum value.
  • <V3> is the keyword.

User response: Correct the input.

FPEV0149I <V1> NO AUTHORITY FOR REQUESTED OPERATION IN DGOVWRPA FOR TABLE DB2PM, PARAMETER NO DB2 CONNECT DATA IS COLLECTED

Explanation: This message is issued when access to a Performance Expert DB2 table is intended and the user does not have sufficient DB2 authority.
  • <V1> is the DB2 subsystem ID.

User response: Grant the required authority to the user.
FPEV0150I  <V1> NO AUTHORITY FOR REQUESTED OPERATION IN DGOVWRPA FOR TABLE DB2PM. HISTORYDATA. NO DB2 CONNECT DATA IS COLLECTED

Explanation:  This message is issued when access to a Performance Expert DB2 table is intended and the user does not have sufficient DB2 authority.
  • <V1> is the DB2 subsystem ID.

User response:  Grant the required authority to the user.

FPEV0151I  <V1> COLLECTING ALSO SYSTEM PARAMETERS DATA FOR HISTORY BECAUSE IT IS REQUIRED FOR ISPF ONLINE MONITOR

Explanation:  None.
  • <V1> is the DB2 subsystem ID.

FPEV0152I  <V1> BIND FOR MODULE FPEVWR2C MISSING. NO DB2 CONNECT DATA IS COLLECTED

Explanation:  This message is issued when access to a Performance Expert DB2 table is intended without proper bind of the corresponding DBRM.
  • <V1> is the DB2 subsystem ID.

User response:  Issue the corresponding BIND command or run the corresponding bind job, then restart the Data Server.

FPEV0153I  <V1> BIND FOR MODULE <V2> MISSING.

Explanation:  This message is issued when access to a Performance Expert DB2 table is intended without proper bind of the corresponding DBRM.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the DBRM name.

User response:  Issue the corresponding BIND command or run the corresponding bind job, then restart the Data Server.

FPEV0154I  <V1> NO AUTHORITY FOR REQUESTED OPERATION IN <V2> FOR TABLE <V3>.

Explanation:  This message is issued when access to a Performance Expert DB2 table is intended and the user does not have sufficient DB2 authority.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the name of the executing module performing the DB2 operation.
  • <V3> is the DB2 table name.

User response:  Grant the required authority to the user.

FPEV0155I  <V1> REQUESTED OPERATION IN <V2> FOR TABLE <V3> FAILED. SQLCODE <V4>.

Explanation:  This message is issued when access to a Performance Expert DB2 table fails and no further specific information can be provided.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the name of the executing module performing the DB2 operation.
  • <V3> is the DB2 table name.
  • <V4> is the SQL code.

User response:  See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the SQL code.

FPEV0157E  <V1> SERVER INSTANCE IS STOPPING BECAUSE OF AN ERROR IN THE DB2 INTERFACE.

Explanation:  The DB2 interface returned errors in response to an essential Data Server request and the Data Server cannot recover automatically. The message is preceded by message FPEV0064I, which displays the corresponding return and reason codes provided by the DB2 interface.

User response:  Take corrective action based on the displayed return and reason codes. Verify that the Data Server is installed and customized correctly. Restart the Data Server. Refer to Installation and Configuration and IBM DB2 9 for z/OS - Messages and Codes for more information.

FPEV0158W  <V1> <V2> DATA SERVER DETECTED HIGH CYCLE TASK USAGE (<F3> %) IN TASK <V4>.

Explanation:  Performance Expert detects high cycle task usage for one of its components.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the local time.
  • <F3> is the detected cycle usage.
  • <V4> is the name of the task.

The OMEGAMON Collector subtask PESERVER periodically monitors the CPU cycle consumption of its subtasks in intervals of one minute. If the CPU cycle consumption of a subtask exceeds an internal threshold value, the server issues message FPEV0158W. The threshold value may vary with situation and subtask. Cycle usage is not percentage usage of total system CPU, but is the percentage usage of the maximum CPU available to that task - typically percentage usage of a single CPU. Additionally, the internal server traces are started and message FPEV0162W is issued. If the cycle consumption of the subtask falls below the threshold within the next sample interval, the internal traces are switched off and normal processing continues. If the CPU consumption of the subtask remains above the threshold within the next sample interval, a dump is
FPEV0159W <V1> <V2> DUMP IS WRITTEN FOR FURTHER ANALYSIS OF HIGH CPU USAGE

Explanation: Performance Expert detects high CPU usage for one of its components and starts to dump data for further analysis. The dump is taken for the second occurrence of high CPU usage. The message is preceded by message FPEV0159W.
• <V1> is the DB2 subsystem ID.
• <V2> is the local time.

User response: Save the dump for further analysis by IBM.

FPEV0160I <V1> <V2> GPR <F3><F4>: 'X, '<V6>'X, '<V7>'X, '<V8>'X

Explanation: Performance Expert detects high CPU usage for one of its components and starts to write the contents of the general purpose registers to the log for further analysis. The message is issued for the second occurrence of high CPU usage. The message is preceded by message FPEV0159W.
• <V1> is the DB2 subsystem ID.
• <V2> is the local time.
• <F3> to <F4> is the range of registers.
• <V5> to <V8> are the register contents.

User response: Save the Performance Expert log (SYSPRINT) for further analysis by IBM.

FPEV0161W <V1> <V2> TASK <V3> WAS RESTARTED DUE TO CONTINUOUS HIGH CPU USAGE.

Explanation: Performance Expert detected high CPU usage for one of its components and the task was stopped and restarted because of continuous high CPU usage. The message is preceded by message FPEV0158W.
• <V1> is the DB2 subsystem ID.
• <V2> is the local time.
• <V3> is the name of the task.

User response: None.

FPEV0162W <V1> <V2> TRACES ARE STARTED FOR FURTHER ANALYSIS OF HIGH SUBTASK USAGE.

Explanation: Performance Expert detects high cycle usage for one of its components and is starting internal traces for further analysis. The message is preceded by message FPEV0158W.
• <V1> is the DB2 subsystem ID.
• <V2> is the local time.
• <V3> is the name of the task.

User response: If this situation occurs regularly with no obvious cause then save the Performance Expert log (SYSPRINT) for further analysis by IBM.

FPEV0163E DATA SERVER IS STOPPING BECAUSE AS COULD NOT BE MADE NONSWAPPABLE

Explanation: During startup of the OMEGAMON Collector, the address space could not be changed to nonswappable.

User response: Contact the system operator. If z/OS should allow to make address space nonswappable, contact IBM support.

FPEV0164I <V1> INSTANCE FOR DB2 SUBSYSTEM <V2> IS STARTING

Explanation: This message is issued during the start of the OMEGAMON Collector, or if a monitored DB2 subsystem is brought online again. The corresponding OMEGAMON Collector parts, monitoring this DB2 subsystem, are being started.
• <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
• <V2> is the DB2 subsystem ID.

User response: None.

FPEV0165I <V1> INSTANCE FOR DB2 SUBSYSTEM <V2> IS STOPPING

Explanation: This message is issued during shutdown of the OMEGAMON Collector, or if a monitored DB2 subsystem is being stopped. The corresponding OMEGAMON Collector parts, monitoring this DB2 subsystem, are being stopped.
• <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
• <V2> is the DB2 subsystem ID.

User response: None.

FPEV0166E <V1> SERVER INSTANCE FOR DB2 SUBSYSTEM <V2> ABENDED. CODE <V3>

Explanation: The server instance for the specified DB2 subsystem failed with the indicated abend code.
• <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
• <V2> is the DB2 subsystem ID.
• <V3> is the MVS abend code.

User response: Contact the system operator and check
the abend code. If it is not a system problem, contact IBM support.

**FPEV0167I** <V1> SERVER INSTANCE FOR DB2 SUBSYSTEM <V2> IS RESTARTED

**Explanation:** The server instance for the specified DB2 subsystem was previously stopped because of an error or abend and is now being restarted.
- <V1> is the DB2 subsystem ID.
- <V2> is the name of the master controller inside the OMEGAMON Collector (MSTR).

**User response:** None.

**FPEV0168E** <V1> SERVER INSTANCE FOR DB2 SUBSYSTEM <V2> IS NOT BEING REATTACHED DUE TO REPEATED ERRORS

**Explanation:** The server instance for the specified DB2 subsystem was previously stopped because of an error or abend and not being restarted because of repeated errors.
- <V1> is the DB2 subsystem ID.
- <V2> is the name of the master controller inside the OMEGAMON Collector (MSTR).

**User response:** Check SYSPRINT of the OMEGAMON Collector for details. Correct the error if possible. Restart the OMEGAMON Collector.

**FPEV0169E** <V1> SERVER INSTANCE FOR DB2 SUBSYSTEM <V2> STOPPED WITH ERROR CODE <V3>

**Explanation:** The server instance for the specified DB2 subsystem has stopped because of errors.
- <V1> is the DB2 subsystem ID.
- <V2> is the name of the master controller inside the OMEGAMON Collector (MSTR).
- <V3> is the reason code.

**User response:** Check SYSPRINT of the job for stop reasons in preceding messages. If possible, correct the error. If the error persists, contact IBM support.

**FPEV0170E** <V1> SERVER INSTANCE FOR DB2 SUBSYSTEM <V2> DID NOT REACT ON TERMINATION REQUEST

**Explanation:** During shutdown of the OMEGAMON Collector, a subtask did not respond to a termination request.
- <V1> is the DB2 subsystem ID.

**User response:** This might be a temporary problem. If the problem recurs at the next server shutdown, contact IBM support.

**FPEV0171E** <V1> DATA SERVER IS OUT OF MEMORY

**Explanation:** The OMEGAMON Collector failed while requesting additional memory. Depending on severity of failed operation, the server might stop.
- <V1> is the unknown DB2 subsystem ID.

**User response:** None.

**FPEV0174E** SPECIFIED DB2 SUBSYSTEM <V1> IS UNKNOWN

**Explanation:** The list of DB2 subsystems to be monitored in the OMEGAMON Collector startup configuration (parameter DB2SSID) contains an unknown DB2 subsystem ID.
- <V1> is the unknown DB2 subsystem ID.

**User response:** Use the Configuration Tool (formerly ICAT) and correct the list of DB2 subsystems to be monitored, then restart the OMEGAMON Collector.

**FPEV0175E** SYSTEM CONSOLE ATTACH FAILED (QEDIT INSTRUCTION)

**Explanation:** During startup of the OMEGAMON Collector, the server could not attach to the z/OS system log.

**User response:** This might be a temporary problem. Restart the server. If the problem persists, contact IBM support.

**FPEV0176E** ISPF OLM RESOURCE MANAGER COULD NOT BE LOADED

**Explanation:** During startup of the OMEGAMON Collector, a module required for controlling access of the ISPF Online Monitor to the server could not be loaded.
- <V1> is the DB2 subsystem ID.

**User response:** This might be a temporary problem. Restart the server. If the problem persists, contact IBM support.

**FPEV0177E** ISPF OLM RESOURCE MANAGER COULD NOT BE UNLOADED

**Explanation:** During shutdown of the OMEGAMON Collector, a module required for controlling access of the ISPF Online Monitor to the server could not be unloaded.
- <V1> is the DB2 subsystem ID.
**User response:** This might be a temporary problem. If the problem recurs at the next server shutdown, contact IBM support.

**FPEV0178E** `<V1>` AUTHORIZATION EXIT DEACTIVATED DUE TO ERROR (CODE `<V2>`)

**Explanation:** During startup of the OMEGAMON Collector, the DB2 user authorization exit (DSN3@ATH) was tested and returned an error. The usage of the authorization exit in OMEGAMON for DB2 PE is deactivated.

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is the return code from the DB2 authorization exit.

**User response:** Verify that the user authorization exit is available to the OMEGAMON Collector (part of the STEPLIB search order of the OMEGAMON Collector JCL) and works properly. Then restart the server.

**FPEV0179E** `<V1>` DATA SERVER IS NOT ALLOWED TO ACCESS DATASET `<V2>`

**Explanation:** The OMEGAMON Collector is not allowed to access the indicated data set. The data set is either the Snapshot History archive or the Exception Log data set.

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is the name of the data set.

**User response:** Grant RACF ALTER privileges to the started task user ID or group ID of the OMEGAMON Collector. Then restart the server.

**FPEV0180E** `<V1>` DATA SERVER IS NOT ALLOWED TO CREATE DATASET, SEE JOB LOG FOR DETAILS

**Explanation:** The OMEGAMON Collector is not allowed to create a data set. The data set is either the Snapshot History archive or the exception event log data set.

- `<V1>` is the DB2 subsystem ID.

**User response:** Check the SYSPRINT output of the OMEGAMON Collector for details about the data set and the problem. Grant RACF ALTER privileges to the started task user ID or group ID of the OMEGAMON Collector and restart the server. Note that, for a nonexistent data set, the privileges must be granted with wildcards.

**FPEV0181E** `<V1>` FOUND HISTORY DATA SET `<V2>` IS NO LINEAR DATA SET (LDS)

**Explanation:** During startup of the OMEGAMON Collector, the existing Snapshot History data set was found as a non-LDS.

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is the name of the Snapshot History data set.

**User response:** Delete or rename the existing data set and restart the OMEGAMON Collector, or, if the data set cannot be deleted or renamed, choose a different high-level qualifier in the Configuration Tool (formerly ICAT) for temporary server data sets.

**FPEV0182E** `<V1>` ERROR IN ACCESSING HISTORY DATA SET `<V2>` (RC/RS 'V3' '<V4>'X)

**Explanation:** Access to the Snapshot History data set failed.

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is the name of the Snapshot History data set.
- `<V3>` is the hexadecimal return code.
- `<V4>` is the hexadecimal reason code.

**User response:** Contact the system operator and check the return and reason codes. The return and reason codes are either returned by Data-in-Virtual (DIV) operations or by SMS. See the appropriate documentation for description of these codes. If the problem is not a system problem, contact IBM support.

**FPEV0183E** `<V1>` FOUND EVENT DATA SET `<V2>` IS NO LINEAR DATA SET (LDS)

**Explanation:** During startup of the OMEGAMON Collector, the existing exception event data set was found as a non-LDS.

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is the name of the exception event data set.

**User response:** Delete or rename the existing data set and restart the OMEGAMON Collector, or, if the data set cannot be deleted or renamed, choose a different high-level qualifier in the Configuration Tool (formerly ICAT) for temporary server data sets.

**FPEV0184E** `<V1>` ERROR IN ACCESSING EVENT DATA SET `<V2>` (RC/RS 'V3' '<V4>'X)

**Explanation:** Access to the exception event data set failed.

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is the name of the exception event data set.
- `<V3>` is the hexadecimal return code.
- `<V4>` is the hexadecimal reason code.

**User response:** Contact the system operator and check the return and reason codes. The return and reason codes are either returned by Data-in-Virtual (DIV) operations or by SMS. See the appropriate documentation for description of these codes. If the problem is not a system problem, contact IBM support.
FPEV0185I  LIST OF MONITORED DB2 SUBSYSTEMS

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup.

- <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).

User response: None.

FPEV0187I  <V1> - <Name> <Status> <Detect> <Level> <Location> <Type> <Dsg> <Lpar>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup. It indicates that the indicated DB2 subsystem was auto-detected at the LPAR and is monitored with limited functionality.

- <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
- <Name> is the DB2 subsystem ID.
- <Status> is the monitoring status of the DB2 subsystem, which can be one of the following:
  - DENIED
    The OMEGAMON Collector started task user ID does not have the required privileges to connect (IDENTIFY) to this DB2 subsystem.
  - DOWN
    The DB2 subsystem is not running.
  - EXCLUDED
    The DB2 subsystem is not running. For other possible reasons check the SYSPRINT for messages that explain why the DB2 subsystem is not monitored.
  - IGNORED
    The version of this DB2 subsystem is not supported. Therefore, this DB2 subsystem cannot be monitored.
  - INITIAL
    The DB2 subsystem is known to the OMEGAMON Collector, but there is neither a connection established nor a monitoring subtask started yet.
  - MONITORED
    The DB2 subsystem is monitored.
  - MONDSG
    The indicated DB2 subsystem is monitored implicitly. The DB2 subsystem is a local member of a data sharing group that is excluded from monitoring (configuration) or it is not configured while AUTODETECT is disabled. The DB2 subsystem is monitored implicitly by another local data sharing group member without starting any additional subtasks for monitoring this DB2 subsystem.

RESTRICT
The DB2 subsystem is known to the OMEGAMON Collector, but the OMEGAMON Collector is not authorized to connect to the DB2 subsystem because the DB2 subsystem is started in restricted access mode (maintenance).

UNKNOWN
The status of the DB2 subsystem cannot be determined for one of the following reasons:

- The DB2 subsystem is a remote member of a data sharing group and no local member of the data sharing group is currently monitored. Therefore, no information about the DB2 subsystem can be obtained.
- The DB2 subsystem is a local member of a data sharing group that is excluded from monitoring (configuration) or it is not configured while AUTODETECT is disabled. This DB2 subsystem can be monitored implicitly by another local data sharing group member without starting additional subtasks for monitoring this DB2 subsystem. If explicit monitoring of all local data sharing group members is stopped, no implicit monitoring is possible, and therefore, no information can be obtained for local and remote members of the data sharing group.

UP
The DB2 subsystem is running, but the subtask that monitors this DB2 subsystem is not yet started.

- <Detect> indicates whether the DB2 subsystem was found by means of auto-detection.
  - Y This DB2 subsystem was auto-detected.
  - N This DB2 subsystem was configured explicitly or is a remote or implicitly monitored data sharing group member.
- <Level> indicates the DB2 version, release, and modification level as a six-digit character string.
- <Location> indicates where the DB2 subsystem is running.

LOCAL
The DB2 subsystem runs in the same LPAR as the OMEGAMON Collector.

REMOTE
The DB2 subsystem is a data sharing group member that does not run on the same LPAR as the OMEGAMON Collector.

- <Type> indicates the type of the DB2 subsystem.
The DB2 subsystem does not run in a data sharing group environment.

The DB2 subsystem is a member of a data sharing group.

- `<Dsg>`: The name of the data sharing group to which this DB2 subsystem belongs.
- `<Lpar>`: Indicates the name of the z/OS system where the member is running or was last running before monitoring stopped.

If the status is DENIED, contact your security administrator and request authority for the OMEGAMON Collector to access this DB2 subsystem.

This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup. It indicates that the specified DB2 subsystem was specified in the list of DB2 subsystems (parameter `DB2SSID`) to be monitored.

- `<V1>`: The name of the master controller inside the OMEGAMON Collector (MSTR).
- `<DB2_ID>`: The DB2 subsystem ID.
- `<Status>`: The monitoring status of the DB2 subsystem.
- `<Detected>`: Indicates whether the DB2 subsystem was found by means of auto-detection.
- `<Location>`: Indicates where the DB2 subsystem is running.
- `<Type>`: Indicates whether the DB2 subsystem is a member of a data sharing group.
- `<Dsg>`: The name of the data sharing group to which this DB2 subsystem belongs.
- `<Lpar>`: The name of the z/OS system where the member is running.

See message FPEV0187I for details.

None.

During startup of the OMEGAMON Collector, the indicated DB2 subsystem dependent parameter was found in the DB2 independent startup member `OMPEMSTR`.

- `<V1>`: The DB2 subsystem ID.
- `<V2>`: The startup parameter.

This can happen if the OMEGAMON Collector startup parameter members were changed manually. Use the Configuration Tool (formerly ICAT) for changing server configuration parameters. If the members have not been changed manually, or the problem occurs even if the Configuration Tool (formerly ICAT) is used, contact IBM support.

Check SYSPRINT for wrong startup parameters. Correct them and restart the server.

The startup parameter data set member for DB2 subsystem independent configuration settings was not found. Either the specified data set `RKD2PAR` does not contain the member `OMPEMSTR`, or the OMEGAMON Collector JCL points to the wrong `RKD2PAR` data set.

- `<V1>`: The DB2 subsystem ID.
- `<V2>`: The startup parameter.

Ensure that the OMEGAMON Collector JCL points to the right `RKD2PAR` data set. If the right data set is used and the problem persists, run the Configuration Tool (formerly ICAT) to generate the configuration member again.
FPEV0193W  <V1> PARAMETER DATA SET COULD NOT BE READ.  SEE JOB LOG FOR DETAILS

Explanation: During startup of the OMEGAMON Collector, the startup data set member RKD2PAR(OMPEMSTR) was found, but could not be read.
•  <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).

User response: Check SYSPRINT of the OMEGAMON Collector started task and correct the error. Restart the OMEGAMON Collector.

FPEV0194S  <V1> PARAMETER DATA SET DDNAME 'RKANPAR' NOT SPECIFIED IN JCL

Explanation: The required DD statement "RKANPAR" for the configuration settings is not specified in the OMEGAMON Collector JCL.
•  <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).

User response: Correct the OMEGAMON Collector JCL and restart the server.

FPEV0195I  <V1> EVENTOBSERVATION=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup and indicates the state of DB2 event observation.
•  <V1> is the DB2 subsystem ID.
•  <V2> is either YES or NO.

User response: None.

FPEV0196I  <V1> EVENTDSEXTENTQUAL=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup. If auto-detection of DB2 subsystems by the OMEGAMON Collector PESERVER subtask is switched off, <V2> is N0, otherwise YES.
•  <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
•  <V2> is either YES or N0.

User response: None.

FPEV0197I  <V1> - DEBUG TRACE=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup.
•  <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
•  <V2> is the DB2 subsystem ID.

User response: None.

FPEV0198I  <V1> AUTO_DETECT=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup. If auto-detection of DB2 subsystems by the OMEGAMON Collector PESERVER subtask is switched off, <V2> is N0, otherwise YES.
•  <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).

User response: None.

FPEV0199I  <V1> - DB2 SUBSYSTEM <V2> ( <V3> ) HAS UNSUPPORTED VERSION

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup, if the detected DB2 subsystem has an unsupported DB2 version and is therefore not monitored.
•  <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
•  <V2> is the name of the monitored DB2 subsystem.
•  <V3> is the version of the monitored DB2 subsystem.

User response: None.

FPEV0200I  <V1> - DB2 SUBSYSTEM <V2> IS NOT FOUND

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup. The indicated DB2 subsystem is not found in the list of DB2 subsystems (parameter DB2SSID).
•  <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
•  <V2> is the name of the DB2 subsystem that is not found.

User response: None.

FPEV0201I  <V1> CURRENT PARAMETERS FOR INSTANCE <V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup.
•  <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
•  <V2> is the DB2 subsystem ID.

User response: None.

FPEV0202I  <V1> - MEMORY TRACE=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup.
•  <V1> is the DB2 subsystem ID.
•  <V2> is the name of the master controller inside the OMEGAMON Collector (MSTR).

User response: None.
FPEV0203W <V1> NO DATA SERVER INSTANCE COULD BE OBTAINED TO MONITOR THE SPECIFIED DB2 SUBSYSTEM <V2>. ALL <V3> AVAILABLE DATA SERVER INSTANCES ARE ALREADY IN USE.

Explanation: More DB2 subsystems are requested to be monitored than supported by the Data Server. The indicated DB2 subsystem will not be monitored.
- <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
- <V2> is the DB2 subsystem ID of the subsystem that is not being monitored.
- <V3> is the number of maximum available Data Server instances.

User response: Reduce the number of DB2 subsystems specified in the master startup data set member RKD2PAR(OMPEMSTR). Stop and restart the Data Server using the MODIFY command.

FPEV0204I <V1> AUTOEXCPTRANAME=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup, if auto-exception processing is specified.
- <V1> is the DB2 subsystem ID.
- <V2> is the name of the threshold definition data set that is used for auto-exception processing.

User response: None.

FPEV0205I <V1> - AUTOEXCPUSER=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup, if auto-exception processing is specified.
- <V1> is the DB2 subsystem ID.
- <V2> is the user ID for which auto-exception processing is started.

User response: None.

FPEV0206I <V1> - AUTOEXCPPERIOD=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup, if auto-exception processing is specified.
- <V1> is the DB2 subsystem ID.
- <V2> is the interval (in seconds) at which the server is checking for threshold violations.

User response: None.

FPEV0207I <V1> - AUTOEXCPEXIT=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup, if auto-exception processing is specified.
- <V1> is the DB2 subsystem ID.
- <V2>
  - NO: Exception exit for auto-exception processing is disabled.
  - YES: Exception exit for auto-exception processing is enabled.

User response: None.

FPEV0208I <V1> - AUTOEXCPFILE=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup, if auto-exception processing is specified.
- <V1> is the DB2 subsystem ID.
- <V2>– NO: Exception are not written to a file data set.
  - YES: Exceptions are written in raw DB2 format to the specified file data set.

User response: None.

FPEV0209I <V1> - AUTOEXCPFILENAME=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup, if auto-exception processing is specified.
- <V1> is the DB2 subsystem ID.
- <V2>– NO: Exception are not written to a LOG data set.
  - YES: Exceptions are written in log format to the specified LOG data set.

User response: None.

FPEV0210I <V1> - AUTOEXCPFILEDISP=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup, if auto-exception processing is specified.
- <V1> is the DB2 subsystem ID.
- <V2> is the disposition of the file data set for auto-exception processing (MOD or OLD).

User response: None.

FPEV0211I <V1> - AUTOEXCPLOG=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup, if auto-exception processing is specified.
- <V1> is the DB2 subsystem ID.
- <V2>– NO: Exception are not written to a LOG data set.
  - YES: Exceptions are written in log format to the specified LOG data set.

User response: None.
FPEV0212I  •  FPEV0222E

FPEV0212I  <V1> - AUTOEXCPLOGNAME=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup, if auto-exception processing is specified.
• <V1> is the DB2 subsystem ID.
• <V2> is the name of the LOG data set to which detected exceptions for auto-exception processing are written in log format.

User response: None.

FPEV0213I  <V1> - AUTOEXCPLOGDISP=<V2>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup, if auto-exception processing is specified.
• <V1> is the DB2 subsystem ID.
• <V2> is the disposition of the LOG data set for auto-exception processing (MOD or OLD).

User response: None.

FPEV0214W  USER AUTHORIZATION CHECK FOR USER <V2> FAILED (RC <V3>, RS '<V4>'). LOGON REJECTED.

Explanation: Necessary operations during verification of a user logon from the PE Client failed.
• <V1> is the DB2 subsystem ID.
• <V2> is the user ID of the user that tried to log on.
• <V3> is the return code of the failing operation.
• <V4> is the reason code of the failing operation.

User response: This might be a temporary problem. Retry the operation. If problem persists, please contact IBM support.

FPEV0215W  DATA SERVER MASTER ALREADY STARTED.

Explanation: A command was issued to start a Data Server that is already up and running. The command is ignored.
• <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).

User response: Contact IBM support.

FPEV0217I  <V1> BIND FOR MODULE FPEVWRP2 MISSING. NO DB2 CONNECT DATA COLLECTING.

FPEV0218I  <V1> NO AUTHORITY FOR REQ OP IN DGOWWRP2 FOR TABLE DB2PM.HISTORYDATA. NO DB2 CONNECT DATA COLLECTING.

FPEV0219I  <V1> NO AUTHORITY FOR REQ OP IN DGOWWRP2 FOR TABLE DB2PM.PARAMETER. NO DB2 CONNECT DATA COLLECTING.

FPEV0220W  <V1> COMMAND FAILED. THE SPECIFIED DB2 SUBSYSTEM <V2> IS NOT RECOGNIZED BY THE DATA SERVER.

Explanation: The subtask command issued to the Performance Expert Server subtask (PESERVER) failed because the specified identifier of the DB2 subsystem is not recognized by the PE Server subtask.
• <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
• <V2> is the DB2 subsystem identifier.

User response: Verify that the specified DB2 subsystem exists and that the DB2 subsystem identifier is spelled correctly in the command string. Correct and reissue the command.

FPEV0221W  <V1> COMMAND FAILED. THE DATA SERVER INSTANCE FOR THE SPECIFIED DB2 SUBSYSTEM <V2> IS NOT RUNNING.

Explanation: The subtask command issued to the PE Server subtask (PESERVER) failed because the server instance for the specified DB2 subsystem is not running.

Possible reasons that the server instance failed include the following:
• the PE Server subtask was not started because the Data Server is not configured to start monitoring for the specified DB2 subsystem.
• the PE Server subtask terminated because the DB2 subsystem terminated.
• the PE Server subtask ended abnormally.

<V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
• <V2> is the DB2 subsystem identifier.

User response: Verify that the PE Server subtask is configured to monitor the specified DB2 subsystem and that the DB2 subsystem is running. Restart the PE Server subtask and reissue the command.

FPEV0222E  <V1> RRSAF LOAD FAILED. RC=<V2> RS=<V3>

Explanation: Loading of the Resource Recovery Services Attachment Facility (RRSAF) modules failed.
• <V1> is the DB2 subsystem ID.
• <V2> is the return code.
• <V3> is the reason code.
User response: Ensure that the RRSAF modules are present and running or that they can be located in the normal search sequence.

FPEV0223E <V1> RRSAF-IDENTIFY REQUEST FAILED FOR DB2 SUBSYSTEM <V2>. RC= <V3> RS= <V4>

Explanation: The PE server issued an RRSAF - 'IDENTIFY' request. This request failed because RR/MVS was not active or the DB2 subsystem was not attached to RR/MVS.
• <V1> is the originator of the message.
• <V2> is the DB2 subsystem ID.
• <V3> is the DB2 return code.
• <V4> is the DB2 reason code.

User response:
• If RR/MVS is not started, start RR/MVS and restart the OMEGAMON Collector started task.
• If RR/MVS is started, restart the OMEGAMON Collector started task or use the MODIFY command to manually start the PE Server subtask for the DB2 subsystem reported in this error message.

FPEV0224I <V1> INSTANCE FOR DB2 SUBSYSTEM <V2> STOPPED

Explanation: The OMEGAMON Collector components that monitor the indicated DB2 subsystem have been stopped.
• <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
• <V2> is the DB2 subsystem ID.

User response: None.

FPEV0240I <V1> CURRENT PARAMETERS FOR NON-VSAM WORK DATASETS

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup.
• <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).

User response: None.

FPEV0241I <V1> CURRENT PARAMETERS FOR VSAM WORK DATASETS

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup.
• <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).

User response: None.

FPEV0242I <V1> • <V2>=<V3>

Explanation: This message is issued in response to a DISPLAY command or during OMEGAMON Collector startup.
• <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
• <V2> is a parameter keyword.
• <V3> is the parameter value.

User response: None.

FPEV0243I <V1> COMMAND IGNORED. THE PE SERVER SUBTASK FOR DB2 SUBSYSTEM <V2> HAS ALREADY BEEN STARTED.

Explanation: A PE Server subtask has already been started and is monitoring this DB2 subsystem, The subsequent command issued to start the PE Server subtask for this DB2 subsystem again is ignored.
• <V1> is the name of the master controller inside the OMEGAMON Collector (MSTR).
• <V2> is the DB2 subsystem ID.

User response: None.

FPEV0250I <V1> EXCEPTION EVENT IFI ERROR. IFI RC <V2>, REASON <V3>

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the IFI return code.
• <V3> is the IFI reason code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.

FPEV0252I <V1> EXCEPTION EVENT TRACES NOT STARTED

Explanation: No traces have been requested using the EXCEPTIONEVENT command.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0254W <V1> EXCEPTION EVENT DIV <V2> ERROR. RC <V3>-<V4>

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the DIV service.
• <V3> is the return code.
• <V4> is the reason code.

User response: See z/OS MVS Programming: Authorized Assembler Services Reference for an explanation of the return and reason codes.
FPEV0255I  <V1> EXCEPTION EVENT RECOVERY
DATA SET WRAPPED

Explanation: This message is issued whenever the Exception Event begins to write the data set from the beginning of the physical data set.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0256I  <V1> EXCEPTION EVENT WAITING
FOR DB2 INITIALIZATION

Explanation: DB2 has not completed initialization.
• <V1> is the DB2 subsystem ID.

User response: Start DB2 if it has not already been started.

FPEV0258I  <V1> RRSAF ERROR WHEN
EXCEPTION EVENT ATTEMPTED TO
CONNECT TO DB2. RC <V2>,
REASON <V3>

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the IFI return code.
• <V3> is the IFI reason code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.

FPEV0259I  <V1> RRSAF ERROR WHEN
EXCEPTION EVENT ATTEMPTED TO
DISCONNECT FROM DB2. RC <V2>,
REASON <V3>

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the IFI return code.
• <V3> is the IFI reason code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes.

FPEV0261I  <V1> AUTOMATIC EXCP STARTED

Explanation: None.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0262W  <V1> AUTOMATIC EXCP STARTED
WITH ERRORS

Explanation: None.
• <V1> is the DB2 subsystem ID.

User response: See the job log or SYSPRINT for accompanying messages and respective user actions.

FPEV0263E  <V1> AUTOMATIC EXCP NOT
STARTED - NO VALID THRESHOLD
RECORDS

Explanation: None.
• <V1> is the DB2 subsystem ID.

User response: See the job log or SYSPRINT for accompanying messages and respective user actions.

FPEV0264E  <V1> MISSING FILE DATA SET NAME
FOR AUTOMATIC EXCP ON SERVER
INSTANCE <V2>

Explanation: None.
• <V1> is the DB2 subsystem ID.

User response: Specify a data set associated with the AUTOEXCPFILENAME parameter in the subsystem startup data set member (RKD2PAR).

FPEV0266I  <V1> EXCEPTION PROCESSING
DIAGNOSTIC DATA: RA
PRESERVED FOR LATER USE

Explanation: The return area (RA) will be reused for the next DB2 IFI request.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0267E  <V1> PERIODIC EXCEPTION LOG
DATA SET <V2> HAS WRONG
SETTINGS. SETTINGS FOUND:
RECFM = <V3>, LRECL = <V4>

Explanation: The Periodic Exception Log data set was allocated incorrectly.
• <V1> is the DB2 subsystem ID.
• <V2> is the data set name.
• <V3> is the record format.
• <V4> is the record length.
FPEV0269E <V1> PERIODIC EXCEPTION FILE DATA SET <V2> HAS WRONG SETTINGS. SETTINGS FOUND: RECFM = <V3>, LRECL = <V4>. PERIODIC EXCEPTION LOG data set using the correct attributes.

Explanation: The Periodic Exception File data set was allocated incorrectly.

User response: Reallocate the Periodic Exception File data set using the correct attributes.

RECFM
VB
LRECL ≥512

FPEV0270E <V1> PERIODIC EXCEPTION THRESHOLD DATA SET <V2> HAS WRONG SETTINGS. SETTINGS FOUND: RECFM = <V3>, LRECL = <V4>. PERIODIC EXCEPTION PROCESSING NOT STARTED.

Explanation: The Periodic Exception Threshold data set was allocated incorrectly.

User response: Reallocate the Periodic Exception File data set using the correct attributes.

RECFM
VB
LRECL ≥32756

FPEV0271W <V1> THE FOLLOWING MODIFY COMMAND IS NOT ALLOWED:<V2>

Explanation: The private member configuration is not present for the indicated DB2 subsystem. No Modify commands are allowed. Only Display commands are allowed.

User response: Configure the DB2 subsystem with the Configuration Tool (formerly ICAT).

FPEV0273E <V1> PARAMETER DATASET MEMBER <V2> NOT FOUND. MONITORING FOR DB2 SUBSYSTEM <V3> IS ENABLED WITH LIMITED FUNCTIONALITY

Explanation: During OMEGAMON Collector startup a DB2 subsystem was automatically detected and a PE Server subtask was started to monitor the DB2 subsystem. The corresponding parameter dataset member could not be found. Monitoring for the DB2 subsystem is enabled with limited functionality. Only real-time monitoring without DB2 Connect monitoring is supported.

User response: None, if real-time monitoring with limited functionality is acceptable. Otherwise, configure the indicated DB2 subsystem with the Configuration Tool (formerly ICAT), complete the configuration and restart the OMEGAMON Collector.

FPEV0274E <V1> PARAMETER DATASET MEMBER <V2> NOT FOUND. MONITORING FOR DB2 SUBSYSTEM <V3> IS DISABLED

Explanation: During OMEGAMON Collector startup a PE Server subtask was started to monitor a configured DB2 subsystem, or a Modify command was issued to explicitly start a PE Server subtask. The corresponding parameter dataset member could not be found for a configured DB2 subsystem. The configuration of the OMEGAMON Collector is not complete. Monitoring for the DB2 subsystem is disabled.

User response: Configure the indicated DB2 subsystem with the Configuration Tool (formerly ICAT), complete the configuration and restart the OMEGAMON Collector.

FPEV0275E <V1> ERROR WHEN PREPARING PE SERVER SUBTASK. MONITORING FOR DB2 SUBSYSTEM <V2> IS DISABLED

Explanation: During OMEGAMON Collector startup the preparation for the attach of a PE Server subtask failed. Monitoring for the DB2 subsystem is disabled.

User response: None, if real-time monitoring with limited functionality is acceptable. Otherwise, configure the indicated DB2 subsystem with the Configuration Tool (formerly ICAT), complete the configuration and restart the OMEGAMON Collector.
FPEV0303S • FPEV0409I

User response: Check the job log for preceding error messages, correct the reported errors and restart the OMEGAMON Collector.

FPEV0303S <V1> DATA MANAGER DIV <V2> ERROR. RC <V3> <V4>

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the DIV service.
• <V3> is the return code.
• <V4> is the reason code.

User response: See MVS Messages and Codes for an explanation of the return and reason codes. Check the log for preceding messages or abend codes. If the problem cannot be corrected and recurs, contact IBM support.

FPEV0400I <V1> USER MANAGER TASK STARTED

Explanation: None.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0401I <V1> USER MANAGER TASK ENDED

Explanation: None.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0402E <V1> EXCEPTION EVENT TASK TERMINATED. RC <V2>

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the return code.

User response: Check the log for preceding messages or abend codes. If the problem cannot be corrected and recurs, contact IBM support.

FPEV0403E <V1> EXCEPTION EVENT TASK ERROR. RC <V2>

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the return code.

User response: Check the log for preceding messages or abend codes. If the problem cannot be corrected and recurs, contact IBM support.

FPEV0404E <V1> EXCEPTION EVENT TASK DID NOT RESPOND TO TERMINATION REQUEST

Explanation: None.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0405E <V1> CONNECTION BY USER <V2> FAILED, NO AUTHORITIES FOUND

Explanation: The user must have MONITOR1 or MONITOR2 privileges to use the online monitor.

If external security (RACF) is used to secure DB2 resources, the user or assigned group does not have read access for the corresponding profiles. If DB2 internal security is used to secure DB2 resources, no corresponding entry for the user or assigned group exists in SYSIBM.SYSUSERAUTH.
• <V1> is the DB2 subsystem ID.
• <V2> is the user ID.

System action: The PE Server subtask does not support monitoring for the unauthorized user ID.

User response: Grant the required authority to the user or a group the user is assigned to. Refer to Installation and Configuration.

FPEV0406E <V1> CONNECTION BY USER <V2> FAILED DUE TO SQL ERROR <V3> <V4>

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the user ID.
• <V3> is either - or blank.
• <V4> is the SQL error code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the SQL code.

FPEV0408E <V1> PERIODIC EXCEPTION TASK FOR USER <V2> DID NOT RESPOND TO TERMINATION REQUEST

Explanation: The user requested termination of periodic exception, but the task did not respond to the termination request. The periodic exception task can be forced to be terminated by stopping the Data Server subtask.
• <V1> is the DB2 subsystem ID.
• <V2> is the user ID.

User response: Stop and restart the Data Server subtask using the MODIFY command.

FPEV0409I <V1> PERIODIC EXCEPTION PROCESSING TASK STARTED FOR USER <V2>

Explanation: The periodic exception task started for the user who requested periodic exception processing.
• <V1> is the DB2 subsystem ID.
• <V2> is the user ID.

User response: None.
FPEV0410I <V1> PERIODIC EXCEPTION PROCESSING TASK STOPPING FOR USER <V2>.

Explanation: The periodic exception task stopped for the user who requested the termination of periodic exception processing.
• <V1> is the DB2 subsystem ID.
• <V2> is the user ID.
User response: None.

FPEV0411W <V1> PERIODIC EXCEPTION TASK DID NOT RESPOND TO DEACTIVATION REQUEST.

Explanation: A periodic exception task continues monitoring threshold exceptions although a user requested to stop periodic exception processing.
• <V1> is the DB2 subsystem ID.
User response: Retry to deactivate periodic exception processing. If the problem persists, terminate periodic exception processing.

FPEV0412I <V1> PERIODIC EXCEPTION PROCESSING DEACTIVATED FOR USER <V2>.

Explanation: A periodic exception task discontinued to monitor threshold exceptions for the user who requested to stop periodic exception processing.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV0413I <V1> PERIODIC EXCEPTION PROCESSING ACTIVATED FOR USER <V2>.

Explanation: A periodic exception task started to monitor threshold exceptions for the user who requested to start periodic exception processing.
• <V1> is the DB2 subsystem ID.
• <V2> is the user ID.
User response: None.

FPEV0414I <V1> THRESHOLD DATA SET FOR USER <V2> CAUSED PARSE WARNINGS. WARNING: <V3>, COUNTER: '<V4>'X

Explanation: A periodic exception task was requested to monitor a given set of thresholds and the specified threshold set contains counters that are not supported by periodic exception processing.
• <V1> is the DB2 subsystem ID.
• <V2> is the user ID.
• <V3> is the reason for the error.
• <V4> is the identifier for the counter.
User response: Correct the provided threshold set and retry.

FPEV0415I <V1> DUMP FOR THRESHOLD SET IS WRITTEN FOR FURTHER ANALYSIS. DIAGNOSTICS: TABLE ADDR <F2>, TABLE COUNT <F3>.

Explanation: The periodic exception task detected an error in the provided threshold set and starts to dump data for further analysis. The message is preceded by message FPEV0414I.
• <V1> is the DB2 subsystem ID.
• <F2> is the user ID.
• <F3> is the reason for the error.
User response: Save the Performance Expert log (SYSPRINT) and dump for further analysis by IBM. Correct the provided threshold set and retry.

FPEV0416E <V1> EXCEPTION PROCESSING USER EXIT MODULE <V2> NOT FOUND. EXIT DISABLED

Explanation: The indicated module was not found when the exception processing user exit was called.
• <V1> is the DB2 subsystem ID (DB2SSID).
• <V2> is the name of the module.
User response: Try to retrieve and replace the indicated module from a backup version, or contact IBM support.

FPEV0417E <V1> SPECIFIED EXCEPTION LOG DATA SET '<V2>' COULD NOT BE ACCESSED. SEE JOB LOG FOR DETAILS

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the name of the Exception Log data set.
User response: Specify a data set that exists and is accessible.

FPEV0418E <V1> SPECIFIED EXCEPTION FILE DATA SET '<V2>' COULD NOT BE ACCESSED. SEE JOB LOG FOR DETAILS

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the name of the Exception File data set.
User response: Specify a data set that exists and is accessible.

FPEV0419E <V1> SPECIFIED EXCEPTION THRESHOLD DATA SET '<V2>' COULD NOT BE ACCESSED. SEE JOB LOG FOR DETAILS

Chapter 9. Messages 5013
Explanation: None.

- `<V1>` is the DB2 subsystem ID.
- `<V2>` is the name of the exception threshold data set.

User response: Specify a data set that exists and is accessible.

FPEV0450I  INITIALIZING COMMON SERVICES
Explanation: An informational message.

FPEV0451I  SUBSCRIBING COMMON SERVICES
Explanation: An informational message.

FPEV0452I  TERMINATING COMMON SERVICES
Explanation: An informational message.

FPEV0453I  UNSUBSCRIBING COMMON SERVICES
Explanation: An informational message.

FPEV0454I  COMMON SERVICES PARTIALLY TERMINATED
Explanation: An informational message.

FPEV0455S  COMMON SERVICES INITIALIZATION FAILED
Explanation: A fatal error has occurred.
User response: Contact IBM support.

FPEV0503W  `<V1>` SIZE OF HISTORY DATA SET IS CHANGED TO `<V2>` BECAUSE SPACE ALLOCATION REQUEST COULD NOT BE FULLY ACCOMPLISHED.
Explanation: DADSM EXTEND processing tried to allocate the next extent for the history data set but this request could not be accomplished.
- `<V1>` is the DB2 subsystem ID.
- `<V2>` is the new maximum number of 4 KB-pages of the history data set. The new value is less than the value that is specified in the SHDATASETSIZE startup parameter for the Data Server.

Check the SYSLOG data set and locate the FPEV0503W message. It should be accompanied by the system message FPEV0501W rc-ccc, ..., where rc is the reason code and ccc is the Problem Determination Function (PDF) code. These codes will help to identify the cause of the problem. Examples for rc-ccc are:
- 204-211 means the maximum number of extents has been reached because of a lack of space or space fragmentation problem
- 194-204 means no more volumes are available on which to allocate space.

User response: It is recommended that you reallocate the history data set to permit allocation of as many pages as are specified in the SHDATASETSIZE startup parameter. You might have to perform space defragmentation or use a separate storage class before the reallocation. To reallocate the history data set, perform the following:
1. Stop the OMEGAMON Collector started task.
2. Delete the VSAM cluster of the history data set by using the DELETE command of the IDCAMS utility.
3. Define the cluster by using the DEFINE CLUSTER command of the IDCAMS utility. Use the parameters VOLUMES, STORAGECLASS if an enormous quantity of space is supposed to be allocated.

FPEV0504W  `<V1>` HISTORY DATA SET IS NOT PRESENT
Explanation: None.
- `<V1>` is the DB2 subsystem ID.

User response: Either create a history data set or remove the SHDATASETSIZE parameter using the Configuration Tool (formerly ICAT).

FPEV0505W  `<V1>` HISTORY MANAGER NOT COLLECTING DATA
Explanation: History Manager is not collecting data for the Db2 subsystem `<V1>` shown in the message.
User response: Check the log for preceding messages.

Note: If history data is not being collected for the Db2 subsystem indicated in the message, you can disregard message FPEV0505W.

FPEV0507I  `<V1>` HISTORY MANAGER TASK STARTED
Explanation: The snapshot history for the identified DB2 subsystem is successfully initialized.
- `<V1>` is the DB2 subsystem ID.

User response: None.

FPEV0508I  `<V1>` HISTORY MANAGER TASK ENDED
Explanation: None.
- `<V1>` is the DB2 subsystem ID.

User response: None.

FPEV0509I  `<V1>` INITIALIZING HISTORY INDEX FROM HISTORY DATA SET
Explanation: None.
- `<V1>` is the DB2 subsystem ID.

User response: None.
FPEV0511I  

<V1> HISTORY DATA SET WRAPPED,  
<V2> INTERVALS STORED

Explanation: The history data exceeded the size of the history data set. The history data set was therefore wrapped. New history data will overwrite the earliest history data stored in the data set.  
• <V1> is the DB2 subsystem ID.  
• <V2> is the number of intervals (logical snapshots) stored when the history data set gets wrapped.  

User response: None.

FPEV0513W  

<V1> RETURN AREA LARGER THAN DATA SET, SOME HISTORY DATA LOST

Explanation: The amount of data returned from DB2 for a particular history interval was larger than the allocated size of the history data set, and was lost.  
• <V1> is the DB2 subsystem ID.  

User response: If the problem occurs frequently, use the Configuration Tool (formerly ICAT) and set the SHDATASETSIZE startup parameter to a larger value to allocate a larger history data set.

FPEV0515W  

<V1> HISTORY DATA SET SIZE CHANGED TO <V2> PAGES

Explanation: The history data set cannot be made smaller than the space already used.  
• <V1> is the DB2 subsystem ID.  
• <V2> is the new maximum size of the history data set.  

User response: None.

FPEV0518S  

<V1> HISTORY MANAGER TASK TERMINATED

Explanation: None.  
• <V1> is the DB2 subsystem ID.  

User response: If history manager restart fails, restart the Data Server. If the problem recurs, contact IBM support.

FPEV0519S  

<V1> ERROR OCCURRED DURING HISTORY INDEX INITIALIZATION

Explanation: Some or all of the history data set has been corrupted.  
• <V1> is the DB2 subsystem ID.  

User response: Reallocate the history data set using the Configuration Tool (formerly ICAT)-generated job, changing its size to correspond with the value specified in the SHDATASETSIZE startup parameter. If the problem recurs, contact IBM support.

FPEV0520W  

<V1> HISTORY MANAGER WAITING FOR DB2 INTERFACE INITIALIZATION

Explanation: Either DB2 has not started or the Monitor trace is not active.  
• <V1> is the DB2 subsystem ID.  

User response: Start DB2 and the Monitor trace.

FPEV0521I  

<V1> HISTORY MANAGER COLLECTING DATA

Explanation: None.  
• <V1> is the DB2 subsystem ID.  

User response: None.

FPEV0522I  

<V1> HISTORY DATA SET SIZE IS TOO SMALL

Explanation: The OMEGAMON Collector detected that the size of the history data set, specified in the SHDATASETSIZE startup parameter, is too small to store even two logical snapshots (intervals). The message continues to be repeatedly issued, and an entry is written to the OMEGAMON Collector SYSPRINT log, each time after one current interval is stored. When further storing is not possible because of the size limitation, the History Manager task stops to avoid a corruption of the data and indexes in the history data set.  
• <V1> is the DB2 subsystem ID.  

User response: Use the Configuration Tool (formerly ICAT) and increase the SHDATASETSIZE startup parameter value to a reasonable size, based on the recommendations given in Installation and Configuration and the statistics provided by message FPEV0511I. Reallocate the history data set, changing its size so that it corresponds with the value specified in SHDATASETSIZE.

FPEV0523W  

<V1> INTERNAL BUFFER OVERFLOW OCCURRED DURING PROCESSING OF DB2 CONNECT DATA. RC <V2>, REASON <V3>

Explanation: The History Manager detected that one of its internal buffers was too small to hold current DB2 Connect data. As a result, part of the DB2 Connect data was not processed.  
• <V1> is the DB2 subsystem ID.  
• <V2> is the return code.  
• <V3> is the reason code.  

User response: If this error occurs, it is recommended that you contact IBM support. Proceed as follows:  
1. Stop the OMEGAMON Collector.  
2. Collect the data outlined in “When you contact IBM support” on page 4852. Ensure that you save the history data, using the IDCAMS REPRO function. If
you need assistance with the IDCAMS REPRO function, contact IBM support.

3. Restart the OMEGAMON Collector.

FPEV0552S <V1> HISTORY MANAGER DIV <V2> ERROR. RC <V3><V4>

Explanation: There is a problem with the history data set.
• <V1> is the DB2 subsystem ID.
• <V2> is the DIV function requested.
• <V3> is the return code.
• <V4> is the reason code.

User response: See z/OS MVS Programming: Authorized Assembler Services Reference for an explanation of the return and reason codes. Check the log for preceding messages or abend codes. If the problem persists, contact IBM support.

FPEV0553W <V1> DB2 REPORTED IFI ERROR (RC <V2>, RS <V3>). CURRENT HISTORY SNAPSHOT DOES NOT CONTAIN ALL DATA FOR THIS DB2

Explanation: The History Manager requested data from DB2 and detected an IFI error. If data has been returned by DB2, it is saved to the History data set or History data space, but it does not contain all requested data.
• <V1> is the DB2 subsystem ID.
• <V2> is the IFI return code.
• <V3> is the IFI reason code.

User response: Check the status of DB2 and correct the DB2 problem. See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes. If the problem persists, contact IBM support.

FPEV0555W <V1> DB2 REPORTED INACTIVE MONITOR TRACE. CURRENT HISTORY SNAPSHOT NOT SAVED. ISSUE "START TRACE(MON)" COMMAND

Explanation: The History Manager requested data from DB2 and detected that Monitor trace is not active. An active Monitor trace is necessary to receive performance data for History. No data was saved to the History data set or History data space.
• <V1> is the DB2 subsystem ID.

User response: Issue the DB2 command START TRACE(MON) manually. If the problem persists, stop the traces on the member and restart Monitor trace. If the problem persists, contact IBM support.

FPEV0559I <V1> HISTORY MANAGER RETURN AREA TOO SMALL. DATA TRUNCATED

Explanation: The Performance Expert DB2 IFI return area is not large enough to store all the returned DB2 data for a history manager IFI READS request. Some data got lost. This can happen if you are requesting a data sharing group wide snapshot of the whole data sharing group for history saving.
• <V1> is the DB2 subsystem ID.

User response: None required. However, you can limit the amount of data requested from DB2 by using the Configuration Tool (formerly ICAT) and specifying one or more history qualifiers (HQx) as Data Server startup parameters. For example, the specification of HQ1=(PL=CICS*,PL=MANUFACT,PL=HR*) invokes multiple IFI READS requests. However, depending on the number of history qualifiers (HQx) and how you specify them, a thread can match more than one qualification, multiple thread data can be collected, and problems can occur when past data is viewed.

FPEV0560E <V1> DB2 RETURNED INCORRECT DATA, REQUEST CANCELED

Explanation: Incorrect READS data was found, so the request to retrieve data was canceled.
• <V1> is the DB2 subsystem ID.

User response: If the error recurs, trace the problem using the Data Server trace (tracelevel=36) and contact IBM support. Keep the archived SVC dump titled INCORRECT RA - DB2I and all JES outputs of OMEGAMON Collector Started Task for further analysis by IBM support.

FPEV0561E <V1> DB2 MEMBER <V2> IS TEMPORARILY OUT OF MEMORY (RS <V3>). CURRENT HISTORY SNAPSHOT DOES NOT CONTAIN ALL DATA FOR THIS MEMBER

Explanation: The History Manager requested group scope data from DB2 and detected that member <V2> is temporarily out of memory (DB2 IFI code <V3>). The data is saved to the History data set or History data space, but it does not contain data for all group members.
• <V1> is the DB2 subsystem ID.
• <V2> is the DB2 member in this group reporting the problem.
• <V3> is the DB2 IFI reason code.

User response: Check the status of DB2 group member <V2> in this group and correct the DB2 problem. See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes. If the problem persists, contact IBM support.
FPEV0562E  <V1>  DB2 IS TEMPORARILY OUT OF MEMORY (RS <V2>). CURRENT HISTORY SNAPSHOT DOES NOT CONTAIN ALL DATA FOR THIS DB2

Explanation:  The History Manager requested data from DB2 and detected that this DB2 subsystem is temporarily out of memory. If data has been returned by DB2, it is saved to the History data set or History data space, but it does not contain all requested data.
- <V1> is the DB2 subsystem ID.
- <V2> is the DB2 IFI reason code.

User response:  Check the status of DB2 subsystem and correct the DB2 problem. See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the reason code. If the problem persists, contact IBM support.

FPEV0563E  <V1>  DB2 MEMBER <V2> REPORTED AN INTERNAL ABEND (RS <V3>). CURRENT HISTORY SNAPSHOT DOES NOT CONTAIN ALL DATA FOR THIS MEMBER

Explanation:  The History Manager requested group scope data from DB2 and detected an internal abend in member <V2>. The data is saved to the History data set or History data space, but it does not contain data for all group members.
- <V1> is the DB2 subsystem ID.
- <V2> is the DB2 member in this group reporting the problem.
- <V3> is the DB2 IFI reason code.

User response:  Contact IBM support. See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the reason code.

FPEV0564E  <V1>  DB2 REPORTED AN INTERNAL ABEND (RS <V2>). CURRENT HISTORY SNAPSHOT DOES NOT CONTAIN ALL DATA FOR THIS DB2

Explanation:  The History Manager requested data from DB2 and detected an internal abend in DB2. If data has been returned by DB2, it is saved to the History data set or History data space, but it does not contain all requested data.
- <V1> is the DB2 subsystem ID.
- <V2> is the DB2 IFI reason code.

User response:  Contact IBM support. See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the reason code.

FPEV0565E  <V1>  DB2 MEMBER <V2> REPORTED AN UNEXPECTED CONDITION (RS <V3>). CURRENT HISTORY SNAPSHOT DOES NOT CONTAIN ALL DATA FOR THIS MEMBER

Explanation:  The History Manager requested group scope data from DB2, and DB2 itself detected an unexpected condition within DB2. The data is saved to the History data set or History data space, but it does not contain data for all group members.
- <V1> is the DB2 subsystem ID.
- <V2> is the DB2 member in this group reporting the problem.
- <V3> is the DB2 IFI reason code.

User response:  Check the status of DB2 group member <V2> in this group and correct the DB2 problem. See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the reason code. If the problem persists, contact IBM support.

FPEV0566E  <V1>  DB2 REPORTED AN UNEXPECTED CONDITION (RS <V2>). CURRENT HISTORY SNAPSHOT DOES NOT CONTAIN ALL DATA FOR THIS DB2

Explanation:  The History Manager requested data from DB2, and DB2 itself detected an unexpected condition within DB2. If data has been returned by DB2, it is saved to the History data set or History data space, but it does not contain all requested data.
- <V1> is the DB2 subsystem ID.
- <V2> is the DB2 IFI reason code.

User response:  Check the status of the DB2 subsystem and correct the DB2 problem. Refer to DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the reason code. If the problem persists, contact IBM support.

FPEV0567W  <V1>  DB2 MEMBER <V2> REPORTED IFI ERROR (RC <V3>, RS <V4>). CURRENT HISTORY SNAPSHOT DOES NOT CONTAIN ALL DATA FOR THIS MEMBER

Explanation:  The History Manager requested group scope data from DB2 and detected an IFI return code. The data is saved to the History data set or History data space, but it does not contain data for all group members.
- <V1> is the DB2 subsystem ID.
- <V2> is the DB2 member in this group reporting the problem.
- <V3> is the DB2 IFI return code.
- <V4> is the DB2 IFI reason code.

User response:  Check the status of the DB2 group
member <V2> in this group and correct the DB2 problem. See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for an explanation of the return and reason codes. If the problem persists, contact IBM support.

FPEV0568W  <V1> DB2 MEMBER <V2> REPORTED INACTIVE MONITOR TRACE.
CURRENT HISTORY SNAPSHOT DOES NOT CONTAIN DATA FOR THIS MEMBER. ISSUE "START TRACE(MON)" COMMAND

Explanation: The History Manager requested group scope data from DB2 and detected that Monitor trace is not active at group member <V2>. An active Monitor trace is necessary to receive performance data for history. No data for this member was saved to the History data set or History data space.

• <V1> is the DB2 subsystem ID.
• <V2> is the DB2 member in this group reporting the problem.

User response: Issue the DB2 Command START TRACE(MON) manually on member <V2>. If the problem persists stop the traces on the member and restart the Monitor trace. If the problem persists, contact IBM support.

FPEV0570I  <V1> SIZE OF HISTORY DATA SET HAS BEEN CHANGED. OLD DATA SET IS ARCHIVED. PLEASE WAIT

Explanation: The server detected that the specified size for the history data set does not match the size of the allocated data set. The size might have been changed in the server parameters, using the Configuration Tool (formerly ICA). The history data set is archived and a new data set with the new size allocated.

• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0571I  <V1> OLD HISTORY DATA SET <V2> SUCCESSFULLY ARCHIVED

Explanation: The old history data set was successfully archived and a new one was created.

• <V1> is the DB2 subsystem ID.
• <V2> is the name of the archived data set.

User response: If you are asked by IBM support to keep the archived data set for further problem analysis, use the REPRO command of the IDCAMS utility to save the data set.

FPEV0572E  <V1> ARCHIVING OF OLD HISTORY DATASET FAILED. SEE JOB LOG FOR DETAILS

Explanation: The old history data set could not be archived.

• <V1> is the DB2 subsystem ID.

User response: Refer to SYSPRINT of the OMEGamon Collector started task for more details and try to solve the problem. Restart the OMEGamon Collector.

FPEV0573I  <V1> INCONSISTENCY FOUND IN SNAPSHOT HISTORY DATASET.
REASON <V2>

Explanation: When an existing Snapshot History data set is loaded during initialization of the snapshot history monitoring function, the snapshots are checked for consistency and integrity. The check failed with reason code <V2>. Possible reason codes are:

| 20 | Maximum record length exceeded. |
| 24 | Invalid product section offset. |
| 28 | Product section not contained in record. |
| 32 | Product section exceeds end of record. |
| 36 | Invalid product section length. |
| 40 | Invalid type. |
| 44 | Invalid data. |
| 48 | Unsupported Db2 release. |

• <V1> is the Db2 subsystem ID.
• <V2> is the reason code.

User response: None.

FPEV0574I  <V1> SNAPSHOT HISTORY DATASET CANNOT BE USED. IT IS ARCHIVED. PLEASE WAIT.

Explanation: Loading of an existing Snapshot History data set failed during initialization of the snapshot history manager. The data set cannot be used as current Snapshot History data set. The data set is being archived.

• <V1> is the DB2 subsystem ID.

User response: If the error recurs, trace the problem using the Data Server trace (tracelevel=128) and contact IBM support. Keep the archived Snapshot History data set for further analysis by IBM support.

FPEV0600I  <V1> CPU PARALLELISM DATA COLLECTION STARTED

Explanation: None.

User response: None.
FPEV0601I <V1> CPU PARALLELISM DATA COLLECTION STOPPED

Explanation:
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0608E <V1> CPU PARALLELISM DATA COLLECTION - NO STORAGE AVAILABLE

Explanation: The storage size that is allocated to store monitoring data of the child thread exceeded.
Default value: 20 MB
Minimum value: 5 MB
Maximum value: 50 MB

New incoming monitoring data is discarded. The processing of existing monitoring data continues.
• <V1> is the DB2 subsystem ID.

User response: Specify a value between 5 and 50 for the configuration parameter CPDASIZE and restart the CPU parallelism data collection.

FPEV0610I <V1> USER AUTHORIZATION TASK STARTED

Explanation: None.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0611I <V1> USER AUTHORIZATION TASK ENDED

Explanation: None.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0612E <V1> USER AUTHORIZATION TASK DID NOT RESPOND TO TERMINATION REQUEST

Explanation: When the Data Server was stopped, the user authorization task did not end correctly.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0613I <V1> USER AUTHORIZATION EXIT INITIALIZATION PHASE TERMINATED WITH RC <V2>

Explanation: The user authorization exit was terminated during its initialization phase because it returned a nonzero return code.
• <V1> is the DB2 subsystem ID.
• <V2> is the return code passed by the authorization exit.

User response: Restart the CPU parallelism data collection.

User response: Check the user authorization exit and restart the Data Server.

FPEV0614I <V1> CPU PARALLELISM DATA COLLECTION DID NOT START YET. THE COMMAND IS IGNORED.

Explanation: The user authorization exit was terminated during its decide phase because it returned a return code other than 0 or 4. Standard Performance Expert authorization is used for further requests.
• <V1> is the DB2 subsystem ID.

User response: Check the user authorization exit and restart the Data Server.

FPEV0619I <V1> CPU PARALLELISM DATA COLLECTION DID NOT START YET. THE COMMAND IS IGNORED.

Explanation: A MODIFY command is used to stop the CPU parallelism data collection, however, the CPU parallelism data collection already stopped.

<V1> is the DB2 subsystem ID.

System action: None.

User response: None.

FPEV0630I <V1> CPU PARALLELISM DATA COLLECTION IS ACTIVE. THE COMMAND IS IGNORED.

Explanation: A MODIFY command is used to start the CPU parallelism data collection, however, the CPU parallelism data collection is already active.

<V1> is the DB2 subsystem ID.

System action: None.

User response: None.

FPEV0631I <V1> RESTART CPU PARALLELISM DATA COLLECTION FOR NEW DATA SPACE SIZE TO TAKE EFFECT.

Explanation: A MODIFY command is used to change the size of the data space that is used to store monitoring data of child threads.

<V1> is the DB2 subsystem ID.

System action: The size of the data space is not changed immediately. The next time the CPU parallelism data collection is started or restarted, the new size is used.

User response: Restart the CPU parallelism data collection.
FPEV0632E • FPEV0852S

FPEV0632E  <V1> CPU PARALELLISM DATA COLLECTION ERROR. RC=<V2>, REASON=<V3>

Explanation: An error occurred when collecting CPU parallelism data.
• <V1> is the DB2 subsystem ID.
• <V2> is the return code of the component where the error occurred.
• <V3> is the reason code that is associated with the error situation.

System action: None.

User response: If the error recurs, trace the problem by using the data server trace (tracelevel=1) and contact IBM support.

FPEV0633I  <V1> CPMON = <V2>

Explanation: <V1> is the DB2 subsystem ID. <V2> is the current setting of the CPMON configuration parameter.

System action: None.

User response: None.

FPEV0634I  <V1> CPDATASIZE = <V2>

Explanation: <V1> is the DB2 subsystem ID. <V2> is the current setting of the CPDATASIZE configuration parameter.

System action: None.

User response: None.

FPEV0701S  GETMAIN FAILURE FOR <V1>. RC <V2>

Explanation: There was insufficient storage available.
• <V1> is the area being obtained.
• <V2> is the return code.

User response: Increase the region size and restart the OMEGAMON Collector.

FPEV0818S  <V1> INVALID REQUEST TYPE <V2> IN RQE RECEIVED. COMPONENT <V3>

Explanation: The Data Server DB2 interface component has received an invalid request.
• <V1> is the DB2 subsystem ID.
• <V2> is the request type that was found not valid.
• <V3> is an internal identifier that is used by IBM for maintenance purposes.

User response: Restart the client. If the error recurs, contact IBM support.

FPEV0819S  <V1> <V2> NO RH PASSED TO COMPONENT <V3>

Explanation: The Data Server DB2 interface component has received a invalid request header.
• <V1> is the DB2 subsystem ID.
• <V2> is the number of the session manager.
• <V3> is an internal identifier that is used by IBM for maintenance purposes.

User response: Restart the client. If the error recurs, contact IBM support.

FPEV0820I  (<V1>) <V2> <V3> CONTROL FLOW <V4> <V5> <V6>

Explanation: This is an internal trace message from the Data Server APPC host server.
• <V1> is the time when this message was written.
• <V2> is the DB2 subsystem ID.
• <V3> is the number of the session manager.
• <V4> is the trace text.
• <V5> is an internal variable of the Data Server.
• <V6> is an internal variable of the Data Server.

User response: None.

FPEV0821I  <V1> <V2> BUFFER CONTENT <V3> <V4> <V5> <V6>

Explanation: This is an internal trace message from the Data Server APPC host server.
• <V1> is the DB2 subsystem ID.
• <V2> is the number of the session manager.
• <V3> is an excerpt of main storage that was traced.
• <V4> is an excerpt of main storage that was traced.
• <V5> is an excerpt of main storage that was traced.
• <V6> is an excerpt of main storage that was traced.

User response: None.

FPEV0850I  <V1> DATA SERVER MAIN TASK STARTED

Explanation: None.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0851I  <V1> DATA SERVER MAIN TASK ENDED

Explanation: None.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV0852S  <V1> DATA SERVER MAIN TASK ENDED DUE TO ERROR

Explanation: None.
• <V1> is the DB2 subsystem ID.
User response: Check the log for preceding messages or abend codes. If the problem cannot be corrected and recurs, contact IBM support.

---

**Explanation: FPEV0853I**

This is an internal trace message from the Data Server parmlib RKD2P.

- (V1) is the time when this message was written.
- (V2) is the DB2 subsystem ID.
- (V3) shows the last four characters of the module name.
- (V4) is the trace text.
- (V5) is an internal variable of the Data Server.
- (V6) is an internal variable of the Data Server.

User response: None.

---

**Explanation: FPEV0854I**

This is an internal trace message from the Data Server.

- (V1) is the DB2 subsystem ID.
- (V2) is an excerpt of main storage that was traced.
- (V3) is an excerpt of main storage that was traced.
- (V4) is an excerpt of main storage that was traced.
- (V5) is an excerpt of main storage that was traced.
- (V6) is an excerpt of main storage that was traced.

User response: None.

---

**Explanation: FPEV0881E**

The Data Server startup parameter (V2) was specified more than once, but is allowed only once.

- (V1) is the DB2 subsystem ID.
- (V2) is the startup parameter, that was specified more than once.

User response: Ensure that keyword (V2) is specified only once in the Data Server parmlib RKD2PAR.

---

**Explanation: FPEV1104S**

An internal error has occurred.

- (V1) is the DB2 subsystem ID.
- (V2) is an internal error number that identifies the error.
- (V3) is an internal error code that identifies the error.

User response: Stop and restart the Data Server using the MODIFY command. If the problem recurs, contact IBM support.

---

**Explanation: FPEV1130I**

This is an internal trace message from the authorized address space.

- (V1) is the time when this message was written.
- (V2) is the DB2 subsystem ID.
- (V3) is an excerpt of main storage that was traced.
- (V4) is an excerpt of main storage that was traced.
- (V5) is an excerpt of main storage that was traced.
- (V6) is an excerpt of main storage that was traced.

User response: None.

---

**Explanation: FPEV1131I**

This is an internal trace message from the authorized address space.

- (V1) is the DB2 subsystem ID.
- (V2) is an excerpt of main storage that was traced.
- (V3) is an excerpt of main storage that was traced.
- (V4) is an excerpt of main storage that was traced.
- (V5) is an excerpt of main storage that was traced.
- (V6) is an excerpt of main storage that was traced.

User response: None.

---

**Explanation: FPEV1132I**

This is an internal trace message from the authorized address space.

- (V1) is the DB2 subsystem ID.

User response: None.

---

**Explanation: FPEV1133I**

This is an internal trace message from the authorized address space.

- (V1) is the DB2 subsystem ID.

User response: None.

---

**Explanation: FPEV1134S**

This message is displayed in response to a DISPLAY command.

- (V1) is the DB2 subsystem ID.
- (V2) is:
  - OFF: The authorized address space trace is inactive.
  - ON: The authorized address space trace is active.
FPEV1139E • FPEV1155I

User response: None.

FPEV1139E  <V1> AUTHORIZATION MAIN TASK
DID NOT RESPOND TO
TERMINATION REQUEST

Explanation: When the Data Server was stopped, the
authorization main task did not end correctly.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV1141I  <V1> AUTHORIZATION ADDRESS
SPACE INFORMATION - BEGIN

Explanation: This message is displayed in response to
a DISPLAY command.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV1142I  <V1> AUTHORIZATION ADDRESS
SPACE INFORMATION - END

Explanation: This message is displayed in response to
a DISPLAY command.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV1144I  <V1> <V2> <V3>

Explanation: This message is displayed in response to
a DISPLAY command.
• <V1> is the DB2 subsystem ID.
• <V2> is the DB2 subsystem ID.
• <V3> is the user ID of an active user.
User response: None.

FPEV1145I  <V1> USER-ID GROUP-ID

Explanation: This message is displayed in response to
a DISPLAY command.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV1146I  (<V1>) <V2> <V3> CONTROL FLOW
<V4> <V5> <V6>

Explanation: This is an internal trace message from
the application services.
• <V1> is the time when this message was written.
• <V2> is the DB2 subsystem ID.
• <V3> is the user ID.
• <V4> is a variable trace text.
• <V5> is an internal variable of the Data Server.
• <V6> is an internal variable of the Data Server.
User response: None.
FPEV1156I  <V1>  <V2>  <V3>  <V4>  <V5>
Explanation:  This message is displayed in response to the DISPLAY=(STORAGEMAP) command. It follows the table header description of message FPEV1155I.
•  <V1>  is  the  DB2  subsystem  ID.
•  <V2>  is  the  snapshot  store  ID.
•  <V3>  is  the  virtual  storage  size  of  BUFFER1.
•  <V4>  is  the  virtual  storage  size  of  BUFFER2.
•  <V5>  is  the  total  virtual  storage  size  of  BUFFER1  and  BUFFER2.
User response:  None.

FPEV1158I  <V1>  TOTAL FOR AUTHORIZED ADDRESS SPACE = <V2> BYTES
Explanation:  This message is displayed in response to the DISPLAY=(STORAGEMAP) command.
•  <V1>  is  the  DB2  subsystem  ID.
•  <V2>  is  the  total  virtual  storage  size  of  the  user  data  and  the  snapshot  stores  for  all  users.
User response:  None.

FPEV1162S  <V1> ENQUEUEING REQUEST TO INTERNAL THREAD FAILED.
Explanation:  The internal inter-process communication inside the OMEGAMON Collector failed.
•  <V1>  is  the  DB2  subsystem  ID.
User response:  Contact IBM support.

FPEV1163I  DB2 USER CROSBBR DOES NOT HAVE REQUIRED MONITOR 1/2 PRIVILEGE (RC 8, REASON 15075364).
Explanation:  Authorization  is  missing  for  the  indicated  user  ID:
User response:  None.  For further information about return and reason codes, see DB2 Messages and Codes.

FPEV1200I  <V1> APPLICATION SERVICES MAIN TASK STARTED
Explanation:  None.
•  <V1>  is  the  DB2  subsystem  ID.
User response:  None.

FPEV1201I  <V1> APPLICATION SERVICES MAIN TASK ENDED
Explanation:  None.
•  <V1>  is  the  DB2  subsystem  ID.
User response:  None.

FPEV1202S  <V1> APPLICATION SERVICES MAIN TASK ENDED DUE TO ERROR
Explanation:  None.
•  <V1>  is  the  DB2  subsystem  ID.
User response:  Check the log for preceding messages or abend codes. If the problem cannot be corrected and recurs, contact IBM support.

FPEV1203S  <V1> APPLICATION SERVICES MAIN TASK ENDED DUE TO BIND ERROR
Explanation:  The Data Server could not start because the bind job OMBD<V1> did not run successfully.
•  <V1>  is  the  DB2  subsystem  ID.
User response:  Resubmit the bind job in member RKD2SAM(OMBD<V1>), then restart the Data Server. For more information, refer to Installation and Configuration.

FPEV1204S  <V1> APPLICATION SERVICES MAIN TASK ENDED DUE TO RESOURCE ERROR
Explanation:  The indicated DB2 subsystem is not or is incorrectly defined in the Configuration Tool (formerly ICAT). All DB2 subsystems that you want to monitor must be defined in the Configuration Tool.
•  <V1>  is  the  DB2  subsystem  ID.
User response:
•  Verify whether the indicated DB2 subsystem is defined in startup data set member RKD2PAR(OMPEMSTR).
•  Check the PE Server subtask log for FPEV1339I messages. Each DB2 subsystem should report a unique TCP/IP port number in the messages. If required, use the Configuration Tool to redefine the port numbers.
•  Ensure that Grants and Binds in RKD2PAR are run for all DB2 subsystems. Ensure that the DB2PM database has the appropriate authority.

FPEV1205S  <V1> APPLICATION SERVICES MAIN TASK ENDED DUE TO DB2 RETURN CODE <V2>

FPEV1206W  <V1> APPLICATION SERVICES - WAITING FOR DB2 INITIALIZATION
Explanation:  None.
•  <V1>  is  the  DB2  subsystem  ID.
User response:  None.
FPEV1210E <V1> APPLICATION SERVICES - RRSAF ERROR WHEN ATTEMPTED TO CONNECT TO DB2. RC <V2>, REASON <V3>

Explanation: None.
- <V1> is the DB2 subsystem ID.
- <V2> is the Resource Recovery Services Attachment Facility (RRSAF) return code.
- <V3> is the RRSAF reason code.

User response: None.

FPEV1211I <V1> APPLICATION SERVICES - RRSAF ERROR WHEN ATTEMPTED TO DISCONNECT FROM DB2. RC <V2>, REASON <V3>

Explanation: None.
- <V1> is the DB2 subsystem ID.
- <V2> is the Resource Recovery Services Attachment Facility (RRSAF) return code.
- <V3> is the RRSAF reason code.

User response: None.

FPEV1300I <V1> - TCP/IP TRACE=<V2>

Explanation: This message is displayed in response to a DISPLAY command.
- <V1> is the DB2 subsystem ID.
- <V2> is:
  - OFF The TCP/IP trace is inactive.
  - ON The TCP/IP trace is active.

User response: None.

FPEV1301I <V1> TCP/IP=<V2>

Explanation: This message is displayed in response to a DISPLAY command.
- <V1> is the DB2 subsystem ID.
- <V2> is:
  - YES TCP/IP is active.
  - NO TCP/IP is inactive.

User response: None.

FPEV1304I <V1> - IP ADDRESS OF SERVER INSTANCE=<V2>,<V3>,<V4>,<V5>

Explanation: This message is displayed in response to a DISPLAY command.
- <V1> is the DB2 subsystem ID.
- <V2> is the IP address of the host TCP/IP server as specified in the startup parameter data set by the IPADDRESS keyword.

User response: None.
FPEV1312E V1 V2 TCP/IP FUNCTION CALL V3 FAILED. ERRNO=V4

Explanation: The TCP/IP function call failed. See the z/OS Communications Server IP Application Programming Interface Guide for a detailed description of the ERRNO.

- V1 is the DB2 subsystem ID.
- V2 is the TCP/IP session manager ID.
- V3 is the TCP/IP function call as described in the z/OS Communications Server IP Application Programming Interface Guide.
- V4 is the error number of the TCP/IP function call in error.

User response: Analyze ERRNO and take appropriate action.

FPEV1313I (V1) V2 V3 V4 CONTROL FLOW V5 V6 V7

Explanation: This is an internal trace message from the TCP/IP server.

- V1 is the time when this message was written.
- V2 is the DB2 subsystem ID.
- V3 is the TCP/IP session manager ID.
- V4 is the user ID.
- V5 is a variable trace text.
- V6 is an internal variable of the Data Server.
- V7 is an internal variable of the Data Server.

User response: None.

FPEV1314I V1 V2 V3 V4 V5 V6 V7

Explanation: This is an internal trace message from the TCP/IP server.

- V1 is the DB2 subsystem ID.
- V2 is a TCP/IP session manager ID.
- V3 is an excerpt of main storage that was traced.
- V4 is an excerpt of main storage that was traced.
- V5 is an excerpt of main storage that was traced.
- V6 is an excerpt of main storage that was traced.
- V7 is an excerpt of main storage that was traced.

User response: None.

FPEV1315I V1 NUMBER OF PARALLEL SESSIONS EXCEEDS SPECIFIED MAXIMUM

Explanation: A CONNECT request was rejected because the maximum number of TCP/IP connections was exceeded.

- V1 is the DB2 subsystem ID.

User response: Try again later, or increase the size of the MAXSESSION parameter using the Configuration Tool (formerly ICAT), and restart the Data Server. See the Installation and Configuration

FPEV1316I V1 TCP/IP SESSION MANAGER TASK DID NOT RESPOND TO TERMINATION REQUEST

Explanation: When the Data Server was stopped, the session manager task did not end correctly.

- V1 is the DB2 subsystem ID.

User response: None.

FPEV1317I V1 TCP/IP SESSION MANAGER TASK V2 STARTED

Explanation: None.

- V1 is the DB2 subsystem ID.
- V2 is the number of the TCP/IP session manager.

User response: None.

FPEV1318I V1 TCP/IP SESSION MANAGER TASK V2 ENDED

Explanation: None.

- V1 is the DB2 subsystem ID.
- V2 is the number of the TCP/IP session manager.

User response: None.

FPEV1319S V1 TCP/IP SESSION MANAGER TASK ENDED DUE TO ERROR

Explanation: None.

- V1 is the DB2 subsystem ID.

User response: Check the log for preceding messages or abend codes. If the problem cannot be corrected and recurs, contact IBM support.

FPEV1320S V1 V2 TCP/IP SESSION MANAGER RECEIVED INVALID REQUEST FROM IP ADDRESS V3 PORT V4

Explanation: An invalid request was received by the Data Server TCP/IP session manager. The session is deallocated.

- V1 is the DB2 subsystem ID.
- V2 is the number of the TCP/IP session manager.
- V3 is the IP address of the originator sending the invalid request.
- V4 is the port number of the originator sending the invalid request.

User response: If the IP address originates from a PE client, restart the client. If the IP address does not originate from a PE client, identify the application in the network which is erroneously trying to connect to the Data Server port and correct the configuration of this application. If the error recurs, trace the problem using the TCP/IP trace function and contact IBM support.
FPEV1321S • FPEV1340W

FPEV1321S <V1> <V2> TCP/IP PROTOCOL VIOLATION. CHANNEL ALREADY IN USE

Explanation: A duplicate request was received by the Data Server TCP/IP host server. The request is rejected.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the number of the TCP/IP session manager.

User response: Restart the client. If the error recurs, trace the problem using the TCP/IP trace and contact IBM support.

FPEV1322S <V1> <V2> INVALID CHANNEL <V3> RECEIVED

Explanation: A not valid channel number was passed to the TCP/IP server. The request is rejected.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the number of the TCP/IP session manager.
  • <V3> is the invalid channel number.

User response: Restart the client. If the error recurs, trace the problem using the TCP/IP trace and contact IBM support.

FPEV1329I <V1> TCP/IP NOT STARTED. SERVER INSTANCE ATTEMPTS TO ESTABLISH A TCP/IP CONNECTION EVERY MINUTE

Explanation: The Data Server TCP/IP server tries to connect to the TCP/IP interface once every minute until TCP/IP is started. This message is displayed each time an attempt to establish a TCP/IP connection has failed.
  • <V1> is the DB2 subsystem ID.

User response: Start TCP/IP.

FPEV1330I <V1> SERVER TCP/IP SERVER HAS SUCCESSFULLY STARTED

Explanation: This message is displayed when the Data Server TCP/IP server was able to successfully establish a TCP/IP connection.
  • <V1> is the DB2 subsystem ID.

User response: None.

FPEV1331E <V1> <V2> TCP/IP REPORTS THE UNSOLICITED EVENT <V3>. TCP/IP SESSION MANAGER WILL BE TERMINATED

Explanation: The unsolicited event exit routine of the TCP/IP server was invoked by TCP/IP.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the TCP/IP session manager ID.
  • <V3> is the invocation reason code of the unsolicited event exit routine.

Examples of reason codes:
1  TCP/IP address space has terminated.
2  TCP/IP has terminated the connection to the user.

User response: See the z/OS Communications Server IP Application Programming Interface Guide for a detailed description of the invocation reason codes, verify the invocation reason code, and take appropriate action.

FPEV1337W <V1> OMEGAMON XE DB2 PE TCP/IP TASK FAILED. PORT IN USE

Explanation: You have specified a port number for a Performance Expert TCP/IP server that is already in use by a different program. The startup parameter PORT for the used TCP/IP port.
  • <V1> is the DB2 subsystem ID.

User response: Set the TCP/IP port number to a different value or stop the program using this port. Then restart the Data Server using the MODIFY command.

FPEV1339I <V1> TCPIP PORT <V2>

Explanation: This message is displayed in response to a DISPLAY command.
  • <V1> is the DB2 subsystem ID.
  • <V2> is the port number as specified in the startup parameter data set by the PORT keyword.

User response: None.

FPEV1339W PROTOCOL VIOLATION DETECTED. PLEASE INSTALL LATEST LEVEL OF PE WORKSTATION CLIENT.

Explanation: Communication between the Data Server and Performance Expert Clients via TCP/IP is becoming increasingly inefficient and is likely to discontinue.

User response: The Performance Expert Client users must update their Clients to the latest maintenance level.

FPEV1340W TCP/IP PROTOCOL VIOLATION DETECTED.

Explanation: An error occurred in the TCP/IP communication either between the OMEGAMON Collector and the OMEGAMON XE for DB2 PE Client or the OMEGAMON Collector and the Extended Insight feature. This error might have occurred because another application is using the TCP/IP port number that is used by the OMEGAMON Collector PE Server subtask.

User response: Check whether the TCP/IP port is used by another application. Make sure that your PE
Client is at least at level 1317. If the problem persists, contact IBM support.

FPEV1342I  MSTR EXCLUDEDDB2SSID=(<V1>)

**Explanation:** This message is displayed during the startup of the PE Server subtask controller (MSTR) and in response to a DISPLAY command.

<V1> is the list of comma separated DB2 subsystem IDs. A listed DB2 subsystem can be excluded from being monitored because of the following reasons:

- During the configuration step, it is specified that the subsystem does not start monitoring.
- The PE Server subtask controller access to the DB2 subsystem is denied.
- The configured DB2 subsystem does not exist.
- A required parameter data set member for the DB2 subsystem does not exist.
- An error occurred during the preparation or the startup of the monitoring PE Server subtask.

**User response:** If the DB2 subsystem is expected to be excluded from being monitored: none.

Otherwise, see the PE Server subtask logs SYSPRINT or JESMSGLG for related error messages, correct the error, and restart the OMEGAMON Collector started task.

FPEV1456I  (<V1>) <V2> <V3> CONTROL FLOW <V4> <V5> <V6> <V7>

**Explanation:** This is an internal trace message from the Collect Report Data address space.

- <V1> is the time when this message was written.
- <V2> is the DB2 subsystem ID.
- <V3> is the user ID.
- <V4> is a variable trace text.
- <V5> is an internal variable of the Data Server.
- <V6> is an internal variable of the Data Server.
- <V7> is an internal variable of the Data Server.

**User response:** None.

FPEV1457I  <V1> <V2> <V3><V4><V5><V6> 1<V7>1

**Explanation:** This is an internal trace message from the Collect Report Data address space.

- <V1> is the DB2 subsystem ID.
- <V2> is an excerpt of main storage that was traced.
- <V3> is an excerpt of main storage that was traced.
- <V4> is an excerpt of main storage that was traced.
- <V5> is an excerpt of main storage that was traced.
- <V6> is an excerpt of main storage that was traced.
- <V7> is an excerpt of main storage that was traced.

**User response:** None.

FPEV2006E  INSTALLATION IS INCOMPLETE

**Explanation:** The licence FMID is not correctly installed.

**User response:** If errors occurred during installation, correct them and try to use the product again.

If Performance Expert, or DB2 PM, installed without errors, and you followed the recommended installation and customization procedures, and the problem persists, contact IBM support.

FPEV2100I  <V1> <V2>ELAPSED PROCESSING TIME <V3> SEC FOR DB2 INTERFACE TASK EXCEEDS THRESHOLD \varn<V4> SEC

**Explanation:** The following list shows the current settings for the processing time threshold:

- <V1> is the DB2 subsystem ID.
- <V2> is the current time stamp.
- <V3> is the actual elapsed processing time.
- <V4> is the threshold value for the elapsed processing time.

**User response:** The current time stamp and the actual elapsed processing time can be used to further analyze the slowdown.

FPEV2101I  <V1> EPTT=<F2> (ELAPSED PROCESSING TIME THRESHOLD)

**Explanation:** This message is preceded by message FPEV2100I or FPEV2103I. An SVC dump is initiated for the OMEGAMON Collector and the DB2 address spaces of the DB2 subsystem that is currently handling a call to the DB2 instrumentation facility interface issued by the PE Server subtask.

- <V1> is the DB2 subsystem ID.
- <V2> is the list of address space IDs.

The address space identifiers are listed in the sequence OMEGAMON Collector, DB2 MSTR, DB2 IRLM, DB2 DBM1, and DB2 DIST.

**User response:** Provide the OMEGAMON Collector started task job output and dump to IBM for further analysis.

FPEV2104I  <V1> EPTT=<F2> (ELAPSED PROCESSING TIME THRESHOLD)

**Explanation:** The following list shows the current settings for the processing time threshold:

- <V1> is the DB2 subsystem ID.
- <F2> is the elapsed processing time threshold in seconds.
FPEV2105I • FPEV2706S

FPEV2105I  <V1>  TONRT=<F2>  (TIMEOUT NOTIFY THRESHOLD)
Explanation: The following list shows the current settings for the timeout notification threshold:

- <V1> is the DB2 subsystem ID.
- <F2> is the timeout notification threshold in seconds.

FPEV2106I  <V1>  DB2 MONITOR PRIVILEGE CHECK PASSED FOR USER <V2>
Explanation: If a user interface connects to a PE Server subtask, the PE Server subtask checks whether the user has DB2 MONITOR privilege. This check passed.

- <V1> is the DB2 subsystem ID.
- <V2> is the user ID.

User response: None.

FPEV2107E  <V1>  DB2 MONITOR PRIVILEGE CHECK FAILED FOR USER <V2>
Explanation: If a user interface connects to a PE Server subtask, the PE Server subtask checks whether the user has DB2 MONITOR privilege. This check failed.

- <V1> is the DB2 subsystem ID.
- <V2> is the user ID.

User response: Grant MONITOR1 or MONITOR2 privilege to the user ID.

FPEV2108E  <V1>  DB2 MONITOR PRIVILEGE CHECK USING RACF FAILED FOR USER <V2>
Explanation: If a user interface connects to a PE Server subtask, the PE Server subtask checks whether the user has DB2 MONITOR privilege. This check failed.

- <V1> is the DB2 subsystem ID.
- <V2> is the user ID.

System action: The PE Server subtask does not support monitoring for the unauthorized user ID.

User response: Grant the user ID or assigned group read access to profile MONITOR1 or MONITOR2.

FPEV2109E  <V1>  DB2 MONITOR PRIVILEGE CHECK USING RACF FAILED FOR USER <V2>  (RACROUTE RC=<V3>, RACF RC=<V4>  RS=<V5>)
Explanation: If a user interface connects to a PE Server subtask, the PE Server subtask checks whether the user has DB2 MONITOR privilege. This check failed.

The displayed return and reason codes in decimal are obtained from macro RACROUTE, which is called to process the privilege check.

- <V1> is the DB2 subsystem ID.
- <V2> is the user ID.
- <V3> is the RACROUTE return code.
- <V4> is the RACF return code.
- <V5> is the RACF reason code.

System action: The PE Server subtask does not support monitoring for the specified user ID.

User response: For return and reason codes refer to z/OS Security Server RACF Macros and Interfaces.

FPEV2702I  <V1>  DB2 MESSAGES COLLECTOR STARTED.
Explanation:

- <V1> is the DB2 subsystem ID.

User response: None.

FPEV2703I  <V1>  DB2 MESSAGES COLLECTOR STOPPED.
Explanation:

- <V1> is the DB2 subsystem ID.

User response: None.

FPEV2704S  <V1>  READA COLLECTOR SUPPORT TASK ENDED DUE TO ERROR.
Explanation:

- <V1> is the DB2 subsystem ID.

User response: Check the log for preceding messages or abend codes. If the problem persists, contact IBM support.

FPEV2705E  <V1>  READA COLLECTOR SUPPORT TASK DID NOT RESPOND TO TERMINATION REQUEST
Explanation: When the PE Server subtask is stopped, it requests the READA collector to terminate. However, the READA collector does not respond to the termination request.

- <V1> is the DB2 subsystem ID.

User response: None.

FPEV2706S  <V1>  READA COLLECTOR SUPPORT TASK RECEIVED INVALID REQUEST TYPE <V2> IN RQE
Explanation: The request that is sent to the PE Server subtask interface component is incorrect.

- <V1> is the DB2 subsystem ID.
- <V2> is the incorrect request type.

User response: If the error recurs, trace the problem by using the Data Server trace (tracelevel=128) and contact IBM support.
FPEV2708I  <V1> READA COLLECTOR SUPPORT TASK - WAITING FOR DB2 INITIALIZATION.

Explanation: The initialization of DB2 is not yet completed.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV2709I  <V1> READA COLLECTOR SUPPORT TASK - DB2 COMMAND OUTPUT BEGINS.

Explanation: The READA collector support task issues DB2 commands to start, stop, or restart the necessary DB2 traces. If DB2 returns information messages, they are displayed between the messages FPEV2709I and FPEV2710I.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV2710I  <V1> READA COLLECTOR SUPPORT TASK - DB2 COMMAND OUTPUT ENDS.

Explanation: The READA collector support task issues DB2 commands to start, stop, or restart the necessary DB2 traces. If DB2 returns information messages, they are displayed between the messages FPEV2709I and FPEV2710I.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV2712I  <V1> READA COLLECTOR SUPPORT TASK - READA COMMAND OUTPUT BEGINS.

Explanation: The READA collector support task issues READA commands to retrieve performance data from DB2. If DB2 returns information messages, they are displayed between the messages FPEV2712I and FPEV2713I.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV2713I  <V1> READA COLLECTOR SUPPORT TASK - READA COMMAND OUTPUT ENDS.

Explanation: The READA collector support task issues READA commands to retrieve performance data from DB2. If DB2 returns information messages, they are displayed between the messages FPEV2712I and FPEV2713I.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV2714E  <V1> READA COLLECTOR SUPPORT TASK - IFI ERROR ON READA CALL. RC <V2>, REASON <V3>

Explanation:
• <V1> is the DB2 subsystem ID.
• <V2> is the IFI return code.
• <V3> is the IFI reason code.
User response: For an explanation of the return codes and the reason codes, see DB2 Messages and Codes or the corresponding manual of the DB2 version that you are using.

FPEV2715I  <V1> READA COLLECTOR SUPPORT TASK - DB2 TRACE LOST

Explanation: The OP buffer that is assigned to the READA collector is lost. The trace that is started by the READA collector might be stopped manually by using an operator command. The READA collector support task stopped.
• <V1> is the DB2 subsystem ID.
User response: If the READA collector support task is not stopped intentionally, restart it by using MVS operator commands.

FPEV2716W  <V1> DB2 MESSAGES COLLECTOR IS NOT STARTED. THE COMMAND IGNORED

Explanation: A MODIFY command is used to stop the DB2 messages collector, however, this collector is already stopped.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV2717W  <V1> DB2 MESSAGES COLLECTOR IS ACTIVE. THE COMMAND IS IGNORED.

Explanation: A MODIFY command is used to start the DB2 messages collector, however, this collector is already active.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV2718E  <V1> DB2 MESSAGES COLLECTOR IS NOT SUPPORTED FOR THIS DB2 VERSION.

Explanation: A MODIFY command is used to start or stop the DB2 messages collector for a DB2 subsystem version that is not supported. The DB2 messages collector is supported for DB2 Version 9 or later.
• <V1> is the DB2 subsystem ID.
User response: None.
FPEV2719E • FPEV2730I

FPEV2719E  <V1> READA COLLECTOR SUPPORT TASK - RRSASF ERROR WHEN ATTEMPTED TO CONNECT TO DB2.
RC <V2>, REASON <V3>

Explanation:
• <V1> is the DB2 subsystem ID.
• <V2> is the IFI return code.
• <V3> is the IFI reason code.
User response: For an explanation of the return codes and the reason codes, see DB2 Messages and Codes or the corresponding manual of the DB2 version that you are using.

FPEV2720I  <V1> STORED PROCEDURE COLLECTOR STARTED.

Explanation:  <V1> is the DB2 subsystem ID.
User response: None.

FPEV2721I  <V1> STORED PROCEDURE COLLECTOR STOPPED.

Explanation:  <V1> is the DB2 subsystem ID.
User response: None.

FPEV2722E  <V1> STORED PROCEDURE COLLECTOR IS NOT SUPPORTED FOR THIS DB2 VERSION.

Explanation:  <V1> is the DB2 subsystem ID.
A MODIFY command is used to start or to stop the stored procedure collector for a DB2 subsystem version that is not supported. The stored procedure collector is only supported for DB2 10 or later.
User response: None.

FPEV2723W  <V1> STORED PROCEDURE COLLECTOR NOT STARTED. THE COMMAND IS IGNORED.

Explanation:  A MODIFY command is used to stop the stored procedure collector, however, the stored procedure collector is already stopped.
<V1> is the DB2 subsystem ID.
User response: None.

FPEV2724W  <V1> STORED PROCEDURE COLLECTOR IS ACTIVE. THE COMMAND IS IGNORED.

Explanation:  A MODIFY command is used to start the stored procedure collector, however, the stored procedure collector is already active.
<V1> is the DB2 subsystem ID.
User response: None.

FPEV2725E  <V1> READA COLLECTOR SUPPORT TASK - OP BUFFER RELATED ERROR.
RC <V2>, REASON <V3>

Explanation:
• <V1> is the DB2 subsystem ID.
• <V2> is the return code of the component where the error occurs.
• <V3> is the reason code that is associated with the error situation.
User response: For an explanation of return codes and reason codes, see DB2 Messages and Codes or the corresponding manual of the DB2 version that you are using.

If the reported reason code is not a DB2 reason code and if the error recurs, trace the problem by using the Data Server trace (tracelevel=1) and contact IBM support.

FPEV2726I  <V1> READA COLLECTOR SUPPORT TASK STARTED.

Explanation:  <V1> is the DB2 subsystem ID.
User response: None.

FPEV2727I  <V1> READA COLLECTOR SUPPORT TASK IS STOPPING.

Explanation:  <V1> is the DB2 subsystem ID.
User response: None.

FPEV2728I  <V1> READA COLLECTOR SUPPORT TASK ENDED.

Explanation:  <V1> is the DB2 subsystem ID.
User response: None.

FPEV2729I  <V1> DB2 MESSAGES COLLECTOR IS STOPPING.

Explanation:  <V1> is the DB2 subsystem ID.
User response: None.

FPEV2730I  <V1> STORED PROCEDURE COLLECTOR IS STOPPING.

Explanation:  <V1> is the DB2 subsystem ID.
User response: None.
FPEV2731E  <V1> DB2 MESSAGES COLLECTOR ERROR. RC <V2>, REASON <V3>

Explanation:
• <V1> is the DB2 subsystem ID.
• <V2> is the return code of the component where the error occurs.
• <V3> is the reason code that is associated with the error situation.

User response: If the error recurs, trace the problem by using the Data Server trace (tracelevel=1) and contact IBM support.

FPEV2732E  <V1> STORED PROCEDURE COLLECTOR ERROR. RC <V2>, REASON <V3>

Explanation: An error occurs in the stored procedure collector.
• <V1> is the DB2 subsystem ID.
• <V2> is the return code of the component where the error occurs.
• <V3> is the reason code that is associated with the error situation.

User response: If the error recurs, trace the problem by using the Data Server trace (tracelevel=1) and contact IBM support.

FPEV2733I  <V1> READA COLLECTOR SUPPORT TASK NOT STARTED. OP BUFFER CHANGES TAKE EFFECT AT NEXT STARTUP.

Explanations: A MODIFY command is used to change the characteristics of the OP BUFFER that is used by the READA collector support task, however, the READA collector support task is not active.

User response: None.

FPEV2734I  <V1> READA COLLECTOR SUPPORT TASK STORAGE THRESHOLD REACHED. STORED PROCEDURE COLLECTOR DATA IS IGNORED.

Explanation: An internal data structure that is used by the stored procedure collector exceeds its maximum size. The monitoring data of the stored procedure is discarded. The processing continues.

User response: Modify the characteristics of the OP buffer that is used by the READA collector support task to ensure that READA data is processed as soon as possible. For example, you might want to reduce the OP buffer threshold by using a MODIFY command. If the problem persists, contact IBM support.

FPEV2735I  <V1> READA COLLECTOR SUPPORT TASK STORAGE THRESHOLD REACHED. STATEMENT HIERARCHY IS INVALIDATED.

Explanation: An internal data structure that is used by the stored procedure collector exceeds its maximum size. The monitoring data of the stored procedure is discarded. The processing continues.

User response: If the problem persists, contact IBM support.

FPEV2736I  <V1> READA COLLECTOR SUPPORT TASK STORAGE THRESHOLD REACHED. STORED PROCEDURE COLLECTOR CACHE IS RECYCLED.

Explanation: An internal data structure that is used by the stored procedure collector has exceeded its expected maximum size. The stored procedure monitoring data is discarded and processing continues. This can happen if stored procedure monitoring data is not requested by IBM InfoSphere Optim Performance Manager for a long time.

User response: Ensure that IBM InfoSphere Optim Performance Manager setup is correct, i.e. connection to OMEGAMON collector is established and stored procedure metric data collector is started and returns monitoring data. If the problem persists, contact IBM support.

FPEV2737I  <V1> DB2 MESSAGES COLLECTOR TIMEOUT OCCURRED.

Explanation: A request from a user interface cannot be handled by the Data Server instance because a timeout occurred. The request could not be completed in time.

User response: Resubmit the request. If the problem persists, contact IBM support.

FPEV3001E  <V1> THE DATA SERVER INSTANCE RECEIVED AN INVALID REQUEST.

Explanation: A request from a user interface cannot be handled by the Data Server instance because the request was not provided or the provided request is not valid.
• <V1> is the DB2 subsystem ID.

User response: Resubmit the request. If the problem persists, contact IBM support.
FPEV3002E  <V1> NO DATA SERVER INSTANCE IS AVAILABLE TO HANDLE THE REQUEST.

Explanation: A request from a user interface cannot be handled by the Data Server because the Data Server or the Data Server instance dedicated to the specified DB2 subsystem has not been started.
• <V1> is the DB2 subsystem ID.

User response: Verify that the DB2 subsystem is contained in the list of DB2 subsystems in the master startup data set member RKD2PAR(OMPEMSTR). If it is not, then add the DB2 subsystem to the list. Stop and restart the Data Server using the MODIFY command. Verify that the Data Server is started before requests are submitted.

FPEV3003E  <V1> THE DB2 SUBSYSTEM IS UNKNOWN TO THE DATA SERVER.

Explanation: A request from a user interface cannot be handled by the Data Server because the specified DB2 subsystem is unknown to the Data Server.
• <V1> is the DB2 subsystem ID.

User response: Verify that the DB2 subsystem is contained in the list of DB2 subsystems in the master startup data set member RKD2PAR(OMPEMSTR). If it is not, then add the DB2 subsystem to the list. Stop and restart the Data Server using the MODIFY command. Verify that the Data Server is started before requests are submitted.

FPEV3004E  <V1> THE DB2 SUBSYSTEM OR DEDICATED DATA SERVER INSTANCE IS NOT ACTIVE.

Explanation: A request from a user interface cannot be handled by the Data Server because the specified DB2 subsystem or the dedicated Data Server instance is not active.
• <V1> is the DB2 subsystem ID.

User response: Verify that the DB2 subsystem and Data Server instance is running.

FPEV3005E  <V1> THE DATA SERVER INSTANCE INPUT QUEUE FOR REQUESTS IS NOT AVAILABLE.

Explanation: A request from a user interface cannot be handled by the Data Server because there is no input queue available to handle the request.
• <V1> is the DB2 subsystem ID.

User response: Stop and restart the Data Server using the MODIFY command. If the problem persists, contact IBM support.

FPEV3006E  <V1> THE INTER-SERVER INTERFACE COULD NOT OBTAIN A FREE RESPONSE QUEUE FROM THE RESPONSE QUEUE POOL OF THE DATA SERVER INSTANCE.

Explanation: A request from a user interface cannot be handled by the Data Server instance because there is no free response queue available to handle the request. This situation occurs if more parallel requests are submitted to a Data Server instance than supported.
• <V1> is the DB2 subsystem ID.

User response: Resubmit the request.

FPEV3007E  <V1> THE INTER-SERVER INTERFACE CANNOT ACCESS THE RESPONSE QUEUE.

Explanation: A request from a user interface cannot be handled by the Data Server instance because the response queue cannot be accessed.
• <V1> is the DB2 subsystem ID.

User response: Resubmit the request. If the problem persists, contact IBM support.

FPEV3008E  <V1> THE INTER-SERVER INTERFACE CANNOT COPY THE SUBMITTED REQUEST TO THE INTERNAL WORK AREA.

Explanation: A request from a user interface cannot be handled by the Data Server instance because the provided request cannot be copied to the internal work area. Either the request is not valid or no storage could be obtained.
• <V1> is the DB2 subsystem ID.

User response: Resubmit the request. If the problem persists, contact IBM support.

FPEV3009E  <V1> THE INTER-SERVER INTERFACE CANNOT QUEUE THE SUBMITTED REQUEST TO THE INPUT QUEUE OF THE DATA SERVER INSTANCE.

Explanation: A request from a user interface cannot be handled by the Data Server instance because the provided request cannot be queued into the input queue of the Data Server instance.
• <V1> is the DB2 subsystem ID.

User response: Resubmit the request. If the problem persists, contact IBM support.

FPEV3010E  <V1> THE INTER-SERVER INTERFACE CANNOT RETURN THE COMPLETED REQUEST.

Explanation: A request from a user interface cannot be
handled by the Data Server instance because the completed request cannot be returned. Either the provided request or the internal work area became obsolete.

- <V1> is the DB2 subsystem ID.

User response: Resubmit the request. If the problem persists, contact IBM support.

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FPEV3011E  

**Explanation:** A request from a user interface cannot be handled by the Data Server instance because a timeout occurred. Either the inter server interface is not available or has terminated unexpectedly.

- <V1> is the DB2 subsystem ID.

User response: Resubmit the request. If the problem persists, contact IBM support.

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FPEV3012E  

**Explanation:** A request from a user interface cannot be handled by the Data Server instance because a timeout occurred. The Data Server instance became unavailable because of a restart.

- <V1> is the DB2 subsystem ID.

User response: Resubmit the request. If the problem persists, contact IBM support.

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FPEV3013E  

**Explanation:** A request from a user interface cannot be handled by the Data Server instance because a timeout occurred. The request could not be completed in time.

- <V1> is the DB2 subsystem ID.

User response: Resubmit the request. If the problem persists, contact IBM support.

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FPEV3014E  

**Explanation:** A request from a user interface cannot be handled by the Data Server instance because the response does not match the request.

- <V1> is the DB2 subsystem ID.

User response: Resubmit the request. If the problem persists, contact IBM support.

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FPEV3016W  

**Explanation:** A user interface requests performance data for a specified DB2 subsystem. The PE Server receives the request and tries to route the request to a monitoring PE Server subtask. In a data sharing group, a PE Server subtask must be started for at least one member that resides on the same LPAR as the OMEGAMON Collector (called local member) to be able to monitor members of the data sharing group. The data retrieval request fails if no PE Server subtask is started for the specified DB2 subsystem or a local member of the data sharing group.

- <V1> is the DB2 subsystem ID.

User response: Configure the indicated DB2 subsystem or a local member of the data sharing group with the Configuration Tool (formerly ICAT), complete the configuration and restart the OMEGAMON Collector. When the indicated DB2 subsystem or local member of the data sharing group has already been configured or the DB2 subsystems shall be auto-detected, check the OMEGAMON started task job log for preceding error messages during PE Server subtask start up, PE Server subtask termination or the occurrence of an abend. Restart the PE Server subtask. If the problem persists, contact IBM support.

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FPEV3200I  

**Explanation:** The Data Server instance has started a subtask named Pseudo IFCID Generator. The subtask compiles data structures similar to IFCIDs provided by DB2. These data structures are called pseudo IFCIDs because they do not originate from DB2. The pseudo IFCIDs are performance data which are derived from DB2 IFCID data or originate from other data sources. The pseudo IFCIDs are used internally to communicate performance data among the Data Server components.

- <V1> is the DB2 subsystem ID.

User response: None.

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FPEV3201I  

**Explanation:** The Pseudo IFCID Generator subtask of the Data Server instance has ended during normal termination of the Data Server.

- <V1> is the DB2 subsystem ID.

User response: None.
### FPEV3202S - PSEUDO IFCID GENERATOR ENDED DUE TO ERROR

**Explanation:** An abend occurred within the subtask.
- `<V1>` is the DB2 subsystem ID.

**User response:** Check the log for preceding messages or abends. If the problem cannot be corrected and recurs, contact IBM support.

### FPEV3203S - PSEUDO IFCID GENERATOR TASK DID NOT RESPOND TO TERMINATION REQUEST

**Explanation:** During normal termination of the Data Server the Data Server instance requests the subtask named Pseudo IFCID Generator to end. The subtask does not react within the given time and is immediately being terminated by the Data Server instance.
- `<V1>` is the DB2 subsystem ID.

**User response:** None.

### FPEV5001I - PWH SERVER IS STARTING

**Explanation:** None.
- `<V1>` is the DB2 subsystem ID.

**User response:** None.

### FPEV5002I - PWH SERVER IS STOPPING

**Explanation:** None.
- `<V1>` is the DB2 subsystem ID.

**User response:** None.

### FPEV5003I - CHECKING DATABASE FOR NECESSARY CHANGES. PLEASE WAIT

**Explanation:** Performance Warehouse is checking if the database model for database DB2PM is up to date. The Data Server may, for example, be forced to update the database if the database model was changed.
- `<V1>` is the DB2 subsystem ID.

**User response:** None.

### FPEV5004S - DATABASE UPDATE FAILED. SEE JOB LOG FOR DETAILS

**Explanation:** None.
- `<V1>` is the DB2 subsystem ID.

**User response:** Check the SYSPRINT output of the Data Server for detailed information about the error. Then solve the problem and restart the Performance Warehouse function in the Data Server by means of the MODIFY command 'PERFORMANCEWAREHOUSE=YES'.

### FPEV5005I - DATABASE UPDATE COMPLETE

**Explanation:** None.
- `<V1>` is the DB2 subsystem ID.

**User response:** None.

### FPEV5009I - CREATION OF PLAN DB2PM WAS SUCCESSFUL

**Explanation:** None.
- `<V1>` is the DB2 subsystem ID.

**User response:** None.

### FPEV5012S - CREATION OF PLAN DB2PM FAILED. SEE BIND JOB OUTPUT

**Explanation:** None.
- `<V1>` is the DB2 subsystem ID.

**User response:** Check the SYSPRINT output of the Data Server for detailed information about the error. Then solve the problem and restart the Performance Warehouse function in the Data Server by means of the MODIFY command 'PERFORMANCEWAREHOUSE=YES'.

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5034 IBM Db2 Performance Expert on z/OS
FPEV5013I  <V1> REQUIRED PLAN DB2PM NOT FOUND. CREATING IT

Explanation: The Performance Warehouse function of the Data Server requires a DB2 PLAN DB2PM. This plan was not found and is now created.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV5014W  <V1> SERVER IS STOPPING. DB2 V6 OR LATER IS REQUIRED.

Explanation: The Performance Warehouse function in the Data Server was requested. DB2 version 6 or later is necessary for this function.
• <V1> is the DB2 subsystem ID.
User response: Use the Configuration Tool (formerly ICAT) and set the Data Server startup parameter PERFORMANCEWAREHOUSE to NO.

FPEV5015I  <V1> UPDATING DATABASE IN FORCED MODE. PLEASE WAIT

Explanation: The Performance Warehouse function in the Data Server was started in forced mode to check the database model for consistency.
• <V1> is the DB2 subsystem ID.
User response: None.

FPEV5016I  <V1> REQUIRED DBRM <V2> NOT BOUND. BINDING IT

Explanation: A DBRM module of the Performance Warehouse function misses a DB2 BIND and is now being bound.
• <V1> is the DB2 subsystem ID.
• <V2> is the database request module (DBRM).
User response: None.

FPEV5017I  <V1> BINDING DBRM <V2>

Explanation: The Performance Warehouse function of the data collector is started in forced mode. Therefore the DBRM is being bound.
• <V1> is the DB2 subsystem ID.
• <V2> is the database request module (DBRM).
User response: None.

FPEV5018S  <V1> DB2 DISCONNECT FAILED. SEE FOR DETAILS

Explanation: None.
• <V1> is the DB2 subsystem ID.
User response: Check the SYSPRINT output of the Data Server for detailed information about the error.

FPEV5019E  <V1> DATASET SERVICE TERMINATED. LIBRARY SEARCH MAY HAVE FAILED.

Explanation: None.
• <V1> is the DB2 subsystem ID.
User response: Check the system log for details about the abend. To restart the MVS system catalog and restart the Data Server. If the problem persists, contact IBM support.

FPEV5020I  <V1> PERFORMANCE EXPERT REQUIRES A NEW TABLE SPACE <V2>, PLEASE ENTER STORAGE GROUP TO USE, OR BLANK FOR DEFAULT STORAGE GROUP.

Explanation: This message is shown during the Data Server start, if the Performance Warehouse function is requested and requires a new table space.
• <V1> is the DB2 subsystem ID.
• <V2> is the new required table space.
User response: Enter the name of the storage group to use for the new table space through operator reply. To do this, search for the corresponding ‘write to operator’ output and locate the number of this output. Then enter a ‘write to operator’ reply: ‘/r NO#,REPLY’ where NO# is the located number and REPLY is the chosen storage group (enter a blank as REPLY if you want to use the assigned default storage group). For further information on how to set up the Data Server for the Performance Warehouse, see Installation and Configuration.

FPEV5021I  <V1> PLEASE ENTER THE NAME OF BUFFER POOL TO USE FOR TABLE SPACE <V2>, ENTER BLANK FOR DEFAULT BUFFER POOL.

Explanation: This message is shown during the Data Server start, if the Performance Warehouse function is requested and requires a new table space.
• <V1> is the DB2 subsystem ID.
• <V2> is the new required table space.
User response: Enter the name of the buffer pool to use for the new table space through operator reply. To do this, search for the corresponding ‘write to operator’ output and locate the number of this output. Then enter a ‘write to operator’ reply: ‘/r NO#,REPLY’ where NO# is the located number and REPLY is the chosen buffer pool (enter a blank as REPLY if you want to use the assigned default buffer pool). For further information on how to set up the Data Server for the Performance Warehouse, see Installation and Configuration.
FPEV5022S <V1> ENTERED STORAGEGROUP <V2> IS UNKNOWN

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the storage group requested in message FPEV5020I.

User response: Create a new storage group in DB2 or choose a different existing one. Then restart the Performance Warehouse function in the Data Server by means of the MODIFY command 'PERFORMANCEWAREHOUSE=YES' and specify the chosen storage group name.

FPEV5023S <V1> ENTERED BUFFER POOL <V2> IS UNKNOWN

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the buffer pool requested in message FPEV5021I.

User response: Restart the Performance Warehouse function in the Data Server by means of the MODIFY command 'PERFORMANCEWAREHOUSE=YES' and specify the correct buffer pool name.

FPEV5024S <V1> ENTERED STORAGE GROUP <V2> OR BUFFER POOL <V3> IS UNKNOWN

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the storage group requested in message FPEV5020I.
• <V3> is the buffer pool requested in message FPEV5021I.

User response: Verify the specified storage group and buffer pool name. Both names must be known to DB2 and the Data Server userID/groupID must have usage privileges of both DB2 objects. Then restart the Performance Warehouse function in the Data Server using the MODIFY command 'PERFORMANCEWAREHOUSE=YES'. You can then enter the correct names again.

FPEV5025S <V1> SERVER IS NOT ALLOWED TO USE STORAGEGROUP <V2> OR TO ACCESS DATABASE DB2PM

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the storage group requested in message FPEV5020I.

User response: Ensure that the Data Server userID/groupID DB2PM has USAGE privilege for the specified storage group and has DBADM privilege on database DB2PM. Then restart the Performance Warehouse function in the Data Server using the MODIFY command with 'PERFORMANCEWAREHOUSE=YES'.

FPEV5026S <V1> SERVER IS NOT ALLOWED TO USE BUFFER POOL <V2> OR TO ACCESS DATABASE DB2PM

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the buffer pool requested in message FPEV5021I.

User response: Ensure that the Data Server userID/groupID DB2PM has USAGE privilege for the specified buffer pool and has DBADM privilege on database DB2PM. Then restart the Performance Warehouse function in the Data Server using the MODIFY command with 'PERFORMANCEWAREHOUSE=YES'.

FPEV5027S <V1> SERVER IS NOT ALLOWED TO USE STORAGE GROUP <V2>, BUFFER POOL <V3> OR TO ACCESS DATABASE DB2PM

Explanation: None.
• <V1> is the DB2 subsystem ID.
• <V2> is the storage group requested in message FPEV5020I.
• <V3> is the buffer pool requested in message FPEV5021I.

User response: Ensure that the Data Server userID/groupID DB2PM has USAGE privilege for the specified buffer pool and storage group and has DBADM privilege on database DB2PM. Then restart the Performance Warehouse function in the Data Server using the MODIFY command with 'PERFORMANCEWAREHOUSE=YES'.

FPEV5028I <V1> REQUIRED DATABASE DB2PM NOT FOUND. CREATING IT

Explanation: The Performance Warehouse function of the Data Server requires a DB2 database DB2PM. This database was not found and is now created.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV5029I <V1> CREATION OF DATABASE DB2PM WAS SUCCESSFUL

Explanation: None.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV5030S <V1> SERVER IS NOT ALLOWED TO CREATE DATABASE DB2PM

Explanation: None.
• <V1> is the DB2 subsystem ID.
**User response:** You can either grant CREATEDBA privileges to the userID or group DB2PM, or create the DB2PM database manually and grant DBADM privileges to the DB2PM userid or group. Then restart the Performance Warehouse function in the Data Server using the MODIFY 'PERFORMANCEWAREHOUSE=YES' command. For further information on how to set up the Data Server for the Performance Warehouse, see Installation and Configuration.

**Explanation:** Performance Warehouse functions started from the Data Server must be started using the MVS task user ID DB2PM, or a member of the DB2PM RACF group.

- \(<\text{V1}\) is the DB2 subsystem ID.

This message is written if a SET CURRENT SQLID = \('DB2PM'\) fails with SQLCODE = -553, which is specified as: "auth-id SPECIFIED IS NOT ONE OF THE VALID AUTHORIZATION IDS" and further explained as: "The authorization ID specified as the value of the 'authorization-id' or host variable in the SQL SET CURRENT SQLID statement is neither the user's primary authorization ID nor one of the associated secondary authorization IDs."

**User response:** Change the MVS task user ID to DB2PM or to the DB2PM RACF group, then restart the Data Server. For further information on how to set up the Data Server for the Performance Warehouse, see Installation and Configuration.

One way to analyze this error is to run an Audit trace when authorization changes happen. The trace shows the IFCIDs 55 (Set Current SQLID), 83 (End Of Identify request), and 87 (End Of Signon request). These IFCIDs report the primary and secondary, respectively the old and the new SQLID. You can start the Audit trace data collection with AUDIT CLASS(7) or with USER CLASS(30) IFCID(55,83,87). To collect the trace data into your private sequential data set, you can use the ISPF Collect Report Data function (option 3, then option 6a). After the Audit trace data was collected, you can run an AUDIT TRACE TYPE(ALL) batch report or provide IBM with the sequential files containing the collected Audit trace data. The data should show the result from the inaction between DB2 and RACF, especially whether the DB2PM group name was returned to DB2 as one of the secondary authorization IDs.

**Explanation:** None.

- \(<\text{V1}\) is the DB2 subsystem ID.

**User response:** Check the system log for details about the abend. Try to restart the MVS system catalog and restart the Data Server. If the problem persists, contact IBM support.

---

**User response:** None.

---

**Explanation:** The Data Server could not obtain sufficient memory to contain data.

- \(<\text{V1}\) is the DB2 subsystem ID.

**User response:** This could be a temporary problem. If the problem persists, increase the region size for the OMEGAMON Collector and restart the Data Server, or contact IBM support.

---

**Explanation:** None.

---

**User response:** None.

---

**Explanation:** None.
**FPEV5037E** <V1> BUFFER POOL <V2> FOR TABLESPACE <V3> IN RESPONSE FILE IS NO 32K BUFFER POOL

**Explanation:** During the creation of the Performance Warehouse for the indicated subsystem a response data set was found and used. However, the buffer pool specified in this response data set is not a 32 KB buffer pool.

- <V1> is the DB2 subsystem ID.
- <V2> is the specified buffer pool that is not a 32 KB buffer pool.
- <V3> is the table space for which the buffer pool was specified.

**User response:** Edit the response data set and correct the specified buffer pool. The response data set can be found in <HLQ>.<DB2SSID>.SRVRESP, where <HLQ> is the high-level qualifier specified in the Configuration Tool (formerly ICAT) for temporary data sets of the OMEGAMON Collector, and <DB2SSID> is the DB2 subsystem ID indicated in <V1>.

---

**FPEV5040E** <V1> PWH FOUND AN INCOMPATIBLE DATABASE DB2PM

**Explanation:** During Performance Warehouse (PWH) startup an incompatible database DB2PM was detected.

- <V1> is the DB2 subsystem ID.

**User response:** Stop the OMEGAMON Collector, drop or migrate the existing Performance Warehouse database as described in the product documentation and restart the OMEGAMON Collector.

---

**FPEV504** HISTORY DATA SET OR HISTORY DATA SPACE MUST BE SPECIFIED

**Explanation:** Both, history data set size and data space size were reset to 0 in the Data Server Parameters window.

**User response:** Specify a size value for either history data set or history data space.

---

**FPEV613** USER AUTHORIZATION EXIT DENIED YOUR REQUEST

**Explanation:** You tried to perform a Performance Expert function. The authorization specified for your user ID in the user authorization exit rejected your access to this function.

**User response:** See your database administrator to clarify if you can get the proper authorization to use this function.

---

**FPEV614** USER AUTHORIZATION EXIT RETURNS NO DATA

**Explanation:** According to the authorization specified for your user ID in the user authorization exit, no data is to be returned to you.

---

**User response:** None.

---

**FPEV615** SEVERE ERROR OCCURRED IN USER AUTHORIZATION EXIT

**Explanation:** The user authorization exit failed with a severe error.

**User response:** Contact your system programmer.

---

**FPEV6801E** <V1> READING SERVER PARAMETER FAILED, SEE JOB LOG FOR DETAILS

**Explanation:** During the start of the Collect Report Data job the output data set could not be created.

- <V1> is the DB2 subsystem ID.

**User response:** Check SYSPRINT of the job for more details and correct the error. Restart the PWH process.

---

**FPEV6802E** <V1> INCORRECT SERVER CRD START PARAMETER

**Explanation:** During the start of the Collect Report Data job the required job parameters were not found.

- <V1> is the DB2 subsystem ID.

**User response:** Check the JCL of the Performance Warehouse job.

---

**FPEV6803E** <V1> UPDATING SERVER CRD STATUS FAILED, SEE JOB LOG FOR DETAILS

**Explanation:** During the start of the Collect Report Data job the output data set could not be created.

- <V1> is the DB2 subsystem ID.

**User response:** Check SYSPRINT of the job for more details and correct the error. Restart the PWH process using the previously used GUI (XE, VTAM, PE Client, Performance Warehouse).

---

**FPEV6804I** <V1> <V2> IS STARTING

**Explanation:** A Collect Report Data job or an internal CRD subtask is starting.

- <V1> is the DB2 subsystem ID.
- <V2> is the name of the Performance Warehouse function (Collect Report Data).

**User response:** None.

---

**FPEV6805I** <V1> <V2> IS STOPPING

**Explanation:** A Collect Report Data job or an internal CRD subtask is stopping.

- <V1> is the DB2 subsystem ID.
- <V2> is the name of the Performance Warehouse function (Collect Report Data).

**User response:** None.
FPEV6806I  <V1> <V2> IS RESTARTING DB2 TRACE

Explanation: During the collection of DB2 trace data the started trace was lost. The trace is restarted. This might happen, for example, if the trace was stopped manually using a DB2 STOP TRACE command.
• <V1> is the DB2 subsystem ID.
• <V1> is the name of the Performance Warehouse function (Collect Report Data).

User response: If the message is not caused by STOP TRACE commands, and if the message shows up several times during the collection of DB2 trace data, contact IBM support.

FPEV6807I  <V1> <V2> TRACES LOST

Explanation: During the collection of DB2 trace data the started trace was lost. The trace is restarted. This might happen, for example, if the trace was stopped manually using a DB2 STOP TRACE command.
• <V1> is the DB2 subsystem ID.
• <V1> is the name of the Performance Warehouse function (Collect Report Data).

User response: If the message is not caused by STOP TRACE commands, and if the message shows up several times during the collection of DB2 trace data, contact IBM support.

FPEV6808E  <V1> <V2> TRACES FAILED, SEE JOB LOG FOR DETAILS

Explanation: During the collection of DB2 trace data the necessary DB2 operation failed.
• <V1> is the DB2 subsystem ID.
• <V1> is the name of the Performance Warehouse function (Collect Report Data).

User response: This might be a temporary DB2 problem. Check SYSPRINT of the job for more details. Restart the PWH process using the previously used GUI (XE, VTAM, PE Client, Performance Warehouse).

FPEV6809W  <V1> <V2> RETRIEVING ASYNCHRONOUS DB2 DATA FAILED, SEE JOB LOG FOR DETAILS

Explanation: During the collection of DB2 trace data the necessary DB2 operation failed.
• <V1> is the DB2 subsystem ID.
• <V1> is the name of the Performance Warehouse function (Collect Report Data).

User response: This might be a temporary DB2 problem. Check SYSPRINT of the job for more details. Restart the PWH process using the previously used GUI (XE, VTAM, PE Client, Performance Warehouse).

FPEV6810W  <V1> TASK <V2> DID NOT RESPOND TO TERMINATION REQUEST

Explanation: During the termination of a Collect Report Data job a subtask did not respond to the termination request.
• <V1> is the DB2 subsystem ID.
• <V1> is the name of the Collect Report Data subtask.

User response: This might be a temporary system problem. If the problem occurs at the end of each Collect Report Data job, contact IBM support.

FPEV6811W  <V1> SYSTEM EXCEPTION CAUGHT, COLLECT REPORT DATA TASK ENDING ABNORMALLY

Explanation: During the execution of a Collect Report Data job the job received an MVS system exception.
• <V1> is the DB2 subsystem ID.

User response: Check the system log for details about the abend.

FPEV6812I  <V1> COLLECTION STOPPED DUE TO : <V2>

Explanation: The collection of DB2 trace data was stopped.
• <V1> is the DB2 subsystem ID.
• <V1> is the reason why the collection was stopped.

User response: Check the indicated reason. Usually, the collection stops according to specified stop conditions. If preceding of following messages indicate an error, check SYSPRINT for additional details.

FPEV6813I  <V1> SPECIFIED OP BUFFER SIZE TO HIGH FOR THIS DB2, REDUCED IT TO 1 MB

Explanation: The configuration of the Collect Report Data step in the Performance Warehouse contains a OP buffer size that is not supported with this DB2 version. The OP buffer size is adjusted to 1 MB.
• <V1> is the DB2 subsystem ID.

User response: None.

FPEV6814I  <V1> USER <V2> DOES NOT HAVE REQUIRED MONITOR1/2 PRIVILEGE TO COLLECT REPORT DATA

Explanation: The Collect Report Data did not start because the user does not have sufficient DB2 authority.
• <V1> is the DB2 subsystem ID.
• <V2> is the user ID of the Performance Warehouse job.

User response: The system administrator should grant the necessary MONITOR1 or MONITOR2 privileges for the user ID or group ID of the Performance Warehouse job.
<table>
<thead>
<tr>
<th>Message Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPEV6823E</td>
<td>COMMAND <code>&lt;V1&gt;</code> NOT FOUND IN SYSIN. PARSING STOPPED</td>
</tr>
</tbody>
</table>
| Explanation: | An invalid command was found.  
• `<V1>` is the invalid command name. |
| User response: | Correct the command and retry. |
| FPEV6831W    | `<V1>` UNSUPPORTED COMMAND `<V2>` AT LINE `<F3>`, POSITION `<F4>` IGNORED |
| Explanation: | The OMEGAMON Collector startup configuration contains an invalid parameter.  
• `<V1>` is the DB2 subsystem ID.  
• `<V2>` is the command name.  
• `<F3>` is the line number.  
• `<F4>` is the position number. |
| User response: | Use the Configuration Tool (formerly ICAT) and correct the parameter. |
| FPEV6834W    | `<V1>` DB2 SUBSYSTEM `<V2>` - THIS DB2 VERSION IS NOT SUPPORTED |
| Explanation: | This message is issued when trying to collect data for an unsupported DB2 version.  
• `<V1>` is the name of the monitored DB2 subsystem.  
• `<V2>` is the version of the monitored DB2 subsystem. |
| User response: | None. |
| FPEV701      | SERVER `<V1>` NO LONGER AVAILABLE |
| Explanation: | None.  
• `<V1>` is the DB2 subsystem ID. |
| User response: | Restart the Data Server if necessary and reconnect to it. |
| FPEV702      | UNABLE TO CONNECT TO SERVER `<V1>` |
| Explanation: | Unexpected error.  
• `<V1>` is the DB2 subsystem ID. |
| User response: | Check the log for any Data Server errors. Log on to TSO/E again. If the problem recurs, contact IBM support. |
| FPEV703      | ANOTHER USER IS UPDATING THE PARAMETERS FOR SERVER `<V1>` |
| Explanation: | None.  
• `<V1>` is the DB2 subsystem ID. |
| User response: | Try again later. |
| FPEV704      | `<V1>` IS NOT AUTHORIZED TO UPDATE THE PARAMETERS FOR SERVER `<V2>` |
| Explanation: | None.  
• `<V1>` is the user ID.  
• `<V2>` is the DB2 subsystem ID. |
| User response: | Use the ADMINUSER command to add this user. |
| FPEV705      | THE PARAMETERS FOR SERVER `<V1>` ARE CURRENTLY UNAVAILABLE |
| Explanation: | Unexpected error.  
• `<V1>` is the DB2 subsystem ID. |
| User response: | Check the log for any Data Server errors. Log on to TSO/E again. If the problem recurs, contact IBM support. |
| FPEV706      | LOADING THE QUALIFICATIONS FOR SERVER `<V1>` FAILED |
| Explanation: | Unexpected error.  
• `<V1>` is the DB2 subsystem ID. |
| User response: | Check the log for any Data Server errors. Log on to TSO/E again. If the problem recurs, contact IBM support. |
| FPEV710      | `<V1>` IS AN INVALID COMMAND |
| Explanation: | You are not allowed to issue this command here.  
• `<V1>` is the invalid command you issued. |
| User response: | Do not issue this command. |
| FPEV711      | COLLECTION INTERVAL MUST BE NUMERIC IN THE RANGE 1 TO 86400 SECONDS |
| Explanation: | None. |
| User response: | Correct the field. |
| FPEV712      | MAXIMUM SIZE OF HISTORY DATA SET MUST BE NUMERIC IN THE RANGE 0 TO 9999999 KILOBYTES |
| Explanation: | None. |
| User response: | Use the Configuration Tool (formerly ICAT) and specify a larger size. |
| FPEV713      | DATASPACE SIZE MUST BE NUMERIC IN THE RANGE 0 TO 2097148 KILOBYTES |
| Explanation: | None. |
| User response: | Correct the field. |
FPEV714  NUMBER OF EXTENTS MUST BE NUMERIC
Explanation: None.
User response: Enter a positive integer.

FPEV801  ERROR SAVING PARAMETERS FOR SERVER <V1>
Explanation: An unexpected error has occurred.
• <V1> is the DB2 subsystem ID.
User response: Reconnect. If the problem recurs, contact IBM support.

FPEV911  ERROR PROCESSING GETMAIN. RC <V1>
Explanation: An error occurred attempting to allocate virtual storage.
• <V1> is the return code.
User response: Increase the region size and retry the OMEGAMON Collector administrator’s dialog.

FPEV921  TBCREATE FAILURE. RC <V1>
Explanation: An unexpected error has occurred.
• <V1> is the return code.
User response: Reconnect. If the problem recurs, contact IBM support.

FPEV922  TBDISPL FAILURE. RC <V1>
Explanation: An unexpected error has occurred.
• <V1> is the return code.
User response: Reconnect. If the problem recurs, contact IBM support.

FPEV923  TBADD FAILURE. RC <V1>
Explanation: An unexpected error has occurred.
• <V1> is the return code.
User response: Reconnect. If the problem recurs, contact IBM support.

FPEW - System Parameters report set messages

FPEW0110U  INSUFFICIENT STORAGE AVAILABLE TO STORE SYSTEM PARAMETERS DATA
Explanation: There was not sufficient storage available to continue processing the System Parameters report.
User response: Increase the region size and rerun the job.

FPEW0120I  IFCID 106 NOT SUPPORTED
Explanation: None.
User response: None.

FPEW1246S  UNSUCCESSFUL ATTEMPT WRITING TO THE FILE DATA SET OF SYSTEM PARAMETERS
Explanation: An error occurred while writing data to the system parameters file data set.
User response: Check for system messages detailing the problem.

Chapter 9. Messages
# FPEX - Audit report set messages

**FPEX0600S**  
EXCEPTIONAL CONDITION OCCURRED DURING AUDIT PROCESSING. MAIN STORAGE ALLOCATION FAILED  
**Explanation:** There was not enough storage available to continue Audit processing.  
**User response:** Increase the region size, and rerun the job.

**FPEX0610S**  
EXCEPTIONAL CONDITION OCCURRED DURING AUDIT PROCESSING. MAIN STORAGE RELEASE FAILED  
**Explanation:** An attempt to release storage failed.  
**User response:** Rerun the job. If the problem recurs, contact IBM support.

**FPEY - Explain report set messages**

**FPEY0001W**  
DB2 RELEASE <V1> IS NOT SUPPORTED BY THIS PRODUCT VERSION. AN EXPLAIN REQUEST FOR <V2> HAS BEEN IGNORED  
**Explanation:** The DB2 subsystem is at a release level that is not supported by this version of OMEGAMON XE for DB2 PE.  
- <V1> is the DB2 release.  
- <V2> is the subsystem ID.

**FPEY0002W**  
CALL ATTACH FUNCTION <V1> FAILED. RETURN CODE <V2>, REASON CODE <V3>  
**Explanation:** A problem was encountered establishing the required connection between OMEGAMON XE for DB2 PE and DB2.  
- <V1> is the Call Attach Facility (CAF) function.  
- <V2> is the return code.  
- <V3> is the reason code.  
**User response:** Ensure that the OMEGAMON XE for DB2 PE Explain plan name (DB2PMX32) exists. If the Explain plan was bound with a name other than the default plan name, this must be specified in the GLOBAL PLANEXPLAIN parameter of a OMEGAMON XE for DB2 PE batch Explain request job.

**FPEY0003W**  
DB2 CAF SUPPORT CANNOT BE LOADED. DB2 LOAD LIBRARY MAY NOT BE SPECIFIED IN STEPLIB  
**Explanation:** OMEGAMON XE for DB2 PE could not load the Call Attach Facility (CAF) support modules. The DB2 load library may be missing in the STEPLIB DD statement.  
**User response:** Determine why OMEGAMON XE for DB2 PE cannot load the required modules. Resubmit the job.

**FPEY0004I**  
COLUMN <V1> HAS BEEN ADDED TO <V2>,PLAN_TABLE  
**Explanation:** The PLAN_TABLE for the current authorization ID has been altered with columns compatible to the DB2 release being run.  
- <V1> is the column name.  
- <V2> is the authorization ID.  
**User response:** None.

**FPEY0005I**  
LAST COLUMN <V1> HAS BEEN ADDED TO <V2>,PLAN_TABLE  
**Explanation:** The PLAN_TABLE for the current authorization ID has been altered with columns compatible to the DB2 release being run.  
- <V1> is the column name.  
- <V2> is the authorization ID.  
**User response:** None.
• <V1> is the column name
• <V2> is the authorization ID

User response: No action required.

FPEY0106I  LAST COLUMN <V1> HAS BEEN ALTERED FOR <V2>.PLAN_TABLE
Explanation: The PLAN_TABLE for the current authorization ID has been altered with columns compatible to the DB2 release being run.
• <V1> is the column name
• <V2> is the authorization ID
User response: No action required.

FPEY0110I  NO STATISTICS AVAILABLE - EXECUTE RUNSTATS
Explanation: No DB2 catalog statistics are available for the current table space.
User response: Perform RUNSTATS against the table space before you use OMEGAMON XE for DB2 PE Explain.

FPEY0120I  INDEX INFORMATION SUPPRESSED BY USER REQUEST
Explanation: The user has specified INDEX=N for the EXPLAIN PLAN, EXPLAIN QMFQUERY, or EXPLAIN QUERYNO request. No column information for the chosen index will be shown.
User response: None.

FPEY0140I  NOTE: <V1>,<V2> CONTAINS <V3> ACTIVE PAGES - CONSIDER A USABLE INDEX
Explanation: This message is produced if DB2 has chosen a table space scan for a table located in a table space larger than 10 active pages.
• <V1> is the database name.
• <V2> is the table space name.
• <V3> is the number of active pages.
User response: If the access path should be index-based, create a usable index, otherwise no action is required.

FPEY0162I  PACKAGE REPORTS NOT REQUESTED
Explanation: You have specified that packages should not be explained for a specific plan. All DBRMs are explained, but no packages.
User response: None.

FPEY0164I  PLAN <V1> HAS MORE THAN <V2> PACKAGES
Explanation: The number of packages contained in the plan to be explained is greater than PACKLIMIT. The packages listed after the message include all versions if PACKAGES(ALL) has been specified. Otherwise only the latest versions are displayed.
• <V1> is the plan name.
• <V2> is the PACKLIMIT.
User response: Increase the number of packages from a plan that can be explained by specifying a PACKLIMIT greater than the number of packages to be explained. If PACKAGES(ALL) has been specified, then the number of packages to be explained can be reduced by changing the PACKAGES(ALL) specification to PACKAGES(YES).

FPEY0166I  PACKAGE <V1> IN COLLECTION <V2> HAS THE FOLLOWING VERSIONS
Explanation: The package specified exists in several versions. All version identifications are listed. The number of packages explained by OMEGAMON XE for DB2 PE is controlled by the PACKAGES, GEN, and FORCE options. Processing continues.
• <V1> is the package name.
• <V2> is the collection name.
User response: None.

FPEY0180I  QUERY NO. <V1> DOES NOT EXIST FOR USER <V2> - REQUEST IGNORED
Explanation: The query number specified in an EXPLAIN QUERYNO request could not be located in the accessed PLAN_TABLE. If necessary, specify the correct authorization ID in the OWNER parameter. The statement is ignored, and processing continues with the next Explain request.
• <V1> is the query number.
• <V2> is the user.
User response: Verify that the query number does...
exist in the table. Also verify that the correct PLAN_TABLE is being accessed.

**FPEY0314I** QNO <V1> IN DBRM <V2> PLAN <V3> IS NOT IN <V4>.PLAN_TABLE

*Explanation:* The specified query number could not be located for the plan and DBRM listed in the PLAN_TABLE of the plan binder. OMEGAMON XE for DB2 PE Explain continues looking for the next query number for the same plan.
- <V1> is the query number.
- <V2> is the DBRM.
- <V3> is the plan.
- <V4> is the authorization ID.

*User response:* None.

**FPEY0316I** QNO <V1> IN PACKAGE <V2>,<V3> NOT IN <V4>.PLAN_TABLE

*Explanation:* The specified query number could not be located for the collection ID and package name listed in the PLAN_TABLE of the plan binder. OMEGAMON XE for DB2 PE Explain continues looking for the next query number for the same collection ID and package name.
- <V1> is the query number.
- <V2> is the collection ID.
- <V3> is the package name.
- <V4> is the authorization ID.

*User response:* None.

**FPEY0320I** PLAN <V1> NOT BOUND WITH EXPLAIN OPTION - REQUEST IGNORED

*Explanation:* The plan specified in an EXPLAIN PLAN request was not bound with the EXPLAIN(YES) bind option. The statement is ignored, and processing continues with the next Explain request.
- <V1> is the plan.

*User response:* Rebind the plan and rerun the job with the same input record.

**FPEY0321I** DBRM <V1> HAS NO ROWS IN <V2>.PLAN_TABLE - REQUEST IGNORED

*Explanation:* The plan specified in an EXPLAIN PLAN request was bound with the EXPLAIN(YES) bind option, but the rows in the PLAN_TABLE owned by the authorization ID have been deleted for the given DBRM. The statement is ignored, and processing continues with the next Explain request.
- <V1> is the DBRM.
- <V2> is the authorization ID.

*User response:* Rebind the plan and rerun the job with the same input record.

**FPEY0324I** PLAN_TABLE FOR USER <V1> DOES NOT EXIST - REQUEST IGNORED

*Explanation:* The authorization ID given as the OWNER for an EXPLAIN QUERYNO request has no PLAN_TABLE. The statement is ignored, and processing continues with the next Explain request.
- <V1> is the user.

*User response:* None.

**FPEY0325I** UNABLE TO EXPLAIN <V1> - NOT AUTHORIZED TO ACCESS <V2>.PLAN_TABLE

*Explanation:* The authorization ID does not have the privilege to perform the access to the PLAN_TABLE.
- <V1> is the collection ID and package name or the plan name.
- <V2> is the authorization ID.

*User response:* See your system programmer to get authorization.

**FPEY0368I** LOCATION CANNOT BE DETERMINED UNTIL EXECUTION TIME - PACKAGE IGNORED

*Explanation:* The PACKAGES(YES) specification on the EXPLAIN PLAN request has been ignored.

*User response:* None.

**FPEY0370I** PACKAGE <V1>,<V2>,<V3> NOT BOUND WITH EXPLAIN OPTION

*Explanation:* The package specified in an EXPLAIN PACKAGE request was not bound with the EXPLAIN(YES) bind option. The statement is ignored, and processing continues with the next Explain request.
- <V1> is the collection ID.
- <V2> is the package ID.
- <V3> is the version ID.

*User response:* None.

**FPEY0372I** THIS REQUEST WILL RESULT IN <V1> PACKAGES WITH A TOTAL OF <V2> SQL STATEMENTS (INCLUDING NON-EXPLAINABLE)

*Explanation:* The package statement you have specified will result in Explain of more than one package with a total of more than 300 SQL statements (counting both explainable and non-explainable). If this is what you require, the request should be reissued with the FORCE(YES) subparameter specified. The statement is ignored, and processing continues with the next Explain request.
- <V1> is the number of packages.
- <V2> is the number of SQL statements.

*User response:* None.
FPEY0374I  NO PACKAGES FOUND FOR: <V1>

Explanation: No packages were found in SYSIBM.SYSPACKAGE that would satisfy the input specification. The statement is ignored, and processing continues with the next Explain request.
• <V1> is the input specification.
User response: None.

FPEY0376I  NO PACKAGES FOUND FOR PLAN <V1>, MATCHING PACKAGE <V3>,<V4>,<V2> SPECIFIED IN SYSPACKLIST

Explanation: No packages were found in SYSIBM.SYSPACKAGE for the specified plan. The statement is ignored, and processing continues with the next Explain request.
• <V1> is the plan.
• <V2> is the location ID.
• <V3> is the collection ID.
• <V4> is the package ID.
User response: None.

FPEY0378I  PACKAGE <V1>,<V2>,<V3> HAS NO ROWS IN SYSIBM.SYSPACKSTMT

Explanation: No rows were found in SYSIBM.SYSPACKSTMT for the specified package in the specified collection. The statement is ignored, and processing continues with the next Explain request.
• <V1> is the collection ID.
• <V2> is the package ID.
• <V3> is the version ID.
User response: None.

FPEY0380I  QMF QUERY <V1>,<V2> DOES NOT EXIST - REQUEST IGNORED

Explanation: A QMF query name specified in an EXPLAIN QMFQUERY request does not exist. If the OMEGAMON XE for DB2 PE Explain submitter is not the owner of the query, the query name must be prefixed with the authorization ID, like "AUTHID.QNAME". The statement is ignored, and processing continues with the next Explain request.
• <V1> is the authorization ID.
• <V2> is the query name.
User response: Verify that the query name is spelled correctly.

FPEY0382I  QMF OBJECT <V1>,<V2> IS A <V3> AND NOT A QUERY - REQUEST IGNORED

Explanation: The QMF object specified as the query name is not a query. The statement is ignored, and processing continues with the next Explain request.
• <V1> is the authorization ID.
User response: None.

FPEY0384I  QUERY <V1>,<V2> IS A <V3> QUERY, MUST BE SQL - REQUEST IGNORED

Explanation: The QMF query specified as the query name is not an SQL query. The statement is ignored, and processing continues with the next Explain request.
• <V1> is the authorization ID.
• <V2> is the query name.
• <V3> is either QBE or PROMPTED.
User response: None.

FPEY0386I  QMF QUERY <V1> IS RESTRICTED TO OWNER - REQUEST IGNORED

Explanation: The QMF query specified as the query name can only be explained by its owner. The statement is ignored, and processing continues with the next Explain request.
• <V1> is the specified QMF query.
User response: To explain a QMF query created by a different authorization ID, the query must be saved with the SHARE=YES parameter.

FPEY0388I  END OF QMF QUERY NOT FOUND - REQUEST IGNORED

Explanation: The QMF statement was found to be larger than 32KB. Either the QMF query is more than 409 lines or the end-of-statement marker was not found. In either case, the request is ignored, and processing continues with the next Explain request.
User response: None.

FPEY0500W  PREPARE OF <V1> FAILED. SQL CODE: <V2>

Explanation: A prepare statement failed during preparing a select statement for <V1>. A formatted print of the SQLCA and an error message are provided.
• <V1> is the object of the select statement.
• <V2> is the SQL code.
User response: Check the SQL code and follow the instructions given in DB2 Messages and Codes (or in the corresponding manual of the DB2 version you have installed).

FPEY0501I  <V1>.PLAN_TABLE DOES NOT EXIST

Explanation: None.
• <V1> is the authorization ID.
User response: None.
FPEY0502I  PLAN <V1> BOUND WITH *
PACKLIST BIND OPTION. PACKAGES
SHOWN MAY NOT BE USED IN PLAN

Explanation: Since the PACKLIST bind option
contained a wildcard specification when the plan was
bound, DB2 will not determine the packages to be used
until runtime. OMEGAMON XE for DB2 PE Explain
may report on all eligible packages, not just those used
by the plan.
• <V1> is the plan.
User response: None.

FPEY0504W  DECLARE OF <V1> FAILED. SQL
CODE: <V2>

Explanation: A declare statement failed during
declaring the program cursor. A formatted print of the
SQLCA and an error message are provided.
• <V1> is the program cursor.
• <V2> is the SQL code.
User response: Check the SQL code and follow the
instructions given in DB2 Messages and Codes (or in the
corresponding manual of the DB2 version you have
installed).

FPEY0508W  OPEN OF <V1> FAILED. SQL CODE: <V2>

Explanation: An open statement failed during opening
the program cursor. A formatted print of the SQLCA
and an error message are provided.
• <V1> is the program cursor.
• <V2> is the SQL code.
User response: Check the SQL code and follow the
instructions given in DB2 Messages and Codes (or in the
corresponding manual of the DB2 version you have
installed).

FPEY0509W  FUNCTION STEP <V1> FOR TABLE
<V2> FAILED. SQL CODE: <V3>

Explanation: An SQL statement failed. A formatted
print of the SQLCA and an error message are provided.
• <V1> is the function step keyword:
  STORAGE
  No storage is available for the table row
  SELECT
  SQL SELECT statement failed
  SELECT COUNT
  SQL SELECT COUNT statement failed
  INSERT
  SQL INSERT statement failed
  PROGERR
  Internal program error.
• <V2> is the table name.
• <V3> is the SQL code.
User response: Check the SQL code and follow the
instructions given in DB2 Messages and Codes (or in the
corresponding manual of the DB2 version you have
installed).

FPEY0510W  FUNCTION STEP <V1> FOR CURSOR
<V2> WITH TABLE <V3> FAILED. SQL
CODE: <V4>

Explanation: An SQL statement failed. A formatted
print of the SQLCA and an error message are provided.
• <V1> is the function step keyword:
  STORAGE
  No storage is available for the table row
  OPEN
  SQL OPEN CURSOR statement failed
  FETCH
  SQL FETCH CURSOR statement failed
  CLOSE
  SQL CLOSE CURSOR statement failed
  PROGERR
  Internal program error.
• <V2> is the cursor name.
• <V3> is the table name.
• <V4> is the SQL code.
User response: Check the SQL code and follow the
instructions given in DB2 Messages and Codes (or in the
corresponding manual of the DB2 version you have
installed).

FPEY0514W  CURRENT SQLID COULD NOT BE
OBTAINED, WILL USE
AUTHORIZATION ID: <V1>

Explanation: The OMEGAMON XE for DB2 PE
Explain function could not select the current SQLID
(secondary authorization ID). The program continues
using the primary authorization ID. A formatted print
of the SQLCA and an error message are provided.
• <V1> is the primary authorization ID.
User response: None.

FPEY0515E  CURRENT DEGREE <V1> COULD
NOT BE OBTAINED

Explanation: The OMEGAMON XE for DB2 PE
Explain function could not set the current degree
specified in the EXPLAIN command. A formatted
printout of the SQLCA is produced.
• <V1> is the degree specified in the command.
User response: See DB2 Messages and Codes for a
description of the SQL code.

FPEY0520W  OPEN OF C_KEYS FAILED. SQL
CODE: <V1>

Explanation: An error was detected during opening a
cursor for SYSIBM.SYSKEYS joined with
SYSIBM.SYSINDEXES. OMEGAMON XE for DB2 PE
Explain continues with the current request, after
printing the formatted SQLCA and the error message.
• <V1> is the SQL code.
User response: See DB2 Messages and Codes (or the
corresponding manual of the DB2 version you have
installed).
FPEY0522W  FETCH OF C.Keys FAILED. SQL CODE: <V1>

Explanation: An error was detected during fetch from SYSIBM.SYSTEY joined with SYSIBM.SYSINDEXES. OMEGAMON XE for DB2 PE Explain continues with the current request, after printing the formatted SQLCA and the error message.
• <V1> is the SQL code.

User response: None.

FPEY0524W  OPEN OF C.IxCol FAILED. SQL CODE: <V1>

Explanation: An error was detected during opening a cursor for SYSIBM.SYSTEY joined with SYSIBM.SYSINDEXES and SYSIBM.SYSTABLES. OMEGAMON XE for DB2 PE Explain continues with the current request, after printing the formatted SQLCA and the error message.
• <V1> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0526W  FETCH OF C.IxCol FAILED. SQL CODE: <V1>

Explanation: An error was detected during fetch from SYSIBM.SYSTEY joined with SYSIBM.SYSINDEXES and SYSIBM.SYSTABLES. OMEGAMON XE for DB2 PE Explain continues with the current request, after printing the formatted SQLCA and the error message.
• <V1> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0528W  OPEN OF C.Stmt FAILED. SQL CODE: <V1>

Explanation: An error was detected during opening a cursor for SYSIBM.SYSTMT. A formatted print of the SQLCA and an error message are provided.
• <V1> is the SQL code.

User response: None.

FPEY0530W  FETCH OF C.Stmt FAILED. SQL CODE: <V1>

Explanation: An error was detected during a fetch from SYSIBM.SYSTMT. A formatted print of the SQLCA and an error message are provided.
• <V1> is the SQL code.

User response: None.

FPEY0536W  EXPLAIN OF A REMOTE OBJECT IS NOT ALLOWED. SQL CODE: <V1>

Explanation: An immediate EXPLAIN statement failed, because the statement being explained contained a table located in another DB2 system. The EXPLAIN statement may only contain local objects. Processing continues with the next Explain request.
• <V1> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0538W  EXPLAIN OF SUPPLIED SQL-STATEMENT FAILED. SQL CODE: <V1>

Explanation: An immediate EXPLAIN statement failed. A formatted print of the SQLCA and an error message are provided together with the statement to be explained. Processing continues with the next Explain request.
• <V1> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0540W  TABLE SPACE <V1>,<V2> NOT FOUND IN SYSIBM.SYSTABLESPACE. SQL CODE: <V3>

Explanation: The listed table space could not be found in SYSIBM.SYSTABLESPACE.
• <V1> is the database name.
• <V2> is the table space name.
• <V3> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0542W  TABLE <V1>,<V2> NOT FOUND IN SYSIBM.SYSTABLES. SQL CODE: <V3>

Explanation: The listed table could not be found in SYSIBM.SYSTABLES.
• <V1> is the authorization ID.
• <V2> is the table name.
• <V3> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.
FPEY0544W COLUMN <V1> NOT FETCHED FROM SYSIBM.SYSCOLUMNS. SQL CODE: <V2>

Explanation: The listed table could not be found in SYSIBM.SYSCOLUMNS. For other SQL codes, OMEGAMON XE for DB2 PE Explain continues with the current request, after printing the formatted SQLCA and the error message.
• <V1> is the column name.
• <V2> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0546W INDEX <V1>,<V2> NOT FOUND FROM SYSIBM.SYSINDEXES. SQL CODE: <V3>

Explanation: The listed index could not be found in SYSIBM.SYSINDEXES. A formatted print of the SQLCA and an error message are provided.
• <V1> is the authorization ID.
• <V2> is the index name.
• <V3> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0548W PLAN <V1> NOT FOUND IN SYSIBM.SYSPLAN. SQL CODE: <V2>

Explanation: The listed plan could not be found in SYSIBM.SYSPLAN.
• <V1> is the plan name.
• <V2> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0554W DATABASE <V1>,<V2> NOT FOUND IN SYSIBM.SYSDATABASE. SQL CODE: <V3>

Explanation: The listed database could not be found in SYSIBM.SYSDATABASE.
• <V1> is the authorization ID.
• <V2> is the database name.
• <V3> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0560W OPEN OF C_TSKEYS FAILED. SQL CODE: <V1>

Explanation: An error was detected during opening a cursor for SYSIBM.SYSKEYS. OMEGAMON XE for DB2 PE Explain continues with the current request, after printing the formatted SQLCA and the error message.
• <V1> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0580W UNAUTHORIZED ACCESS TO THE Q.OBJECT_DIRECTORY TABLE - REQUEST IGNORED

Explanation: The user has specified an input record with an EXPLAIN QMFQUERY request. The plan does not have select authorization to the Q.OBJECT_DIRECTORY table and returns an SQL code of either -551 or -552. Processing continues with the next Explain request.

User response: None.

FPEY0582W UNAUTHORIZED ACCESS TO THE Q.OBJECT_DATA TABLE - REQUEST IGNORED

Explanation: The user has specified an input record with an EXPLAIN QMFQUERY request. The plan does not have select authorization to the Q.OBJECT_DIRECTORY table and returns an SQL code of either -551 or -552. Processing continues with the next Explain request.

User response: None.

FPEY0584W ACCESS TO THE TABLE Q.OBJECT_DIRECTORY FAILED. SQL CODE: <V1>

Explanation: The user has specified an input record with an EXPLAIN QMFQUERY request. The plan does not have proper authorization to the Q.OBJECT_DIRECTORY table. A formatted print of the SQLCA and an error message is provided.
• <V1> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0586W ACCESS TO THE TABLE Q.OBJECT_DATA FAILED. SQL CODE: <V1>

Explanation: The user has specified an input record with an EXPLAIN QMFQUERY request. The plan does not have proper authorization to the Q.OBJECT_DATA table. A formatted print of the SQLCA and an error message are provided. Processing continues with the next Explain request.
• <V1> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.
FPEY0587W  QMF QUERY EXCEEDS LIMIT OF 32 KB LENGTH, QUERY TRUNCATED

Explanation: You wanted to explain a QMF query that exceeds the 32 KB work area.

User response: If the query contains many comments, remove them and try again.

FPEY0600W  THE EXPLAIN TABLE
<V1>.PLAN_TABLE WAS NOT CREATED. SQL CODE: <V2>

Explanation: An attempt to create a PLAN_TABLE failed. The reason is that the CREATETAB authorization is missing. A formatted print of the SQLCA and an error message are provided. Processing is terminated.
• <V1> is the authorization ID.
• <V2> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0602W  ADDITION OF THREE V2R2 COLUMNS TO <V1>.PLAN_TABLE FAILED. SQL CODE: <V2>

Explanation: An attempt was made to ALTER the three columns PREFETCH, COLUMN_FN_EVAL, and MIXOPSEQ to the user's existing PLAN_TABLE. One or more of the three ALTER statements failed.
• <V1> is the authorization ID.
• <V2> is the SQL code.

User response: None.

FPEY0605W  ADDITION OF FOUR V3 COLUMNS TO <V1>.PLAN_TABLE FAILED. SQL CODE: <V2>

Explanation: An attempt was made to ALTER the four columns ACCESS_DEGREE, ACCESS_PGROUP_ID, JOIN_DEGREE, and JOIN_PGROUP_ID to the user's existing PLAN_TABLE. One or more of the four ALTER statements failed.
• <V1> is the authorization ID.
• <V2> is the SQL code.

User response: None.

FPEY0606W  PLAN_TABLE IS NOT COMPATIBLE WITH DB2 REL <V1>. SQL CODE: <V2>

Explanation: The format of the PLAN_TABLE is not compatible with the current release of DB2.
• <V1> is the DB2 version.
• <V2> is the SQL code.

User response: Check the number of columns in your PLAN_TABLE to determine what level of PLAN_TABLE exists, and correct as necessary before executing OMEGAMON XE for DB2 PE Explain.

FPEY0607E  PLAN_TABLE BELONGING TO PLAN OR PACKAGE OWNER IS NOT SUPPORTED BY DB2 PE

Explanation: The PLAN_TABLE to be accessed is checked against the used DB2 version for validity. If the PLAN_TABLE fits a prior DB2 version, it is adapted to the currently used version of DB2. In this case the PLAN_TABLE may not have the right number of columns for the DB2 versions supported by DB2 PE. Thus, OMEGAMON XE for DB2 PE cannot alter the PLAN_TABLE to support the currently active DB2 version.

User response: Ask your system administrator to correct the PLAN_TABLE. If necessary, new columns must be added.

FPEY0608W  ADDITION OF NINE V41 COLUMNS TO <V1>.PLAN_TABLE FAILED. SQL CODE: <V2>

Explanation: An attempt was made to ALTER the nine columns SORC_PGROUP_ID, SORTN_PGROUP_ID, PARALLELISM_MODE, MERGE_JOIN_COLS, CORRELATION_NAME, PAGE_RANGE, JOIN_TYPE, GROUP_MEMBER, IBM_SERVICE_DATA to the user's existing PLAN_TABLE. One or more of the nine ALTER statements failed.
• <V1> is the authorization ID.
• <V2> is the SQL code.

User response: Ask your system administrator to correct the PLAN_TABLE. If necessary, new columns must be added.

FPEY0609W  ADDITION OF ONE V5 COLUMN TO <V1>.PLAN_TABLE FAILED. SQL CODE: <V2>

Explanation: An attempt was made to ALTER the column WHEN_OPTIMIZE to the user's existing PLAN_TABLE. The ALTER statement failed.
• <V1> is the authorization ID.
• <V2> is the SQL code.

User response: Ask your system administrator to correct the PLAN_TABLE. If necessary, new columns must be added.

FPEY0612W  ADDITION OF LAST COLUMN <V1> TO <V2>.PLAN_TABLE IN STEP <V3> FAILED. SQL CODE <V4>

Explanation: An SQL statement failed. A formatted print of the SQLCA and an error message are provided.
• <V1> is the column name.
• <V2> is the authorization ID.
• <V3> is the function step keyword.
ALTER TABLE
SQL ALTER TABLE statement failed
COMMENT ON
SQL COMMENT ON statement failed
COMMIT
SQL COMMIT statement failed
PROGERR
Internal program error.
• <V4> is the SQL code.

User response: Check the SQL code and follow the instructions given in DB2 Messages and Codes (or in the corresponding manual of the DB2 version you have installed).

FPEY0636W OPEN OF C_EEPL FAILED. SQL CODE: <V1>
Explanation: An error was detected during opening a cursor for binder.DGO_DGOPLAN. Printing of plan history information is stopped. Normal processing continues.
• <V1> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0638W OPEN OF C_EEED2 FAILED. SQL CODE: <V1>
Explanation: An error was detected during opening a cursor for binder.DGO_DGOBRM. Printing of DBRM information is stopped. Normal processing continues.
• <V1> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.
FPEY0708W OPEN OF C_PACKAGES FAILED. SQL CODE: <V1>

Explanation: An error was detected during opening a cursor for SYSIBM.SYSPACKAGE. Processing continues with the current request, after printing the formatted SQLCA and the error message.
• <V1> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0709W SELECT AGAINST SYSPACKAGE FAILED FOR PACKAGE <V1> .<V2>,(<V3>). SQLCODE: <V4>

Explanation: OMEGAMON XE for DB2 PE could not access SYSIBM.SYSPACKAGE.
• <V1> is the collection ID.
• <V2> is the package ID.
• <V3> is the version ID.
• <V4> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0710W OPEN OF C_PACK_STMT FAILED. SQL CODE: <V1>

Explanation: An error was detected during opening a cursor for SYSIBM.SYSPACKSTMT. Processing continues with the current request, after printing the formatted SQLCA and the error message.
• <V1> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0712W FETCH FROM C_PACK_STMT FAILED. SQL CODE: <V1>

Explanation: An error was detected during fetching a row from SYSIBM.SYSPACKSTMT. Processing continues with the current request, after printing the formatted SQLCA and the error message.
• <V1> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.

FPEY0714W OPEN OF C_SYSPACK_STMT FAILED. SQL CODE: <V1>

Explanation: An error was detected during opening a cursor for SYSIBM.SYSPACKSTMT. Processing continues with the current request, after printing the formatted SQLCA and the error message.
• <V1> is the SQL code.

User response: See DB2 Messages and Codes (or the corresponding manual of the DB2 version you have installed) for a description of the SQL code.
**FPEY8001W**  •  **FPEZ1010I**

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**FPEY8001W**  CAN'T ACCESS SYSDBRM FOR  
\(<V1>\) IN \(<V2>\). SQL CODE: \(<V3>\)

**Explanation:** None.

- \(<V1>\) is the DBRM name.
- \(<V2>\) is the plan name.

**FPEZ - Migrate/Convert function messages**

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**FPEZ1000E**  INPUT PARAMETER IS AN INVALID REQUEST

**Explanation:** A parameter other than MIGRATE or CONVERT was requested.

**User response:** Use either MIGRATE or CONVERT.

---

**FPEZ1001I**  \(<V1>\) HAS BEEN REQUESTED

**Explanation:** MIGRATE or CONVERT has been requested.

- \(<V1>\) can be either MIGRATE or CONVERT.

**User response:** None.

---

**FPEZ1002E**  UNABLE TO OPEN INPUT FILE. PROCESSING TERMINATED

**Explanation:** An error occurred attempting to open the input file.

**User response:** Check that the input file exists or is in the correct format.

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**FPEZ1003E**  UNABLE TO READ INPUT FILE. RC \(<V1>\), REASON \(<V2>\)

**Explanation:** An error occurred attempting to read the input file.

- \(<V1>\) is the return code.
- \(<V2>\) is the reason code.

**User response:** See the VSAM documentation.

---

**FPEZ1004E**  INPUT FILE IS NOT A RECOGNIZED ACCOUNTING OR STATISTICS SAVE FILE

**Explanation:** None.

**User response:** Use a valid Accounting Save data set or Statistics Save data set.

---

**FPEZ1005E**  MIGRATE WAS REQUESTED BUT THE FORMAT OF THE INPUT SAVE FILE IS NOT SUPPORTED BY THIS PRODUCT RELEASE.

**Explanation:** The input file is a Save data set that cannot be migrated with this release.

**User response:** Use only Save data sets of the last and next-to-last releases as input for the save-file utility MIGRATE function.

---

**FPEZ1006E**  CONVERT WAS REQUESTED BUT THE INPUT FILE IS NOT A CURRENT VERSION SAVE FILE

**Explanation:** The input file is a Save data set that is not compatible with this release. Save data sets from earlier versions must be migrated by the save-file utility MIGRATE function before being converted.

**User response:** Use only Save data sets of the current release or of the last and next-to-last releases that have been migrated as input for the save-file CONVERT function.

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**FPEZ1007E**  UNABLE TO OPEN OUTPUT FILE. PROCESSING TERMINATED

**Explanation:** An error occurred attempting to open the output file.

**User response:** Check that the output file has been allocated correctly.

---

**FPEZ1008I**  \(<V1>\) \(<V2>\) HAS STARTED

**Explanation:** The accounting or statistics migrate function or convert function has started.

- \(<V1>\) is accounting or statistics.
- \(<V2>\) is the migrate or convert function.

**User response:** None.

---

**FPEZ1009E**  UNABLE TO WRITE TO OUTPUT FILE. RC \(<V1>\), REASON \(<V2>\)

**Explanation:** An error occurred attempting to write to the output file.

- \(<V1>\) is the return code.
- \(<V2>\) is the reason code.

**User response:** See the VSAM documentation.

---

**FPEZ1010I**  \(<V1>\) \(<V2>\) HAS FINISHED

**Explanation:** The accounting or statistics migrate function or convert function has finished.

- \(<V1>\) is accounting or statistics.
- \(<V2>\) is the migrate or convert function.

**User response:** None.
FPEZ101I  RECORDS IN: <V1>. RECORDS OUT: <V2>

Explanation: This message shows the number of input records processed and the number of records written to the output file.
• <V1> is the number of input records.
• <V2> is the number of output records.

User response: None.

FPEZ1015E  INVALID FORMAT OF SAVE INPUT FILE. PROCESSING TERMINATED

Explanation: The SAVE file contains an invalid structure and could not be migrated.

User response: None.

FPEZ1016E  SAVE INPUT FILE COMES FROM VERSION <V1>

Explanation: This informational message indicates the underlying save file product version (520 or 530).

User response: None.

KDP - Tivoli Enterprise Monitoring Agent (TEMA) for DB2 messages

In the following error messages from KDPAnn01E to KDPAnn10I, nn represents one of the plex level agents in the range of p0 through pd. nn identifies the unique error message number.

KDPAnn01E  Node header is not available.

Explanation: The plex level agent cannot find the storage area of the nodes that are registered at the TEMS. The control block address contains a NULL value. Therefore it cannot be used.

System action: The requested data cannot be retrieved.

User response: Contact IBM support to report this problem.

KDPAnn02E  Cannot resolve the global area address.

Explanation: The plex level agent cannot find the storage area of a global control block that contains information that is required by the table code. The address of the control block contains a NULL value. Therefore it cannot be used.

System action: The requested data cannot be retrieved.

User response: Contact IBM support to report this problem.

KDPAnn03E  Error %d from Init_HUB.

Explanation: The connection to the HUB stopped. It cannot be reconnected.

System action: The requested data cannot be retrieved.

User response: Contact IBM support to report this problem.

KDPAnn04E  Cannot obtain SQLInterface storage for %s.

Explanation: The storage area to be used to run SQL requests with the TEMS HUB cannot be allocated.

System action: The requested data cannot be retrieved.

User response: There might be a storage constraint on the started task. You can adjust the limit statements in the KD5SYSIN parameter or in the KDSSYSIN parameter. If the problem persists after a restart, contact IBM Support.

KDPAnn05E  Error %d occurred when creating an access plan.

Explanation: An SQL request failed. An internal error occurred when creating an access plan.

System action: The requested data cannot be retrieved.

User response: Contact IBM support to report this problem.

KDPAnn06E  Error %d occurred when creating a Create Request.

Explanation: An SQL request failed. An internal error occurred when creating a Create request.

System action: The requested data cannot be retrieved.

User response: Contact IBM support to report this problem.
<table>
<thead>
<tr>
<th>Error Code</th>
<th>Description</th>
<th>Explanation</th>
<th>System action</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>KDPAnn07E</td>
<td>Cannot locate Input SQLDA.</td>
<td>The SQL statement for obtaining the SQL structure that is used to define input parameters failed.</td>
<td>The requested data cannot be retrieved.</td>
<td>Contact IBM support to report this problem.</td>
</tr>
<tr>
<td>KDPAnn08E</td>
<td>Error %d occurred when creating an Open Request.</td>
<td>The SQL request failed. The return code in this error message indicates the failure type.</td>
<td>The requested data cannot be retrieved.</td>
<td>Contact IBM support to report this problem.</td>
</tr>
<tr>
<td>KDPAnn09E</td>
<td>Cannot locate Output SQLDA.</td>
<td>In the SQL interface, the SQLDA output area is missing. The SQLDA output area is required to map the data that is returned by other agents.</td>
<td>The requested data cannot be retrieved.</td>
<td>Contact IBM support to report this problem.</td>
</tr>
<tr>
<td>KDPAnn10E</td>
<td>Cannot detect DB2 systems online.</td>
<td>Currently, no DB2 systems are monitored.</td>
<td>No data is returned for this request.</td>
<td>Verify that the DB2 systems are running and that on each LPAR the KDPAGENTS are monitoring the systems. If at startup time theplex level agent started prior to the KDPAGENTS, online nodes cannot be detected. Wait a minute before restarting the request. If the problem persists, contact IBM Support to report the problem.</td>
</tr>
<tr>
<td>KDPAP01I</td>
<td>Connect failed DB2 &lt;ssid&gt;</td>
<td>D5API could not establish the connection to the required DB2 instance in the OMPE server.</td>
<td>Connection request is aborted. Possible causes are: The OMPE server is down. The DB2 instance is terminated from the OMPE server.</td>
<td>None.</td>
</tr>
<tr>
<td>KDPAP02I</td>
<td>Disconnect failed DB2 &lt;ssid&gt;</td>
<td>D5API disconnect request failed. Possible causes are OMPE server is down or the DB2 instance is terminated from OMPE server.</td>
<td>Disconnect request is aborted.</td>
<td>None.</td>
</tr>
<tr>
<td>KDPAP03E</td>
<td>&lt;ssid&gt; table %%%%%% - Collection timed out. RC=20</td>
<td>D5API collection request for table %%%%%% could not complete because another collection request is still actively holding the resource. This usually indicates the active data collection took too long to complete causing the current collection request to fail.</td>
<td>D5API collect request is aborted.</td>
<td>None.</td>
</tr>
<tr>
<td>KDPAP04I</td>
<td>DB2 &lt;ssid&gt; table %%%%%% - D5API connection lost. RC=16</td>
<td>D5API could not complete the table collection because the connection is terminated.</td>
<td>Collect request is aborted.</td>
<td>None.</td>
</tr>
<tr>
<td>KDPAP05E</td>
<td>Mutex init failed rc mmm</td>
<td>D5API resource control initialization failed.</td>
<td>D5API request is aborted.</td>
<td>Contact IBM support.</td>
</tr>
<tr>
<td>KDPAP06E</td>
<td>Mutex trylock failed rc mmm</td>
<td>D5API connection request is unable to get hold of the resource.</td>
<td>D5API connection request is aborted.</td>
<td>None.</td>
</tr>
<tr>
<td>KDPAP07E</td>
<td>Mutex unlock failed rc mmm</td>
<td>D5API resource control release request failed.</td>
<td>D5API connection request is aborted.</td>
<td>None.</td>
</tr>
</tbody>
</table>
KDPAT001  DPDC GLOBAL VECTOR TABLE NOT FOUND

Explanation: The global vector table has not been allocated, indicating that the KDPBGV routine failed to properly initialize the environment.

System action: None.

User response: Look for previous messages for an indication as to what failed. Contact IBM support.

KDPAT007  DPDC COLLECTOR WAS NOT ATTACHED FOR DB2 dbid.
          R0(xxxxxxxx)  R1(xxxxxxxx)  R15(xxxxxxxx)

Explanation: The attempt failed to attach a new TCB for the KDPCOL00 module. Register 15 contains the error code from the attach request.

System action: None.

User response: Contact IBM support.

KDPAU001  DB2PLEX AUTODISCOVERY STARTED

Explanation: This is an informational message.

System action: None.

User response: None.

KDPAU01F  AUTODISCOVERY INITIALIZATION FAILED

Explanation: OMEGAMON XE for DB2 could not recognize the DB2 subsystems that are currently online.

System action: None.

User response: Contact IBM support. Until a solution is found, you can use the Configuration Tool (formerly ICAT) to disable auto-discovery and manually identify the DB2 systems.

KDPAU02E  MULTIPLE IPDC AUTODISCOVERY COMMANDS ISSUED

Explanation: The auto-discovery command executed more than once.

System action: None.

User response: Check the RKAN CMD file to ensure that only one AUTODISCOVER command is specified. Remove the extra commands.

KDPAU03F  UNABLE TO CREATE LOGICAL RESOURCE

Explanation: OMEGAMON XE for DB2 could not recognize the DB2 subsystems that are currently online.

System action: None.

User response: Contact IBM support. Until a solution is found, you can use the Configuration Tool (formerly ICAT) to disable auto-discovery and manually identify the DB2 systems.

KDPAU04F  UNABLE TO ACQUIRE LOGICAL RESOURCE

Explanation: OMEGAMON XE for DB2 could not recognize the DB2 subsystems that are currently online.

System action: None.

User response: Contact IBM support. Until a solution is found, you can use the Configuration Tool (formerly ICAT) to disable auto-discovery and manually identify the DB2 systems.

KDPAU05F  RESOURCE LOCK ERROR
          ERRNO=nnnn

Explanation: A logic error is preventing the acquisition of a lock.

System action: None.

User response: Contact IBM support. Until a solution is found, you can use the Configuration Tool (formerly ICAT) to disable auto-discovery and manually identify the DB2 systems.

KDPAU10F  CONTROL BLOCK ALLOCATION FAILED

Explanation: Insufficient storage for this function. Either not enough storage is available for the started task or some type of storage overlay is preventing the allocation.

System action: None.

User response: Contact IBM support. Until a solution is found, you can use the Configuration Tool (formerly ICAT) to disable auto-discovery and manually identify the DB2 systems.

KDPAU11F  CONDITION INITIALIZATION FAILED

Explanation: This is an internal error.

System action: None.

User response: Contact IBM support. Until a solution is found, you can use the Configuration Tool (formerly ICAT) to disable auto-discovery and manually identify the DB2 systems.

KDPAU12F  CONDITION MUTEX INITIALIZATION FAILED

Explanation: This is an internal error.

System action: None.
User response: Contact IBM support. Until a solution is found, you can use the Configuration Tool (formerly ICAT) to disable auto-discovery and manually identify the DB2 systems.

KDPAU13F MUTEX INITIALIZATION FAILED
Explanation: This is an internal error.
System action: None.
User response: Contact IBM support. Until a solution is found, you can use the Configuration Tool (formerly ICAT) to disable auto-discovery and manually identify the DB2 systems.

KDPAU14E COMMAND="command" FAILED.
STATUS=n.nn
Explanation: The indicated command did not complete properly. The command was issued to either start collecting data for a new DB2 subsystem or to stop collecting data for a DB2 system that is no longer active.
System action: None.
User response: Contact IBM support.

KDPCM001 DPDC IS NOT INITIALIZED
Explanation: The global vector table has not been allocated, indicating that the KDPBGV routine failed to properly initialize the environment.
System action: None.
User response: Look for previous messages for an indication as to what failed. Contact IBM support.

KDPBG004 DPDC UNABLE TO ACQUIRE STORAGE FOR GVT
Explanation: The storage request for the global vector table (GVT) failed. Either not enough virtual memory is available or that a storage corruption is preventing space allocation.
System action: None.
User response: Contact IBM support.

KDPBG005 DPDC UNABLE TO ACQUIRE STORAGE FOR GVT
Explanation: The storage request for the global vector table (GVT) failed. Either not enough virtual memory is available or that a storage corruption is preventing space allocation.
System action: None.
User response: Contact IBM support.

KDPBG006 DPDC UNABLE TO ACQUIRE STORAGE FOR GVT
Explanation: The storage request for the global vector table (GVT) failed. Either not enough virtual memory is available or that a storage corruption is preventing space allocation.
System action: None.
User response: Contact IBM support.
KDPCM035  DPDC (dbid) MONITOR IS BEING TERMINATED
Explanation: The collector for the specified DB2 system is scheduled for termination.
System action: None.
User response: None.

KDPCM037  DPDC (dbid) MONITOR IS BEING RESTARTED. AVT ADDRESS=xxxxxxxx
Explanation: The collector for the specified DB2 system is being restarted. The address of the application vector table (AVT) is shown.
System action: None.
User response: None.

KDPCM039  DPDC COMMAND FORMAT ERROR
Explanation: An error was detected on the command displayed just before this message.
System action: None.
User response: Correct the syntax and reissue the command.

KDPCM042  IPDC ERROR LOADING MODULE modname
Explanation: The system could not load the auto-discovery module or the display module from the load library.
System action: None.
User response: Verify that the module exists.

KDPC007  DPDC description (modname) ROUTINE NOT FOUND
Explanation: The program identified by the description and module name could not be loaded from the load library.
System action: None.
User response: None.

KDPB001  DPDC GLOBAL VECTOR TABLE NOT FOUND
Explanation: The global vector table has not been allocated, indicating that the KDPBGV routine failed to properly initialize the environment.
System action: None.
User response: None.

KDPB007  DPDC SCOM SCAN (modname) ROUTINE NOT FOUND
Explanation: The program identified by the module name could not be loaded from the load library.
System action: None.
User response: None.

KDPB020  DB2 MASTER REGION FOR DB2ID dbid IS NOT FOUND OR DB2 ERLY NOT VALID
Explanation: The collector code could not locate the DB2 master started task for the indicated DB2 system. This can be caused by the dbidMSTR started task not running or because the ERLY control block is invalid.
System action: None.
User response: If the master task is not running, restart the DB2 system. Otherwise, contact IBM support.

KDPB025  JES CVT NOT FOUND
Explanation: This is an internal error.
System action: None.
User response: Contact IBM support.

KDPB026  NO SUBSYSTEMS FOUND
Explanation: This is an internal error.
System action: None.
User response: Contact IBM support.
KDPDC005 • KDPDC09E

KDPDC005  DPDC UNABLE TO OPEN RKANPAR
DATASET R0(xxxxxxxx) R1(xxxxxxxx) R15(xxxxxxxx)
Explanation: An error occurred when trying to open the PDS RKANPAR.
System action: None.
User response: Verify that the data set is available and not allocated to some other task in exclusive mode.

KDPDC006  DPDC UNABLE TO ENQUEUE
RKANPAR DATASET R0(xxxxxxxx) R1(xxxxxxxx) R15(xxxxxxxx)
Explanation: An ENQUEUE on the RKANPAR data could not be obtained. The return code from the ENQUEUE request is in R15.
System action: None.
User response: None.

KDPDC007  DPDC UNABLE TO FIND MEMBER
member R0(xxxxxxxx) R1(xxxxxxxx) R15(xxxxxxxx)
Explanation: The indicated member member is not located in the RKANPAR PDS. The Load Runtime Members job might not have been run successfully from the Configuration Tool (formerly ICAT).
System action: None.
User response: None.

KDPDC009  DPDC COMMAND {ENTERED | PROCESSED}: cccccc
Explanation: If PROCESSED is shown, the indicated command has been successfully executed.
If ENTERED is shown, the indicated command has failed. Message KDPDC039 follows this message.
System action: None.
User response: None.

KDPDC01E  NO MATCHING KDPCNFG PARM FOR DB2ID (dbid)
Explanation: The data set member RKANPAR(KDPCFNFG) does not have collection information entries for this DB2 subsystem.
System action: None.
User response: None.

KDPDC039  DPDC COMMAND FORMAT ERROR
Explanation: The previous command has a format error.
System action: None.
User response: Correct the format and reissue the command.

KDPDC03F  UNABLE TO ALLOCATE MEMORY FOR ANCHOR
Explanation: Insufficient storage for this function. Either not enough storage is available for the started task or some type of storage overlay is preventing the allocation.
System action: None.
User response: Contact IBM support.

KDPDC04E  NO DATA COLLECTORS SPECIFIED FOR DB2ID (dbid)
Explanation: A DB2 system was identified to be monitored, but there are no collectors defined for that DB2 subsystem.
System action: None.
User response: Verify that the specifications used in the Configuration Tool (formerly ICAT) for this DB2 system are correct.

KDPDC07E  UNABLE TO ALLOCATE KDPDNFC PARM BLOCK
Explanation: Insufficient storage for this function. Either not enough storage is available for the started task or some type of storage overlay is preventing the allocation.
System action: None.
User response: Contact IBM support.

KDPDC08E  INVALID SUBSYSTEM TYPE=cccccccc
Explanation: The subsystem type is not DB2ID.
System action: None.
User response: Verify the statements in KDPCNFG to ensure the format of the commands is proper. The commands should all start with DB2ID(xxxx).

KDPDC09E  INVALID SUBSYSTEM ID=cccccccccccc
Explanation: The DB2 system name specified on the DB2ID statement is either missing or has more than 4 characters in the name.
System action: None.
User response: Correct this in the KDPCNFG member
or rerun the Configuration Tool (formerly ICAT) using the proper name of the DB2 subsystem.

KDPDC10E INVALID COLLECTOR=cccccccc SPECIFIED

Explanation: The collector name is unknown. The valid collectors are COUPFAC(), THREAD(), OBJECTA(), OBJECTB(), OBJECTV, GBPSTAT(), CONFLICT() and SRM().

System action: None.

User response: None.

KDPDC11E ERROR OPENING RKANPAR(KDPCNFG)

Explanation: The system could not open the KDPCNFG member of the RKANPAR library. The Configuration Tool (formerly ICAT) creates this member when a LOAD operation is performed for this product.

System action: None.

User response: Verify that the member exists and can be accessed, and that the ICAT job succeeded.

KDPDC12E UNEXPECTED EOF IN RKANPAR(KDPCNFG)

Explanation: An EOF condition was raised while processing a command with a continuation indicator.

System action: None.

User response: Check the KDPCNFG member to ensure that no continuation character is on the last line. The KDPCNFG member can be recreated using the Configuration Tool (formerly ICAT) job for loading the RTE.

KDPDC13E INVALID INTERVAL FOR DB2ID (dbid) cccccccc. IGNORED.

Explanation: The interval value specified is not numeric and cannot be processed. The value specified has to represent the number of seconds between samples.

System action: None.

User response: Verify the value in the KDPCNFG member and set it to a number from 30 to 999.

KDPDC14F NO SUBSYSTEMS ENABLED IN RKANPAR(KDPCNFG)

Explanation: No parameters controlling the DB2 systems have been specified in the KDPCNFG member.

System action: None.

User response: Verify that the Configuration Tool (formerly ICAT) job to load the libraries has been run.

KDPDE007 DPDC COLLECTOR SUCCESSFULLY DETACHED FOR DB2 dbid. TCB ADDRESS=cccccccc

Explanation: The collector has successfully stopped and the TCB used by it was released.

System action: None.

User response: None.

KDPDS00I MONITORED SUBSYSTEMS:

Explanation: This message will appear in the RKLVLOG as a result of issuing the DPDC DISPLAY command. This is the first line of output from the DPDC DISPLAY command.

System action: None.

User response: None.

KDPDS01I DB2(dbid) STATE=cccccccc COLLECTORS:

Explanation: This message is shown in RKLVLOG as a result of issuing the DPDC DISPLAY command. For each monitored DB2 system a line is shown with the identifier and its state. Valid states are STopping, STOPped, STOPped (NO AUTODiscovery), RESTARTing, RESTARTed, STARTing, STARTed, or UNKNOWN. The valid collectors are COUPFAC(), THREAD(), OBJECTA(), OBJECTB(), OBJECTV, GBPSTAT(), CONFLICT() and SRM().

System action: None.

User response: None.

KDPDS02I THREAD(nn) OBJECTV(nn) SRM(nn)

Explanation: This message is shown in the RKLVLOG as a result of issuing the DPDC DISPLAY command. Each monitored DB2 system will display a line showing which collectors are active and the sampling interval.

System action: None.

User response: None.

KDPDS99I nnn SUBSYSTEMS DISPLAYED

Explanation: This message is shown in the RKLVLOG as a result of the DPDC DISPLAY command. Each last line of the output contains the number of DB2 subsystems being monitored.

System action: None.

User response: None.
functions such as connecting to the TEMS and establishing server connections for DB2 subsystems that it will monitor.

**User response:** None.

---

**KDPPIR10E** The number of arguments exceeds the limit of 32.

**Explanation:** The number of arguments that is passed to the plex level agent at startup exceeds the predefined limit of 32 arguments.

**System action:** The plex level agent stopped to prevent potential storage overlays.

**User response:** Verify the format of the command in the KD5AGST member of the RKANCMDU library. It should look like this:

```
AT ADD ID=KDPP DELAY=00:00:15
CMD='IRAMAN KDPPLEX START'
```

If there are text strings that do not match the example above, correct the text strings and restart the plex level agent.

---

**KDPPIR11E** The length of the argument string exceeds the limit of 4096 bytes.

**Explanation:** The length of the argument string that is passed to the plex level agent at startup exceeds the predefined limit of 4096 bytes.

**System action:** The plex level agent stopped to prevent potential storage overlays.

**User response:** Verify the format of the command in the KD5AGST member of the RKANCMDU library. It should look like this:

```
AT ADD ID=KDPP DELAY=00:00:15
CMD='IRAMAN KDPPLEX START'
```

If there are text strings that do not match the example above, correct the text strings and restart the plex level agent.

---

**KDPPIR55E** Cannot allocate the DPGLOBAL control block.

**Explanation:** The storage for a common area that is required by the plex level agent cannot be allocated. There might be a storage constraint on the started task.

**System action:** The plex level agent stopped.

**User response:** Verify that the task that is started to run the plex level agent is not constrained by any memory restrictions in the KD5SYSIN member of the RKANPAR library. If the plex level agent runs in the same address space as a TEMS, verify the storage specifications in the KDSSYSIN member of the RKANPAR library.
KDPPIR57E  Cannot allocate the PLEX Status control block.

Explanation: The storage for a common area that is required by the plex level agent cannot be allocated. There might be a storage constraint on the started task.

System action: The plex level agent stopped.

User response: Verify that the task that is started to run the plex level agent is not constrained by any memory restrictions in the KDSSYSIN member of the RKANPAR library. If the plex level agent runs in the same address space as a TEMS, verify the storage specifications in the KDSSYSIN member of the RKANPAR library.

KDPPIR58E  Error %d occurred when trying to find the PLEX status.

Explanation: The plex level agent cannot obtain the status information on the node that represents the plex level DB2 node. The status that is returned for the plex level DB2 node is unexpected. The following error codes for the status request are displayed:

8  Error returned while preparing the SQL statement.
12  Error returned while creating the request for the SQL statement.
16  Error returned while opening the request for the SQL statement.
20  Error returned while obtaining the SQLDA output area.

System action: The plex level agent stopped.

User response: An internal error might have occurred or the communication with the TEMS HUB failed. Verify that the TEMS HUB is running and that it is correctly specified by the HUB_NAME parameter:
- If the HUB is down, restart the HUB.
- If the HUB is not correctly specified, correct the value for the HUB_NAME parameter in the KD5ENV member of the RKANPARU library.
- If the HUB is running and correctly specified, contact IBM Support to report the problem.

KDPPIR59E  The KDPPLEX agent stopped because the global area is not allocated.

Explanation: The storage for a common area that is required by the plex level agent is not allocated.

System action: The plex level agent stopped because of an internal error.

User response: Contact IBM support to report this problem.

KDPPIR65E  Cannot allocate the Connection Object.

Explanation: The storage for a common area that is required by the plex level agent cannot be allocated. There might be a storage constraint on the started task.

System action: The plex level agent stopped.

User response: Verify that the task that is started to run the agent is not constrained by any memory restrictions in the KD5SYSIN member of the RKANPAR library. If the agent is running in the same address space as a TEMS, verify the storage specifications in the KDSSYSIN member of the RKANPAR library.

KDPPIR66E  Error %d occurred when connecting to %s on port %s

Explanation: An error occurred when connecting to the TEMS HUB. The error message contains the error number, the value for the HUB name, and the port number.

One of the following errors might have occurred:

8  Global area not found.
12  HUB_NAME not found.
16  Storage for connection not available.
20  Storage for nodes not available.

System action: The plex level agent stopped.

User response: The error codes indicate communication errors or storage errors.
- If the HUB_NAME is not found, verify that the TEMS HUB is running and that the HUB_NAME variable is set correctly in the KD5ENV member of the RKANPAR library.
- If one of the other storage errors occurred, verify that the specifications in the KDSSYSIN member of the RKANPAR library are correct.

KDPPIR71E  Connection failure message: %s

Explanation: The connection to the TEMS HUB failed as indicated by the message number KDPPIR66E, which is displayed before this message is displayed. This message contains more information to resolve the connection error.

System action: The agent stopped because of one of the error situations that are described in the message number KDPPIR66E.

User response: Contact IBM support to report this problem.
KDPPIR72E • KO2D0004E

KDPPIR72E  Cannot connect to TEMS HUB. Therefore KDPPLEX stopped: rc = %d

Explanation: The agent cannot connect to TEMS HUB. This message is usually preceded by the message number KDPPIR66E and KDPPIR71E.

System action: The plex level agent stopped.

User response: The error codes indicate communication errors or storage errors.

• If the HUB NAME is not found, verify that the TEMS HUB is running and that the HUB_NAME variable is set correctly in the KD5ENV member of the RKANPAR library.

• If one of the other storage errors occurred, verify that the specifications in the KDSSYSIN member of the RKANPAR library are correct.

KDPSC001  DPDC GLOBAL VECTOR TABLE NOT FOUND

Explanation: The global vector table has not been allocated, indicating that the KDPBGV routine failed to properly initialize the environment.

System action: None.

User response: Look for previous messages for an indication as to what failed. Contact IBM support.

KDPRT01E  Wait for OMPE server, <reason>

Explanation: The agent is unable to connect to the OMPE Server. One of these reasons is displayed:

• OMPECT not inited
• OMPECT access error
• OMPECT struct error
• PE STOKEN loc error
• D2_STC not active
• D2_STC not found
• Routbl not inited

System action: Agent waits for the connection to OMPE server.

User response: Contact IBM support after verifying the following:

1. If HLQ.RKANPARU(KD5ENV) has environment variable KDP_D2_STC set, make sure the specified OMPE server task is running. If not, start the OMPE server task.

2. There could be a delay before the agent can communicate with OMPE server task. The delay is configurable using environment variable KDP_STATUS_REFRESH in HLQ.RKANPARU(KD5ENV). While waiting, you may see KD5ASSCT messages.

3. If OMPE server task is running, check the server log to see if there are any error associated with D5API. The expected messages from OMPE server log are:

   K0210100I D5API COLLECTOR INITIALIZATION IN PROGRESS
   K0210149I D5API ASM BUILD IS 04/17/15 11.11
   K0210130I D5API REGISTRY ENTRY SUCCESSFULLY REBUILT
   K0210148I D5API USING REGISTRY XE_D5APIRTB_V530
   K0210141I D5API COLLECTOR STIMER SET TO 00003000
   K0210101I D5API COLLECTOR INITIALIZATION COMPLETE
   K0210154I D5API COLLECTOR CONNECTED TO DB2 ssid ON BEHALF OF AGENT agenttask

   If you do not see above messages, check HLQ.RKD2PAR(ompetask), make sure that you have common collector started.

   * * Starts the Common Collector.

   * EXEC OMPECCPC

KO2D - D5API Collection for TEP and Enhanced 3270UI

KO2D0000I  To display trace debug output, contact IBM Support to activate the traces.

KO2D0000E  ssid <repname> CT_getCounterValueRaw <table><field> not found (KO2ABROW)

Explanation: An internal exception occurred.

User response: Contact IBM support to report the error.

KO2D0004E  ssid FL_addFieldByName <table><field> - Return Code=nnnnnnnn - Reason
KO2D0005E  ssid Incorrect Collection Table Name <table> (<module>)

Explanation: An internal exception occurred in one of the modules KO2AHLR or KO2AFSAM.

User response: Contact IBM support to report the error codes.

KO2D0011E  ssid Moving value to a row would exceed table size mmmmmmm Field Name=<field> Length=mnmnmnm

Explanation: An internal exception occurred.

User response: Contact IBM support to report the error.

KO2D0012E  ssid <routine> - Return Code=mnmnmnm - Reason Code=mnmnmnm (<module>)

Explanation: An internal exception about <routine> has occurred in one of the modules KO2ABROW, KO2AFSAM, KO2AHLR, KO2APHLR or KO2CPUCL.

User response: Contact IBM support to report the error codes

KO2D0013E  ssid mmmmmmm Field Name=<field> Length=mnmnmnm

Explanation: An internal exception has occurred in one of the modules KO2AFSAM, KO2AHLR, KO2APHLR, KO2CPUCL or KO2LACRA.

User response: Contact IBM support to report the error.

KO2D0014I  ssid Cancel thread thread ID

Explanation: This message provides detail about the cancellation action performed:

- Message ID (KO20014I)
- TSO ID of user who canceled thread
- DB2 subsystem ID
- Thread ID of canceled thread
- DSNV message DSNV426I (thread canceled) or DSNV427I (invalid thread ID specified)

User response: None required.
KO2E3002I • KO2E3012W

Explanation: The OMEGAMON XE for DB2 PE Event Collection Manager (EVENTMGR) started successfully.

System action: The Event Collection Manager is now active.

User response: None.

KO2E3002I EVENTMGR MODIFY PROCESSING IN PROGRESS

Explanation: The OMEGAMON XE for DB2 PE Event Collection Manager (EVENTMGR) is currently carrying out an MVS MODIFY request.

System action: Processing continues.

User response: None.

KO2E3003I EVENTMGR STOP PROCESSING IN PROGRESS

Explanation: The OMEGAMON XE for DB2 PE Event Collection Manager (EVENTMGR) is currently carrying out an MVS stop request.

System action: Processing continues.

User response: None.

KO2E3004I EVENTMGR TERMINATION COMPLETE

Explanation: The OMEGAMON XE for DB2 PE Event Collection Manager (EVENTMGR) has now shut down.

System action: None.

User response: None.

KO2E3005W EVENTMGR %%%%%% IS ALREADY ACTIVE IN SERVER %%%%%% - START REQUEST REJECTED

Explanation: The OMEGAMON XE for DB2 PE Event Collection Manager (EVENTMGR) is already active. You cannot start another, because only one Event Collection Manager is allowed for each version of OMEGAMON XE for DB2 PE that is running on any one MVS system.

System action: The start request is ignored.

User response: None.

KO2E3006E EVENTMGR MODIFY REQUEST CONTAINS INVALID SYNTAX

Explanation: A syntax error in the MVS MODIFY request is found. The OMEGAMON XE for DB2 PE Event Collection Manager (EVENTMGR) cannot respond.

System action: The MVS MODIFY request is ignored.

User response: Correct the MVS MODIFY request, then reissue it.

KO2E3007W START REQUEST IGNORED, MONITORING IS ACTIVE

Explanation: The start request has failed because collection is already active.

System action: The request is ignored.

User response: None.

KO2E3008E START DB2 FAILED, DB2 NOT DEFINED

Explanation: The DB2 subsystem ID passed on the start request is not defined on the MVS system in use.

System action: The request is ignored.

User response: Correct the DB2 ID on the start request.

KO2E3009S START DB2 FAILED, DB2 NOT ACTIVE

Explanation: The DB2 subsystem ID passed on the start request is not currently active on the MVS system in use.

System action: The request is ignored.

User response: Correct the DB2 ID on the start request.

KO2E3010S START DB2 FAILED, DB2 VERSION NOT SUPPORTED

Explanation: The start request has failed because the DB2 version is not supported by this release of OMEGAMON XE for DB2 PE.

System action: The request is ignored.

User response: Contact IBM support.

KO2E3011I NO DB2 SUBSYSTEM CURRENTLY MONITORED

Explanation: No collections are active for any DB2 subsystems.

System action: Processing continues.

User response: None.

KO2E3012W STOP REQUEST DENIED, MONITORING NOT ACTIVE

Explanation: The stop request could not be processed because monitoring is not active for the specified DB2 subsystem.

System action: Processing continues.
KO2E3013E  SYNTAX ERROR LOCATED IN PARM= AT STARTUP

Explanation: Usually, a parameter is configured using an automatic process, however the user has bypassed the usual configuration. Three data members might be incorrect in the RKD2PAR parameter data set. There might be a data member in RKDPAR that has the same name as the started task.

System action: Processing terminates.

User response: Rebuild the runtime environment by using the Configuration Tool (formerly ICAT) to restore the data set back to the correct values.

KO2E3014U  INSTALL OF SSCVT HAS FAILED

Explanation: The Event Collection Manager (EVENTMGR) has encountered an error while starting up in the subsystem.

System action: Processing is terminated.

User response: Contact IBM support.

KO2E3040I  VOLUME ANALYSIS INITIALIZATION COMPLETE

Explanation: Volume analysis collection has successfully completed its initialization processing. Volume analysis is started automatically when object analysis collection is started for the first DB2 subsystem being monitored.

System action: Processing continues; volume analysis is active.

User response: None.

KO2E3041I  VOLUME ANALYSIS HAS Terminated

Explanation: Volume analysis collection has successfully shut down. This message is issued when the Event Collection Manager (EVENTMGR) terminates.

System action: None.

User response: None.

KO2E3042I  VOLUME ANALYSIS TERMINATED FOR DB2=subsystem

Explanation: Volume analysis collection for the indicated DB2 subsystem has terminated because object analysis collection has terminated.

System action: Processing continues; but volume analysis for the indicated DB2 subsystem is terminated.

User response: None.

KO2E3043S  VOLUME ANALYSIS ERROR RECOVERY: ID=V270, MOD=cccccccc, OFFSET=nnnnnn, CODE=nnnn/ nnnnnnnnn

Explanation: An error occurred during a Volume Analysis data gathering pass. Volume Analysis successfully recovered from this error. This message describes the type of error that occurred.

System action: Volume Analysis processing continues.

User response: No action is required.

KO2E3050I %%%% OBJECT ANALYSIS PHASE1 INITIALIZATION COMPLETE

Explanation: The startup of object analysis collection for the indicated DB2 subsystem has successfully completed phase 1 initialization processing.

System action: Processing continues.

User response: None.

KO2E3051I %%%% OBJECT ANALYSIS PHASE2 INITIALIZATION COMPLETE

Explanation: The startup of object analysis collection for the indicated DB2 subsystem has successfully completed phase 2 initialization processing.

System action: Processing continues.

User response: None.

KO2E3052E %%%% OBJECT ANALYSIS CANNOT ESTABLISH PREFETCH COLLECTION, RSN=nnnn

Explanation: Object Analysis cannot completely collect information about DB2 prefetch data.

System action: Processing continues.

User response: None.

KO2E3053I %%%% COMMON COLLECTOR INTEGRATION WITH OMPE NOT AVAILABLE

Explanation: The OMEGAMON Collector STEPLIB included the Db2 Data Access Common Collector (CQC) Library, but not at the correct level to support CQC management of OMPE functions.

System action: Processing continues.

User response: Programmer or Operator Response: If CQC management of Object Analysis is required, the PTF for CQC APAR PH01031 must be available to the OMPE Collector.

KO2E3053I %%%% COMMON COLLECTOR INTEGRATION WITH OMPE NOT AVAILABLE

Explanation: The OMEGAMON Collector STEPLIB included the Db2 Data Access Common Collector (CQC) Library, but not at the correct level to support CQC management of OMPE functions.

System action: Processing continues.

User response: Programmer or Operator Response: If CQC management of Object Analysis is required, the PTF for CQC APAR PH01031 must be available to the OMPE Collector.
KO2E3054I  %%%% OBJECT ANALYSIS GETPAGE MANAGEMENT

Explanation: Indicates if Object Analysis will manage the GETPAGE data collection directly (ECTL) or will use the IBM Db2 Data Access Common Collector (CQC) to manage the collection.

System action: Processing continues.

User response: None.

KO2E3055E  %%%% GETPAGE ENABLE ERROR

CDE=xxxxxxxx, RC=xxxxxxxx, RSN=xxxxxxxx

Explanation: An internal error occurred during GETPAGE processing enablement.

System action: None.

User response: This indicates an internal logic error; contact IBM Support.

KO2E3061I  %%%% OBJECT ANALYSIS TERMINATION IN PROGRESS

Explanation: Object analysis is terminating collection for the indicated DB2 subsystem. This message is issued during object analysis termination.

System action: Processing continues.

User response: None.

KO2E3062I  %%%% OBJECT ANALYSIS PHASE1 TERMINATION COMPLETE

Explanation: Object analysis phase 1 termination was successful for the indicated DB2 subsystem. This message is issued during object analysis termination.

System action: Processing continues.

User response: None.

KO2E3063I  %%%% OBJECT ANALYSIS PHASE2 TERMINATION COMPLETE

Explanation: Object analysis phase 2 termination was successful for the indicated DB2 subsystem. This message is issued during object analysis termination.

System action: Processing continues.

User response: None.

KO2E3064I  %%%% OBJECT ANALYSIS TERMINATION SUCCESSFUL

Explanation: Object analysis termination was successful for the indicated DB2 subsystem. This message is issued upon completion of object analysis termination.

System action: Processing continues.

User response: None.

KO2E3065I  %%%% OBJECT ANALYSIS HAS DETECTED THAT DB2 TERMINATED

Explanation: Object analysis collection has detected that the monitored DB2 subsystem has terminated.

System action: Object analysis collection for the indicated DB2 subsystem is terminating.

User response: None.

KO2E3066S  %%%% OBJECT ANALYSIS INITIALIZATION FAILED REASON CODE=%%%%

Explanation: Object analysis for the indicated DB2 subsystem failed during initialization. The indicated reason code consists of four hexadecimal digits of the form pnnn.

p identifies the phase of Object Analysis initialization:

1    Initialization phase 1
2    Initialization phase 2

nnn identifies the error:

000    Internal DB2 control block validation failed.
001    Internal DB2 module validation failed.
002    OMEGAMON interface module load failed.

System action: Object analysis collection for the indicated DB2 subsystem is not started.

User response: Contact IBM support.

KO2E3067S  %%%% OBJECT ANALYSIS TERMINATION CLEANUP PHASE1 FAILED

Explanation: Object analysis for the indicated DB2 subsystem failed during phase 1 termination processing.

System action: Processing continues.

User response: Contact IBM support.

KO2E3068S  %%%% OBJECT ANALYSIS TERMINATION CLEANUP PHASE2 FAILED

Explanation: Object analysis for the indicated DB2 subsystem failed during phase 2 termination processing.

System action: Processing continues.

User response: Contact IBM support.
KO2E3069U %%% OBJECT ANALYSIS ABNORMAL TERMINATION IN PROGRESS

**Explanation:** An abnormal condition was detected in the Object Analysis GETPAGE or I/O intercepts. An MVS SVC dump has occurred and should be retained for problem determination. The DB2 subsystem being monitored is identified in the message text.

**System action:** The Object Analysis function for this DB2 subsystem is terminated.

**User response:** Contact IBM support.

KO2E3070I %%% OBJECT ANALYSIS INITIALIZATION IN PROGRESS

**Explanation:** The object analysis collection for the indicated DB2 subsystem is starting. This message is written to the system log whenever an object analysis start request is being processed.

**System action:** Processing continues.

**User response:** None.

KO2E3071I %%% OBJECT ANALYSIS INITIALIZATION SUCCESSFUL

**Explanation:** The startup of object analysis collection for the indicated DB2 subsystem was successful.

**System action:** Object analysis collection is now active.

**User response:** None.

KO2E3078S %%% OBJECT ANALYSIS PHASE2 TERMINATION HAS FAILED

**Explanation:** Object analysis for the indicated DB2 subsystem failed during termination.

**System action:** Object analysis collection for the indicated DB2 subsystem did not successfully terminate.

**User response:** Contact IBM support.

KO2E3080I %%% OBJECT ANALYSIS FORCED INTERVAL PROCESSING STARTED

**Explanation:** Object Analysis for the indicated DB2 subsystem detected a shortage of available virtual memory in the address space.

**System action:** None.

**User response:** Modify the REGION= parameter on the started proc that runs Object Analysis. Increase the memory allocation for the address space running Object Analysis and restart Object Analysis.

KO2E3081I %%% OBJECT ANALYSIS FORCED INTERVAL PROCESSING ENDED

**Explanation:** This message is issued a short time after the KO2E3080I message and indicates the successful completion of the interval processing.

**System action:** Object Analysis stops temporarily.

**User response:** Modify the REGION= parameter on the started proc that runs Object Analysis. Increase the memory allocation for the address space running Object Analysis and restart Object Analysis.

KO2E3082S %%% OBJECT ANALYSIS MEMORY SHORTAGE SHUTDOWN

**Explanation:** Object Analysis cannot continue with current processing because of virtual storage constraints.

**System action:** None.

**User response:** Modify the REGION= parameter on the started proc that runs Object Analysis. Increase the memory allocation for the address space running Object Analysis and restart Object Analysis.

KO2E3083I %%% OBJECT ANALYSIS RESTART WILL BE DONE ON DB2 RESTART

**Explanation:** Object Analysis detected that the indicated DB2 subsystem has stopped.

**System action:** Object Analysis will remain active and will restart its monitoring when the indicated DB2 subsystem restarts.

**User response:** None.

KO2E3084S %%% OBJECT ANALYSIS RESTART FAILED

**Explanation:** Object Analysis could not restart its monitoring of the indicated DB2 subsystem.

**System action:** Object Analysis for the indicated DB2 subsystem is terminated.

**User response:** Manually restart Object Analysis for the indicated DB2 subsystem. If the attempt fails, contact IBM support.

KO2E3085I %%% OBJECT ANALYSIS RESTART TERMINATED DUE TO B2 STOP COMMAND

**Explanation:** Object Analysis was waiting for the indicated DB2 subsystem to be restarted, but was stopped by the user via a Stop command.

**System action:** Object Analysis for the indicated DB2 subsystem is terminated.

**User response:** None.
KO2E3991E  EVENTMGR INVALID START PARM SUPPLIED

Explanation:  This message is issued by the Event Manager to indicate that an invalid START parameter has been specified in member EMGR<1par> of the RKD2PAR parameter library.

KO2H - Near-Term History Data Collector messages

KO2H0001W  ssid NEAR-TERM HISTORY DATA COLLECTOR - aaaaaaaaaa DB2 subsystem NOT ACTIVE. WAIT, OR REPLY ANOTHER DB2 ID, OR REPLY STOP

Explanation:  The indicated DB2 subsystem is not active at this time.  aaaaaaaaaa = COLLECTION, if this is the DB2 for which near-term history data is to be collected.

System action:  Waits for a reply from the operator and then takes the requested action.

User response:  Perform one of the following actions:

• Wait for the DB2 subsystem to become active and do not give a reply.  This WTOR message is automatically canceled when the DB2 becomes active.
• Reply with the ID of another DB2 subsystem to be used in place of the inactive DB2.
• Reply Stop to terminate the attempted data collection for this DB2 subsystem.

To have near-term history collection wait for DB2 to become active without issuing this WTOR, add the NTHDB2I=WAIT option to the OMPEOPTS member of the RKD2PAR data set.

KO2H0002W  ssid NEAR-TERM HISTORY DATA COLLECTOR - DB2 subsystem IS NOT VALID. REPL Y ANOTHER DB2 ID, OR REPL Y STOP

Explanation:  The indicated DB2 is not valid on this system.  aaaaaaaaaa = COLLECTION, if this is the DB2 subsystem for which near-term history data is to be collected.

System action:  The system waits for a reply from the operator, then takes requested action.

User response:  Perform one of the following actions:

• Wait for the DB2 subsystem to become active and do not give a reply.  This WTOR message is automatically canceled when the DB2 becomes active.
• Reply with the ID of another DB2 subsystem to be used.
• Reply Stop to terminate the attempted data collection for this DB2 subsystem.

KO2H0013E  INVALID PARAMETER: parameter

Explanation:  The indicated parameter is not valid in the current context.

System action:  Processing continues with the next recognizable parameter, if possible.  The report request is rejected, and processing continues with the next report statement (if any).

User response:  Correct the parameter and rerun the report request.  If the parameter seems correct, check the adjacent parameters for correct syntax of the entire statement.

KO2H0450I  NEAR-TERM HISTORY DATA COLLECTOR - INITIALIZING COMMON SERVICES

Explanation:  An informational message.

KO2H0452I  NEAR-TERM HISTORY DATA COLLECTOR - TERMINATING COMMON SERVICES

Explanation:  An informational message.

KO2H0561I  H2 DATA SET dsname STATUS n% FULL

Explanation:  This message supplies information about the status of all VSAM data sets specified in the collection options member.  It shows whether the data set is actively storing data, available to store data, or unavailable.  It also shows what percentage of the data set has been used.
KO2H0605I  <V1> Waiting for initialization of output writer task <V2> minutes

Explanation:  <V1> is the name of the DB2 subsystem.  
<V2> is the number of minutes.

This message might be issued every five minutes. The Near Term History task is waiting for the output writer task to complete the initialization.

System action:  The output writer task might be pre-formatting the VSAM linear data sets or it might be processing the VSAM files.

User response:  None.

KO2H0901U  NEAR-TERM HISTORY DATA COLLECTOR - UNABLE TO LOAD BASE SERVICES

Explanation:  An error occurred during initialization.

User response:  Rerun the job. If the problem recurs, see your system programmer or contact IBM support.

KO2H0902U  NEAR-TERM HISTORY DATA COLLECTOR - CANNOT LOCATE LOAD MODULE module. TERMINATING

Explanation:  OMEGAMON XE for DB2 PE initialization processing could not locate the indicated load module. This message is usually caused by a failure to fully unload the OMEGAMON XE for DB2 PE product tape, or by a failure to migrate all modules to the runtime library.

System action:  Processing terminates.

User response:  Verify that the load module is in the proper library and restart OMEGAMON XE for DB2 PE.

KO2H0903U  NEAR-TERM HISTORY DATA COLLECTOR - LOAD MODULE module IS AT THE WRONG RELEASE LEVEL. TERMINATING

Explanation:  The indicated OMEGAMON XE for DB2 PE load module is not at the correct release level. This message is usually caused by a failure to fully unload the OMEGAMON XE for DB2 PE product tape, or by a failure to migrate all modules to the runtime library.

System action:  Processing terminates.

User response:  Place a version of the load module that is at the correct release level in the proper library and restart OMEGAMON XE for DB2 PE.
KO2H1316I NEAR-TERM HISTORY DATA COLLECTOR HAS TERMINATED
Explanation: This is an informational message.
System action: Processing terminates.
User response: None.

KO2H1350E NEAR-TERM HISTORY DATA COLLECTOR - PARM PROCESSOR FAILED TO OBTAIN PARM WORK AREA
Explanation: An internal program error occurred where one task did not get passed from one area to another.
System action: Processing terminates.
User response: Contact DB2 support.

KO2H1351E NEAR-TERM HISTORY DATA COLLECTOR - CANNOT LOCATE RKD2PAR DATA SET
Explanation: Data set RKD2PAR could not be located. The data set probably does not exist.
System action: Processing terminates.
User response: Check the data set specified for ddbname RKD2PAR and ensure that it is allocated.

KO2H1352E NEAR-TERM HISTORY DATA COLLECTOR - CANNOT OPEN RKD2PAR DATA SET
Explanation: The RKD2PAR data set could not be opened. The data set probably does not exist.
System action: Processing terminates.
User response: Check the data set specified for ddbname RKD2PAR and ensure that it is allocated.

KO2H1353E NEAR-TERM HISTORY DATA COLLECTOR - CANNOT LOCATE RKD2PAR MEMBER SPECIFIED
Explanation: The RKD2PAR member could not be located. The member probably does not exist.
System action: Processing terminates.
User response: Check the data set specified for ddbname RKD2PAR and ensure that the member is allocated.

KO2H1354E NEAR-TERM HISTORY DATA COLLECTOR - CANNOT ACQUIRE ENOUGH STORAGE TO READ RKD2PAR DATA SET
Explanation: Unable to obtain sufficient storage to read the RKD2PAR data set.
System action: Processing terminates.
User response: Contact IBM support.

KO2H1355E NEAR-TERM HISTORY DATA COLLECTOR - CANNOT ACQUIRE BUFFER STORAGE TO READ RKD2PAR DATA SET
Explanation: Unable to acquire buffer storage to read the RKD2PAR data set.
System action: Processing terminates.
User response: Contact IBM support.

KO2H1356E NEAR-TERM HISTORY DATA COLLECTOR - CANNOT ACQUIRE SUFFICIENT STORAGE FOR PARM PROCESSING
Explanation: Unable to acquire sufficient storage for parameter processing.
System action: Processing terminates.
User response: Contact IBM support.

KO2H1357E ssid NEAR-TERM HISTORY DATA COLLECTOR - WORD WITH NON-ALPHANUMERIC CHARACTER IN THE RKD2PAR RECORD: record
Explanation: A not valid word with a non-alphanumeric character was found in the RKD2PAR record.
System action: Processing terminates.
User response: Check the record following the message and correct it in the RKD2PAR member. For more information about record, see Configuration and Customization, chapter “Monitoring Profiles”, section “Exploiting Monitoring Profiles”.

KO2H1358E ssid NEAR-TERM HISTORY DATA COLLECTOR - INSUFFICIENT PARMS IN THIS RKD2PAR RECORD: record
Explanation: Insufficient parameters for the keyword were found in this RKD2PAR record.
System action: Processing terminates.
User response: Check the RKD2PAR record following this message and correct it in the RKD2PAR member.

KO2H1359E ssid NEAR-TERM HISTORY DATA COLLECTOR - UNBALANCED PARENTHESES IN THIS RKD2PAR RECORD: record
Explanation: Unbalanced parentheses for the keyword
were found in this RKD2PAR record.

**System action:** Processing terminates.

**User response:** Check the RKD2PAR record following this message and correct it in the RKD2PAR member.

---

**KO2H1360E**  
*ssid NEAR-TERM HISTORY DATA COLLECTOR - INVALID KEYWORD/PARAMETER IN THIS RKD2PAR RECORD: record*

**Explanation:** A keyword or parameter greater than 27 characters or a wrong keyword was found in this RKD2PAR record.

**System action:** Processing terminates.

**User response:** Check the RKD2PAR record following this message and correct it in data set member RKD2PAR(COPTssid).

---

**KO2H1361E**  
*ssid NEAR-TERM HISTORY DATA COLLECTOR - INVALID NONNUMERIC CHARACTER IN THIS RKD2PAR RECORD: record*

**Explanation:** A not valid nonnumeric character for the keyword was found in this RKD2PAR record.

**System action:** Processing terminates.

**User response:** Check the RKD2PAR record following this message and correct it in the RKD2PAR member.

---

**KO2H1362E**  
*ssid NEAR-TERM HISTORY DATA COLLECTOR - ALPHA CHARS INSTEAD OF NUMBER IN THIS RKD2PAR RECORD: record*

**Explanation:** An alphanumeric character for the keyword was found in this RKD2PAR record. The keyword requires a numeric value.

**System action:** Processing terminates.

**User response:** Check the RKD2PAR record following this message and correct it in the RKD2PAR member.

---

**KO2H1363E**  
*ssid NEAR-TERM HISTORY DATA COLLECTOR - INVALID NUMERIC CHARACTER IN THIS RKD2PAR RECORD: record*

**Explanation:** A not valid numeric character for the keyword was found in this RKD2PAR record.

**System action:** Processing terminates.

**User response:** Check the RKD2PAR record following this message and correct it in the RKD2PAR member.

---

**KO2H1364E**  
*ssid NEAR-TERM HISTORY DATA COLLECTOR - TOO MANY PARMS IN THIS RKD2PAR RECORD: record*

**Explanation:** Too many parameters for the keyword were found in this RKD2PAR record.

**System action:** Processing terminates.

**User response:** Check the RKD2PAR record following this message and correct it in the RKD2PAR member.

---

**KO2H1365E**  
*ssid NEAR-TERM HISTORY DATA COLLECTOR - INVALID PARM FOR KEYWORD IN THIS RKD2PAR RECORD: record*

**Explanation:** A not valid parameter for the keyword was found in this RKD2PAR record.

**System action:** Processing terminates.

**User response:** Check the RKD2PAR record following this message and correct it in the RKD2PAR member.

---

**KO2H1366E**  
*ssid NEAR-TERM HISTORY DATA COLLECTOR - PARM OUT OF NUMERIC RANGE IN THIS RKD2PAR RECORD: record*

**Explanation:** A parameter out of numeric range was found in this RKD2PAR record.

**System action:** Processing terminates.

**User response:** Check the RKD2PAR record following this message and correct it in the RKD2PAR member.

---

**KO2H1367E**  
*ssid NEAR-TERM HISTORY DATA COLLECTOR - DETECTED INSUFFICIENT PARMS IN THIS RKD2PAR RECORD: record*

**Explanation:** Insufficient parameters for the keyword were found in this RKD2PAR record.

**System action:** Processing terminates.

**User response:** Check the RKD2PAR record following this message and correct it in the RKD2PAR member.

---

**KO2H1368E**  
*ssid NEAR-TERM HISTORY DATA COLLECTOR - KEYWORD INVOKED TWICE IN THIS RKD2PAR RECORD: record*

**Explanation:** A keyword was invoked twice in this RKD2PAR record.

**System action:** Processing terminates.

**User response:** Check the RKD2PAR record following this message and correct it in the RKD2PAR member.
KO2H1370E  ssid NEAR-TERM HISTORY DATA COLLECTOR - READ ERROR FROM RKD2PAR DATA SET: SYNTAX MESSAGE FOLLOWS:

Explanation: An error occurred while reading the RKD2PAR data set.

System action: Processing terminates.

User response: Check the RKD2PAR data set. If a partitioned data set is used, ensure that the member name is specified.

KO2H1375E  ssid NEAR-TERM HISTORY DATA COLLECTOR - INVAILD PARAMETER FOR KEYWORD keyword

Explanation: A not valid parameter for the DSNZPARM keyword was found. Valid options are YES and NO.

System action: Processing terminates.

User response: Check the RKD2PAR member and ensure that the DSNZPARM option is specified correctly.

KO2H1376I  ssid NEAR-TERM HISTORY DATA COLLECTOR - ONLY ONE DATASET NAME ALLOWED WITH @DATE@TIME OR GDG(+1)

Explanation: More than one specification of a data set was found in parameter SEQDATASET in RKD2PAR(COPTcccc). If the variables @DATE and @TIME are used in the specification of a data set name, or if a Generation Data Group (GDG) name is specified, only a single data set name is allowed.

System action: Processing continues.

User response: Check and correct the SEQDATASET parameter value.

KO2H1377I  ssid NEAR-TERM HISTORY DATA COLLECTOR - MAX GDG LENGTH IS 35 BYTES

Explanation: A GDG name with invalid length was found.

System action: Processing terminates.

User response: Specify a GDG name with a length of up to 35 bytes.

KO2H1378I  ssid NEAR-TERM HISTORY DATA COLLECTOR - GDG SPEC IS NOT COMPATIBLE WITH @DATE@TIME VARIABLES

Explanation: The use of variables @DATE and @TIME is not allowed in the specification of a Generation Data Group (GDG) data set name.

System action: Processing continues.

User response: Correct the data set name in the SEQDATASET parameter in RKD2PAR(COPTcccc).

KO2H1379I  ssid NEAR-TERM HISTORY DATA COLLECTOR - @DATE REQUIRES @TIME TO ASSURE UNIQUE DATA SET NAMES

Explanation: Either variable @DATE or @TIME was found in the specification of a data set name in parameter SEQDATASET in RKD2PAR(COPTcccc). However, to ensure a unique data set name, both variables must be used in the specification.

System action: Processing continues.

User response: Check and correct the SEQDATASET parameter value.

KO2H1380E  ssid NEAR-TERM HISTORY DATA COLLECTOR - NOT USING ANY NEW PARMS FROM RKD2PAR MEMBER

Explanation: An error was detected. No further parameters from the RKD2PAR member will be processed.

System action: Processing terminates.

User response: Check the RKD2PAR member and correct the error.

KO2H1381I  ssid NEAR-TERM HISTORY DATA COLLECTOR - DETECTED EMPTY RKD2PAR INPUT MEMBER OR DATA SET

Explanation: The parameter data set is empty.

System action: Processing continues.

User response: Rebuild the runtime environment by using the Configuration Tool (formerly ICAT) to restore the data set.

KO2H1382I  ssid NEAR-TERM HISTORY DATA COLLECTOR - USED DEFAULT INTERVAL(15) TO EVALUATE MAXHOURS PARAMETER

Explanation: The default collection interval is used to calculate the maximum number of hours that the Near-Term History Data Collector can collect data.

System action: Processing continues.

User response: None.
KO2H1383I ssid NEAR-TERM HISTORY DATA COLLECTOR - SPACE UNITS MUST BE SPECIFIED AS "CYL" OR "TRK"

Explanation: An invalid keyword for the specification of space units was found.
System action: Processing terminates.
User response: None.

KO2H1384I ssid NEAR-TERM HISTORY DATA COLLECTOR - ALLOCATION SPACE AMOUNT INVALID

Explanation: The SPACE parameter in RKD2PAR(COPTcccc) contains a wrong value for the primary or secondary allocation, or both.
System action: Processing continues.
User response: Check and correct the SPACE parameter value.

KO2H1391E ssid NEAR-TERM HISTORY DATA COLLECTOR - CANNOT LOCATE THE PROCESSING ROUTINE FOR KEYWORD n

Explanation: Unable to locate the processing routine for the indicated keyword.
System action: Processing terminates.
User response: Contact IBM support.

KO2H1392E ssid NEAR-TERM HISTORY DATA COLLECTOR - CANNOT PROCESS FILTERING OPTIONS. WORK AREA TOO SMALL

Explanation: The filtering options cannot be processed because the work area is too small.
System action: Processing terminates.
User response: Contact IBM support.

KO2H1393E ssid NEAR-TERM HISTORY DATA COLLECTOR - INVALID TABLE NAME/SYNONYM SPECIFIED IN THIS RKD2PAR RECORD:

Explanation: A not valid table name or synonym was specified.
System action: Processing terminates.
User response: Check the RKD2PAR record following this message and correct it in the RKD2PAR member.

KO2H1394E ssid NEAR-TERM HISTORY DATA COLLECTOR - INVALID QUALIFIER IN THIS RKD2PAR RECORD:

Explanation: A not valid qualifier was specified.
System action: Processing terminates.
User response: Check the RKD2PAR record following this message and correct it in the RKD2PAR member.

KO2H1395E ssid NEAR-TERM HISTORY DATA COLLECTOR - INVALID FILTERING VALUE IN THIS RKD2PAR RECORD:

Explanation: A not valid filtering value was specified.
System action: Processing terminates.
User response: Check the RKD2PAR record following this message and correct it in the RKD2PAR member.

KO2H1399E ssid NEAR-TERM HISTORY DATA COLLECTOR - REQUIRED KEYWORD DB2SYS IS NOT SPECIFIED

Explanation: The DB2SYS keyword is not specified. This keyword is required for the Near-Term History Data Collector, data summarization, and data extraction if LOAD(NO) is specified.
System action: Processing terminates.
User response: Specify the required keyword DB2SYS. Resubmit the request.

KO2H1400E ssid NEAR-TERM HISTORY DATA COLLECTOR - THE MESSAGE NUMBER message-id IS NOT DEFINED

Explanation: The system attempted to write a message while parsing RKD2PAR(COPTcccc), but could not find the indicated message-id.
System action: Processing continues.
User response: Contact IBM support.

KO2H1401E ssid NEAR-TERM HISTORY DATA COLLECTOR - SORT OR SCAN OPTION IS SPECIFIED, BUT NOT ACCOUNTING CLASS

Explanation: SORT or SCAN data was requested, but accounting data is not being collected.
System action: Processing terminates.
User response: Check the specified keywords and make the necessary changes. Resubmit the request.
KO2H1402E  ssid NEAR-TERM HISTORY DATA COLLECTOR - H2DATASET MUST BE SPECIFIED IF VSAM WRITE OPTION SELECTED

Explanation: VSAM was selected as the output destination, but the keyword H2DATASET was not specified.

System action: Processing terminates.

User response: Check the specified keywords and make the necessary changes. Resubmit the request.

KO2H1403E  ssid NEAR-TERM HISTORY DATA COLLECTOR - version-dependent text

Explanation: Version 3: version-dependent text is WRITEOPTION KEYWORD VALUE MUST BE VSAM: A wrong value for the WRITEOPTION keyword was specified. Version 4: version-dependent text is WRITEOPTION KEYWORD VALUE VSAM MISSING: The indicated keyword value is missing.

System action: Processing terminates.

User response: Check the indicated keyword values and make the necessary changes. Resubmit the request.

KO2H1404E  ssid NEAR-TERM HISTORY DATA COLLECTOR -- WRITEOPTION(NONE) SPECIFIED, BUT NO STATISTICS DATA COLLECTED

Explanation: WRITEOPTION(NONE) was specified, but statistics data was not being collected.

System action: Processing terminates.

User response: Check the specified keywords and make the necessary changes. Resubmit the request.

KO2H1405W  ssid NEAR-TERM HISTORY DATA COLLECTOR - KEYWORDS DYNAMICSQL/LOCKCONT/LOCKSUSP IGNORED. version-dependent text

Explanation: Version 3: version-dependent text is (WRITEOPTION NOT VSAM): The keywords DYNAMICSQL, LOCKCONT, and LOCKSUSP are only valid with WRITEOPTION(VSAM). Version 4: version-dependent text is (WRITEOPTION WITHOUT VSAM): The keywords DYNAMICSQL, LOCKCONT, and LOCKSUSP are only valid with WRITEOPTION(VSAM) or WRITEOPTION(VSAM,SEQ).

System action: The Near-Term History Data Collector terminates.

User response: None.

KO2H1406W  ssid NEAR-TERM HISTORY DATA COLLECTOR - KEYWORD n IS OBSOLETE AND WAS IGNORED

Explanation: None.

System action: Processing continues.

User response: None.

KO2H1407E  ssid NEAR-TERM HISTORY DATA COLLECTOR - THRDDDATASET MUST BE SPECIFIED IF THVSAM WRITE OPTION SELECTED

Explanation: In the COPT member for DB2 subsystem ssid, WRITEOPTION(THVSAM) has been specified but no THRDDDATASET name prefix has been specified.

System action: History collection is not started for the DB2 subsystem ssid.

User response: Either add the THRDDDATASET name prefix if you want to collect Thread History, or remove the THVSAM write option if you do not want to collect Thread History.

KO2H1408W  ssid NEAR-TERM HISTORY DATA COLLECTOR - Function for keyword keyword not yet implemented, option set to NO.

Explanation: In the COPT member for DB2 subsystem ssid, a Thread History collection keyword keyword has been specified which is not yet implemented in the Thread History collector.

System action: The keyword keyword is ignored and processing continues.

User response: The keyword keyword can be removed from rhilev.RKD2IPAR(COPTssid) member to prevent the message from appearing.

KO2H1409E  ssid NEAR-TERM HISTORY DATA COLLECTOR - THRDDDATASET must have * in name.

Explanation: In the COPT member for DB2 subsystem ssid, the THRDDDATASET does not contain an asterisk (*). The THRDDDATASET keyword specifies a prefix for the dataset names used by Thread History. The THRDLLOG(nn) parameter specifies the number of thread history data sets. The asterisk (*) after the prefix is substituted with a four digit number starting with 0001 up to the number specified in THRDLLOG.

System action: History collection is not started for the DB2 subsystem ssid.

User response: Correct the THRDDDATASET parameter to include an asterisk (*) at the end of the prefix.
KO2I - D5API Framework messages

KO2I return codes

KO2I messages might be accompanied by the following return codes:

Return code

00000000
    Operation completed successfully

00000004
    Error in collector routine

00000008
    Error in collector routine

00000012
    Error in collector routine

00000016
    Error detected by collector module KO2ACONB

00000020
    Error detected by agent module KD5ATC00

00000024
    Agent module KD5ATC00 timed out or abended

00000028
    Agent module KD5ATC00 detected internal DCST table was not initialized

KO2I reason codes

KO2I messages might be accompanied by the following reason codes:

Reason code

00000000
    Operation completed successfully

00000004
    Invalid call type in D5API control structure

00000008
    Invalid eyecatcher in D5APIUSE structure

00000012
    Invalid D5APIUSE pointer in DAPICOMM structure

00000016
    Collector address space is not active

00000020
    Common collector registry entry not found

00000024
    Common collector registry not found

00000028
    Common collector registry entry eyecatcher is invalid
D5APIUSE structure pointer in registry entry is zero

Agent attempt to connect to collector address space timed out

Agent attempt to collect data from collector timed out. Will retry

While connecting to the collector address space for a given DB2, the agent detected the DB2 subsystem was inactive.

Agent detected the collector address space common collector component (COMMCOLL) is inactive

Agent detected the collector address space common collector component (COMMCOLL) is inactive

Agent could not locate the ASCB address for the collector address space

Agent data collect call was issued for an unsuccessful connection

Agent data collect call occurred while connection was being disconnected

Common collector detected an invalid table name

Agent timed out attempting to disconnect from the collector address space

Agent detected that the common collector registry was not initialized

Agent could not locate the DAPICOMM structure for a given connection

Agent encountered an abend handling a connect, collect, or disconnect request

Agent detected that a connection to the collector address space already existed for a given DB2 subsystem

Common collector detected that the subtask to process IFI requests for a given DB2 subsystem was terminated

Common collector routine KO2AOMBB could not be loaded

Common collector cannot monitor a given DB2 subsystem. The PESERVER instance for it may not have started successfully, or it was stopped.

Agent timed out or encountered a problem handling a connection to the collector address space
KO2I0100I  D5API COLLECTOR INITIALIZATION IN PROGRESS
Explanation: The D5API Collector is currently being initialized.
System action: None.
User response: None.

KO2I0101I  D5API COLLECTOR INITIALIZATION COMPLETE
Explanation: The D5API Collector has been successfully initialized.
System action: None.
User response: None.

KO2I0102I  D5API COLLECTOR MODIFY COMMAND IN PROGRESS
Explanation: The D5API Collector is processing the requested command.
System action: Begins command processing.
User response: None.

KO2I0103I  FORCE STOP REQUEST ACKNOWLEDGED
Explanation: A MODIFY command has been issued to force-stop the OMEGAMON XE for DB2 PE address space.
System action: The OMEGAMON XE for DB2 PE address space is forcibly terminated.
User response: Verify that the OMEGAMON XE for DB2 PE address space has terminated.

KO2I0104I  D5API COLLECTOR STOP PROCESSING IN PROGRESS
Explanation: A Stop command has been issued to terminate the D5API Collector in the OMEGAMON XE for DB2 PE address space.
System action: The D5API Collector is terminated.

KO2I0105U  D5API ABEND ACCESSING DAPICOMM
Explanation: The D5API Collector has abnormally terminated.
System action: An SVC dump is scheduled.
User response: Contact IBM support.

KO2I0553E  HINT Jobstep Program: pppppppp. OMPE Subsystem required.
Explanation: Program name 'pppppppp' is the name specified on the EXEC statement of the STC JCL.
OMEGAMON XE for DB2 PE releases version 4.2.0 and higher require that PGM=KO2ZT0BP is specified on the EXEC statement of the STC JCL statement.
System action: Started task terminates.
User response: Specify PGM=KO2ZT0BP on the EXEC statement of the STC JCL statement.

KO2I0554E  HINT Jobstep Program: pppppppp. OMPE Subsystem required.
Explanation: Program name 'pppppppp' is the name specified on the EXEC statement of the STC JCL.
OMEGAMON XE for DB2 PE releases version 4.2.0 and higher require that PGM=KO2ZT0BP is specified on the EXEC statement of the STC JCL statement.
System action: Started task terminates.
User response: Specify PGM=KO2ZT0BP on the EXEC statement of the STC JCL statement.

KO2I0107E  D5API FAILED TO ATTACH A CONNECTION TO DB2 %%% ON BEHALF OF AGENT %%%%%%
Explanation: The D5API common collector failed to attach a DB2 connection as requested by the XE agent.
System action: The XE agent Connect call is rejected.
User response: Contact IBM support.
<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
<th>Explanation</th>
<th>System action</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>KO2I0108E</td>
<td>D5API COLLECTOR DETACH %%%%ACON% FAILED</td>
<td>The D5API Collector could not detach the Connect/Collect subtask that was attached on behalf of an Agent address space.</td>
<td>The D5API Collector resumes waiting for additional Agent address space requests.</td>
<td>Contact IBM support.</td>
</tr>
<tr>
<td>KO2I0109E</td>
<td>D5API COLLECTOR ALREADY ACTIVE IN D2 INSTANCE %%%%%%%%%. START COMMCCOLL REJECTED</td>
<td>The D5API Collector is currently active in the D2 instance and cannot be started.</td>
<td>The D5API Collector is not restarted in the current D2 instance.</td>
<td>Stop the previously started OMEGAMON Collector, then reissue the START COMMCCOLL Server command.</td>
</tr>
<tr>
<td>KO2I0109I</td>
<td>D5API COLLECTOR DETACH %%%%ACON% SUCCESSFUL</td>
<td>The D5API Collector successfully detached the Connect/Collect subtask.</td>
<td></td>
<td>None.</td>
</tr>
<tr>
<td>KO2I0110I</td>
<td>D5API COLLECTOR STATUS DISPLAY</td>
<td>The D5API Collector is currently processing the requested MODIFY command.</td>
<td>The MODIFY command is processed.</td>
<td>None.</td>
</tr>
<tr>
<td>KO2I0111I</td>
<td>D5API COLLECTOR REGISTRY DISPLAY</td>
<td>The D5API Collector is currently processing the requested MODIFY command.</td>
<td>The MODIFY command is processed.</td>
<td>None.</td>
</tr>
<tr>
<td>KO2I0112I</td>
<td>D5API COLLECTOR TRACEALL DISPLAY</td>
<td>The D5API Collector is currently processing the requested MODIFY command.</td>
<td>The MODIFY command is processed.</td>
<td>None.</td>
</tr>
<tr>
<td>KO2I0113E</td>
<td>D5API COLLECTOR TRACE TABLE NOT INITIALIZED</td>
<td>The trace table for the D5API Collector is not initialized.</td>
<td>The TRACEALL Modify command has failed.</td>
<td>Contact IBM support.</td>
</tr>
<tr>
<td>KO2I0114I</td>
<td>NO D5API COLLECTOR TRACE DATA TO DISPLAY</td>
<td>No trace data is available for display at the current time.</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>KO2I0115I</td>
<td>D5API STIMER WAIT VALUE SUCCESSFULLY CHANGED</td>
<td>The D5API Collector collect timer wait value has been successfully changed.</td>
<td>None.</td>
<td>None.</td>
</tr>
<tr>
<td>KO2I0116E</td>
<td>D5API INVALID STIMER WAIT VALUE SUPPLIED</td>
<td>The D5API Collector collect timer wait value in the command is invalid.</td>
<td>The command is rejected.</td>
<td>Specify a valid wait value in the form of hhmmss.</td>
</tr>
<tr>
<td>KO2I0117I</td>
<td>D5API COLLECTOR RESMGR DISPLAY</td>
<td>The D5API Collector is currently processing the requested MODIFY command.</td>
<td>The MODIFY command is processed.</td>
<td>None.</td>
</tr>
<tr>
<td>KO2I0118I</td>
<td>D5API NO RESMGR ENTRIES DEFINED</td>
<td>A D5API Collector command was issued to display resource manager entries, but no entries were found.</td>
<td>The command is rejected.</td>
<td>None.</td>
</tr>
</tbody>
</table>
KO2I01019I  D5API COLLECTOR TERMINATION IN PROGRESS
Explanation: The D5API Collector is terminating.
System action: None.
User response: None.

KO2I0120E  D5API CONTROL TABLE VALIDITY CHECK FAILED
Explanation: The D5API Collector could not validate the acronym name in the D5API control table.
System action: D5API Collector termination continues.
User response: Contact IBM support.

KO2I0121E  PC TABLE STORAGE RELEASE FAILED
Explanation: The D5API Collector could not release the PC table common storage structure.
System action: D5API Collector termination continues.
User response: If the problem persists, contact IBM support.

KO2I0121I  D5API COLLECTOR WAITING FOR SUBTASKS TO EXIT
Explanation: A MODIFY command has been issued to stop the D5API Collector. Stop processing is waiting for all subtasks to end before terminating.
System action: The D5API Collector waits for the subtasks to end.
User response: None.

KO2I0122I  RESMGR DEFERRED RESOURCE CLEANUP COMPLETE
Explanation: The D5API Collector successfully released common ECSA resources.
System action: None.
User response: None.

KO2I0122W  D5API COLLECTOR FORCIBLY TERMINATING
Explanation: A MODIFY command was previously issued to stop the D5API Collector. The timer interval used to wait for all subtasks to end has been exceeded, causing termination.
System action: The D5API Collector is forcibly terminated.
User response: If the problem persists, contact IBM support.

KO2I0123I  D5API REGISTRATION ENTRY SUCCESSFULLY RELEASED
Explanation: The D5API Collector instance registration entry has been successfully released.
System action: None.
User response: None.

KO2I0124I  D5API COLLECTOR TERMINATION COMPLETE
Explanation: The D5API Collector has terminated.
System action: None.
User response: None.

KO2I0127U  D5API ECSA STRUCTURES GETMAIN FAILED
Explanation: Error occurred while getting ECSA storage for common collector control structures.
System action: The common collector is terminated. Dump is generated.
User response: Contact IBM support.

KO2I0128U  D5API ECSA STRUCTURES GETMAIN FAILED
Explanation: The D5API Collector could not obtain ECSA virtual storage for the D5APIUSE structure.
System action: The D5API Collector task terminates with abend code 3100.
User response: Contact IBM support.

KO2I0129U  D5API REGISTRATION ENTRY CREATE FAILED
Explanation: The D5API Collector could not create the instance registration table entry.
System action: The D5API Collector task abnormally terminates.
User response: Contact IBM support.

KO2I0130I  D5API REGISTRATION ENTRY SUCCESSFULLY REBUILT
Explanation: The D5API Collector successfully rebuilt the registration table entry for this instance of OMEGAMON XE for DB2 PE.
System action: None.
User response: None.
KO2I0131U  D5API REGISTRATION TOKEN DELETE FAILED
Explanation: The D5API Collector could not delete the system-level registration name/token pair.
System action: The D5API Collector task abnormally terminates.
User response: Contact IBM support.

KO2I0133U  INTERNAL TRACE RECORDING TERMINATED DUE TO ABEND
Explanation: The D5API internal trace processing has abnormally terminated.
System action: Trace processing stops collecting internal trace data.
User response: Message KO2I0143I is issued indicating that recovery is successful. Contact IBM support if recovery is not successful.

KO2I0133W  INTERNAL TRACE RECORDING PREVIOUSLY TERMINATED DUE TO ABEND. NO TRACE DATA TO DISPLAY
Explanation: A command was issued to display internal trace data, but no trace data is available to display because trace processing was previously terminated because of an abnormal end.
System action: The command is rejected.
User response: Shut down and restart OMEGAMON XE for DB2 PE. If the problem persists, contact IBM support.

KO2I0134I  D5API REGISTRATION ENTRY SUCCESSFULLY CREATED
Explanation: The D5API Collector successfully created the registration table entry for this instance of OMEGAMON XE for DB2 PE.
System action: None.
User response: None.

KO2I0136I  D5API TASK-LEVEL TOKEN SUCCESSFULLY CREATED
Explanation: The D5API Collector successfully re-created the task-level name/token pair for Collect/Connect process functions.
System action: None.
User response: None.

KO2I0137E  D5API RESMGR INITIALIZATION FAILED
Explanation: The D5API Collector could not initialize the resource manager table.
System action: The D5API Collector abnormally terminates.
User response: Contact IBM support.

KO2I0138I  D5API RESMGR INITIALIZATION COMPLETE
Explanation: The D5API Collector successfully initialized the resource manager table.
System action: None.
User response: None.

KO2I0140E  INVALID MODIFY COMMAND RECEIVED
Explanation: An invalid D5API Collector command has been entered.
System action: The command is rejected.
User response: Specify a valid command.

KO2I0140I  D5API COLLECTOR MODIFY COMMAND COMPLETED
Explanation: A D5API Collector command has been successfully executed.
System action: The command is executed.
User response: None.

KO2I0141I  D5API COLLECTOR TRACE SET TO <V1>
Explanation: The D5API Collector has been started or modified with one of the following trace processing parameters (<V1>):
  • TRACE=NO - No trace informational messages will be displayed in the OMEGAMON job log and Agent address space log.
  • TRACE=YES - Trace informational messages will be displayed in the OMEGAMON job log and Agent address space log.
  • TRACE=YES,DATA - Trace informational messages will be displayed in the OMEGAMON job log and Agent address space log, including collected DB2 table data.
System action: The D5API Collector sets the appropriate trace environment.
User response: None.
**KO2I0142I** D5API ATTACHED A CONNECTION TO DB2 DDDD ON BE HALF OF AGENT $$$$$$$

**Explanation:** The D5API common collector successfully attached a DB2 connection as requested by the XE agent.

**System action:** The D5API common collector monitors the DB2 connection for XE agent data collection requests.

**User response:** None.

**KO2I0143I** D5API COLLECTOR ABEND RECOVERY SUCCESSFUL.

**Explanation:** A D5API Collector component has been deactivated because of an abnormal termination.

**System action:** Processing continues without the failed component.

**User response:** Contact IBM support.

**KO2I0144I** D5API DB2 CONNECTIONS DISPLAY

**Explanation:** A D5API Collector command was issued to display DB2 Agent connections.

**System action:** The command is executed.

**User response:** None.

**KO2I0144W** D5API NO ACTIVE DB2 AGENT CONNECTIONS FOUND

**Explanation:** A D5API Collector command was issued to display DB2 Agent connections, but no active DB2 Agent connections were found.

**System action:** None.

**User response:** None.

**KO2I0147U** MODIFY COMMAND ABNORMALLY TERMINATED

**Explanation:** The requested MODIFY command has abnormally terminated.

**System action:** The D5API Collector resumes processing.

**User response:** Contact IBM support.

**KO2I0148I** D5API USING REGISTRATION TABLE

**Explanation:** The D5API Collector successfully retrieved the persistent system-level name/token pair that is used to anchor the registration table address.

**System action:** None.
DB2 subsystem normally or abnormally terminates while the D5API Connect call is in progress. Verify that the indicated DB2 subsystem is started and functioning properly.

KO2I0152W D5API UNABLE TO LOCATE AGENT ADDRESS SPACE

Explanation: The D5API Collector Connect/Collect task could not determine the status of the Agent address space.

System action: The D5API Collector Connect/Collect task is terminated.

User response: Determine why the Agent address space terminated, and take appropriate action.

KO2I0153I D5API COLLECTOR WAITING FOR AGENT %%%%%% CONNECTION REQUESTS

Explanation: An OMEGAMON XE for DB2 PE agent caused the DB2 collection driver module to be attached.

System action: Waiting for Agent connection requests.

User response: None.

KO2I0154I D5API COLLECTOR IS CONNECTING TO DB2 %%%%%% ON BEHALF OF AGENT %%%%%%

Explanation: An OMEGAMON XE for DB2 PE agent caused the DB2 collection driver module to connect to the specified DB2 subsystem to collect data.

System action: The connection request is processed.

User response: None.

KO2I0155I D5API COLLECTOR SUCCESSFULLY COLLECTED DATA FROM DB2 %%%%%% ON BEHALF OF AGENT %%%%%%

Explanation: A DB2 collection request was issued by an OMEGAMON XE for DB2 PE agent, and data was successfully collected from the indicated DB2 subsystem.

System action: The requested data is collected.

User response: None.

KO2I0156I D5API COLLECTOR FOUND NO DATA TO COLLECT FROM DB2 %%%%%% ON BEHALF OF AGENT %%%%%%

Explanation: The OMEGAMON XE D5API common collector found no data to collect from the specified DB2 subsystem %%%%% as requested by Agent %%%%%.

System action: The Agent is notified that no data has been returned.

User response: Verify that the DB2 subsystem %%%%% is started and functioning properly.

KO2I0157I D5API COLLECTOR DISCONNECTED FROM DB2 %%%%%% ON BEHALF OF AGENT %%%%%%

Explanation: An OMEGAMON XE for DB2 PE shutdown request was issued and the active DB2 Agent connection was terminated.

System action: The active DB2 connection is terminated.

User response: None.

KO2I0158W D5API COLLECTOR UNABLE TO LOCATE AGENT %%%%%% FOR D5API CALL POST COMPLETION

Explanation: D5API could not locate the agent to complete the action.

System action: The common collector DB2 connection is terminated.

User response: None.

KO2I0159W D5API COLLECTOR UNABLE TO ACCESS AGENT %%%%%% COMMUNICATION DATA AREA <DAPICOMM>

Explanation: The D5API Collector tried to cross-memory post the Agent for completion of a Connect, Collect, or Disconnect call, but could not access the Agent DAPICOMM communication structure.

System action: The D5API Collector unit of work associated with the request is terminated.

User response: Verify that the Agent address space is still active in the system. If the Agent address space is not active in the system, restart it.

KO2I0160U COLLECTOR UNABLE TO LOCATE AGENT %%%%%% FOR D5API CALL POST COMPLETION

Explanation: D5API could not locate the agent to complete the action.

System action: The common collector DB2 connection is terminated.

User response: None.
KO2I0161W  D5API COLLECTOR FORCIBLY TERMINATED DB2 CONNECTION ON BEHALF OF AGENT

Explanation: The common collector DB2 connection is terminated forcibly when receiving no response from the termination request.

System action: The D5API collector DB2 connection is terminated.

User response: None.

KO2I0162U  D5API COLLECTOR FAILED TO LOAD THE OMEGAMON BATCH API ON BEHALF OF AGENT

Explanation: The common collector could not load the required API for agent.

System action: The common collector is terminated.

User response: Contact IBM support.

KO2I0163U  AGENT DAPICOMM STRUCTURE FAILED INTEGRITY CHECKS. DB2 CONNECTION TERMINATED

Explanation: D5API control structure internal error occurred for the DB2 connection.

System action: The D5API collector DB2 connection is terminated.

User response: Contact IBM support.

KO2I0164I  COLLECTOR RELEASE COUNTER TBL DB2 ON BEHALF OF AGENT

Explanation: The D5API collector released counter table when the D5API DB2 connection is terminated.

System action: Storage is released.

User response: None.

KO2I0170U  <Snnn> ABEND IN MODULE <progmnt1> PERCOLATED TO D5API MODULE <progmnt1>

Explanation: An abend <Snnn> occurred.

System action: An SVC dump is scheduled.

User response: Contact IBM support.

KO2I0180U  LOCAL DAPICOMM STORAGE RELEASE ERROR

Explanation: The XE Agent failed to release a local storage communication structure used to communicate with the D5API common collector.

System action: Normal disconnect processing continues.

User response: Contact IBM support.

KO2I0181W  D5API IS NOT ACTIVE IN D2 ADDRESS SPACE. CONNECT CALL FAILED FOR DB2

Explanation: The D5API Collector is not active in the OMEGAMON XE for DB2 PE address space.

System action: The Agent Connect call is rejected.

User response: Verify that the OMEGAMON XE for DB2 PE address space is active in the system. If not, restart it.

KO2I0182E  FAILED TO LOCATE THE D2 ADDRESS SPACE

Explanation: The OMEGAMON XE for DB2 PE address space is not active in the system.

System action: The Agent Connect call is rejected.

User response: Verify that the OMEGAMON XE for DB2 PE address space is active in the system. If not, restart it.

KO2I0183W  D5API IS NOT ACTIVE IN D2 ADDRESS SPACE. COLLECT CALL FAILED FOR DB2

Explanation: The OMEGAMON XE D5API Agent collection function could not collect data from the specified D2 Server address space.

System action: The Agent Collect call is terminated.

User response: Verify that the D5API Collector component is active in the D2 Server address space by issuing the following STATUS MODIFY command: F O2CI,COMMCOLL,STATUS. For STATUS=INACTIVE, stop the D5API Collector and restart it. To stop the D5API Collector, issue the following MODIFY command: F O2CI,F COMMCOLL,STOP. To restart the D5API Collector, issue the following MODIFY command: F O2CI,F COMMCOLL,START. Replace O2CI with your D2 Server started task name.
KO2I0184E  LOCASCB FAILED TO LOCATE THE D2=%%/%/%/%/% ADDRESS SPACE

Explanation: The OMEGAMON XE for DB2 PE address space is not active in the system.

System action: The Agent Connect call is rejected.

User response: Verify that the OMEGAMON XE for DB2 PE address space is active in the system. If not, restart it.

KO2I0185E  CONTROL TABLE LOCATE ERROR D2=%%/%/%/%/%

Explanation: The OMEGAMON XE for DB2 PE address space is not active in the system.

System action: The Agent Disconnect call is rejected.

User response: Verify that the OMEGAMON XE for DB2 PE address space is active in the system. If not, restart it.

KO2I0186E  D5API PC ENVIRONMENT NOT INITIALIZED D2=%%/%/%/%/%

Explanation: The OMEGAMON XE for DB2 PE address space has not yet initialized the cross-memory environment.

System action: The Agent Connect call is rejected.

User response: Verify that the OMEGAMON XE for DB2 PE address space is active in the system. If not, restart it.

KO2I0186U  DB2 %%%% CONNECTION ALREADY EXISTS IN OM %%%% - CONNECT CALL REJECTED

Explanation: The D5API Connect call failed because a DB2 connection already exists.

System action: The Connect call is rejected.

User response: Shut down and restart the Agent address space.

KO2I0187W  D5API IS NOT ACTIVE IN D2 NNNNNNNN ADDRESS SPACE. DISCOVER CALL FAILED

Explanation: The OMEGAMON XE D5API Agent Discover function could not discover the status of active DB2 subsystem IDs known to the D2 Server address space.

System action: The Agent Discover call is terminated.

User response: Verify that the D5API Collector component is active in the D2 Server address space by issuing the following STATUS MODIFY command: F O2CI,F COMMCCOLL,STATUS. For STATUS=INACTIVE, stop the D5API Collector and restart it. To stop the D5API Collector, issue the following MODIFY command: F O2CI,F COMMCCOLL,STOP. To restart the D5API Collector, issue the following MODIFY command: F O2CI,F COMMCCOLL,START. Replace O2CI with your D2 Server started task name.

KO2I0188E  LOCASCB FAILED TO LOCATE THE D2=%%/%/%/%/% ADDRESS SPACE

Explanation: The OMEGAMON XE for DB2 PE address space is not active in the system.

System action: The Agent Disconnect call is rejected.

User response: Verify that the OMEGAMON XE for DB2 PE address space is active in the system. If not, restart it.

KO2I0189I  AGENT %%%% ATTEMPTING CONNECTION TO %%%% VERSION Vnnn BY %%%% - DB2 %%%

Explanation: An OMEGAMON XE for DB2 PE agent is attempting a connection to the indicated Vnnn OMEGAMON common collector for the indicated DB2 system.

System action: The agent is attempting a connection.

User response: None.

KO2I0190W  CONNECT TIME LIMIT EXCEEDED. CONNECT CALL FAILED

Explanation: The OMEGAMON XE D5API Collector Agent connection function exceeded the internally specified nine minutes connect time allowance.

System action: The Connect call is terminated.

User response: Check the OMEGAMON collector job log or OMEGAMON XE for DB2 PE agent RKLVLOG for possible causes.

KO2I0191W  COLLECT TIME LIMIT EXCEEDED. COLLECT CALL FAILED

Explanation: The OMEGAMON XE D5API Collector Agent data collection function exceeded the internally specified 30 seconds collect time interval.

System action: The Agent Collect call is terminated.

User response: Issue the F O2CI,F COMMCCOLL,STIMER=hhmmssth MODIFY D2 Server command to change the default collect time interval. O2CI is the D2 Server started task name and hhmmssth is used to specify a new collect time interval. Example: F O2CI,F COMMCCOLL,STIMER=00050000 changes the collect time interval to 50 seconds.
KO2I0192W  DISCONNECT TIME LIMIT EXCEEDED. DISCONNECT CALL FAILED.

KO2I0193I  AGENT %%%%%%%%%%%%%%%%%% CONNECTED TO %%%%%%%%%% - DB2 %%%%%%

Explanation: The OMEGAMON XE for DB2 PE agent successfully connected to the OMEGAMON common collector for the indicated DB2 subsystem.

System action: The agent Connect call succeeded.

User response: None.

KO2I0194I  AGENT %%%%%%%%%%%%%%%%%% FAILED TO CONNECT TO %%%%%%%%%% - DB2 %%%%%%

Explanation: The OMEGAMON XE for DB2 PE agent failed to connect to the OMEGAMON common collector for the indicated DB2 subsystem.

System action: The agent Connect call failed.

User response: Check the OMEGAMON collector job log or OMEGAMON XE for DB2 PE agent RKLVLOG for possible causes.

KO2I0195I  AGENT %%%%%%%%%%%%%%%%%% DISCONNECTED FROM %%%%%%%%%% - DB2 %%%%%%

Explanation: The OMEGAMON XE for DB2 PE agent disconnected from the OMEGAMON common collector for the indicated DB2 subsystem.

System action: The agent is disconnected from the common collector.

User response: None. It might be that the OMEGAMON common collector or DB2 system was recycled.

KO2I0200U  UNABLE TO LOG COLLECTED DATA. ZERO UAB ADDRESS SUPPLIED

Explanation: The D5API Agent could not locate the User Agent Block (UAB) supplied by the caller.

System action: Log data is not collected.

User response: Contact IBM support.

KO2I0201U  UNABLE TO LOG COLLECTED DATA. UAB FAILED VALIDITY CHECK

Explanation: The D5API Agent could not validate the User Agent Block (UAB) supplied by the caller.

System action: Log data is not collected.

User response: Contact IBM support.

KO2I0202U  UNABLE TO LOG COLLECTED DATA. UAB BUFFER OVERFLOW

Explanation: The D5API Agent could not locate a User Agent Block (UAB) buffer required to log collected data.

System action: Log data is not collected.

User response: Contact IBM support.

KO2I0203U  DAPICOMM STRUCTURE CELL ELEMENT OBTAIN FAILURE

Explanation: The D5API call could not obtain a communication data structure that is required to communicate Connect calls to the common collector.

System action: The Connect call is rejected.

User response: Contact IBM support.

KO2I0203W  TASK TYPE RESMGR INITIALIZATION FAILED

Explanation: The D5API Agent could not define a task type resource manager.

System action: Processing continues without the resource manager.

User response: None.

KO2I0204U  LOCAL DAPICOMM STORAGE OBTAIN ERROR

Explanation: The XE Agent could not obtain local storage for the communication structure that is required to perform a Connect call to the D5API common collector.

System action: The XE agent Connect call is rejected.

User response: Increase the XE agent address space region size and restart the agent started task.

KO2I0205I  DISCONNECT CALL ISSUED ON BEHALF OF AGENT BY D5API EOT RESOURCE MANAGER

Explanation: The D5API Collector end-of-task resource manager detected that the Agent did not release its connection control structure during termination processing.

System action: The end-of-task resource manager releases the Agent connection structure on behalf of the terminating Agent address space.

User response: None.
KOI20205U UNABLE TO LOCATE COMMON COLLECTOR REGISTRY ENTRY FOR OM SERVER %%%%server-name%%%%

Explanation: The D5API call could not locate the common collector registry for the specified OMEGAMON Collector.
System action: The Connect, Collect, or Disconnect call is terminated.
User response: Verify that the OMEGAMON Collector that the Agent is trying to communicate with is active in the system. If it is not active, start the OMEGAMON Collector.

KOI20206U UNABLE TO VALIDITY-CHECK DAPICOMM STRUCTURE STATUS DUE TO QUEUE SCAN FAILURE

Explanation: The D5API call could not locate the communication data structure that is required to process the common collector Connect or Disconnect call.
System action: The Collect or Disconnect call is rejected.
User response: Contact IBM support.

KOI20207U D5API CONTROL STRUCTURE FOR D2 %%%%server-name%%% FAILED INTEGRITY CHECKS. CONNECT CALL FAiled

Explanation: The Agent program call (PC) routine could not successfully reference processing information in the D5API Collector control structure.
System action: The Connect call is rejected.
User response: Contact IBM support.

KOI20208U AGENT DAPICOMM STRUCTURE FAILED INTEGRITY CHECKS. CONNECT CALL FAiled

Explanation: The Agent program call (PC) routine could not successfully reference processing information in the DAPICOMM communication structure.
System action: The Connect call is rejected.
User response: Contact IBM support.

KOI20209U AGENT COLLECT CALL FAILED. CONNECT CALL NOT PREVIOUSLY ISSUED. COLLECT CALL FAiled

Explanation: The Agent program call (PC) routine could not process the Collect call because Connect was not previously issued.
System action: The Connect call is rejected.
User response: Contact IBM support.

KOI20210W AGENT TERMINATING DB2 %%%%server-name%%% CONNECTION IN D2 %%%%server-name%%%%

Explanation: The Agent program call (PC) routine disconnected the specified DB2 from the D5API Collector because the Agent issued a Connect call to the same DB2 subsystem twice without a Disconnect call being issued.
System action: The connection to the specified DB2 is reestablished.
User response: None.

KOI20211W DAPICOMM STRUCTURE ACCESS FAILED FOR DB2 <ssid> RECOVERY SUCCESSFUL

Explanation: The D5API agent disconnect function tried to storage release a previously freed ECSA DAPICOMM structure.
System action: The error is ignored and the Disconnect call request is successfully processed.
User response: None.

KOI20212I AGENT SUCCESSFULLY RELEASED DAPICOMM STRUCTURE FOR DB2 ssid

Explanation: The D5API agent disconnect function successfully storage released the ECSA DAPICOMM structure.
System action: Disconnect call processing continues.
User response: None.

KOI20212U UNABLE TO LOCATE A CONNECTION TO DB2=ssid IN OM SERVER server-name | COLLECT | DISCONNECT) CALL FAiled

Explanation: The D5API call could not locate a connection for the specified DB2 subsystem on the target OMEGAMON Collector.
System action: The specified D5API call is terminated and error and reason codes are returned to the calling agent.
User response: Contact IBM support.

KOI20213U UNABLE TO LOCATE SPECIFIED DB2=%%%server-name%%% SUBSYSTEM - %%%%server-name%%% CALL FAiled

Explanation: The D5API Connect or Collect call failed because the DB2 subsystem was not found.
System action: The Connect or Collect call is rejected.
User response: Start the specified DB2 subsystem.
Explanation: The D5API common collector detected that the table name supplied by the XE agent is invalid.
System action: The XE agent collect call is rejected.
User response: Contact IBM support.

Explanation: None.
System action: None.
User response: None.

Explanation: An active thread originated from an IMS version that is not supported by the product.
System action: IMS-specific information, such as transaction ID, is displayed as N/A.
User response: Request a product upgrade for support of IMS version <V1>.

Explanation: The XE Agent’s attempt to connect to the OMEGAMON for DB2 PE Collector failed.
System action: The Agent will keep retrying to connect to the OMPE Server until it is started.
User response: Start the OMPE Server.

Explanation: The immediate return function was successfully modified by a user action.
System action: None.
User response: None.

Explanation: EXEC FPEJINIT could not locate the
indicated module in the indicated data set.

System action: The start process terminated.

User response: Ensure that the indicated library is accessible.

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**KO2O - VTAM Display Logic messages**

<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
<th>Explanation</th>
<th>System action</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>KO2O0450I</td>
<td>INITIALIZING COMMON SERVICES</td>
<td>An informational message.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KO2O0452I</td>
<td>TERMINATING COMMON SERVICES</td>
<td>An informational message.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KO2O0500E</td>
<td>Near-Term History Data Collector - OPEN VSAM DATA SET FAILED WITH RETURN CODE=rc, REASON CODE=rs</td>
<td>An error occurred while an OPEN request was issued to the VSAM data set. This problem could be caused by an I/O error on the VSAM data set.</td>
<td>Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.</td>
<td>If the error code does not indicate an I/O error, contact IBM support.</td>
</tr>
<tr>
<td>KO2O0501E</td>
<td>Near-Term History Data Collector - CLOSE VSAM DATA SET FAILED WITH RETURN CODE=rc, REASON CODE=rs</td>
<td>An error occurred while a CLOSE was issued to the VSAM data set. This problem could be caused by an I/O error on the VSAM data set.</td>
<td>Processing continues, but the VSAM data set was not closed.</td>
<td>If the error code does not indicate an I/O error, contact IBM support.</td>
</tr>
<tr>
<td>KO2O0502E</td>
<td>Near-Term History Data Collector - SHOWCB/GENCB RPL FAILED WITH RETURN CODE=rc, REASON CODE=rs</td>
<td>An error occurred while SHOWCB/GENCB RPL was issued against the VSAM data set. This problem could be caused by an I/O error on the VSAM data set.</td>
<td>Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.</td>
<td>If the error code does not indicate an I/O error, contact IBM support.</td>
</tr>
<tr>
<td>KO2O0503E</td>
<td>Near-Term History Data Collector - SHOWCB/GENCB EXLST FAILED WITH RETURN CODE=rc, REASON CODE=rs</td>
<td>An error occurred while SHOWCB/GENCB EXLST was issued against the VSAM data set. This problem could be caused by an I/O error on the VSAM data set.</td>
<td>Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.</td>
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<td>KO2O0504E</td>
<td>Near-Term History Data Collector - SHOWCB/GENCB ACB FAILED WITH RETURN CODE=rc, REASON CODE=rs</td>
<td>An error occurred while SHOWCB/GENCB ACB was issued against the VSAM data set. This problem could be caused by an I/O error on the VSAM data set.</td>
<td>Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.</td>
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</tr>
<tr>
<td>KO2O0505E</td>
<td>Near-Term History Data Collector - VSAM PUT FAILED WITH RETURN CODE=rc, REASON CODE=rs</td>
<td>An error occurred while a PUT was issued to the VSAM data set. This problem could be caused by an I/O error on the VSAM data set.</td>
<td>Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.</td>
<td>If the error code does not indicate an I/O error, contact IBM support.</td>
</tr>
<tr>
<td>KO2O0506E</td>
<td>Near-Term History Data Collector - VSAM LOGICAL I/O ERROR WITH RETURN CODE=rc, REASON CODE=rs</td>
<td>A logical I/O error occurred while a PUT was issued to the VSAM data set. This problem could be caused by an I/O error on the VSAM data set.</td>
<td>Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.</td>
<td>If the error code does not indicate an I/O error, contact IBM support.</td>
</tr>
</tbody>
</table>
KO2O0602W %%%% Trace data lost - too many buffers in use.

Explanation: %%%% is the name of the DB2 subsystem. DB2 produces IFCID records faster than the Near-Term History Collector can process. Currently, more than 15 buffers are used. The collection of IFCID records is suspended until 15 or less buffers are used.

System action: Records are skipped until the Near-Term History Collector can reduce the backlog of records to be processed.

User response: You can solve the problem by doing one or more of the following actions.

Note: Use the Configuration Tool (previously called ICAT, panel KD261P8 and KD261PB) to modify the BUFSIZE-, NEGSQL-, SCAN-, SORT-, DYNAMICSQL- and POSTPCT- parameters below.

If you do not use the Configuration Tool to record and update the parameter library, changes might be reversed the next time you are using it.

1. Increase the buffer size by setting its value to 2048.
   Try different values and evaluate the results.
   By default, the buffer size (BUFSIZE) is 1024. This value might be too small for high volume production systems. The upper limit for the buffer size is the maximum value for a -START TRACE command. For more information, see the DB2 commands reference.
   For the OMEGAMON Near-Term History collector, the recommended value for the buffer size is 2048.

2. Reduce the number of IFCIDs to be written to the OPx by using the following settings:

   NEGSQNL(NO)
   Use this setting to not collect return codes on SQL events.
   Affected IFCIDs: 58, 59, 60, 61, 62, 64, 65, 66, 233.
   If Near-Term History data is not collected to sequential files, there is no reason to collect this data.
   Near-Term History data is not externalized by the real time product. However, it can be externalized by batch reporting if it is collected to sequential files.

   SCAN(NO)
   Use this setting to not collect SCAN data.
   Affected IFCIDs: 15, 16, 17, 18.

   SORT(NO)
   Use this setting to not collect SORT data.

KO2O0508E Near-Term History Data Collector - VSAM PHYSICAL I/O ERROR WITH RETURN CODE=r, REASON CODE=r

Explanation: A physical I/O error occurred while a PUT was issued to the VSAM data set. This problem could be caused by an I/O error on the VSAM data set.

System action: Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.

User response: If the error code does not indicate an I/O error, contact IBM support.

KO2O0509E Near-Term History Data Collector - ERROR IN VSAM PUT SEQUENT. WITH RETURN CODE=r, REASON CODE=r

Explanation: An error occurred while a PUT sequential was issued to the VSAM data set. This problem could be caused by an I/O error on the VSAM data set.

System action: Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.

User response: If the error code does not indicate an I/O error, contact IBM support.
KO200510E  Near-Term History Data Collector - ERROR IN VSAM PUT DIRECT WITH RETURN CODE=rc, REASON CODE=rs

Explanation: An error occurred while a PUT direct was issued to the VSAM data set. This problem could be caused by an I/O error on the VSAM data set.

System action: Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.

User response: If the error code does not indicate an I/O error, contact IBM support.

KO200511E  Near-Term History Data Collector - END OF VOLUME DETECTED. NO MORE PERFORMANCE DATA IS COLLECTED

Explanation: An end of volume is detected, and performance data will not be extracted any more.

System action: Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.

User response: Allocate another VSAM data set or reallocate the VSAM data set and try the data extractor again.

KO200512E  Near-Term History Data Collector - VSAM POINT MACRO FAILED WITH RETURN CODE=rc, REASON CODE=rs

Explanation: An error occurred while a POINT was issued to the VSAM data set.

System action: Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.

User response: If the error code does not indicate an I/O error, contact IBM support.

KO200513E  Near-Term History Data Collector - KEY LENGTH FOR VSAM FILE IS NOT CORRECT

Explanation: The key length specified for the VSAM data set was incorrect.

System action: Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.

User response: Correct the key length to 80 and allocate the VSAM data set again.

KO200514E  Near-Term History Data Collector - MAXIMUM RECORD LENGTH FOR VSAM FILE IS NOT CORRECT

Explanation: The maximum record length specified for the VSAM data set was incorrect.

System action: Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.

User response: Correct the maximum record length to 4096 and allocate the VSAM data set again.

KO200515E  Near-Term History Data Collector - VSAM GET MACRO FAILED WITH RETURN CODE=rc, REASON CODE=rs

Explanation: An error occurred while a GET was issued to the VSAM data set. This problem could be caused by an I/O error on the VSAM data set.

System action: Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.

User response: If the error code does not indicate an I/O error, contact IBM support.

KO200516E  Near-Term History Data Collector - VSAM DATA SET IS NOT INITIALIZED. PERFORMANCE DATA IS NOT COLLECTED

Explanation: The specified VSAM data set was not initialized.

System action: Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.

User response: Initialize the VSAM data set using the H2VSMINT utility. The JCL to initialize the VSAM data set is in rhilev.RK2SAM(ACRTcccc).

KO200517I  Near-Term History Data Collector - DATA SET dname INITIALIZED

Explanation: The indicated H2 (near-term history) data set was initialized successfully.

System action: None.

User response: None.

KO200518E  Near-Term History Data Collector - DATA SET dname INIT FAILED

Explanation: The indicated H2 (near-term history) data set could not be initialized because of an error.

System action: None.

User response: Check for other error messages associated with this message and correct the error.
KO2O0519E  Near-Term History Data Collector - VSAM DATA SET DDNAME H2VSAM IS NOT SPECIFIED

Explanation: The ddname H2VSAM is not specified, but is required for data extraction.

System action: Processing continues, but the data extractor cannot extract any performance data from GTF or SMF.

User response: Add the DD card H2VSAM, together with the VSAM data set name, to the data extractor JCL.

KO2O0520E  Near-Term History Data Collector - VSAM ENDRQ FAILED WITH RETURN CODE=rc, REASON CODE=rs

Explanation: Internal error.

System action: Processing terminates.

User response: Contact IBM support.

KO2O0521E  Near-Term History Data Collector - VSAM VERIFY FAILED WITH RETURN CODE=rc, REASON CODE=rs

Explanation: Internal error.

System action: Processing terminates.

User response: Contact IBM support.

KO2O0522E  Near-Term History Data Collector - RECORD LENGTH EXCEEDED MAXIMUM RECORD LENGTH. RECORD TRUNCATED

Explanation: The length of the performance record exceeds the maximum record length defined in the VSAM data set. The record is truncated.

System action: Processing continues.

User response: Contact IBM support.

KO2O0523E  Near-Term History Data Collector - RETRIEVE RECORD FAILED. END OF DATA SET REACHED

Explanation: The length of the performance record exceeds the maximum record length defined in the VSAM data set. The record is truncated.

System action: Processing continues.

User response: Contact IBM support.

KO2O0550E  NEAR-TERM HISTORY DATA COLLECTOR - DDNAME name IS NOT SPECIFIED IN THE LOG ARCHIVE JCL

Explanation: The indicated ddname is not specified in the model archive JCL specified by the ARCHIVEJCL parameter.

System action: Processing continues, but no JCL is generated to archive the full Near-Term History Data Collector data set.

User response: Correct the model archive JCL.

KO2O0551E  Near-Term History Data Collector - OPEN FAILED FOR DATA SET WITH DDNAME dd

Explanation: The indicated data set in the model archive JCL specified by the ARCHIVEJCL parameter could not be opened.

System action: Processing continues, but no JCL is generated to archive the full Near-Term History Data Collector data set.

User response: Correct the model archive JCL.

KO2O0553E  Near-Term History Data Collector - FAILED TO LOAD MODULE c

Explanation: The indicated module could not be loaded.

System action: Processing stops.

User response: Ensure that this module is in the OMEGAMON XE for DB2 PE load library.

KO2O0554E  Near-Term History Data Collector - UNABLE TO CREATE JCL TO ARCHIVE H2 DATA SET

Explanation: OMEGAMON XE for DB2 PE could not create the JCL that is needed to archive the Near-Term History Data Collector data set.

System action: Processing continues.

User response: Ensure that the member specified by the ARCHIVEJCL parameter exists in the data set allocated to the RKD2PAR DD statement.

KO2O0555I  Near-Term History Data Collector - A BATCH JOB IS SUBMITTED TO FLUSH THE CONTENTS OF THE H2 DATA SET

Explanation: This is an informational message.

System action: Processing continues.

User response: None.
KO200557W Near-Term History Data Collector - ONLY ONE H2 DATA SET IS AVAILABLE FOR FUTURE LOG SWITCHING

Explanation: This is an informational message.
System action: Processing continues.
User response: None.

KO200558E Near-Term History Data Collector - NO H2 DATA SET IS AVAILABLE, DB2 DATA IS NOT WRITTEN TO H2 DATA SET

Explanation: No data set is available for storing near-term history data, so the collected DB2 data cannot be saved.
System action: Processing continues.
User response: Specify at least one H2 (near-term history) data set in the collection options member you are using.

KO200559W Near-Term History Data Collector - NO H2 DATA SET IS AVAILABLE FOR FUTURE LOG SWITCHING

Explanation: No data set is available to store near-term history data after the active data set is full.
System action: Processing continues.
User response: Be sure that the maximum of three data sets have been specified in the collection options member.

KO200560W Near-Term History Data Collector - WRONG DISPOS. FOR dsnname

Explanation: The disposition mode for the named data set is not correct. Either MOD or NEW is specified; however, only SHR and OLD are supported.
System action: Processing continues.
User response: Change the disposition to SHR or OLD in the JCL and try again.

KO200561I Near-Term History Data Collector - H2 DATA SET dsnname STATUS n % FULL

Explanation: This message supplies information about the status of all VSAM data sets specified in the collection options member. It shows whether the data set is actively storing data, available to store data, or unavailable. It also shows what percentage of the data set has been used.
System action: Processing continues.
User response: None.

KO200562W Near-Term History Data Collector - n H2 RECORDS WERE LOST WHILE NO H2 DATA SET WAS AVAILABLE TO STORE DB2 DATA

Explanation: Near-term history data records were lost because no output buffer or no H2 (near-term history) data set was available for some time to store collected data. This might also happen when the DB2 subsystem is terminating.
System action: Processing continues.
User response: Ensure that the maximum number of H2 (near-term history) data sets (3) is specified in the collection options member, so it will be unlikely to lose data in the future.

KO200563W NO H2 DATA SET INFORMATION IS PROVIDED BECAUSE VSAM WRITE OPTION IS NOT USED

Explanation: You have attempted to display the status of your VSAM data sets, but the Near-Term History Data Collector is not writing to VSAM because the WRITEOPTION keyword is not set to VSAM.
System action: Processing continues.
User response: None.

KO200564W H2 DATA SET IS NOT SWITCHED BECAUSE VSAM WRITE OPTION IS NOT USED

Explanation: You have attempted to manually switch VSAM data sets, but the Near-Term History Data Collector is not writing to VSAM because the WRITEOPTION keyword is not set to VSAM.
System action: Processing continues.
User response: None.

KO200565W NO SUBSTITUTION IS DONE IN ARCHIVE DATA SET. PLEASE CHECK ARCHIVE JCL

Explanation: An error exists in variable usage for @DB2, @DATE, or @TIME in the model archive JCL.
System action: Processing continues, but the archive job is not submitted.
User response: Check variable usage in the model archive JCL and correct any errors.

KO200566E ARCHIVE DATA SET NAME IS LONGER THAN 44 BYTES AFTER SUBSTITUTION. ARCHIVE JOB IS NOT SUBMITTED

Explanation: The variable @DB2, @DATE, or @TIME in the model archive JCL is improperly used.
Collector startup member is specified in the Near
System action: Processing continues, but the archive job is not submitted.
User response: Check and correct the use of the variables in the model archive JCL.

KO2O0567I THERE ARE NO RECORDS IN H2 DATA SET AND SO IT IS NOT BEING ARCHIVED
Explanation: The Near-Term History Data Collector received a SWITCH command and detected that the current log does not have any Accounting, Audit, or Statistics records.
System action: Switches to the next log, but does not submit the archive JCL.
Note: This message is displayed when the SWITCH command processing determines that no Statistics, Accounting or Audit records are in the current log data set. As a result, the archive JCL is not submitted.
User response: If you wish to archive any other records, for example, DKNZPARM records, submit the archive JCL manually.

KO2O0568W ARCHIVEJCL OPTION IS NOT SPECIFIED, SO NO ARCHIVE JOB IS SUBMITTED
Explanation: No archival JCL member name was specified at the time a SWITCH command was executed.
System action: Switches Near-Term History Data Collector log data sets and continues processing.
User response: Check that the archive JCL member of the rhilev.RK02SAM data set was not deleted. The member supplied by IBM is ARCVcccc, where cccc is the identifier for the DB2 system being monitored.
Note: You can manually submit the archive JCL to correct the situation.

KO2O0590E Near-Term History Data Collector - INVALID COLLECTION OPTION MEMBER c IS SPECIFIED
Explanation: The collection options member name specified in the Near-Term History Data Collector startup member or the vary option of the MODIFY command is not valid.
System action: If a not valid collection options member is specified in the Near-Term History Data Collector startup member, the Near-Term History Data Collector terminated. If a not valid collection options member was specified by means of the MODIFY command, no collection option is changed.
User response: Check the collection options member name and reissue the command with a valid member name.

KO2O0591E Near-Term History Data Collector - VSAM DATA SET IS NOT INITIALIZED. DB2 DATA IS NOT COLLECTED
Explanation: See member DFNLOG1 or DFNLOG2 in the RK02SAM data set for information on how to initialize a VSAM data set before it can be used by the Near-Term History Data Collector.
System action: Processing continues with the next VSAM data set specified in the collection options member, if any.
User response: Initialize the VSAM data set.

KO2O0592E DATA SET name IS ALLOCATED TO ANOTHER JOB
Explanation: This message is related to the Near-Term History Data Collector. The named data set is already allocated to another job. However, a different data set name is required for each DB2 on each LPAR.
System action: Processing terminates.
User response: Check the Configuration Tool (formerly ICA) configuration to ensure that different data set names are used.

KO2O0593E DYNAMIC ALLOC FAILED - R15=n1, S99ERROR=n1, S99INFO=n1, S99ERSN=n1, DSN=dsnname
Explanation: Unable to dynamically allocate one of the data sets specified in the options member.
System action: Processing continues.
User response: Check the return code and reason code provided in the message and resolve the problem. See the MVS system programming library Application Development Guide, section 19-19, for return codes and reason codes.

KO2O0594E DATA SET name CANNOT BE FOUND

KO2O0595W NO AUTHORIZATION TO ACCESS DB2 SYSUTIL DATA SET AND NO STOPPED UTILITY INFORMATION COLLECTED
Explanation: Unable to collect any stopped utility information because of missing authorization to access the DB2 SYSUTIL data set.
**KO2O0600E**  EXCEPTION PROCESSING FAILED TO LOCATE FIRST XECB. EXCEPTION PROCESSING NOT ACTIVE

**Explanation:** OMEGAMON XE for DB2 PE could not locate the first exception control block during initialization. OMEGAMON XE for DB2 PE cannot monitor exceptions.

**System action:** Processing continues without monitoring exceptions.

**User response:** Contact IBM support.

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**KO2O0703E**  EXCEPTION PROCESSING FAILED TO PROCESS EXCEPTION cccc

**Explanation:** OMEGAMON XE for DB2 PE cannot process the indicated exception. This error is probably caused by a storage overlay.

**System action:** Processing continues, but the indicated exception is ignored.

**User response:** Contact IBM support.

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**KO2O0704E**  EXCEPTION PROCESSING FAILED TO PROCESS EXCEPTION cccc. TABLE NOT EXPANDABLE

**Explanation:** OMEGAMON XE for DB2 PE cannot process the indicated exception because the exception table is not expandable.

**System action:** Processing continues, but the indicated exception is ignored.

**User response:** Check the installation region constraints for storage above the 16M line. If necessary, increase the amount of storage available above the line. If the problem persists, contact IBM support.

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**KO2O0705E**  EXCEPTION PROCESSING FAILED TO INITIALIZE. RC = rc. EXCEPTION PROCESSING NOT ACTIVE

**Explanation:** The OMEGAMON XE for DB2 PE exception processing routine could not initialize and ended with the indicated return code.

**System action:** Processing continues without monitoring exceptions.

**User response:** Verify that OMEGAMON XE for DB2 PE is not being constrained by installation parameters that restrict the use of storage above the 16M line. If the problem persists, contact IBM support.

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**KO2O0706E**  EXCEPTION PROCESSING FAILED TO OBTAIN ID INFORMATION. DATA OMITTED

**Explanation:** OMEGAMON XE for DB2 PE exception processing could not obtain identification information.
KO200707E • KO200716E

KO200707E EXCEPTION PROCESSING FAILED TO OBTAIN ID. ZOOMING ERRATIC

Explanation: OMEGAMON XE for DB2 PE exception processing could not obtain identification information about the specified exception. OMEGAMON XE for DB2 PE might not have enough information to go to the expected panel when you press F11 (Zoom).

System action: Processing continues.

User response: Press F11 (Zoom) again. If the problem persists, contact IBM support.

KO200708E EXCEPTION PROCESSING FAILED TO LOCATE XGRP TABLE. EXCEPTION PROCESSING NOT ACTIVE

Explanation: OMEGAMON XE for DB2 PE exception processing could not locate the exception group table. OMEGAMON XE for DB2 PE exception processing is not active.

System action: Processing continues without monitoring exceptions.

User response: Contact IBM support.

KO200709E EXCEPTION PROCESSING FAILED TO FORMAT XGRP TABLE. EXCEPTION PROCESSING NOT ACTIVE

Explanation: OMEGAMON XE for DB2 PE exception processing could not format the exception group table.

System action: Processing continues without monitoring exceptions.

User response: Contact IBM support.

KO200710E EXCEPTION PROCESSING FAILED TO OBTAIN ccccc CELL.

Explanation: OMEGAMON XE for DB2 PE exception processing could not obtain the ccccc cell.

System action: OMEGAMON XE for DB2 PE exception processing continues, but might not produce the expected results.

User response: Verify that OMEGAMON XE for DB2 PE is not being constrained by installation parameters that restrict the use of storage above the 16M line. If the problem persists, contact IBM support.

KO200711E EXCEPTION PROCESSING FAILED TO LOCATE EXCEPTION TABLE ENTRY. EXCEPTION cccc

Explanation: OMEGAMON XE for DB2 PE exception processing could not locate the table entry for the indicated exception. This error is probably caused by a storage overlay.

System action: Processing continues, but OMEGAMON XE for DB2 PE does not display data for this exception.

User response: Contact IBM support.

KO200713E EXCEPTION PROCESSING FAILED TO FIND MESSAGE FOR EXCEPTION cccc

Explanation: OMEGAMON XE for DB2 PE exception processing could not locate the message for the indicated exception. This error is probably caused by a storage overlay.

System action: Processing continues without displaying data for this exception.

User response: Contact IBM support.

KO200714E EXCEPTION PROCESSING FAILED TO FORMAT EXCEPTION MESSAGE cccc

Explanation: OMEGAMON XE for DB2 PE exception processing could not format the message for the specified exception. This error is probably caused by a storage overlay.

System action: Processing continues without displaying data for this exception.

User response: Contact IBM support.

KO200715E EXCEPTION PROCESSING FAILED TO OBTAIN OUTPUT CELL. UPDATE OMITTED

Explanation: A request for additional virtual storage was denied.

System action: Processing continues, but exception information and highlighting are incomplete.

User response: Verify that OMEGAMON XE for DB2 PE is not being constrained by installation parameters that restrict the use of storage above the 16M line. If the problem persists, contact IBM support.

KO200716E EXCEPTION PROCESSING FAILED TO FIND CICS JOB NAME. ID OMITTED

Explanation: OMEGAMON XE for DB2 PE could not determine the CICS job name associated with an exception. This error is probably caused by a storage overlay.

System action: Processing continues, but exception information and highlighting are incomplete.
information and highlighting are incomplete.

User response: Contact IBM support.

KO200717E EXCEPTION PROCESSING THREAD ID NOT AVAILABLE. THREAD TERMINATED

Explanation: A thread related to an exception that exceeded its threshold value has terminated.

System action: Processing continues without displaying these exceptions.

User response: This is a normal occurrence if the thread has just terminated. If the problem persists, contact IBM support.

KO200718E EXCEPTION PROCESSING FAILED WITH UNEXPECTED PROGRAM CHECK IN routine

Explanation: The OMEGAMON XE for DB2 PE exception processing routine unexpectedly encountered a program check in the indicated routine.

System action: Processing continues, but OMEGAMON XE for DB2 PE exceptions might not produce the expected results.

User response: Take a note of this message, including the routine, and contact IBM support.

KO200719E EXCEPTION PROCESSING FAILED WITH UNEXPECTED PROGRAM CHECK IN TRIP PROCESSING

Explanation: The OMEGAMON XE for DB2 PE exception processing routine unexpectedly encountered a program check in a routine when an exception exceeded its threshold value.

System action: Processing continues, but OMEGAMON XE for DB2 PE exceptions might not produce the expected results.

User response: Verify that OMEGAMON XE for DB2 PE is not being constrained by installation parameters that restrict the use of storage above the 16M line. If the problem persists, contact IBM support.

KO200720E EXCEPTION PROCESSING FAILED TO LOCATE cccc EXCEPTION TABLE ENTRY

Explanation: OMEGAMON XE for DB2 PE exception processing could not locate the table entry for the indicated exception. This is probably caused by a storage overlay.

System action: Processing continues, but OMEGAMON XE for DB2 PE does not display data for this exception.

User response: Restart OMEGAMON XE for DB2 PE. Contact IBM support.

KO200740E EXCEPTION PROCESSING FAILED TO OBTAIN STORAGE FOR MESSAGE EXCEPTION TABLE

Explanation: The OMEGAMON XE for DB2 PE exception processing routine could not obtain enough storage for its exception message table.

System action: Processing continues, but OMEGAMON XE for DB2 PE cannot monitor any exceptions.

User response: Verify that OMEGAMON XE for DB2 PE is not being constrained by installation parameters that restrict the use of storage above the 16M line. If the problem persists, contact IBM support.

KO200741E EXCEPTION PROCESSING FAILED TO OBTAIN MSGE EXCEPTION CONTROL BLOCKS

Explanation: The OMEGAMON XE for DB2 PE exception processing routine could not obtain the control blocks it needs to process the MSGE exception.

System action: Processing continues, but OMEGAMON XE for DB2 PE cannot monitor the MSGE exception.

User response: Verify that OMEGAMON XE for DB2 PE is not being constrained by installation parameters that restrict the use of storage above the 16M line. If the problem persists, contact IBM support.

KO200742E ERROR ENCOUNTERED IN USER PROFILE FACILITY. MSGE EXCEPTION NOT AVAILABLE

Explanation: OMEGAMON XE for DB2 PE encountered an error during profile processing that prohibits the MSGE exception from operating properly.

System action: OMEGAMON XE for DB2 PE continues processing, but cannot monitor the MSGE exception.

User response: Contact IBM support.

KO200743E ERROR ENCOUNTERED IN USER PROFILE FACILITY. POPT OPTION WILL NOT BE USED

Explanation: User profile processing failed.

System action: Processing terminates.

User response: Contact IBM support.
KO2O0750E  ABEND IN NEW CYCLE SUBROUTINE
Explanation: OMEGAMON XE for DB2 PE terminated in the indicated new cycle subroutine.
System action: Processing continues, but the data OMEGAMON XE for DB2 PE displays might not be correct.
User response: Contact IBM support.

KO2O0751E  ABEND IN NEW CYCLE DRIVER.
REPORTED DATA MIGHT BE ERRATIC
Explanation: OMEGAMON XE for DB2 PE terminated in the driver that controls new cycles.
System action: Processing continues, but the data OMEGAMON XE for DB2 PE displays might not be correct.
User response: Contact IBM support.

KO2O0752I  MONITORED DB2 IS NO LONGER ACTIVE. DISPLAYED DATA IS FROM LAST CYCLE
Explanation: The DB2 that OMEGAMON XE for DB2 PE was monitoring is no longer active.
System action: OMEGAMON XE for DB2 PE displays the data it collected during the previous OMEGAMON XE for DB2 PE cycle. Processing continues.
User response: Determine why the DB2 that OMEGAMON XE for DB2 PE was monitoring is no longer active, and then restart DB2.

KO2O0753E  ABEND IN THREAD CPU COLLECTION ROUTINE
Explanation: OMEGAMON XE for DB2 PE terminated in the routine that collects data about the CPU used by a thread.
System action: Processing terminates.
User response: Contact IBM support.

KO2O0754W  THREAD CPU COLLECTION HAS BEEN DISABLED
Explanation: OMEGAMON XE for DB2 PE has disabled the routine that collects data about the CPU used by a thread.
System action: Processing terminates.
User response: Contact IBM support.

KO2O0755E  ABEND IN CPU COLLECTION ROUTINE
Explanation: OMEGAMON XE for DB2 PE terminated in the routine that collects data about the CPU usage.
System action: Processing terminates.
User response: Contact IBM support.

KO2O0756W  CPU COLLECTION HAS BEEN DISABLED
Explanation: OMEGAMON XE for DB2 PE has disabled the routine that collects data about the CPU usage.
System action: Processing terminates.
User response: Contact IBM support.

KO2O0757E  TRACE STATUS COLLECTION HAS TERMINATED
Explanation: OMEGAMON XE for DB2 PE terminated in the routine that collects data about the status of the global trace.
System action: Processing terminates.
User response: Contact IBM support.

KO2O0758W  TRACE STATUS COLLECTION HAS BEEN DISABLED
Explanation: OMEGAMON XE for DB2 PE has disabled the routine that collects data about the status of the global trace.
System action: Processing terminates.
User response: Contact IBM support.

KO2O0800E  INVALID SSCVT FOUND WITH SSCTID NOT EQUAL TO SSCT. TERMINATING
Explanation: The JES SSCVT chain contains a not valid SSCVT, one without an SSCTID equal to SSCT.
System action: OMEGAMON XE for DB2 PE stops its search of the SSCVT chain and terminates processing.
User response: Identify and correct the invalid SSCVT. (Your MVS systems programmer can help you trace the SSCVT chain to correct the invalid SSCVT.)

KO2O0900E  OMEGAMON XE for DB2 PE INCOMPATIBLE WITH THIS OPERATING SYSTEM. TERMINATING
Explanation: OMEGAMON XE for DB2 PE operates only in an MVS/XA or MVS/ESA environment.
System action: Processing terminates.
User response: Do not start OMEGAMON XE for DB2 PE on a non-MVS/XA or non-MVS/ESA operating system. Also, ensure that your operating system and your load library are compatible (both XA or both ESA).

KO2O0901E OMEGAMON XE for DB2 PE MUST RUN FROM AN APF-AUTHORIZED LIBRARY. TERMINATING

Explanation: OMEGAMON XE for DB2 PE must run from an APF-authorized library.

System action: Processing terminates.

User response: Move the OMEGAMON XE for DB2 PE load modules to an APF-authorized library and restart the OMEGAMON XE for DB2 PE Common Interface.

KO2O0902U CANNOT LOCATE LOAD MODULE module. TERMINATING

Explanation: OMEGAMON XE for DB2 PE could not locate a DB2 subsystem with a system services address space named cccccccc.

System action: Processing terminates.

User response: Supply a valid DB2 ID to monitor.

KO2O0903U LOAD MODULE module IS AT THE WRONG RELEASE LEVEL. TERMINATING

Explanation: The indicated OMEGAMON XE for DB2 PE load module is not at the correct release level. This message is usually caused by a failure to fully unload the OMEGAMON XE for DB2 PE product tape, or by a failure to migrate all modules to the runtime library.

System action: Processing terminates.

User response: Place a version of the load module that is at the correct release level in the proper library and restart OMEGAMON XE for DB2 PE.

KO2O0904E OMEGAMON XE for DB2 PE REQUIRES A DB2= DB2ID AT LOGON. TERMINATING

Explanation: OMEGAMON XE for DB2 PE did not find a DB2 subsystem services address space matching the ID of the specified DB2 subsystem to be monitored when the session was started.

System action: Processing terminates.

User response: Use the DB2= parameter when you log on to indicate the ID of the DB2 subsystem to be monitored. Alternatively, specify DB2= on the START OMVTAM statement to supply a default DB2 ID.

KO2O0905E SPECIFIED DB2 ID IS GREATER THAN 8 CHARACTERS. SESSION TERMINATING

Explanation: The DB2 ID specified for the DB2= parameter is longer than 8 characters. The ID for the DB2 subsystem to be monitored cannot be longer than 8 characters.

System action: Processing terminates.

User response: Supply a valid DB2 ID.

KO2O0906E COULD NOT LOCATE SPECIFIED DB2 cccccccc. TERMINATING

Explanation: OMEGAMON XE for DB2 PE did not find a DB2 subsystem with a system services address space named cccccccc.

System action: Processing terminates.

User response: Supply a valid DB2 ID to monitor.

KO2O0907W OMEGAMON XE FOR DB2 PE TERMINATING BECAUSE DB2 NOT YET INITIALIZED OR TERMINATING

Explanation: OMEGAMON XE for DB2 PE tried to check the release level of the DB2 subsystem to be monitored and did not find the normal set of DB2 control blocks during initialization. This problem can occur when DB2 is initializing or terminating.

System action: Processing terminates.

User response: Check to see whether the DB2 to be monitored is still active. If so, restart OMEGAMON XE for DB2 PE.

KO2O0908W OMEGAMON XE FOR DB2 PE DOES NOT SUPPORT DB2 RELEASE vrm. TERMINATING

Explanation: OMEGAMON XE for DB2 PE does not support the release level of the DB2 to be monitored.

System action: Processing terminates.

User response: None.

KO2O0910W DB2 HAS Terminated. The following display data was collected on dd/mm/yy AT hh:mm:ss

Explanation: The DB2 subsystem that OMEGAMON XE for DB2 PE was monitoring has terminated. The data that appears on this display was collected at the specified date and time.
KO2O0911E  FAILED TO LOCATE IRLM JOB  
cccccccc, TERMINATING
Explanation: OMEGAMON XE for DB2 PE could not locate the Internal Resource Lock Manager (IRLM) associated with the DB2 to be monitored at initialization time.

System action: Processing terminates.
User response: Start or restart the IRLM used by DB2.

KO2O0912W  DB2 HAS TERMINATED. NO DISPLAY 
DATA HAS BEEN COLLECTED 
DURING THIS SESSION
Explanation: The DB2 subsystem that OMEGAMON XE for DB2 PE was monitoring has terminated. OMEGAMON XE for DB2 PE cannot collect data about this DB2.

System action: OMEGAMON XE for DB2 PE continues processing, but cannot display data about this DB2.
User response: Restart the DB2 subsystem or direct OMEGAMON XE for DB2 PE to monitor a different DB2.

KO2O0913E  OMEGAMON XE for DB2 PE 
SUPPORTED BY COMMON 
INTERFACE VERSION 230 AND 
ABOVE ONLY. VERSION IS vrm
Explanation: OMEGAMON XE for DB2 PE only operates with a Common Interface at version 230 or later.

System action: OMEGAMON XE for DB2 PE terminates processing.
User response: Verify that OMEGAMON XE for DB2 PE is using an appropriate version of the common interface. If the problem persists, contact IBM support.

KO2O0914E  FAILED TO LOCATE IRLM JOB. 
TERMINATING
Explanation: The Internal Resource Lock Manager (IRLM) address space is not active.

System action: OMEGAMON XE for DB2 PE terminates.
User response: Verify that the IRLM address space is active and restart OMEGAMON XE for DB2 PE.
KO2O0925E  OMEGAMON XE FOR DB2 PE
    INITIALIZATION TERMINATED
    BECAUSE DB2 xxxx IS NOT USABLE

Explanation:  DB2 xxxx not usable during OMEGAMON XE for DB2 PE initialization.
System action:  Processing terminates.
User response:  Determine why DB2 not usable and then restart OMEGAMON XE for DB2 PE.

KO2O0926E  OMEGAMON XE for DB2 PE B37 SNAP FAILURE OCCURRED. SNAP DEBUGGING FACILITY DISABLED (ABENDXIT)

Explanation:  The data set in use by the O2CI O2SNAP ddname is full. The O2SNAP data set is used for diagnostic purposes.
System action:  OMEGAMON XE for DB2 PE stops producing diagnostics.
User response:  Terminate the O2CI, then delete and reallocate the O2SNAP data set.

KO2O0927U  UNRECOVERABLEOMEGAMON XE for DB2 PE SNAP FAILURE. TERMINATING

Explanation:  A SNAP dump is taken, but failed to complete.
System action:  Processing terminates.
User response:  Contact IBM support.

KO2O0928E  UNSUPPORTED COMBINATION OF DB2 AND IRLM RELEASES. USING DEFAULT IRLM R\text{\textsuperscript{\textdagger}}

Explanation:  A compatibility problem between DB2 and the Internal Resource Lock Manager (IRLM) was detected.
System action:  Processing terminates.
User response:  Call IBM support.

KO2O0930E  INVALID VALUE FOR OPTION=PARAMETER. TERMINATING

Explanation:  A not valid parameter was found, usually being configured by the Configuration Tool (formerly ICAT).
System action:  Processing terminates.
User response:  Rebuild the runtime environment by using the Configuration Tool (formerly ICAT).

KO2O0930E - ** WARNING ** - EP ADDR TO RTN routine IS UNRESOLVED!

Explanation:  An entry point address to the indicated routine could not be resolved. This happens if a program component in OMEGAMON XE for DB2 PE tries to call another entry point that does not exist.
System action:  Processing terminates.
User response:  Contact IBM support.

KO2O0951U  OMEGAMON XE for DB2 PE MUST RUN FROM AN APF-AUTHORIZED LIBRARY. TERMINATING

Explanation:  OMEGAMON XE for DB2 PE must run from an APF-authorized library.
System action:  Processing terminates.
User response:  Move the OMEGAMON XE for DB2 PE load modules to an APF-authorized library and restart the OMEGAMON XE for DB2 PE Common Interface.

KO2O0992E  GETMEM > LIMIT: X1 T1 R1 W1 C1
    R14=X2

Explanation:  An internal memory request was denied. If allowed, the address space will run short on storage.
• X1 is the requested amount.
• T1 is the request type.
• R1 is the requesting routine name.
• W1 is the requested work area.
• C1 is the calling routine.
• X2 is the requesting return address.
System action:  The memory request is denied.
User response:  Contact IBM support.

KO2O1000W  DB2 ACCOUNTING CLASS ONE TRACE STATUS IS INACTIVE, ALL FIELDS CONTAINING N/A ARE UNAVAILABLE

Explanation:  OMEGAMON XE for DB2 PE cannot provide data for some fields when Accounting trace class 1 is not active. OMEGAMON XE for DB2 PE indicates these fields by displaying the characters N/A as their output.
System action:  OMEGAMON XE for DB2 PE processing continues.
User response:  To display accurate data in these fields, start Accounting trace class 1.
KO2O1001E  TABLE OVERFLOW. NOT ALL THREADS CAN BE DISPLAYED. INCREASE LROWS LOGON PARAMETER

Explanation: The number of threads that can be displayed is limited by the LROWS parameter.

System action: Processing terminates.

User response: Use the Configuration Tool (formerly ICAT) to increase the LROWS parameter.

KO2O1100E  AN APPLICATION TRACE REQUEST IS ALREADY ACTIVE. TRACE REQUEST CANNOT BE PROCESSED

Explanation: The Application Trace Facility (ATF) received a request to start a trace, but is already tracing an application. The ATF can only trace one application for each OMEGAMON XE for DB2 PE session.

System action: The ATF ignores the request.

User response: Wait for the current trace to end, or stop it manually, then resubmit the request.

KO2O1101E  APPLICATION TRACE REQUEST HAS BEEN STARTED. TRACE INITIALIZATION IS IN PROGRESS

Explanation: The Application Trace Facility (ATF) received a request to trace an application and is preparing to start the trace.

System action: The ATF initializes its trace data collector.

User response: None.

KO2O1103E  APPLICATION TRACE REQUEST HAS FAILED. COLLECTOR ATTACH HAS FAILED

Explanation: OMEGAMON XE for DB2 PE could not start the application trace request because it could not attach its collector to capture the trace data.

System action: The Application Trace Facility (ATF) terminates the trace request.

User response: Call IBM support.

KO2O1104E  APPLICATION TRACE REQUEST HAS FAILED. MODULE NAME DSNALI WAS NOT FOUND

Explanation: OMEGAMON XE for DB2 PE could not start the application trace request because it could not locate the DSNALI module.

System action: The Application Trace Facility (ATF) terminates the trace request.

User response: Verify that the DSNALI module is available to the common interface. If the DB2 load modules do not reside in MVS LPALIB or a LINKLIST data set, ensure that the installation data set is concatenated to the STEPLIB ddname in the O2CI JCL and that the installation data set is APF-authorized.

KO2O1105E  APPLICATION TRACE START REQUEST HAS FAILED. MODULE NAME DSNWLI2 WAS NOT FOUND

Explanation: OMEGAMON XE for DB2 PE could not start the application trace request because it could not locate the DSNWLI2 module.

System action: The Application Trace Facility (ATF) terminates the trace request.

User response: Verify that the DSNWLI2 module is available to the common interface. If the DB2 load modules do not reside in MVS LPALIB or a LINKLIST data set, ensure that the installation data set is concatenated to the STEPLIB ddname in the O2CI JCL and that the installation data set is APF-authorized.

KO2O1106E  APPLICATION TRACE START REQUEST HAS FAILED. MODULE NAME O2ATccc WAS NOT FOUND

Explanation: OMEGAMON XE for DB2 PE could not start the application trace request because it could not locate the O2ATccc module (where ccc is the DB2 version being monitored).

System action: The Application Trace Facility (ATF) terminates the trace request.

User response: Verify that the O2ATccc module is in the proper library; then restart OMEGAMON XE for DB2 PE and resubmit the request.

KO2O1107E  APPLICATION TRACE REQUEST KEYWORD=value CONTAINS AN INVALID VALUE. CORRECT AND PRESS ENTER

Explanation: The indicated value of the specified keyword is incorrect.

System action: OMEGAMON XE for DB2 PE does not start the application trace request.

User response: Correct the value of the specified keyword. Resubmit the request.

KO2O1108E  ATF START date or time GREATER THAN END. CORRECT AND PRESS ENTER

Explanation: The indicated start date or start time is greater than the end date or end time.

System action: OMEGAMON XE for DB2 PE does not start the application trace request.
User response: Correct the date or time value. Resubmit the request.

**KO2O1109E** APPLICATION TRACE REQUEST
KEYWORD=*
VALUE* IS MISSING OR INVALID. CORRECT AND PRESS ENTER

Explanation: The indicated keyword is missing or contains a not valid value.

System action: OMEGAMON XE for DB2 PE does not start the application trace request.

User response: Correct or supply the value for the keyword. Resubmit the request.

**KO2O1110W** APPLICATION TRACE REQUEST
ATTACH KEYWORDS MAY ONLY BE SPECIFIED FOR A SINGLE DB2 CONNECTION TYPE

Explanation: The Application Trace Facility (ATF) received a trace request that contained qualifiers for more than one connection type.

System action: OMEGAMON XE for DB2 PE does not start the trace.

User response: Review the application trace request. Clarify the request to contain qualifiers only for the connection type of the plan you wish to trace.

**KO2O1111I** ATTF DATA IS FROM AN UNSUPPORTED DB2 VERSION <V1>.

Explanation: The Application Trace Facility (ATF) received a trace request to display trace data that is captured in a VSAM data set, however, the data was collected from a DB2 version that is no longer supported by OMEGAMON for Db2 PE version 5.2.0.

System action: The Application Trace Facility (ATF) ignores the request.

User response: You can do one of the following actions:

- Use a version of OMEGAMON for Db2 PE that supports the DB2 version that was used to collect the trace data.
- Reinitialize the VSAM data set and collect new ATTF trace data by using OMEGAMON for Db2 PE version 5.2.0.

**KO2O1112I** APPLICATION TRACE INFORMATION UNAVAILABLE. AN APPLICATION TRACE HAS NOT BEEN REQUESTED

Explanation: The Application Trace Facility (ATF) received a request to display trace data, but no application trace was started.

System action: The Application Trace Facility (ATF) ignores the request.

User response: Start an application trace, then navigate to the Display Trace Data panels.

**KO2O1113E** APPLICATION TRACE PROGRAM SUMMARY DISPLAY IS NOT POSSIBLE. ZOOM FROM UNIT OF WORK SUMMARY

Explanation: The Application Trace Facility (ATF) was not able to produce the Program Summary panel.

System action: The request is ignored.

User response: Navigate to the Program Summary panel from the Unit of Work panel.

**KO2O1114E** APPLICATION TRACE PROGRAM DETAIL DISPLAY IS NOT POSSIBLE. ZOOM FROM TRACE PROGRAM SUMMARY

Explanation: The Application Trace Facility (ATF) was not able to produce the Program Detail panel.

System action: The request is ignored.

User response: Navigate to the Program Detail panel from the Thread Unit of Work panel.

**KO2O1116I** APPLICATION TRACE PROGRAM DETAIL HAS NOT LOCATED SUFFICIENT TRACE DATA TO PRODUCE A DISPLAY

Explanation: The Application Trace Facility (ATF) received a request to display trace data, but it could not find enough information to produce the requested display.

System action: OMEGAMON XE for DB2 PE displays this message. There is no data to display.

User response: Wait for OMEGAMON XE for DB2 PE to collect more trace data.
**KO2O1117E** APPLICATION TRACE SCROLL
CONTROL ARGUMENT IS NONNUMERIC

**Explanation:** A nonnumeric argument was specified with either the +nmmm, -nmmm, or smmm ATF control keyword. +nmmm scrolls forward nmmm records, -nmmm scrolls backward nmmm records, and smmm selects the specified record.

**System action:** The request is ignored.

**User response:** Specify a numeric value for nmmm and press Enter to continue.

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**KO2O1118E** APPLICATION TRACE CONTROL
KEYWORD ARGUMENT IS INVALID.
LENGTH EXCEEDS SIX CHARACTERS

**Explanation:** A scroll request (+nmmm scroll forward, -nmmm scroll backward, smmm select the specified record) was made on the Detail panel, but the argument is too long.

**System action:** The request is ignored.

**User response:** Correct the length of the argument and press Enter to continue.

---

**KO2O1119E** APPLICATION TRACE CONTROL
KEYWORD ARGUMENT IS NOT VALID

**Explanation:** The Application Trace Facility (ATF) received a not valid argument for the control keyword.

**System action:** The request is ignored.

**User response:** Supply a valid argument for the keyword and press Enter to continue.

---

**KO2O1120E** APPLICATION TRACE CONTROL
KEYWORD NOT LOCATED

**Explanation:** The Detail panel does not contain a control keyword.

**System action:** OMEGAMON XE for DB2 PE displays this message and chooses the current SQL statement as the control keyword on the Detail panel.

**User response:** Press Enter to continue.

---

**KO2O1121I** APPLICATION TRACE
INFORMATION UNAVAILABLE. NO
SQL CALLS LOCATED

**Explanation:** The Application Trace Facility (ATF) received a request to display SQL Detail data, but it could not find any data that matched the trace request criteria.

**System action:** OMEGAMON XE for DB2 PE displays this message. There is no data to display.

**User response:** Wait for OMEGAMON XE for DB2 PE to collect more trace data, or evaluate the trace criteria specified for the current trace.

---

**KO2O1122I** APPLICATION TRACE
INFORMATION UNAVAILABLE. SQL
CALL REQUESTED NOT LOCATED

**Explanation:** The Application Trace Facility (ATF) Detail panel received a plus, minus, or select request to display trace data for a selected SQL statement, but the SQL statement was out of range.

**System action:** OMEGAMON XE for DB2 PE displays this message.

**User response:** Correct the control keyword argument and press Enter to continue.

---

**KO2O1123I** APPLICATION TRACE SQL DETAIL
REQUEST MUST BE SELECTED FROM
PROGRAM SUMMARY DISPLAY

**Explanation:** The Application Trace Facility (ATF) could not produce the requested panel.

**System action:** OMEGAMON XE for DB2 PE ignores the request.

**User response:** Navigate to the SQL Detail panel by selecting it from the Program Summary panel.

---

**KO2O1124I** APPLICATION TRACE HAS
TERMINATED. TRACE HAS BEEN
TERMINATED DUE TO -STOP TRACE
BEING ISSUED

**Explanation:** The Application Trace Facility (ATF) trace collector has terminated because DB2 received a DB2 STOP TRACE command that terminated the DB2 trace that the ATF uses to collect data.

**System action:** The Application Trace Facility (ATF) does not collect data.

**User response:** Determine why the STOP TRACE command was issued. Restart the trace and then issue an ATF trace request.

---

**KO2O1125E** APPLICATION TRACE START
REQUEST HAS FAILED. PLAN NAME
plan NOT FOUND OR NOT
AUTHORIZED

**Explanation:** The plan name required by the Application Trace Facility (ATF) was not found or is not authorized for use by the Common Interface.

**System action:** DB2 stops attempting to create a thread and terminates the Application Trace Facility (ATF) trace collection.

**User response:** Determine if the customization tasks have been completed for the DB2 subsystem being
monitored. Bind the indicated plan name and authorize it for use through the OMEGAMON XE for DB2 PE Common Interface.

KO201126E  APPLICATION TRACE START REQUEST HAS FAILED. START TRACE IS NOT AUTHORIZED

Explanation: The Application Trace Facility (ATF) trace collector was not able to execute a **START TRACE** request to the DB2 subsystem being monitored; therefore, it could not start.

User response: Attempt to reissue the request. If the amount of trace data collected is insufficient, contact IBM support.

KO201127E  APPLICATION TRACE START REQUEST HAS FAILED. PLAN NAME plan IS NOT AUTHORIZED FOR USE

Explanation: The indicated OMEGAMON XE for DB2 PE plan name is not authorized for use by the Common Interface. (This was determined during the request to start an Application Trace Facility (ATF) trace.)

User response: Authorize the Common Interface to use the specified plan name.

KO201128E  APPLICATION TRACE START REQUEST HAS FAILED. DB2 CONNECT IS NOT AUTHORIZED

Explanation: The Application Trace Facility (ATF) attempted to connect to DB2 as a result of a **START TRACE** request. The connection was rejected by DB2 because the Common Interface was not authorized to connect.

User response: If external security is being used to control the ability to connect to DB2, then authorize the Common Interface to allow it to connect to the DB2 subsystem being monitored. If external security is not being used, contact IBM support.

KO201129E  APPLICATION TRACE HAS BEEN TERMINATED. TRACE DATA COLLECTION WORK AREA IS FULL

Explanation: The Application Trace Facility (ATF) stopped its current trace because the trace data collection work area is full.

System action: The ATP trace collector stops.

User response: Attempt to further qualify the trace criteria to limit the amount of trace data collected.

KO201130E  APPLICATION TRACE START REQUEST HAS FAILED. DB2 CONNECT REJECTED. MAX CONNECTIONS REACHED

Explanation: The Application Trace Facility (ATF) could not start the requested trace because it could not connect to DB2. DB2 has reached the maximum number of connections allowed at this time.

User response: Increase the value of the CTHREAD parameter in the DSNZPARM module, if necessary. Wait for the background collection to stop and reissue the trace request.

KO201131E  APPLICATION TRACE START REQUEST HAS FAILED. TRACE MONITOR2 NOT AUTHORIZED

Explanation: The DB2 subsystem being monitored has not authorized the Common Interface to issue DB2 trace requests. (This was determined during the request to start an Application Trace Facility (ATF) trace.)

User response: Grant trace authority to the Common Interface.

KO201132E  APPLICATION TRACE START REQUEST HAS FAILED. ALL TRACE OPX DESTINATIONS ARE IN USE

Explanation: The Application Trace Facility (ATF) start trace request determined that all OPX destinations are in use.

User response: Call IBM support.

KO201133E  APPLICATION TRACE DATA HAS BEEN LOST. COLLECTOR UNABLE TO PROCESS VOLUME OF DATA COLLECTED

Explanation: The Application Trace Facility (ATF) determined that it cannot process the volume of trace data being generated by DB2. As a result, some data has been lost.

User response: Attempt to reissue the request. If the amount of trace data collected is insufficient, contact IBM support.
Specify a plan name and authid in the trace request. If the problem persists, contact IBM support.

KO2O1134E  APPLICATION TRACE UNIT OF WORK DISPLAY IS NOT POSSIBLE.
ZOOM FROM TRACE THREAD SUMMARY

Explanation:  The Application Trace Facility (ATF) could not produce the Unit of Work panel.
System action:  The request is ignored.
User response:  Navigate to the Unit of Work panel from the Thread Summary panel.

KO2O1135E  APPLICATION TRACE UOW SUMMARY HAS NOT LOCATED SUFFICIENT TRACE DATA TO PRODUCE A DISPLAY

Explanation:  The Application Trace Facility (ATF) could not produce the Unit of Work panel.
System action:  The request is ignored.
User response:  Navigate to the Unit of Work panel from the Thread Summary panel.

KO2O1136E  APPLICATION TRACE PROG SUMMARY HAS NOT LOCATED SUFFICIENT TRACE DATA TO PRODUCE A DISPLAY

Explanation:  The Application Trace Facility (ATF) could not produce the Unit of Work panel.
System action:  The request is ignored.
User response:  Navigate to the Unit of Work panel from the Thread Summary panel.

KO2O1137E  APPLICATION TRACE SQL INDEX HAS LOCATED MORE ENTRIES THAN CAN BE DISPLAYED

Explanation:  The Application Trace Facility (ATF) could not produce the SQL Index panel.
System action:  The request is ignored.
User response:  Try again when more data is collected.

KO2O1138E  ATF AUTHORIZATION IDENTIFIER IN USE = authid

Explanation:  This message follows other ATF authorization failure messages and shows the AUTHID for which access was denied.
System action:  None.
User response:  Grant authorization to the indicated AUTHID, then try again.

KO2O1139E  OVERLAPPING OR DUPLICATE DATA HAS RESULTED IN INSUFFICIENT TRACE DATA

Explanation:  The Application Trace Facility (ATF) could not return the required trace information because of overlapping or duplicate data.
Overlapping data can occur if the DB2 time stamp for performance trace records has overlapped for the same thread.
System action:  The request is ignored.
User response:  If you are able to determine that duplicate data is the source of the problem, then invoke the Application Trace Facility (ATF) again. If you cannot determine the source of the problem, contact IBM support.

KO2O1140E  APPLICATION TRACE CAPTURE REQUEST FAILED. UNABLE TO LOAD O2ATCccc, O2ATCAPI, O2ATCAP2

Explanation:  The Application Trace Facility (ATF) could not load all of the mentioned modules.
System action:  Application trace capture to VSAM data set is denied.
User response:  Ensure that the load library used to start up OMEGAMON XE for DB2 PE contains the mentioned modules. Correct the problem and invoke the Application Trace Facility (ATF) again.

KO2O1141E  APPLICATION TRACE DSNAME INCOMPLETE. SINGLE QUALIFIER NOT ALLOWED. REENTER THE TRACE REQUEST

Explanation:  The Application Trace Facility (ATF) trace data set name must have two or more qualifiers.
System action:  The ATF terminates the trace request.
User response:  Respecify the trace request.

KO2O1142E  APPLICATION TRACE value LIMIT REQUESTED IS NOT VALID. REENTER THE TRACE REQUEST

Explanation:  The indicated keyword value is not valid.
System action:  The Application Trace Facility (ATF) terminates the trace request.
User response:  Re-specify the trace request with a valid value for the keyword.
KO2O1143E  APPLICATION TRACE REQUEST FAILED FOR AN UNDETERMINED REASON

Explanation: The attempt to start the Application Trace Facility (ATF) trace has failed for a reason not checked by the ATF. The DB2 return code and reason code from the START TRACE command are displayed below this message.

System action: The ATF terminates the trace request.

User response: Locate the reason code in DB2 Messages and Codes to determine why the ATF trace request was not successful. Correct the problem and reenter the trace request.

KO2O1144E  APPLICATION TRACE START REQUEST HAS FAILED. UNABLE TO ALLOCATE SPECIFIED DATA SET

Explanation: The Application Trace Facility (ATF) could not allocate the specified VSAM data set for use.

System action: The ATF is terminated.

User response: Specify the name of a VSAM linear data set and invoke the ATF again.

KO2O1145E  APPLICATION TRACE START REQUEST HAS FAILED. THE VSAM DATA SET CANNOT BE OPENED. CHECK LOG

Explanation: The Application Trace Facility (ATF) detected an error when opening the VSAM data set for use.

System action: The ATF is terminated.

User response: Check the system log for the specific reason. Correct the problem, and invoke the ATF again.

KO2O1146E  ALLOCATION FAILED, DSN: dsname REASON CODE: rs

Explanation: The dynamic allocation of the named data set failed. The supervisor call instruction (SVC) 99 returned with the named reason code.

System action: Processing terminates.

User response: See MVS Messages and Codes for more information.

KO2O1147E  ATF CAPTURE ERROR: request ON type RETURN= rc REASON= rs INFO=info

Explanation: The Application Trace Facility (ATF) detected an error with the VSAM data set while using the capture server API. The API request and type information are returned along with the failing return code, reason code, and information code.

System action: Application trace capture to VSAM data set is discontinued.

User response: Examine the associated MVS messages and other capture server messages prefixed by KO2R. Correct the problem, and invoke the ATF again.

KO2O1148E  ATF DATA SET SPECIFIED COULD NOT BE FOUND OR IS NOT A VSAM DATA SET

Explanation: The specified Application Trace Facility (ATF) data set does not exist or is not a VSAM data set.

System action: OMEGAMON XE for DB2 PE does not start the ATF trace request.

User response: Correct the data set name. Resubmit the request.

KO2O1149I  ATF DATA SET SPECIFIED HAS BEEN MIGRATED. PRESS ENTER TO PROCEED

Explanation: The specified Application Trace Facility (ATF) data set has been migrated.

System action: None.

User response: Press Enter to use the data set, specify a different data set name, or press PF3 to cancel the request.

KO2O1150W  APPLICATION TRACE REQUEST PLANNAME=ALL DISABLED VIA INSTALLATION EXIT

Explanation: This warning was programmed on purpose. When OMEGAMON XE for DB2 PE was installed, it was configured that PLANNNAME = ALL is not allowed for the Application Trace Facility (ATF).

System action: Processing continues.

User response: If required, ask your administrator to allow this parameter.

KO2O1151E  ATF SMF=Y and GTF=Y ARE MUTUALLY EXCLUSIVE. CORRECT AND PRESS ENTER TO PROCEED

Explanation: Only SMF=Y or GTF=Y can be specified.

System action: OMEGAMON XE for DB2 PE does not start the Application Trace Facility (ATF) trace request.

User response: Change one or both of these parameters to N. Resubmit the request.

KO2O1152  NUMBER OF TRACE RECORDS LOST DUE TO VSAM TASK: n

Explanation: The Application Trace Facility (ATF) lost n trace records produced by DB2 because of high volume.
KO2O1152E  THE APPLICATION TRACE START FAILED. THE VSAM DATASET IS FULL.

Explanation: The application trace cannot be started because the VSAM dataset is full and the option MODE=APPEND is used.

System action: None.

User response: Use selection criteria that restrict the volume of records to be captured by the ATF.

KO2O1153  NUMBER OF UOW RECORDS LOST DUE TO VSAM TASK: n

Explanation: The Application Trace Facility (ATF) lost nUnit of Work (UOW) records because of high volume UOWs in DB2.

System action: None.

User response: Use selection criteria that restrict the volume of records to be captured by the ATF.

KO2O1160E  APPLICATION TRACE REPORT REQUEST FAILED. UNABLE TO LOAD O2AR210, O2AR220, O2ATRPT

Explanation: The Application Trace Facility (ATF) could not load all of the mentioned modules.

System action: Application trace reporting is denied.

User response: Ensure that the load library used to start up OMEGAMON XE for DB2 PE contains the mentioned modules. Correct the problem and invoke the ATF again.

KO2O1161E  MULTIPLE ENTRIES NOT ALLOWED FOR field1 AND field2.

Explanation: You can enter multiple values for the Trace Specification Fields PLANNAME, PACKNAME, COLLID, PKGLOC and AUTHID. However, DB2 TRACE only supports the specification of multiple values for one of the fields.

System action: Application Trace Facility will not continue trace specification until the field(s) have been corrected.

User response: Either enter a value in the filter field, or change the exclude field to N.

KO2O1162I  xxxx START TRACE yyyy

Explanation: A START TRACE command yyyy is issued to DB2 subsystem xxxx.

System action: The application trace is being initialized.

User response: None.

KO2O1163E  NO VALUE SPECIFIED FOR FIELD field1, field2 =YES IS INVALID

Explanation: The exclude option field can only be requested if the corresponding value field has one or more values entered.

System action: ATF will not continue trace specification until the field(s) have been corrected.

User response: Either enter a value in the filter field, or change the exclude option field to N.

KO2O1164I  xxxx STOPPING APPLICATION TRACE

Explanation: An application trace on DB2 subsystem xxxx has run for the specified duration or has been stopped manually.

System action: The application trace is being stopped.

User response: None.

KO2O1165I  xxxx STOP TRACE yyyy

Explanation: A STOP TRACE command yyyy is issued to DB2 subsystem xxxx.

System action: The application trace is being stopped.

User response: None.
KO2O1165E ROUTINE FILTERING NOT ALLOWED WHEN XXXXXXXX SPECIFIED

Explanation: When ROUTINE1 or ROUTINE2 is specified, some ATF filter options are not supported. In the message, XXXXXXXX is given in the example above, the actual text may be PACKNAME, COLLID, or PKGLOC.

System action: ATF will not continue trace specification until the field(s) have been corrected.

User response: Either remove ROUTINE from trace specification or remove other filter value.

KO2O1165W APPLICATION TRACE DBID/OBID BUFFER FULL

Explanation: The Application Trace Facility (ATF) buffer, used to hold DBID/OBID information, is full. Some DBID/OBID will not be translated.

System action: Processing continues.

User response: Contact IBM support.

KO2O1167E THE VTAM TRACE CANNOT BE PROCESSED. REASON: <V1> OR <V2>

Explanation: TIME OVERLAP OCCURRED
If a deferred trace in ATF is scheduled to write to a particular dataset at a particular time, and you specify another deferred trace to write to this particular dataset at this particular time, this trace cannot be executed because the VSAM dataset is not available.

<V2> MODE=APPEND REQUIRED
If there are one or more deferred traces that write to a particular dataset, and you specify another deferred trace to write to this particular dataset by using the option MODE=REUSE, this trace cannot be started because it would overwrite data from the other traces.

System action: None.

User response:
- If <V1> is issued, specify a different dataset or modify the start time or the duration of the trace so that the scheduled time does not overlap with other requests to this dataset.
- If <V2> is issued, specify a different dataset or use the option MODE=APPEND.

KO2O1169I THE START DATE IS NOT SPECIFIED. THE CURRENT DATE IS USED.

Explanation: If the start time is specified without specifying the start date, the current date is used as the start date of the deferred ATF trace.

System action: None.

User response: None.

KO2O1170E ROUTINEx REQUIRES BOTH SCHEMA AND NAME TO BE SPECIFIED

Explanation: When ROUTINE1 or ROUTINE2 is specified, both the schema and name fields must be filled in.

System action: Trace specification cannot be completed.

User response: If routine filtering is requested, provide values for both fields.

KO2O1171E TRACING ROUTINES REQUIRES SQLDATA=Y TO BE SPECIFIED

Explanation: Routine filtering requires SQLDATA=Y to be specified.

System action: Trace specification cannot be completed.

User response: If routine filtering is requested, specify SQLDATA=Y.

KO2O1174E ROUTINE FILTERING REQUIRES DSN SPECIFICATION

Explanation: Routine filtering requires VSAM data set output.

System action: Trace specification cannot be completed.

User response: If routine filtering is requested, specify an OUTPUT data set name.

KO2O1200E UNABLE TO ISSUE DB2 COMMAND. DB2 NOT ACTIVE

Explanation: OMEGAMON XE for DB2 PE could not issue the command requested because the DB2 to which the command was issued is not active.

System action: Processing continues.

User response: Issue the command to an active DB2 subsystem, or wait for this DB2 to become active.
KO2O1201E UNABLE TO ISSUE DB2 COMMAND.
GETMAIN FAILED

Explanation: OMEGAMON XE for DB2 PE could not issue the command requested because its getmain request failed.

System action: Processing continues.

User response: Verify that OMEGAMON XE for DB2 PE is not being constrained by installation parameters that restrict the use of storage above the 16M line. If the problem persists, contact IBM support.

KO2O1222I OMEGAMON XE FOR DB2 PE MESSAGE SUBSYSTEM IS SUCCESSFULLY INITIALIZED

Explanation: OMEGAMON XE for DB2 PE successfully initialized its message subsystem.

System action: Processing continues.

User response: None.

KO2O1223E OMEGAMON XE FOR DB2 PE MESSAGE SUBSYSTEM INITIALIZATION FAILED

Explanation: OMEGAMON XE for DB2 PE could not initialize its message subsystem successfully.

System action: OMEGAMON XE for DB2 PE processing terminates.

User response: Contact IBM support.

KO2O1223E AN ERROR WAS FOUND OBTAINING DB2/IRLM MESSAGES

Explanation: OMEGAMON XE for DB2 PE encountered an error while collecting DB2/IRLM messages.

System action: OMEGAMON XE for DB2 PE processing continues, but OMEGAMON XE for DB2 PE cannot display any DB2/IRLM messages. OMEGAMON XE for DB2 PE writes a SNAP dump to the O2SNAP data set and terminates the command.

User response: Verify that OMEGAMON XE for DB2 PE is not being constrained by installation parameters that restrict the use of storage above the 16M line. Contact IBM support.

KO2O1224E O2 MESSAGE SUBSYSTEM IS NOT ACTIVE. PLEASE TRY RECYCLING THE O2CI STARTED TASK

Explanation: The OMEGAMON XE for DB2 PE message subsystem is not active. OMEGAMON XE for DB2 PE cannot display DB2/IRLM messages.

System action: OMEGAMON XE for DB2 PE processing continues, but OMEGAMON XE for DB2 PE processing continues, but OMEGAMON XE for DB2 PE does not display thread information.

User response: Select the All Threads Connected to DB2 panel (by typing A on the top line of the panel). From this panel, move the cursor to a thread for which detailed information is needed.

KO2O1250E THE KEYWORD SPECIFIED IS NOT RECOGNIZED

Explanation: OMEGAMON XE for DB2 PE did not recognize the keyword you supplied.

System action: OMEGAMON XE for DB2 PE ignores the command.

User response: Correct the keyword and press Enter.

KO2O1251W NON-UNIQUE THREAD FOUND BASED ON SPECIFIED INFORMATION

Explanation: OMEGAMON XE for DB2 PE could not find a unique thread based on the plan name, connection ID, correlation ID, and authorization ID supplied. The characters in the parentheses at the end of the message are an internal code.

System action: OMEGAMON XE for DB2 PE processing continues, but OMEGAMON XE for DB2 PE does not display thread information.

User response: Select the All Threads Connected to DB2 panel (by typing A on the top line of the panel). From this panel, move the cursor to a thread for which detailed information is needed.

KO2O1252W THREAD NOT FOUND

Explanation: OMEGAMON XE for DB2 PE could not find the requested thread. The requested thread has probably terminated.

System action: OMEGAMON XE for DB2 PE continues processing.

User response: Specify another thread.
KO2O1253E  UNABLE TO LOCATE IRLM CONTROL BLOCK

Explanation: OMEGAMON XE for DB2 PE could not locate the indicated Internal Resource Lock Manager (IRLM) control block.

System action: OMEGAMON XE for DB2 PE continues processing, but cannot display all locking information for the specified thread.

User response: Specify a different thread. If the problem persists, contact IBM support.

KO2O1254W THREAD INDOUBT. THREAD DOES NOT OWN LOCKS OR CLAIMS

Explanation: The Locks/Claims Owned By a Thread panel could not find any locks or claims owned by the thread that is indoubt. Indoubt threads do not own locks or claims.

System action: The display is terminated.

KO2O1255W THREAD INDOUBT. THREAD DOES NOT WAIT FOR LOCKS OR DRAINS

Explanation: The Locks/Claims Causing a Thread to Wait panel could not find any locks or drain waits for the thread that is indoubt. Indoubt threads do not acquire locks and do not drain claims.

System action: The display is terminated.

KO2O1273E INVALID FUNCTION SPECIFIED

Explanation: Related to exception processing.
<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
<th>Explanation</th>
<th>System Action</th>
<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>KO2O1274E</td>
<td>KEYWORD SPECIFIED IS INVALID (%%%%%%)</td>
<td>Related to exception processing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KO2O1275E</td>
<td>KEYWORD VALUE LENGTH IS INVALID (%%%%%%)</td>
<td>Related to exception processing.</td>
<td></td>
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<tr>
<td>KO2O1276E</td>
<td>KEYWORD VALUE IS INVALID (%%%%%%)</td>
<td>Related to exception processing.</td>
<td></td>
<td></td>
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<tr>
<td>KO2O1277I</td>
<td>NO EXCEPTION FILTERS EXIST FOR %%%%%, USING DEFAULT FUNCTION=ADD</td>
<td>Related to exception processing.</td>
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<tr>
<td>KO2O1278E</td>
<td>RULE(%%%%%%. IS INVALID. INPUT HAS BEEN IGNORED</td>
<td>Related to exception processing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KO2O1279E</td>
<td>INVALID RULE NUMBER FOR ADD. INPUT HAS BEEN IGNORED</td>
<td>Related to exception processing.</td>
<td></td>
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</tr>
<tr>
<td>KO2O1280E</td>
<td>ERROR IN THE OMEGAMON XE for DB2 PE USER PROFILE FACILITY $PSVC (FETCH). RETURN CODE=rc</td>
<td></td>
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<tr>
<td>KO2O1281E</td>
<td>ERROR IN THE OMEGAMON XE for DB2 PE USER PROFILE FACILITY $STTE. RETURN CODE=rc</td>
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<tr>
<td>KO2O1282E</td>
<td>ERROR DURING DELETION OF EXCEPTION RULE</td>
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<tr>
<td>KO2O1283E</td>
<td>ERROR IN THE OMEGAMON XE for DB2 PE USER PROFILE FACILITY $PSVC (DELETE). RETURN CODE=rc</td>
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<tr>
<td>KO2O1284I</td>
<td>ALL EXCEPTION RULES DELETED. DEFAULTING TO ADD</td>
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<tr>
<td>KO2O1285E</td>
<td>THE EXCEPTION ENTERED (%%%%%%) IS NOT A THREAD EXCEPTION</td>
<td></td>
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<td>KO2O1286E</td>
<td>ERROR IN THE OMEGAMON XE for DB2 PE USER PROFILE FACILITY $PSVC (FETCH). RETURN CODE=rc</td>
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<tr>
<td>KO2O1287E</td>
<td>THRESHOLD VALUE INVALID FOR EXCEPTION %%%%%</td>
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<td>KO2O1288E</td>
<td>RULE(%%%%%%. INVALID. CONNTYPE NOT = CICS</td>
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<td>KO2O1289E</td>
<td>RULE(%%%%%%. INVALID. CONNTYPE NOT = IMS</td>
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<td>KO2O1290E</td>
<td>RULE(%%%%%%. INVALID. THRESHOLD OR EXCLUDE MUST BE SPECIFIED, NOT BOTH</td>
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<tr>
<td>KO2O1291E</td>
<td>INVALID RULE NUMBER SPECIFIED. DEFAULTING TO RULE=01</td>
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<td>KO2O1292E</td>
<td>INVALID RULE NUMBER SPECIFIED. ADDING TO END OF CURRENTLY DEFINED RULES</td>
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<tr>
<td>KO2O1293E</td>
<td>INVALID RULE NUMBER SPECIFIED. DEFAULTING TO DISPLAY ALL</td>
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<tr>
<td>KO2O1294E</td>
<td>UNABLE TO USE THREAD EXCEPTION PROFILE %%%%%%%%%%%%%, PROFILE IS OUTDATED, PLEASE DELETE AND REDEFINE.</td>
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<tr>
<td>KO2O1295E</td>
<td>UNABLE TO USE THREAD EXCEPTION PROFILE %%%%%%%%%%%%%, PROFILE IS OUTDATED</td>
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<tr>
<td>KO2O1300E</td>
<td>INVALID MODIFY REQUEST TO Near-Term History Data Collector RECEIVED. REQUEST IGNORED</td>
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</table>

**Chapter 9. Messages** 5111
KO201301E Near-Term History Data Collector COULD NOT LOCATE MODULE module. TERMINATING

Explanation: The indicated module is required, but missing in the load library.

System action: Processing terminates.

User response: Add the module to the load library and restart the Near-Term History Data Collector.

KO201302E Near-Term History Data Collector LOAD MODULE module IS AT THE WRONG RELEASE LEVEL. TERMINATING

Explanation: The indicated module is at the wrong release level.

System action: Processing terminates.

User response: Move the module with the correct release level to the load library and restart the Near-Term History Data Collector.

KO201303E NEAR-TERM HISTORY DATA COLLECTOR SUPPORTED BY VERSION 250 AND ABOVE ONLY. ACTUAL VERSION IS not

Explanation: The OMNIMON version is not compatible with the Near-Term History Data Collector.

System action: Processing terminates.

User response: Use the OMNIMON version delivered with OMEGAMON XE for DB2 PE and restart the Near-Term History Data Collector.

KO201304I Near-Term History Data Collector OPTION PARAMETERS PROCESSED SUCCESSFULLY FROM MEMBER member

Explanation: This is an informational message.

System action: Processing continues.

User response: None.

KO201305E NEAR-TERM HISTORY DATA COLLECTOR NOT LICENSED FOR THIS SYSTEM. TERMINATING

Explanation: OMEGAMON XE for DB2 PE operates in an MVS/ESA environment, but you have an MVS/XA version of the OMEGAMON XE for DB2 PE near-term history component.

System action: Processing terminates.

User response: Use an MVS/ESA version of the OMEGAMON XE for DB2 PE near-term history component and restart the Near-Term History Data Collector.

KO201306E Near-Term History Data Collector REQUIRES APF LIBRARY. TERMINATING

Explanation: OMEGAMON XE for DB2 PE must run from an APF-authorized library.

System action: Processing terminates.

User response: Move the OMEGAMON XE for DB2 PE load modules to an APF-authorized library and restart the Near-Term History Data Collector.

KO201307I Near-Term History Data Collector IS TERMINATING

Explanation: This is an informational message.

System action: Processing terminates.

User response: None.

KO201308I Near-Term History Data Collector ACTIVELY MONITORING DB2 ccccc

Explanation: This is an informational message.

System action: Processing continues.

User response: None.

KO201309I Near-Term History Data Collector SERVER ccccccc IS ACTIVE

Explanation: This is an informational message.

System action: Processing continues.

User response: None.

KO201310I Near-Term History Data Collector SERVER ccccccc HAS TERMINATED

Explanation: This is an informational message.

System action: Processing terminates if a STOP H2 command was issued, unless an error is recoverable.

User response: If the Near-Term History Data Collector is terminating as a result of a STOP H2 command, no action is necessary. Otherwise, look for previous messages to determine the reason for termination, and action that is required.

KO201311I Near-Term History Data Collector SERVER ccccccc REATTACHED AFTER TERMINATION

Explanation: This is an informational message.

System action: Processing continues.

User response: None.
KO2O1312E ANOTHER Near-Term History Data Collector ALREADY ACTIVE FOR DB2 subsystem

Explanation: Another Near-Term History Data Collector is already monitoring this DB2 subsystem. There is only one active Near-Term History Data Collector for each DB2.

System action: Processing terminates during Near-Term History Data Collector startup. Processing continues if a new collection options member is used.

User response: None.

KO2O1313W Near-Term History Data Collector TEMPORARILY SUSPENDED DATA COLLECTION BECAUSE OF NO AVAL. STORAGE

Explanation: This is an informational message.

System action: Processing continues.

User response: None.

KO2O1314I Near-Term History Data Collector RESUMED DATA COLLECTION. STORAGE AVAILABLE

Explanation: This is an informational message.

System action: Processing continues.

User response: None.

KO2O1315W NEAR-TERM HISTORY DATA COLLECTOR - INVALID OUTPUT RECEIVED xxx

Explanation: Invalid output was received.
• xxx is a short text string describing the reason for the invalid input.

System action: Processing continues.

User response: Contact IBM support.

KO2O1316I Near-Term History Data Collector HAS TERMINATED

Explanation: This is an informational message.

System action: Processing terminates.

User response: None.

KO2O1317E Near-Term History Data Collector SERVER cccccc HAS EXCEEDED THE MAX. NBR OF ABENDS AND TERMINATED

Explanation: The OMEGAMON Collector failed more than 10 times and has terminated.

System action: Processing terminates.

User response: Contact IBM support.

KO2O1318I Near-Term History Data Collector - NEW OPTIONS IN EFFECT FOR CURRENT INTERVAL

Explanation: This is an informational message.

System action: Processing continues.

User response: None.

KO2O1319E Near-Term History Data Collector - NEW INTERVAL OPTIONS REJECTED

Explanation: The specified check for DB2 failed.

System action: Processing continues.

User response: Contact IBM support.

KO2O1320E Near-Term History Data Collector - IDENTITY TO DB2 FAILED. RETURN CODE rc

Explanation: The Near-Term History Data Collector identified to DB2 failed.

System action: Processing terminates.

User response: Check the IFI return code in DB2 Messages and Codes. Correct the problem and restart the Near-Term History Data Collector.

KO2O1321E Near-Term History Data Collector - IDENTITY TO DB2 FAILED. REASON CODE rs

Explanation: The Near-Term History Data Collector identified to DB2 failed.

System action: Processing terminates.

User response: Check the IFI return code in DB2 Messages and Codes. Correct the problem and restart the Near-Term History Data Collector.

KO2O1322E Near-Term History Data Collector - CREATE THREAD FAILED. RETURN CODE rc

Explanation: The Near-Term History Data Collector could not create a thread to DB2.

System action: Processing terminates.

User response: Check the IFI return code in DB2 Messages and Codes. Correct the problem and restart the Near-Term History Data Collector.
KO2O1323E • KO2O1342E

KO2O1323E  Near-Term History Data Collector - CREATE THREAD FAILED. REASON CODE rc
Explanation: The Near-Term History Data Collector could not create a thread to DB2.
System action: Processing terminates.
User response: Check the IFI return code in DB2 Messages and Codes. Correct the problem and restart the Near-Term History Data Collector.

KO2O1324E  Near-Term History Data Collector - DISCONNECT FROM DB2 FAILED. RETURN CODE rc
Explanation: The Near-Term History Data Collector could not disconnect from DB2.
System action: Processing terminates.
User response: Check the IFI return code in DB2 Messages and Codes. Correct the problem and restart the Near-Term History Data Collector.

KO2O1325E  Near-Term History Data Collector - DISCONNECT FROM DB2 FAILED. REASON CODE rc
Explanation: The Near-Term History Data Collector could not disconnect from DB2.
System action: Processing terminates.
User response: Check the IFI return code in DB2 Messages and Codes. Correct the problem and restart the Near-Term History Data Collector.

KO2O1326E  Near-Term History Data Collector - TRACE COMMAND FAILED. RETURN CODE rc
Explanation: The Near-Term History Data Collector could not start/stop/modify a trace.
System action: Processing terminates.
User response: Check the IFI return code in DB2 Messages and Codes. Correct the problem and restart the Near-Term History Data Collector.

KO2O1327E  Near-Term History Data Collector - TRACE COMMAND FAILED. REASON CODE rc
Explanation: The Near-Term History Data Collector could not start/stop/modify a trace.
System action: Processing terminates.
User response: Check the IFI return code in DB2 Messages and Codes. Correct the problem and restart the Near-Term History Data Collector.

KO2O1328W  Near-Term History Data Collector - DB2 subsystem SPECIFIED IN OPTIONS NOT ACTIVE
Explanation: The specified DB2 subsystem was not active. The Near-Term History Data Collector has waited for it to come up for 30 minutes.
System action: Processing terminates.
User response: Bring up the specified DB2 subsystem and restart the Near-Term History Data Collector.

KO2O1329E  Near-Term History Data Collector IS TERMINATING BECAUSE OF A CRITICAL SERVER FAILURE
Explanation: The Near-Term History Data Collector terminated because it detected a critical server failure.
System action: Processing terminates.
User response: Contact IBM support.

KO2O1330W  Near-Term History Data Collector - TRACE STOPPED. NO STATISTICS DATA IS COLLECTED
Explanation: The trace started by the Near-Term History Data Collector was stopped. No statistics data was collected.
System action: Processing continues.
User response: Restart the Near-Term History Data Collector and ensure that traces started by the collector do not stop.

KO2O1331W  Near-Term History Data Collector - TRACE STOPPED. NO ACCOUNTING, AUDITING OR PERF. DATA COLLECTED
Explanation: The trace started by the Near-Term History Data Collector was stopped. As result, no accounting, audit, or performance data can be collected.
System action: Processing continues.
User response: Restart the Near-Term History Data Collector and ensure that traces started by the collector are not stopped.

KO2O1342E  Near-Term History Data Collector - TRACE COMMAND FAILED. cccccccc HAS NO TRACE AUTHORIZATION
Explanation: The trace command did not go through because OMEGAMON XE for DB2 PE does not have DB2 trace authority.
System action: Processing terminates.
User response: Grant trace authority to O2CI DB2, then try again.
KO2O1343E Near-Term History Data Collector - TRACE COMMAND FAILED WITH DB2 MESSAGE ID n

Explanation: OMEGAMON XE for DB2 PE could not issue a DB2 trace command. The indicated message ID reveals why.

System action: Processing terminates.

User response: Contact IBM support for an explanation of the message and help in resolving the problem.

KO2O1345I Near-Term History Data Collector - NEW OPTIONS WILL TAKE EFFECT WHEN THE CURRENT INTERVAL EXPIRES

Explanation: Newly specified options for the Near-Term History Data Collector will go into effect after the current interval ends.

System action: None.

User response: None.

KO2O1346E Near-Term History Data Collector - NO MORE STORAGE FOR UOW. PERFORMANCE DATA IS NOT COLLECTED

Explanation: Lack of storage was detected for Unit of Work (UOW).

System action: Processing terminates.

User response: Increase the region size.

KO2O1347E Near-Term History Data Collector - READA/READS FAILED. RETURN CODE rc

Explanation: READA/READS failed during online data collection.

System action: The Near-Term History Data Collector terminates.

User response: See DB2 Messages and Codes for an explanation of the return code.

KO2O1348E Near-Term History Data Collector - READA/READS FAILED. REASON CODE rs

Explanation: READA/READS failed during online data collection.

System action: The Near-Term History Data Collector terminates.

User response: See DB2 Messages and Codes for an explanation of the reason code.

KO2O1349W Near-Term History Data Collector - DYNAMIC BUFFER POOL CELL POOL IS FULL

Explanation: The buffer pool storage used to hold buffer pool information is full.

System action: Processing continues.

User response: Contact IBM support.

KO2O1350W Near-Term History Data Collector - READS RETRY LIMIT EXCEEDED

Explanation: DB2 has detected a temporary lack of storage on a READS command.

System action: The system re-executes the READS command 10 times. If lack of storage persists, the command terminates and returns to the caller with no data.

User response: See messages KO2O1347E and KO2O1348E for more information.

KO2O1351I variable message text

Explanation: Not applicable.

System action: Not applicable.

User response: Not applicable.

KO2O1352I variable message text

Explanation: Not applicable.

System action: Not applicable.

User response: Not applicable.

KO2O1353E %%% STOP TRACE NOT ISSUED. TRACE NUMBER IS NOT AVAILABLE

Explanation: Internal error.

System action: Processing terminates.

User response: Contact IBM support.

KO2O1355W Near-Term History Data Collector - APPROACHING STORAGE LIMIT. LOG ARCHIVE MIGHT BE REQUIRED

Explanation: DB2 has detected a temporary lack of storage on a READS command.

System action: The system re-executes the READS command 10 times. If lack of storage persists, the command terminates and returns to the caller with no data.

User response: See messages KO2O1347E and KO2O1348E for more information.
KO2O1360E

KO2O1360E  NEAR-TERM HISTORY DATA COLLECTOR - DATA CAPTURE FAILED WITH RC=nn, RSC=nnnn, ARSC=nn, DB2=ssid

Explanation: The data capture request failed. The return code RC=nn, reason code RSC=nnnn, additional reason code ARSC=nnnn, and DB2 subsystem identifier DB2=ssid are provided for diagnostics.

RC  Meaning
00  REQUEST COMPLETED
    The request is complete.
04  REQUEST COMPLETED/WARNING
    The request was completed but warnings conditions are returned.

RSC  Meaning
0004  QUERY DATA IS INCOMPLETE
0008  SWITCHED- NO OUTPUT DS
08  REQUEST COMPLETE/NO ACTION
    The request was completed but no action was taken.

OC  DRIVER REQUEST FAILED
    The driver request failed.

RSC  Meaning
0204  INVALID DTOKEN ADDRESS
0208  LOAD FAILED FOR PAPC
020C  DELETE OF PAPC FAILED
0210  INIT FAILED

ARSC  Meaning
04  NO STORAGE UNAVAILABLE
08  ATTACH FAILED
0C  INVALID STOP ECB
10  INVALID PARM LIST
14  NOT APF AUTHORIZED

0214  ASSOCIATION FAILED
ARSC  Meaning
04  CS+CID ENQUE EXIST
08  INVALID CONNID LENGTH

0C  NON-UNIQUE CONNID
10  INVALID SETECB
14  STORAGE NOT AVAILABLE
18  INPUT PARM ERROR

0218  DRIVER INACTIVE
021C  TERMINATION FAILED

ARSC  Meaning
04  DRIVER REQUEST ABENDED
0220  DRIVER ALREADY TERMINATED
0224  DEFINE FAILED

ARSC  Meaning
04  CS ALREADY DEFINED
08  STORAGE NOT AVAILABLE
0C  CT ALREADY DEFINED
10  CT NOT FOUND
14  DS ALREADY DEFINED
18  OBJ ALREADY DEFINED
1C  INVALID PARM

0228  START FAILED

ARSC  Meaning
04  ATTACH OF PCSV FAILED
08  SET NAME NOT FOUND
0C  SET ALREADY ACTIVE
10  NO CONTAINER DATA
14  CONTAINER ERRORS

022C  STOP FAILED

ARSC  Meaning
04  DETACH OF PCSV FAILED
08  SET NAME NOT FOUND
0C  DEQUE FAILED
10  SET ALREADY INACTIVE

0230  SYNC REQUEST FAILED

ARSC  Meaning
04  SET NAME NOT FOUND
08  CONTAINER NOT FOUND
0C  CONTAINER SET INACTIVE
10  OUTPUT NOT INITIALIZED

0234  SWITCH REQUEST FAILED

ARSC  Meaning
SET NAME NOT FOUND
CONTAINER NOT FOUND
CONTAINER SET INACTIVE
OUTPUT NOT INITIALIZED
NO CURRENT OUTPUT DS
CURRENT DS IS EMPTY
CAP DQUERY CALL FAILED
QUERY STORAGE NOT AVAILABLE
QUERY INPUT SPECIFIED IS INVALID
USER REQUEST FAILED
LOAD FAILED OF PAPC
DELETE OF PAPC FAILED
SERVER IS INACTIVE
INVALID CTOKEN ADDRESS
CONNECT FAILED FOR ID
INVALID PTOKEN ADDRESS
OPEN FAILED
OBJECT NOT FOUND
NOT USED
INVALID VERSION
GETMEM FAILED IN OPPATH

GETMEM FAILED IN CREATE
OUTPUT NOT INITIALIZED

The following additional reason codes apply to “OPEN FOR INPUT”:

DATASET NOT FOUND
DATASET NOT INITIALIZED

The following reason codes apply to “RETRIEVE/STORE/QUERY/QUALIFY FUNCTIONS”:

INVALID AREA PARM
INVALID AREA LEN PARM
NO USER BUFFERS
INVALID ACCESS MODE
INVALID START/END TIME
IO ERRORS ENCOUNTERED
INVALID ARGUMENT (RUNTIME)

MISSING ARGUMENT END
COLUMN NOT FOUND
INV LOGICAL OPER
INV ARGUMENT SET
LENGTH > THAN COLUMN
LIST MISSING COLUMN
RETRIEVE BUFFER UNAVAIL
INVALID SEQUENCE AREA
INVALID RPT DATE AREA
QUALIFY QUALIFY SUBTYPE

INVALID QUALIFY SUBTYPE
INVALID VALUE (NO COLUMN)
NO STORAGE AVAILABLE
UNUSED
INVALID PATH TYPE FOR REQ
USER REQUEST ABEND
DISCONNECT FAILED

ALREADY DISCONNECTED

The following additional reason codes apply to “OPEN FOR OUTPUT”:

DESCRIBE > MAXIMUM
INVALID DESCRIPTION
DOESNT MATCH EXISTING
SERVER IS TERMINATING
NOT DEFINED TO CONTAINER
KO2O1361E • KO2O1366E

08 PC# WAS NOT FOUND OR ALREADY DISCONNECTED
035C CLOSE PATH FAILED
ARSC Meaning 04 PATH ALREADY INACTIVE
08 PP# WAS NOT FOUND OR ALREADY CLOSED
0360 NO ARGUMENT AREA STORAGE
0364 INVALID MAX RECORD PARM
0368 INVALID RET OBJECT AREA
036C INVALID RET VERSION AREA
0370 CAP QUERY CALL FAILED
ARSC Meaning 04 QUERY STORAGE NOT AVAILABLE
08 QUERY INPUT SPECIFIED IS INVALID

14 INITIALIZATION ERROR
The request cannot be initiated.
RSC Meaning 0404 NO STACK AREA
0408 CANT OBTAIN TASK WORK
18 INVALID REQUEST
The request is invalid.
RSC Meaning 0504 INVALID REQUEST

System action: The Near-Term History Data Collector subtask processing terminates.
User response: Perform a near-term history log archive; repeat as needed for all defined log data sets. If the archive does not resolve the problem, delete and redefine the log data sets. If the problem persists, contact IBM support.

KO2O1362W Near-Term History Data Collector TEMPORARILY SUSPENDED DATA COLLECTION. NO VSAM FILES. DB2=drb

Explanation: Usually, a job is automatically submitted that deletes the oldest file. You get this message when all files are filled and the oldest one is not yet deleted.
System action: Processing is halted.
User response: Delete the oldest file.

KO2O1363I Near-Term History Data Collector RESUMED DATA COLLECTION. VSAM FILE AVAILABLE. DB2=drb

Explanation: This is an informational message.
System action: Processing continues.
User response: None.

KO2O1364E NEAR-TERM HISTORY DATA COLLECTOR - SEQUENTIAL COLLECTION SUSPENDED. REASON reason code

Explanation: The Near-Term History Data Collector stopped collecting data to the sequential output file.
System action: Processing continues.
User response: Ensure there is enough space to allocate sequential data sets (for example, GDG).

KO2O1365I NEAR-TERM HISTORY DATA COLLECTOR - SEQUENTIAL OUTPUT TO dsn

Explanation: The Near-Term History Data Collector collects information in data set indicated by dsn.
System action: Processing continues.
User response: None.

KO2O1366E SEQ OUTPUT NEEDS DISP=OLD,DSN=xxx

Explanation: An attempt to allocate a new sequential file xxx or GDG generation xxx(+1) failed. Another process has an existing allocation against the file or GDG base xxx.
System action: This message is issued once. The Near-Term History Data Collector retries the allocation once a second. When the other process releases its allocation, the sequential file is allocated, output is
KO2O1367I • KO2O1402W

KO2O1367I  SEQ OUTPUT NOW RESUMED
DSN=xxx
Explanation: A previously locked data set has successfully been allocated.
System action: The Near-Term History Data Collector continues writing IFCID trace output to the new sequential file.
User response: None.

KO2O1369I  NEAR-TERM HISTORCCY DATA COLLECTOR - RECORD IS TOO LONG FOR SEQUENTIAL COLLECTION IFCID = <V1> DB2 subsystem = <V2>
Explanation: An IFI record length is longer than expected.
   <V1> is the name of the IFCID.
   <V2> is the name of the DB2 subsystem.
System action: The record is skipped. Processing continues with the next record.
User response: None.

KO2O1371I  <V1> RECORD IS TOO LONG FOR ATF DATASET COLLECTION. IFCID = <V2>
Explanation: An IFI record length is longer than expected.
   <V1> is the name of the IFCID.
   <V2> is the name of the DB2 subsystem.
System action: The record is skipped. Processing continues with the next record.
User response: None.

KO2O1372E  <V1> ACCTG CLASS(11) only valid for DB2 11 and above (IFITRACE).
Explanation: Accounting Class 11 is only valid for DB2 11 and later.
System action: Near Term History is not started for subsystem <v1>.
User response: Change Near Term History parameters to not use class 11 for this DB2 subsystem.

KO2O1385I  SSN=ssn REQUEST=req FROM=mod RC=ret RS=rsn TCB=addr
Explanation: This message describes the Near-Term History Data Collector initialization process. It contains the following variable information:
   • ssn is the DB2 subsystem name.
   • req is the request string.
   • mod is the module name (DSNRLI or DSNCLI).
   • ret is the return code.
   • rsn is the reason code.
   • addr is the storage address of the requesting TCB.
System action: Processing continues.
User response: None.

KO2O1400W  Near-Term History Data Collector DETECTED THAT RMF IS NOT ACTIVE. 15 MINUTE INTERVAL IS USED
Explanation: OMEGAMON XE for DB2 PE detects that RMF was not active when INTERVAL(RMF) was specified in the collection options member.
System action: Processing continues and a 15 minute interval is used.
User response: Activate RMF. Near-Term History Data Collector uses RMF interval if RMF is active when the current interval expires.

KO2O1401W  Near-Term History Data Collector DETECTED THAT RMF IS ACTIVE. RMF INTERVAL IS USED
Explanation: OMEGAMON XE for DB2 PE detects that RMF was active so RMF interval was used. This message displays only if RMF was not active and INTERVAL(RMF) is specified in the collection options member.
System action: Processing continues.
User response: None.

KO2O1402W  Near-Term History Data Collector - SUBSYSTEM name IS IN MAINTENANCE MODE. WAITING FOR NORMAL RESTART
Explanation: The Near-Term History Data Collector has been started, but the DB2 subsystem to be monitored is currently running in maintenance mode.
System action: The Near-Term History Data Collector sends a message to the console and waits for the operator to reply.
User response: Read messages KO2H0001 and KO2H0003 for further instructions.
KO2O1405E  Near-Term History Data Collector - DB2
CONNECT FAILED. THE MAXIMUM NUMBER OF CONNECTIONS IS REACHED

Explanation: The maximum number of connections is reached. The DB2 connect failed.
System action: Processing terminates.
User response: Increase the maximum number of connections, or restart the Near-Term History Data Collector later.

KO2O1406E  Near-Term History Data Collector - DB2
CONNECT FAILED. THE SPECIFIED DB2 SUBSYSTEM ID IS NOT VALID

Explanation: The DB2 subsystem ID specified is not valid and DB2 connection failed.
System action: Processing terminates.
User response: Ensure that the subsystem specified in the Near-Term History Data Collector options is active and restart the collector.

KO2O1407E  Near-Term History Data Collector - DB2
SUBSYSTEM IS NOT ACTIVE OR IS TERMINATING

Explanation: The DB2 subsystem to be monitored is not active or is terminating.
System action: Processing terminates.
User response: Ensure that the DB2 subsystem specified in the Near-Term History Data Collector options is active, and restart the collector.

KO2O1408E  Near-Term History Data Collector - DB2
CONNECT FAILED. USER NOT AUTHORIZED

Explanation: The DB2 connection failed because the Common Interface does not have authorization to connect to DB2.
System action: Processing terminates.
User response: Grant authorization to the Common Interface, then restart the Near-Term History Data Collector.

KO2O1409E  Near-Term History Data Collector - DB2
CREATE THREAD FAILED. PLAN NOT FOUND OR NOT AUTHORIZED

Explanation: The plan was not found or not authorized, so the DB2 Create Thread failed.
System action: Processing terminates.
User response: Ensure that K02vrmHP has been bound and that the necessary authorizations have been given.

KO2O1410E  Near-Term History Data Collector - DB2
CREATE THREAD FAILED. PLAN NOT AUTHORIZED

Explanation: The plan is not authorized for use by the Common Interface; therefore, the Create Thread failed.
System action: Processing terminates.
User response: Ensure that K02vrmHP has been bound and that the necessary authorizations have been given.

KO2O1420W  Near-Term History Data Collector
DETECTED TERMINATION OF DB2 SUBSYSTEM subsystem

Explanation: The Near-Term History Data Collector detected termination of the indicated DB2 subsystem.
System action: Processing terminates.
User response: None.

KO2O1421E  Near-Term History Data Collector - WORKLOAD ccccccc HAD LOOPED MORE THAN TEN TIMES. TERMINATING

Explanation: The Near-Term History Data Collector detected that one of its workloads had looped more than ten times.
System action: Processing terminates.
User response: Contact IBM support.

KO2O1422E  NEAR-TERM HISTORY DATA COLL. - WORKLOAD %%%%%% HAD PROGRAM CHECK MORE THAN 10 TIMES. TERMINATING

Explanation: The Near-Term History Data Collector detected that one of its workloads had a program check more than ten times.
System action: Processing terminates.
User response: Contact IBM support.

KO2O1423W  DB2 SUBSYSTEM subsystem IS NOT ACTIVE, AND NEAR-TERM HISTORY DATA COLLECTOR IS WAITING FOR IT

Explanation: The indicated DB2 subsystem is to be monitored, but is not active at this time.
System action: The Near-Term History Data Collector issues WTOR message KO2H0001 and waits for a reply from the operator.
User response: Read message KO2H0001 and take appropriate action.
<table>
<thead>
<tr>
<th>Message Code</th>
<th>Message Description</th>
<th>Explanation</th>
<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>KO2O1425E</td>
<td>Near-Term History Data Collector--DETECTED 50 VSAM LOGICAL ERRORS. DATA COLLECTION STOPPED</td>
<td>Processing of near-term history data terminates.</td>
<td>Contact IBM support.</td>
</tr>
<tr>
<td>KO2O1426I</td>
<td>DB2 subsystem TERMINATED. Near-Term History Data Collector SUSPENDED DATA COLLECTION</td>
<td>The DB2 subsystem being monitored by the Near-Term History Data Collector was terminated. Data collection was stopped and will resume when this DB2 subsystem is active again. System action: The Near-Term History Data Collector waits for the DB2 subsystem to become active again. User response: None.</td>
<td>Read message KO2H0003 and take appropriate action.</td>
</tr>
<tr>
<td>KO2O1427I</td>
<td>DB2 subsystem IS ACTIVE. Near-Term History Data Collector HAS RESUMED DATA COLLECTION</td>
<td>The DB2 subsystem is active again, and the Near-Term History Data Collector has resumed data collection. System action: Data collection continues. User response: None.</td>
<td></td>
</tr>
<tr>
<td>KO2O1430E</td>
<td>Near-Term History Data Collector IS TERMINATING. DB2 VERSION HAS BEEN CHANGED</td>
<td>This conflict occurs if a version change of either DB2 or OMEGAMON XE for DB2 PE is detected. System action: Processing terminates. User response: Delete the near-term history files and redefine them.</td>
<td></td>
</tr>
<tr>
<td>KO2O1431E</td>
<td>DB2 SUBSYSTEM id IS NOT VALID. RESPOND TO THE FOLLOWING MESSAGES TO PROCEED</td>
<td>The DB2 subsystem to be monitored, identified by id, is not valid on this system. System action: The Near-Term History Data Collector issues WTOR message KO2H0003 and waits for a reply from the operator. User response: Read message KO2H0003 and take appropriate action.</td>
<td></td>
</tr>
<tr>
<td>KO2O1432E</td>
<td>DB2 SUBSYSTEM id FOR INSERTION IS NOT VALID. RESPOND TO THE FOLLOWING MESSAGES TO PROCEED</td>
<td>The DB2 subsystem to which near-term history data is to be written, identified by id, is not valid on this system. System action: The Near-Term History Data Collector issues WTOR message KO2H0003 and waits for a reply from the operator. User response: Read message KO2H0003 and take appropriate action.</td>
<td></td>
</tr>
<tr>
<td>KO2O1433W</td>
<td>Near-term history does not support ACCUMACC greater than 25 (NEWINOPT)</td>
<td>The QWAR accounting rolled-up information can only contain ACE values for up to 25 rolled-up records. QWAR is used by Near-term history to determine the records to be included in a rolled up accounting record. If more than 25 records are rolled up, the records that are created by the threads can neither be found nor matched with the rolled up record. System action: None. User response: Specify a maximum number of 25 for the installation parameter ACCUMACC.</td>
<td></td>
</tr>
<tr>
<td>KO2O1434W</td>
<td>Near-term history does not support ACCUMACC with DB2 9 (NEWINOPT)</td>
<td>QWAR is used by Near-term history to determine the records to be rolled up by using the installation parameter ACCUMACC. With DB2 9, a QWAR cannot be created. Therefore roll-up processing is not possible. System action: None. User response: Specify the value NO for the installation parameter ACCUMACC.</td>
<td></td>
</tr>
<tr>
<td>KO2O1500E</td>
<td>CANNOT OBTAIN STORAGE FOR NEAR-TERM HISTORY STATISTICS RECORD</td>
<td>Additional storage was needed to keep statistics data for 96 intervals. System action: Processing continues by reusing storage for the oldest interval. User response: Increase region size and restart the CI.</td>
<td></td>
</tr>
</tbody>
</table>
KO2O1501E  CANNOT OBTAIN STORAGE FOR NEAR-TERM HISTORY DDF STATISTICS RECORD

Explanation: Additional storage was needed to keep DDF statistics data for 96 intervals.

System action: Processing continues by reusing storage for the oldest interval.

User response: Increase region size.

KO2O1520W NEAR-TERM HISTORY DATA NOT AVAILABLE: reason

Explanation: Near-term history data is not available for one of the following reasons:

**H2 IS NOT RUNNING**
- The Near-Term History Data Collector is not running.

**NO STATISTIC DATA**
- Statistics data is not being collected.

**NO DATA AVAILABLE**
- First interval has not occurred yet.

**NTHWORK NOT FOUND**
- Internal logic error.

System action: Processing continues.

User response: Perform the action that corresponds to the indicated reason:

**H2 IS NOT RUNNING**
- Start the Near-Term History Data Collector.

**NO STATISTIC DATA**
- Specify STATISTICS=YES in the Near-Term History Data Collector options.

**NO DATA AVAILABLE**
- Wait for the first interval.

**NTHWORK NOT FOUND**
- Contact IBM support.

KO2O1531W REPORT COMBINE LEVEL IGNORED. COLLECTION INTERVAL DOES NOT DIVIDE EVENLY INTO 60 MINUTES

Explanation: The report combine level is set to HOURLY, but the selected collection interval does not divide evenly into 60 minutes.

System action: Processing continues; OMEGAMON XE for DB2 PE ignores the report combine level option.

User response: Change the report combine level to NONE on the Near-Term History Report Option panel. Or change the collection interval (use 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, or 30 minutes) and restart the Near-Term History Data Collector.

KO2O1600I OBJECT ANALYSIS COLLECTION IS NOT ACTIVE

Explanation: Object analysis displays require object analysis collection to be active.

System action: The display is terminated.

User response: Start the collection by using the Start Object Analysis Collection panel.

KO2O1601I NO OBJECT ACTIVITY LOCATED FOR THIS COLLECTION INTERVAL

Explanation: Object analysis collection occurs on an interval basis. This message informs that no object activity has occurred for the current interval.

System action: The display is terminated.

User response: None.

KO2O1602I NO VOLUMES CONTAINING ALLOCATED DB2 OBJECTS LOCATED DURING THIS COLLECTION INTERVAL

Explanation: No volumes containing allocated DB2 objects could be located.

System action: The display is terminated.

User response: None.

KO2O1603I NO OBJECTS ARE CURRENTLY ALLOCATED

Explanation: No DB2 objects allocated to DB2 were located.

System action: The display is terminated.

User response: None.

KO2O1604I NO DB2 I/O ACTIVITY LOCATED FOR THIS VOLUME DURING THIS COLLECTION INTERVAL

Explanation: The volume being viewed has not incurred any DB2 I/O activity during the collection interval.

System action: The display is terminated.

User response: None.

KO2O1605I VOLUME CONTAINS NO DB2 ALLOCATED OBJECTS

Explanation: The volume viewed no longer contains any allocated DB2 objects.

System action: The display is terminated.

User response: None.

KO2O1606I NO DB2 I/O ACTIVITY LOCATED FOR THIS OBJECT DURING THIS COLLECTION INTERVAL

Explanation: No DB2 I/O activity could be located for the object in the current collection interval.
KO2O1607E  •  KO2O1617E

Chapter 9. Messages  5123

KO2O1607E  COLLECTION NOT SUCCESSFUL. VALIDATION FAILED

Explanation: An internal error was encountered during collection for the display.
System action: The display is terminated.
User response: None.

KO2O1608I  NO OBJECTS ARE CURRENTLY ALLOCATED FOR THIS DATABASE

Explanation: The database being viewed is no longer allocated to DB2.
System action: The display is terminated.
User response: None.

KO2O1609I  OBJECT IS NOT CURRENTLY ALLOCATED TO DB2

Explanation: The space name being viewed no longer contains any data sets allocated to DB2.
System action: The display is terminated.
User response: None.

KO2O1610E  EVENTMGR O2ECNTL IS NOT ACTIVE. START REQUEST IS IGNORED

Explanation: OMEGAMON XE for DB2 PE could not start the object- and volume analysis collection because the Event Collection Manager O2ECNTL is not active.
System action: The start request is ignored.
User response: Start the OMEGAMON XE for DB2 PE Event Collection Manager under the O2CI. For instructions see IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS: Configuration and Customization.

KO2O1611I  START REQUEST SUCCESSFULLY PROCESSED

Explanation: The start request for the object analysis collection was successfully issued.
System action: The display is terminated.
User response: None.

KO2O1612I  STOP REQUEST SUCCESSFULLY PROCESSED

Explanation: The stop request for the object analysis collection was successfully issued.
System action: The display is terminated.
User response: If object analysis remains active, check the SYSLOG data set for O2CI messages and contact IBM support if necessary.

KO2O1613I  MODIFY REQUEST SUCCESSFULLY PROCESSED

Explanation: The modify request for the object analysis collection was successfully issued.
System action: The display is terminated.
User response: None.

KO2O1614E  START REQUEST DENIED. COLLECTION IS ALREADY ACTIVE

Explanation: The start request is denied because the object analysis collection is already active.
System action: The display is terminated.
User response: None.

KO2O1615E  STOP REQUEST DENIED. COLLECTION IS NOT ACTIVE

Explanation: The stop request is denied because the object analysis collection is not active.
System action: The display is terminated.
User response: None.

KO2O1616E  STOP REQUEST DENIED. COLLECTION IS NOT ACTIVE

Explanation: The stop request is denied because the object analysis collection is not active.
System action: The display is terminated.
User response: None.

KO2O1617E  VALID INTERVAL= keyword NOT LOCATED. REQUEST DENIED

Explanation: The start request for the object analysis collection could not be processed because the INTERVAL= keyword was missing or not valid.
System action: The start request is ignored.
User response: Correct the start request, by specifying a valid INTERVAL= operand. Valid interval range is 1 to 9999.
KO2O1618E REQUEST COULD NOT BE PROCESSED. TRY AGAIN

Explanation: OMEGAMON XE for DB2 PE could not start the object- and volume analysis collection because the Event Collection Manager (EVENTMGR) was busy.

System action: The request is ignored.
User response: Try issuing the request again. If the problem persists, contact IBM support.

KO2O1619I NO NEW DATA SET EXTENT ACTIVITY DETECTED

Explanation: Object analysis did not acquire any new extents by any data sets in the DB2 subsystem being monitored during the current interval. No new information to display.

System action: Processing continues.
User response: None.

KO2O1620I OBJECT ANALYSIS THREAD SUPPORT IS NOT ACTIVE

KO2O1621I NO THREAD ACTIVITY LOCATED FOR THIS COLLECTION INTERVAL

Explanation: No data has been found.

System action: Processing continues.
User response: None.

KO2O1700W CAPTURE SERVER INACTIVE

Explanation: The data capture facility is not available.

System action: Processing terminates.
User response: Call IBM support.

KO2O1701E CAPTURE SERVER CONNECTION FAILED = reason

Explanation: The near-term thread history feature could not connect to the server for one of the following reasons:

H2 NOT ACTIVE
The Near-Term History Data Collector must be started to access near-term thread history information.

H2 NOT COLLECTING TO VSAM
The Near-Term History Data Collector must be collecting to VSAM data sets to access near-term thread history information.

INVALID CONNECT ID
Internal error.

CONNECT ID NOT FOUND
Internal error.

RC=nnnn, RSC=nnnn, ARSC=nnnn
Internal error. The reason code RC=nnnn, return code RSC=nnnn, and additional reason code ARSC=nnnn are provided for diagnostics.

System action: Processing terminates.
User response: Perform the action that corresponds to the indicated reason:

H2 NOT ACTIVE
Start the Near-Term History Data Collector.

H2 NOT COLLECTING TO VSAM
Customize the Near-Term History Data Collector to collect to VSAM data sets if use of the near-term thread history information is required.

All other reasons
Call IBM support.

KO2O1750E INVALID ORG - DSN: dsn - MUST BE PO

Explanation: The characteristic of the named data set is not correct. The sequential data set must be partitioned organized (PO).

System action: Processing terminates.
User response: Change the data set organization.

KO2O1751E DYNAMIC ALLOCATION FAILED - dsn

Explanation: The dynamic allocation of the named data set failed.
KO2O1761E  INVALID DSN: %%%% - PLEASE RE-ENTER
Explanation: The name of the data set was entered incorrectly.
System action: Processing terminates.
User response: Correct the syntax of the data set name.

KO2O1762E  INVALID SIZE: %%%% - PLEASE RE-ENTER

KO2O1763E  INVALID VOLUME ID: %%%% . PLEASE RE-ENTER
Explanation: The identifier of the volume was entered incorrectly, or the volume with the specified volume identifier does not exist.
System action: Processing terminates.
User response: Correct the syntax or specify a valid volume identifier.

KO2O1764E  INVALID DSN: dsname DATA SET ALREADY EXISTS
Explanation: None.
System action: Processing terminates.
User response: Specify a different data set name that does not already exist.

KO2O1765E  UNABLE TO LOAD MODULE ATRE. POSSIBLE REGION SIZE PROBLEM
Explanation: The application trace could not be started because there is not enough space in the storage region.
System action: Processing terminates.
User response: Increase the size of the storage region.

KO2O1766E  IFCID TRACE DATA SET NAME INCOMPLETE. REENTER THE TRACE REQUEST
Explanation: A complete, valid data set name is required for the output of an IFCID trace.
System action: The IFCID trace request is rejected.
User response: Reenter the trace request using a complete data set name.

KO2O1769I  IFCID TRACE IS NOT CURRENTLY RUNNING
Explanation: The user requested that the results of an IFCID trace be displayed, but the trace is not active.
System action: The IFCD command is rejected.
User response: None.

KO2O1802E  TRACE CONNECT TO DB2 FAILED WITH REASON CODE rs
Explanation: OMEGAMON XE for DB2 PE attempted to connect to DB2 to start an IFCID trace. The attempt to connect to DB2 failed with the reason code indicated.
System action: The IFCID trace was not started.
User response: Correct the condition that caused the failure and start the trace again.

KO2O1803E  TRACE OPEN PLAN FAILED WITH RETURN CODE rc
Explanation: OMEGAMON XE for DB2 PE attempted to open the plan to start an IFCID trace. The attempt to open the plan failed with the return code indicated.
System action: The IFCID trace was not started.
User response: Correct the condition that caused the failure and start the IFCID trace again.

KO2O1804E  TRACE OPEN PLAN FAILED WITH REASON CODE rs
Explanation: OMEGAMON XE for DB2 PE attempted to open the plan to start an IFCID trace. The attempt to open the plan failed with reason code indicated.
System action: The IFCID trace was not started.
User response: Correct the condition that caused the failure and start the IFCID trace again.

KO2O1805E  START TRACE COMMAND FAILED WITH RETURN CODE rc
Explanation: The START TRACE command was issued to start an IFCID trace. The attempt failed with the return code indicated.
System action: The IFCID trace was not started.
User response: Correct the condition that caused the failure and start the IFCID trace again.

KO2O1806E  START TRACE COMMAND FAILED WITH REASON CODE rs
Explanation: The START TRACE command was issued to start an IFCID trace. The attempt failed with the reason code indicated.
System action: The IFCID trace was not started.
User response: Correct the condition that caused the failure and start the IFCID trace again.

KO2O1808W TOO MANY IFCIDS SPECIFIED. LIST TRUNCATED
Explanation: The number of IFCIDs requested to be included in the IFCID trace exceeds the maximum allowed.
System action: IFCID trace is started without some of the requested IFCIDs.
User response: None.

KO2O1809E  TRACE DATA SET SPECIFIED COULD NOT BE FOUND. CORRECT AND PRESS ENTER TO PROCEED
Explanation: The data set name specified for the IFCID trace output does not exist.
System action: OMEGAMON XE for DB2 PE waits for the user response.
User response: Enter a valid existing data set name.

KO2O1810W  TRACE DATA SET SPECIFIED HAS BEEN MIGRATED. PRESS ENTER TO PROCEED
Explanation: The data set specified for the IFCID trace output has been migrated.
System action: OMEGAMON XE for DB2 PE waits for the user response.
User response: When the data set recall has completed, press Enter to proceed with the IFCID trace.

KO2O1811W  TRACE DATA SET SPECIFIED IS NOT QSAM. PRESS ENTER TO PROCEED
Explanation: The data set specified for the IFCID trace output is not a QSAM data set.
System action: OMEGAMON XE for DB2 PE waits for the user response.
User response: Press Enter to allow the correct data set name to be entered.

KO2O1901W  IFI COLLECTOR MONITOR TRACE IS NO LONGER ACTIVE
Explanation: OMEGAMON XE for DB2 PE requires the monitor trace to be active to collected data.

KO2O1902E  MONITOR1 AUTHORIZATION REQUIRED. NO DATA CAN BE COLLECTED
Explanation: OMEGAMON XE for DB2 PE requires MONITOR1 authorization to start the data collection process.
System action: Processing terminates.
User response: The system administrator should grant the necessary authorization.

KO2O1903E  STATISTICS COLLECTOR READS FAILED. MULTIPLE RETRY ATTEMPTS. READS ABANDONED

KO2O1904E  IFI COLLECTOR READS FAILED WITH RETURN CODE rc
Explanation: A READS to the IFI failed with the indicated return code.
System action: Processing terminates.
User response: See message KO2O1906E. Analyze the return code, correct the problem, and retry.

KO2O1905E  IFI COLLECTOR READS FAILED WITH REASON CODE rs
Explanation: A READS to the IFI failed with the indicated reason code.
System action: Processing terminates.
User response: See message KO2O1904E. Analyze the reason code, correct the problem, and retry.

KO2O1906E  IFI COLLECTOR LOAD OF module FAILED
Explanation: module is either DSNALI or DSNRLI.
System action: Processing terminates.
User response: Check and correct the STEPLIB DD statement for the missing DB2 load library.

KO2O1907E  IFI COLLECTOR LOAD OF DSNWLI2 FAILED
Explanation: OMEGAMON XE for DB2 PE could not load the required module.
System action: Processing terminates.
User response: Check and correct the STEPLIB DD statement for the missing DB2 load library.
KO2O1908E  IFI COLLECTOR CONNECT FAILED - RETURN CODE rc
System action: Processing terminates.

KO2O1909E  IFI COLLECTOR CONNECT FAILED - REASON CODE rs
System action: Processing terminates.
User response: If the reason code is 00F30013, check RACF CLASS DSNR, then look for profiles xxxx.RRSAF (where xxxx is the DB2 subsystem name).

KO2O1910E  IFI COLLECTOR OPEN FAILED - RETURN CODE rc
System action: Processing terminates.

KO2O1911E  IFI COLLECTOR OPEN FAILED - REASON CODE rs PLAN NAME=name DB2=subsystem
System action: Processing terminates.

KO2O1912E  IFI COLLECTOR DISPLAY TRACE FAILED IFI DISPLAY TRACE - FAILED RETURN CODE rc IFI DISPLAY TRACE - FAILED REASON CODE rs

KO2O1913E  IFI START TRACE - FAILED RETURN CODE rc IFI START TRACE - FAILED REASON CODE rs

KO2O1914W  IFI COLLECTOR NO MORE STORAGE FOR BUFFER USING %%%%%

KO2O1915W  IFI COLLECTOR REACHED MAXIMUM STORAGE AMOUNT <V1> <V2> <V3> <V4> <V5> <V6> <V7>
Explanation: IFI Collector did not read all of the data because the maximum buffer size was exceeded.
<V1> is the buffer size.
<V2> is the number of bytes moved to the buffer.
<V3> is the number of bytes not moved to the buffer.
<V4> is the global reason code.
<V5> is the return code.
<V6> is the reason code.
<V7> are the IFCIDS (two bytes per IFCID).
System action: Processing continues.
User response: Contact IBM support.

KO2O1916W  IFI COLLECTOR TIMED OUT
Explanation: DB2 did not respond in time.
System action: The system retries automatically.
User response: None.

KO2O1917E  IFI COLLECTOR CRE THRD FAILED - RETURN CODE rc IFI COLLECTOR CRE THRD FAILED - REASON CODE rs PLAN NAME=plan name DB2=subsystem

KO2O1918I  subsystem + IFI COLLECTOR (CAF) CONNECTION ESTABLISHED
Explanation: The IFI Collector uses a different type of connection through the Call Attach Facility (CAF).
System action: Processing continues.
User response: None.

KO2O1920I  subsystem + IFI COLLECTOR (CAF) CONNECTION TERMINATED
Explanation: The session ended. The user is no longer connected through the Call Attach Facility (CAF).
System action: Processing ends normally.
User response: None.

KO2O1922I  subsystem + IFI COLLECTOR (CAF) FORCIBLY DETACHED
Explanation: The call to DB2 through the Call Attach Facility (CAF) has been terminated because the program has terminated or the subsystem server has been shut down.
System action: Processing ends normally.
User response: None.

KO2O1924I  EPS1 <KO2PLAN> NOT USING IFI INTERFACE
Explanation: The DB2 plan needed by OMPE has not been bound to this DB2. OMEGAMON cannot use the IFI interface and cannot obtain complete monitoring information.
System action: Processing ends normally.
User response: None.

KO2O1925W  THE AUTHORIZATION EXIT IS ACTIVE. ALL DATA IS SUPPRESSED.
Explanation: The parameter USEUSERAUTHXIT=Y is configured. The authorization user exit is active.
System action: Processing ends normally.
User response: None.
System action: None.
User response: Contact your administrator.

KO2O1940E  WLM SERVICE XX RC: 99 - YY
REASON: ZZ

Explanation: OMEGAMON XE for DB2 PE on z/OS has requested information from one of the standard workload manager interfaces. The interface has issued a nonzero return code as a result of that request.

- XX is the name of the WLM interface:
  - 1WMCOLL
  - 1WMCQRY
  - 1WMQRY
  - 1WMPQRY
  - 1WMDEXTR

- 99 is the nonzero return code:
  - 04
  - 08
  - 12
  - 16

- YY is a short text describing the general type of error:
  - WARNING
  - INVOCATION ERROR
  - ENVIRONMENTAL ERROR
  - COMPONENT ERROR

- ZZ is a short text describing the specific error and may be one of the values listed in the table below. This table contains the short text string followed by the specific return code. This specific return code may be found in the WLM documentation in your MVS Bookshelf Programming: Workload Manager Services, SA22-7619.

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT ENCLAVE</td>
<td>X'0000041C'</td>
</tr>
<tr>
<td>BAD RES TKN</td>
<td>X'0000041D'</td>
</tr>
<tr>
<td>NO 1WM SVAAE SUBRECORD</td>
<td>X'0000041E'</td>
</tr>
<tr>
<td>EXEC ENV CHANGED</td>
<td>X'0000041F'</td>
</tr>
<tr>
<td>SYS INFO INCOMPLETE</td>
<td>X'00000420'</td>
</tr>
<tr>
<td>UNKNOWN QUEUE</td>
<td>X'00000421'</td>
</tr>
<tr>
<td>NO 1WM SVSAE SUBRECORD</td>
<td>X'00000422'</td>
</tr>
<tr>
<td>DEFAULT POLICY</td>
<td>X'00000423'</td>
</tr>
<tr>
<td>SYSTEM IGNORED</td>
<td>X'00000424'</td>
</tr>
<tr>
<td>NO SCH ENV</td>
<td>X'00000425'</td>
</tr>
<tr>
<td>SCH ENV NOT FOUND</td>
<td>X'00000426'</td>
</tr>
<tr>
<td>SCH ENV NOT AVAILABLE</td>
<td>X'00000427'</td>
</tr>
<tr>
<td>NO SCH ENV DEFINED</td>
<td>X'00000428'</td>
</tr>
<tr>
<td>RESOURCE NOT FOUND</td>
<td>X'00000429'</td>
</tr>
<tr>
<td>SCH ENV NO SYSTEM</td>
<td>X'0000042A'</td>
</tr>
<tr>
<td>NO DATA</td>
<td>X'0000042B'</td>
</tr>
<tr>
<td>ETOKEN NOMATCH</td>
<td>X'0000042C'</td>
</tr>
<tr>
<td>CONTINUE RIP</td>
<td>X'0000042D'</td>
</tr>
<tr>
<td>SERVER NOT FOUND</td>
<td>X'0000042E'</td>
</tr>
<tr>
<td>SECONDARY WORK DELETED</td>
<td>X'0000042F'</td>
</tr>
<tr>
<td>CNTL REG NOT REG</td>
<td>X'00000430'</td>
</tr>
<tr>
<td>ACTIVE SERVERS</td>
<td>X'00000431'</td>
</tr>
<tr>
<td>UNKNOWN EXPORT TOKEN</td>
<td>X'00000432'</td>
</tr>
<tr>
<td>ENC ALREADY EXPORTED</td>
<td>X'00000433'</td>
</tr>
<tr>
<td>BAD ENTRY VERSION</td>
<td>X'00000434'</td>
</tr>
<tr>
<td>NO CACHE ENTRY</td>
<td>X'00000435'</td>
</tr>
<tr>
<td>BAD BUF SIZE</td>
<td>X'00000436'</td>
</tr>
<tr>
<td>INVALID SWITCH TOKEN</td>
<td>X'00000437'</td>
</tr>
<tr>
<td>NO AFFINITY FOUND</td>
<td>X'00000439'</td>
</tr>
<tr>
<td>REGION NOT FOUND</td>
<td>X'0000043A'</td>
</tr>
<tr>
<td>SRB MODE</td>
<td>X'00000801'</td>
</tr>
<tr>
<td>XMEM USER KEY TKN</td>
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<td>DISABLED</td>
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</tr>
<tr>
<td>MON ENV SWITCH CONT</td>
<td>X'00000805'</td>
</tr>
<tr>
<td>MON ENV PARENT</td>
<td>X'00000806'</td>
</tr>
<tr>
<td>BAD STOKEN</td>
<td>X'00000807'</td>
</tr>
<tr>
<td>MON ENV DEP CONT</td>
<td>X'00000808'</td>
</tr>
<tr>
<td>SRB USER KEY TKN</td>
<td>X'00000809'</td>
</tr>
<tr>
<td>TCB NOT OWNER USER KEY TKN</td>
<td>X'0000080A'</td>
</tr>
<tr>
<td>BAD PL</td>
<td>X'0000080B'</td>
</tr>
<tr>
<td>MON ENV LACKS DATA</td>
<td>X'0000080C'</td>
</tr>
<tr>
<td>BAD SERV CLS</td>
<td>X'0000080D'</td>
</tr>
<tr>
<td>ARR TIME GT END TIME</td>
<td>X'0000080E'</td>
</tr>
<tr>
<td>NO USER KEY NTFY</td>
<td>X'0000080F'</td>
</tr>
<tr>
<td>EUT FRR</td>
<td>X'00000810'</td>
</tr>
<tr>
<td>NO USER KEY RPT</td>
<td>X'00000811'</td>
</tr>
<tr>
<td>BAD ASCB</td>
<td>X'00000812'</td>
</tr>
<tr>
<td>USER KEY NO MON TKN</td>
<td>X'00000813'</td>
</tr>
<tr>
<td>USER KEY WRONG PRIM</td>
<td>X'00000814'</td>
</tr>
<tr>
<td>USER KEY WRONG SERVER</td>
<td>X'00000815'</td>
</tr>
<tr>
<td>DEP CONT EXISTS</td>
<td>X'00000816'</td>
</tr>
<tr>
<td>PAR 'ENV WORK EQST ABSENT</td>
<td>X'00000817'</td>
</tr>
<tr>
<td>BOTH ENV SAME TCB</td>
<td>X'00000818'</td>
</tr>
<tr>
<td>TCB ALREADY ASSOC</td>
<td>X'00000819'</td>
</tr>
<tr>
<td>CALLER NOT AUTH DEP ENV</td>
<td>X'0000081A'</td>
</tr>
<tr>
<td>CALLER NOT AUTH PAR ENV</td>
<td>X'0000081B'</td>
</tr>
<tr>
<td>CONT EXISTS</td>
<td>X'0000081C'</td>
</tr>
<tr>
<td>BAD ELT</td>
<td>X'0000081D'</td>
</tr>
<tr>
<td>BAD LU62 TKN LEN</td>
<td>X'0000081E'</td>
</tr>
<tr>
<td>NO RELATE</td>
<td>X'0000081F'</td>
</tr>
<tr>
<td>BAD MON TKN</td>
<td>X'00000820'</td>
</tr>
<tr>
<td>BAD CONN</td>
<td>X'00000821'</td>
</tr>
</tbody>
</table>
BAD PAR ENV X'00000022' DUPLICATE CNTL REG X'00000066'
DAT OFF X'00000023' CNTL REG ALREADY REG X'00000067'
AMODE 24 X'00000024' MAX CNTL REG EXCEED X'00000068'
ASC MODE NOT PRIMARY X'00000025' SYS TYPE NOTREG X'00000069'
TASK TERM X'00000026' GROUP NOT REG X'0000006A'
RSVD NOTO X'00000027' NO CNTL REG X'0000006B'
BAD VERSION X'00000028' NO CR ROUTE TABLE X'0000006C'
BAD OPTIONS X'00000029' NO CR GROUPS X'0000006D'
MON ENV RELATED X'0000002A' NOT CNTL REG X'0000006E'
BAD # INSTANCES X'0000002B' INVALID SHUTDOWN X'0000006F'
BAD NUMBER ASCB X'0000002C' BAD EXPORT TOKEN X'00000070'
EX ST TIME GT END TIME X'0000002D' DID NOT EXPORT OR IMPORT X'00000071'
CONNECT EXISTS X'0000002E' FOREIGN ENCLAVE X'00000072'
WRONG HOME X'0000002F' WRONG SVC LMT X'00000073'
BAD ALET X'00000030' WRONG MNG TSK X'00000074'
COLL SUSPENDED X'00000031' TKN IN DMS MCH X'00000075'
STATE INV NODATA RET X'00000032' NO CPU ONLINE X'00000076'
NOT IN COMPAT MODE X'00000033' DCM NOT INITIALIZED X'00000077'
BAD ICS ALET X'00000035' BAD NUM LIMIT MAX X'00000078'
MAX ENCLAVE X'00000036' BAD NUM LIMIT MIN X'00000079'
USER KEY CONN TKN X'00000037' NO Q SERVER X'0000007A'
CLSfy AREA TOO BIG X'00000038' UNEXPECTED CALL X'0000007B'
CLSfy PL TOO SMALL X'00000039' WRONG AE LIMITS X'0000007C'
BAD ENCLAVE X'0000003A' BAD NUM AERVMAX X'0000007D'
HOME NOT OWN CONN X'0000003B' BAD REG TOKEN X'00000080'
MISSING ACRO X'0000003C' ENCLAVE PREVIOUSLY DELETED X'00000081'
BAD SERV DI X'0000003D' TOO MANY REGISTRATIONS X'00000082'
LEVEL MISMATCH X'0000003E' NO STG X'00000083'
PRIMARY NOT OWN CONN X'0000003F' REPORTING SUSP X'00000084'
SERVICE NOT ENABLED X'00000040' SYSEVENT NO WORK ELT X'00000085'
XMEM MODE X'00000041' SYSEVENT NO WORK ELT X'00000086'
NO WLM CONNECT X'00000042' NTFY NO WORK ELT X'00000087'
SELECT IN PROGRESS X'00000043' RPT NO WORK ELT X'00000088'
BADMONTKN_LISTLEN X'00000044' NO END TIME X'00000089'
WRONG ENCLAVE X'00000045' NO ARR TIME X'0000008A'
NO USER KEY REG X'00000046' NO EX TIME X'0000008B'
OTHER SPACE CONNECTED X'00000047' NO RES MGR X'0000008C'
BAD WORK UNIT TOKEN X'00000048' SUSPENDED X'0000008D'
WLM SERV BAD APPL X'00000049' X'0000008E'
WLM SERV BAD SSN X'0000004A' X'0000008F'
WLM SERV BAD SST X'0000004B' X'00000090'
NOT AUTH CONNECT X'0000004C' X'00000091'
WLM SERV BAD TYPE X'0000004D' X'00000092'
WRONG EXEC TOKEN X'0000004E' X'00000093'
BEGIN ENV OUTSTANDING X'0000004F' X'00000094'
SEC ENV OUTSTANDING X'00000050' X'00000095'
EXEC TOKEN NOT CORRECT X'00000051' X'00000096'
WLM QM BAD TYPE X'00000052' X'00000097'
TOO MANY SELECT X'00000053' X'00000098'
BAD NUM EU MAX X'00000054' X'00000099'
BAD NUM EU MIN X'00000055' X'0000009A'
ALREADY IN ENCLAVE X'00000056' X'0000009B'
NO TE JOINED TCB X'00000057' X'0000009C'
ENCLAVE SUBTASK EXISTS X'00000058' X'0000009D'
SELECTED WORK ACTIVE X'00000059' X'0000009E'
NO SERV DAREA X'0000005A' X'0000009F'
WRONG NUM EU X'0000005B' X'000000A0'
MON ENV NOT HOME X'0000005C' X'000000A1'
BAD NUM SYS X'0000005D' X'000000A2'
BAD SYSTEM L X'0000005E' X'000000A3'
NO SYSTEM L X'0000005F' X'000000A4'
QUEUE NOT DEFINED X'00000060' X'000000A5'
NO PRIOR SELECT X'00000061' X'000000A6'
NO EXEC ENV X'00000062' X'000000A7'
SECONDARY WORK EXISTS X'00000063' X'000000A8'
ROUTING TABLE EXISTS X'00000064' X'000000A9'

Chapter 9. Messages 5129

KO2O1940E
KO2O1941E • KO2O1948I

DUPLICAT QUEUE X'00000C2A'
TOKEN NOT CURRENT X'00000C2B'
CANNOT ACCESS POLICY X'00000C2C'
BAD PERFORMANCE GROUP X'00000C2D'
WRONG MODE X'00000C2E'
SYSTEM SPACE X'00000C2F'
DUPLICATE JOBS X'00000C30'
WRONG ASID X'00000C31'
NOT ELIGIBLE FOR SRV CLASS X'00000C32'
OTHER SUBSYS REG QUEUE X'00000C33'
NO SELECTION X'00000C34'
NOT SEC AUTH SERV REG X'00000C35'
STRUCTURE UNAVAILABLE X'00000C36'
STRUCTURE FULL X'00000C37'
UP LEVEL OBJECT X'00000C38'
TOO MANY SYSTEMS X'00000C39'
INVALID SUBSYSTEM X'00000C3A'
STOP TASK X'00000C3B'
CONFIG FAILED X'00000C3C'
ENTRY NOT PROCESSED X'00000C3D'
TOO MANY SWITCHES X'00000C3E'
LDE INVALID X'00000F01'
CDE INVALID X'00000F02'
XDE INVALID X'00000F03'
SDE INVALID X'00000F04'
SXDE INVALID X'00000F05'
CDE TABLE INVALID X'00000F06'
CDEX INVALID X'00000F07'

System action: See Workload Manager Services, SA22-7619.

User response: See Workload Manager Services, SA22-7619.

KO2O1941E EXCHANGE LAYER CALL FAILED - RETURN CODE rc

Explanation: An internal inter-program communication error occurred.

System action: Processing terminates.

User response: See KO2O1942E. Contact IBM support.

KO2O1942E EXCHANGE LAYER CALL FAILED - REASON CODE rc

Explanation: An internal inter-program communication error occurred.

System action: Processing terminates.

User response: See KO2O1941E. Contact IBM support.

KO2O1943E FUDA SERVICES LICENSE CHECK FAILED, EXITING (O2INITI)

Explanation: The OM PE FUDA service failed to verify the license during server initialization.

System action: Processing ends. If this message is preceded by message FPEVOI37E, the license is not valid. If not, the security setup might have been done incorrectly.

KO2O1944I SQL PA ANALYSIS INITIATED (OSQPSQPI). REPORT=mmmm PLAN=ppppppp PACKAGE=kkkkkkk

Explanation: An attempted was made to initiate an SQL PA analysis from Active Thread display (panel ZSQL), EDM Snapshot (panel EDDM3), or Near Term history (panel ZHTCALL), but there was no active SQL statement being displayed.

Reports can only be initiated when a current SQL statement is displayed.

User response: None.

KO2O1945I NO ACTIVE SQL STATEMENT TEXT FOUND. REPORT NOT INITIATED. (OSQPSQPI)

Explanation: An attempt was made to initiate an SQL PA analysis from Active Thread display (panel ZSQL), EDM Snapshot (panel EDDM3), or Near Term history (panel ZHTCALL), but there was no active SQL statement being displayed.

User response: None.

KO2O1946I PERFORMANCE WAREHOUSE BUSY OR NOT STARTED. PRESS ENTER TO RETRY REQUEST (SQPSQPI)

Explanation: An attempt was made to initiate a SQL PA analysis from Active Thread display (panel ZSQL), EDM Snapshot (panel EDDM3), or Near Term history (panel ZHTCALL), but the interface could not initiate the request with PWH.

User response: Ensure that PWH is properly configured for SQL PA using the Configuration Tool (formerly ICAT). If PWH has been properly configured, hit Enter to retry the request.

KO2O1947W NO REPORTS FOUND FOR CURRENT USER (O2OSQP)

Explanation: Option V was selected to display a list of SQL PA reports, but no reports were found that either had a creator ID equal to the current user ID or had a scope of Public.

User response: None.

KO2O1948I NO REPORT OUTPUT GENERATED FOR xxxxxxx (O2OSQP)

Explanation: No output was generated for the file selected. xxxxxxx is one of the following: ANLREP, ANLQM, ANLQTRC, ANLELOG, ANLLSQL, or JOBERR.

User response: Except for JOBERR, refer to the appropriate SQL PA documentation for information on how each file is generated. JOBERR is only available when an SQL PA report has a status of FAILED.
KO2O1949E  PERFORMANCE WAREHOUSE
REQUEST FAILED (O2OSQP).

variable message text

Explanation:

ACTION IGNORED. REPORT NOT RUNNING
An attempt was made to cancel a report, but
the report was no longer in RUNNING status.

ACTION IGNORED. REPORT HAS NOT COMPLETED
An attempt was made to view, delete or
modify the scope of a report that has not yet completed.

SQL PA NOT CONFIGURED ON THIS SYSTEM
An attempt was made to initiate an SQL PA
analysis from Active Thread display (panel
ZSQL), EDM Snapshot (panel EDDM3), or
Near Term history (panel ZHTCALL.), but the
interface could not initiate the request with
PWH.

REPORT NOT WITHIN SCOPE
An attempt was made to alter a report by
someone other than the creator of the report.
Only the creator of a report may modify or
delete it.

REQUEST=rrrrrrrr RETURN CODE=xxxxxxxx
REASON CODE=xxxxxxxx
An internal error occurred during processing.

User response:

ACTION IGNORED. REPORT NOT RUNNING
None.

ACTION IGNORED. REPORT HAS NOT COMPLETED
Wait for the report to complete before
performing the action.

SQL PA NOT CONFIGURED ON THIS SYSTEM
Ensure that PWH is properly configured for
SQL PA using the Configuration Tool (formerly
ICAT).

REPORT NOT WITHIN SCOPE
None.

REQUEST=rrrrrrrr RETURN CODE=xxxxxxxx
REASON CODE=xxxxxxxx
Contact IBM support.

KO2O1950E  PWH/CAF SUBTASK FAILURE

Explanation: An internal error occurred during
processing and an SVC dump has been generated.

User response: Contact IBM support.

KO2O1957E  NO ENTRY FOUND FOR IFCID nnnn

Explanation: No entry found for IFCID nnnn, where
nnnn could be 0197.

User response: Contact IBM support.

KO2O1958E  NO DATA ADDRESS FOUND FOR IFCID nnnn

Explanation: No data address found for IFCID nnnn
where nnnn could be 0197.

User response: Contact IBM support.

KO2O1959E  NO DB2 MESSAGE nnnn

Explanation: No DB2 Message nnnn, where nnnn
could be an address or a counter value.

User response: Contact IBM support.

KO2O1961W  Not a Data Sharing Group - G option
not valid

Explanation: In the information line after the DB2
subsystem name G for group mode may only be
entered for subsystems that are members of a data
sharing group.

System action: The field is set to value S for a single
DB2.

User response: Enter group code G only for data
sharing group members.

KO2O1962I  Group mode must be S or G

Explanation: In the information line after the DB2
subsystem name only G for group mode or S for a
single DB2 might be entered.

System action: The field is set to value S for a single
DB2.

User response: Enter group code S or G.

KO2O1963E  OMEGAMON Server subtask
PESERVER not active.

Explanation: The PESERVER subtask is not active. It
might have been stopped during initialization with the
following command:

/F <STC_Name>, P PESERVER

Or the START PESERVER command was not executed,
or it failed.

System action: Monitoring is not available.

User response: Start the PESERVER subtask by using
the following command:

/F <STC_Name>, S PESERVER

Chapter 9. Messages  5131
Ensure that the message FPEV0000I appears during initialization.

KO2O1368E  NEAR-TERM HISTORY DATA COLLECTOR - INVALID RECORD RECEIVED

Explanation: An IFI record with a length longer than expected or zero has been received.
System action: The record is skipped and processing continues with the next record.
User response: None.

KO2O1964I  Backlevel Near-Term History data set(s) detected. Resetting.

Explanation: Near-term history VSAM data sets from a previous version of Near-Term History Data Collector were found. These data sets are not compatible with the current Near-Term History Data Collector.
System action: The near-term history VSAM data sets are cleared and the Near-Term History Data Collector will start.
User response: None.

KO2O1965I  Number of threads displayed truncated, LROWS limit value of mnnn exceeded (source)

Explaination: The number of threads running in DB2 is larger than the LROWS value (mnnn) used. source is the source module returning this message.
System action: The number of DB2 threads is truncated by the collector to adhere to the requested LROWS limit and to avoid long response times. The threads being displayed are in random order as received by the DB2 IFI READS call that is issued by the OMEGAMON Collector PE Server subtask.
User response: Use appropriate filtering to limit the data in the thread summary displays. For example, by specifying a specific plan name (PLAN) or authorization ID (AUTHID) in panel ZFILT, the thread data is filtered in DB2 and only the qualifying threads are shown.

You can retain filter specifications in a user profile, or use an existing profile at logon time by using the "data(user=xx)" logon option, where xx is the profile name. For example, the command logon applid(ipomd2c) data(user=MT,LROWS=500) opens a session that shows up to 500 threads (LROWS=500) and use the user profile "MT" (user=MT). For more information, see the ZFILT panel help.

KO2R - Capture Server messages

KO2R0010E  SERVER PARAMETERS NOT VALID

Explanation: The capture server component could not initialize a server component because of invalid linkage parameters.
System action: The capture server component terminates.
User response: Contact IBM support.

KO2R0011E  CANNOT SET RECOVERY ENVIRONMENT

Explanation: The capture server component could not initialize a server component because of recovery environment errors.
System action: The capture server component terminates.
User response: Contact IBM support.

KO2R0012E  CANNOT SET UP ENVIRONMENT

Explanation: The capture server component could not initialize a server component because of program environment errors.
System action: The capture server component terminates.
User response: Contact IBM support.

KO2R0021U  ENVIRONMENT NOT SUPPORTED

Explanation: The capture server component could not load the indicated module when calling the indicated routine because the operating system environment is not supported.
System action: The capture server component terminates.
User response: Contact IBM support.
KO2R0022U  CANNOT LOAD MODULE module FOR ROUTINE routine

Explanation: The capture server component could not load the indicated module when calling the indicated routine because the load module was not found.

System action: The capture server component terminates.

User response: Contact IBM support.

KO2R0023U  CANNOT INITIALIZE LOAD MODULE module FOR ROUTINE routine

Explanation: The capture server component detected an initialization error in the indicated module when calling the indicated routine.

System action: The capture server component terminates.

User response: Contact IBM support.

KO2R0024U  VECTORS NOT SET BY INITIALIZATION PROGRAM module FOR ROUTINE routine

Explanation: The capture server component detected an initialization error for the indicated module when calling the indicated routine. The program vectors were not correctly set by the initialization routine.

System action: The capture server component terminates.

User response: Contact IBM support.

KO2R0100I  DRIVER INITIALIZED

Explanation: The capture server component is initialized.

System action: Processing continues.

User response: None.

KO2R0101E  DRIVER INIT FAILED - RS reason1 RI reason2 LR return

Explanation: The capture server initialization request failed.

RS reason1
Reason code.

RI reason2
Additional reason information.

LR return
Lower routine return code.

System action: Processing terminates.

User response: None.

KO2R0102I  DRIVER TERMINATED

Explanation: The capture server component has terminated.

System action: Processing terminates.

User response: None.

KO2R0103E  DRIVER TERM FAILED - RS reason1 RI reason2 LR return

Explanation: The capture server termination request could not terminate normally.

RS reason1
Reason code.

RI reason2
Additional reason information.

LR return
Lower routine return code.

System action: Processing terminates.

User response: Contact IBM support.

KO2R0104W  SET NOT STARTED - set name

Explanation: The capture server start request failed for the indicated set name for one of the following reasons:

SET NOT FOUND
The indicated capture container set name was not found.

SET ALREADY STARTED
The indicated capture container set name was already started.

System action: Processing continues.

User response: None.

KO2R0105I  SET STARTED - set name connect id

Explanation: The capture server start request is completed for the indicated SET name and connect ID.

System action: Processing continues.

User response: None.

KO2R0107I  SET STOPPED - set name connect id

Explanation: The capture server resources for the indicated SET name and connect ID have been released/stopped.

System action: Processing continues.

User response: None.

KO2R0108W  SET NOT STARTED (NO CONTAINERS STARTED) - set name connect id

Explanation: The capture server resources for the
indicated SET name and connect ID were not allocated/started.

**System action:** Processing continues.

**User response:** None.

---

KO2R0109W SET STARTED (ONE OR MORE CONTAINERS NOT STARTED) - set name connect id

**Explanation:** The capture server resources for the indicated SET name and connect ID were not completely allocated/started.

**System action:** Processing continues.

**User response:** None.

---

KO2R0110E SET TERMINATION FAILED - set name connect id

**Explanation:** The capture server resources for the indicated SET name and connect ID could not be successfully terminated.

**System action:** Processing terminates.

**User response:** None.

---

KO2R0111W SET NOT STARTED (NO DATA AVAILABLE) - set name connect id

**Explanation:** The capture server resources for the indicated SET name and connect ID were started for Read access, but there was no capture data available.

**System action:** Processing continues.

**User response:** None.

---

KO2R0121I FORMAT STARTED FOR DATA SET - Data Set Name

**Explanation:** A new linear data set is formatted so it can be used by the Near Term History collector.

---

KO2R0120E NO OUTPUT DATA SETS AVAILABLE FOR CONTAINER name

**Explanation:** The capture server has detected that no capture output data sets are available for the indicated container.

**System action:** Processing continues.

**User response:** Verify that archival jobs have been completed for all full capture data sets.

---

KO2R0121W CONTAINER NOT STARTED FOR name - reason

**Explanation:** The capture server could not start the indicated container for one of the following reasons:

---

KO2R0109W

**Explanation:** The capture server resources for the indicated SET name and connect ID were not allocated/started.

**System action:** Processing continues.

**User response:** None.

---

KO2R0110E

**Explanation:** The capture server resources for the indicated SET name and connect ID could not be successfully terminated.

**System action:** Processing terminates.

**User response:** None.

---

KO2R0111W

**Explanation:** The capture server resources for the indicated SET name and connect ID were started for Read access, but there was no capture data available.

**System action:** Processing continues.

**User response:** None.

---

KO2R0123E START FAILED FOR DATA SET dsname - reason

**Explanation:** The capture server could not start the indicated capture data set for one of the following reasons:

**ALLOCATION FAILED return code**

- The indicated data set could not be dynamically allocated.

**NOT AUTHORIZED FOR UPDATE**

- The user does not have Update access to the data set.

**NOT AUTHORIZED FOR READ**

- The user does not have Read access to the data set.

**OPEN FAILED - CHECK DS TYPE**

- The data set may not be a linear data set; check the data set organization type.

**DATA SET IS NOT LINEAR**

- The capture data set is not a linear data set.

**PRIMARY EXTEND IS TOO SMALL**

- The capture data set is a linear data set; however the indexes and data portions could not be built.

**DIV ERROR return code reason code**

- Data-in-virtual request failed with the indicated return and reason codes.

**DATA SET IS ALREADY IN USE**

- An attempt to start the data set for Update access failed because the data set is already being used for Update access.

**System action:** The start request is terminated.

**User response:** Perform the action that corresponds to the indicated reason:

**ALLOCATION FAILED return code**

- Correct the data set name, and restart the capture server.

**NOT AUTHORIZED FOR UPDATE**

- Verify that the proper authority is given to the data set.

**NOT AUTHORIZED FOR READ**

- Verify that the proper authority is given to the data set.
OPEN FAILED - CHECK DS TYPE
Check the data set organization; the data set must be defined as a linear VSAM data set.

DATA SET IS NOT LINEAR
Specify the name of a linear data set, and restart the capture server.

PRIMARY EXTEND IS TOO SMALL
Use a larger data set.

DIV ERROR return code reason code
Verify that the data set is a linear VSAM data set. If it is, contact IBM support. Otherwise, redefine the data set as a linear data set.

DATA SET IS ALREADY IN USE
Verify that the data set is correctly being used by the capture server.

KO2R0124W WARNING FOR DATA SET dsname - 3390 TRK SIZE USED device type
Explanation: The capture server started the data set, but the data set is on an unknown device type. This may cause a performance degradation.
System action: Processing continues.
User response: Contact IBM support.

KO2R0125W STOP FAILED FOR DATA SET dsname - reason
Explanation: The capture server could not successfully stop the indicated data set for one of the following reasons:
DEALLOC FAILED return code
The dynamic deallocation failed.
DIV ERROR return code reason code
Data-in-virtual request failed with the indicated return and reason codes.
System action: Processing continues, but all resources for the data set may not be released.
User response: Contact IBM support.

KO2R0126W VALIDATE FAILED FOR DATA SET dsname - reason
Explanation: The capture server could not successfully validate the indicated capture data set for one of the following reasons:
DUPLICATE VALIDATION TIME
A duplicate validation time exists. This may be the result of a duplicate data set. The data set can be archived; the data set is not available for interactive retrieval.
XID# IS OUT OF SYNC
The internal index directory XID# is not synchronized with the control block XCI#. This may be the result of a system outage. The data set can be archived; the data set is not available for interactive retrieval.
XIB# IS OUT OF SYNC
The current index block XIB# is not synchronized with the control block XCI#. This may be the result of a system outage. The data set can be archived; the data set is not available for interactive retrieval.

KO2R0127E FORMAT FAILED FOR DATA SET dsname - PRIMARY EXTENT IS TOO SMALL
Explanation: The capture server could not format the capture data set dsname because the primary extent is below the minimum size.
System action: Processing terminates; the data set is not used.
User response: Redefine the capture data set with a primary size of at least 3 cylinders, 45 tracks, or 370K, and restart the capture server.

KO2R0128I CAPTURING OUTPUT ON DATA SET dsname
Explanation: The capture server has selected the indicated capture data set for output.
System action: Processing continues.
User response: None.

KO2R0129I CAPTURE DATA SET HAS BEEN RESET FOR REUSE - dsname
Explanation: The capture server has reset the indicated capture data set for reuse.
KO2R0130E  •  KO2R0142W

System action: Processing continues.
User response: None.

KO2R0130E  DUPLICATE OBJECT ON DATA SET
dsnamedsn - object version

Explanation: The capture server has detected that the capture data set has a duplicate object and version that exists in other data sets, but the data description does not match all other capture data sets.
System action: Processing continues.
User response: None.

KO2R0131E  VERSION OF CAPTURE DATA SET
NOT SUPPORTED - DATA SET version1
CAPTURE version2

Explanation: The capture server has detected that the capture data set was created, but it is at an unsupported version. The format version of the capture data set is version1; the latest version supported by the current capture module is version2.
System action: Processing continues.
User response: Contact IBM support.

KO2R0132W  CAPTURING OUTPUT ON LAST
AVAILABLE DATA SET FOR
CONTAINER name

Explanation: The capture server is capturing output on the last available data set.
System action: Processing continues.
User response: None.

KO2R0133I  CAPTURE DATA SET IS REUSABLE -
dsnamedsn

Explanation: The capture server has detected that the indicated capture data set is now reusable.
System action: Processing continues.
User response: None.

KO2R0134E  VSAM OBJECT DEFINITION
CHANGED. PLEASE R-ECREATE
VSAM DATASET(S). RC=12

Explanation: The VSAM object definition has changed after installation of PTF UK26200.
System action: Processing continues.
User response: Re-create H2 VSAM data sets by using the sample JCL described in the README file accompanying the PTF.

KO2R0135E  CAPTURE OPEN OBJECT FAILURE -
RC=retcode, msgText

Explanation: An internal error occurred.
System action: An SVC dump was generated.
User response: Send the SVC dump with retcode and msgText to IBM support center.

KO2R0140W  SWITCHING FROM DATA SET dsnamedsn
- reason

Explanation: The capture server is switching from the indicated capture data set for one of the following reasons:
DATA SET IS FULL
The capture data set cannot be extended.
OBJECT DIRECTORY IS FULL
No more objects can be contained in the data set.
INDEX DIRECTORY IS FULL
All usable space in the index directory blocks are used.
USER REQUEST
A dynamic request for switch has been requested.
System action: Processing continues.
User response: Perform the action that corresponds to the indicated reason:
DATA SET IS FULL
None.
OBJECT DIRECTORY IS FULL
Contact IBM support.
INDEX DIRECTORY IS FULL
None.
USER REQUEST
None.

KO2R0141W  SWITCH IS REJECTED. CAPTURE
SERVER IS TERMINATING

Explanation: The capture server switch request was rejected because the capture server is terminating.
System action: Processing continues.
User response: None.

KO2R0142W  USER SWITCH REQUEST REJECTED.
NOT CURRENTLY CAPTURING
OUTPUT TO CONTAINER name

Explanation: The capture server user switch request was rejected because the capture server is not currently capturing output for the indicated container.
System action: Processing continues.
User response: None.
KO2R0143W USER SWITCH REQUEST REJECTED.
CURRENT OUTPUT DATA SET IS EMPTY FOR CONTAINER name

Explanation: The capture server user switch request was rejected because the current capture data set is empty.
System action: Processing continues.
User response: Stop the capture server if the data set must be deallocated.

KO2R0200E DIV I/O ERROR. DATA SET dsname.
DIV ERROR return code reason code

Explanation: Data-in-virtual request failed with the indicated return and reason codes.
System action: Processing terminates.
User response: Contact IBM support.

KO2R0201E CAPTURE DATA SET TRUNCATED.
S0C1 ABEND IN PROGRESS. SAVE THE DUMP AND CALL IBM SUPPORT

Explanation: Internal error.
System action: Processing terminates.
User response: Contact IBM support.

KO2R0900E ERROR DETECTED BY module Sxxxx
   Uuuuu RC=yyyyyyyy PSW=pppppppp pppppppp AT routine +offset level

Explanation: An abend has been detected by a capture server component.
module Module affected.
Sxxxx System abend code.
Uuuuu User abend code.
RC=yyyyyyyy Reason code.
AT routine +offset Module in error and its offset.
level Maintenance level of the module in error.
System action: Processing terminates.
User response: Contact IBM support.

KO2R1142E VSAM ERROR: n ON m RETURN CODE=rc REASON CODE=rs FDBK=ax

Explanation: The capture server could not write on the VSAM data set.
System action: Processing terminates.
User response: None.

KO2R1146E ALLOCATION FAILED, DSN: dsname
   REASON CODE: rs

Explanation: The dynamic allocation of the named data set failed. The supervisor call instruction (SVC) 99 returned with the named reason code.
System action: Processing terminates.
User response: See MVS Messages and Codes for more information.

KO2R1147E ATF CAPTURE ERROR: n ON m
   RETURN=rc REASON=rs INFO=info

Explanation: The capture server could not write on the VSAM data set.
System action: Processing terminates.
User response: None.

KO2R1150I NUMBER OF TRACE RECORDS WRITTEN: n

Explanation: The Application Trace Facility (ATF) successfully wrote n trace records.
System action: None.
User response: None.

KO2R1151I NUMBER OF UOW RECORDS WRITTEN: n

Explanation: The Application Trace Facility (ATF) successfully wrote n Unit of Work (UOW) records.
System action: None.
User response: None.

KO2R1152I NUMBER OF TRACE RECS LOST DUE TO VSAM TASK: n

Explanation: The Application Trace Facility (ATF) lost n trace records produced by DB2 because of high volume.
System action: None.
User response: Use selection criteria that restrict the volume of records to be captured by the ATF.

KO2R1153I NUMBER OF UOW RECS LOST DUE TO VSAM TASK: n

Explanation: The Application Trace Facility (ATF) lost n Unit of Work (UOW) records because of high volume UOWs in DB2.
System action: None.
User response: Use selection criteria that restrict the volume of records to be captured by the ATF.

Chapter 9. Messages  5137
NUMBER OF TRACE RECS LOST DUE TO IFCARLC: n

Explanation: Data loss occurs when the buffer fills before the monitor program can obtain the data. DB2 does not wait for the buffer to be emptied, but, instead, informs the monitor program on the next READA request (in the IFCARLC field of the IFCA) that the data has been lost.

System action: None.

User response: Have a high enough dispatching priority that the application can be posted and then issue the READA request before significant data is lost.

DSN USED FOR CAPTURE: dname

Explanation: A user has captured an application trace to data set dname.

System action: The trace is completed.

User response: None.

Capture Server Failure - Invalid start or end times

Explanation: A near-term history record that was being written did not pass the date validity checks. The thread start or end date was zero, or the end data was greater than the start date.

System action: The record is skipped and not written to the near-term history data set and processing continues with the next record.

User response: None.

Capture object open failure - Description mismatch. Redefine file

Explanation: Near-term history files were created by a previous maintenance level of OMEGAMON. The VSAM files must be deleted and redefined.

System action: The Near-Term History Data Collector terminates.

User response: Redefine the VSAM files.

Capture object open failure - Server terminating

Explanation: The Near-Term History Data Collector has terminated.

System action: The Near-Term History Data Collector terminates.

User response: Contact IBM support.
KO2R244E  Capture server failure - Invalid area length parameter
Explanation: The Near-Term History Data Collector has detected an invalid length.
System action: The Near-Term History Data Collector skips processing this request. A dump is produced.
User response: Contact IBM support.

KO2R245E  Capture server failure - No user buffers
Explanation: The Near-Term History Data Collector has terminated.
System action: The Near-Term History Data Collector terminates.
User response: Contact IBM support.

KO2R246E  Capture server failure - Invalid access path not open for input
Explanation: The Near-Term History Data Collector has detected a record with an invalid time.
System action: The Near-Term History Data Collector skips processing this record. A dump is produced.
User response: Contact IBM support.

KO2R247E  Capture server failure - Invalid start or end times
Explanation: The Near-Term History Data Collector has terminated.
System action: The Near-Term History Data Collector terminates.
User response: Contact IBM support.

KO2R248E  Capture server failure - I/O errors encountered on data
Explanation: The Near-Term History Data Collector has terminated.
System action: The Near-Term History Data Collector terminates.
User response: Contact IBM support.

KO2R249E  Capture server failure - Invalid argument list detected
Explanation: The Near-Term History Data Collector has terminated.
System action: The Near-Term History Data Collector terminates.
User response: Contact IBM support.

KO2R250E  Capture server failure - Cannot obtain retrieve buffer
Explanation: The Near-Term History Data Collector has terminated.
System action: The Near-Term History Data Collector terminates.
User response: Contact IBM support.

KO2R251E  Capture server failure - Invalid sequence return area
Explanation: The Near-Term History Data Collector has terminated.
System action: The Near-Term History Data Collector terminates.
User response: Contact IBM support.

KO2R252E  Capture server failure - Invalid data return area
Explanation: The Near-Term History Data Collector has terminated.
System action: The Near-Term History Data Collector terminates.
User response: Contact IBM support.

KO2R253E  Capture server failure - Invalid qualify subtype
Explanation: The Near-Term History Data Collector has terminated.
System action: The Near-Term History Data Collector terminates.
User response: Contact IBM support.

KO2R254E  Capture server failure - Invalid path type for request not open for output
Explanation: The Near-Term History Data Collector has terminated.
System action: The Near-Term History Data Collector terminates.
User response: Contact IBM support.

KO2R255E  Capture server failure - User request abended
Explanation: The Near-Term History Data Collector has terminated.
System action: The Near-Term History Data Collector terminates.
User response: Contact IBM support.
KO2R256E - Capture server failure - Disconnect failed. Already disconnected

Explanation: The Near-Term History Data Collector has terminated.

System action: The Near-Term History Data Collector terminates.

User response: Contact IBM support.

KO2R257E - Capture server failure - Primary path failed to close

Explanation: The Near-Term History Data Collector has terminated.

System action: The Near-Term History Data Collector terminates.

User response: Contact IBM support.

KO2R258E - Capture server failure - Unable to obtain argument list area

Explanation: The Near-Term History Data Collector has terminated.

System action: The Near-Term History Data Collector terminates.

User response: Contact IBM support.

KO2R259E - Capture server failure - Invalid maximum record parameter

Explanation: The Near-Term History Data Collector has terminated.

System action: The Near-Term History Data Collector terminates.

User response: Contact IBM support.

KO2R260E - Capture server failure - Invalid object return area

Explanation: The Near-Term History Data Collector has terminated.

System action: The Near-Term History Data Collector terminates.

User response: Contact IBM support.

KO2R261E - Capture server failure - Invalid version return area

Explanation: The Near-Term History Data Collector has terminated.

System action: The Near-Term History Data Collector terminates.

User response: Contact IBM support.

KO2R262E - Capture server failure - Invalid request type

Explanation: The Near-Term History Data Collector has terminated.

System action: The Near-Term History Data Collector terminates.

User response: Contact IBM support.

KO2S - Storage Manager messages

KO2S0500E - OSNP SDUMPX Failure. RC: XXXXXXXX

Explanation: The SDUMPx service request failed. The SDUMPx macro return codes and reason codes are documented in the z/OS MVS Programming: Authorized Service Manuals.

For example:
RC: 00000608
Return code: X'08'
Reason code: X'0B'

The SDUMPx macro FAILRC parameter is specified.

System action: The SVCDUMP is not generated.

User response: Investigate the reason for the abend. Contact IBM Support to report the problem.

KO2S0501E - GCAM Primary-Level Name/Token pair CREATE failure. RC: XXXXXXXX

Explanation: A Create Name/Token Pair failure occurred during a primary-level name/token request.

System action: The OMPE subtask terminates with abend code S0C3.

User response: Contact IBM support.

KO2S0503I - GCAM primary-level Name/Token pair created.

Explanation: A Create Name/Token Pair request for a primary-level name/token pair was successful.

User response: None.

KO2S0504E - GCAM primary-level Name/Token RETRIEVE failure. RC: XXXXXXXX

Explanation: A Retrieve Name/Token Pair failure occurred for a primary-level name/token pair request.

System action: The OMPE subtask terminates with abend code S0C3.

User response: Contact IBM support.
KO2S0505E  GCAM primary-level Name/Token
DELETE failure. RC: XXXXXXX

Explanation: A Delete Name/Token Pair failure occurred for a primary-level name/token pair request.

System action: The OMPE subtask terminates with abend code S0C3.

User response: Contact IBM support.

KO2S0506E  GCAM Primary-Level Name/Token request failure

Explanation: The Name/Token request is invalid.

System action: The OMPE subtask terminates with abend code S0C3.

User response: Contact IBM support.

KO2S0507I  GCAM Primary-Level Name/Token pair deleted.

Explanation: The Delete Name/Token Pair request was successful.

User response: None.

KO2S0508E  OSNP LMOD: xxxxxxx, CSECT: xxxxxxx, OFFSET: xxxxxx

Explanation: The SDUMPx service request failed for the specified symptom record. Review message KO2S0500E.

System action: The SVCDUMP is not generated.

User response: Contact IBM support.

KO2S0509E  SDMP LMOD: xxxxxxx, CSECT: xxxxxxx, OFFSET: xxxxxx

Explanation: The SDUMPx service request failed for the specified symptom record. Review message KO2S0500E.

System action: The SVCDUMP is not generated.

User response: Contact IBM support.

KO2S0510I  DSPM Dataspace XXXXXXX created

Explanation: The indicated data space was successfully created.

User response: None.

KO2S0511E  DSPM DSPSERV Request Failure. (SCOPE = COMMON ) RC: XXXXXXX

Explanation: A DSPSERV CREATE failure occurred for a SCOPE=Common data space request.

System action: The OMPE subtask terminates with abend code S0C3.

User response: Contact IBM support.

KO2S0512E  DSPM DSPSERV Request Failure. (SCOPE = ALL) RC: XXXXXXX

Explanation: A DSPSERV CREATE failure occurred for a SCOPE=ALL data space request.

System action: The OMPE subtask terminates with abend code S0C3.

User response: Contact IBM support.

KO2S0513E  DSPM DSPSERV Request Failure. (SCOPE = SINGLE) RC: XXXXXXX

Explanation: A DSPSERV CREATE failure occurred for a SCOPE=SINGLE data space request.

System action: The OMPE subtask terminates with abend code S0C3.

User response: Contact IBM support.

KO2S0514E  DSPM ALESERV PASN-AL ADD Failure. RC: XXXXXXX

Explanation: An ALESERV ADD failure occurred for a PASN-AL request.

System action: The OMPE subtask terminates with abend code S0C3.

User response: Contact IBM support.

KO2S0515E  DSPM ALESERV DU-AL ADD Failure. RC: XXXXXXX

Explanation: An ALESERV ADD failure occurred for a DU-AL request.

System action: The OMPE subtask terminates with abend code S0C3.

User response: Contact IBM support.

KO2S0516I  DSPM Dataspace XXXXXXXX deleted

Explanation: The indicated data space was successfully deleted.

User response: None.

KO2S0517E  DSPM DSPSERV XXXXXXXX DELETE Failure. RC: XXXXXXX

Explanation: A DSPSERV DELETE failure occurred for the indicated data space.

System action: The OMPE subtask terminates with abend code S0C3.

User response: Contact IBM support.
KO2S0518I  DSPM Dataspace Xxxxxxxxx added to PASN-AL
Explanation: The indicated data space was successfully added to the PASN-AL.
User response: None.

KO2S0519I  DSPM Dataspace Xxxxxxxxx added to DU-AL
Explanation: The indicated data space was successfully added to the DU-AL.
User response: None.

KO2S0520E  DSPM Dataspace Xxxxxxxxx access list DELETE Failure. RC: Xxxxxxxxx
Explanation: A ALESERV DELETE failure occurred for the indicated data space.
System action: The OMPE subtask terminates with abend code S0C3.
User response: Contact IBM support.

KO2S0522E  DSPM TCBTOKEN Service failures. RC: Xxxxxxxxx
Explanation: A TCBTOKEN failure occurred for the TYPE=JOBSTEP request.
System action: The OMPE subtask terminates with abend code S0C3.
User response: Contact IBM support.

KO2S0523I  LTCH Latch Set created.
Explanation: The request to create a set of latches was successful.
User response: None.

KO2S0524I  LTCH Latch Set previously defined.
Explanation: A Latch Create request was previously defined.
System action: None.
User response: None.

KO2S0525E  LTCH Latch Set CREATE Failure. RC: Xxxxxxxxx
Explanation: The request to create a set of latches failed.
System action: The OMPE subtask terminates with abend code S0C3.
User response: Contact IBM support.

KO2S0526E  LTCH Latch Set OBTAIN Failure. RC: Xxxxxxxxx
Explanation: The request to obtain a set of latches failed.
System action: The OMPE subtask terminates with abend code S0C3.
User response: Contact IBM support.

KO2S0527E  LTCH Latch Set RELEASE Failure. RC: Xxxxxxxxx
Explanation: The request to release a set of latches failed.
System action: The OMPE subtask terminates with abend code S0C3.
User response: Contact IBM support.

KO2S0528E  LTCH Latch Set PURGE Failure. RC: Xxxxxxxxx
Explanation: The request to purge a set of latches failed.
System action: The OMPE subtask terminates with abend code S0C3.
User response: Contact IBM support.

KO2S0529I  LTCH Latch Set purged.
Explanation: The request to purge a set of latches was successful.
User response: None.

KO2S0530I  SDMP SDUMPX Failure. RC: Xxxxxxxxx
Explanation: The SDUMPx service request failed.
System action: The SVCDUMP is not generated.
User response: Contact IBM support.

KO2S0551E  SDMP Latch Services OBTAIN Failure. RC: Xxxxxxxxx
Explanation: The request to obtain a set of latches failed.
System action: The OMPE subtask terminates with abend code S0C3.
User response: Contact IBM support.
KO2S0552E  SDMP Latch Services RELEASE Failure.
   RC: XXXXXXXX

Explanation: The request to release a set of latches failed.

System action: The OMPE subtask terminates with abend code S0C3.

User response: Contact IBM support.

KO2S0553E  IFI INITIALIZATION FAILURE. TCB: <V1> DB2: <V2> RC: <V3>

Explanation: An error occurred during the IFI initialization process.

System action: Processing continues, but IFI processing for the indicated DB2 subsystem is terminated.

User response: Contact IBM support.

KO2S0554E  IFI EXCHANGE LAYER REQUEST FAILURE. TCB: <V1> DB2: <V2> RC: <V3>

Explanation: An error occurred during the IFI Exchange Layer process.

System action: Processing continues, but IFICID data will not be available, and the symptoms might persist for the indicated DB2 subsystem.

User response: Contact IBM support.

KO2S0555E  IFI FUDA REQUEST FAILURE. TCB: <V1> DB2: <V2> RC: <V3>

Explanation: An error occurred during the IFI FUDA Service process.

System action: Processing continues, but IFI processing for the indicated DB2 subsystem is terminated.

User response: Contact IBM support.

KO2S0556I  CIFIMODE=IRB REQUEST BYPASSED.
   TCB: <V1> DB2: <V2>

Explanation: The DB2 subsystem ID is not recognized.

System action: Processing continues, but IFI processing for the indicated DB2 subsystem is bypassed.

User response: None.

KO2S0557I  CIFIMODE=IRB TARGET TCB: <V1>
   DB2: <V2>

Explanation: For information only.

System action: None.

User response: None.

KO2S0558E  OSNP SDUMPx Failure.

Explanation: A SDUMP(x) request failed. Message KO2S0500E contains the corresponding return code and reason code.

There is a large number of reasons why the SDUMP(x) request failed. The following list contains some of the most common reasons and explanations:

X'02' – Dump in Progress
   On this system, another SVC dump is currently in the capture phase.

X'03' – CHNGDUMP Suppress
   In a CHNGDUMP operator command, DUMP=NO is specified to suppress the taking of dumps.

X'04' – SLIP NODUMP
   For this ABEND CODE, a SLIP trap indicates that the dump is to be suppressed.

X'0B' – DAE Suppress
   The dump is suppressed by MVS DAE.

X'3E' – MAXSPACE Exceeded
   The maximum amount of storage for dump captures exceeded. You might want to increase the value for the CHNGDUMP option MAXDUMP.

X'46' – AUX Storage Exceeded
   The MVS threshold of available auxiliary storage exceeded. All dumps are suppressed until more than 35% of system wide AUX storage is available.

System action: The SDUMP(x) dump request failed.

User response: Check the messages for the reason why the request might have failed and consider the appropriate actions.

KO2X - Cross-Memory Module messages

KO2X0450I  Initializing Common Services

Explanation: An informational message.

KO2X0452I  Terminating Common Services

Explanation: An informational message.
KO2X0453I • KO2X0455S

KO2X0453I  UNSUBSCRIBING COMMON SERVICES
Explanation: An informational message.

KO2X0455S  COMMON SERVICES INITIALIZATION FAILED
Explanation: A fatal error has occurred.
User response: Contact IBM support.

KO2X0454I  COMMON SERVICES PARTIALLY TERMINATED
Explanation: An informational message.

KO2Z - OMEGAMON PE Subsystem messages

KO2Z abend codes

KO2Z messages might be accompanied by the following abend codes:

Abend code

U2008  The current OMPE subsystem function terminated abnormally. Locate message KO2Z999E in the SYSLOG or OMPE Server job log to identify the reason code associated with this failure.

KO2Z return codes

KO2Z messages might be accompanied by the following return codes:

Return code

0000  Request successful.
0004  OMEGAMON XE for DB2 PE return code.
0008  Subsystem function failed.
0012  Request terminated abnormally.
0016  Unexpected ABEND occurred
0020  Internal failure occurred
0028  OMPE Collector request failed.
0256  OMPE/XCF failure occurred

KO2Z reason codes

KO2Z messages might be accompanied by the following reason codes:

Reason code

0000  Successfully completed.
0004  Invalid subsystem name specified.
0008  OMPECT structure not found in system-level name/token pair.
0011  OMPECT validity check error.
0016  OMPE subsystem failed.
0020  OMPE subsystem is inactive.
0024  Mutually exclusive INITPARM parameters specified.
0028  One or more INITPARM parameters are not valid.
0032  Module OMPELIB cannot open the TKANMOD library.
0036  ECSA storage obtain error.
0040  Dynamic allocation error trying to allocate data set specified in INITPARM parameter DSN=name.
0044  Incorrect input parameter string specified with the VARY OMPE,REFRESH command request.
0048  OMPEMG/LINKAGE=PC must be called within the OMPE Collector address space.
0052  JCL parameter data not specified with the utility PARM= JCL keyword.
0056  Invalid F/MODIFY command input specified.
0060  GXL/GXE global structure update failed.
0064  OMPECT control structure ECSA virtual storage obtain error.
0068  Refresh processing architecture error detected.
0072  Utility command not allowed from TSO/E session.
0076  The XCF main task abnormally terminated. Check the OMPE Server job log for error messages in support of this failure.
0080  RKD2PAR parameter data set RDJFCB error detected.
0084  RKD2PAR parameter data set Open error detected.
0088  The I/O read routine could not find the specified member.
0092  The I/O routine could not obtain virtual storage for a READ request.
0096  Could not find enough virtual storage to read member data.
0100  Member data record insert overflow error detected.
0104  Ddname/DSName function error detected by initialization routine.
0108  No input records found in the specified set member.
0112  Could not identify the XCF component main XCFCT control structure. Structure has been overlaid.
0116  XCF main task could not create, delete, or retrieve the home-level name/token pair.
0120  XCF resource manager abnormally terminated.
0124  XCF member query function abnormally terminated.
0128  XCF member Receive request abnormally terminated.
0132  Parse routine found no record data to process.
0136  Parse routine detected an unrecognized record.
0140  Parse routine detected an unrecognized subrecord.
0144  The specified input member was not found in the specified data set.
0148  Read routine SYNAD error was detected.
0152  Unsupported member was specified as input member name.
0156  DDN or DSN INITPARM parameter not specified.
0160  Parse entry structure error has been detected.
0164  SVC call caused an abend because ALLOW(NO) was specified.
0168 INITPARM LIB=DSName DYNALLOC allocation error.
0172 INITPARM LIB=DSName data set Open error.
0176 INITPARM LIB=DSName load module LOAD error.
0180 INITPARM LIB=DSName E/CSA storage obtain error.
0184 OMPE/XCF status routine abnormally terminated.
0188 OMPE/XCF failed to successfully create a required data space.
0192 OMPE/XCF XSRE failed validity checks.
0196 UCM function detected an invalid input request.
0200 The subsystem initialization routine could not obtain ECSA storage for the diagnostic work area buffers.
0204 The global virtual storage list (GSL) is not currently initialized.
0208 Incorrect global virtual store list element was specified with a storage release request.
0212 Incorrect SSCT control block was processed by the global virtual storage list (GSL) component.
0216 Invalid common subpool number was received by the global virtual storage (GSL) component.
0220 Loop detected while executing a subsystem interface (SSI) subsystem routine.
0224 An operator command interface storage obtain error was detected.
0228 Loop detected while executing an EOT broadcast function request.
0232 Loop detected while executing an EOM broadcast function request.
0236 Loop detected while executing a WTO broadcast function request.
0240 OMPECT control structure ESQA storage obtain error.
0244 Loop detected by the subsystem initialization routine running in the MSAS address space.
0248 Invalid parameter list supplied to the common message WTO processing routine.
0252 Undefined message ID was passed as input to the WTO macro.
0256 Internal error while processing the subsystem WTO message table repository.
0260 Undefined segment error processing a subsystem WTO message request.
0264 Invalid global virtual storage structure (GSL) detected.
0268 Invalid ASCB(FREE=EOM) global virtual storage request was specified.
0272 Invalid TCB (FREE=EOT) global virtual storage request was specified.
0276 The global virtual storage list component detected that the GSL structure is not initialized.
0280 A utility request was made against a subsystem that is not currently initialized.
0284 No data was found to display for the specified command.
A subsystem request was issued against a subsystem release that does not match the current environment.

The OMPE subsystem could not initialize the ESVT control structure.

The OMPE subsystem module loader routine abnormally terminated.

The OMPE cross-memory initialization routine abnormally terminated.

The OMPE subsystem loader routine could not obtain ECSA virtual storage required for commonly loaded load modules.

The OMPE subsystem could not locate the OMVT vector table.

The OMPE subsystem loader routine could not obtain ESQA virtual storage for the CDE/XTLST control blocks.

IRB timer service error. The common IRB routine abnormally terminated.

IRB ABTERM post error. The common IRB routine was abnormally terminated while waiting for a request to complete.

Subsystem module OMPECIU abnormally terminated.

Subsystem module OMPERFC abnormally terminated.

Subsystem module OMPERFR abnormally terminated.

Subsystem module OMPERFS abnormally terminated.

Invalid PARM= JCL initialization values specified.

Subsystem module OMPESVS abnormally terminated.

Subsystem module OMPESVS abnormally terminated.

Subsystem module OMPEIVT abnormally terminated.

Message processing routine loop detected error.

A subsystem Refresh request did not complete.

An invalid OMPE subsystem name was specified by a utility function.

The requested task to be attached by the Attach service request failed while processing in IRB mode.

Lock manager routine abnormally terminated.

IXCQUERY failed to obtain a buffer large enough to hold group member data.

IXCQUERY group NO_MEMBER service request call failed.

IXCQUERY group NO_MEMBER service request found no member records in QUAH#REC field.

Group user SRB exit routine abnormally terminated.

Member XMEM entry dequeue routine abnormally terminated.

Module OMPEXDQ XMEM loop detected. The service request abnormally terminated.

Module OMPEXDB XMEM loop detected. Service request abnormally terminated.

Module OMPEXRB Receive request failed to validate the input parameters supplied by the OMPEXRE request SRB routine.
Module OMPEXRB could not load the module specified in the CALL= operand of the Send service request.

The routine specified on the CALL= operand of the Send service request returned a non-zero return code.

The routine specified on the CALL= operand of the Send service request abnormally terminated.

Routine OMPEXRE failed to add the XCF data space to the DU-AL access list.

Routine OMPEXRE failed to receive the XCF response data via the IXCMSGI XCF service request.

The main XCF OMPEXCF Receive routine abnormally terminated. XCF Receive services are no longer available.

The main OMPEXCF task failed to load the driver function load modules.

The OMPEXRM resource termination manager terminated abnormally.

OMPETOP job step task abended referencing the OMPECT control table.

OMPE/XCB function failed while validity checking control structures.

OMPE/XCF IRB routine abnormally terminated.

OMPE/XCF dispatcher abnormally terminated.

OMPE/XCF dispatcher was entered without the LOCAL lock held.

OMPE/XCF dispatcher failed to locate a dispatchable TCB.

The Attach driver routine detected an invalid task ATTACH count.

The Attach driver failed to obtain the required virtual storage buffers.

OMPE/XCF dispatcher failed to locate a valid XRRD dispatcher entry.

OMPETOP job step task failed to locate the subsystem control table.

OMPE/XCF receive routine could not locate sending XMEM status entry.

OMPE/XCF receive routine detected a XMEM queue loop condition.

OMPE/XCF receive routine could not identify the correct Receive request.

OMPE/XCF receive routine failed validity checking XSRE and XRDE structures.

OMPE/XCF dispatcher could not retrieve a dispatcher token.

OMPE/XCF dispatcher failed control structures validity checks.

OMPETOP initialization failed server verification checks.

OMPETOP APF-authorization check error detected.

OMPE/XCF resource manager failed due to unknown function code.

OMPETOP failed to create/retrieve home type name token pair.

OMPEOPT detected an invalid user option address.

OMPEOPT detected an invalid user options table.

OMPEOPT failed while validity checking user options table.

OMPEOPT found zero user option table entries defined.

OMPEOPT specified user option not found in user options table.
OMPETOP could not match a subsystem name to server name.

Virtual storage test protection service abnormally terminated.

IRB service schedule failed to respond with completion indicator.

Event notification cell pool build request failed.

General I/O manager detected that the output buffer is too small to handle the request.

General I/O manager failed to validity check the supplied buffer address.

General I/O manager failed the request due to PSW storage key mismatch.

Initialization failed to locate the system-level subsystem name/token pair

Common PC routine received invalid input parameters

Linkage stack storage key authorization error.

Linkage stack storage subpool authorization error.

Linkage stack request specified a zero stack size.

Linkage stack request size requested exceeds maximum allowed.

Linkage stack requested segment size exceeds stack size.

OMPE/XCF invalid XSRE structure ID detected in input request data buffer.

OMPE/XCF receive routine could not locate the target receive load module.

OMPE/XCF receive routine could not locate the specified receive TCB.

OMPE/XCF receive routine detected an invalid input request data buffer address.

OMPE/XCF receive routine detected an invalid input request data buffer length.

OMPE/XCF receive routine detected that the input request data buffer length is too small to handle the data request.

OMPE/XCF receive routine detected that the target data space STOKEN is not initialized.

Linkage stack build service routine terminated abnormally.

Collector Initialization routine failed to dynamically allocate the load module library.

Collector initialization routine failed while closing the STEPLIB load module library.

Initialization routine failed to build the cell pool callable services cell pool.

Initialization resource manager failed to build the OMPE/XCF receive cell pool.

Initialization resource manager failed to build the OMPE/XCF request cell pool.

Collector Initialization routine failed to build the required recovery cell pool.
0776 Initialization resource manager failed to build the control block access cell pool.
0780 OMPE/XCF detected that an invalid SEND request load module was specified.
0784 Initialization resource manager failed validity checking a subsystem control structure.
0792 The IRB scheduler failed to schedule the requested service routine.
0796 OMPE/XCF failed while validity checking the ZXCF collector structure.
0800 Linkage stack manager failed validity checking STKE stack element.
0804 Linkage stack manager failed validity checking TSTK top element structure.
0808 Linkage stack manager failed validity checking BSTK bottom element structure.
0812 Linkage stack manager received an invalid service request length.
0816 Linkage stack manager detected a linkage stack overflow exception.
0820 Linkage stack manager received an invalid stack service request.
0824 Linkage stack manager failed validity checking the LSCT control table.
0828 Linkage stack manager detected LSCT control table overflow.
0832 Initialization resource manager failed to build the control block access key=7 cell pool.
0836 Initialization resource manager failed to build the control block access key=8 cell pool.
0840 The resource manager driver routine detected that an invalid request was specified.
0844 Entry convention processing detected a save area stack overflow exception.
0848 Subentry convention processing detected a save area stack overflow exception.
0852 Entry stack processing detected a save area stack overflow exception.
0856 Initialization resource manager failed to initialize the required cell pool environment.
0876 OMPE/XCF receive routine detected that the receive buffer size is too small to process the incoming XCF data request.
0880 OMPE/XCF receive routine detected that the receive data space is too small to process the incoming XCF data request.
0884 OMPE/XCF response routine received an invalid data space ALET.
0888 OMPE/XCF IRB function failed during ALESERV add request processing.
0892 OMPE/XCF receive routine failed during ALESERV add request processing.
0896 Initialization resource manager failed to build the required SRB cell pool.
0900 Common PC routine driver failed validity checking the OMVT vector table.
0904 Common PC routine driver failed validity checking the PCPL parameter list.
0908 Common PC routine driver failed validity checking the SSCT control table.
0912 OMPE/XCF failed to load the required control block access load module.
0916 Common PC routine driver failed while processing the save area stack.
0920 OMPE/XCF failed due to no OMPEXMT table entries specified.
0924 Common PC routine driver received an invalid PC function entry code.
0928 OMPE/XCF response routine failed validity checking the XRDE structure.
0932 OMPE/XCF response routine failed validity checking the XSRE structure.
0936 OMPE/XCF response routine failed validity checking the response data buffer.
0940 OMPE/XCF response routine failed validity checking the response buffer size.
0944 OMPE/XCF response routine failed validity checking the input buffer size.
0948 OMPE/XCF response routine failed validity checking the XMEM structure.
0960 OMPE/XCF receive routine failed validity checking the XMEM structure.
0964 OMPE/XCF receive routine failed validity checking the XCF status entry.
0968 OMPE/XCF detected an output buffer overflow condition.
0972 OMPE/XCF detected that the output buffer size specified is zero.
0984 Collector initialization driver failed to retrieve the OMPE/XCF connect token.
0988 OMPE/XCF component failed validity checking XMEM structure.
0992 Common PC routine driver failed validity checking SSCTSUSE pointer.
0996 Common PC routine driver failed validity checking OMPECT structure.
1000 Common SRB scheduler failed to locate target requested address space.
1004 Common SRB scheduler failed to locate the address space STOKEN.
1008 Common SRB scheduler failed to locate the subsystem control table.
1012 Common SRB scheduler failed to validity check subsystem structures.
1016 Common SRB scheduler received an invalid SRB input routine.
1020 Common SRB scheduler failed to schedule the specified SRB routine.
1024 Common SRB scheduler abnormally terminated.
1028 Subsystem initialization routine failed validity checking the SSVT control block.
1032 Subsystem initialization routine failed validity checking the SSCT control block.
1036 Subsystem initialization routine failed validity checking SSI entry point.
1040 OMPE/XCF query module detected a locked loop condition.
1044 OMPE/XCF group service routine detected a locked loop condition.
1048 Subsystem initialization routine failed validity checking SSI function codes.
Subsystem initialization routine failed validity checking SSVT address pointer.
Subsystem initialization routine failed to swap SSVT control blocks.
Subsystem initialization routine failed during SSVT compare and swap processing.
Subsystem initialization routine detected invalid SSVT function matrix.
Subsystem initialization routine failed during swap SSVT processing.
VTAM resource manager failed validity checking XRDE structure.
VTAM resource manager failed validity checking XRDE environment.
VTAM resource manager detected an invalid processing environment.
OMPE/XCF control block access response routine not specified error.
OMPE/XCF notify routine received the requested input buffers.
OMPE/XCF notify routine abnormally terminated.
VTAM resource manager failed validity checking OMPE/XCF structures.
VTAM resource manager detected an invalid OMPE/XCF initialization request.
VTAM route manager could not locate the DB2 routing table.
Memory object manager received an invalid service request.
Memory object manager failed validity checking the SGT segment table.
Memory object manager failed releasing the SGT segment table.
Memory object manager failed validity checking requested segment length.
Memory object manager request exceeds maximum size allowed.
Memory object manager received a zero or negative segment request length.
Memory object manager computed a segment length that exceeds maximum allowed.
Memory object manager could not locate key-related segment table.
Memory object manager failed validity checking segment table index.
Memory object manager failed validity checking segment table entry.
Memory object manager could not locate a segment table entry.
Memory object manager failed validity checking the SGTE free queue.
Memory object manager detected an invalid SGTE free queue.
Memory object manager maximum SGT/SGTE slots exceeded.
Memory object manager received an invalid free segment request.
Memory object manager failed validity checking SGTE element.
Memory object manager failed validity checking SGTE segment length.
Memory object manager failed due to incorrect storage release size.
Memory object manager could not locate specified storage address.
1196 Memory object manager detected that the current TCB exceeded the allowed memory limit.
1200 Memory object manager detected that the current address space exceeded the allowed memory limit.
1204 Memory object manager abnormally terminated.
1300 OMPE/XCF Send service routine failed validity checking XRDE structure.
1304 OMPE/XCF Send service routine failed XRDE fetch/store access.
1308 OMPE/XCF Send service routine failed validity checking TOKEN parameter.
1312 OMPE/XCF Send service routine failed TOKEN fetch/store access.
1316 OMPE/XCF Send service routine detected the output data buffer address is not initialized.
1320 OMPE/XCF Send service routine detected the output data buffer size is not initialized.
1324 OMPE/XCF Send service routine detected the output data buffer exceeds 128 MB.
1328 OMPE/XCF Send service routine failed output data buffer fetch/store access.
1332 OMPE/XCF Send service routine detected the input data buffer address is not initialized.
1336 OMPE/XCF Send service routine detected the input data buffer length is not initialized.
1340 OMPE/XCF Send service routine detected the input data buffer exceeds 60K.
1344 OMPE/XCF Send service routine failed input data buffer fetch/store access.
1348 OMPE/XCF Send service routine abnormally terminated due to fetch/store failure.
1352 OMPE/XCF Send service routine failed to retrieve connection token.
1356 OMPE/XCF Send service routine failed validity checking XMEM structure.
1360 OMPE/XCF Send service routine detected that the OMPE/XCF environment is inactive.
1364 OMPE/XCF Send service routine could not locate the OMPEXMT control table.
1368 OMPE/XCF Send service routine failed during timer supervision processing.
1372 OMPE/XCF Send service routine detected that the input buffer length exceeds data space size.
1376 OMPE/XCF Send service routine did not receive a response in the specified time limit.
1380 OMPE/XCF Send service routine failed establishing a timer environment.
1384 OMPE/XCF Send service routine detected a locked XMEM structure loop.
1388 OMPE/XCF Send service routine found an empty XMEM queue.
OMPE/XCF Send service routine failed to validity check XMEM structure.
OMPE/XCF Send service routine could not locate the target XMEM structure.
OMPE/XCF Send service routine timed out waiting for response data.
OMPE/XCF Send service routine failed validity checking token TCB address.
OMPE/XCF Send service routine failed validity checking token ASCB address.
OMPE/XCF Send service routine failed validity checking input buffer ALET.
OMPE/XCF Send service routine failed validity checking output buffer ALET.
OMPE/XCF Send service routine detected that the target XCF member is not active.
OMPE/XCF Send service routine abnormally terminated.
OMPEZ64 For the $ZSTOR64 service request, an invalid function code is specified.
OMPEZ64 An error occurred. The 64-bit memory object manager stopped abnormally.
OMPEZ64 For the $ZSTOR64 service request, an invalid CELLS= macro operand is specified.
OMPEZ64 For the $ZSTOR64 service request, an invalid CSIZE= macro operand is specified.
OMPEZ64 The CSIZE= value that is specified for the $ZSTOR64 service request exceeds the maximum value.
OMPEZ64 For the $ZSTOR64 service request, the FPROT= macro operand is specified. This operand is not supported.
OMPEZ64 For the $ZSTOR64 service request, an invalid TCB= macro operand is specified.
OMPEZ64 For the $ZSTOR64 service request, an invalid MODE= macro operand is specified.
OMPEZ64 For the $ZSTOR64 service request, an invalid cell pool HDR= macro operand is specified.
OMPEZ64 For the $ZSTOR64 service request, an invalid object segment OWNER= macro operand is specified.
OMPEZ64 The 64-bit memory object storage manager request stopped abnormally.
OMPEZ64 A shortage of memory object segments is detected.
OMPEZ64 The memory object segment request failed.
OMPEZ64 An error occurred while checking the validity of the requestor parameter list.
OMPEZ64 An error occurred while checking the validity of the FREE ID control field.
2064 OMPEZ64 An error occurred while checking the validity of the FREE segment request.
2068 OMPEZ64 An error occurred while checking the validity of the CP64 task control segment.
2072 OMPEZ64 The memory segment to be freed cannot be found.
2076 OMPEZ64 An internal loop is detected while scanning the CP64 control structure.
2084 OMPEZ64 The 64-bit memory object storage manager CPCT control table cannot be obtained.
2088 OMPEZ64 An overflow condition is detected while processing the CPCT control table.
2092 OMPEZ64 An internal error occurred while processing a free extent.
2096 OMPEZ64 The requested memory object cannot be built.
2100 OMPEZSL The virtual storage cell pool manager received an invalid function code request.
2104 OMPEZSL The virtual storage cell pool manager stopped abnormally.
2108 OMPEZSL For the $ZPOOL service request, an invalid CELLS= macro operand is specified.
2112 OMPEZSL For the $ZPOOL service request, an invalid CSIZE= macro operand is specified.
2116 OMPEZSL For the $ZPOOL service request, an invalid CSIZE= macro operand is specified.
2120 OMPEZSL For the $ZPOOL service request, an unauthorized virtual storage subpool is specified.
2124 OMPEZSL For the $ZPOOL service request, an invalid BUILD macro operand is specified.
2128 OMPEZSL For the $ZPOOL service request, an invalid MODE= macro operand is specified.
2132 OMPEZSL For the $ZPOOL service request, an invalid HDR= macro operand is specified.
2140 OMPEZSL The $ZPOOL service request is stopped abnormally.
2144 OMPEZSL For the $ZPOOL service request, an invalid GET= was specified while a cell pool deletion was in progress.
2148 OMPEZSL A shortage of cell pool elements is detected.
2152 OMPEZSL The cell pool cannot be extended because the limit for maximum extents is exceeded.
2156 OMPEZSL An invalid cell pool GET service request is detected.
2160 OMPEZSL An error occurred while checking the structure of the FREE ID data field.
2164 OMPEZSL An error occurred while checking a FREE service request cell.
2168 OMPEZSL The CP31 structure validity check failed.
2172 OMPEZSL A previously freed cell element cannot be freed again.
2176 OMPEZSL A CP31 infinite structure loop is detected.
OMPEZSL A CP31 infinite extent structure loop is detected.

OMPEZSL The validity check of the CPXT control table failed.

OMPEZSL A CPXT table overflow error occurred.

OMPEZSL A CP31 extent free internal error occurred.

OMPEZSL The DELETE cell pool request is not valid.

Classic session OMPE/XCF driver detected an invalid input buffer address.

Classic session OMPE/XCF driver detected an invalid collection routine name.

Classic session OMPE/XCF driver detected that the XCF gateway is not active.

Classic session OMPE/XCF driver detected that the specified collection routine is undefined.

Classic session OMPE/XCF driver failed to locate the DB2 routing table.

Classic session OMPE/XCF driver detected an invalid DB2 routing table.

Classic session OMPE/XCF driver failed to locate the specified DB2 subsystem.

Classic session OMPE/XCF driver detected an invalid routing table pointer.

Classic session OMPE/XCF driver detected an invalid routing table header.

Classic session OMPE/XCF driver detected an invalid routing table DB2 ID.

Classic session OMPE/XCF driver could not locate the XCF token.

OMPE/XCF Send service routine failed validity checking XRDE structure.

OMPE/XCF Send service routine failed to locate the XCF connection token.

OMPE/XCF Send service routine failed validity checking token TCB pointer.

OMPE/XCF Send service routine failed validity checking token ASCB pointer.

OMPE/XCF Send service routine failed to locate target XMEM structure.

OMPE/XCF Send service routine failed to validity check XMEM structure.

OMPE/XCF Send service routine failed to validity check ALLTHOUT thread entry.

OMPE/XCF Send service routine detected that the buffer size exceeds data space size.

Classic session OMPE/XCF driver failed validity checking $ZDB2 control block.

Classic session OMPE/XCF driver failed validity checking VPI9800 block.

OMPE/XCF remote DB2 thread CPU driver failed sorting ALLTHOUT thread entries.

OMPE/XCF remote DB2 thread CPU driver stopped abnormally.

OMPE/XCF remote DB2 thread CPU driver found zero threads to process.
OMPE/XCF remote DB2 thread CPU driver failed validity checking ZCPU structure.

OMPE/XCF remote DB2 thread CPU response routine failed to validity check XSRE structure.

OMPE/XCF remote DB2 thread CPU response routine failed to validity check XRDE structure.

OMPE/XCF remote DB2 thread CPU response routine failed to validity check IRDA block.

OMPE/XCF remote DB2 thread CPU response routine failed to validity check IRDL length.

OMPE/XCF remote DB2 thread CPU response routine found zero ZCPE entries to process.

OMPE/XCF remote DB2 thread CPU response routine failed during ALESERV ADD request.

OMPE/XCF remote DB2 thread CPU response routine failed to validity check ZCPE block count.

OMPE/XCF remote DB2 thread CPU response routine found an unsupported DB2 subsystem version.

OMPE/XCF environment initialization failed to validity check the DB2 ERLY block.

OMPE/XCF environment initialization failed to validity check the DB2 subsystem ID.

OMPE/XCF environment initialization found an invalid DB2 subsystem ID as input.

OMPE/XCF environment initialization failed to validity check the DB2 SCOM block.

OMPE/XCF environment initialization failed to validity check the DB2 SSCT control block.

OMPE/XCF environment initialization failed to validity check the DB2 ACOM control block.

OMPE/XCF environment initialization failed to validity check the DB2 RMVT control block.

OMPE/XCF environment initialization failed to validity check the DB2 RMFT control block.

OMPE/XCF environment initialization failed to validity check the DB2 AMGS control block.

OMPE/XCF environment initialization failed to locate the DB2 routing table.

OMPE/XCF remote DB2 thread CPU collection routine failed to validity check Agent ASCB pointer.

OMPE/XCF remote DB2 thread CPU collection routine failed to validity check Agent ASSB pointer.
OMPE/XCF remote DB2 thread CPU collection routine failed to validity check Agent ASCB address.

OMPE/XCF remote DB2 thread CPU collection routine failed during ALEASEV ADD request processing.

OMPE/XCF remote DB2 thread CPU collection routine failed during ALEASEV DELETE processing.

OMPE/XCF remote DB2 thread CPU collection routine could not locate the DB2 AGNT control block.

OMPE/XCF control block access PC routine driver received an invalid input parameter list.

OMPE/XCF control block access PC routine driver specified an invalid processing environment.

OMPE/XCF control block access PC routine driver detected an invalid OMPE Collector environment.

OMPE/XCF control block access PC routine driver does not support the COMMCOLL collector environment.

OMPE/XCF control block access PC routine driver failed validity checking the specified DB2 version.

OMPE/XCF control block access PC routine driver detected an unsupported DB2 subsystem version.

OMPE/XCF control block access PC routine driver could not locate the XRDE structure.

OMPE/XCF control block access PC routine driver failed to validity check XRDE structure.

OMPE/XCF control block access PC routine driver could not locate the DB2 vector table.

OMPE/XCF control block access PC routine driver received a zero DBPL block address.

OMPE/XCF control block access PC routine driver failed to validity check DBPL block.

OMPE/XCF control block access PC routine driver found an invalid collection routine entry address.

OMPE/XCF control block access PC routine driver failed to locate the specified DB2 subsystem.

OMPE/XCF control block access PC routine driver failed to locate the DB2 subsystem SSCT control table.

OMPE/XCF control block access PC routine driver received a null DBPL block address.

OMPE/XCF control block access PC routine driver failed to validity check DBPL block.

OMPE/XCF control block access PC routine driver detected a zero work area address.

OMPE/XCF control block access PC routine driver detected a zero input buffer address.
OMPE/XCF control block access PC routine driver detected a zero output buffer address.

OMPE/XCF control block access PC routine driver detected a zero work area length.

OMPE/XCF remote DB2 thread CPU collection routine failed to validity check the DB2 AGNT control block pointer.

OMPE/XCF remote DB2 thread CPU collection routine failed to validity check the DB2 AGNT control block address.

OMPE/XCF remote DB2 thread CPU collection routine failed to validity check the Agent ASCB address.

OMPE/XCF remote DB2 thread CPU collection routine failed to validity check the Agent TCB address.

OMPE/XCF remote DB2 thread CPU collection routine abnormally stopped.

OMPE/XCF DB2 environment initialization routine detected an invalid environment request.

OMPE/XCF ACE to AGNT collection routine failed to validity check the AMGS DB2 control block.

OMPE/XCF ACE to AGNT collection routine failed to validity check the DB2 ACE control block.

OMPE Collector subsystem token service routine retrieve request failed.

OMPE Collector subsystem token service routine failed token type validity checks.

OMPE Collector subsystem token service routine token name failed validity checks.

OMPE Collector subsystem token service routine token address failed validity checks.

OMPE Collector subsystem token service routine token retrieve failed validity checks.

OMPE Collector subsystem token service routine token delete failed validity checks.

OMPE Collector subsystem token service routine token create failed validity checks.

OMPE Collector subsystem token service routine token type retrieve failed validity checks.

OMPE Collector subsystem token service routine token delete function failed.

OMPEZIP The validity check of the OMPECT control structure failed.

OMPEZIP A duplicate $ZIIP ENABLE service request call is detected.

OMPEZIP The PC service request function code is not valid.

OMPEZIP A duplicate $ZIIP ENABLE instance service request is detected.

OMPEZIP $ZIIP ENABLE cannot be issued in SRB-mode.

OMPEZIP ZIIP support is not available (CVTZIIP).
OMPEZIP $ZIIP DISABLE cannot be issued in TCB-mode.

OMPEZIP The SVZ control storage block cannot be obtained.

OMPEZIP The $ZOMCT control structure is not initialized.

OMPEZIP The validity checks of the &ZOMCT control structure failed.

OMPEZIP The $ZMSTATE state entry block address is not initialized.

OMPEZIP The validity check of the $ZMSTATE entry block failed.

OMPEZIP The $ZIIP service request cannot be issued in XM-mode.

OMPEZIP The scheduling of the target enclave SRB routine failed.

OMPEZIP The DISABLE service request cannot locate the $ZMSTATE state entry block.

OMPEZZP The $ZMSTATE state entry block is not valid.

There are no zIIPs processors defined for the z/OS image.

OMPEZIP The Disable post-processor EPA is not initialized.

OMPEZIP The zIIP jobstep TCB environment is not valid.

OMPEHVS The return code of the $ZTOKEN CREATE service request is nonzero.

OMPEHVS The issued service request is incorrect.

OMPEHVS The service request stopped abnormally.

OMPEHVS The DELETE service request is not supported in SRB-mode.

OMPEHVS The virtual storage is insufficient.

OMPEHVS The specified storage heap structure cannot be found.

OMPEHVS In the pool, no extents are available.

OMPEHVS The heap virtual storage segment to be freed cannot be found.

OMPEHVS The BUILD service request cannot to be issued in SRB-mode.

OMPEHVS The MODE= service request macro operand is not valid.

OMPEHVS The specified heap virtual storage subpool is not valid.

OMPEHVS The LOC= service request macro operand is not valid.

OMPEHVS The USAGE= service request macro operand is not valid.

OMPEHVS The TOKEN= macro operand contains a value of zero.

OMPEHVS The TOKEN= macro operand points to an invalid SH31 block.

OMPEHVS The validity check of the $ZSHCT control structure failed.

OMPEHVS The validity check of the $ZSHCT control structure identifier failed.

OMPEHVS No $ZSHCT control table slots are available.

OMPEHVS The zIIP TCB address cannot be found.

OMPEHVS The validity checks of the $ZMSTATE service failed.

OMPEHVS The value of the TCB address is null.

OMPEHVS The specified TOKEN= macro operand is not valid.
92216  OMPEHVS The validity check of the $ZSH31 data structure failed.
92220  OMPEHVS In SRB-mode, the $ZHEAP FREE service request cannot be issued with the macro operand USAGE=ANY.
92224  OMPEHVS The owner TCB address of the heap virtual storage manager $ZHEAP FREE service request does not match.
92228  OMPEHVS The TCB address owner is not valid.
92232  OMPEHVS A zero length value is supplied.
92236  OMPEHVS The length exceeds the maximum size.
92240  OMPEHVS The heap virtual storage manager $ZHEAP FREE service request is issued in an incorrect state.
92244  OMPEHVS The specified ADDR= macro operand is not valid.
92248  OMPEHVS The specified LENGTH= macro operand is not valid.
92252  OMPEHVS The specified cell pool ID is not valid.
92256  OMPEHVS The specified MODE= macro operand is not valid.
92260  OMPEHVS The TCB token cannot be found.
92264  OMPEHVS The OMCT control table cannot be found.
92268  OMPEHVS The specified TOKEN=TCB macro operand is not valid.

KO2Z000I  OMPE Vrm Command Processed
Explanation: The issued subsystem command was successfully processed.
System action: The subsystem command is processed.
User response: None.

KO2Z001I  OMPE Vrm Subsystem Initialization in Progress
Explanation: The subsystem is being initialized.
System action: Subsystem initialization proceeds.
User response: None.

KO2Z002E  OMPE Vrm IEFSSVT REQUEST=CREATE error RC=%%%% RSN=%%%%
Explanation: Subsystem initialization could not create the subsystem interface (SSI) environment.
• RC= indicates the return code. For more information, see “KO2Z return codes” on page 5144.
• RSN= indicates the reason code. For more information, see “KO2Z reason codes” on page 5144.
System action: Subsystem initialization terminated.
User response: Contact IBM support.

KO2Z003E  OMPE Vrm IEFSSSI REQUEST=PUT error RC=%%%% RSN=%%%%

KO2Z004E  OMPE Vrm IEFSSSI REQUEST=OPTIONS error RC=%%%% RSN=%%%%
Explanation: Subsystem initialization could not verify options processing.
• RC= indicates the return code. For more information, see “KO2Z return codes” on page 5144.
• RSN= indicates the reason code. For more information, see “KO2Z reason codes” on page 5144.
System action: Subsystem initialization terminated.
User response: Contact IBM support.

KO2Z005E  OMPE Vrm IEFSSSI REQUEST=ACTIVATE error RC=%%%% RSN=%%%%
Explanation: Subsystem initialization could not activate the subsystem.
• RC= indicates the return code. For more information, see “KO2Z return codes” on page 5144.
• RSN= indicates the reason code. For more information, see “KO2Z reason codes” on page 5144.
KO2Z006E • KO2Z015E

System action: Subsystem initialization terminated.
User response: Contact IBM support.

KO2Z006E  OMPE Vm Name/Token Pair create error RC=%%%

Explanation: Subsystem initialization could not define a system-level name/token pair.
- RC= indicates the return code. For more information, see “KO2Z return codes” on page 5144.

User response: Check the SYSLOG for abends or additional messages that describe the reason for the failure. Gather SYSLOG, SVC dumps and contact IBM support.

KO2Z007I  OMPE Vm subsystem initialization failed. Invalid subsystem name prefix specified

Explanation: Subsystem initialization failed. An incorrect subsystem name prefix was specified.

User response: Specify a valid four-character subsystem name. The first three characters should be OMP and the last character can be any alphanumeric value, for example, OMPE. The default subsystem name is OMPE.

KO2Z008I  OMPE Vm Subsystem successfully initialized in active mode

Explanation: The OMPE subsystem has been initialized in active mode. The OMPE subsystem is ready to Receive service request calls from OMPE Collector components.

User response: None.

KO2Z009E  OMPE Vm INITPARM error: PID=%%% INITPARM=%%%

Explanation: The OMPE subsystem detected an incorrect input parameter. PID= shows the incorrect input parameter. INITPARM= shows the complete input parameter string.

User response: Specify valid input parameters when starting the OMPE subsystem.

KO2Z010E  OMPE Vm %%% Subsystem initialization failed

Explanation: The OMPE subsystem failed to initialize.

System action: Subsystem initialization terminated.
User response: Specify valid input parameters when starting the OMPE subsystem.

KO2Z011I  OMPE Vm Options member %%%%% % keyword %%%%%

Explanation: The OMPE subsystem issues this message to show the options member and the type of invalid keyword specified.

User response: Specify the valid user option and restart the OMPE Collector.

KO2Z012E  OMPE Vm %%%% Loop detection timer set failed

Explanation: A subsystem function takes too long to complete. The default timeout, specified by SSITIMER=30 seconds, exceeded.

System action: The current subsystem function is terminated.
User response: Contact IBM support.

KO2Z013E  OMPE Vm Mutually exclusive keywords specified

Explanation: Mutually exclusive OMPE subsystem initialization keywords have been detected by the subsystem parse routine.

User response: Specify valid keywords on the OMPE subsystem INITPARM= parameter and restart the OMPE subsystem.

KO2Z014E  OMPE Vm IEFSSI REQUEST=QUERY error RC=%%% RSN=%%%

Explanation: The service request router could not complete a subsystem interface (SSI) query request.
- RC= indicates the return code. For more information, see “KO2Z return codes” on page 5144.
- RSN= indicates the reason code. For more information, see “KO2Z reason codes” on page 5144.

System action: The caller's service request is rejected.
User response: Contact IBM support.

KO2Z015E  OMPE Vm Configuration incomplete.
Collector initialization failed RC=%%% RSN=%%%

Explanation: The OMPE Collector failed to initialize because of a missing or incorrect initialization member data specified in RKD2PAR.
KO2Z016E  OMPE Vrm Invalid Collector configuration parmlist. SR=%%%%

Explanation: The indicated service request parameter list is not valid.

System action: The caller's service request is rejected.

User response: Contact IBM support.

KO2Z017E  OMPE Vrm WTO broadcast count update error

Explanation: Subsystem initialization could not update the write to operator (WTO) broadcast count field maintained by the z/OS communication task address space (CTAS).

System action: Subsystem initialization is terminated.

User response: Contact IBM support.

KO2Z018E  OMPE Vrm Diagnostic work area storage obtain failure

Explanation: The OMPE subsystem could not obtain ECSA storage for a diagnostic work area structure.

System action: Subsystem initialization terminated.

User response: Contact your systems programmer.

KO2Z019E  OMPE Vrm OMEGAMON XE FOR DB2 PE IS ALREADY ACTIVE. START REJECTED

Explanation: The OMPE Collector is already active.

System action: The OMPE Collector Start request is rejected.

User response: Stop the target OMPE Collector. Wait for the OMPE Collector to end. Restart the Collector.

KO2Z020I  OMPE Vrm Collector options successfully initialized

Explanation: The OMPE Collector global options defined in RKD2PAR member OMPEOPTS have been successfully defined.

System action: OMPE Collector Initialization continues.

User response: None.

KO2Z021I  OMPE Vrm Subsystem re-initialization performed by START service request

Explanation: The OMPE Collector subsystem instance has been successfully reinitialized.

System action: OMPE Collector initialization continues.

User response: None.

KO2Z022I  OMPE Vrm MEMBER= %%%%%%% SVC screening initialization failed.

Explanation: The initialization of the SVC screening subsystem component failed.

System action: The initialization of the OMEGAMON Collector continues.

User response: Add the SVC screening member OMPESV00 to the RKANPAR parameter library data set and restart the OMEGAMON Collector.

KO2Z024E  OMPE Vrm KO2ZMSGB message processing error RC=%%% RSN=%%% 

Explanation: The general OMPE subsystem message processing routine failed to issue the target WTO message.


User response: Contact IBM support.

KO2Z026E  OMPE Vrm Collector component statement missing from RKANPAR.

Explanation: OMPE Collector initialization detected that a required collector component is missing in the configuration.

System action: The OMPE Collector is abnormally terminated.

User response: Include the required component in the RKANPAR and restart the OMPE Collector.

KO2Z027I  OMPE Vrm Invalid OMPEOPTS option specified: %%%%%

Explanation: The specified OMEGAMON for Db2 PE Collector user option is invalid.

System action: The invalid user option is ignored. The default value is used.

User response: Verify that the user option is defined correctly in the RKD2PAR member OMPEOPTS.
KO2Z028E  OMPE Vm START Service request
error RC=%%% RSN=%%%
Explanation: A request to internally start the OMPE subsystem failed. The subsystem could not locate load modules prefixed with KO2Z* in the first load module library specified by the STEPLIB DDname of the OMPE Collector JCL procedure.
System action: The OMPE subsystem Start request is terminated.
User response: Ensure that load modules prefixed with KO2Z* reside in the first library specified by the STEPLIB DDname. Additionally, the first load module library that contains these load modules must have a suffix of TKANMOD.

KO2Z029I  OMPE Vm Subsystem %%%% belongs to collector %%%. Collector %%%% start rejected.
Explanation: The starting OMPE Collector cannot specify a subsystem name that is associated with a different OMPE Collector.
System action: The OMPE collector Start request is rejected.
User response: Specify a unique collector subsystem name in the OMPE Collector started task JCL procedure PARM= keyword, then restart the OMPE Collector.

KO2Z030I  OMPE Vm XCF timer reset successful XCFTIMER=%%
Explanation: The OMPE/XCF XCF timer interval has been successfully reset.
System action: OMPE Collector processing continues.
User response: None.

KO2Z031E  OMPE Vm CSVDYLPA dynamic LPA %%%% failed SSM=%%% RC=%%% RSN=%%% FLGS=%%%
Explanation: The OMPE Collector initialization failed to add/delete a module to/from the dynamic LPA.
System action: OMPE Collector initialization is abnormally terminated.
User response: Contact IBM support.

KO2Z032E  OMPE Vm Invalid parameter data supplied. PARM=%%%
Explanation: The OMPE Collector initialization detected invalid parameters supplied on the PARM= statement of the OMPE Collector started task JCL procedure.

KO2Z033E  OMPE Vm Collector member name %%%% not found in RKANPAR concatenation
Explanation: The OMPE Collector initialization could not locate the specified member name in the RKANPAR parameter library concatenation.
System action: OMPE Collector initialization is abnormally terminated.
User response: Specify the missing collector member name and restart the OMPE Collector.

KO2Z034I  OMPE Vm Searching RKANPAR for "EXEC %%%% component statement
Explanation: The OMPE Collector initialization could not locate the specified collector component in the RKANPAR parameter library concatenation.
System action: OMPE Collector initialization is abnormally terminated.
User response: Specify the missing collector component and restart the OMPE Collector.

KO2Z035I  OMPE Vm Server virtual storage limit MEMLIMIT(NOLIMIT) setting discovered
Explanation: The OMPE Collector initialization detected that there is no 64-bit memory object limit size imposed on the OMPE Collector.
System action: OMPE Collector initialization continues.
User response: None.

KO2Z036E  OMPE Vm Vector table swap failed SSM=%%% RC=%%% RSN=%%%%
Explanation: The OMPE Collector subsystem initialization is unable to swap the SSVT matrix table.
System action: OMPE Collector initialization is abnormally terminated.
User response: Contact IBM support.

KO2Z037E  OMPE Vm The range of the dynamic subsystem name exceeds IX=%%
RC=%%% RSN=%%%%
Explanation: The two digit suffix of the OMEGAMON Collector subsystem is out of range.
System action: The OMEGAMON Collector stopped
abnormally with ABEND code U2008.

**User response:** Contact IBM Support to report this problem.

KO2Z038E OMPE V%%% SSI call failed
RC=%%%% RSN=%%% SSSRC=%%%%

**Explanation:** The subsystem service request failed.

**System action:** The subsystem function request is rejected with error codes and reason codes.

**User response:** Provide the OMPE collector job log and the SVC dump for IBM support.

KO2Z039I OMPE V%% command request RSN=%%% RC=%%%%

**Explanation:** The issued command failed.

**System action:** The OMEGAMON Collector ignores the issued command.

**User response:** Check the error codes and the reason codes for further information.

KO2Z040W OMPE V%% Member %%%% not found in RKANPAR. Using all subsystem defaults

**Explanation:** The OMPE Collector initialization detected that RKANPAR parameter library member OMPE00 is missing from the configuration.

**System action:** OMPE Collector initialization continues using all internal defaults.

**User response:** None.

KO2Z041E OMPE V%% RDJFCB error
DDName=%%% RC=%%%%

**Explanation:** The OMPE subsystem detected a read JFCB block error while trying to determine the status of a data set.

**System action:** The subsystem function is abnormally terminated.

**User response:** Contact IBM support.

KO2Z042E OMPE V%% OPEN failure
DDName=%%%% RC=%%%%
RSN=%%%%

**Explanation:** The subsystem could not open the indicated data set.

**System action:** The subsystem function is abnormally terminated.

**User response:** Contact IBM support.

KO2Z043E OMPE V%% FIND failure
Member=%%% RC=%%%%

**Explanation:** The subsystem could not locate the indicated member.

**System action:** The subsystem function is abnormally terminated.

**User response:** Verify that the data set member exists. Correct the problem and restart the OMPE subsystem.

KO2Z044E OMPE V%% Storage obtain failed
Member=%%%%

**Explanation:** The subsystem could not obtain local storage to process data from the indicated member.

**System action:** The subsystem function is abnormally terminated.

**User response:** Contact your systems programmer.

KO2Z045E OMPE V%% Record input overflow
Member=%%%%

**Explanation:** The subsystem detected a record overflow condition while reading input member records from the indicated member name.

**System action:** The subsystem function is abnormally terminated.

**User response:** Contact IBM support.

KO2Z046E OMPE V%% Parameters READ error
Member=%%%%

**Explanation:** A subsystem failure was detected reading record data from the indicated data set member.

**System action:** The subsystem function is terminated.

**User response:** Contact IBM support.

KO2Z047E OMPE V%% DYNALLOC error
ERR=%%% INFO=%%%
DSN=%%%%

**Explanation:** The subsystem failed to dynamically allocate the specified data set.

**System action:** The subsystem function is abnormally terminated.
Verify that the specified data set name is correct. Correct the problem and re-execute the specified function.

KO2Z048W  OMPE Vorm Using default DDname=%% to locate member=%%%

Explanation: The OMPE Collector initialization routine is using the default ddname to locate the specified configuration member name.

System action: OMPE collector initialization continues.

User response: None.

KO2Z049E  OMPE Vorm No input records found. Member=%%%

Explanation: The subsystem did not recognize any input records specified in the target member name.

System action: The subsystem function is terminated.

User response: Correct the problem and re-execute the specified function.

KO2Z050E  OMPE Vorm READ Failure. Member=%% Unsupported

Explanation: The subsystem detected an incorrectly specified member name.

System action: The subsystem function terminated.

User response: Specify a supported member name.

KO2Z051E  OMPE Vorm Memory object request failed SSM=%% RC=%% RSN=%%

Explanation: The OMPE Collector subsystem could not successfully create the specified memory object.

System action: OMPE collector processing continues.

User response: Contact IBM support.

KO2Z052E  OMPE Vorm Memory object request failed SSM=%% RC=%% RSN=%%

Explanation: The OMPE Collector subsystem could not successfully create the specified memory object.

System action: OMPE collector processing continues.

User response: Contact IBM support.

KO2Z053E  OMPE Vorm SSM=%% abnormally terminated RC=%% RSN=%%

Explanation: The identified OMPE Collector subsystem module terminated abnormally.

System action: OMPE collector processing continues.

User response: Contact IBM support.

KO2Z055I  OMPE Vorm SSM=%% using heap storage buffer pool

Explanation: The subsystem component of the OMPE Collector is currently using the 31-bit heap virtual storage manager.

System action: None.

User response: None.

KO2Z056I  OMPE Vorm DD=%% allocated to VOL=%% DSN=%%

Explanation: At OMPE Collector initialization, the current list of all STEPLIB data sets that are allocated by OMEGAMON XE for DB2 PE on z/OS is displayed:

• <v1> shows the STEPLIB sequence number
• <v2> shows the data definition name
• <v3> shows the volume serial number where the STEPLIB dataset resides
• <v4> shows the STEPKIB dataset name

System action: The OMPE Collector initialization proceeds.

User response: None.

KO2Z057I  OMPE Vorm Subsystem message log RC=%% RSN=%%

Explanation: In the log data set, the status of a dynamically added or removed message is indicated.

System action: The message log is activated or inactivated.

User response: None.

KO2Z058I  OMPE Vorm XCF gateway is at PTF maintenance level

Explanation: At OMPE Collector initialization, the current maintenance level of the XCF gateway is displayed.

System action: The OMPE Collector initialization proceeds.

User response: None.
**KO2Z059I**  OMPE Vmm OMPEOPTS user option set to %%%%.%

**Explanation:** At OMPE Collector initialization, the values of the real-time user options that are defined by the RKANPAR parameter library member OMPEOPTS are displayed.

**System action:** The OMPE Collector initialization continues.

**User response:** None.

**KO2Z060E**  OMPE Vmm SSM=%%%% IARV64 detach failed

**Explanation:** The OMPE Collector subsystem failed to detach a 64-bit memory object.

**System action:** OMPE collector processing continues.

**User response:** Contact IBM support.

**KO2Z061E**  OMPE Vmm Member=%%% No parm data found

**Explanation:** The OMPE Collector subsystem detected than invalid parameter data is specified.

**System action:** The subsystem function is abnormally terminated.

**User response:** Specify valid parameter data and re-execute the subsystem function.

**KO2Z062E**  OMPE Vmm Member=%%% RID=%%% KEY=%%% unrecognized/misplaced keyword

**Explanation:** The subsystem detected an incorrect parameter record while reading the indicated member name. The RID= value identifies the member record number and the KEY= value identifies the incorrect keyword.

**System action:** The subsystem function terminated.

**User response:** Correct the problem and re-execute the subsystem function.

**KO2Z063E**  OMPE Vmm Member=%%% unsupported

**Explanation:** The subsystem parse routine detected an incorrect input member name.

**System action:** The subsystem function is abnormally terminated.

**User response:** Specify a supported member name and re-execute the subsystem function.

**KO2Z064E**  OMPE Vmm XCF timer reset error

**Explanation:** The subsystem parse routine detected that an invalid XCF timer value was specified.

**System action:** The subsystem command is abnormally terminated.

**User response:** Specify a numeric timer interval when executing the command.

**KO2Z065E**  OMPE Vmm Member=%%%% initialization failed

**Explanation:** The subsystem failed to parse and initialize the specified member record data.

**System action:** The subsystem function is abnormally terminated.

**User response:** Specify valid member data keywords and re-execute the subsystem function.

**KO2Z069E**  OMPE Vmm Server virtual storage limit MEMLIMIT(x"00000004"MB) setting discovered

**Explanation:** The OMPE Collector subsystem discovered the 61-bit memory object setting value specified for the OMPE Collector started task.

**System action:** None.

**User response:** None.

**KO2Z069I**  OMPE Vmm The value for the virtual storage limit of the server is MEMLIMIT(00000004MB). The maximum value that can be specified for MEMLIMIT is 2048M.

**KO2Z035I**  OMPE Vmm The value for the virtual storage limit of the server is MEMLIMIT(NOLIMIT).
KO2Z073E  OMPE Vorm Virtual storage heap element failed.
RC=%%% RSN=%%% 

Explanation: An internal error occurred.

System action: The virtual storage heap request failed with error codes and reason codes.

User response: Check the error codes and the reason codes for more information.

KO2Z074I  OMPE Vorm DAPICOMM structure table RC=%%% RSN=%%% 

Explanation: The status of the Common Collector structure that is used to communicate the D5AFI request from the Agent address space is shown.

System action: The initialization of the OMGAMON Collector continues.

User response: None.

KO2Z075I  OMPE Vorm Common field table initialization completed. RC=%%% RSN=%%% 

Explanation: The initialization of the common field table is completed. The common field table is a dictionary that contains all data fields and their describing attributes. It is shared among the components within the address space. The common field table is prerequisite for the proper function of the user interfaces.

System action: None.

User response: None, if the return codes and the reason codes are set to zero. Otherwise, contact IBM Support.

KO2Z076I  OMPE Vorm Common field table release completed. RC=%%% RSN=%%% 

Explanation: The common field table is released.

System action: None.

User response: None if the return codes and the reason codes are set to zero. Otherwise, contact IBM Support.

KO2Z077I  OMPE Vorm CMD Display 

Explanation: Shows the first line of the multi-line write to operator (WTO) message output. This message is followed by multi-line WTO data lines.

System action: The command output is displayed.

User response: None.

KO2Z078I  display text from command D OMPE, STATUS

Explanation: Shows the DISPLAY OMPE,STATUS command data lines. This message displays the following information:

- Subsystem name
- Subsystem initialization date and time
- Current TRACE status selected
- Current DEBUG status selected
- SMF record number (currently unused)
- PARMLIB(RKD2PAR) OMPEin member name selected
- PARMLIB(RKD2PAR) OMPEin member parameter data set name selected
- LOADLIB(TKANMOD) Load module data set name selected
- Status of the Event Notification Facility Task (ENF) – (currently unused)
- Name of the sysplex selected
- Name of the XCF group selected
- SSI processing trap selected for TSO/E user IDs (currently set to none)
- SSI processing trap selected for STC address spaces (currently set to none)
- SSI processing trap selected for JOB address spaces (currently set to none)
- SVC screening member name selected (currently unused)
- Name of the automatic command member name (currently unused)
- Name of the system-level name/token pair created by the subsystem
- The input parameters specified in the INITPARM SSI keyword to initialize the subsystem
- Name of the generic operator command interface member (currently unused)
- Subsystem load module protection option selected
- Resource manager interface member name selected (currently unused)
- Resource manager interface abend limit (currently unused)
- Current setting of the RKD2PAR member refresh status (currently set to LOCK)
- Type of cross-memory environment selected and created by the subsystem
- Maximum number of XCF subtasks requested to be attached to process Receive requests

System action: The command data output is displayed.

User response: None.

KO2Z079I  display text from command D OMPE, STATUS

Explanation: Shows the DISPLAY OMPE,STATUS command end line.

System action: The command end line is displayed.

User response: None.
KO2Z080I  OMPE Vrm Subsystem debug mode is
解释：此消息是在响应VARY OMPE,DEBUG=[ON | OFF]子系统命令时显示的。
系统动作：命令成功执行。
用户响应：无效。

KO2Z081I  OMPE Vrm Subsystem has been
[Activated | Inactivated]
解释：此消息是在响应VARY OMPE,[ACTIVE | INACTIVE]子系统命令时显示的。
系统动作：命令成功执行。
用户响应：无效。

KO2Z083E  OMPE Vrm Invalid subsystem command. CMD=%%%%%%
解释：无效子系统命令。
系统动作：子系统命令被拒绝。
用户响应：提供有效的子系统命令。

KO2Z085I  OMPE Vrm Subsystem Trace mode is
[ON | OFF]
解释：此消息是在响应VARY OMPE,TRACE=[ON | OFF]子系统命令时显示的。
系统动作：跟踪模式状态被设置为指定的状态。
用户响应：无效。

KO2Z086I  OMPE Vrm XCF gateway initialization
解释：当前状态为XCF网关初始化。值可能为INITIALIZED或FAILED。
系统动作：如果初始化的OMEGAMON for Db2 PE Collector未完成，状态FAILED被显示。OMEGAMON for Db2 PE Collector异常终止。
用户响应：无效。

KO2Z087W  OMPE Vrm Subsystem shutdown already in progress. Command rejected
解释：以前的子系统Shut down命令请求已经在进行中。系统正在被关机且不会接受额外的Shut down命令请求。
系统动作：关机命令被拒绝。
用户响应：无效。

KO2Z089E  OMPE Vrm Collector address space is terminating due to PESERVER failure.
解释：PESERVER子任务失败。它因服务器的ABENDS而无法重新启动。
系统动作：OMEGAMON Collector地址空间被终止。
用户响应：重新启动OMEGAMON Collector地址空间。如果故障持续，联系IBM支持。

KO2Z092I  OMPE Vrm XCF gateway data receive tasks shortage relieved
解释：接收数据的任务短缺得到解决。
系统动作：继续处理输入任务。
用户响应：无效。

KO2Z080I  OMPE Vrm Subsystem debug mode is
解释：此消息是在响应VARY OMPE,DEBUG=[ON | OFF]子系统命令时显示的。
系统动作：命令成功执行。
用户响应：无效。

KO2Z090E  OMPE Vrm SUB=%%%%% REL=%%%%% subsystem name unusable. Choose a different name RC=!!!! RSN=!!!!!!!
解释：OMPE收集器子系统初始化检测到指定的子系统名parame键中的OMPE收集器启动任务JCL程序不能激活。
系统动作：OMPE收集器初始化被异常终止。
用户响应：联系IBM支持。

KO2Z091E  OMPE Vrm Collector address space is terminating due to PESER VER failure.
解释：PESERVER子任务失败。它因服务器的ABENDS而无法重新启动。
系统动作：OMEGAMON Collector地址空间被终止。
用户响应：重新启动OMEGAMON Collector地址空间。如果故障持续，联系IBM支持。

KO2Z092E  OMPE Vrm Collector <V1> Function=<V2> failed. SSM=<V3> RC=<V4> RSN=<V5>
解释：错误发生。
• <V1>是函数ID。
• <V2>是函数程序名。
• <V3>是失败子系统模块。
• <V4>是返回代码，它来自函数程序。
• <V5>是返回代码，它来自函数程序。
系统动作：OMEGAMON for Db2 PE Collector异常终止。
用户响应：联系您的系统程序员。

KO2Z092I  OMPE Vrm XCF gateway data receive tasks shortage relieved
解释：没有收到数据的接收任务短缺得到解决。
系统动作：继续处理输入任务。
用户响应：无效。
<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
<th>Explanation</th>
<th>System action</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>KO2Z095E</td>
<td><strong>OMPE Vorm</strong> error <strong>RC=%%</strong> <strong>DDN=%%</strong> <strong>MEM=%%</strong> <strong>LIB=%%</strong></td>
<td>The OMPE collector initialization detected an error in the OMPE collector configuration.</td>
<td>OMPE Collector initialization is abnormally terminated.</td>
<td>Correct the configuration and restart the OMPE Collector.</td>
</tr>
<tr>
<td>KO2Z096E</td>
<td><strong>APF-authorization required</strong> <strong>RC=%%</strong> <strong>RSN=%%</strong> <strong>LIB=%%</strong></td>
<td>The OMPE collector initialization detected that the specified load module library needs to be APF-authorized.</td>
<td>OMPE Collector initialization is abnormally terminated.</td>
<td>APF-authorize the identified load module library and restart the OMPE Collector.</td>
</tr>
<tr>
<td>KO2Z097E</td>
<td><strong>MEMBER=%%</strong> <strong>ECSA storage obtain failure</strong></td>
<td>The OMPE collector initialization could not obtain the required common storage buffer to complete the specified function.</td>
<td>OMPE Collector initialization is abnormally terminated.</td>
<td>Contact your systems programmer.</td>
</tr>
<tr>
<td>KO2Z099E</td>
<td><strong>Parse error</strong> <strong>Members=%%</strong> <strong>keyword table overflow</strong></td>
<td>The subsystem keyword parser detected an error while parsing keyword data from the indicated member.</td>
<td>The parse function is terminated.</td>
<td>Contact IBM support.</td>
</tr>
<tr>
<td>KO2Z200I</td>
<td><strong>Load modules loaded from</strong> <strong>LIB=%%</strong></td>
<td>All required subsystem load modules have been successfully loaded from the specified load module library by the loader function of the OMPE subsystem.</td>
<td>Subsystem initialization continues.</td>
<td>None.</td>
</tr>
<tr>
<td>KO2Z201E</td>
<td><strong>DYNALLOC Error</strong> <strong>ERR=%%</strong> <strong>INFO=%%</strong> <strong>LIB=%%</strong></td>
<td>A dynamic allocation error was detected during subsystem initialization.</td>
<td>Subsystem initialization terminated.</td>
<td>Verify that the correct library name was specified and restart the OMPE subsystem.</td>
</tr>
<tr>
<td>KO2Z202E</td>
<td><strong>Subsystem load library OPEN error</strong> <strong>LIB=%%</strong></td>
<td>A data set Open error was detected during subsystem initialization processing.</td>
<td>Subsystem initialization is abnormally terminated.</td>
<td>Contact IBM support.</td>
</tr>
<tr>
<td>KO2Z203E</td>
<td><strong>BLDL failed for</strong> <strong>MOD=%%</strong> <strong>LIB=%%</strong></td>
<td>Subsystem initialization could not locate a required load module in the specified load module library.</td>
<td>Subsystem initialization is abnormally terminated.</td>
<td>Verify that the correct load module library has been specified. Correct the problem and restart the OMPE Collector.</td>
</tr>
<tr>
<td>KO2Z204E</td>
<td><strong>ECSA load error</strong> <strong>MOD=%%</strong> <strong>LIB=%%</strong></td>
<td>Subsystem initialization could not load the required load modules in the common service area.</td>
<td>Subsystem initialization is abnormally terminated.</td>
<td>Contact your systems programmer.</td>
</tr>
<tr>
<td>KO2Z206E</td>
<td><strong>TKANMOD DCB storage obtain failed</strong> <strong>LIB=%%</strong></td>
<td>Subsystem initialization processing could not obtain 24-bit virtual storage in the OMPE Collector address space required to dynamically define a DCB control block.</td>
<td>Subsystem initialization is abnormally terminated.</td>
<td>Contact your systems programmer.</td>
</tr>
</tbody>
</table>
**KO2Z210E** \ OMPE Vrm ATTACH call error

**LMOD=%% % ARC=%% %**

**RC=%% % RSN=%% %**

**Explanation:** The Attach service request failed to attach the indicated specified load module.

**System action:** The Attach service request is abnormally terminated.

**User response:** Contact IBM support.

**KO2Z220E** \ OMPE Vrm OMPECT control structure ESQA storage obtain failed

**Explanation:** Subsystem initialization processing could not obtain ESQA storage for the OMPECT common control structure.

**System action:** Subsystem initialization is abnormally terminated.

**User response:** Contact your systems programmer.

**KO2Z221I** \ OMPE Vrm Load module page protection is active

**Explanation:** Subsystem initialization successfully page-protected all commonly loaded load modules.

**System action:** Subsystem initialization continues.

**User response:** None.

**KO2Z222I** \ OMPE Vrm PTRACE=ON Activated for MOD=%%%

**Explanation:** Subsystem initialization successfully activated SYSTRACE processing. Entry and exit subsystem functions are recorded in the z/OS SYSTRACE table.

**System action:** Subsystem initialization continues.

**User response:** None.

**KO2Z603E** \ OMPE Vrm EOT resource manager %%% abnormally terminated

**Explanation:** The indicated end-of-task OMPE Collector subsystem resource manager abnormally terminated.

**System action:** OMPE Collector processing continues.

**User response:** Contact IBM support.

**KO2Z604E** \ OMPE Vrm EOM resource manager %%% abnormally terminated

**Explanation:** The indicated end-of-memory OMPE Collector subsystem resource manager abnormally terminated.

**System action:** OMPE Collector processing continues.

**User response:** Contact IBM support.

**KO2Z605E** \ OMPE Vrm %%%% resource manager %%%% abnormally terminated

**Explanation:** The identified OMPE Collector subsystem resource manager abnormally terminated.

**System action:** OMPE Collector processing continues.

**User response:** Contact IBM support.

**KO2Z606I** \ OMPE Vrm Defined zIIP CPUIDs: %%%%,

**Explanation:** At OMPE Collector initialization, the number of zIIP processors that are currently defined for the MVS image are indicated.

**System action:** The OMPE Collector initialization continues.

**User response:** None.

**KO2Z608I** \ OMPE Vrm No data to display.

**CMD=%%%**

**Explanation:** A subsystem command was issued and there is no output data to display.

**System action:** Subsystem processing continues.

**User response:** None.

**KO2Z609E** \ OMPE Vrm Structure error detected by command routine=%%%%

**Explanation:** A subsystem command was issued and an abend condition was detected.

**System action:** The command is rejected.

**User response:** Contact IBM support.

**KO2Z610E** \ OMPE Vrm Parse error. Keyword not found. Member=%%% KEY=%%%%

**Explanation:** A parsing error was encountered for the specified member name. The error is identified by the KEY= keyword.

**System action:** Subsystem function processing is terminated.

**User response:** Correct the error and re-execute the subsystem function.

**KO2Z612E** \ OMPE Vrm Parse error. Invalid keyword table supplied

**Explanation:** An internal parsing error was detected by the subsystem parsing routine.

**System action:** Subsystem function processing is terminated.
User response: Contact IBM support.

KO2Z613I  Vrm CMD Display  nnn
Explanation: This message is displayed as a data line of a multi-line write to operator (WTO) message in response to a DISPLAY OMPE, DIAGS command.
System action: The command is executed.
User response: None.

KO2Z615I  Vrm CMD Display  nnn
Explanation: This message is displayed as a data line of a multi-line write to operator (WTO) message in response to a DISPLAY OMPE, ZAP command. The following information is displayed:
Module  The name of the subsystem control section
Version  The control section subsystem version number
Level  The current PTF level
Date  The assembled date
Time  The assembled time
Trace  The current trace option status
System action: The command is executed.
User response: None.

KO2Z616I  Vrm CMD Display  nnn
Explanation: This message is displayed as data line of a multi-line write to operator (WTO) message in response to a global storage list (GSL) DISPLAY OMPE, GSL command. The following information is displayed:
GSL=nnn  The number of GSL structures currently created by the subsystem.
SP=nnn  The storage subpool number of the GSL structure.
EPA=entry  The entry point address of the GSL processing routine.
InUse  The number of GSL entries currently used by the subsystem.
Freed  The number of GSL entries freed by the subsystem.
TotalStg  The total amount of common virtual storage used by the subsystem.
Next-GSL  The address of the next GSL structure.
Address  The address of the common virtual storage element.
Xlength  The length of the common storage element.
SP  The subpool number of the virtual storage element.
Key  The storage protection key of the current storage element.
FreeWhen  When will the virtual storage element be freed.
Owner  The owner of the virtual storage element.
System action: The command is executed.
User response: None.

KO2Z618E  OMPE Vrm LXRES linkage index reserve failed
Explanation: The subsystem could not obtain a system linkage index required to build the cross-memory environment.
System action: Subsystem function processing is terminated.
User response: Contact your systems programmer.

KO2Z619E  OMPE Vrm ETCRE entry table create failed
Explanation: The subsystem could not create a cross-memory environment entry table entry.
System action: Subsystem function processing is terminated.
User response: Contact IBM support.

KO2Z620E  OMPE Vrm ETCON entry table connect failed
Explanation: The subsystem failed to connect a cross-memory environment entry table.
System action: Subsystem function processing is terminated.
User response: Contact IBM support.

KO2Z621E  OMPE Vrm Cross-memory environment creation failed.
CALL=%% ABEND=%%% RSN=%%%
Explanation: The subsystem abnormally terminated while trying to create the required cross-memory environment.
RSN= indicates the reason code. For more information,
KO2Z622E OMPE Vrm Task level name/token pair %%%% failed RC=%%% SRSN=%%%.

Explanation: The subsystem could not create a task level name/token pair.
- RC= indicates the return code. For more information, see “KO2Z return codes” on page 5144.

System action: Subsystem processing is abnormally terminated.
User response: Contact IBM support.

KO2Z623I OMPE Vrm Cross-memory environment successfully created

Explanation: The subsystem successfully created the required cross-memory environment.

System action: Subsystem processing continues.
User response: None.

KO2Z624E OMPE Vrm Cross-memory environment creation failed RC=%%% SRSN=%%%

Explanation: The subsystem could not create the required cross-memory environment.
- RC= indicates the return code. For more information, see “KO2Z return codes” on page 5144.
- RSN= indicates the reason code. For more information, see “KO2Z reason codes” on page 5144.

System action: The cross-memory environment is not created.
User response: Contact IBM support.

KO2Z625E OMPE Vrm %%%% Module %%%% ABENDs exceeded and has been disabled

Explanation: The indicated load module has exceeded the number of allowed abends and has been disabled.

System action: Future calls to the indicated module will be rejected.
User response: Contact IBM support.

KO2Z631I OMPE Vrm SSM=%%%%%% REMGR=%%%% environmental error

Explanation: The OMPE Collector subsystem detected an environmental error associated with the identified resource termination manager.

System action: OMPE Collector processing continues.
User response: Contact IBM support.

KO2Z636I OMPE Vrm CMD Display mnn

Explanation: This message is displayed in response to a DISPLAY OMPE, XCF command.

System action: The command is executed.
User response: None.

KO2Z637E OMPE Vrm XCF environment creation failed RC=%%% SRSN=%%%.

Explanation: The cross-coupling facility communication interface component failed to initialize.
- RC= indicates the return code. For more information, see “KO2Z return codes” on page 5144.
- RSN= indicates the reason code. For more information, see “KO2Z reason codes” on page 5144.

System action: The cross-coupling facility communication environment is not initialized.
User response: Contact IBM support.

KO2Z638I OMPE Vrm XCF SYSPLEX=%%% GROUP=%%% MEMBER=%%%.

Explanation: This message shows sysplex name, group name, and member name associated with a specific service request.

System action: None.
User response: None.

KO2Z639E OMPE Vrm XCF request %%%% SSM=%%%% failed RC=%%% SRSN=%%%

Explanation: The cross-coupling facility communication interface component issued an XCF request and the request failed.
- RC= indicates the return code. For more information, see “KO2Z return codes” on page 5144.
- RSN= indicates the reason code. For more information, see “KO2Z reason codes” on page 5144.

System action: The XCF service request caller is notified about the failure with return and reason codes.
User response: Contact IBM support.

KO2Z640I OMPE Vrm XCF SYSPLEX=%%%% GROUP=%%%% MEMBER=%%%

Explanation: This message shows sysplex name, group name, and member name associated with a specific service request.

System action: None.
User response: None.
KO2Z641E OMPE Vrm IRB failed to attach
Explanation: An Attach failure on behalf of the Attach service requestor occurred.
System action: The Attach service request is terminated.
User response: Contact IBM support.

KO2Z642E OMPE Vrm XCF SEND request failed
Explanation: The XCF Send service request failed while validity-checking input parameter structures.
System action: The XCF initialization task is terminated.
User response: Contact IBM support.

KO2Z643E OMPE Vrm Receive task
Explanation: The classic session successfully disconnected from the identified XCF group name and member name.
System action: None.
User response: None.

KO2Z644E OMPE Vrm The XCF requestor is no longer connected. RSN=!!!!!!!!!
Explanation: The response for DB2 performance data is cancelled because the requestor is no longer active.
System action: The XCF gateway component storage releases the response data buffer.
User response: Check the RSN= reason code for additional diagnostic information.

KO2Z645E OMPE Vrm User options member not found in RKANPAR. Using internal defaults
Explanation: The user options member could not be found in the RKANPAR parameter dataset concatenation.
System action: The OMPE Collector initialization continues using all internal defaults.

KO2Z646E OMPE Vrm XCF failed
Explanation: Errors occurred in the XCF Message Receive routine.
System action: The Message Receive request is rejected.
User response: This error is possibly caused because a member of the OMPEXCF group is terminating. Verify that the XCF member is still in the system. If not, restart the member.

KO2Z647E OMPE Vrm XCF SCHEDIRB failed
Explanation: The XCF Message Receive routine could not schedule a Send request to the target member.
System action: The Message Receive request is rejected.
User response: Contact IBM support.

KO2Z648E OMPE Vrm XCF Load failed
Explanation: The target load module specified on the CALL= operand of the Send service request could not be z/OS loaded.
System action: The Send service request is terminated with return and reason codes.
User response: Contact IBM support.

KO2Z649E OMPE Vrm XCF component LOAD failed
Explanation: The component load module specified on the CALL= operand of the Send service request could not be z/OS loaded.
System action: The Send service request is terminated with return and reason codes.
User response: Contact IBM support.
<table>
<thead>
<tr>
<th>Issue Code</th>
<th>Description</th>
<th>Explanation</th>
<th>System action</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>KO2Z652E</td>
<td>OMPE V&lt;sup&gt;rm&lt;/sup&gt; SSM=&lt;%%&gt;% send request failed RC=&lt;%%&gt;% RSN=&lt;%%&gt;%</td>
<td>The XCF Send service request failed to complete.</td>
<td>The Send service request is rejected.</td>
<td>Contact IBM support.</td>
</tr>
<tr>
<td>KO2Z653E</td>
<td>OMPE V&lt;sup&gt;rm&lt;/sup&gt; System level token pair &lt;%%&gt; RC=&lt;%%&gt;% SSM=&lt;%%&gt;%</td>
<td>A system level token could not be created or deleted.</td>
<td>The OMPE Collector initialization is abnormally terminated.</td>
<td>Contact IBM support.</td>
</tr>
<tr>
<td>KO2Z654E</td>
<td>OMPE V&lt;sup&gt;rm&lt;/sup&gt; XCF environmental error RC=&lt;%%&gt;% RSN=&lt;%%&gt;% S&lt;%%&gt;/IXCMGSO MEMBER=&lt;%%&gt;</td>
<td>The XCF component detected an internal error while processing a Data Send or Data Receive request.</td>
<td>The XCF request is abnormally terminated.</td>
<td>Contact IBM support.</td>
</tr>
<tr>
<td>KO2Z655E</td>
<td>OMPE V&lt;sup&gt;rm&lt;/sup&gt; XCF response failed RC=&lt;%%&gt;% RSN=&lt;%%&gt;% SENDER=&lt;%%&gt; RECEIVER=&lt;%%&gt;</td>
<td>The XCF request for data failed to complete.</td>
<td>The XCF request is abnormally terminated.</td>
<td>Contact IBM support.</td>
</tr>
<tr>
<td>KO2Z656E</td>
<td>OMPE V&lt;sup&gt;rm&lt;/sup&gt; The dependent WLM Enclave &lt;%%&gt; failed. RC=&lt;%%&gt;% RSN=&lt;%%&gt;%</td>
<td>The WLM enclave to support the zIIP enablement services failed to initialize.</td>
<td>The initialization of the OMENAMON Collector continues.</td>
<td>None.</td>
</tr>
<tr>
<td>KO2Z657I</td>
<td>OMPE V&lt;sup&gt;rm&lt;/sup&gt; WLM Enclave&lt;%%&gt;% successful. IIPHONORPRIORITY=&lt;%%&gt; zIIPs=&lt;%%&gt;</td>
<td>The zIIP offload WLM enclave is created or deleted. The message field IIPHONORPRIORITY=&lt;%%&gt; shows the value that is specified in the IEAOTPxx member of the MVS PARMLIB.</td>
<td>The initialization of the subsystem continues.</td>
<td></td>
</tr>
<tr>
<td>KO2Z658I</td>
<td>OMPE V&lt;sup&gt;rm&lt;/sup&gt; The dependent WLM Enclave &lt;%%&gt; failed. RC=&lt;%%&gt;% RSN=&lt;%%&gt;%</td>
<td>The WLM enclave to support the zIIP enablement services failed to initialize.</td>
<td>The initialization of the OMENAMON Collector continues.</td>
<td></td>
</tr>
<tr>
<td>KO2Z659I</td>
<td>OMPE V&lt;sup&gt;rm&lt;/sup&gt; The zIIP service failed.</td>
<td>A processing failure is indicated by the zIIP enablement and disablement services component.</td>
<td>The zIIP service request failed with an U2008 ABEND code and reason code.</td>
<td>Check the reason codes for more information.</td>
</tr>
<tr>
<td>KO2Z660I</td>
<td>OMPE V&lt;sup&gt;rm&lt;/sup&gt; The zIIP service failed.</td>
<td>The WLM enclave to support the zIIP enablement services is initialized successfully.</td>
<td>The initialization of the OMENAMON Collector continues.</td>
<td></td>
</tr>
<tr>
<td>KO2Z662I</td>
<td>OMPE V&lt;sup&gt;rm&lt;/sup&gt; Common routing table task &lt;%%&gt; AUTOTIME= &lt;%%&gt; ROUT=&lt;%%&gt;</td>
<td>The message field &lt;%%&gt; shows one of the following status messages:</td>
<td>The initialization of the IFI processing failed.</td>
<td></td>
</tr>
</tbody>
</table>
KO2Z663I • KO2Z669W

OverflowErr
The PE Server routing table storage size does not match the common routing table storage size.

Parse error
The AUTOTIME real time option that is specified in the OMPEOPTS real time options member is invalid. An interval of 5 seconds is used when copying the PE Server routing table to the common routing table.

Terminated
The virtual storage of the DB2 routing table is released successfully.

Wait-PEinit
The initialization of the DB2 routing table is waiting for the PESERVER initialization to complete.

The message field AUTOTIME= specifies the number of seconds at which the DB2 routing table is refreshed.

The message field ROUT= shows the ECSA virtual storage address of the DB2 routing table.

System action: The initialization of the subsystem continues.

KO2Z663I OMPE Vnnn The PESERVER subtask DGOVMSTR restarted successfully.
Explanation: The PESERVER master subtask failed because DB2 stopped. The PESERVER master subtask restarted successfully.

KO2Z664I OMPE Vnnn The PESERVER subtask completed successfully.
Explanation: The PESERVER master subtask completed successfully.

KO2Z667I OMPE Vnnn XCF Gateway message ID KO2Z665W suppressed.
LPAR=%%%%%% %COUNT=%%%%%% 
Explanation: The XCF send service request was sent to LPAR %%% times.
The message ID KO2Z665W was suppressed %%%% times.
System action: The XCF send service request is rejected.
User response: Start the OMEGAMON PE Collector on the target LPAR.

KO2Z665W LPAR= Lparname not connected to service
XCF request SSID=Subsystem-ID
CBA=Service-request RSN=Reason-code.
Explanation:
• Lparname specifies the remote XCF gateway target LPAR.
• Subsystem-ID specifies the target DB2 subsystem.
• Service-request specifies the remote control block access request routine.
• Reason-code is RSN=0000 1292 for version 5.1.0 or RSN=0000 1396 for version 5.1.1.

A member of the XCF-gateway sent a request to a member (LPAR) that resides on a remote XCF-gateway. The member on the remote XCF-gateway is not yet fully initialized, or it does not exist. Therefore DB2 subsystem monitoring data cannot be exchanged with the specified remote XCF gateway.

User response: Verify that the remote XCF-Gateway LPAR is successfully initialized and connected. Restart the request.

KO2Z668E OMPE Vnnn NTH SRB ABENDed.
CC=%%%%%% ABEND
CODE=%%%%%% RSN=%%%%%% 
Explanation: Near Term History collector instance terminated abnormally while running in enclave SRB-mode on a zIIP processor.
System action: The NTH collector instance is abnormally terminated.
User response: Contact IBM Support.

KO2Z669W The maintenance level of the XCF gateway is not compatible with OMEGAMON for Db2 PE <V1>.
Explanation: The PTF maintenance levels of the sending and the receiving OMEGAMON Collector XCF gateway must be the same.
• <V1> is version 5.4.0.
• <V2> is the name of the sending system where the local OMEGAMON Collector is running.
• <V3> is the PTF maintenance level of the sending OMEGAMON Collector XCF gateway.
• <V4> is the name of the receiving system where the remote OMEGAMON Collector is running.
• <V5> is the PTF maintenance level of the receiving OMEGAMON Collector XCF gateway.
System action: The request for data is rejected by the receiving XCF gateway.
User response: Verify the PTF maintenance levels of the local and the remote XCF gateway by checking the message ID KO2Z058I in the job log of the local and
the remote OMEGAMON Collector address space.

If the PTF maintenance levels do not match, install the latest maintenance level on all OMEGAMON Collectors and shut down and restart the OMEGAMON Collector address spaces.

KO2Z670W  The request to send data is rejected by OMEGAMON for Db2 PE because the maintenance levels of the XCF gateways are not compatible.

Explanation:  The PTF maintenance levels of the sending and the receiving XCF gateway do not match.
> <V1> is the version number of OMEGAMON for Db2 PE on the sending system.

System action:  The local XCF gateway rejects the request to send data.

User response:  Install the latest maintenance level on all OMEGAMON Collectors and shut down and restart the OMEGAMON Collector address spaces.

KO2Z806I  OMPE Vm SS Module disconnected from XCF group (%%%%%%%%% %%

Explanation:  The classic session or the common collector session successfully disconnected from the specified XCF group name.

System action:  None.

User response:  None.

KO2Z808E  OMPE Vm SSM=%%%%%% failed

Explanation:  This message is issued by the OMPE Collector subsystem to indicate that the specified load module has exceeded its execution limit.

System action:  The request is abnormally terminated.

User response:  Contact IBM support.

KO2Z896E  OMPE Vm SSM=%%%%%% exceeded %%% seconds execution time limit

Explanation:  This message is issued by the OMPE Collector subsystem XCF component to indicate that the specified load module has exceeded its execution limit.

System action:  The request is abnormally terminated.

User response:  Contact IBM support.

KO2Z900I  OMPE Vm Subsystem Shutdown in Progress

Explanation:  The VARY OMPE,SHUTDOWN command is currently being processed.

System action:  The subsystem initiates shutdown processing.

User response:  None.
KO2Z901W  OMPE Vm XCF gateway data receive tasks shortage detected

**Explanation:** Tasks to receive data are currently busy processing the corresponding requests.

**System action:** Requests to receive data are queued for later processing.

**User response:** You might want to increase the number of XCF gateway RECEIVE tasks that are specified by the XCFTASKS OMPEOPTS user option and restart the tasks that were started by the OMEGAMON for Db2 PE Collector.

KO2Z902I  OMPE Vm XCF gateway data receive tasks shortage relieved

**Explanation:** The shortage of the tasks to receive data is relieved.

**System action:** The processing of incoming tasks to receive data continues.

**User response:** None.

KO2Z904E  OMPE Vm System level name/token pair delete failed RC=%%%%%

**Explanation:** The subsystem could not delete a system level name/token pair.

- RC= indicates the return code. For more information, see "KO2Z return codes" on page 5144.

**System action:** The subsystem is abnormally terminated.

**User response:** Contact IBM support.

KO2Z907I  OMPE Vm System level name/token pair retrieve failed RC=%%%%%

**Explanation:** The subsystem could not retrieve a system-level name/token pair.

- RC= indicates the return code. For more information, see "KO2Z return codes" on page 5144.

**System action:** The subsystem terminated.

**User response:** Contact IBM support.

KO2Z920I  OMPE Vm Command successfully issued

**Explanation:** The issued command has been successfully executed.

**System action:** The command is executed.

**User response:** None.

KO2Z921E  OMPE Vm Invalid PARM specified. Function terminated

**Explanation:** The subsystem utility program detected a not valid input parameter.

**System action:** The utility function is terminated.

**User response:** Correct the problem and re-submit the utility request.

KO2Z922E  OMPE Vm Command not allowed from TSO/E Session

**Explanation:** The utility program cannot be executed from a TSO/E session as a called program or command processor.

**System action:** The utility function is terminated.

**User response:** Execute the utility function as a batch job or started task.

KO2Z923E  OMPE Vm Subsystem %%%% not found. Reset rejected

**Explanation:** The subsystem utility program cannot locate the indicated OMPE subsystem that has been requested as a target of the reset function.

**System action:** The utility function is terminated.

**User response:** Specify a valid OMPE subsystem name and re-execute the utility function.

KO2Z924I  OMPE Vm Subsystem %%%% Successfully reset

**Explanation:** The subsystem utility program successfully reset the indicated OMPE subsystem name.

**System action:** The indicated OMPE subsystem name is reset.

**User response:** None.

KO2Z926E  OMPE Vm Unable to post asynchronous API caller SSM=<V1> RC=<V2> RSN=<V3>

**Explanation:** An error occurred when trying to post the API caller.

- <V1> is the failing OMEGAMON for Db2 PE Collector subsystem module name.
- <V2> is the return code that is issued by the failing module.
- <V3> is the reason code that is issued by the failing module.

**System action:** The asynchronous API call is abnormally terminated.

**User response:** Contact your system programmer.
KO2Z956I  OMPE Vnnn Subsystem has been successfully shut down

Explanation: None.
System action: Subsystem processing is terminated.
User response: None.

KO2Z957I  OMPE Vnnn is issued on behalf of PE Server subtask %%%%%%%%%
QN=%%%%%%%%%% RN=%%%%%%%%%%%

Explanation: A resource serialization request has been issued by the PE Server subtask to alert OMPE components that normal PESERVER termination is in progress:
• <v1> shows the type of serialization request
• <v2> shows the resource major name
• <v3> shows the resource minor name
System action: OMPE Collector address space termination continues
User response: None.

KO2Z958I  OMPE V530 PE Server RTG service request failed. RC=000C
RSN=00088552

Explanation: The OMPE Collector subsystem was unable to process a common collector request for DB2 performance monitoring data.
• RC=000C indicates that a severe error occurred processing an initialization function.
• RSN= shows the reason code associated with the error return code.
• RSN=00091228 OMPE Collector started task address space is not up and running.
• RSN=00091232 OMPE Collector started task address space not responding.
System action: The Service request for DB2 performance monitoring data is rejected.
User response: Start the OMPE Collector without specifying REUSASID=YES.

KO2Z959I  OMPE Vnnn Initialization verification procedures bypassed. EXECIVPS=NO

Explanation: The OMPE Collector subsystem by default, at initialization time, executes the initialization verification procedures. When EXECIVPS=NO is specified, the initialization verification procedures are bypassed.
System action: The initialization verification procedures are not processed.
User response: Specify EXECIVPS=YES in RK2DPAR member OMPEOPPTS to have the initialization verification procedures executed during OMPE Collector started task address space initialization.

KO2Z960I  OMPE V530 PE Server environment error. RTG container address not initialized. RC=000C RSN=%%%%%%%%

Explanation: The OMPE Collector subsystem was unable to locate the PE Server list of monitored DB2 subsystems.
• RSN=00088544 - PE Server subtask failed to properly initialize.
• RSN=00088548 - PE Server routing table address of DB2 subsystems is not initialized.
• RSN=00088552 - PE Server routing table structure failed validity checks.
• RSN=00088556 - PE Server routing table monitored DB2 subsystem container contains zero entries.
• RSN=00088560 - PE Server routing table monitored DB2 subsystems container contains.
System action: The OMPE Collector subsystem fails to initialize its internal structures that point to the PE Server list of monitored DB2 subsystem. Classic and Common Collector sessions will fail display any monitored DB2 subsystem data.
User response: Review the job log for additional error messages that may have been issued by the PE Server component and verify that the RKD2PAR member OMPEMSTR does not contain validity check errors.

KO2Z961I  OMPE Vnnn OMPE Collector does not support executing in a reusable ASID

Explanation: The OMPE Collector address space has been started in a reusable ASID which is not supported.
System action: OMPE Collector address space is abnormally terminated.
User response: Start the OMPE Collector without specifying REUSASID=YES.

KO2Z962I  OMPE Vnnn Class PE routing service error. SSM=%%%%%%%%
SSID=%%%%% % RC=%%%%%
RSN=%%%%%%%

Explanation: A request to discover the status of a DB2 subsystem did not complete successfully.
• <v1> shows the requesting OMPE Collector subsystem module name
• <v2> shows the target DB2 subsystem identifier
• <v3> shows the service request return code
• <v4> shows the service request reason code
System action: The DB2 subsystem instance request is rejected.
User response: Start the OMPE Collector started task address space.

KO2Z999E  OMPE Vorm Subsystem error.
module=%%%%%%% ABEND=%%%% REASON=%%%%

Explanation: The OMPE subsystem recovery/termination manager indicates that the currently executing subsystem function was terminated.

System action: The subsystem might be shut down depending on the severity of the abend.

User response: Contact IBM support.
Chapter 10. Troubleshooting and support

This section summarizes what you can do if you encounter problems.

“Troubleshooting during installation”
“Troubleshooting commands” on page 4802
“Creating a diagnostic report” on page 5186
“Responding to dialog boxes” on page 5187
“Troubleshooting for Performance Expert Client” on page 5187
“Troubleshooting for Performance Warehouse” on page 5187
“Troubleshooting for Buffer Pool Analyzer” on page 5188
“Troubleshooting empty reports” on page 3001

Troubleshooting during installation

When you install OMEGAMON XE for DB2 PE, you might encounter specific problems. The following examples help you make a corrective action that resolves the problem, or provide your IBM representatives with enough information so that they can resolve it.

In general, when you get an error message, complete these steps:
1. Try to specify what the problem is.
2. Determine the resource that is affected.
3. Obtain more information.

Error in RKLVLOG indicating that the connection failed

This error occurs when the HTTP/HPPTS daemon tries to obtain a special port. You receive repeating messages in the RKLVLOG indicating that the connection failed with errno 93.

This error happens when the HTTP/HPPTS daemon tries to obtain a special port. You will see the following error message:
(0000-E0A2716B:kbbssge.c,52,"BSS1_GetEnv") KDP_D2_STC="DSNFOM4S"
(0001-E0A2716B:kbbssge.c,52,"BSS1_GetEnv") KDP_STATUS_REFRESH="60"
(0002-E0A2716B:kdpsapi,257,"d5api_connect") KD211000W Connection to OMPE Server DSNFOM4S
Failed Subsystem DSN7 Return=00000000 Reason=0000006A Retrying in 60 Seconds
(0000-E0B367EB:kdebbcn.c,35,"KDEB_BaseConnect") connect failed, errno 93

To solve this problem, perform the following steps:
1. Stop the OMEGAMON Agent.
2. Edit the member KD5ENV in <variable R1>.<variable R2>.RKANPARU and insert HTTPS:0\ as first transport protocol for KDE_TRANSPORT. For example,
   KDE_TRANSPORT=\ IP.UDP PORT:1918 USE:N\ IP6.PIPE PORT:1918 USE:N\ ... HTTPS:0\
3. Save the member and restart the OMEGAMON Agent.

Troubleshooting commands

This section provides an overview of the Troubleshooting commands.
Usage

This section describes the DUMP command used to dump records from an input data set, and the TAPECOPY command used to copy records from an input data set to an output data set. The options for these commands are almost identical. DUMP and TAPECOPY can each occur once in a job step. The description of the subcommand options is intentionally brief, to avoid recurrences. See “OMEGAMON for DB2 PE subcommand options” on page 4806 for comprehensive descriptions.

The following topics provide additional information:
- “DUMP command” on page 4802
- “TAPECOPY command” on page 4804

DUMP command

This section provides an overview of the Troubleshooting command DUMP.

Usage

The DUMP command is a tool used for diagnosis. It provides, in dump format, a printout of an input data set. All records in the input data set, a selected range of records, or specific record types can be dumped.

Usage notes

- The DUMP command defines options for the record dump module.
- Dumps are written to SYSPRINT in a hexadecimal dump format.
- “Sample JCL for DUMP and TAPECOPY commands” on page 4805 shows sample JCL for DUMP and TAPECOPY commands.

Syntax

```
DUMP (dump name) EXEC (INPUTDD) OFFSET (integer) CODES (codelist) SKIP (integer) STOPAFT (integer) MAXDUMP (integer)
```

Subcommand options

**dump name**

A user-defined name printed on the dump. If this field is omitted, the records are identified with the name DUMP0001.

Ensure that the specified name is not the same as a OMEGAMON for DB2 PE command keyword or abbreviation.

**EXEC**

Specifies INPUTDD as the ddname of the input data set. INPUTDD is the only valid ddname for this option and must be specified.
**OFFSET**
The offset of the record code into the record. The record code is a 1-byte field at position offset-plus-1. For example, OFFSET(4) defines a record code in the fifth byte of the record. The offset must be a numeric value less than the actual length of the record. The maximum value is 999 999 999. The default is 4.

**CODES**
The code values for records to be processed. Each code is a 2-digit hexadecimal number. You can specify either of the following:

- A list of values, for example '01,02,03'
- A range of values, for example '01-03,05-07'

Each entry must be separated by a comma. Enclose the code list in quotes if more than one value is specified.

If this option is omitted, all record codes (00-FF) are processed.

**SKIP**
The number of records to be skipped before processing begins. The maximum value is 999 999 999. The default is 0, which means that processing begins with the first record.

**STOPAFT**
The number of records to be processed, starting after the number of records to be skipped (SKIP option). The maximum value is 999 999 999. The default is 0, which causes all records (after skipping, if specified) to be processed.

**MAXDUMP**
The length of the dump in bytes, starting from the beginning of the record. The default is the full length of the record. You can enter any integer in the range of 1 to 99 999. For example, if you specify MAXDUMP(128), only the first 128 bytes of input records are dumped.

**Note:** Some IFCID records can be up to 32 KB in length. If you use the default for MAXDUMP (the entire record), very large reports can be produced.

**Example using DUMP**

In this example:

- The DUMP is named DUMPSTAT.
- The ddnname of the input data set is INPUTDD (the GLOBAL default).
- The offset of 4 defines a record code in the fifth byte of the record.
- Only records with a value of 01 or 02 in the fifth byte are dumped.
- The first 125 records of the input data set are skipped.
- The next 10 records that meet the specifications are dumped.
- Only the first 1 000 bytes of each record are dumped.

```plaintext
DUMPSTAT DUMP ( EXEC (INPUTDD) OFFSET (4) CODES ('01,02') SKIP (125) STOPAFT (10) MAXDUMP (1000))
```

**Note:** See also “Sample JCL for DUMP and TAPECOPY commands” on page 4805.

**TAPECOPY command**

This section provides an overview of the Troubleshooting command TAPECOPY.
Usage

The TAPECOPY command is a utility tool that you can use to select a specified subset or all records from an input data set, and copy them to an output data set. The selection logic is identical to that used for the DUMP command.

Usage notes

- The TAPECOPY command defines options for the data set copy module.
- Copies of selected portions of the input data set are produced on a user-specified output data set.

Syntax

```
TAPECOPY (EXEC (INPUTDD))
  tape copy name
  OFFSET (integer)
  CODES (codelist)
  SKIP (integer)
  STOPAFT (integer)
  NEWCOPY (ddname)
```

Subcommand options

- **tape copy name**
  A user-defined name identifying the records copied. If this field is omitted, the records are identified by the name COPY0001.

  Ensure that the specified name is not the same as a OMEGAMON for DB2 PE command keyword or abbreviation.

- **EXEC**
  Specifies INPUTDD as the ddname of the input data set. INPUTDD is the only valid ddname for this option and must be specified.

- **OFFSET**
  The offset of the record code into the record. The record code is a 1-byte field at position offset-plus-1. For example, OFFSET(4) defines a record code in the fifth byte of the record. The offset must be a numeric value less than the actual length of the record. The maximum value is 999 999 999. The default is 4.

- **CODES**
  The code values for records to be processed. Each code is a 2-digit hexadecimal number. You can specify either of the following:
  - A list of values, for example '01,02,03'
  - A range of values, for example '01-03,05-07'

  Each entry must be separated by a comma. Enclose the code list in quotes if more than one value is specified.

  If this option is omitted, all record codes (00-FF) are processed.

- **SKIP**
  The number of records that are skipped before processing begins. The maximum value is 999 999 999.

  The default is 0. If 0 is specified, processing begins with the first record.
STOPAFT
The number of records to be processed, starting after the number of records to be skipped (SKIP option). The maximum value is 999 999 999.

The default is 0. This causes all records (after skipping, if specified) to be processed.

NEWCOPY
The ddname of the output data set. The default is TAPECOPY.

Example using TAPECOPY
In this example:
• The TAPECOPY is named COPYSTAT.
• The ddname of the input data set is INPUTDD (the GLOBAL default).
• The offset of 4 defines a record code in the fifth byte of the record.
• Only records with a value of 01 or 02 in the fifth byte are copied.
• The first 50 records of the input data set are skipped.
• The next 10 records that meet the specifications are copied.
• The ddname of the output data set is OUTDATA.

COPYSTAT TAPECOPY(
EXEC (INPUTDD)
OFFSET (4)
CODES ('01,02')
SKIP (50)
STOPAFT (10)
NEWCOPY (OUTDATA))

Sample JCL for DUMP and TAPECOPY commands
The following figure shows a sample JCL for the DUMP and TAPECOPY commands.

Note: The command syntax shown below is not appropriate in all circumstances. You must modify it to meet your requirements and system setup.
Creating a diagnostic report

If you have an error that you cannot resolve yourself, for example, if a function does not work correctly or an error message appears that you do not understand, you can create a diagnostic report that you can send to IBM support as a problem management report (PMR).

You create a report from the System Overview window. To forward the report to IBM support, ensure that you have specified your e-mail settings in the global settings. For more information about specifying global settings, see "Specifying global settings" on page 2504.

To create a diagnostic report:

1. In the System Overview window, click **Help > Diagnostics**.

   The Diagnostics window is displayed.
2. Click the **Start** ( ) toolbar button to start recording diagnostic information.

3. When you have recorded the entire information, click the **Stop** ( ) toolbar button.

4. Do one of the following:
   - Click the **Send** ( ) toolbar button to send the diagnostic report to IBM support.
     The Send Diagnostic Information window is displayed. Type a brief description of the problem in the **Subject** field and click **OK**. The diagnostic report is sent to IBM support and deleted from your system.
   - Click the **Save** ( ) toolbar button.
     The Save Diagnostic Information window is displayed. In the **Scenario** field, provide a detailed description of the error situation and click **OK**.

**Responding to dialog boxes**

OMEGAMON for Db2 PE supports a *modal* dialog boxes, such as message boxes, to which you must respond before you can proceed with any other action.

If such a dialog box is in the background, do the following:

1. Press Alt+Tab.
   A dialog box is displayed.

2. Press the Tab key while holding the Alt key until the Java Cup and Steam Logo is selected.

3. Release the Alt key.
   The previously invisible dialog box is displayed in the foreground.

4. Respond to the dialog box.

**Troubleshooting for Performance Expert Client**

This topic describes the problems that you might encounter in Performance Expert Client.

**Performance Expert Client does not work correctly after startup**

If you have a firewall installed on your workstation, ensure that Performance Expert Client has correct access permissions. Otherwise, Performance Expert Client does not work correctly.

**Launching Netscape as HTML browser**

If launching an HTML browser from Performance Expert Client fails, the browser is opened separately.

**Troubleshooting for Performance Warehouse**

The following sections describe the problems that you might encounter in Performance Warehouse.
Solving code-page problems when accessing Performance Warehouse

For some installations, you might receive SQL0332 errors when accessing Performance Warehouse.

To solve this problem, set DB2CODEPAGE to a value that is compatible with the host SCCSID. In addition, the SYSIBM.SYSSTRINGS table must contain a row that maps the two values in the INCCSID OUTCCSID columns. For more information about DB2CODEPAGE values, see the section National Language Support Considerations in one of the DB2 Connect Quick Beginnings books.

If you still cannot connect to Performance Warehouse, you might see the following message: SQL0332N - There is no available conversion for the source code page "1208 UNKNOWN 3" to the target code page. Reason Code. SQLSTATE=57017.

To solve this problem, add DISABLEUNICODE=1 in the file sqllib\db2cli.ini for the DB2 subsystem, where sqllib is the default DB2 Connect installation directory. See also the technical notes (Technotes) #1008683 and #1008573.

If DISABLEUNICODE does not work, you might get the following message: SQL0332N There is no available conversion for the source code page "01208" to the target code page "00437". Reason code "DSNXRIVB". SQLSTATE=57017.

To solve this problem, UNICODE support on z/OS must be enabled correctly including Enforced Subset and Round Trip method in the conversion image. For more information, see APAR PQ40270 and PMR #68853.

Restarting the OMEGAMON Collector

Before restarting the OMEGAMON Collector, which manages Performance Warehouse, disconnect from all Performance Warehouse clients and all subsystems of Performance Expert Clients that are connected.

This is necessary because the clients might hold a lock on the Performance Warehouse data tables and prevent the OMEGAMON Collector from restarting and initializing.

Running a CONVERT step with an incorrect data set

CONVERT steps assume Save data sets as input that were produced by Performance Expert batch reports. If a CONVERT step runs with an incorrect input data set, the OMEGAMON Collector fails (see error log) and is unable to run any processes. In this case, the OMEGAMON Collector must be stopped and restarted.

Troubleshooting for Buffer Pool Analyzer

This section categorizes possible Buffer Pool Analyzer problems and describes steps to solve them. The intention of this section is to provide a fast problem determination.

Problems with a collect task

Collect task terminates with message FPEM0802E and a reference to SQL code -805 Contact your DB2 administrator. One or more packages might need to be rebound. This error can occur if the product or a product update was improperly installed.
Collect task with compression shows TERSEMVS messages
These messages indicate errors reported from the TRSMAIN utility. See “Interpreting trace status summary and trace messages” on page 2614 about how to diagnose these errors.

Problems with batch jobs

Not enough records read or too many records lost
If the job summary log (JOBSUMDD) indicates these problems, your batch job might not have sufficient priority. See the recommendation in “Collecting data by using the batch JCL” on page 2616 for details.

Abend B37 (out of space) when creating reports or bpd files
Buffer Pool Analyzer cannot store temporary data in a temporary work data set because of virtual storage constraints. Use the BPWORK DD statement as described in “Specifying a JCL command stream” on page 2620.

FPEU0020E or FPEC4085U insufficient virtual storage
Check the REGION statement in the affected batch job.

Missing information in reports or bpd files

Sections are missing in reports
Ensure that you have collected the appropriate data type (Summary or Detail). See “Determining what to collect” on page 2593, “Configuring a collect task” on page 2611, and “Collecting data by using the batch JCL” on page 2616.

For reports, ensure that you have specified the appropriate LEVEL option of the BPACTIVITY REPORT command. See “Specifying reports and bpd files with BPACTIVITY” on page 2622.

Check the job summary log JOBSUMMDD for more details. See “Specifying a JCL command stream” on page 2620.

Object placement function lacks information about unused objects
If you miss certain objects in one of the windows, or if only active objects are listed (the Used column always shows Yes), or if the Show only objects with activity or Assign objects not accessed during data collection check boxes seem to have no effect, it is likely that you have used a bpd file that was created with the BPACTIVITY FILE ACTIVEOBJECTS command. The ACTIVEOBJECTS subcommand option excludes all information about inactive, respectively unused objects.

This behavior is not an error. If you want inactive objects to be considered during your object placement optimization, you need to use a bpd file that is created without the ACTIVEOBJECTS subcommand option.

Problems with client functions

Out of memory message
Your client might not have enough available physical memory (random access memory) to start or to perform a function. See the General remarks topics at the beginning of the corresponding sections for specific memory requirements.

Unable to select a bpd or trace data file
The file name extension of the bpd or trace file should be bpd, respectively trace, as described in “File and data set naming conventions” on page 2599.
If you have used other file name extensions, select All files (*) from the File of type list in the Open dialog box to see all files and select the file with your custom extension.

Unable to open a bpd or trace data file
Ensure that the file size is less than 2 GB. If required, modify the data collection parameters (described in "Configuring a collect task" on page 261).

Message BPOK6000 - Internal error - is displayed
You tried to open a buffer pool data (bpd) file with one of the client-based functions, but the bpd file could not be opened or properly preprocessed. The file might be damaged, does not contain data in the required format (Short or Standard) or data type (Summary or Detail), or was not created by means of the BPACTIVITY FILE command. Create a new bpd file, or use another bpd file. See Table 210 on page 2595 and "Specifying reports and bpd files with BPACTIVITY" on page 2622, if required.

If this error occurs when you use the File Transfer Protocol (FTP), also check whether your file transfer program provides the RDW and NORDW command options. If the default is RDW, it might cause a four-byte record descriptor record to be included in the data set being downloaded from the host to the client (which might then cause message BPOK6000). Specify the NORDW command option to avoid the creation of the descriptor record.

Unintentional characters are displayed during data entry
Check and correct the regional settings of the Windows operating system.

Simulation does not finish - progress indicator stops at approximately 99%
The number of simulated buffer pool sizes, determined by the minimum and maximum buffer pool size and the interval, should not exceed 40. See "Step 1: Setting simulation parameters" on page 2700 for more details.

Hard disk drive space management
Buffer Pool Analyzer needs to keep its input files (the buffer pool data files and trace data files) on the client's local hard disk drive to perform its functions. Further, Buffer Pool Analyzer keeps its results (from object placements, simulations, and long-term analyses) also on its local hard disk drive. Over time, you might have collected a multitude of input files and results that unnecessarily use up hard disk space.

Buffer Pool Analyzer does not perform any cleanup. All files and results remain on the hard disk until you delete them. Use the following guidelines to delete no longer required files and results:

Input files
Buffer pool data files (*.bpd) and trace data files (*.trace) are stored in optional folders, which are determined by you when these files are downloaded.

Delete these files by using the client's functions (Windows Explorer).

Output files
Results from different Buffer Pool Analyzer functions are stored in folder C:\Documents and Settings \<userid> \db2pev<version> \... \... and various subfolders. Do not delete individual files from these folders; they are also used by other DB2 Performance Expert functions and as temporary work area. If required, use them only to determine how much hard disk space they use (Windows' Properties function).
To delete results, use the Buffer Pool Analyzer main window. Refer to one or more of the following sections for a description:

- “Viewing the result of an optimization cycle” on page 2694
- “Viewing the result of a simulation cycle” on page 2704
- “Viewing the result of a long-term analysis” on page 2715

This process ensures that all files belonging to a report or result are properly deleted.

## Troubleshooting empty reports

This topic lists and explains several reasons why your report might not contain any report data. Use this information as a guide to identify possible reasons, including inappropriate command parameters.

At its core, OMEGAMON XE for DB2 PE identifies data to be collected and reported by IFCIDs. [“DB2 instrumentation data” on page 2762](#) provides an overview of how IFCIDs map to report sets, DB2 trace types and DB2 trace classes. The basic rule is that data to be reported needs to be collected and made available as input data to the report generation process. If required IFCIDs are missing, the generated report ends with *NO DATA TO REPORT*.

The problem of missing IFCIDs might also be caused by different versions of DB2 or OMEGAMON XE for DB2 PE. Both products might support different sets of IFCIDs, which can lead to situations where an IFCID is either not provided by a DB2 version or cannot be processed by an OMEGAMON XE for DB2 PE version. The same problem might arise if data from other sources, like SMF or GTF, is used for reports.

OMEGAMON XE for DB2 PE provides flexible means to specify which data to collect and which data to report. However, it provides no means to protect against inappropriate use of commands, subcommands and subcommand options, which also can result in empty reports.

The following sections list possible reasons why your report might end with a final message of *NO DATA TO REPORT*.

### Messages indicating unsupported IFCIDs or IFCID formats

If the job summary log shows message [FPEC4015I NUMBER OF RECORDS FROM UNSUPPORTED RELEASES OF DB2 WAS ...](#), OMEGAMON XE for DB2 PE has detected IFCIDs in its input data that it is not supposed to handle. Either the input data is from an outdated DB2 version and the IFCID is no longer supported by OMEGAMON XE for DB2 PE, or the input data contains IFCIDs from a newer DB2 version and OMEGAMON XE for DB2 PE is not yet aware of them.

If the job summary log shows message [FPEC4020I NUMBER OF RECORDS FROM UNSUPPORTED PRODUCT RELEASES WAS ...](#), the input data (such as input data in DPMOUT format) was created by earlier versions of OMEGAMON XE for DB2 PE or OMEGAMON XE for DB2 PM and is no longer supported.

### Identifying missing IFCIDs

Report sets such as Accounting, Locking, or Statistics require specific IFCIDs from DB2 instrumentation data, as outlined in [“DB2 instrumentation data” on page 2762](#).
If the input data sets (specified with the INPUTDD statement in your job stream) do not contain these IFCIDs, the generated report ends with NO DATA TO REPORT.

For example, an Accounting report requires IFCIDs 3 and 239 in the input data. If the job summary log shows nothing more than in the following example (no IFCIDs 3 and 239), your Accounting report remains empty.

<table>
<thead>
<tr>
<th>IFCID</th>
<th>INPUT COUNT</th>
<th>INPUT PCT OF TOTAL</th>
<th>PROCESSED COUNT</th>
<th>PROCESSED PCT OF TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>89</td>
<td>33.58%</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>2</td>
<td>88</td>
<td>33.20%</td>
<td>0</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

Note: The job summary log gives a clear indication about which IFCIDs are contained in your input data. If an IFCID is not listed in the IFCID column or the INPUT COUNT column shows a count of 0, your input data does not contain this IFCID.

Reasons for missing IFCIDs

IFCIDs might be missing in your reports because they are either not collected (missing in the input data for the report generation) or being accidentally suppressed or filtered by inappropriate use of commands, subcommands, or subcommand options.

To identify why specific IFCIDs are not collected, review the methods of how the data was collected. “Collecting data for reports” on page 2748 describes several methods, some of them let you explicitly specify what to collect. For example, the DB2 startup parameters might determine that certain trace classes (with their implied IFCIDs) are not started.

If your input data to specific reports contains the required IFCIDs, but your reports still do not show any data, it is likely that restrictive command or subcommand options are in use in your job stream.

- The GLOBAL command might apply global filters to all data serving as input to subsequent OMEGAMON XE for DB2 PE commands like ACCOUNTING or STATISTICS.
- OMEGAMON XE for DB2 PE commands like ACCOUNTING or STATISTICS might use subcommand options that further restrict the data. The most important ones are:
  - FROM/TO might limit the time frame too much.
  - INCLUDE/EXCLUDE might limit a DB2 trace class or an IFCID.

For more information about commands and subcommand options, see the Report Command Reference.

For example, a Statistics report requires IFCIDs 1 and 2. The following job summary log shows that 48 records of each IFCID are included in the input data. However, none of these are being processed (PROCESSSED COUNT equals 0) during the report generation and consequently the Statistics report is empty.

<table>
<thead>
<tr>
<th>IFCID</th>
<th>INPUT COUNT</th>
<th>INPUT PCT OF TOTAL</th>
<th>PROCESSED COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>48</td>
<td>25.00%</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>48</td>
<td>25.00%</td>
<td>0</td>
</tr>
</tbody>
</table>
Insufficient amount of Statistics record pairs (IFCID 1 and 2)

Output in a Statistics report requires at least two DB2 Statistics record pairs (IFCID 1 and 2) in the input data. These IFCIDs are collected at a configurable interval (DB2 system parameter STATIME). For more information, see “General Statistics information” on page 2912.

An empty Statistics report usually indicates that either the input data does not cover at least two intervals or that filters restrict the amount of data being processed during report generation.

The following example of a job summary log shows that a sufficient amount of IFCID 1 and 2 records are in the input data (INPUT COUNT column). However, filters have limited the number of processed records below the required minimum of two record pairs (PROCESSED COUNT column). Consequently, the Statistics report is empty.

<table>
<thead>
<tr>
<th>IFCID</th>
<th>INPUT COUNT</th>
<th>INPUT PCT OF TOTAL</th>
<th>PROCESSED COUNT</th>
<th>PROCESSED PCT OF TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>48</td>
<td>25.00%</td>
<td>1</td>
<td>1.02%</td>
</tr>
<tr>
<td>2</td>
<td>48</td>
<td>25.00%</td>
<td>1</td>
<td>1.02%</td>
</tr>
</tbody>
</table>

The following job stream example shows how improper use of subcommand options cause an empty Statistics report. Here, the REDUCE step causes a summarization of input data to an interval of 60 minutes, with a boundary to the start of the hour. However, in the REPORT step the FROM and TO subcommand options limit the data to 30 minutes, which is less than a single interval.

```
STATISTICS
  REDUCE
    INTERVAL(60)
    BOUNDARY(60)
  REPORT
    FROM (12/22/13,12:15:00.00)
    TO (12/22/13,12:45:00.00)
```

Messages indicating incomplete Accounting data (IFCID 3 and 239)

If the job summary log shows one or more of the following messages, incomplete Accounting data was found in the input data and your Accounting report might be incomplete. In the worst case, the report might end with NO DATA TO REPORT.

- FPEA4531I GENERAL ACCOUNTING DATA FOR LUWID INSTANCE <VI> IS MISSING. IFCID 3 IS MISSING.
- FPEA4532I ACCOUNTING DATA FOR A NUMBER OF PACKAGES FOR LUWID <VI> IS MISSING. ONE OR MORE IFCID 239 IS MISSING.
- FPEA4534I COORDINATING PARALLEL TASK FOR LUW INSTANCE <VI> IS NOT REPORTED AS NOT ALL INFORMATION FOR ASSISTING PARALLEL TASKS FROM MEMBER <VI> IS AVAILABLE.

Accounting reports require IFCID 3 for reporting a thread. However, package or program data belonging to a thread is contained in multiple 239 IFCIDs. A 1:n relation is established within the data. For correct reporting a complete set of these IFCIDs is required in the input data.

In case of DB2 Query Parallelism, additional sets of IFCIDs 3 and 239 are required. They were created from parallel processors or from DB2 systems that assisted an
initiating agent. Dependent on the degree of parallelism, this can result in a 1:p
relation between agent and parallel tasks. In other words, correct Accounting
processing needs from the agent one IFCID 3 and n IFCIDs 239, and for each of the
p parallel tasks also one IFCID 3 and a certain number of IFCIDs 239.

Accounting processing needs a complete set of these IFCIDs for a correct reporting.
If either IFCIDs 239 belonging to an IFCID 3 are missing, or if IFCIDs 239 are
available but their IFCID 3 is missing, the entire thread is excluded from further
processing and reporting.
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### Index

#### Special characters

- ? (64-bit integers) 887
- /ATTN command 1453
- /AUP command 1453
- /BOTTOM command 1453
- /D command 1454
- /DCL command 1454
- /DEF command 1456
- /H command 1459
- /HELP command 1459
- /HOLD command 1459
- /LOG command 1466
- /LOGOUT command 1466
- /O command 1466
- /P command 1466
- /PRINT command 1466, 1468
- /PWD INFO-line 1468
- /REP command 1469
- /RESHOW command 1470
- /S command 1471
- /SAVE command 1469, 1471
- /STOP command 1476
- /TOP command 1477
- /U command 1478
- /UP command 1478
- /ZOOM INFO-line command 1484
- .DCL command 1454
- .DD command 1454
- .DSA command 1457
- .FGO immediate 1457, 1477
- relational operators 1458
- .I command 1460
- .ILC command 1460
- .log 1460
- .LOG command 1460
- .MOD command 1464
- .PKF command 1467
- .PRM command 1468
- .RTN command 1470
- .SGO command 1473, 1477
- .TSF command 1477
- .TSF00 immediate 1477
- .VTM command 1478
- .WAT command 1479
- .ZAP command 1484
- > (as action character) 1465
- > (character string delimiter) 1480, 1483
- < (as character) 1465, 1482
- === command 1453
- " (character string delimiter) 1480, 1483

#### Numerics

- 3270 Tab key 1343

#### A

- about this information 1727, 1775
- about this publication 885

### Accelerator
- KDPACCN 1749
- report and trace blocks Accounting 3216
- statistics 1749
- Accelerator Data report and trace blocks Statistics 4316
- Accelerator Data - Prior to Version 4 report and trace blocks Statistics 4316
- Accelerator Data - Version 4 or later report and trace blocks Statistics 4321
- Accelerator Detail Accelerator Perspective fields 1339
- navigation 1338
- panel 1337
- Accelerator Detail Subsystem Perspective fields 1334
- navigation 1334
- panel 1332
- Accelerator Statistics Detail fields 1330
- navigation 1329
- panel 1329
- Accelerator Statistics Overview 1328
- access path 2811
- access path data explain 3414
- access path of SQL statements 2544
- accessibility 2579, 2998, 4846
- accessibility features 26
- accounting averages 3019
- headers 3017
- long report 3067
- long trace 3172
- short report 3020
- short trace 3040
- Accounting 2788
- class 1 times 2875
- class 2 times 2875
- DB2 trace 2762
description 2745
distributed activity 2870
distributed data 2935
distributed times 2873
effective reports 2877, 2883, 2885,
2895, 2989, 2909
exception processing 2883
exception report 2800
general 2865
groupe-scope report 2941
input for reports and traces 2875
MAINPACK identifier 2966, 2971
missing data 2877
nondistributed times 2873
ORDER processing 2885
processing considerations 2877
query parallelism 2871

### Accounting (continued)
- record generation 2876
- report and trace blocks 3215
- Accelerator 3216
- Data Capture 3224
- Data Sharing Locking 3226
- Distributed Activity - Requester 3228
- Distributed Activity - Server 3236
- Distributed Activity Requester (Short Report) 3037
- Distributed Activity Requester (Short Trace) 3064
- Distributed Activity Server (Short Report) 3034
- Distributed Activity Server (Short Trace) 3061
- Drain and Claim 3245
- Dynamic SQL Statement 3245
- General (Short Report) 3027
- General (Short Trace) 3054
- Global Contention L-Locks 3248
- Global Contention P-Locks 3249
- Group Buffer Pool Activity 3250
- Highlights 3253
- Identification 3265
- Initial DB2 Common Server Correlation 3270
- Initial DB2 Common Server or Universal JDBC Driver Correlation 3272
- Initial DB2 Requester Correlation 3273
- Initial Other Requester Correlation 3275
- Locking 3277
- Logging Activity 3280
- Measured/Elig Times 3280
- MVS Accounting 3284
- Package Buffer Pool Activity - Class 10 3285
- Package General (Short Report) 3031
- Package General (Short Trace) 3060
- Package Global Contention L-Locks - Class 8 3288
- Package Global Contention P-Locks - Class 8 3289
- Package Identification 3290
- Package Identification - Report 3291
- Package Identification - Trace 3295
- Package Locking Activity - Class 10 3300
- Package SQL Activity - Class 10 3303
- Package Times - Class 7 3312
- Package Times - Class 8 - Suspensions 3305
ARCV exception 904
assigning objects 2690
active object 2690
buffer pool size 2690
for object placement 2690
for simulation 2702
inactive object 2690
object size 2690
as number of buffer pool pages 2690
unused object 2690
inactive object, assignment 2690
used object 2690
asterisk (*) wildcard character 2690
in near-term history data collection options specifications 326, 4663
Asynchronous Task Termination panel 1788, 1791
ATF 15
audience 852, 1727
audience of this information 885
audit
authorization change detail (Type AUTHCHG) 3391
authorization change summary (AUTHCHG) 3375
authorization control detail (type AUTHCNTRL) 3398
authorization control summary (AUTHCNTRL) 3376
authorization failure detail (type AUTHFAIL) 3401
authorization failure summary (AUTHFAIL) 3377
DDL access detail (DDL) 3405
DDL access summary (DDL) 3381
description 2746
detail 3385
DML access detail (type DML) 3407
DML access summary (DML) 3382
DML at bind access detail (type BIND) 3403
DML at bind access summary (BIND) 3380
file data set 3409
summary report 3372
trace 2758, 3385
utility access detail (Type UTILITY) 3408
utility access summary (UTILITY) 3384
AUDIT command 4709
with FILESubcommand 4716
with REDUCE subcommand 4713
with REPORT subcommand 4711
with TRACE subcommand 4715
audit report 3372
Audit trace starting automatically 2758
AUDWORK 4685
AUFILDD1 4683
AURFTDD 4683
AUTHID/PRIMAUTH identifier comparing original with primary 2995, 2996, 4842, 4843
DB2 START TRACE command 2760
AUTHLIB control statement 54
authorization changing SQL authorization 1795
explain 2813
Explain function 1921
requirements 1786
viewing attempts and successes 1891
authorization change detail (Type AUTHCHG)
audit 3391
authorization change summary (AUTHCHG)
audit 3375
authorization control detail (type AUTHCNTRL)
audit 3398
authorization control summary (AUTHCNTRL)
audit 3376
authorization failure 1820
listing 1820
authorization failure detail (type AUTHFAIL)
audit 3401
authorization failure summary (AUTHFAIL)
audit 3377
Authorization Failure Summary window 1820
Authorization Management report and trace blocks
Statistics 4331
authorizations Buffer Pool Analyzer 856
authorized commands
/PWD command 44
.DSA 43
CONS 43
DCMD 43
dcns 43
MCHN 43
MLST 43
MSCN 43
MZAP 43
OCMD 43
OSPC 43
passwords 44
PEEK 43
SCHN 43
SLST 43
SSCN 43
SZAP 43
tcmd 43
xchm 43
XMLS 43
XMSC 43
XMPZ 43
AUTO command 1863, 1917
statistics 1917
thread activity 1863
Auto Display window 1794
AUTOEXCPTHNAME
OMEGAMON Collector startup parameter 1813
Automatic Exception Processing 19
See Periodic Exception Processing automatic logging facilities
TSF command 1477
automatic panel facility (ASF)
OPTN keyword 1489
printer and routing options 1511
terminating 1470
AUTRCD1 4685
AUWORK 4685
auxiliary command 4781
CASE command 4781
description 2771
FIELD command 4783
GLOBAL command 4785
GROUP command 4792
LIST command 4800
troubleshooting command 4802, 5182
averages 3019
B
collection parameter syntax 2616
compress trace data 2740
example 2616, 2740
uncompress trace data 2740
Batch parameters
KD2_CLA_DB21D_DFLT 79
KD2_CLA_LROWS 82
KD2_CLA_MVS_SYSID 83
KD2_CLA_SEC_AUTH_CLAS 81
KD2_CLA_STC 72
KD2_CLA_UAMX 84
KD2_CLA_USER 85
KD2_CLA_VTM_APPLOGON 85
KD2_CLA_VTM_NODE 86
KD2_OMPE_AUTFAIL 87
KD2_OMPE_AUTODETECT 88
KD2_OMPE_CCCP_TIMER 89
KD2_OMPE_CCCP_TRACE 90
KD2_OMPE_CF_REBUILT 90
KD2_OMPE_CHECKSYS 91
KD2_OMPE_CPU_PARALLEL 92
KD2_OMPE_DB2_EVENT 93
KD2_OMPE_DB2_EXIT 93
KD2_OMPE_DB2_USER 94
KD2_OMPE_DB2EXIT 72
KD2_OMPE_DB2LOADLIB_V10 73
KD2_OMPE_DB2LOADLIB_V11 74
KD2_OMPE_DB2LOADLIB_V12 75
KD2_OMPE_DB2RUNLIB_V10 76
KD2_OMPE_DB2RUNLIB_V11 77
KD2_OMPE_DB2RUNLIB_V12 78
KD2_OMPE_DEADLOCK 95
KD2_OMPE_DSHLQ 96
KD2_OMPE_DSN_EXTENT 97
KD2_OMPE_DSP_SIZE 98
KD2_OMPE_E2E_MON_SPRT 98
KD2_OMPE_EDMP_FULL 99
Index 5203
### Batch parameters

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KD2_PF_HIS_WHEN_CORRID</td>
<td>131, 253</td>
</tr>
<tr>
<td>KD2_PF_HIS_WHEN_ORIG</td>
<td>135, 254</td>
</tr>
<tr>
<td>KD2_PF_HIS_WHEN_PLAN</td>
<td>136, 255</td>
</tr>
<tr>
<td>KD2_PF_OA_ECM</td>
<td>154</td>
</tr>
<tr>
<td>KD2_PF_OA_INTV</td>
<td>155</td>
</tr>
<tr>
<td>KD2_PF_OA_START</td>
<td>156</td>
</tr>
<tr>
<td>KD2_PF_OA_THRD</td>
<td>156</td>
</tr>
<tr>
<td>KD2_PF_OA_WAIT</td>
<td>157</td>
</tr>
<tr>
<td>KD2_PF_READA_OPBFSIZE</td>
<td>308</td>
</tr>
<tr>
<td>KD2_PF_READA_OBPUTFHR</td>
<td>309</td>
</tr>
<tr>
<td>KD2_PF_READA_SPMON</td>
<td>310</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHDATA</td>
<td>263</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHDATA1</td>
<td>263</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHHKST</td>
<td>264</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHLTHD</td>
<td>265</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHSPAI</td>
<td>266</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHSPAR</td>
<td>267</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHSQLC</td>
<td>267</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHSQLI</td>
<td>268</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHSQLT</td>
<td>269</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHSSZE</td>
<td>270</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHSTA</td>
<td>271</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHSTAT</td>
<td>271</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHTHDD</td>
<td>272</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SHTHDI</td>
<td>273</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQCON1</td>
<td>274</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQCON2</td>
<td>274</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQCON3</td>
<td>275</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQCON4</td>
<td>276</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQCON5</td>
<td>276</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQCON6</td>
<td>277</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQCOR1</td>
<td>278</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQCOR2</td>
<td>278</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQCOR3</td>
<td>279</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQCOR4</td>
<td>280</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQCOR5</td>
<td>280</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQCOR6</td>
<td>281</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQPLA1</td>
<td>282</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQPLA2</td>
<td>282</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQPLA3</td>
<td>283</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQPLA4</td>
<td>284</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQPLA5</td>
<td>284</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQPLA6</td>
<td>285</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQPR1</td>
<td>286</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQPR2</td>
<td>286</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQPR3</td>
<td>287</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQPR4</td>
<td>288</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQPR5</td>
<td>288</td>
</tr>
<tr>
<td>KD2_PF_SH_D2SQPR6</td>
<td>289</td>
</tr>
<tr>
<td>KD2_PF_SQUID</td>
<td>149</td>
</tr>
<tr>
<td>KD2_PF_SQPLA_CF_ANLC</td>
<td>299</td>
</tr>
<tr>
<td>KD2_PF_SQPLA_CF_ANLP</td>
<td>300</td>
</tr>
<tr>
<td>KD2_PF_SQPLA_CF_ENBL</td>
<td>300</td>
</tr>
<tr>
<td>KD2_PF_SQPLA_ENABLE</td>
<td>301</td>
</tr>
<tr>
<td>KD2_PF_SQPLA_STEPDSN</td>
<td>302</td>
</tr>
<tr>
<td>KD2_PF_SQPLA_VERSION</td>
<td>303</td>
</tr>
<tr>
<td>KD2_PF_TRACES_318</td>
<td>304</td>
</tr>
<tr>
<td>KD2_PF_TRACES_400</td>
<td>304</td>
</tr>
<tr>
<td>KD2_PF_TRACES_DB2CMD2</td>
<td>305</td>
</tr>
<tr>
<td>KD2_PF_TRACES_DB2CMD3</td>
<td>306</td>
</tr>
<tr>
<td>KD2_PF_TRACES_DB2CMD4</td>
<td>307</td>
</tr>
<tr>
<td>KD2_PLAN_NAME_OVERRIDE</td>
<td>152</td>
</tr>
<tr>
<td>Batch processing</td>
<td>Description</td>
</tr>
</tbody>
</table>
batch report
creating 2769
Batch Reporter, see Reporter 14, 399
bb (blank) command 1453
best practices 378
bind activity
ACQUIRE and RELEASE to reduce thread creation costs 1895
viewing statistics on plans 1889
bind package data
explain 3418
Bind Processing window 1889
Bind Statistics Detail panel 1527
Bind Statistics panel 1178
Bind Statistics Summary by Report Interval panel 1525
BLKSIZE 4676
block of data
adding 2953
replacing fields 2955
Block Selection panel 2952
BMSR command 1113
BMTM exception 905
bootstrap data set, DB2 2632
BOUNDARY subcommand option 4807
BP 1735, 1746, 1749
BP command 1116
BPA, see Buffer Pool Analyzer 398
BPACTIVITY command
comparison to GLOBAL command 2619
example of use in batch job 2620
purpose 2584
purpose of FILE subcommand 2598
purpose of REPORT subcommand 2597
syntax 2622
syntax of subcommands 2622
use in batch job 2618
bpd file 2611
content 2736
exclude inactive objects 2619
from concatenated input, using 2685
how to create 2618
how to load into tables 2736
samples 2603
samples for optimization 2684
samples for viewing long-term performance data 2708
storing data in DB2 table 2592, 2736
bpd file creation
introduction 2598
overview 2592
bpd files 2734
BPID
definition 2625
BPWORK, DD statement 2620
browser
configure on z/OS 2683, 2698
buffer manager 1113
Buffer Manager Activity window 1849
Buffer Manager Information panel 1113
Buffer Manager window 1881
buffer pool
comparison by operation 2605
1/O activity detail 3433
1/O activity summary 3426
buffer pool (continued)
listing active buffer pools 1881
listing buffer pools used by a thread 1849
long-term page fix option 2697
management 1882
page stealing 1119, 1536
PGSTEAL 1119, 1536
purpose 2585
role in DB2 system 2585
viewing
buffer pool used by a thread 1849
current values 1938
statistics 1882
buffer pool activity 1116
buffer pool analysis 2588
generalized approach 2605
buffer pool analysis, introduction 2498
Buffer Pool Analyzer 8, 852, 2582
adding 398
buffer pool sizing function 2600
collect data function 2593
collecting data 2609
create bpd file function 2597
create report function 2597
object placement function 2600
optimization function 2600
overview 8, 856
overview of core functions 2592
setup
adding Buffer Pool Analyzer to the DB2 Administration Tool
launchpad 860
adding Buffer Pool Analyzer to your ISPF environment 860
binding DB2 plan 858
binding packages for DB2 858
changing the FPEJINIT EXEC 858
configuration jobs 861
configuring ISPF defaults 859
final verification step 861
reviewing security requirements 858
running sample verification jobs 861
verification jobs 861
verifying 861
simulation function 2601
SMP/E installation 855
view performance data function 2599
wizard for object placement 2600
Buffer Pool Analyzer Client
installing 853, 854, 861
program files, installing 854
setup
installing Buffer Pool Analyzer Client 861
software requirements 853
starting 855
buffer pool attribute
PGSTEAL 2697
Buffer Pool Detail panel 1114
Buffer Pool Detail window 1849
buffer pool efficiency 2785
Buffer Pool General
report and trace blocks
Statistics 4334
Buffer Pool Parameters
report and trace blocks
System Parameters 4614
Buffer Pool Parameters (DSNTIP1)
report and trace blocks
System Parameters 4525
Buffer Pool Read
report and trace blocks
Statistics 4338
buffer pool size
how to optimize 2683
Buffer Pool Snapshot Datasets panel 1124
Buffer Pool Snapshot Open Pagesets panel 1123
Buffer Pool Sort/Merge
report and trace blocks
Statistics 4347
Buffer Pool Statistics Detail panel 1532
Buffer Pool Statistics Summary by Report Interval panel 1530
buffer pool tuning processes 2588
Buffer Pool windows 1882
Buffer Pool Write
report and trace blocks
Statistics 4349
buffer pool, refreshing Statistics 2520
buffer pools
buffer pool details KDPBPDS2 1749
global buffer pools 1749
KDPGBFPO 1739
group buffer pool KDPGPOOL 1749
KDPBP52 1749
KDPGBPPLK 1749
KDPGBPOL 1749
KDPGBPPF 1749
KDPGBPSC 1749
KDPGBPSY 1749
buffer pools (group)
KDPGBPBC 1739
KDPGPGBD 1739
KDPGBPBL 1739
KDPGBPPO 1739
KDPGBPFP 1739
KDPGBPBS 1739
KDPGBPPLL 1739
build plan data
explain 3417

C
CA-TOP SECRET security rules 49
cache structure
definition 2660
CALCULATE subcommand option of REDUCE 2997, 4844
calling conventions of the Classic Interface 50
Cancel Thread 1742
Cancel Thread panel 1022
Candle Data Warehouse (refer to Tivoli Data Warehouse) 20

Index 5205
CPU Times 4359
CPU times and Other Data window 1904
CRD (Collect Report Data) panels 2750
CRD (collect report data) step 2560
CRD function collecting data 2609
Create Application Trace Data Set Name panel 1354
Create Plan Table window 1923
CREATE TABLE statement usage 2736
creating DB2 subsystem configuration 378, 381
duplication 378, 381
CSA, See common storage area 1486
CSV data 2985
CTHD exception 905
Current DBRM window 1837
Current Package window 1835
Current Parallel Task Summary panel 1013
Current SQL Counts panel 952
Current SQLID window 1795
Current Status for Exceptions panel 917
cursor pointing feature 1484
customization workspace 847, 849
customizing Accounting and Statistics reports and traces 2950, 2959
extinction thresholds 334
panel 334
customizing the ISPF Online Monitor 334
cycle delay 1471

D

DATA 1735, 1746
data capture
statistics viewing 1908
thread activity 1856
viewing statistics 1908
Data Capture report and trace blocks 3224
Accounting Statistics 4362
Data Capture window 1908
data collection
detail data 2593
group buffer pool 2593
how to collect data 2607
IFCID collecting 2593
introduction 2593
overview 2592
IBM Db2 Performance Expert on z/OS

data collection (continued) 2593
specification of record format 2593
summary data 2593
IFCIDs 2593
data collector
exception event 372
periodic exception 372
viewing
past data 372, 1807
past statistics 1919
past thread activity 1864
Data Definition Control Support (DSNTIPZ)
report and trace blocks
System Parameters 4526
data definition name (ddname) 2769, 2771
data group
configuration, reusing 2530
creating 2521
Data Manager threshold 905
data parameters 4528
data set
ddnames 2769, 2771
DPMOUT 2770
streamlining processing 2949
exception processing output 1822
for the individual report sets 2770
general 2769
producing 2744
TKOSAMP 2736
viewing activity 1888
data set maintenance menu
defining exception thresholds 2795
defining the MAINPACK identifier 2966
specifying time zones 2960
Data Set Maintenance menu 892, 1410
defining exception thresholds 1410
data set member
TKOSAMP(BPOMACRD) 2616
TKOSAMP(BPOQBTCH) 2620
data set name
convention 2611
for trace data 2611, 2616
Data Set Statistics
report and trace blocks
Statistics 4363
data set, buffer pool Statistics refreshing 2520
Data Sets Used by Threads panel 1026
data sharing 33, 2942
collecting input 2942
monitoring entire groups 2940, 2941
monitoring individual members 2938, 2939
data sharing group 2542, 2920
lock conflicts 2514
purpose 2586
Statistics, viewing 2542
system health, viewing 2543
threads, monitoring 2542
data sharing locking
statistics viewing 1909
data sharing locking (continued)
thread activity 1859
viewing statistics 1909
Data Sharing Locking
report and trace blocks
Accounting 3226
Statistics 4365
Data Sharing Locking Activity window 1859
Data Sharing Locking window
statistics 1909
thread activity 1859
data space
display memory 1474
modifying storage 1476
scan storage 1475
Data to Collect window 2753
data view
changing 2524
chart color and pattern, changing 2529
configuration, reusing 2530
creating 2521, 2524
definition 2521
displaying as performance graph in the System Overview window 2530
global threshold
changing 2523
specifying 2528
grid, adding 2529
percentages 2525
single threshold, specifying 2528
snapshot
changing the number of visible snapshots 2529
freezing their display 2529
data, DDF 2868
data access thread 2868
data access thread (DBAT) maximum number concurrently active 1902
database activity 1736
Database Activity panel 1404
Database Allocations panel 1396
database request module (DBRM), explaining 1929
Databases and Spaces Started
Automatically (DSNTPS)
report and trace blocks
System Parameters 4531
Dataset Allocations panel 1400
Dataset Extend Activity panel 1429
date format 1804
Online Monitor 1804
DATEFORMAT subcommand
option 4809
DAY keyword 1477
DB2
bootstrap data set 2632
DB2 Address Space Allocated DDnames and Datasets panel 1441
DB2 Address Space Job Information and Start Time panel 1443
DB2 Address Space Jobpack Area
Modules panel 1444
DB2 Address Space Region and Program Information panel 1445
DB2 Address Space Storage Allocated by Subpool panel 1447
DB2 Address Space Virtual Storage Map panel 1440
DB2 Administration Tool launchpad, adding
Buffer Pool Analyzer 860
DB2 API
report and trace blocks
Statistics 4363
DB2 Catalog and Directory Panel (DSNTPA2)
report and trace blocks
System Parameters 4538
DB2 command 1799
described in 2628, 2696
description 1799
displaying the total number of commands executed 1905
DB2 Command Output window 1799
DB2 Command Statistics by Report Interval panel 1598
DB2 Command Statistics Detail panel 1600
DB2 Command Statistics panel 1305
DB2 Command window 1800
DB2 Commands
report and trace blocks
Statistics 4384
DB2 Commands window 1905
DB2 commands, issuing 2506
DB2 Connect
Performance Expert for DB2
Connect Monitoring 19
DB2 Connect gateway
changing its properties 2504
defining 2503
logging on 2505
monitoring 2531
DB2 Connect group-scope monitoring master 901
DB2 Connect master 975, 978, 984, 989, 1431
DB2 connect server
KDPCONN 1745
KDPCONNS 1745
KDPCPERF 1745
KDPCPKG 1745
KDPCTASK 1745
DB2 Connect Server panel 1430
DB2 Connect/Gateway Package Statistics panel 1438
DB2 Connect/Gateway Performance panel 1437
DB2 Connect/Gateway Statistics panel 1432
DB2 Connect/Gateway Task Detail panel 1436
DB2 Connect/Gateway Tasks List panel 1435
DB2 Event Exception Processing 17
enabling 325
DB2 Event Observation, see DB2 Event Exception Processing 325
DB2 Explain 289
configuring 393
enabling 392
DB2 Explain Output panel 1932
DB2 IFC Destinations window 1907
DB2 instrumentation facility description 2747
displaying the number of records written 1906
records written to IFC destinations 1907
START TRACE command 2758, 2762
DB2 Instrumentation window 1906
DB2 load libraries 313
DB2 LOAD utility usage 2736
DB2 Messages (KDPMSGS)
KDPMSGC 1749
KDPMSGH 1749
DB2 messages subcommand 4653
DB2 Performance Expert collecting data 2609
DB2 plan, binding
Buffer Pool Analyzer 858
DB2 privileges granting 857
DB2 Statistics Detail panel 1877
DB2 Statistics record pair 2913
DB2 storage management statistics consistency of data 1309
DB2 storage management statistics 1309
DB2 subsystem 152
associating with monitoring profile 387
changing its properties 2503
configuring 387
DB2 commands, issuing 2506
defining 2500
exception processing 2535
logging off 2507
logging on 2505
properties, specifying 2501
SQL activity tracing 2513
starting several monitoring functions 2505
system parameters, viewing 2534
threads, viewing all active 2508
DB2 Subsystem window 1790
DB2 System Monitor window 1790
DB2 subsystems, monitoring 1780, 1785
controlling the writing of monitor output 1792
exception event processing 1784
exception processing 1780
exception profiling 1782
exception report 1785
identifying unusual situations 1782
monitoring trends 1783
performance objectives 1782
periodic exception processing 1784
selecting the DB2 to be monitored 1789
tuning the operating environment 1781
DB2 summary information 897
DB2 System Console and Message Traffic panel 1025
DB2 System Parameters panel 1938
DB2 system parameters, viewing 2534
DB2 table storing content of bpd file into 2592, 2736
DB2 Table Qualification Parameters window 1868
DB2 Thread Sort Specification window 1872
DB2 thread status 1724
DB2 traces configuring 394
DB2 Utilities Parameters (DSNTIP6, DSNTIP61, DSNTIP62) report and trace blocks
System Parameters 4539
DB2 version differences unavailable data 1309
DB2 Version Install (DSNTIPA1) report and trace blocks
System Parameters 4546
DB2C Master 901, 975, 978, 984, 989, 1431
DB2PM 311, 314
DB2SYS keyword 1698
DBAT 2868
DBAT (database access thread) maximum number concurrently active 1902
DBAT-distributed thread 2868, 2937
DBM1 and MVS Storage Below 2 GB report and trace blocks
Statistics 4370
DBM1 database services address space OP buffer 2614
DBM1 Storage Above 2 GB report and trace blocks
Statistics 4374
DBRM (database request module) explaining 1929
DBRM (database request module), explaining 1929
DBRM and Plan List panel 1929
DBRM option EXPLAIN command 4720
DBRM SQL Statement window 1929
DCL 1738, 1750
DCS applications, monitoring connections of 2531
DD statements 4676
ACFIlDD1 4683
ACMEM01 4676
ACRPTDD 4683
ACRSTDD 4684
ACSAVDD 4684
ACTRCD1 4685
ACWORK 4685
AUDWORK 4685
AUFILDD1 4683
AURPTDD 4683
AUTRCD1 4685
AUWORK 4685
BLKSIZE 4676
BFPHLD1, DD statement 2620
BPRPTDD, DD statement 2620
BFWORK 2620
data set name for bpd file 2620
for report data 2620
DD statements (continued)
DD statements
BFPHLD1 2620
BPRPTDD 2620
DPMLOG 4677
from create bpd file task 2620
from create report task 2620
DPMOUTDD 4677
DPMPARMS 4678
ERRDMPDD 4678
EXCPTDD 4679
EXFILDD 4679
EXPRODDA 4680
EXTRCD1 4680
INPUTDD 2620, 4680
IORPTDD 4683
IOTRCDD 4685
JOBSUMDD 2620, 4681
JSSRSDD 4681
LOFILDD1 4683
LORPTDD 4683
LORTRCD1 4685
LOWORK 4685
LRECL 4676
RECfm 4676
RTFILDD1 4683
RTRPTDD 4683
RTRCD1 4685
RTWORK 4685
SQLWORK 4685
SRQPTDD 4683
SQTRCDD1 4685
STFILDD1 4683
STRPTDD 4685
STRSTDD 4684
STSAVDD 4684
STTRCD1 4685
STWORK 4685
SYSDN 2620, 4682
SYSOUT 2620, 4682
SYSPRNDD 4682
UTRPTDD 4683
UTTRCD1 4685
UWORK 4685
DDCS 1735
DDF (Distributed Data Facility) 2935
between DB2 and non-DB2 systems 2937
between DB2 systems 2936
description 2935
examples 2936
listing locations communicating with a thread 1853
selecting threads 2936
viewing location communicating with a thread 1854
statistics on remote data 1903
subsystem-wide activity 1901
thread conversion 1855
DDF data 2686
DDFS exception 906
DDL 1738, 1750
DDL access detail (DDL) audit 3405
Index 5209
DDL access summary (DDL)
daudit 3381
ddname
ACWORK
determine size for REDUCE
processing 2997, 4844
ddname (data definition name) 2769, 2771
DDNAME option
FILE subcommand 4770
REPORT subcommand 4758
SAVE subcommand 4765
TRACE subcommand 4768
DDNAME subcommand option 4811
DDS 1746
debugging 1465
Default Startup Modules (DSNTIP03)
report and trace blocks
System Parameters 4531
defered write threshold setting,
criteria 2697
Define Group or Member (DSNTIPK)
report and trace blocks
System Parameters 4529
definition
Exception Log data set in JCL 2795, 2883
Exception Log File data set in
JCL 2795, 2883, 2929
defining exception groups 1459
defining OMEGAMON Collector
component message logs 404
defining the DB systems to be
monitored 2500
definition
active buffer pool 2700
BPID 2625
cache structure 2660
castout 2586
Exception File data set 2795
excepton log 2794
exception report 2794
parallel task 1634
PSTYPE 2625
QPAGESET 2625
definition mode 1456
DEGREE option
EXPLAIN command 4720
Delete Installation Profile panel 1509
Delete User Profile panel 1508
deleting
results from simulations 2704
deleting entries 1360
delimiter character
see separator character 3467
DELT command 1456
DELT command 1918
invoking delta processing mode 1876
statistics 1918
delta processing 2517
combined with HISTORY
command 1920
delta value 1874
description 1876
resetting delta mode 1919
delta record 2913
delta values, definition 2515
Describe a Profile panel 1506
descriptions 1765
DEST option 2799
detail
audit 3385
detail report
I/O activity details 3433
DFSORT, SPANIN option 4788
DGOBFLD3 panel 2955
DGOBFLD4 panel 2954
DGOBMENU panel 2951
DGOBPBLK panel 2952
DGOBPLAY panel 2952
DGOBPSAV panel 2958
DGIOETV51
different versions of 2930
sample Exception Threshold data set
member 2930
warning message 2930
DGOFEP00 panel 2932
DGOFOT5 panel 1794
DGOMAP00 panel 2730
DGOMAP10 window 2757
DGOMAP30 window 2752
DGOMAP31t window 2753
DGOMAP32 window 2754
DGOMAP33 window 2754
DGOMCCMD panel 1800
DGOMCDCO panel 1799
DGOMDMMU panel 1796
DGOMDPMN panel 1789
DGOMDWAD panel 1794
DGOMDWDHD panel 1792
DGOMDWMCO panel 1793
DGOMDWS1 panel 1790
DGOMDWSL panel 1790
DGOMDMWSS panel 1795
DGOMEM02 panel 1813, 1943
DGOMEM03 panel 1815
DGOMEM04 panel 1811
DGOMEM01 panel 1788
DGOMEM03 panel 1791
DGOMHWHY panel 1808
DGOMLAFS panel 1820
DGOMLAMP panel 1819
DGOMLAXP panel 1818
DGOMLED0 panel 1956
DGOMLEMP panel 1821
DGOMLEXP panel 1821
DGOMLMSP panel 1817
DGOMLXSP panel 1819
DGOMPA40 window 2755
DGOMSPSM panel 1877
DGOMSWB panel 1914
DGOMSWBD panel 1915
DGOMSWBI panel 1889
DGOMSWBM panel 1881
DGOMSWBR panel 1882
DGOMSWBS panel 1884
DGOMSWBT panel 1885
DGOMSWBU panel 1886
DGOMSWBV panel 1886
DGOMSWBY panel 1882
DGOMSWCD panel 1908
DGOMSWCM panel 1905
DGOMSWDP panel 1901
DGOMSWEP panel 1880
DGOMSWGB panel 1911
DGOMSWGD panel 1912
DGOMSWIF panel 1907
DGOMSWIN panel 1906
DGOMSWLG panel 1891
DGOMSWLK panel 1887
DGOMSWOC panel 1888
DGOMSWOT panel 1904
DGOMSWPD panel 1898
DGOMSWQP panel 1899
DGOMSWRL panel 1903
DGOMSWRP panel 1900
DGOMSWSL panel 1909
DGOMSWSP panel 1916
DGOMSWSQ panel 1896
DGOMSWSS panel 1893
DGOMSWSV panel 1891
DGOMTCTR panel 1866
DGOMTIPS panel 1827, 1951
DGOMTIPS panel 336, 1831
customizing 339
DGOMTLM panel 1849
DGOMTLMW panel 1849
DGOMTMWDC panel 1856
DGOMTMCW panel 1851
DGOMTWMDC panel 1837
DGOMTWMDC panel 1855
DGOMTWDD panel 1853
DGOMTWDL panel 1854
DGOMTWG panel 1860
DGOMTWGD panel 1861
DGOMTWID panel 1833
DGOMTWDL panel 1843
DGOMTWL panel 1841
DGOMTWM panel 1834
DGOMTWPK panel 1835
DGOMTWQ panel 1868
DGOMTWQ panel 1856
DGOMTWQ panel 1845
DGOMTWQW panel 1845
DGOMTWQL panel 1859
DGOMTWSP panel 1862
DGOMTWSP panel 1846
DGOMTWSS panel 1872
DGOMTWTC panel 1839
DGOMUXTP user exit 2541
DGOMYJKMK panel 1932
DGOMYPMN panel 1925
DGOMYWDL panel 1929
DGOMYWDQ panel 1930
DGOMYWDQ panel 1929
DGOMYWS panel 1931
DGOMYWII panel 1949
DGOMYWKQ panel 1928
DGOMYWK panel 1927
DGOMYWP panel 1926
DGOMYWP panel 1927
DGOMYWQC panel 1923
DGOMYWHQ panel 1923
DGOMYWH panel 1937
DGOMYWTI panel 1948
DGOMZPSM panel 1938
DGOMZOBM panel 2933
DGOMZOBM panel 1940
NOTE: defining exception thresholds 1940,
2795
DSNZPARMS (KDPFZSYS) (continued)
KDPPZPF 1735
KDPPZPRM 1735
KDPPZSP 1735
KDPPZSTG 1735
KDPPZSYS 1735
KDPPZTRC 1735
KDPPZUTL 1735
DSNZPARMS (KDPZSYS)
KDPPZAPPL 1746
KDPPZARC 1746
KDPPZBP 1746
KDPPZCTL 1746
KDPPZDATA 1746
KDPPZDCS 1746
KDPPZDSN 1746
KDPPZIND 1746
KDPPZIRLM 1746
KDPPZLOG 1746
KDPPZOTH 1746
KDPPZPARM 1746
KDPPZPERF 1746
KDPPZSP 1746
KDPPZSTG 1746
KDPPZSYS 1746
KDPPZTRC 1746
KDPPZUTIL 1746
DUMP command 4802, 5182
DWAT exception 906
Dynamic SQL Cache by Authid panel 1152
Dynamic SQL Cache by Transaction ID panel 1153
Dynamic SQL Cache Statement Summary by Key Field panel 1158
Dynamic SQL Cache Statistics by End User ID panel 1156
Dynamic SQL Cache Statistics by Workstation Name panel 1155
Dynamic SQL Statistics panel 1159
Dynamic SQL Statement report and trace blocks
   Accounting 3245
   Statistics 4379
dynamic SQL statement cache 2518
dynamic subsystem name assignment 403

EDM Pool Statistics Summary by Report
   Interval panel 1549
   EDM Pool window 1880
   EDM Snapshot Authorization Cache Storage panel 1149
   EDM Snapshot Cursor Tables panel 1145
   EDM Snapshot Database Descriptors panel 1144
   EDM Snapshot Dynamic SQL Cache Statement Statistics panel 1170
   EDM Snapshot Free Storage panel 1176
   EDM snapshot package table detail 1147
   EDM Snapshot Package Table Summary panel 1146
   EDM Snapshot Skeleton Cursor Tables panel 1148
   EDM snapshot package table detail 1151
   EDM Snapshot Skeleton Table Summary panel 1150
   EDM Snapshot static SQL cache statement detail panel 1165
   elapsed time format 1803
   Online Monitor 1803
   empty reports 2749, 3001, 5191
   enable SQL Performance Analyzer 405
   enabling 391, 393, 399
   enabling DB2 instance gateway
   Performance Expert Agent for DB2 Connect Monitoring
   Windows 413
   Enabling Near-Term History 389
   Enclave Detail Information panel 1030
   Enclave Thread Summary panel 1082
   end-to-end SQL or stored procedure monitoring 20, 852
   enhanced 3270 user interface 9
   ENTO exception 907
   ENTU exception 907
   ENTW exception 908
   EPTT subcommand 4653
   erasure error, panel 1491
   ERRDMPDD 4678
   ERRDMPDD data set 2770
   error during data collection on z/OS 2614
   error during data set compression on z/OS 2614
   error messages, IBM support 4852
   errors 1805, 1806
   command not found 1806
   insufficient storage to display thread activity information 1806
   STEPLIB missing from IRF-generated JCL 1805
   ETIM exception 908
   Event Collection Manager (EVENTMGR) 1394
   Event Collection Manager subtask commands 4664
   START DB2 4664
   START INTERVAL 4664
   START PARM 4665
   START THREAD 4665
   STOP DB2 4664
   event exception processing 2536

Event Exception Processing, see DB2
   Event Exception Processing 325
   Event Observation, see DB2 Event Exception Processing 325
   EVENTMGR (Event Collection Manager) 1394
   EVENTMGR subtask commands 4664
   START DB2 4664
   START INTERVAL 4664
   START PARM 4665
   START THREAD 4665
   STOP DB2 4664

exception
   background processing 1497
   defining exception groups 1459
   groups (CICS) 902, 903
   groups (DB2 system) 902
   groups (DB2 System) 903
   groups (IMS) 902, 903
   groups (thread) 902
   groups (Thread) 903
   logging 1511
   /LOGOUT command 1461
   LOG command 1460
   reset 902
   set background exception 1498
   settings 902, 1488
   specifying 2795
   tripped 902
   values 902
   XOPT command 1498

Exception Analysis Options menu 1498
exception DPMOUT data set attributes 1793, 1823
Exception Event Messages window 1821
exception event processing 1784
   description 1810
   listing messages 1821
   OMEGAMON Collector 373
   performance problem determination 1784
   starting 1816
   viewing events 1821

Exception Event Summary window 1821
exception field
   changing the description 2972
   editing 339
exception field, editing 339
Exception File data set
   definition 2795
   exception log 2883
   definition 2794
   description 2744
   example 3008
   field descriptions 3010
   generate 3008
   header fields 3009
   input 3007

Exception Log data set
   defining in JCL 2795, 2883
Exception Log File data set
   attributes 1822, 2929
   defining in JCL 2795, 2883, 2929
   description 1822
   output record layout 1987
   printing 1822
   sample files 1823

E mail settings, specifying
   for sending diagnostics reports 2504
Eclipse, see IBM Eclipse Help
   Server 851
   editing
      pattern file for object placement 2687
      EDM 1749
      EDM pool 1177
      EDM Pool Activity report and trace blocks
         Statistics 4397
      EDM Pool Information panel 1136
      EDM Pool Snapshot Summary panel 1143
      EDM Pool Statistics Detail panel 1551
Exception Logging menu

Exception Log File data set (continued)
specifying processor name 1815
Exception Log File print utility 1822
exception logging facility (XLF) 1511
printer and routing options 1512
Exception Logging Facility (XLF) 1512
Exception Logging menu 1511
Exception Messages panel 902
Exception Notification window 1811
EXCEPTION option
FILE subcommand 4770
REPORT subcommand 4758
TRACE subcommand 4768
Exception Output Data Sets window 1815
exception processing 1809, 1824, 2928
Accounting 2883
activating and deactivating 1813, 1943
definition 2535
description 1809, 2794
difference between Online Monitor and batch processing 1812
display exception description 1809
starting 1816
viewing 1819
event exception processing
event exception log 2538
events, list 2536
starting 2537
stopping 2537
exception event 1784
description 1810
OMEGAMON Collector 373
performance problem determination 1784
starting 1816
viewing 1821
exception notification 2536
interval processing 2517
modes 1809
output data set 1822
output types 2794, 2928
performance problem
identification 1780
eample 1940
periodic exception 1784
description 1810
listing messages 1819
OMEGAMON Collector 372
performance problem
identification 1784
starting 1816
viewing 1818
periodic exception processing
periodic exception log 2540
starting 2540
stopping 2540
threshold set, changing 2540
threshold set, creating 2539
profiling 2931
restarting 1816
starting 1812, 1816
starting from Exception Processor panel 1813
exception processing (continued)
starting with OMEGAMON Collector 1813
statistics 2924
stopping 1823
thresholds, definition 2539
types, definition 2536
user exit, activating 2541
viewing messages and status 1817, 1822
viewing past data 1811
when to use 2803
Exception Profiling panel 895, 2932
exception report 2883
Accounting 2800
definition 2794
monitors 1785
EXCEPTION subcommand option 4811
exception threshold 2883
defining 334, 1812
streamlining processing 2948
Exception Threshold Category Selection panel 2796
Exception Threshold data set
attributes 2930
block size 2930
building 1814
different versions of 2930
maintaining 1779
modifying 2930
purpose 2930
record format 2930
record length 2930
reinitializing 1813
sample 2802
sample member 2801
sample
RK0ZDATA(DGOETV51) 2930
specifying in Exception Processor panel 1814
specifying thresholds in 1812
threshold values in 1809
using at OMEGAMON Collector startup 1813
warning message 2930
Exception Threshold Field Details panel 2797, 2801
Exception Threshold Field Selection panel 2797
EXCEPTIONEVENT
OMEGAMON Collector startup parameter 1813
EXCLUDE and INCLUDE
DPMOUTDD 4677
EXCLUDE subcommand option 2944, 4815
filtering input 2944
with GLOBAL command 4791
EXCPTDD 4679
EXCPTDD data set 2770
EXEC
FPEJINIT 1776, 1787
EXEC command 4718
execution log 3006
EXFILDD1 4679
EXFILDD1 data set 2770
exit routine concepts 49
EXP command 1457
Expand function key for scrollable fields 1805
expiration date 1457
explain 1921, 2811, 3410
access path data 3414
authorization 1921, 2813
bind package data 3418
build plan data 3417
data set 2771
DBRM 1929
description 1921, 2747
distributed data 2935
EXPLAIN PACKAGE command 3420
EXPLAIN PLAN command 3420
EXPLAIN SQLSTMT command 3422
host variables data 3416
index data 3415
key data 3415
key distribution data 3415
method 1924
output 1932
performance considerations 1922
plan table considerations 1923
plan table entry 1926
PLAN_TABLE data 3414
process overview 1924
raw EXPLAIN data 3414
specifying the SQL statement 1931
SQL statement 1924
streamlining processing 2949
summary report 3419
table and table space data 3416
viewing access path method 1932
Explain 17
configuring 393
enabling 392
EXPLAIN command 1864, 1934, 1937, 4719
thread activity 1864
with EXPLAIN PACKAGE specifications 4724
with EXPLAIN PLAN specifications 4723
with EXPLAIN QMFQUERY specifications 4726
with EXPLAIN QUERYNO specifications 4728
with EXPLAIN SQLSTMT specifications 4727
Explain menu 1925
EXPLAIN option 4790
Explain Output panel 1932
EXPLAIN PACKAGE command 3420
EXPLAIN PACKAGE specifications 4724
EXPLAIN PLAN command 3420
EXPLAIN PLAN specifications 4723
FILE subcommand (continued)
  with SYSPARMS command 4774
Filter Options for Thread Activity
Displays panel 1069, 1514
filtering input 1782, 2942, 2945
filtering threads 2511
final verification steps, setup
Buffer Pool Analyzer 861

FIRST option
EXPLAIN command 4720
fixes 438
font size, how to change 2582
FORCE option
EXPLAIN command 4720
FORMAT option
EXPLAIN command 4720

FILE subcommand 4770
REPORT subcommand 4758
TRACE subcommand 4768
function key
commands to change the
defaults 1798
defaults 1796
for scrollable fields 1805
see F1 to F6 886
function key command 1467
Functions Thread Summary panel 1074

General (Short Trace)
report and trace blocks
Accounting 3054
general subtask commands 4652
generating a report
on z/OS 2618
Generation Data Group (GDG) 2765
GETP exception 908
GLOBAL command 4785
command options 2552
comparison to BPACTIVITY
command 2619
description 2772
exclude filter 2558
filter criteria, specifying 2557
include filter 2557
suppressing PRESORTED 2946
timestamp option 2557
TIMEZONE option 2960, 2964
with EXCLUDE subcommand
option 4791
with EXPLAIN option 4790
with INCLUDE subcommand
option 4791

Global Contention L-Locks
report and trace blocks
Accounting 3248
Global Contention P-Locks
report and trace blocks
Accounting 3249
global control parameter 324
Global DDF Activity
report and trace blocks
Statistics 4401
global group buffer pool

coupling read requests 1914, 1915
Statistics Detail window 1915
Statistics window 1914
Global Lock Statistics Detail panel 1595
Global Lock Statistics panel 1280
Global Lock Statistics Summary by
Report Interval panel 1593
graphical user interface 20
Group Active Threads
KDPPTHDS 1731
KDPPTHRD 1731
group buffer pool
activity data 2648
attributes 2657
class castout threshold 2648
data collection 2593
definition
group buffer pool hit ratio 2648
XI cross-validation 2648
group buffer pool
hit ratio, definition 2648
listing pools used by a thread 1860
listing pools used by DB2 1911
P-lock 2659
role in data sharing group 2586
RPL
definition 2648
viewing
group buffer pool used by a
thread 1861
pool used by a DB2 1912
IFCID (continued)

DWTH buffer pool attribute 2636
frequency distribution log 2620
group buffer pool specific 2593, 2657, 2659, 2660
hit ratio
definition 2636, 2665
IRLM 2659
list of collected 2620
page steal method 2632
PGSTEAL buffer pool attribute 2632
PSTYPE
object type 2659
QW0007NP DB field 2665
read request
types of 2665
system hit ratio
definition 2636
threshold, fixed
DMTH, data manager critical
threshold 2636
IWTH, immediate write
threshold 2656
SPTH, sequential prefetch
threshold 2656
VDWQT buffer pool attribute 2632, 2665
VPSEPQT buffer pool attribute 2632, 2665
VPXPSEPQT buffer pool attribute 2632
IFCID (instrumentation facility
component identifier)
description 2762
frequency distribution log
description 2744

IFCID 001 - Checkpoint and IFI Data
report and trace blocks
Record Trace 3532

IFCID 001 - CPU Time Data
report and trace blocks
Record Trace 3535

IFCID 001 - DB2 Command Data
report and trace blocks
Record Trace 3536

IFCID 001 - DDF Data by Location
report and trace blocks
Record Trace 3542

IFCID 001 - Destination Related Data
report and trace blocks
Record Trace 3545

IFCID 001 - Global DDF Data
report and trace blocks
Record Trace 3546

IFCID 001 - IFCID Data
report and trace blocks
Record Trace 3550

IFCID 001 - Log Manager Data
report and trace blocks
Record Trace 3551

IFCID 001 - QSTT Data
report and trace blocks
Record Trace 3561

IFCID 001 - QVAS Data
report and trace blocks
Record Trace 3561

IFCID 001 - QVLS Data
report and trace blocks
Record Trace 3562

IFCID 001 - Subsystem Services Data
report and trace blocks
Record Trace 3556

IFCID 001 - System Statistics
report and trace blocks
Record Trace 3532

IFCID 001 - z/OS Metrics
report and trace blocks
Record Trace 3565

IFCID 002 - Accelerator Data -
Accelerator Perspective V4 or later
report and trace blocks
Record Trace 3577

IFCID 002 - Accelerator Data - Prior to V4
report and trace blocks
Record Trace 3568

IFCID 002 - Accelerator Data -
Subsystem/Group Perspective V4 or later
report and trace blocks
Record Trace 3572

IFCID 002 - Accelerator SQL Call Data V4
or later
report and trace blocks
Record Trace 3581

IFCID 002 - Buffer Pool Activity
report and trace blocks
Record Trace 3582

IFCID 002 - Data Manager Data
report and trace blocks
Record Trace 3598

IFCID 002 - Data Sharing Locking Data
report and trace blocks
Record Trace 3604

IFCID 002 - DB2 Statistics
report and trace blocks
Record Trace 3568

IFCID 002 - Dynamic SQL Statement
report and trace blocks
Record Trace 3607

IFCID 002 - EDM Pool Data
report and trace blocks
Record Trace 3609

IFCID 002 - Group Buffer Pools Activity
Data report and trace blocks
Record Trace 3615

IFCID 002 - Locking Data
report and trace blocks
Record Trace 3625

IFCID 002 - Miscellaneous
report and trace blocks
Record Trace 3628

IFCID 002 - Nested SQL Activity
report and trace blocks
Record Trace 3630

IFCID 002 - Query Parallelism
report and trace blocks
Record Trace 3631

IFCID 002 - RID List Processing
report and trace blocks
Record Trace 3634

IFCID 002 - ROWID
report and trace blocks
Record Trace 3636

IFCID 002 - Service Controller Data
report and trace blocks
Record Trace 3637

IFCID 002 - Simulated Buffer Pool
Activity report and trace blocks
Record Trace 3644

IFCID 002 - SQL Call Data
report and trace blocks
Record Trace 3646

IFCID 003 - Accelerator Data
report and trace blocks
Record Trace 3654

IFCID 003 - Accelerator SQL Call Data V4
or later
report and trace blocks
Record Trace 3656

IFCID 003 - Accounting
report and trace blocks
Record Trace 3654

IFCID 003 - Buffer Manager Accounting
Data report and trace blocks
Record Trace 3658

IFCID 003 - Data Sharing Accounting
Data report and trace blocks
Record Trace 3661

IFCID 003 - Data Sharing Locking Data
report and trace blocks
Record Trace 3661

IFCID 003 - DDF Data by Location
report and trace blocks
Record Trace 3663

IFCID 003 - Dynamic SQL Statement
report and trace blocks
Record Trace 3668

IFCID 003 - Group Buffer Pools Activity
Data report and trace blocks
Record Trace 3672

IFCID 003 - Initial Client/Server
Correlation Data report and trace blocks
Record Trace 3674

IFCID 003 - Initial DB2 Requester and
MVS Correlation Data report and trace blocks
Record Trace 3676

IFCID 003 - Instrumentation Accounting
Data report and trace blocks
Record Trace 3679

IFCID 003 - Instrumentation Accounting
Data Overflow report and trace blocks
Record Trace 3694

IFCID 003 - Locking Data
report and trace blocks
Record Trace 3697
IFCID 112 - Thread Allocate report and trace blocks Record Trace 3896
IFCID 113 - Agent Allocate report and trace blocks Record Trace 3898
IFCID 114 - Archive Wait Start report and trace blocks Record Trace 3900
IFCID 115 - Archive Wait End DASD report and trace blocks Record Trace 3901
IFCID 116 - Archive Wait End Tape report and trace blocks Record Trace 3901
IFCID 117 - Archive Read Start report and trace blocks Record Trace 3902
IFCID 118 - Archive Read End report and trace blocks Record Trace 3902
IFCID 119 - BDS Write Start report and trace blocks Record Trace 3902
IFCID 120 - BDS Write End report and trace blocks Record Trace 3903
IFCID 121 - IBM Service Record report and trace blocks Record Trace 3903
IFCID 122 - IBM Service Record report and trace blocks Record Trace 3903
IFCID 123 - SRV Record report and trace blocks Record Trace 3903
IFCID 124 - SQL Statement Record report and trace blocks Record Trace 3904
IFCID 125 - RID Pool Processing report and trace blocks Record Trace 3906
IFCID 126 - Log Buffer Write report and trace blocks Record Trace 3909
IFCID 127 - Page Wait 1/O In Preg (Start) report and trace blocks Record Trace 3909
IFCID 128 - Page Wait 1/O In Preg (End) report and trace blocks Record Trace 3911
IFCID 129 - CI-S Obtained via IFI Reads report and trace blocks Record Trace 3912
IFCID 140 - Audit Auth Failures report and trace blocks Record Trace 3912
IFCID 141 - Audit DDL Grant/Revoke report and trace blocks Record Trace 3916
IFCID 142 - Audit DDL Create/Alter/Drop report and trace blocks Record Trace 3920
IFCID 143 - Audit First Write report and trace blocks Record Trace 3924
IFCID 144 - Audit First Read report and trace blocks Record Trace 3925
IFCID 145 - Audit DML Statement report and trace blocks Record Trace 3925
IFCID 146 - User Record report and trace blocks Record Trace 3929
IFCID 147 - Data Sharing Accounting Data report and trace blocks Record Trace 3930
IFCID 147 - Distributed Header Data report and trace blocks Record Trace 3930
IFCID 147 - Instrumentation Accounting Data report and trace blocks Record Trace 3931
IFCID 147 - Instrumentation Accounting Data Overview report and trace blocks Record Trace 3931
IFCID 147 - Logging report and trace blocks Record Trace 3934
IFCID 147 - Monitor Detail Data report and trace blocks Record Trace 3935
IFCID 147 - Thread Correlation Data report and trace blocks Record Trace 3941
IFCID 147 - Thread Summary report and trace blocks Record Trace 3929
IFCID 149 - Resource Locking report and trace blocks Record Trace 3944
IFCID 150 - Global Interest Data report and trace blocks Record Trace 3945
IFCID 150 - Held Lock Data report and trace blocks Record Trace 3946
IFCID 150 - Lock Resource Data report and trace blocks Record Trace 3947
IFCID 150 - Retained Lock Data report and trace blocks Record Trace 3949
IFCID 150 - Suspend Lock Data report and trace blocks Record Trace 3949
IFCID 150 - Thread Locking report and trace blocks Record Trace 3945
IFCID 151 - User Record report and trace blocks Record Trace 3950
IFCID 152 - User Record report and trace blocks Record Trace 3950
IFCID 153 - User Record report and trace blocks Record Trace 3950
IFCID 154 - User Record report and trace blocks Record Trace 3951
IFCID 155 - User Record report and trace blocks Record Trace 3951
IFCID 156 - User Record report and trace blocks Record Trace 3951
IFCID 157 - DRDS RDS Interface report and trace blocks Record Trace 3951
IFCID 158 - DRDS CNV Interface report and trace blocks Record Trace 3952
IFCID 159 - DRDS Req Site Data report and trace blocks Record Trace 3952
IFCID 160 - DC Requester report and trace blocks Record Trace 3953
IFCID 161 - DC Server report and trace blocks Record Trace 3954
IFCID 162 - DTM Request report and trace blocks Record Trace 3955
IFCID 163 - DTM Respond report and trace blocks Record Trace 3955
IFCID 164 - IBM Service Record report and trace blocks Record Trace 3956
IFCID 165 - IBM Service Record report and trace blocks Record Trace 3956
IFCID 166 - IBM Service Record report and trace blocks Record Trace 3957
IFCID 167 - Conv Alloc Req Queued report and trace blocks Record Trace 3957
IFCID 168 - IBM Service Record report and trace blocks Record Trace 3958
IFCID 169 - DIST Authid Translation report and trace blocks Record Trace 3958
IFCID 170 - Suspend of Agent report and trace blocks Record Trace 3959
IFCID 171 - IBM Service Record report and trace blocks Record Trace 3959
IFCID 172 - Deadlock Data report and trace blocks Record Trace 3959
IFCID 172 - Deadlock Header report and trace blocks Record Trace 3960
IFCID 172 - Unit of Work - Block report and trace blocks Record Trace 3962
IFCID 172 - Unit of Work - Resource report and trace blocks Record Trace 3960
Index Selection window 1949
index space
separating form table space 2697
Index Splt exception event 1821
INDT exception 910
InfoSphere Optim Performance Manager 20
Initial DB2 Common Server Correlation report and trace blocks
Accounting 3270
Initial DB2 Common Server or Universal JDBC Driver Correlation report and trace blocks
Accounting 3272
Initial DB2 Common Server Traces trail blocks
Accounting 3270
Initial DB2 Requester Correlation report and trace blocks
Accounting 3273
download 438
Initial Other Requester Correlation report and trace blocks
Accounting 3275
dependent activity information
Online Monitor 1786
required 1786
SQL activity 2804
INPUTDD 4680
INPUTDD data set 2769
INPUTDD, DD statement 2620
inserting blank lines 1460
Install DB2 - Resource Limit Facility (DSNTIPO4) (DB2 12)
report and trace blocks
System Parameters 4547
INSTALL parameter values 2758
installation 406
installation profile, delete 1509
installation profile, save 1508
installation worksheet 63
installing 852
Buffer Pool Analyzer 855
Buffer Pool Analyzer Client 833
program files
Buffer Pool Analyzer Client 854
installing Performance Expert Agent silent installation 428
installing Performance Expert Client silent installation 439
instrumentation facility
description 2747
displaying the number of records written 1906
records written to IFC
Instruction window 1906
Insufficient storage to display thread activity information 1806
interDB2 R/W interest 2659
Interactive Report Facility (IRF) 887, 4673
Accounting Report panel 2780
Accounting Report Selections panel 2780
Interactive Report Facility (IRF)
(continued)
Background DDName Selections panel 2781
composing a batch report command stream 2777
example of generated job stream 2782
example of producing an Accounting report 2778
foreground and background processing 2777
Interactive Report Selections panel 2776, 2778
Job Processing Selections panel 2782
overview 2775
Recall Selections panel 2778
saving and recalling selections 2778
selecting report sets 2776
session options 1794
Session Options window 2779
specifying default options 2777
using BROWSE command 2777
using COMPOSE command 2778
using EXCLUDE command 2776
using GROUP command 2776
using INCLUDE command 2776
using LIST command 2776
using OPTIONS command 2777
using RECALL command 2777
using SAVE command 2777
interpreting
object placement result 2694
simulation result 2704
INTERVAL 1493
interval (statistics) 2912
INTERVAL command 1919
invoking interval processing
mode 1875
statistics 1919
INTERVAL option 2948
streamlining processing 2948
interval processing 2517
combined with HISTORY command 1920
description 1875
resetting interval mode 1919
interval processing (Online Monitor)
viewing past data 1921
interval record 2914
INTERVAL subcommand option 4818
introduction to
Buffer Pool Analyzer 2585
IOACTIVITY command 4729
with REDUCE subcommand 4733
with REPORT subcommand 4730
IODELAY 1493
IOPRTDD 4683
IOTRCDDI 4685
IOWORK 4685
IRF see Interactive Report Facility (IRF) 2775
IRF (Interactive Report Facility) 4673
IRF (Interactive Report Facility invocation of 1779
long trace
accounting 3172
long-term analysis
bar chart 2718
choosing subsystem 2710
location of result files 2715
pie chart: display 1 counter and n
objects 2719
pie chart: display n counters and 1
object 2720
selecting input files 2708
specifying analysis type 2710
specifying counters 2711
specifying objects 2711
specifying time frame 2711
view of a period of time 2717
viewing result 2715
long-term page fix option
for buffer pool 2697
LOOK command 1817
Look Selections menu 1817
LOOPCOUNT 1493
LOOPTIME 1493
LORTPTDD 4683
LOTRCDD1 4685
LOWORK 4685
LPAR 1751
LRECL 4676
LSRCR command 1461

M
M (64-bit integers) 887
main components 7
main functions of OMEGAMON for Db2
PE 2495
main storage 1457
MAINPACK Definition Member Editor
panel 2967
MAINPACK identifier
defining 2966, 2971
examples 2968, 2970
manage DB2 traces 2747
manual update
Performance Expert Agent for DB2
Connect Monitoring on UNIX and
Linux 434
MATCHING option
EXPLAIN command 4719
MCHN command 1461
format example 1461
typical use of 1463
MCNV exception 910
MDBT exception 910
MDBW exception 911
Measured/Elig Times
report and trace blocks
Accounting 3280
member scope report 2918, 2938
description 2938
example 2938
member-scope trace 2938
description 2938
memory
displaying from data-only
spaces 1474
memory (continued)
scanning data-only spaces 1475
memory requirement
for object placement 2683
for simulation 2698
for viewing long-term performance
data 2707
for viewing performance data 2678
Memory Usage window 1796
menu
Application Trace Facility 1342
data set maintenance 1940
defining exception
thresholds 1940, 2795
defining the MAINPACK
identifier 2966
specifying time zones 2960
Data Set Maintenance 892
Exception Analysis Options 1498
Exception Logging 1511
Explain 1925
BSF Online Monitor 892
Look Selections 1817
Near-Term History Information 1519
Online Monitor Main Menu 1777
Options 1789
Profile Maintenance 1488
Resource Managers and Other DB2
Subsystem Information 1111
SQL Performance Analysis: Available
Reports 1703
message
DPMLOG execution log 2745
exception processing 1817, 1822
FPEA4531I 3004, 5193
FPEA4532I 3004, 5193
FPEA4534I 3004, 5193
FPEC4015I 3002, 5191
FPEC4020I 3002, 5191
FPEM103 1795, 1806
FPEM546 1795, 1806
ICE197I 4788
ICE204A 4788
IKJ56501I 1806
NO DATA TO REPORT 3002, 5191
message DGOK3638, reactivating
2504
messages
monitoring 911, 1513
MSGE exception 911, 1513
viewing DB2 1025
viewing DB2/IRLM 1025
XTXT 1496
migration 443
IBM Tivoli Monitoring 871, 878
Performance Database 868, 876
Performance Expert Agent for DB2
Connect Monitoring 870, 878
Performance Expert Client 870, 878
Performance Warehouse 867, 875
plan table 1923
runtime environment 866, 874
SMP/E 864, 872
SQL queries 869, 877
statistics table 869, 877
Tivoli Enterprise Monitoring
Agent 867, 874

Index 5227
Migration (continued)

Tivoli Enterprise Monitoring Server 871, 878
Tivoli Enterprise Portal 871, 878
Tivoli Enterprise Portal Server 871, 878
V5.2.0.V5.4.0 864
V5.3.0.V5.4.0 872
V5.4.0 863

Migration

UTR 871, 879
MINOR control statement 57
MISC 1738, 1751
Miscellaneous

report and trace blocks
Statistics 4441
missing value 1803
Online Monitor 1803
MLST command 1463
format 1463
modal dialog boxes 5187
MODE keyword (FGO) 1458
MODIFY command 4652
MODULE control statement 57
modules 1444
Monitor Output window 1793
monitoring data sharing groups
entire group 2940, 2941
individual members 2938, 2939
monitoring DB2 subsystems 1780, 1785
controlling the writing of monitor output 1792
exception event processing 1784
exception processing 1780
exception profiling 1782
exception report 1785
identifying unusual situations 1782
monitoring trends 1783
performance objectives 1782
periodic exception processing 1784
selecting the DB2 to be monitored 1789
tuning the operating environment 1781
monitoring features
configuring 394
monitoring profiles 386
monitoring using reports 1783
MSCN command 1464
example 1465
format 1464
MSGE exception 911
multi-site report 2870
MVS 1751
MVS Accounting
report and trace blocks
Accounting 3284
MVS LPAR Shared Storage Above 2 GB
report and trace blocks
Statistics 4442
MVS Parmlib Update Parameters (DSNTIPM)
report and trace blocks
System Parameters 4560
MVS System Console and Message Traffic panel 899
MZAP command 1465
MZAP command (continued)
cautions with 1465
eamples 1466
format 1466
verify and replace text with 1466

N

naming convention
deleting
results from object placements 2694
file name extension 2599
object placement
deleting results 2694
results from long-term analysis 2715
results from optimization 2694
results from simulation 2704

navigation
with 3270
Tab key 891, 1343
Near-Term History 18, 389
configuring 390
near-term history data
archiving 1699
RKDZPAR(ARCScccc) 1699
near-term history data collection
options 326, 4662
ACCTG 328
alphabetical 327
ARCHIIEWEQ 328
asterisk (*) wildcard character 326, 4663
AUTHID 328
BUFSIZE 329
by purpose 327
CONNID 329
CORRID 329
DB2SYS 329
DESTINATION 329
DYNAMICSQXL 330
H2DATASET 330
IFIREADTIME 330
INTERVAL 330
keyword syntax 326, 4663
LOCKCONT 331
LOCKSUSP 331
NEQXL 331
NOT operator 326, 4663
NTAINTERVAL 332
ORIGAUTH 332
PLAN 332
question mark (?) wildcard character 326, 4663
SCAN 332
SEQDATASET 333
SORT 333
SPACE 333
STATISTICS 334
WRITEOPTIOON 334
Near-Term History Data Collection
Options panel 1698
Near-Term History Data Collector
collection options specifications 326, 4662
using sequential data sets 2768
Near-Term History Data Collector Dataset
Status panel 1702

Near-Term History Data Collector
subtask commands 4661
LISTHZDS 4662
START 4661
STOP 4661
SWITCH 4662
VARY 4662
Near-Term History Data Record Information panel 1701
Near-Term History Information menu 1519
Near-Term History Report Option panel 1605
Near-Term Thread History Filter Options - Confirmation panel 1610
Near-Term Thread History Filter Options panel 1606
NESTED SQL 1738, 1750
NOEXCEPTION option
FILE subcommand 4770
REPORT subcommand 4758
TRACE subcommand 4768
NOEXCEPTION subcommand option 4811
non-DDF data
definition 2867
distributed Accounting times 2873
distributed transaction 2869
NONMATCH option
EXPLAIN command 4719
not available data
DB2 version differences 1309
NOT operator
in near-term history data collection
options specifications 326, 4663
NOTES 5195, 5197
NOTIFY REQUEST 3508
NTAINTERVAL
near-term history data collection
options keyword 1624
NTH, see Near-Term History 389
nucleus storage area 1463

O

O2PROC 1461, 1468
Q2REPORT file 1460
object
active o. in bpd file 2619
comparison by operation 2605
definition of active object 2702
Object Activity Summary panel 1403
Object Allocation Summary panel 1394
object analysis 153
start collection 1429
stop collection 1430
Object Analysis 18
configuring 388
enabling 387
object placement
active objects only 2683
assigning objects to buffer pools 2690
bdp file section selection 2685
bdp file, from concatenations 2685
editing pattern file 2687
how to optimize 2683
interpreting result 2694
Exception Processor 1813, 1943
Exception Profiling 895, 2932
Exception Threshold Category Selection 2796
Exception Threshold Field Details 2797, 2801
Exception Threshold Field Selection 2797
fetch FGO 1457
fetch delay 1473
Filter Options for Thread Activity Displays 1069, 1514
FPEFMENU 1776
Functions Thread Summary 1074
GBP Coupling Facility Cache Structure Statistics 1324
GBP Coupling Facility Cache Structure Statistics Summary 1322
Global Lock Statistics 1280
Global Lock Statistics Detail 1595
Global Lock Statistics Summary by Report Interval 1593
Group Buffer Pool Detail 1127
Group Buffer Pool Information 1126
Group Buffer Pool Statistics Detail 1542
Group Buffer Pool Statistics Summary by Report Interval 1540
IMS Connection Detail 1058
IMS Thread Summary 1054
Inactive Thread 1067
input field for switching DB2 subsystems 891
Interactive Report Selections 2776, 2778
IRLM Startup Options and CSA Usage 1187
IRLM storage 1321
Job Processing Selections 2782, 2933
List Profiles 1506
listing 1473
loading 1461
Lock Manager Information 1278
Lock Manager Statistics Summary by Report Interval 1589
Lock Manager/Claim/Drain Statistics Detail 1591
Lock/Claims causing a Thread to Wait 939, 1101
Locking Conflicts 1087
Locks/Claims Owned by a Thread 1091
Locks/Claims Owned By a Thread 945
Log Dataset Information 1134
Log Manager Information 1130
Log Manager Statistics Detail 1561
Log Manager Statistics Summary by Report Interval 1559
Long Names 1037
LSCR command 1461
MAINPACK Definition Member Editor 2967
moving between Online Monitor panels 1787
moving between panels 1787
MVS System Console and Message Traffic 899
navigating with 3270 Tab key 891
Near-Term History Data Collection Options 1698
Near-Term History Data Collector Dataset Status 1702
Near-Term History Data Record Information 1701
Near-Term History Report Option 1605
Near-Term History Filter Options 1606
Near-Term History Filter Options - Confirmation 1610
Object Activity Summary 1403
Object Allocation Summary 1394
Objects Used By Thread 1019
OMEGAMON Commands 1452
OMEGAMON XE for DB2 PE Classic Interface 887
Open/Close Statistics 1303
Open/Close Statistics Detail 1566
Open/Close Statistics Summary by Report Interval 1565
Package Detail 1003
Pool Detail 1320
Recall Selections 2778
Redirect Monitoring to Another DB2 900
Reset Last and Worst Values 920
returning to 1470
Save New/Altered Installation Profile 1508
Save New/Altered User Profile 1507
saving 1471
SCRN immediate 1473
Select Data set and Trace Parameters 1351
Set Background Exception Processing 1497
Set Control Function Options 1493
Set DB2/IRLM Messages that MSGE Exception Monitors 1513
Set Display Options 1489
Set Exception Analysis Message Option 1496
Set Exception Analysis Options 1498
Set Performance Options panel 1496
Set Printer And Routing Options 1494
Set XLF Printer and Routing Options panel 1512
Shared and Common Storage 1315
Spacename Activity 1407
Spacename Allocations 1398
Specify Application Trace 1029, 1344
SQL Call Being Executed 949
SQL Performance Analysis: ANLSQL 1710
SQL Performance Analysis: Enhanced Explain 1706
SQL Performance Analysis: JOBERR 1710
SQL Performance Analysis: Query Limits 1707
SQL Performance Analysis: SYSPRINT 1709
SQL Performance Analysis: Trace 1708
SQL Statement List (packages) 1928
SQL Statement Selection 1937
SQL Statistics Summary by Report Interval 1568
SQL Text Edit 1931
SQL/RID Pool/Parallelism/Stored Procedure Information 1283
SQL/RID Pool/Stored Procedures Statistics Detail 1570
Start Object Analysis Collection 1429
Statement Cache and XProc Detail 1318
Static SQL cache statistics 1160
Static SQL Cache Statistics with Package Information 1163
statistics 1877
Status for Trapped Exceptions 919
Stop In-Memory Non-Dataset Trace Requests 1350
Stop Object Analysis Collection 1430
Stop Viewing Trace Dataset 1354
Stopped Utility Detail Information 1018
Stored Procedures Thread Summary 1076
Subsystem Support Manager Statistics 1181
Subsystem Support Manager Statistics Detail 1523
Subsystem Support Manager Statistics summary by Report Interval 1521
Summary of DB2 Activity 896
Sysplex Parallel Thread Summary 1079
test 1459
The following panel shows a summary of the GBP Coupling Facility Cache Structure Statistics in G mode. 1322
Thread Accelerator Detail 1040
Thread Activity by Database 1406
Thread Activity by Spacename 1408
Thread Activity by Volume 1416
Thread Buffer Pool Activity 992
Thread Detail 924
Thread Global Lock Activity 945, 1107
Thread Group Buffer Pool Activity 996
Thread History Buffer Pool Activity 1672
Thread History Buffer Pool Summary 1628
Thread History By Authid 1615
Thread History By Authid, Plan 1618
Thread History By Correlation ID 1626
Thread History By Plan 1613
Thread History By Plan, Authid 1616
Thread History By Report Interval 1611
Thread History By Subinterval 1624
panel (continued)
Thread History DB2 Lock/Scan/Sort Summary 1631
Thread History DB2 Time Summary 1630
Thread History Detail 1635
Thread History Display Options 1620
Thread History Distributed Activity 1678
Thread History Dynamic SQL Calls 1656
Thread History Global Lock Activity 1654
Thread History Group Buffer Pool Activity 1692
Thread History Lock Waits 1642
Thread History Lock/Claim/Drain Activity 1651
Thread History Package Detail 1685
Thread History Package Summary 1682 96
Thread History Parallel Task Summary 1695
Thread History Resource Limit Statistics 1675
Thread History Sort and Scan Activity 1689
Thread History SQL Counts 1660
Thread History Summary 1621
Thread History Times Summary 1633
Thread Information 1313
Thread Lock/Claim Drain Activity 1097
Thread Lock/Claim/Drain Activity 936
Thread Package Summary 1000
Thread Resource Limit Statistics 1009
Thread Summary 1827, 1951
Threads Having Remote ID Information 1084
Threads Summary Excluding Idle Threads 921
Threads Summary Including Idle Threads 1086
Time Zone Data Editor 2961
Trace Messages 2614
Trace Status Summary 2614
Triggers Thread Summary 1042
User-Tailored Reporting Layout Generation 894, 2951
Utility Detail 1016
Utility Summary 1065
UTR Block Selection 2952
UTR Field Selection 2954, 2955
UTR Layout Selection 2952
UTR Save Layout Details 2958
View the Active In-Memory Non-Database Trace (to memory) 1348
Volume Activity Summary 1412
Volume Database Activity 1413
Volume Dataset Activity 1421
Volume Dataset/Extent Activity 1424
Volume Service panel 1415
Panel (continued)
Volume Spacename Activity 1418
Volume Thread Activity by Database 1420
Volume Thread Activity by Dataset 1426
Volume Thread Activity by Spacename 1423
VSAM Trace Entry Detail 1356
panel error message 1491
panel fetch 1473
PANELID command 1799
panels
  printing 1466, 1468
  renaming 1469
PARAL 1738, 1750
parallel task definition 1634
parallelism considerations 1826
  effects on roll-up 2872
  parallelism, query CP 2871
  parallelism, Systexp query 2871
parameter
  IFIRALEN 1806
  INSTALL 2758
  LOCATION 2761
  viewing current history parameters 1791
parameter data set
  Interactive Report Facility 1779
parameters
  DB2 Explain 289
  DB2 traces 303
  main functions 69
  monitoring features 307
  object analysis 153
  periodic exception processing 158
  profile 152
  snapshot history 258
  SQL Performance Analyzer 298
  thread history 170
  volume analysis 153
PARMGEN configuration 67
PARMGEN parameters
  GBL_DB2_KD2_CLASSIC_STC 72
  GBL_DB2_KD2_CLASSIC_Type 72
  GBL_DB2_KD2_LOADLIB_V10 73
  GBL_DB2_KD2_LOADLIB_V11 74
  GBL_DB2_KD2_LOADLIB_V12 75
  GBL_DB2_RUNLIB_V10 76
  GBL_DB2_RUNLIB_V11 77
  GBL_DB2_RUNLIB_V12 78
  KD2_CLASSIC_DB2ID_DEFAULT 79
  KD2_CLASSIC_DB2PM_PLANPKG.Owner 391
  KD2_CLASSIC_DB2PM_PLANPKG.Owner 392
  KD2_CLASSIC_DB2PM_PLANPKG.Owner 393
  KD2_CLASSIC_LROWS 82
  KD2_CLASSIC_MVS_SYSID 83
  KD2_CLASSIC_UOMAX 84
  KD2_CLASSIC_USER_PROFILE 85
  KD2_CLASSIC_VTAM_APPL_LOGON 85
  KD2_CLASSIC_VTAM_NODE 86
  KD2_OMPE_AUTH_FAIL 87
  KD2_OMPE_AUTODETECT 88
  KD2_OMPE_CCPC_TIMER 89
  KD2_OMPE_CCPC_TRACE 90
  KD2_OMPE_CF_REBUILT 90
PARMGEN parameters (continued)
  KD2_OMPE_CHECKSYS 91
  KD2_OMPE_CPU_PARALLEL 92
  KD2_OMPE_DB2_PARALLEL 93
  KD2_OMPE_DB2_EXIT 94
  KD2_OMPE_DB2_USER 94
  KD2_OMPE_DEADLOCK 95
  KD2_OMPE_DISKINFO 96
  KD2_OMPE_DSN_EXTENT 97
  KD2_OMPE_DISP_SIZE 98
  KD2_OMPE_E2E_MON_SRT 98
  KD2_OMPE_EDMP_FULL 99
  KD2_OMPE_EXTENT_THOLD 100
  KD2_OMPE_GLOBAL_TRACE 101
  KD2_OMPE_GRANT_AGUSER 101
  KD2_OMPE_GRANT_EXUSER 102
  KD2_OMPE_GRANT_PUSER 102
  KD2_OMPE_GRANT_PWUSER 103
  KD2_OMPE_ISPP_LANGUAGE 103
  KD2_OMPE_LOGSPACE 104
  KD2_OMPE_MAX_SESSIONS 105
  KD2_OMPE_MGMTCLAS 106
  KD2_OMPE_PE_SUPPORT 106
  KD2_OMPE_RUNALLOC 107
  KD2_OMPE_SHARED_PROFILE_LIB 108
  KD2_OMPE_STOCLAS 109
  KD2_OMPE_SUB_D2PADASP 110
  KD2_OMPE_SUB_D2PAGPRN 111
  KD2_OMPE_SUB_D2PARCVT 111
  KD2_OMPE_SUB_D2PASSIT 112
  KD2_OMPE_SUB_D2PATSEC 113
  KD2_OMPE_SUB_D2PAWXCT 114
  KD2_OMPE_SYSAFF 115
  KD2_OMPE_TCPIP_ADDRESS 116
  KD2_OMPE_TCPIP_NAME 116
  KD2_OMPE_THREAD_COMMIT 117
  KD2_OMPE_TIMEOUT 118
  KD2_OMPE_TRACE_LEVEL 119
  KD2_OMPE_UNIT 119
  KD2_OMPE_USR 120
  KD2_OMPE_USE_MODEL 121
  KD2_OMPE_Volume 122
  KD2_OMPE_VSAM_DSHLQ 123, 171
  KD2_OMPE_VSAM_MGMTCLAS 123
  KD2_OMPE_VSAM_STOCLAS 124
  KD2_OMPE_VSAM_VOLUME 125
  KD2_PFnn_ACS_DB2MSGMON 308
  KD2_PFnn_AEXCP_D2PYACT 158
  KD2_PFnn_AEXCP_D2TPFDSN 159
  KD2_PFnn_AEXCP_D2TPFDSP 160
  KD2_PFnn_AEXCP_D2TPFSSL 161
  KD2_PFnn_AEXCP_D2TPHNTV 162
  KD2_PFnn_AEXCP_D2TPHPSN 163
  KD2_PFnn_AEXCP_D2TPHPSN 164
  KD2_PFnn_AEXCP_D2TPHPSN 165
  KD2_PFnn_AEXCP_D2TPHPSN 166
  KD2_PFnn_AEXCP_D2TPHPSN 167
  KD2_PFnn_AEXCP_D2TPHPSN 168
  KD2_PFnn_AEXCP_D2TPHPSN 169
  KD2_PFnn_AEXCP_D2TPHPSN 170
  KD2_PFnn_DCM_D2SHDCST 259
  KD2_PFnn_DCM_D2SHDCAP 260
  KD2_PFnn_DCM_D2SHDCLI 261
  KD2_PFnn_DCM_D2SHDCST 262
  KD2_PFnn_EX_D2EXACT 290
Periodic Exception Messages window 1819
periodic exception processing 158, 1784
definition 2539
description 1810
listing messages 1819
OMEGAMON Collector 372
performance problem identification 1784
starting 1816, 2540
stopping 2540
threshold set, changing 2540
threshold set, creating 2539
viewing exceptions 1818

Periodic Exception Processing 19
configuring 389
enabling 388
Periodic Exceptions List window 1818
PRESERVE subtask commands 4653
MODIFY 4653
START 4653
STOP 4653
PF key
see Fl to Fn 886
PF keys. See function key command 1486
PGFIX keyword
ALTER BUFFERPOOL command 2697
PGSTEAL attribute 1119, 1536
PGSTEAL keyword
ALTER BUFFERPOOL command 2697
PGUP exception 911
PLAN
thread detail 925
Plan and Package Allocation window 1891
PLAN command 939, 1091, 1101, 1107
plan name
DSNTIAvv 405
PLAN option 2760
plan table
considerations 1923
explaining existing entry 1926
upgrading 1923
Plan Table Entry List panel 1927
Plan Table Entry window 1926
Plan/Package Activity report and trace blocks
Statistics 4444
plan/package processing 1891
viewing allocations 1891
planning

gathering information 27
prerequisites 28
worksheet 63
POLU exception 911
POLW exception 912
Pool Detail panel 1320
PREF exception 912
prefetch threshold, sequential 905
preliminaries 2583
PREP 1738
prerequisites 28
prerequisites for the configuration authorizations 28
DB2 privileges 28
prerequisites for the configuration (continued)
hardware requirements 28
software requirements 28
user IDs 28
PRESORTED option
suppressing 2946
PRIMAUTH/AUTHID identifier
comparing original with primary 2995, 2996, 4842, 4843
DB2 START TRACE command 2760
printer and routing options 1494
for XLF 1512
printing
/O 1466
/P 1466
/PRT command 1468
long-term performance data optimization results 2683
performance data 2678
simulation results 2698
private area 1440
zapping 1484
problem
B37 abend 5189
FPEC4085U 5189
FPEU0020E 5189
hard disk drive space management 5190
how to solve 5188
missing data in bpd file 2736
missing sections in activity reports 5189
program
pruning 844
configuring 844
workspaces 845
PSType definition 2625
PTASKROL
subsystem parameter 2872
PURGE command 1866
Purge Thread Confirmation window 1866
purpose of
buffer pools 2585
PWH, see Performance Warehouse 395
Q
QUERYSET
definition 2625
QUALIFY command 1867
query
copying 2575
creating 2574
deleting 2575
filter criteria, specifying 2576
job-step ID filter, specifying 2576
properties, changing 2575
Real Storage in Use - Summary

Real and EXPLAIN data
random versus sequential
RACF
RACF security questions
Query Accelerator Preferences (DSNTIP82)
report and trace blocks
System Parameters 4588
query CP parallelism 2871
query group
changing description 2574
copying 2574
creating 2573
deleting 2574
renaming 2574
query parallelism 2871
special considerations 1858
statistics
viewing 1899
thread activity 1856
viewing statistics 1899
Query Parallelism
report and trace blocks
Accounting 3315
Statistics 4449
Query Parallelism Data window
statistics 1899
thread activity 1856
query parallelism, Sysplex 2871
QUERY REQUESTS 3502
Query Workload Tuner 2544
question mark (?) wildcar in near-term history data collection
options specifications 326, 4663
questions
answers 405

R

RACF
MVSADMIN.WLM.POLICY
profile 1076
RACF security rules 47
RACE, 314
random versus sequential
processing 2697
raw EXPLAIN data
explain 3414
RCT information 1048, 1051
Real and Auxiliary Storage for DBM1
report and trace blocks
Statistics 4452
Real and Auxiliary Storage for DIST
report and trace blocks
Statistics 4454
Real Aux 1751
Real Storage in Use - Summary
report and trace blocks
Statistics 4456
realtime monitor 8
RECFM 4676

reclaim
GBP directory entries 2660
recommendation
choosing proper simulation
parameters 2700
data collection output data set on
/z/OS 2611
job priority for data collection through
JCL 2616
record format
specification for data collection 2593
record pair, DB2 Statistics 2913
record pairs 2915
record trace 3510
description 2746
Record Trace
report and trace blocks
IFCID 001 - Checkpoint and IFI
Data 3532
IFCID 001 - CPU Time Data 3535
IFCID 001 - DB2 Command Data 3536
IFCID 001 - DDF Data by Location 3545
IFCID 001 - Destination Related Data 3545
IFCID 001 - Global DDF Data 3546
IFCID 001 - IFCID Data 3550
IFCID 001 - Log Manager Data 3551
IFCID 001 - QSST Data 3561
IFCID 001 - QVAS Data 3561
IFCID 001 - QVLS Data 3562
IFCID 001 - Subsystem Services Data 3556
IFCID 001 - System Statistics 3532
IFCID 001 - z/OS Metrics 3565
IFCID 002 - Accelerator Data - Accelerator Perspective V4 or later 3577
IFCID 002 - Accelerator Data - Prior to V4 3568
IFCID 002 - Accelerator Data - Subsystem/Group Perspective V4 or later 3572
IFCID 002 - Accelerator SQL Call Data V4 or later 3581
IFCID 002 - Buffer Pool Activity 3582
IFCID 002 - Data Manager Data 3598
IFCID 002 - Data Sharing Locking Data 3604
IFCID 002 - DB2 Statistics 3568
IFCID 002 - Dynamic SQL Statement 3607
IFCID 002 - EDM Pool Data 3609
IFCID 002 - Group Buffer Pools Activity Data 3615
IFCID 002 - Locking Data 3625
IFCID 002 - Miscellaneous 3628
IFCID 002 - Nested SQL Activity 3630
IFCID 002 - Query Parallelism 3631

Record Trace (continued)
report and trace blocks (continued)
IFCID 002 - RID List Processing 3634
IFCID 002 - ROWID 3636
IFCID 002 - Service Controller Data 3637
IFCID 002 - Simulated Buffer Pool Activity 3644
IFCID 002 - SQL Call Data 3646
IFCID 003 - Accelerator Data 3654
IFCID 003 - Accelerator SQL Call Data V4 or later 3656
IFCID 003 - Accounting 3654
IFCID 003 - Buffer Manager Accounting Data 3658
IFCID 003 - Data Sharing Accounting Data 3661
IFCID 003 - Data Sharing Locking Data 3661
IFCID 003 - DDF Data by Location 3663
IFCID 003 - Dynamic SQL Statement 3668
IFCID 003 - Group Buffer Pools Activity Data 3670
IFCID 003 - IFCI Class 5 Times and Data Capture 3672
IFCID 003 - Initial Client/Server Correlation Data 3674
IFCID 003 - Initial DB2 Requester and MVS Correlation Data 3676
IFCID 003 - Instrumentation Accounting Data 3679
IFCID 003 - Instrumentation Accounting Data Overflow 3694
IFCID 003 - Locking Data 3697
IFCID 003 - Logging 3700
IFCID 003 - Miscellaneous 3701
IFCID 003 - Nested SQL Activity 3701
IFCID 003 - Query Parallelism 3702
IFCID 003 - Resource Limit Facility 3703
IFCID 003 - RID List Processing 3704
IFCID 003 - Rollup Accounting Correlation Block 3704
IFCID 003 - ROWID 3704
IFCID 003 - SQL Call Data 3705
IFCID 004 - Trace Start 3705
IFCID 005 - Trace Stop 3706
IFCID 006 - Read I/O Start 3706
IFCID 007 - Read I/O Stop 3708
IFCID 008 - Write I/O Synch 3709
IFCID 009 - Write I/O 3710
IFCID 010 - Write I/O Asynch 3711
IFCID 011 - Validate Exit 3712
IFCID 012 - Edit Exit to Encode 3713
IFCID 013 - Hash Scan Input Start 3713
IFCID 014 - Hash Scan End 3715
Record Trace (continued)
report and trace blocks (continued)
IFCID 124 - SQL Statement Record 3904
IFCID 125 - RID Pool Processing 3906
IFCID 126 - Log Buffer Write 3909
IFCID 127 - Page Wait I/O In Prog (Start) 3909
IFCID 128 - Page Wait I/O In Prog (End) 3911
IFCID 129 - CI-S Obtained via IFI Reads 3912
IFCID 140 - Audit Auth Failures 3912
IFCID 141 - Audit DDL Grant/Revoke 3916
IFCID 142 - Audit DDL Create/Alter/Drop 3920
IFCID 143 - Audit First Access 3924
IFCID 144 - Audit First Read 3925
IFCID 145 - Audit DML Statement 3925
IFCID 146 - User Record 3929
IFCID 147 - Data Sharing Accounting Data 3930
IFCID 147 - Distributed Header Data 3930
IFCID 147 - Instrumentation Accounting Data 3931
IFCID 147 - Instrumentation Accounting Data Overflow 3931
IFCID 147 - Logging 3934
IFCID 147 - Monitor Detail Data 3935
IFCID 147 - Thread Correlation Data 3941
IFCID 147 - Thread Summary 3929
IFCID 149 - Resource Locking 3944
IFCID 150 - Global Interest Data 3945
IFCID 150 - Held Lock Data 3946
IFCID 150 - Lock Resource Data 3947
IFCID 150 - Retained Lock Data 3949
IFCID 150 - Suspand Lock Data 3949
IFCID 150 - Thread Locking 3945
IFCID 151 - User Record 3950
IFCID 152 - User Record 3950
IFCID 153 - User Record 3950
IFCID 154 - User Record 3951
IFCID 155 - User Record 3951
IFCID 156 - User Record 3951
IFCID 157 - DRDS RDS Interface 3951
IFCID 158 - DRDS CNV Interface 3952
IFCID 159 - DRDS Req Site Data 3952
IFCID 160 - DC Requester 3953

Record Trace (continued)
report and trace blocks (continued)
IFCID 161 - DC Server 3954
IFCID 162 - DTM Request 3955
IFCID 163 - DTM Respond 3955
IFCID 164 - IBM Service Record 3956
IFCID 165 - IBM Service Record 3956
IFCID 166 - IBM Service Record 3957
IFCID 167 - Conv Alloc Req Queued 3957
IFCID 168 - IBM Service Record 3958
IFCID 169 - DIST Authid Translation 3958
IFCID 170 - Suspends of Agent 3959
IFCID 171 - IBM Service Record 3959
IFCID 172 - Deadlock Data 3959
IFCID 172 - Deadlock Header 3960
IFCID 172 - Unit of Work - Blocker 3962
IFCID 172 - Unit of Work - Resource 3960
IFCID 172 - Unit of Work - Waiter 3965
IFCID 173 - Class 2 Time 3968
IFCID 174 - Arch Log CMD Sus Start 3969
IFCID 175 - Arch Log CMD Sus End 3970
IFCID 177 - Package Allocation 3970
IFCID 178 - IBM Service Record 3973
IFCID 179 - IBM Service Record 3973
IFCID 180 - DC Communication Buffers 3973
IFCID 181 - IBM Service Record 3974
IFCID 182 - IBM Service Record 3974
IFCID 183 - DRDS RDS/SCC Interface 3975
IFCID 184 - DC Communication Buffers 3977
IFCID 185 - READs Data Capture Start 3978
IFCID 186 - IBM Service Record 3978
IFCID 188 - READs Data Capture End 3979
IFCID 190 - IBM Service Record 3980
IFCID 191 - DB2 ZEDA 3982
IFCID 191 - DDM Level 6B Objects 3980
IFCID 191 - Header Section 3983

Record Trace (continued)
report and trace blocks (continued)
IFCID 191 - Late Descriptor Section 3984
IFCID 192 - Current 6A Header 3986
IFCID 192 - DDM Level 6A Header Errors 3986
IFCID 192 - Previous 6A Header 3987
IFCID 193 - UOW/SQCODE Mismatch 3988
IFCID 194 - Invalid SNA FMH-5 Received 3988
IFCID 195 - SQLDA Discrepancy 3989
IFCID 196 - Holder 3990
IFCID 196 - Timeout Data 3990
IFCID 196 - Timeout Header 3993
IFCID 197 - DB2 Messages 3995
IFCID 198 - Buffer Manager Page Access 3996
IFCID 199 - Buffer Pool Statistics at Data Set Level 3997
IFCID 201 - Alter Buffer Pool 4000
IFCID 202 - Buffer Pool Attributes 4004
IFCID 203 - DDF Heuristic COMMIT/ROLLBK 4007
IFCID 204 - DDF Partner Cold Start 4008
IFCID 205 - As Remembered by DB2 4009
IFCID 205 - As Remembered by Partner 4010
IFCID 205 - DDF Warm Start Log Name Error 4010
IFCID 205 - DDF Warm Start Log Name Error information 4009
IFCID 206 - DDF Protocol Error 4011
IFCID 207 - DDF Heuristic Damage 4013
IFCID 208 - DDF Synpoint Protocol Error 4015
IFCID 209 - DDF Synpoint Comm Failure 4016
IFCID 210 - Warm Start Log Name Change 4017
IFCID 211 - Claim Data 4018
IFCID 212 - Drain Data 4019
IFCID 213 - Drain Lock Wait Start 4020
IFCID 214 - Drain Lock Wait End 4021
IFCID 215 - Claim Count 0 Wait Start 4023
IFCID 216 - Claim Count 0 Wait End 4023
IFCID 217 - Agent Local Storage Pool Sizes 4024
IFCID 217 - DBM1 Storage Pool Sizes 4026
IFCID 217 - Storage Manager Pool Statistics 4027
IFCID 217 - Storage Pools 4024
REduce subcommand (continued)
with ACCOUNTING command 4698
with AUDIT command 4713
with IOACTIVITY command 4733
with LOCKING command 4738
with STATISTICS command 4761
with UTILITY command 4778
refreshing panels 1470
registering OMEGAMON Collector
Performance Expert Agent for DB2
Connect Monitoring on Windows 417
registering OMEGAMON Collector as
DB2 instance owner
Performance Expert Agent for DB2
Connect Monitoring on UNIX and Linux 430
registering OMEGAMON Collector as
root
Performance Expert Agent for DB2
Connect Monitoring on UNIX and Linux 429
REGISTRY subcommand 4659
regular processing 2516
regular processing mode 1875
REINIT command 1816, 1817
relational operators (.FOG) 1458
RELM exception 912
Remote Location window 1903
removing
Performance Expert Agent for DB2
Connect Monitoring on UNIX and Linux 422
removing performance database
Performance Expert Agent for DB2
Connect Monitoring on Windows 415
renaming a panel 1469
RENRM command 1469
replacing a panel 1469
report
accounting
controlling the level of
detail 2946
Accounting report example, using
IRF 2778
Accounting, setting up 2558
audit summary 3372
commands, allowed 2552
composing JCL with IRF 2777
controlling the level of detail 2946
creating 2769
description 2744
empty 2749
grope-scope 2941
input 2875
lock detail report 3471
Lock Suspension 3460
lockout 3469
see activity report 2592
selecting report set 2776
SQL activity 4213
report (continued)
statistics
controlling the level of
detail 2946
Statistics, setting up 2559
subcommands, allowed 2552
report and trace blocks
Accelerator
Accounting 3216
Accelerator Data Statistics 4316
Accelerator Data - Prior to Version 4 Statistics 4316
Accelerator Data - Version 4 or later Statistics 4321
Accounting Rollup Statistics 4329
Aggregated Accounting Statistics Statistics 4329
Alter Buffer Pool Command Issued System Parameters 4609
Alter Group Buffer Pool Command Issued System Parameters 4612
Application Programming Defaults Panel 1 (DSNTIPF) System Parameters 4512
Application Programming Defaults Panel 2 (DSNTIP4, DSNTIP41) System Parameters 4517
Archive Log Installation Parameters (DSNTIPA) System Parameters 4521
Authorization Management Statistics 4331
Buffer Pool General Statistics 4334
Buffer Pool Parameters System Parameters 4614
Buffer Pool Parameters (DSNTIP1) System Parameters 4525
Buffer Pool Read Statistics 4338
Buffer Pool Sort/Merge Statistics 4347
Buffer Pool Write Statistics 4349
Common Storage Below and Above 2 GB Statistics 4355
CPU and Storage Metrics Statistics 4357
CPU Times Statistics 4359
Data Capture Accounting 3224
Statistics 4362
Data Definition Control Support (DSNTIPZ) System Parameters 4526
Data Set Statistics Accelerator Statistics 4363
Data Sharing Locking Accounting 3226 Statistics 4365
report and trace blocks (continued)
IFCID 003 - Logging
Record Trace 3700
IFCID 003 - Miscellaneous
Record Trace 3701
IFCID 003 - Nested SQL Activity
Record Trace 3701
IFCID 003 - Query Parallelism
Record Trace 3702
IFCID 003 - Resource Limit Facility
Record Trace 3703
IFCID 003 - RDB List Processing
Record Trace 3704
IFCID 003 - Rollup Accounting
Correlation Block
Record Trace 3704
IFCID 003 - ROWID
Record Trace 3704
IFCID 003 - SQL Call Data
Record Trace 3705
IFCID 004 - Trace Start
Record Trace 3705
IFCID 005 - Trace Stop
Record Trace 3706
IFCID 006 - Read I/O Start
Record Trace 3706
IFCID 007 - Read I/O Stop
Record Trace 3708
IFCID 008 - Write I/O Synch
Record Trace 3709
IFCID 009 - Write I/O
Record Trace 3710
IFCID 010 - Write I/O Asynch
Record Trace 3711
IFCID 011 - Validate Exit
Record Trace 3712
IFCID 012 - Edit Exit to Encode
Record Trace 3713
IFCID 013 - Hash Scan Input Start
Record Trace 3713
IFCID 014 - Hash Scan End
Record Trace 3715
IFCID 015 - Index Scan Begin
Record Trace 3715
IFCID 016 - Insert Scan Begin
Record Trace 3717
IFCID 017 - Sequential Scan Begin
Record Trace 3718
IFCID 018 - Scan End
Record Trace 3720
IFCID 019 - Exit Exit to Decode
Record Trace 3722
IFCID 020 - Lock Summary
Record Trace 3723
IFCID 021 - Lock Detail
Record Trace 3724
IFCID 022 - Minbind
Record Trace 3729
IFCID 023 - Utility Start
Record Trace 3738
IFCID 024 - Utility Change
Record Trace 3742
IFCID 025 - Utility End
Record Trace 3743
IFCID 026 - IBM Service Record
Record Trace 3745

report and trace blocks (continued)
IFCID 027 - Sort Workfile Records
Record Trace 3746
IFCID 028 - Sort Phase Detail
Record Trace 3747
IFCID 029 - EDM Request Start
Record Trace 3749
IFCID 030 - EDM Request End
Record Trace 3751
IFCID 031 - EDM Full
Record Trace 3754
IFCID 032 - Log Wait Start
Record Trace 3756
IFCID 033 - Log Wait End
Record Trace 3756
IFCID 034 - Log Read Start
Record Trace 3757
IFCID 035 - Log Read End
Record Trace 3757
IFCID 036 - Log Non I/O Start
Record Trace 3758
IFCID 037 - Log Non I/O End
Record Trace 3759
IFCID 038 - Active Write Start
Record Trace 3759
IFCID 039 - Active Write End
Record Trace 3760
IFCID 040 - Archive Write Start
Record Trace 3760
IFCID 041 - Archive Write End
Record Trace 3761
IFCID 042 - Checkpoint Start
Record Trace 3761
IFCID 043 - Checkpoint End
Record Trace 3761
IFCID 044 - Lock Suspend
Record Trace 3761
IFCID 045 - Lock Resume
Record Trace 3765
IFCID 046 - IBM Service Record
Record Trace 3766
IFCID 047 - IBM Service Record
Record Trace 3767
IFCID 048 - IBM Service Record
Record Trace 3767
IFCID 049 - IBM Service Record
Record Trace 3767
IFCID 050 - IBM Service Record
Record Trace 3767
IFCID 051 - IBM Service Record
Record Trace 3767
IFCID 052 - IBM Service Record
Record Trace 3767
IFCID 053 - SQL Describe/Commit/
Record Trace 3767
Rollback/Remote Statement
IFCID 055 - Set SQLID
Record Trace 3770
IFCID 056 - IBM Service Record
Record Trace 3771
IFCID 057 - IBM Service Record
Record Trace 3772
IFCID 058 - End SQL
Record Trace 3772
IFCID 059 - Fetch Start
Record Trace 3777

report and trace blocks (continued)
IFCID 060 - Select Start
Record Trace 3779
IFCID 061 - Insert/Update/Delete
Start
Record Trace 3780
IFCID 062 - DDL Start
Record Trace 3781
IFCID 063 - SQL Statement
Record Trace 3784
IFCID 064 - Prepare Start
Record Trace 3785
IFCID 065 - Open Cursor
Record Trace 3786
IFCID 066 - Close Cursor
Record Trace 3788
IFCID 067 - Accounting
Record Trace 3790
IFCID 068 - Rollback Start
Record Trace 3790
IFCID 069 - IBM Service Record
Record Trace 3792
IFCID 070 - Commit Phase 2 Start
Record Trace 3790
IFCID 071 - Commit Phase 2 End
Record Trace 3791
IFCID 072 - Create Thread Start
Record Trace 3791
IFCID 073 - Create Thread End
Record Trace 3791
IFCID 074 - Terminate Thread Start
Record Trace 3792
IFCID 075 - Terminate Thread End
Record Trace 3792
IFCID 076 - End of Memory Start
Record Trace 3792
IFCID 077 - End of Memory End
Record Trace 3793
IFCID 078 - End of Task Start
Record Trace 3793
IFCID 079 - End of Task End
Record Trace 3793
IFCID 080 - IBM Service Record
Record Trace 3793
IFCID 081 - IBM Service Record
Record Trace 3793
IFCID 082 - Identify Start
Record Trace 3794
IFCID 083 - Identify End
Record Trace 3794
IFCID 084 - Prepare Start
Record Trace 3795
IFCID 085 - Prepare End
Record Trace 3795
IFCID 086 - Signon Start
Record Trace 3796
IFCID 087 - Signon End
Record Trace 3796
IFCID 088 - Synch Start
Record Trace 3797
IFCID 089 - Synch End
Record Trace 3797
IFCID 090 - DB2 Command Start
Record Trace 3797
IFCID 091 - Command End
Record Trace 3798
report and trace blocks (continued)
IFCID 092 - AMS Command Start
Record Trace 3798
IFCID 093 - IBM Service Record
Record Trace 3798
IFCID 094 - IBM Service Record
Record Trace 3798
IFCID 095 - IBM Service Record
Record Trace 3798
IFCID 096 - Sort End
Record Trace 3799
IFCID 097 - AMS Command End
Record Trace 3801
IFCID 098 - IBM Service Record
Record Trace 3801
IFCID 099 - IBM Service Record
Record Trace 3802
IFCID 100 - IBM Service Record
Record Trace 3802
IFCID 101 - IBM Service Record
Record Trace 3802
IFCID 102 - IBM Service Record
Record Trace 3802
IFCID 103 - SOS Off
Record Trace 3802
IFCID 104 - Log Data Set
Record Trace 3802
IFCID 105 - DBID/OBID Translation
Record Trace 3803
IFCID 106 - Application Programming Defaults
Record Trace 3803
IFCID 106 - Data Sharing Parameters
Record Trace 3812
IFCID 106 - Databases/Spaces
Automatically Deferred
Record Trace 3815
IFCID 106 - Databases/Spaces
Automatically Restarted
Record Trace 3815
IFCID 106 - Databases/Spaces
Automatically Started
Record Trace 3815
IFCID 106 - Distributed Data Facility Parameters
Record Trace 3816
IFCID 106 - IRLM Processing Parameters
Record Trace 3822
IFCID 106 - Log Initialization Parameters (Part 1)
Record Trace 3824
IFCID 106 - Log Initialization Parameters (Part 2)
Record Trace 3827
IFCID 106 - Miscellaneous Installation Parameters
Record Trace 3831
IFCID 106 - Stored Procedures Parameters
Record Trace 3872
IFCID 106 - System Initialization Parameters
Record Trace 3873
IFCID 106 - System Parameters
Record Trace 3803
IFCID 106 - VSAM Catalog Name Qualifier
Record Trace 3889
IFCID 107 - Open/Close
Record Trace 3889
IFCID 108 - Bind Start
Record Trace 3890
IFCID 109 - Bind End
Record Trace 3894
IFCID 110 - Bind Free Start
Record Trace 3895
IFCID 111 - Bind Free End
Record Trace 3896
IFCID 112 - Thread Allocate
Record Trace 3896
IFCID 113 - Agent Allocate
Record Trace 3898
IFCID 114 - Archive Wait Start
Record Trace 3900
IFCID 115 - Archive End DASD
Record Trace 3901
IFCID 116 - Archive Wait End Tape
Record Trace 3901
IFCID 117 - Archive Read Start
Record Trace 3902
IFCID 118 - Archive Read End
Record Trace 3902
IFCID 119 - BSDS Write Start
Record Trace 3902
IFCID 120 - BSDS Write End
Record Trace 3903
IFCID 121 - IBM Service Record
Record Trace 3903
IFCID 122 - IBM Service Record
Record Trace 3903
IFCID 123 - SRV Record
Record Trace 3903
IFCID 124 - SQL Statement Record
Record Trace 3904
IFCID 125 - RID Pool Processing
Record Trace 3906
IFCID 126 - Log Buffer Write
Record Trace 3909
IFCID 127 - Page Wait I/O In Prog
Record Trace 3909
IFCID 128 - Page Wait I/O In Prog
Record Trace 3910
IFCID 129 - CI-S Obtained via IFI
Record Trace 3912
IFCID 140 - Audit Auth Failures
Record Trace 3912
IFCID 141 - Audit DDL Grant/Revoke
Record Trace 3916
IFCID 142 - Audit DDL Create/Alter/Drop
Record Trace 3920
IFCID 143 - Audit First Write
Record Trace 3924
IFCID 144 - Audit First Read
Record Trace 3925
IFCID 145 - Audit DML Statement
Record Trace 3925
IFCID 146 - User Record
Record Trace 3929
IFCID 147 - Data Sharing Accounting Data
Record Trace 3930
IFCID 147 - Distributed Header Data
Record Trace 3930
IFCID 147 - Instrumentation Accounting Data
Record Trace 3931
IFCID 147 - Instrumentation Accounting Data Overflow
Record Trace 3931
IFCID 147 - Logging
Record Trace 3934
IFCID 147 - Monitor Detail Data
Record Trace 3935
IFCID 147 - Thread Correlation Data
Record Trace 3941
IFCID 147 - Thread Summary
Record Trace 3949
IFCID 149 - Resource Locking
Record Trace 3944
IFCID 150 - Global Interest Data
Record Trace 3945
IFCID 150 - Held Lock Data
Record Trace 3946
IFCID 150 - Lock Resource Data
Record Trace 3947
IFCID 150 - Retained Lock Data
Record Trace 3948
IFCID 150 - Suspend Lock Data
Record Trace 3949
IFCID 150 - Thread Locking
Record Trace 3945
IFCID 151 - User Record
Record Trace 3950
IFCID 152 - User Record
Record Trace 3950
IFCID 153 - User Record
Record Trace 3950
IFCID 154 - User Record
Record Trace 3951
IFCID 155 - User Record
Record Trace 3951
IFCID 156 - User Record
Record Trace 3951
IFCID 157 - DRDS RDS Interface
Record Trace 3951
IFCID 158 - DRDS CNV Interface
Record Trace 3952
IFCID 159 - DRDS Req Site Data
Record Trace 3952
IFCID 160 - DC Requester
Record Trace 3953
IFCID 161 - DC Server
Record Trace 3954
IFCID 162 - DTM Request
Record Trace 3955
IFCID 163 - DTM Respond
Record Trace 3955
IFCID 164 - IBM Service Record
Record Trace 3956
IFCID 165 - IBM Service Record
Record Trace 3956
Index 5243
IFCID 166 - IBM Service Record
Record Trace 3957

IFCID 167 - Conv Alloc Req Queued
Record Trace 3957

IFCID 168 - IBM Service Record
Record Trace 3958

IFCID 169 - DIST Authid Translation
Record Trace 3958

IFCID 170 - Suspend of Agent
Record Trace 3959

IFCID 171 - IBM Service Record
Record Trace 3959

IFCID 172 - Deadlock Data
Record Trace 3959

IFCID 172 - Deadlock Header
Record Trace 3960

IFCID 172 - Unit of Work - Blocker
Record Trace 3962

IFCID 172 - Unit of Work - Resource
Record Trace 3960

IFCID 173 - Class 2 Time
Record Trace 3965

IFCID 173 - Class 2 Time
Record Trace 3968

IFCID 174 - Arch Log CMD Sus Start
Record Trace 3969

IFCID 175 - Arch Log CMD Sus End
Record Trace 3970

IFCID 177 - Package Allocation
Record Trace 3970

IFCID 178 - IBM Service Record
Record Trace 3973

IFCID 179 - IBM Service Record
Record Trace 3973

IFCID 180 - DC Communication Buffers
Record Trace 3973

IFCID 181 - IBM Service Record
Record Trace 3974

IFCID 182 - IBM Service Record
Record Trace 3974

IFCID 183 - DRDS RDS/SCC Interface
Record Trace 3975

IFCID 184 - DC Communication Buffers
Record Trace 3977

IFCID 185 - READs Data Capture Start
Record Trace 3978

IFCID 186 - IBM Service Record
Record Trace 3978

IFCID 188 - READs Data Capture End
Record Trace 3979

IFCID 190 - IBM Service Record
Record Trace 3980

IFCID 191 - 6B DSS Section
Record Trace 3985

IFCID 191 - Command and/or Reply Section
Record Trace 3980

IFCID 191 - DB2 ZEDA
Record Trace 3982

IFCID 191 - DDM Level 6B Objects
Record Trace 3980

IFCID 191 - Header Section
Record Trace 3983

IFCID 191 - Late Descriptor Section
Record Trace 3984

IFCID 192 - Current 6A Header
Record Trace 3986

IFCID 192 - DDM Level 6A Header Errors
Record Trace 3986

IFCID 192 - Previous 6A Header
Record Trace 3987

IFCID 193 - UOW/SQLCODE
Mismatch
Record Trace 3988

IFCID 194 - Invalid SNA FMH-5 Received
Record Trace 3988

IFCID 195 - SQLDA Discrepancy
Record Trace 3989

IFCID 196 - Holder
Record Trace 3990

IFCID 196 - Timeout Data
Record Trace 3990

IFCID 196 - Timeout Header
Record Trace 3993

IFCID 197 - DB2 Messages
Record Trace 3995

IFCID 198 - Buffer Manager Page Access
Record Trace 3996

IFCID 199 - Buffer Pool Statistics at Data Set Level
Record Trace 3997

IFCID 201 - Alter Buffer Pool
Record Trace 4000

IFCID 202 - Buffer Pool Attributes
Record Trace 4004

IFCID 203 - DDF Heuristic COMMIT/ROLLBK
Record Trace 4007

IFCID 204 - DDF Partner Cold Start
Record Trace 4008

IFCID 205 - As Remembered by DB2
Record Trace 4009

IFCID 205 - As Remembered by Partner
Record Trace 4010

IFCID 205 - DDF Warm Start Log Name Error
Record Trace 4010

IFCID 205 - DDF Warm Start Log Name Error information
Record Trace 4009

IFCID 206 - DDF Protocol Error
Record Trace 4011

IFCID 207 - DDF Heuristic Damage
Record Trace 4013

IFCID 208 - DDF Syncpoint Protocol Error
Record Trace 4015

IFCID 209 - DDF Syncpoint Comm Failure
Record Trace 4016

IFCID 210 - Warm Start Log Name Change
Record Trace 4017

IFCID 211 - Claim Data
Record Trace 4018

IFCID 212 - Drain Data
Record Trace 4019

IFCID 213 - Drain Lock Wait Start
Record Trace 4020

IFCID 214 - Drain Lock Wait End
Record Trace 4021

IFCID 215 - Claim Count 0 Wait Start
Record Trace 4023

IFCID 216 - Claim Count 0 Wait End
Record Trace 4023

IFCID 217 - Agent Local Storage Pool Sizes
Record Trace 4024

IFCID 217 - DBM1 Storage Pool Sizes
Record Trace 4026

IFCID 217 - Storage Manager Pool Statistics
Record Trace 4027

IFCID 221 - Buffer Pool Constrained Data (Section Type C)
Record Trace 4030

IFCID 221 - Detail Buffer Pool Constrained Data (Section Type E)
Record Trace 4031

IFCID 221 - Parallel Data Buffer
Record Trace 4031

IFCID 221 - Parallel Group Execution
Record Trace 4030

IFCID 222 - Section Type D
Record Trace 4034

IFCID 222 - Parallel Group Elapsed Time
Record Trace 4035

IFCID 223 - Lock Avoidance Detail
Record Trace 4036

IFCID 224 - Select Procedure Bypassed
Record Trace 4037

IFCID 225 - Address Space Summary - DBM1
Record Trace 4038

IFCID 225 - Address Space Summary - DIST
Record Trace 4038

IFCID 225 - IRLM Pool Statistics
Record Trace 4042

IFCID 225 - Shared/Common Storage Summary
Record Trace 4045

IFCID 225 - Statement Cache / XPROC Detail
Record Trace 4043

IFCID 225 - Storage MGR Pool Summary
Record Trace 4038

IFCID 225 - Storage Pool Details
Record Trace 4050
report and trace blocks (continued)
IFCID 225 - Thread Information
Record Trace 4051
IFCID 226 - Page Latch Contention Start
Record Trace 4052
IFCID 227 - Page Latch Contention End
Record Trace 4053
IFCID 228 - Archive Deallocation Start
Record Trace 4054
IFCID 229 - Archive Deallocation End
Record Trace 4054
IFCID 230 - Group Buffer Pool Attributes
Record Trace 4055
IFCID 231 - Parallel Group Task Time
Record Trace 4057
IFCID 232 - Call User Routine
Record Trace 4059
IFCID 233 - Calling Agent Auth IDs
Record Trace 4061
IFCID 236 - DDF SNA XLN Protocol Error
Record Trace 4061
IFCID 237 - Set Current Degree
Record Trace 4062
IFCID 238 - IBM Service Record
Record Trace 4063
IFCID 239 - Buffer Manager Accounting Data
Record Trace 4063
IFCID 239 - General Package Overflow Accounting Data
Record Trace 4066
IFCID 239 - Locking Data
Record Trace 4067
IFCID 239 - Overflow Package/DBRM
Record Trace 4063
IFCID 239 - Package/DBRM Accounting Data
Record Trace 4070
IFCID 239 - RDS Package Accounting
Record Trace 4080
IFCID 239 - Resource Limit Facility
Record Trace 4081
IFCID 247 - SQLDA Data and Input Host Variable Data
Record Trace 4082
IFCID 248 - IBM Service Record
Record Trace 4085
IFCID 249 - EDM Pool Invalidation DBD
Record Trace 4085
IFCID 250 - Connect/Rebuild Connect/Disconnect Group Bpool
Record Trace 4086
IFCID 251 - Buffer Manager PSET/Part P-Lock Request
Record Trace 4089
IFCID 252 - IBM Service Record
Record Trace 4091
IFCID 254 - Coupling Facility Cache Structure Statistics
Record Trace 4091
IFCID 255 - Buffer Refresh Due to XI
Record Trace 4095
IFCID 256 - Alter Group Buffer Pool
Record Trace 4094
IFCID 257 - IRLM Notify Req Detail
Record Trace 4096
IFCID 258 - Data Set Extend Activity
Record Trace 4098
IFCID 259 - Buffer Manager Pg P-Lock Req
Record Trace 4100
IFCID 260 - IBM Service Record
Record Trace 4102
IFCID 261 - Group Buffer Pool Checkpoint
Record Trace 4102
IFCID 262 - GBPOOLT Castout Threshold Processing
Record Trace 4104
IFCID 263 - Page Set and Partition Castout Detail
Record Trace 4105
IFCID 265 - IBM Service Record
Record Trace 4107
IFCID 266 - IBM Service Record
Record Trace 4107
IFCID 267 - CF Rebuild/Alter/Start
Record Trace 4107
IFCID 268 - CF Rebuild/Alter End
Record Trace 4108
IFCID 269 - Trusted/Context Trace
Record Trace 4111
IFCID 270 - Trusted/Context Trace
Record Trace 4113
IFCID 271 - Row Level and Column Level Access Control
Record Trace 4113
IFCID 272 - Associate Locators
Record Trace 4114
IFCID 273 - Allocate Cursor
Record Trace 4116
IFCID 305 - Table Check Constraint
Record Trace 4117
IFCID 311 - Global Temp Table Usage
Record Trace 4119
IFCID 313 - Uncommitted Unit of Recovery
Record Trace 4120
IFCID 314 - Authorization Exit Parameters
Record Trace 4122
IFCID 316 - SQL Statement Statistics
Record Trace 4124
IFCID 317 - SQL Statement String
Record Trace 4136
IFCID 319 - Audit Security Record
Record Trace 4136
IFCID 321 - Force-at-Commit Begin
Record Trace 4138
IFCID 322 - Force-at-Commit End
Record Trace 4139
IFCID 324 - Function Resolution
Record Trace 4139
IFCID 325 - Trigger Activation
Record Trace 4141
IFCID 329 - IXL Suspensions
Record Trace 4143
IFCID 330 - Active Log Space Shortage
Record Trace 4143
IFCID 331 - IBM Service Record
Record Trace 4144
IFCID 332 - IBM Service Record
Record Trace 4144
IFCID 333 - IBM Service Record
Record Trace 4144
IFCID 335 - System Event Stalled
Record Trace 4144
IFCID 337 - Lock Escalation Occurrences
Record Trace 4145
IFCID 342 - WF/TEMP DB Usage
Record Trace 4146
IFCID 343 - MAXTEMPS Limit/Exceeded
Record Trace 4147
IFCID 345 - Trace Data / SP/UDF
Record Trace 4148
IFCID 346 - Package/DBRM Detail
Record Trace 4149
IFCID 350 - SQL Statement
Record Trace 4150
IFCID 351 - Wait TCP/IP LOB
Record Trace 4160
IFCID 353 - IBM Service Record
Record Trace 4160
IFCID 354 - IBM Service Record
Record Trace 4161
IFCID 357 - Beginning of an Index
Record Trace 4161
IFCID 358 - End of an Index I/O
Record Trace 4161
IFCID 359 - Index Page Split
Record Trace 4162
IFCID 360 - Incrementealy Rebound Queries
Record Trace 4163
IFCID 361 - Audit Admin Authorities
Record Trace 4163
IFCID 362 - Start Trace and Stop Trace with Audit Policy
Record Trace 4166
IFCID 363 - Data Section QW0363
Record Trace 4168
IFCID 363 - Data Section QW0363E
Record Trace 4169
IFCID 363 - Parallel Straw Model Performance Trace
Record Trace 4167
IFCID 365 - Remote Location Statistics
Record Trace 4171
IFCID 366 - Incompatible Functions Executed
Record Trace 4173
IFCID 369 - Aggregated Accounting Statistics
Record Trace 4178
IFCID 370 - Database Open Information
Record Trace 4180

Index 5245
report and trace blocks (continued)
IFCID 371 - Database Close Information
  Record Trace 4181
IFCID 376 - Incompatible Functions Executed
  Record Trace 4176
IFCID 377 - Pseudo Delete Daemon Cleanup
  Record Trace 4182
IFCID 378 - Accel. Call Event Begin
  Record Trace 4183
IFCID 379 - Accel. Call Event End
  Record Trace 4184
IFCID 380 - Stored Procedure Detail Record
  Record Trace 4184
IFCID 381 - UDF Detail Record
  Record Trace 4187
IFCID 384 - IBM Service Record
  Record Trace 4189
IFCID 385 - IBM Service Record
  Record Trace 4189
IFCID 386 - IBM Service Record
  Record Trace 4189
IFCID 387 - FTB Indexes
  Record Trace 4189
IFCID 390 - IBM Service Record
  Record Trace 4190
IFCID 391 - IBM Service Record
  Record Trace 4190
IFCID 397 - IBM Service Record
  Record Trace 4191
IFCID 398 - IBM Service Record
  Record Trace 4191
IFCID 399 - IBM Service Record
  Record Trace 4191
IFCID 401 - Static Statements in EDM Pool
  Record Trace 4191
IFCID 402 - System Profile - Monitoring Statistics
  Record Trace 4198
IFCID 404 - IBM Service Record
  Record Trace 4199
IFCID 413 - Beginning of Wait for Pipe Suspend
  Record Trace 4200
IFCID 414 - End of Wait for Pipe Suspend
  Record Trace 4200
IFCID 477 - FTB IDX ALLOC
  Record Trace 4201
IFCID 497 - Non Nested Statement ID Record
  Record Trace 4202
IFCID 498 - UDF Statement ID Record
  Record Trace 4202
IFCID 499 - Stored Procedure Statement ID Record
  Record Trace 4203
Initial DB2 Common Server Correlation
  Accounting 3270
Initial DB2 Common Server or Universal JDBC Driver Correlation
  Accounting 3272
report and trace blocks (continued)
Initial DB2 Requester Correlation
  Accounting 3273
Initial Other Requester Correlation
  Accounting 3275
Install DB2 - Resource Limit Facility
  (DSNTIPO) (DB2 12)
  System Parameters 4547
IFCID 499 - Stor
  System Parameters 4549
IFCID 477 - FTB IDX
  System Parameters 4552
IFCID 413 - Beginning of W
  Statistics 4428
Latch Counters
  Statistics 4429
List of Long Names
  System Parameters 4559
Lock Escalation Parameters (DSNTIPI)
  System Parameters 4554
Locking
  Accounting 3277
Locking Activity
  Statistics 4433
Log Activity
  Statistics 4436
Log Installation Parameters
  (DSNTIPL, DSNTIPH)
  System Parameters 4554
Logging Activity
  Accounting 3280
Measured/Elig Times
  Accounting 3280
Miscellaneous
  Statistics 4441
MVS Accounting
  Accounting 3284
MVS LPAR Shared Storage Above 2 GB
  Statistics 4442
MVS Parmlib Update Parameters
  (DSNTIPM)
  System Parameters 4560
Open/Close Activity
  Statistics 4443
Operator Functions Installation
  Parameters (DSNTIPO)
  System Parameters 4561
Other System Parameters
  System Parameters 4565
Package Buffer Pool Activity - Class 10
  Accounting 3285
Package General (Short Report)
  Accounting 3031
Package General (Short Trace)
  Accounting 3060
Package Global Contention L-Locks - Class 8
  Accounting 3288
Package Global Contention P-Locks - Class 8
  Accounting 3289
Package Identification
  Accounting 3290
report and trace blocks (continued)
Package Identification - Report
  Accounting 3291
Package Identification - Trace
  Accounting 3295
Package Locking Activity - Class 10
  Accounting 3300
Package SQL Activity - Class 10
  Accounting 3303
Package Times - Class 7
  Accounting 3312
Package Times - Class 8 - Suspensions
  Accounting 3305
Performance and Optimization
  (DSNTIP8, DSNTIP81)
  System Parameters 4576
Plan/Package Activity
  Statistics 4444
Protection Installation Parameters
  (DSNTIPI)
  System Parameters 4583
Protection Panel (DSNTIPP1)
  System Parameters 4587
Query Accelerator Preferences
  (DSNTIPS2)
  System Parameters 4588
Query Parallelism
  Accounting 3315
  Statistics 4449
Real and Auxiliary Storage for DBM1
  Statistics 4452
Real and Auxiliary Storage for DIST
  Statistics 4454
Real Storage in Use - Summary
  Statistics 4456
Resource Limit Facility
  Accounting 3318
RID List
  Accounting 3320
RID List Processing
  Statistics 4457
Routine Parameters (DSNTIPX)
  System Parameters 4591
ROWID
  Accounting 3322
  Statistics 4460
Service Units
  Accounting 3323
  Short-on-Storage Metrics
  Statistics 4461
Simulated Buffer Pool Statistics
  Statistics 4462
Sizes Panel 1 (DSNTIPD)
  System Parameters 4592
Sort Activity - QW0028
  COMPO 4261
Sort Activity - QW0095/96
  COMPO 4258
SQL DCL
  Accounting 3328
  Statistics 4471
SQL DDL
  Accounting 3330
  Statistics 4473
SQL DML
  Accounting 3336
  Statistics 4479
report and trace blocks (continued)
SQL Object Defaults Panel (DSNTP7, DSNTP71, DSNTP172)
System Parameters 4594
Storage Sizes Installation Farms (DSNTP7C, DSNTP7E, DSNTP1E1)
System Parameters 4598
Stored Procedures
Accounting 3328
Statistics 4463
Subsystem Services
Statistics 4464
Subsystem Shared Storage Above 2 GB
Statistics 4469
Termination - Abnormal
Accounting 3338
Termination - In Doubt
Accounting 3339
Termination - Normal
Accounting 3340
Times - Class 1 - Application Time
Accounting 3341
Times - Class 1 - Elapsed Time
Accounting 3347
Times - Class 2 - DB2 Time
Accounting 3347
Times - Class 2 - Time Distribution
Accounting 3354
Times - Class 5 - IFI Time
Accounting 3364
Times - Class 7 - CP CPU Distribution
Accounting 3365
Times - Class 7 - Elapsed Time Distribution
Accounting 3366
Tracing, Checkpoint & Pseudo-Close Parameters (DSNTP1P)
System Parameters 4604
Triggers
Accounting 3367
Statistics 4480
Truncated Values
Accounting 3368
Use Currently Committed Statistics 4481
User-Defined Functions
Accounting 3368
Statistics 4482
Workfile Database
Statistics 4482
Workfile Database Panel (DSNTP91)
System Parameters 4608
report header
I/O activity 3423
report output 4674
report sections
in detail report 2663
in summary report 2631
report set
commands 2772
description 2745
generating
using ISPF/PDF 2774
level of detail 2747
reporting process overview 2747
REPORT step
definition 2532
filter criteria, specifying 2557
input data set, specifying 2557
loading data 2559
REPORT subcommand
2552, 2553, 2773
description 2773
options 4711, 4737, 4748, 4776
possible use of FROM and TO options 2622
syntax 2622
with ACCOUNTING command 4692
with AUDIT command 4711
with I/OACTIVITY command 4730
with LOCKING command 4736
with SQLACTIVITY command 4747
with STATISTICS command 4757
with TOP subcommand 4692
with UTILITY command 4776
report, audit 3372
report, group-scope 2920
report, member-scope 2918
report, multi-site 2870
report, single-site 2870
report, user-tailored 2950
Reporter 14
enabling 399
reports
accounting highlights 3254
accounting times 3355
buffer pool detail 3433
buffer pool I/O activity 3426
buffer pools 3221
I/O activity summary 3425
large objects 3283
LOBs 3283
suspensions 3355
reports and traces
input for Statistics 2915
Requester Correlation Data
window 1834
requestor location 2870
reset
colors 1453
RESET command 1865, 1919
returning to regular processing mode 1875
statistics 1919
thread activity 1865
RESET control statement 59
Reset Last and Worst Values panel 920
resource access
tracking 2840
Resource Limit Facility
report and trace blocks
Accounting 3318
resource limit specification table (RLST) 1011
resource managers and Other DB2
Subsystem Information menu 1111
resources and lock types 943, 1088, 1104
response time
thread activity 339, 1826
viewing for a thread 1839
RESTORE subcommand
description 2773
effect on job summary 4681
RESTORE subcommand (continued)
options 4767
with ACCOUNTING command 4703
with STATISTICS command 4766
restrictions 1787
RETRAC command 4741
with FILE subcommand 4744
with TRACE subcommand 4743
return to calling panel 1470
reuse of configuration file
Performance Expert Agent for DB2
Connect Monitoring on UNIX and Linux 433
Performance Expert Agent for DB2
Connect Monitoring on Windows 419
reviewing security requirements
Buffer Pool Analyzer 858
RID 1736, 1750
RID List
report and trace blocks
Accounting 3320
RID list processing
displaying the number of blocks allocated 1900
operations 1845
terminations 1900
RID List Processing
report and trace blocks
Statistics 4457
Rid List Processing window
statistics 1900
thread activity 1845
Right function key for scrollable fields 1805
RIO exception 912
RKD2PAR(ARSCccc)
archiving near-term history data 1699
RKD2PAR(COPT<ssid>=) collection options 2768
WRITEOPTION keyword 2768
RKD2PAR(COPTccc) 1698
RKD2PAR(COPTccc) data collection options 326, 4663
RK02DATA data set
DG0ETV3 member 2801, 2802
RK02DATA(DG0ETV51)
different versions of 2930
sample Exception Threshold data set 2930
warning message 2930
RK02PCSV 1469, 1471
RK02PSFS 1507
RK02SAMP library
DG0ECFIL member 1823
DG0EFLIL member 1823
DG0EQFIL member 1823
DG0EVFIL member 1823
DG0MEJCXL member 1822
DG0MJCXJ member 1809
roll-up
controlling 2871, 2872
Routine Parameters (DSNTPFX)
report and trace blocks
System Parameters 4591
routing and printer options 1494

Index 5247
routing and printer options (continued) for XLF 1512
ROWID 1738, 1750

report and trace blocks
Accounting 3322
Statistics 4460

RTIPIODI 4685
RTTPTO 4685
RTTRDDI 4685
RTWORK 4685

rule
in pattern file 2687
in pattern file, overlapping ranges 2687
in pattern file, sequence of 2687

rule of thumb
analysis result 2571
changing 2568
copying to another rule-of-thumb cluster 2568
defining 2566
deleting 2568
filter criteria, specifying 2570
job-step ID filter, specifying 2570
moving to another rule-of-thumb cluster 2568
renaming 2568
timestamp filter, specifying 2570
variables, resolving 2570

rule-of-thumb cluster
analysis result 2571
changing 2568
copying to another rule-of-thumb group 2568
definition 2564
filter criteria, specifying 2567
moving to another rule-of-thumb group 2568

rule-of-thumb group
changing 2564
changing description 2564
copying 2564
creating 2563
deleting 2564, 2568
renaming 2564, 2568

runtime environment
migration 866, 874

Save New/Altered User Profile panel 1507
SAVE subcommand 2552, 2553, 2773, 2866, 2867, 2917
effect on job summary 4681
options 4700
with ACCOUNTING command 4700
with CONVERT option 2773, 2867, 2917
with STATISTICS command 4764
without CONVERT option 2773, 2866, 2882, 2917

saving a panel 1471
schedule string 2562
SCHN command 1472
SCOPE option
REPORT subcommand 4758
SCOPE subcommand option 4830
scope, member 2566
screen
DSNZPARN Application Parameters 1232
DSNZPARN Buffer Pool Parameters 1254
DSNZPARN Data Parameters 1241
DSNZPARN Other System Parameters 1266
DSNZPARN Performance and Optimization Parameters 1244
DSNZPARN Stored Procedures Parameters 1231
DSNZPARN Utility Parameters 1256
SCRN command 1473
scrollable field
examples 1804
scrollable field support 1804
scrolling
/D command 1454
/DOWN command 1454
/U 1478
/UP 1478
secondary terminals 1453
section
multiple, in bpd file 2685
section selection
object placement, bpd file 2685
security 37
for the OMEGAMON Collector address spaces 311, 314
security control statements
AUTHLIB 54
COMMAND 55
format rules 53
LIST 56
MINOR 57
MODULE 57
overview 52
PASSWORD 58
RESET 59
SMFNUM 60
UPDATE 60
security features 1468, 1469
security file listing
control statement edit listing 38
header information 37
security of the Classic Interface authorization level 43

security of the Classic Interface (continued)
authorized commands 43
calling conventions 50
calling flow 51
control statements 52, 60
describing commands 49
external security 43
external security concepts 46
implementation of external security 46
internal security 43
modify ACF2 security rules 48
modify CA-TOP SECRET security rules 49
modify RACF security rules 47
optional external security features 40
passwords for authorized commands 44
security file listing 37
terminology for security procedures 42
security procedures
control statements 42
exit routine 42
JCL 42
update program 42
security table update 60
Select Data set and Trace Parameters panel 1351
selecting
bpd file for object placement 2685
bpd file for viewing performance data 2679
bpd files for viewing long-term analysis 2708
pattern file for object placement 2685
trace data file for simulation 2700
selection field, editing 340
sending comments 26
separator character
with spreadsheet 3467
separator line 1453
sequential prefetch threshold 905
sequential versus random processing 2697
server statistics KDPCONNS 1745
service 26
Service Units
report and trace blocks Accounting 3323
Session Options window 1794
set and display function keys 1467
Set Background Exception Processing panel 1497
Set Control Function Options panel 1493
Set DB2/IRLM Messages that MSGE Exception Monitors panel 1513
Set Display Options panel 1489
Set Exception Analysis Message Option panel 1496
Set Exception Options panel 1498
Set Performance Options panel 1496
Set Printer and Routing Options panel 1494

S
sample 2765
sample file
Exception Log File data set 1823
sample verification jobs Buffer Pool Analyzer 861
samples
bpd files 2603
trace data files 2603
Save data set
improving performance 2994, 4841
Save Layout Details panel 2958
Save New/Altered Installation Profile panel 1508

IBM Db2 Performance Expert on z/OS
simulation (continued)
file size limit 2698
how to perform 2698
interpreting result 2704
introduction 2601
location of result files 2704
overview 2592
selecting input file 2700
setting parameters 2700
specifying buffer pool sizes 2700
starting the function 2699
viewing result 2704
single-site report 2870
situations 2468, 2483
situations overview 2468, 2483
Sizes Panel 1 (DSNTPD) report and trace blocks
System Parameters 4592
SL keyword 1477
SLST command 1474
SMF (system management facility) 2759
SMF log stream 2769, 2784, 4681
SMFID keyword (.F Grok) 1458
SMFNUM control statement 60
SMF/E migration 864, 872
SMF/E installation
Buffer Pool Analyzer 855
snapshot fields 1876
snapshot history 258
Snapshot History 19, 391, 393
configuring 391
snapshot value 1873, 2913
displaying 391
snapshot value (delta) 2914
snapshot value (interval) 2915
SNAPSHOT HISTORY subcommand 4658
snapshots changing the number of visible snapshots 2529
definition 2515
exporting 2545
history data, viewing 2543
long performance counter values 2547
printing 2545
saving 2545
time zones 2547
software requirements
Buffer Pool Analyzer Client 853
OMEGAMON for DB2 PE 28
Performance Expert Agent for DB2 Connect Monitoring on UNIX and Linux 423
Performance Expert Agent for DB2 Connect Monitoring on Windows 409
Performance Expert Client 437
Sort Activity - QW0028 report and trace blocks
COMPO 4261
Sort Activity - QW0095/96 report and trace blocks
COMPO 4258
SORT command 1870, 1871
sort facility incomplete spanned record 4788
sort facility (continued)
other than DFSORT 4788
SORTBY subcommand option 4830
sorting
SQL activity 4208
source explain
ISPF Online Monitor 1934
source EXPLAIN command 1937
Source Explain Options window 1935
SP 1735, 1746
Spacename Activity panel 1407
Spacename Allocations panel 1398
spacename detail (KPDGSPAD) 1736
SPANINC option, DESORT 4788
spanned record, incomplete 4788
Specify Application Trace panel 1029, 1344
specifying
analysis type for long-term analysis 2710
counters for long-term analysis 2711
objects for long-term analysis 2711
output for long-term analysis 2711
time frame for long-term analysis 2711
SPMON subcommand 4658
Spreadsheet Input Data Generator 869
Spreadsheet Input Data Generator 877
Spreadsheet Input-Data Generator 3, 2985
spreadsheet, using lock suspension data in 3466
SPREADSHEETDD subcommand option 4830
SPTH 905
SQLA 1463, 1465
SQL
viewing subsystem-wide activity 1896
SQL activity 2803, 4205
description 2745
distributed data 2935
general 4207
headers 4210
input 2804
report 4213
sorting 4208
summarization 4207
trace 4220
viewing subsystem-wide activity 1896
workload detail 4209
SQL Activity trace description 2745
IFCID 63 2810
SQL statement text 2810
SQL activity traces
creating 2513
viewing 2513
SQL Activity window statistics 1896
thread activity 1846
SQL Call Being Executed panel 949
SQL Counts
See also Group SQL Counts
SQL Counts DML (KDPSQL1)
KDPSQL2 1750
SQL Counts DML (KDPSQL1) (continued)

KDPSQL3  1750
KDPSQL4  1750
KDPSQL5  1750
KDPSQL6  1750
KDPSQL7  1750
KDPSQL8  1750
KDPSQL9  1750
KDPSQLD  1750
KDPSQLE  1750

SQL DCL
report and trace blocks
  Accounting  3328
  Statistics  4471
SQL DDL
report and trace blocks
  Accounting  3330
  Statistics  4473
SQL DML
report and trace blocks
  Accounting  3336
  Statistics  4479
SQL Object Defaults Panel (DSNTIP7, DSNTIP71, DSNTIP72)
report and trace blocks
  System Parameters  4594
SQL Performance Analysis: ANLSQL panel 1710
SQL Performance Analysis: Available Reports menu 1703
SQL Performance Analysis: Enhanced Explain panel 1706
SQL Performance Analysis: JOBERR panel 1710
SQL Performance Analysis: Query Limits panel 1707
SQL Performance Analysis: SYSPRINT panel 1709
SQL Performance Analysis: Trace panel 1708
SQL Performance Analyzer 298
SQL Performance Analyzer, see IBM DB2 SQL Performance Analyzer 393
SQL statement 2811
described in 2696
displaying the number of statements executed for a thread 1846
EXPLAIN command 1864
explain function 1921
viewing thread details 1851
SQL Statement and Package window 1851
SQL Statement List panel (DBRM) 1930
SQL Statement List panel (packages) 1928
SQL Statement Selection panel 1937
SQL statement text
  IFCID 350  2810
  IFCID 63  2810
SQL Activity trace 2810
SQL statements
determining the access path 2544
viewing 2518
SQL Statistics Summary by Report Interval panel 1568
SQL Text Edit panel 1931

SQL Text Entry window 1931
SQL/RID Pool/Parallelism/Store
Procedure Information panel 1283
SQL/RID Pool/Store Procedures Statistics Detail panel 1570
SQLACTIVITY command 4746
  with TRACe subcommand 4751
SQLACTIVITY subcommand 4747
with REPORT command 4747
SQLID option
  EXPLAIN command 4723
SQLID window 1795
SQLWORK  4685
SQRPTDD  4683
SQRTRCDD  4685
SS keyword  1477
SSCN command  1475
SSID option
  EXPLAIN command 4723
START command 4651
Start Object Analysis Collection panel 1429
START subtask command 4652
START TRACE
  collecting IFCID 350  2810
  START TRACE command 2758, 2762
  syntax 2758
started jobs 312
started-tasks 4651
starting
  Buffer Pool Analyzer Client  855
  OMEGAMON XE for DB2 PE 1776, 1787
  Performance Expert Agent for DB2
    Connect Monitoring on UNIX and Linux  434
Performance Expert Agent for DB2
  Connect Monitoring on Windows  420
starting and stopping traces of a collect task 2755
starting several monitoring functions 2505
startup command parameters 1468
Statement Cache and XProc Detail panel 1318
Static SQL cache statistics panel 1160
Static SQL Cache Statistics with Package Information panel 1163
statistics
  commands 1917, 1921
  AUTO 1917
  DELTA 1918
  HISTORY 1919
  INTERVAL 1919
  RESET 1919
description 2745
displaying the number of
  DB2 commands executed 1905
  instrumentation records 1906
  instrumentation records written to
    IFC destinations 1907
  distributed data 2935
  exception processing 2924
  grope-scope report 2941
  headers used 2926
  high-water mark fields 1877
statistics (continued)
  how values are reported 2927
  listing active buffer pools 1881
  listing group buffer pools used by DB2 1911
  long layout 4268
  panel overview 1877
  processing mode 1874, 1877
delta mode 1876
  interval mode 1875
  regular mode 1875
  resetting delta or interval mode 1919
  refreshing panel values 1917
  report 4267
  reporting values 2927
  RID list processing 1900
  short layout 4267
  snapshot fields 1876
  tailoring report and trace layouts 2950, 2959
  values reporting 1427
viewing 1873, 1921
  accumulated data 1919
  active buffer pool 1882
  activity on calls to user-written SQL programs at DB2
  server 1916
  backing coupling activity 1915
  bind processing 1889
  CPU times and other data 1904
data capture activity 1908
data distributed by a remote location 1903
data set activity and drain requests 1888
data sharing locking activity 1909
group buffer pool used by DB2 1912
  key performance data 1877
  locking activity 1887
  log activity 1891
  past data 1807, 1919
  plan and package allocation and authorization management 1891
  query parallelism 1899
  subsystem-wide DB2 activity 1893, 1918
  subsystem-wide DDF activity 1901
  subsystem-wide SQL activity 1896
Statistics 2783
  buffer pool, refreshing 2520
  data sharing group 2542
delta processing 2517
functions 2916
gauge values, definition 2515
  graphical format, viewing 2520
  high-water mark values, definition 2515
  history data, viewing 2543
  input for reports and traces 2915
  interval processing 2517
  level of detail 2918
  processing modes 2516
IBM Db2 Performance Expert on z/OS

subcommand option (continued)

LIMIT 4827
NOEXCEPTION 4811
ORDER 4828
SCOPE 4830
SORTBY 4830
SPEADSHETDD 4830
SUMMARIZEBY 4831
TO 4812
TOP 4831
TYPE 4832
WORKPOOL 4832
subcommand options 4806

subpool allocations

Subsys Shr 1751

subsystem

applying changes to 2696
choosing for long-term analysis 2710
identification in bpd file 2708
identification in result of long-term analysis 2715
performance data from several 2710
selection for long-term analysis 2710
viewing information about 2680, 2685

subsystem parameter

ACCUMACC 2871
PTASKROL 2872
Subsystem Service window 1893
subsystem services 1893
viewing subsystem-wide DB2 activity 1893

Subsystem Services

report and trace blocks

Statistics 4464

Subsystem Shared Storage Above 2 GB report and trace blocks

Statistics 4469

Subsystem Support Manager Statistics

Detail panel 1523

Subsystem Support Manager Statistics panel 1181

Subsystem Support Manager Statistics

Summary by Report Interval panel 1521

Subsystem window 1790

Subsystems List window 1790

subtask commands

START 4652
STOP 4653

subtask commands, Event Collection Manager 4664

subtask commands, general 4652

subtask commands, Near-Term History Data Collector 4661

subtask commands, Performance Expert Server 4653

subtask commands, TEP Data Collection 4659

summarization 844

collecting 844

SQL activity 4207

workspaces 845

SUMMARIZEBY subcommand option 4831

summary

user tasks 2603

summary of changes 1, 2, 4833

Summary of DB2 Activity panel 896

summary report explain 3419

support home website 26

SUSL exception 913

suspending reports 3355

suspending, class 3 2875

syntax 1799, 1801, 1808, 1817, 1863, 1864, 1865, 1866, 1871, 1917, 1918, 1919, 1920, 1927, 1939

BPACTIVITY command 2622

FILE subcommand 2622

REPORT subcommand 2622

syntax diagram

source EXPLAIN 1937

syntax diagrams 23

SYSIN 4682

SYSIN data set 2769

SYSIN, DD statement 4682

SYSOUT 4682

SYSOUT data set 2770

SYSOUT, DD statement 2620

SYSPARM command 4772

with FILE subcommand 4774

with TRACE subcommand 4773

Sysplex Parallel Thread Summary panel 1079

Sysplex query parallelism 2871

SYSFRRMDD 4682

SYSFRMDD card 4772

system exceptions 1479

system health

chart color and pattern, changing 2529

chart, changing type 2525

configuration, reusing 2530

current, viewing 2522

data group, creating 2521

data sharing group 2543

data view

changing 2524

creating 2521, 2524

displaying data views as performance graphs in the System Overview window 2530

global threshold changing 2523

specifying 2528

grid, adding 2529

past, viewing 2523

single threshold, specifying 2528

snapshot changing the number of visible snapshots 2529

freezing their display 2529

viewing 2520

system management facility (SMF) 2759

system overview 2783

system parameters 4490

example 4491

header 4490

history data, viewing 2543

viewing 2534

System Parameters

report and trace blocks

Alter Buffer Pool Command Issued 4609

Alter Group Buffer Pool Command Issued 4612

Application Programming Defaults Panel 1 (DSNTIPE) 4512

Application Programming Defaults Panel 2 (DSNTIPE, DSNTIPE1) 4517

Archive Log Installation Parameters (DSNTIPA) 4521

Buffer Pool Parameters 4614

Buffer Pool Parameters (DSNTIPI) 4525

Data Definition Control Support (DSNTIPZ) 4526

Databases and Spaces Started Automatically (DSNTIPS) 4531

DB2 Catalog and Directory Panel (DSNTIPD) 4538

DB2 Utilities Parameters (DSNTIP6, DSNTIP61, DSNTIP62) 4539

DB2 Version Install (DSNTIPA1) 4546

Default Startup Modules (DSNTIPO3) 4531

Define Group or Member (DSNTIPIK) 4529

Distributed Data Facility Panel 1 (DSNTIPR) 4532

Distributed Data Facility Panel 2 (DSNTIPS) 4535

Group Buffer Pool Parameters 4617

Install DB2 - Resource Limit Facility (DSNTIPO4) (DB2 12) 4547

IRLM Installation Parameters (DSNTIPI) 4549

IRLM Processing Parameters 4552

List of Long Names 4559

Lock Escalation Parameters (DSNTIPI) 4554

Log Installation Parameters (DSNTIPL, DSNTIPI) 4554

MVS Parmlib Update Parameters (DSNTIPM) 4560

Operator Functions Installation Parameters (DSNTIPO) 4561

Other System Parameters 4565

Performance and Optimization (DSNTIP9, DSNTIP81) 4576

Protection Installation Parameters (DSNTIPI) 4583

Protection Panel (DSNTIPI) 4587

Query Accelerator Preferences (DSNTIP2) 4588

Routine Parameters (DSNTIPX) 4591

Sizes Panel 1 (DSNTIPD) 4592

SQL Object Defaults Panel (DSNTIPT7, DSNTIPT71, DSNTIPT72) 4594
Thread History Dynamic SQL Calls panel 1656
Thread History Global Lock Activity panel 1654
Thread History Group Buffer Pool Activity panel 1692
thread history information by subinterval 1624
Thread History Lock Waits panel 1642
Thread History Lock/Claim/Drain Activity panel 1651
Thread History Package Detail panel 1685
Thread History Package Summary panel 1682
Thread History Parallel Task panel Summary 1695
Thread History Resource Limit Statistics panel 1675
Thread History Sort and Scan Activity panel 1689
Thread History SQL Counts panel 1660
Thread History Summary panel 1621
Thread History Times Summary panel 1633
thread identification 2868
Thread Identification window 1833
Thread Information panel 1313
Thread Lock/Claim/Drain Activity panel 936, 1097
Thread Package Summary panel 1000
thread performance parallelism considerations 1826
Thread Qualification Parameters window 1868
Thread Resource Limit Statistics panel 1009
Thread Sort Specification window 1872
Thread Summary panel 1827, 1951
disabling threads 1865
limiting the number of threads displayed 1867
ordering threads 1870
QUALIFY command 1867
RESET command 1865
SORT command 1870
Thread Times window 1839
thread types 2867
thread, allied 2867
thread, allied-distributed 2868
thread, database access 2868
thread, DBAT-distributed 2868
threads 1742

tax threads (continued)
KDPPTHDS 1731
KDPPTHRD 1731
KDPPTCANC 1742
KDPPTHDA2 1742
KDPPTHDD2 1742
KDPPTHDE2 1742
KDPPTHRD3 1742
KDPPTHDL 1742
KDPPTHRD 1742
KDPPTH RN 1742
KDPPTSQL1 1742
KDPPTSQL 1742
locking conflict, viewing 2514
parallel tasks of 921
parallel threads 2509
qualifying 2511
resource, locking conflict 2515
statistics (KDPPTHDS) 1731
status of 1724
TSO 921
Utilities 1742
windows, customizing columns 2546
Threads Having Remote ID Information panel 1084
Threads Holding Resource window 1845
Threads Summary Excluding Idle Threads panel '921
Threads Summary Including Idle Threads panel 1086
threshold global threshold changing 2523
specifying 2528
single threshold, specifying 2528
types 2883
threshold data sets 388, 389
threshold set changing 2540
creating 2539
saving changes 2540
threshold, exception 2883
time class 5
thread activity 1856
time class 5 1856
time format 1803
Online Monitor 1803
time formats, elapsed 4675
TIME keyword 1477
time zone editor 2960
example 2962, 2963
specifying 2960, 2964
Time Zone Data Editor panel 2961
time zones 2547
time, class 5 1856
Timed Screen Facility (TSF) terminating 1470
Times - Class 1 - Application Time report and trace blocks Accounting 3341
Times - Class 1 - Elapsed Time Distribution report and trace blocks Accounting 3347
Times - Class 2 - DB2 Time report and trace blocks Accounting 3347
Times - Class 2 - Time Distribution report and trace blocks Accounting 3394
Times - Class 5 - IFI Time report and trace blocks Accounting 3364
Times - Class 7 - CP CPU Distribution report and trace blocks Accounting 3365
Times - Class 7 - Elapsed Time Distribution report and trace blocks Accounting 3366
times, distributed Accounting 2873
times, nondistributed Accounting 2873
timestamp data
query filtering 2576
rule-of-thumb filtering 2570
TIMEZONE option 2960, 2964
GLOBAL command 2960, 2964
Tivoli Data Warehouse 20
adding 851
Tivoli Enterprise Monitoring Agent 15
enabling 375
migration 867, 874
Tivoli Enterprise Monitoring Server 15
configuring 375
migration 871, 878
Tivoli Enterprise Monitoring Server application support adding 378
Tivoli Enterprise Portal 11, 1989
installing 851
migration 871, 878
Tivoli Enterprise Portal Server 15
adding 851
migration 871, 878
Tivoli Monitoring Services verifying configuration 376
TKANSAM(K02M0D01) 1344
TKO2SAMP data set 2736
TKO2SAMP(BPOMACRD) data set member 2616
TKO2SAMP(BPQBATCH) data set member 2620
TKO2SAMP(FPEZCRDJ) 2765
TMAX exception 913
TO subcommand option 2942, 4812
filtering input 2942
toleration mode
IFCID 337 1821
IFCID 359 1821
TONT subcommand 4653
TOP (ONLY) subcommand option 2885
TOP list producing 2895
TOP processing Accounting 2895
TOP subcommand option 4831
trace accounting controlling the level of detail 2946
audit 3385
Traces (continued)
report and trace blocks (continued)
Statistics 4480
Triggers Thread Summary panel 1078
troubleshooting 3001, 5181, 5191
creating a diagnostic report 5186
timeouts 5181
launching Netscape as HTML browser 5187
main menu 5181
Performance Expert Client does work correctly after startup 5187
resuming OMEGAMON Collector 5188
running a CONVERT step with an incorrect data set 5188
solving code-page problems when accessing Performance Warehouse 5188
troubleshooting command 4802, 5182
DUMP command 4802, 5182
TAPECOPY command 4804, 5184
TRSMAIN utility 4832
intended purpose 2739
other usage 2739
Truncated Values 4832
report and trace blocks
Accounting 3368
TSND exception 914
TSO Thread Summary panel 1042
tuning processes 2588
TYPE subcommand option 4832

U
uncompressing trace data
batch JCL 2740
UNIT keyword (.FGO) 1458
unused object
inactive object, assigning 2687, 2690
see inactive object 2683
update
Performance Expert Agent for DB2
Connect Monitoring on Windows 420
UPDATE control statement 60
updates 26
upgrade 444
Upgrade Plan Table window 1923
USE COMMITTED 1738, 1751
Use Currently Committed report and trace blocks
Statistics 4481
user exit, exception processing 2541
user interface 20
host 20
on the host 20
workstation 21
USER keyword (.FGO) 1458
user mod TKANSAM(KO2MOD02) 923, 1048
user profile
compare in .FGO 1458
user profile, delete 1508
user profile, save 1507
user tasks 2603
User-Defined Functions
report and trace blocks
Accounting 3368
Statistics 4482
user-tailored report 2950
See UTR
User-Tailored Reporting Layout Generation panel 894, 2951
using collected data 2597
using the ISPF Online Monitor 2750
with Collect Report Data Batch program 2765
UTIL 1735, 1746
Utilities
Threads 1742
utility
Spreadsheet Input-Data Generator 2985
utility access detail (Type UTILITY) audit 3408
utility access summary (UTILITY) audit 3384
utility activity
description 2746
UTILITY command 4774
with REDUCE subcommand 4778
with REPORT subcommand 4776
with TRAVERSE subcommand 4779
Utility Detail panel 1016
Utility Summary panel 1065
UTIS exception 914
UTR 871, 879
UTR (User-Tailored Reporting) 2950, 2959
Accounting report (short) 2950
block of data
adding 2953
replacing fields 2955
description 2950
layout
displaying 2957
saving 2958
selecting 2951
UTR Block Selection panel 2952
UTR field selection panel 2955
UTR Field Selection panel 2954
UTR Layout Selection panel 2952
UTR Save Layout Details panel 2958
UTRPTDD 4683
UTTRCDDI 4685
UTWORK 4685

V
value
delta 1874
descriptions 3368
DSNZPARM 1938
GROUP command 2947
high-water mark 1873
INSTALL parameter 2758
large and missing 1803
Online Monitor 1803
refreshing 1788
Online Monitor values 1788
Online Monitor values periodically 1793
VTAM realtime monitor 8
VTIO exception 915
VTPOOL sharing 34
VUTL exception 915

window (continued)
group buffer pool detail (continued)
  thread activity 1866
group buffer pools activity
  statistics 1911
thread activity 1860
History 1809
History Defaults 1792
IFCID Selection 2754
IFI (class 5) and Data Capture 1856
Index Selection 1949
Locked Resources 1843
Locking (IRLM) Activity 1841
Locking Activity 1887
Log Manager 1891
Monitor Output 1793
Online Monitor Memory Usage 1796
Open/Close Management 1888
Package SQL Statement 1927
Package Version List 1928
Periodic Exception Messages 1819
Periodic Exceptions List 1818
Plan and Package Allocation 1891
Plan Table Entry 1926
Plan Table Entry List 1927
PREPARE Detail 1898
Put/Thread Confirmation 1866
query parallelism data
  statistics 1899
  thread activity 1856
Remote Location 1903
Requester Correlation Data 1834
RID list processing
  statistics 1900
  thread activity 1845
Session Options 1794, 2779
SQL activity
  statistics 1896
  thread activity 1846
SQL Statement and Package 1851
SQL Statement List (DBRMs) 1930
SQL Text Entry 1931
stored procedure
  statistics 1916
  thread activity 1862
Subsystem Service 1893
Table Information 1948
Thread Identification 1833
Thread Times 1839
Threads Holding Resource 1845
Trace Configuration 2754
Trace Qualification 2754
Trace Status Summary 2757
Trigger by Time 2755
Upgrade Plan Table 1923
wizard
  for object placement 2685
  for simulation 2601
WLQ exception 916
WORKFILE 1738, 1751
Workfile Database
  report and trace blocks
    Statistics 4482
Workfile Database Panel (DSNTIP91)
  report and trace blocks
    System Parameters 4608
workload 2803

W
WAIT command 939, 1101, 1107
  water marks
    Statistics 2515
WCLM exception 915
WDLK exception 916
web browser
  configure on z/OS 2683, 2698
  Web browser settings, specifying 2504
WGLK exception 916
  what's new 1, 2, 4833
where to find information 25
window
  Auto Display 1794
  backing detail facility 1915
  Bind Processing 1889
  Buffer Manager 1881
  Buffer Manager Activity 1849
  Buffer Pool 1882
  Buffer Pool Detail 1849
  CPU times and Other Data 1904
  Create Plan Table 1923
  Current DBRM 1837
  Current Package 1835
  Current SQLID 1795
  Data Capture 1908
  data sharing locking activity
    statistics 1909
  Data Sharing Locking Activity 1859
  Data to Collect 2753
  DB2 Command 1800
  DB2 Command Output 1799
  DB2 Commands 1905
  DB2 IFC Destinations 1907
  DB2 Instrumentation 1906
  DB2 Subsystem 1790
  DB2 Subsystems List 1790
  DB2 Thread Qualification Parameters 1868
  DB2 Thread Sort Specification 1872
  DBRM and Plan List 1929
  DBRM SQL Statement 1929
  DGOMAP10 2757
  DGOMAP30 2752
  DGOMAP31 2753
  DGOMAP32 2754
  DGOMAP33 2754
  DGOMAPA0 2755
  Display Exception List 1819
  Distributed Conversation Detail 1855
  distributed data
    statistics 1901
    thread activity 1853
  Distributed Location 1854
  EDM Pool 1880
  Exception Notification 1811
  Exception Output Data Sets 1815
  Global Group Buffer Pool
    Statistics 1914
  group buffer pool detail
    statistics 1912

W
WAIT command 939, 1101, 1107
  water marks
    Statistics 2515
WCLM exception 915
WDLK exception 916
web browser
  configure on z/OS 2683, 2698
  Web browser settings, specifying 2504
WGLK exception 916
  what's new 1, 2, 4833
where to find information 25
window
  Auto Display 1794
  backing detail facility 1915
  Bind Processing 1889
  Buffer Manager 1881
  Buffer Manager Activity 1849
  Buffer Pool 1882
  Buffer Pool Detail 1849
  CPU times and Other Data 1904
  Create Plan Table 1923
  Current DBRM 1837
  Current Package 1835
  Current SQLID 1795
  Data Capture 1908
  data sharing locking activity
    statistics 1909
  Data Sharing Locking Activity 1859
  Data to Collect 2753
  DB2 Command 1800
  DB2 Command Output 1799
  DB2 Commands 1905
  DB2 IFC Destinations 1907
  DB2 Instrumentation 1906
  DB2 Subsystem 1790
  DB2 Subsystems List 1790
  DB2 Thread Qualification Parameters 1868
  DB2 Thread Sort Specification 1872
  DBRM and Plan List 1929
  DBRM SQL Statement 1929
  DGOMAP10 2757
  DGOMAP30 2752
  DGOMAP31 2753
  DGOMAP32 2754
  DGOMAP33 2754
  DGOMAPA0 2755
  Display Exception List 1819
  Distributed Conversation Detail 1855
  distributed data
    statistics 1901
    thread activity 1853
  Distributed Location 1854
  EDM Pool 1880
  Exception Notification 1811
  Exception Output Data Sets 1815
  Global Group Buffer Pool
    Statistics 1914
  group buffer pool detail
    statistics 1912

W
WAIT command 939, 1101, 1107
  water marks
    Statistics 2515
WCLM exception 915
WDLK exception 916
web browser
  configure on z/OS 2683, 2698
  Web browser settings, specifying 2504
WGLK exception 916
  what's new 1, 2, 4833
where to find information 25
window
  Auto Display 1794
  backing detail facility 1915
  Bind Processing 1889
  Buffer Manager 1881
  Buffer Manager Activity 1849
  Buffer Pool 1882
  Buffer Pool Detail 1849
  CPU times and Other Data 1904
  Create Plan Table 1923
  Current DBRM 1837
  Current Package 1835
  Current SQLID 1795
  Data Capture 1908
  data sharing locking activity
    statistics 1909
  Data Sharing Locking Activity 1859
  Data to Collect 2753
  DB2 Command 1800
  DB2 Command Output 1799
  DB2 Commands 1905
  DB2 IFC Destinations 1907
  DB2 Instrumentation 1906
  DB2 Subsystem 1790
  DB2 Subsystems List 1790
  DB2 Thread Qualification Parameters 1868
  DB2 Thread Sort Specification 1872
  DBRM and Plan List 1929
  DBRM SQL Statement 1929
  DGOMAP10 2757
  DGOMAP30 2752
  DGOMAP31 2753
  DGOMAP32 2754
  DGOMAP33 2754
  DGOMAPA0 2755
  Display Exception List 1819
  Distributed Conversation Detail 1855
  distributed data
    statistics 1901
    thread activity 1853
  Distributed Location 1854
  EDM Pool 1880
  Exception Notification 1811
  Exception Output Data Sets 1815
  Global Group Buffer Pool
    Statistics 1914
  group buffer pool detail
    statistics 1912

W
WAIT command 939, 1101, 1107
  water marks
    Statistics 2515
WCLM exception 915
WDLK exception 916
web browser
  configure on z/OS 2683, 2698
  Web browser settings, specifying 2504
WGLK exception 916
  what's new 1, 2, 4833
where to find information 25
window
  Auto Display 1794
  backing detail facility 1915
  Bind Processing 1889
  Buffer Manager 1881
  Buffer Manager Activity 1849
  Buffer Pool 1882
  Buffer Pool Detail 1849
  CPU times and Other Data 1904
  Create Plan Table 1923
  Current DBRM 1837
  Current Package 1835
  Current SQLID 1795
  Data Capture 1908
  data sharing locking activity
    statistics 1909
  Data Sharing Locking Activity 1859
  Data to Collect 2753
  DB2 Command 1800
  DB2 Command Output 1799
  DB2 Commands 1905
  DB2 IFC Destinations 1907
  DB2 Instrumentation 1906
  DB2 Subsystem 1790
  DB2 Subsystems List 1790
  DB2 Thread Qualification Parameters 1868
  DB2 Thread Sort Specification 1872
  DBRM and Plan List 1929
  DBRM SQL Statement 1929
  DGOMAP10 2757
  DGOMAP30 2752
  DGOMAP31 2753
  DGOMAP32 2754
  DGOMAP33 2754
  DGOMAPA0 2755
  Display Exception List 1819
  Distributed Conversation Detail 1855
  distributed data
    statistics 1901
    thread activity 1853
  Distributed Location 1854
  EDM Pool 1880
  Exception Notification 1811
  Exception Output Data Sets 1815
  Global Group Buffer Pool
    Statistics 1914
  group buffer pool detail
    statistics 1912
workload detail
  SQL activity 4209
Workload Detail
  Lock Suspension Activity 4634
WORKLOAD subcommand option 4832
worksheet
  configuration planning 63
workspace 846, 1765
workspaces 2406
workspaces overview 2406
workstation
  configuring components on 406
  Performance Expert Client 9
  Tivoli Enterprise Portal 11, 1989
Workstation Online Monitor
  manage DB2 trace 2749
WRITEOPTION keyword 2768
WSPS exception 916
WSRV exception 916
WTRE exception 916

X
XACB
  display options 1491
XCF communication 400
XGRP command 1479
XI counter 2660
XMCH command 1480
  example 1481
  format 1480
XMLS command 1481
  using character format 1482
  using hex and character format 1482
XMSC command 1482
  example of hex and character 1483
XMZP command 1483
XOPT exception 1498

Z
z/OS
  configuring components on 324, 386, 397
zapping data-only space storage 1476
zoom function key
  see F11 886
ZOS Statistics 1749